



10 INDUSTRIAL AVENUE,
SUITE 3
MAHWAH, NJ 07430

PHONE: 201.684.0055
FAX: 201.684.0066

October 12, 2020

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

Notice of Exempt Modification
123 Pine Orchard Road Branford CT
Latitude 41.27455556
Longitude -72.79319444
T-Mobile site: CTNH801B / L600

Dear Ms. Bachman:

T-Mobile currently maintains (9) antennas at the 122-foot level of the existing 125-foot monopole tower at 123 Pine Orchard Road in Branford CT. The monopole is owned by American Tower and the property is owned by Malavasi Investments, LLC. T-Mobile now intends to replace (3) of its existing antennas with (3) 600 MHz / 700 MHz antennas at the 122-foot level of the tower per the attached mount analysis..

Planned Modifications:

Remove

(6) 1-5/8" coax

Remove and Replace:

Antennas:

(3) Andrew – LNX-6515DS-A1M (remove) – (3) APXVAARR24_43-U-NA20 (replace) - 600 MHz/700 MHz

RRUs:

(3) Ericsson RRUS 11 B12 (remove) – (3) Ericsson Radio 4449 B12, B71 (replace)

Existing to Remain:

(3) Ericsson AIR 21, 1.3M, B4A B2P - 1900 MHz/2100 MHz

(3) Ericsson AIR 21, 1.3 M, B2A B4P - 2100 MHz

(3) KRY 112 144/1 - TMA

(1) 1-5/8" hybrid

Install New:

(3) 1-5/8" hybrid

This facility was approved by the Council as Docket 386 on February 25, 2010, with no known conditions that would restrict exempt modifications. A copy of the original decision is attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to The Honorable James B. Cosgrove, First Selectman, and Harry Smith, Town Planner.

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,



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

cc:

The Honorable James B. Cosgrove, First Selectman
Harry Smith, Town Planner
American Tower, Tower Owner
Malavasi Investments, Property Owner

Exhibit A

Original Facility Approval

DOCKET NO. 386 – T-Mobile Northeast LLC application for a } Connecticut
Certificate of Environmental Compatibility and Public Need for }
the construction, maintenance and management of a } Siting
telecommunications facility located at 123 Pine Orchard Road, } Council
Branford, Connecticut. }

February 25, 2010

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, maintenance, and management of a telecommunications facility, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to T-Mobile Northeast LLC, hereinafter referred to as the Certificate Holder, for a telecommunications facility at 123 Pine Orchard Road, Branford, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of T-Mobile Northeast LLC and New Cingular Wireless PCS LLC and other entities, both public and private, but such tower shall not exceed a height of 125 feet above ground level. Panel antennas shall be installed in a flush-mount configuration or utilizing t-arm mounts and such panel antennas shall not exceed a height of 125 feet above ground level.
2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Branford for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
 - a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, and landscaping; and
 - b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.
 - c) correspondence indicating results of discussions with the property owner at 119 Pine Orchard Road regarding continued use of the existing driveway entrance. If an agreement cannot be reached and the driveway is expanded as proposed, a 12-foot spruce tree shall be planted in the front yard of 121 Pine Orchard Road.

3. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.
4. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.
5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
6. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town of Branford public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.
7. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed and providing wireless services within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline.
8. At least one wireless telecommunications carrier shall install their equipment and shall become operational not later than 120 days after the tower is erected. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.
9. Any request for extension of the time period referred to in Condition 7 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of Branford. Any proposed modifications to this Decision and Order shall likewise be so served.
10. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.
11. The Certificate Holder shall remove any nonfunctioning antenna, and associated antenna mounting equipment, within 60 days of the date the antenna ceased to function.

12. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.

Pursuant to General Statutes § 16-50p, the Council hereby directs that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in the New Haven Register.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

Applicant

T-Mobile Northeast LLC

Its Representative

Julie D. Kohler, Esq.
Monte E. Frank, Esq.
Jesse A. Langer, Esq.
Cohen and Wolf, P.C.
1115 Broad Street
Bridgeport, CT 06604

Intervenor

New Cingular Wireless PCS, LLC

Its Representative

Christopher B. Fisher, Esq.
Daniel M. Laub, Esq.
Cuddy & Feder LLP
445 Hamilton Avenue, 14th Floor
White Plains, NY 10601

Exhibit B

Property card

123 PINE ORCHARD RD

Location 123 PINE ORCHARD RD

Mblu F08/000 006/ 00049/ /

Acct# 003607

Owner MALAVASI INVESTMENTS LLC

Assessment \$417,900

Appraisal \$596,900

PID 1046

Building Count 2

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2019	\$249,100	\$347,800	\$596,900

Assessment			
Valuation Year	Improvements	Land	Total
2019	\$174,400	\$243,500	\$417,900

Owner of Record

Owner MALAVASI INVESTMENTS LLC

Sale Price \$537,500

Co-Owner

Certificate

Address 35 STONY CREEK RD
BRANFORD, CT 06405

Book & Page 0802/0624

Sale Date 02/13/2003

Instrument 25

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
MALAVASI INVESTMENTS LLC	\$537,500		0802/0624	25	02/13/2003
PRIFITERA BARBARA A &	\$0		0802/0622	25	02/13/2003
GIORDANO ANTHONY EST OF	\$0		0802/0621		02/13/2003
GIORDANO ANTHONY	\$0		0695/0932		03/23/2000
GIORDANO ANTHONY + HELEN EST	\$0		0425/0520		

Building Information

Building 1 : Section 1

Year Built:

1941

Building Photo

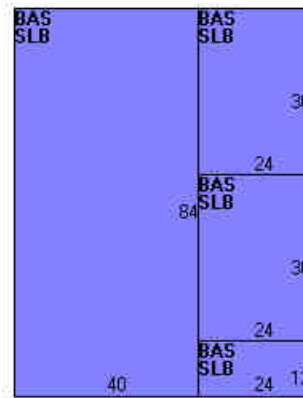
Living Area: 5,376
Replacement Cost: \$270,897
Building Percent Good: 55
Replacement Cost
Less Depreciation: \$149,000



(<http://images.vgsi.com/photos/BranfordCTPhotos/\00\01\40\24.jpg>)

Building Attributes	
Field	Description
STYLE	Service Shop
MODEL	Ind/Comm
Grade	C
Stories:	1
Occupancy	1
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Oil
Heating Type	Hot Air-no Duc
AC Type	None
Bldg Use	COMM WHS MDL96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	3160
Heat/AC	NONE
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEILING ONLY
Rooms/Prtns	AVERAGE
Wall Height	15
% Comn Wall	

Building Layout



(http://images.vgsi.com/photos/BranfordCTPhotos//Sketches/1046_1046.jp)

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	5,376	5,376
SLB	Slab	5,376	0
		10,752	5,376

Building 2 : Section 1

Year Built: 1974
Living Area: 500
Replacement Cost: \$20,948
Building Percent Good: 70
Replacement Cost
Less Depreciation: \$14,700

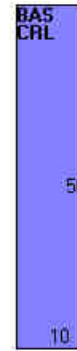
Field	Description
Style	Mobile Home
Model	Residential
Grade:	C -
Stories:	1 Story
Occupancy	1
Exterior Wall 1	Pre-finish Metl
Exterior Wall 2	
Roof Structure:	Gable/Hip
Roof Cover	Metal/Tin
Interior Wall 1	Plywood Panel
Interior Wall 2	
Interior Flr 1	Carpet
Interior Flr 2	
Heat Fuel	Electric
Heat Type:	Forced Air-Duc
AC Type:	None
Total Bedrooms:	00
Total Bthrms:	0
Total Half Baths:	0
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Cottage Cmplx	
Cottage Adj	

Building Photo



(<http://images.vgsi.com/photos/BranfordCTPhotos/\00\01\40\23.jpg>)

Building Layout



(http://images.vgsi.com/photos/BranfordCTPhotos//Sketches/1046_13837.j)

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	500	500
CRL	Crawl Space	500	0
		1,000	500

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
MEZ1	MEZZANINE-UNF	379 S.F.	\$2,100	1
GEN2	GEN 15-30KW PRMT BKP	1 UNITS	\$10,000	1
GEN4	GEN 100+ KW PRMT BKP	1 UNITS	\$53,700	2

Land

Land Use

Land Line Valuation

Use Code 3160
Description COMM WHS MDL96
Zone R3
Neighborhood 0070
Alt Land Appr No
Category

Size (Acres) 3.76
Frontage
Depth
Assessed Value \$243,500
Appraised Value \$347,800

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
PAV1	PAVING-ASPHALT			1000 S.F.	\$500	1
FN4	FENCE-8' CHAIN			272 L.F.	\$3,300	2
SHD6	SHED COM MAS			240 S.F.	\$5,300	2
SHD6	SHED COM MAS			288 S.F.	\$7,300	2
PAV2	PAVING-CONC			959 S.F.	\$3,200	2

Valuation History

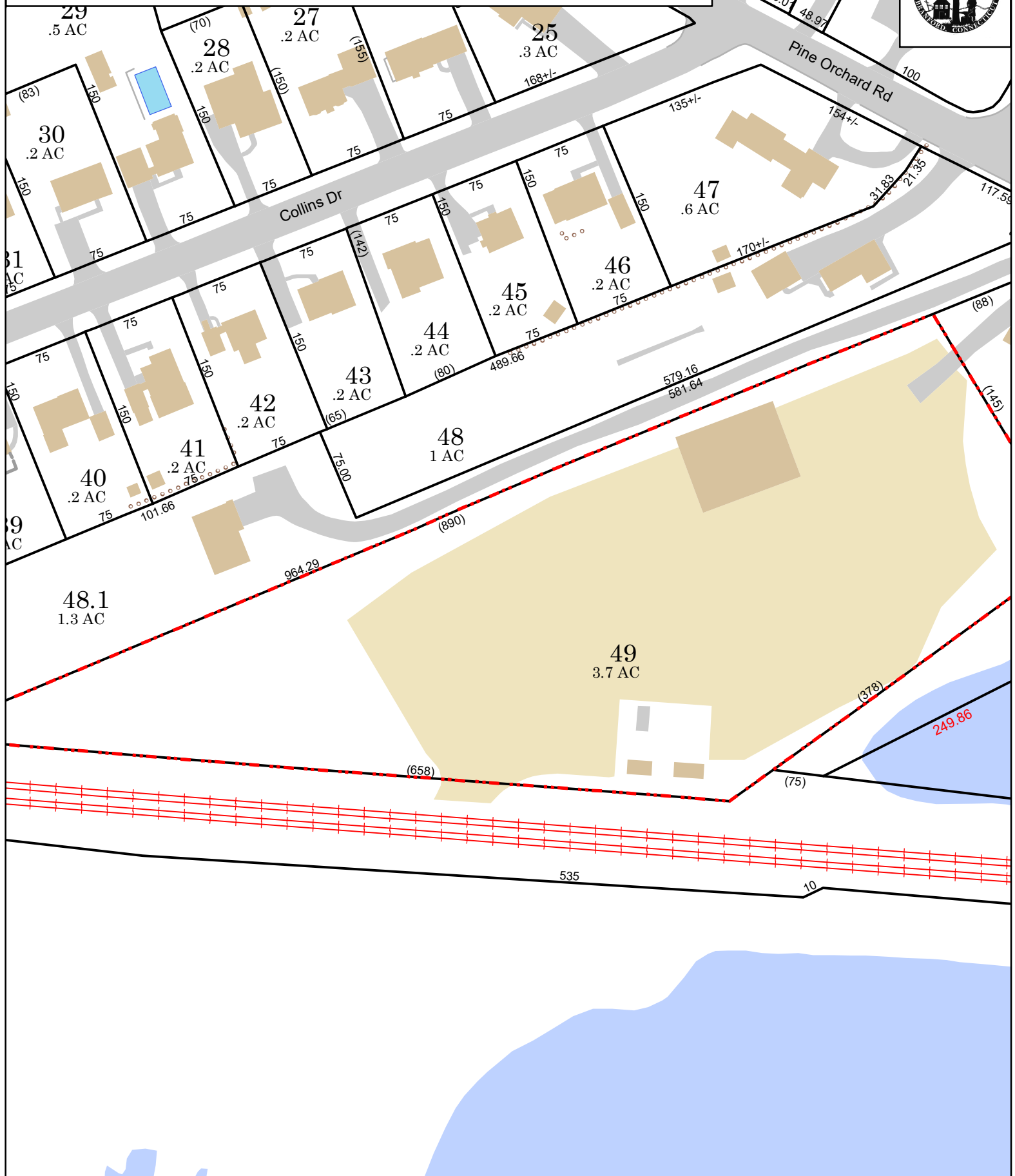
Appraisal			
Valuation Year	Improvements	Land	Total
2019	\$249,100	\$347,800	\$596,900
2018	\$221,100	\$341,800	\$562,900
2017	\$221,100	\$341,800	\$562,900

Assessment			
Valuation Year	Improvements	Land	Total
2019	\$174,400	\$243,500	\$417,900
2018	\$154,700	\$239,300	\$394,000
2017	\$154,700	\$239,300	\$394,000

Town of Branford, Connecticut - Assessment Parcel Map

Parcel: F08-000-006-00049

Address: 123 PINE ORCHARD RD



Approximate Scale: 1 inch : 100 feet

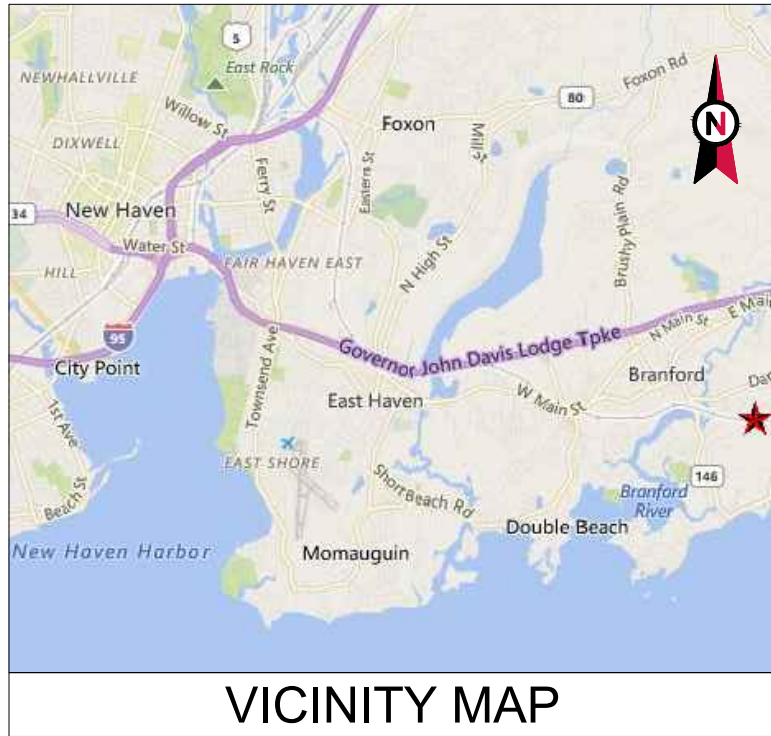
Grand List Date October 2019

Disclaimer:

This map is for informational purposes only. All information is subject to verification by any user. The Town of Branford and its mapping contractors assume no legal responsibility for the information contained herein.

Exhibit C

Construction Drawings

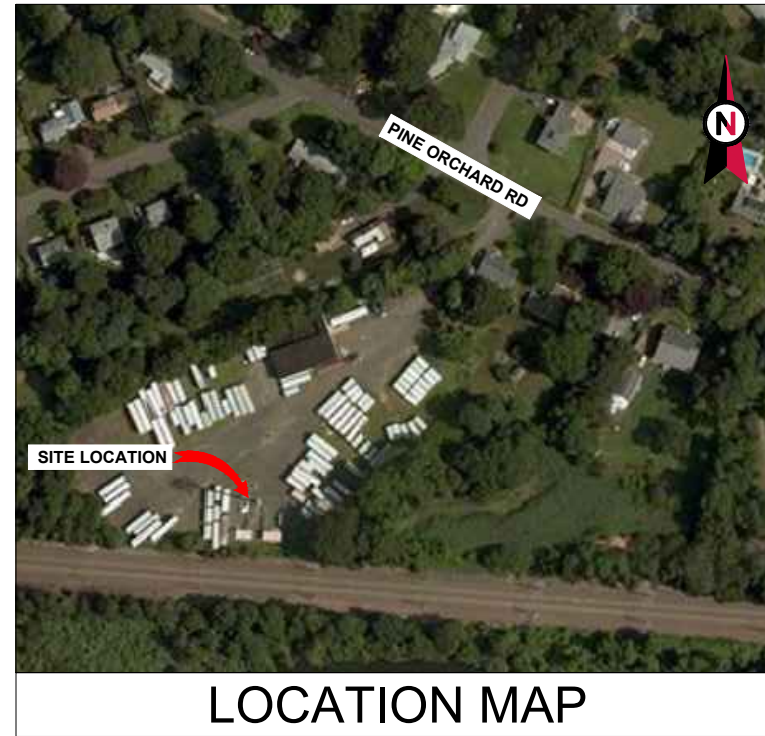


VICINITY MAP



AMERICAN TOWER®

**ATC SITE NAME: PINE ORCHARD
BRANFORD CT
ATC SITE NUMBER: 283419
T-MOBILE SITE ID: CTNH801B
SITE ADDRESS: 123 PINE ORCHARD ROAD
BRANFORD, CT 06405
T-MOBILE L600 ANTENNA AMENDMENT
67D02C CONFIGURATION**



LOCATION MAP

**BIRD WATCH SITE:
PLEASE CONTACT BIRD.WATCH@AMERICANTOWER.COM OR
AMERICAN TOWER NOC AT 877-518-6937 FOR ASSISTANCE**

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	EF	06/25/19
1	REV. ANT. MODEL & MA	EB	07/25/19
2	MOUNT MODS	EB	09/04/20
3	REV PROJECT DESCRIPTION	EB	09/08/20

ATC SITE NUMBER:
283419
ATC SITE NAME:
**PINE ORCHARD
BRANFORD CT**
SITE ADDRESS:
123 PINE ORCHARD ROAD
BRANFORD, CT 06405



Authorized by "Patrick P. Barry"
09 Sep 2020 07:06:52
T-Mobileesign

DRAWN BY:	EF
APPROVED BY:	PB
DATE DRAWN:	06/25/19
ATC JOB NO:	12951856

TITLE SHEET
SHEET NUMBER:
G-001
REVISION:
3

COMPLIANCE CODE	PROJECT SUMMARY	PROJECT DESCRIPTION	SHEET INDEX																																																																
<p>ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNMENT AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.</p> <p>1. INTERNATIONAL BUILDING CODE (IBC) 2. NATIONAL ELECTRIC CODE (NEC) 3. LOCAL BUILDING CODE 4. CITY/COUNTY ORDINANCES</p>	<p><u>SITE ADDRESS:</u> 123 PINE ORCHARD ROAD BRANFORD, CT 06405 COUNTY: NEW HAVEN</p> <p><u>1A CERTIFICATE SUMMARY:</u> LATITUDE: 41° 16' 29.50" N LONGITUDE: 72° 47' 35.08" W GROUND ELEVATION: 31' AMSL TOWER HEIGHT: 125' AGL</p>	<p>THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW:</p> <p>REMOVE (3) PANELS, (3) TTAs, (3) RRU's, AND (6) 1-5/8" COAX CABLES</p> <p>INSTALL (3) NEW PANELS, (3) TTAs, (3) RRU's, (3) 1-5/8" HYBRID CABLES, AND MOUNT MODIFICATIONS.</p> <p>EXISTING (6) PANELS, (6) 1-5/8" COAX CABLES, AND (1) 1-5/8" HYBRID CABLE TO REMAIN</p>	SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:																																																												
	<p><u>PROJECT TEAM</u></p> <p><u>TOWER OWNER:</u> AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801</p> <p><u>ENGINEER:</u> ATC TOWER SERVICES, LLC 3500 REGENCY PKWY STE 100 CARY, NC 27518</p> <p><u>PROPERTY OWNER:</u> MALAVASI INVESTMENTS LLC 35 STONY CREEK ROAD BRANFORD, CT, 06405</p>	<p>PROJECT NOTES</p> <ol style="list-style-type: none"> THE FACILITY IS UNMANNED. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED. HANDICAP ACCESS IS NOT REQUIRED. 	<table border="1"> <tr><td>G-001</td><td>TITLE SHEET</td><td>3</td><td>09/08/20</td><td>EB</td></tr> <tr><td>G-002</td><td>GENERAL NOTES</td><td>0</td><td>06/25/19</td><td>EF</td></tr> <tr><td>C-101</td><td>DETAILED SITE PLAN & TOWER ELEVATION</td><td>2</td><td>09/04/20</td><td>EB</td></tr> <tr><td>C-501</td><td>ANTENNA INFORMATION & SCHEDULE</td><td>2</td><td>09/04/20</td><td>EB</td></tr> <tr><td>E-501</td><td>GROUNDING DETAILS</td><td>0</td><td>06/25/19</td><td>EF</td></tr> <tr><td>R-601</td><td>SUPPLEMENTAL</td><td></td><td></td><td></td></tr> <tr><td>R-602</td><td>SUPPLEMENTAL</td><td></td><td></td><td></td></tr> <tr><td>T-1</td><td>TITLE SHEET & INDEX DRAWING</td><td></td><td></td><td></td></tr> <tr><td>GN-1</td><td>STRUCTURAL NOTES</td><td></td><td></td><td></td></tr> <tr><td>IN-1</td><td>MODIFICATION INSPECTION NOTES</td><td></td><td></td><td></td></tr> <tr><td>S-1</td><td>MOUNT VIEWS & MODIFICAITON SCHEDULE</td><td></td><td></td><td></td></tr> <tr><td>S-2</td><td>MODIFICATION DETAIL VIEWS</td><td></td><td></td><td></td></tr> <tr><td>S-3</td><td>REFERENCE CUT SHEET</td><td></td><td></td><td></td></tr> </table>	G-001	TITLE SHEET	3	09/08/20	EB	G-002	GENERAL NOTES	0	06/25/19	EF	C-101	DETAILED SITE PLAN & TOWER ELEVATION	2	09/04/20	EB	C-501	ANTENNA INFORMATION & SCHEDULE	2	09/04/20	EB	E-501	GROUNDING DETAILS	0	06/25/19	EF	R-601	SUPPLEMENTAL				R-602	SUPPLEMENTAL				T-1	TITLE SHEET & INDEX DRAWING				GN-1	STRUCTURAL NOTES				IN-1	MODIFICATION INSPECTION NOTES				S-1	MOUNT VIEWS & MODIFICAITON SCHEDULE				S-2	MODIFICATION DETAIL VIEWS				S-3	REFERENCE CUT SHEET		
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<p><u>UTILITY COMPANIES</u></p> <p>POWER COMPANY: EVERSOURCE PHONE: (877) 659-6326</p> <p>TELEPHONE COMPANY: FRONTIER COMMUNICATIONS PHONE: (800) 376-6843</p>	<p><u>PROJECT LOCATION DIRECTIONS</u></p> <p>FROM DOWNTOWN NEW HAVEN CT START OUT GOING NORTHEAST ON CHURCH ST TOWARD WALL ST. CHURCH ST BECOMES WHITNEY AVE TURN RIGHT ONTO TRUMBULL ST. TURN SLIGHT LEFT TO TAKE THE I-91 S/I-91 N RAMP. MERGE ONTO I-91 S TOWARD I-95/NEW LONDON/N.Y.CITY. MERGE ONTO I-95 N/GOVERNOR JOHN DAVIS LODGE TPKE N VIA THE EXIT ON THE LEFT TOWARD NEW LONDON. TAKE THE CEDAR ST EXIT, EXIT 54, TOWARD BRANFORD. TAKE THE CEDAR ST EXIT, EXIT 54, TOWARD BRANFORD. TURN LEFT ONTO MAIN ST/CT-146. TURN SLIGHT RIGHT ONTO S MAIN ST/CT-146. TURN RIGHT ONTO MONTOWESE ST/CT-146. TAKE THE 3RD LEFT ONTO PINE ORCHARD RD. TAKE THE 3RD RIGHT TO STAY ON PINE ORCHARD RD. SITE IS IN THE PROPERTY OF ACE TRANSPORTATION & STORAGE</p>																																																																		



Know what's below.
Call before you dig.

GENERAL CONSTRUCTION NOTES:

1. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSIEIA/TIA-222, AND COMPLY WITH ATC MASTER SPECIFICATIONS.
2. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
4. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
5. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
6. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
7. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
8. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
9. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
10. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE T-MOBILE WIRELESS REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE T-MOBILE WIRELESS REP PRIOR TO PROCEEDING.
11. EACH CONTRACTOR SHALL COOPERATE WITH THE T-MOBILE WIRELESS REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
12. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE T-MOBILE WIRELESS CONSTRUCTION MANAGER.
13. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
14. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE T-MOBILE WIRELESS REP IMMEDIATELY.
15. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
16. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
17. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH LANDLORD AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
18. CONTRACTOR SHALL FURNISH T-MOBILE WIRELESS WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
19. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE WIRELESS REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED.
20. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE WIRELESS REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY T-MOBILE WIRELESS MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
21. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH T-MOBILE WIRELESS SPECIFICATIONS AND REQUIREMENTS.
22. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO T-MOBILE WIRELESS FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
23. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO T-MOBILE WIRELESS SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
24. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
25. CONTRACTOR SHALL NOTIFY T-MOBILE WIRELESS REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
26. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.

27. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
28. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE T-MOBILE WIRELESS REP. ANY WORK FOUND BY THE T-MOBILE WIRELESS REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
29. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
2. STRUCTURAL STEEL ROLLED SHAPES, PLATES AND BARS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:
 - A. ASTM A-572, GRADE 50 - ALL W SHAPES, UNLESS NOTED OR A992 OTHERWISE
 - B. ASTM A-36 - ALL OTHER ROLLED SHAPES, PLATES AND BARS UNLESS NOTED OTHERWISE.
 - C. ASTM A-500, GRADE B - HSS SECTION (SQUARE, RECTANGULAR, AND ROUND)
 - D. ASTM A-325, TYPE SC OR N - ALL BOLTS FOR CONNECTING STRUCTURAL MEMBERS
 - E. ASTM F-1554 07 - ALL ANCHOR BOLTS, UNLESS NOTED OTHERWISE
3. ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
4. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.
5. DO NOT DRILL HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
6. CONNECTIONS:
 - A. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
 - B. ALL WELDS SHALL BE INSPECTED VISUALLY. 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.
 - C. INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
 - D. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE BURNING/WELDING PERMITS AS REQUIRED BY LOCAL GOVERNING AUTHORITY AND IF REQUIRED SHALL HAVE FIRE DEPARTMENT DETAIL FOR ANY WELDING ACTIVITY.
 - E. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.
 - F. MINIMUM WELD SIZE TO BE 0.1875 INCH FILLET WELDS, UNLESS NOTED OTHERWISE.
 - G. PRIOR TO FIELD WELDING GALVANIZING MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING 1/2" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.



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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	EF	06/25/19


ATC SITE NUMBER:
283419

ATC SITE NAME:
PINE ORCHARD
BRANFORD CT

SITE ADDRESS:
 123 PINE ORCHARD ROAD
 BRANFORD, CT 06405



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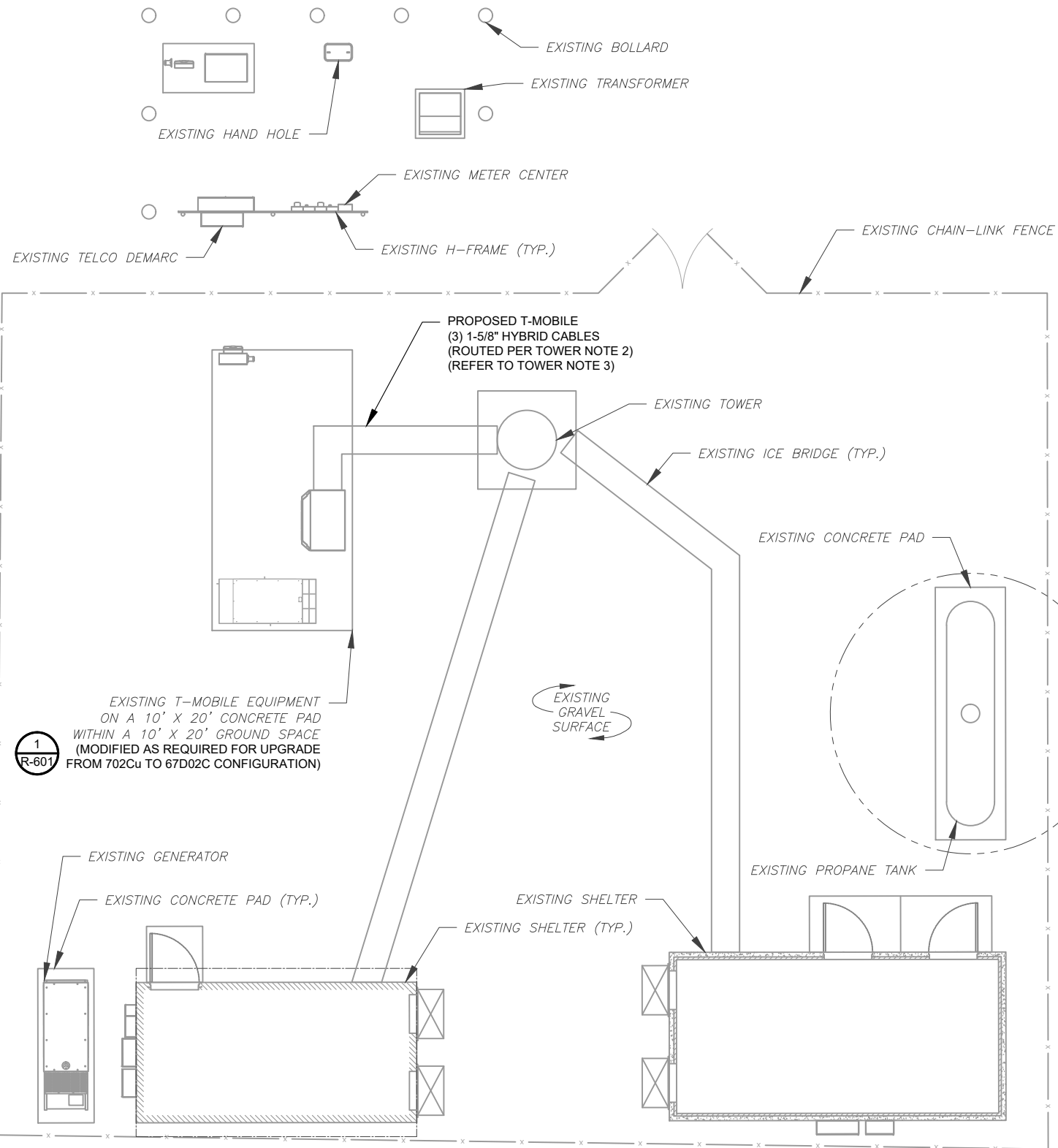
DRAWN BY:	EF
APPROVED BY:	PB
DATE DRAWN:	06/25/19
ATC JOB NO:	12951856

GENERAL NOTES

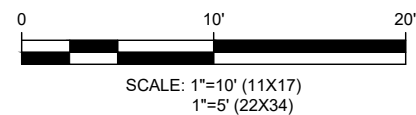
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G-002	0

SITE PLAN NOTES:

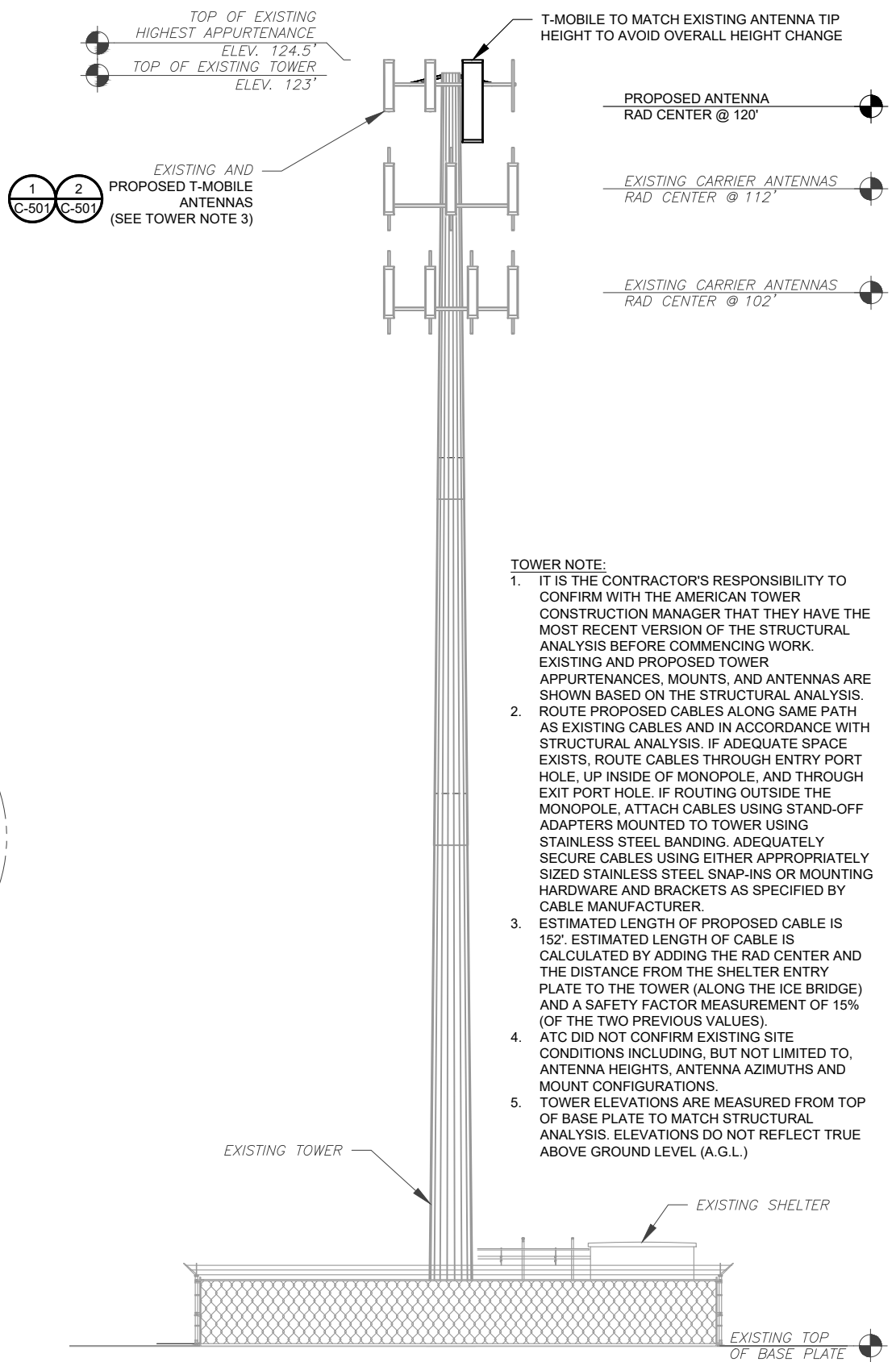
1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.
3. THIS PROJECT INCLUDES NO INSTALL OR MODIFICATION AT GRADE.



1 DETAILED SITE PLAN



PER MOUNT ANALYSIS COMPLETED BY CLS ENGINEERING, DATED 09/03/20, THE EXISTING MOUNT CAN NOT ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT MODIFICATION PROPOSED IN THE MOUNT ANALYSIS, INCLUDED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT



2 TOWER ELEVATION
SCALE: NOT TO SCALE

- TOWER NOTE:**
1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE AMERICAN TOWER CONSTRUCTION MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.
 2. ESTIMATED LENGTH OF PROPOSED CABLE IS 152'. ESTIMATED LENGTH OF CABLE IS CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM THE SHELTER ENTRY PLATE TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES).
 3. ATC DID NOT CONFIRM EXISTING SITE CONDITIONS INCLUDING, BUT NOT LIMITED TO, ANTENNA HEIGHTS, ANTENNA AZIMUTHS AND MOUNT CONFIGURATIONS.
 4. TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	EF	06/25/19
1	REV. ANT. MODEL & MA	EB	07/25/19
2	MOUNT MODS	EB	09/04/20

ATC SITE NUMBER:
283419

ATC SITE NAME:
**PINE ORCHARD
BRANFORD CT**

SITE ADDRESS:
123 PINE ORCHARD ROAD
BRANFORD, CT 06405



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09 Sep 2020 07:06:52

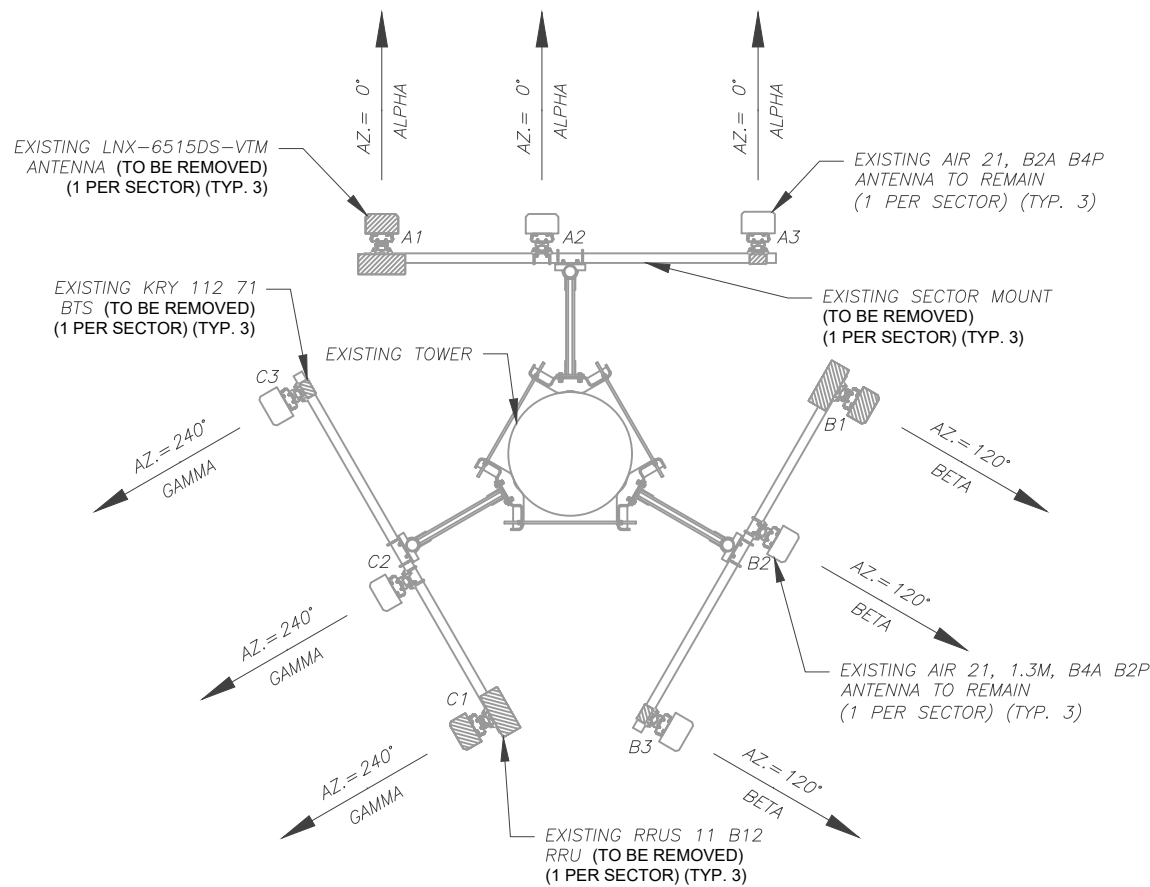
DRAWN BY:	EF
APPROVED BY:	PB
DATE DRAWN:	06/25/19
ATC JOB NO:	12951856

DETAILED SITE PLAN & TOWER ELEVATION

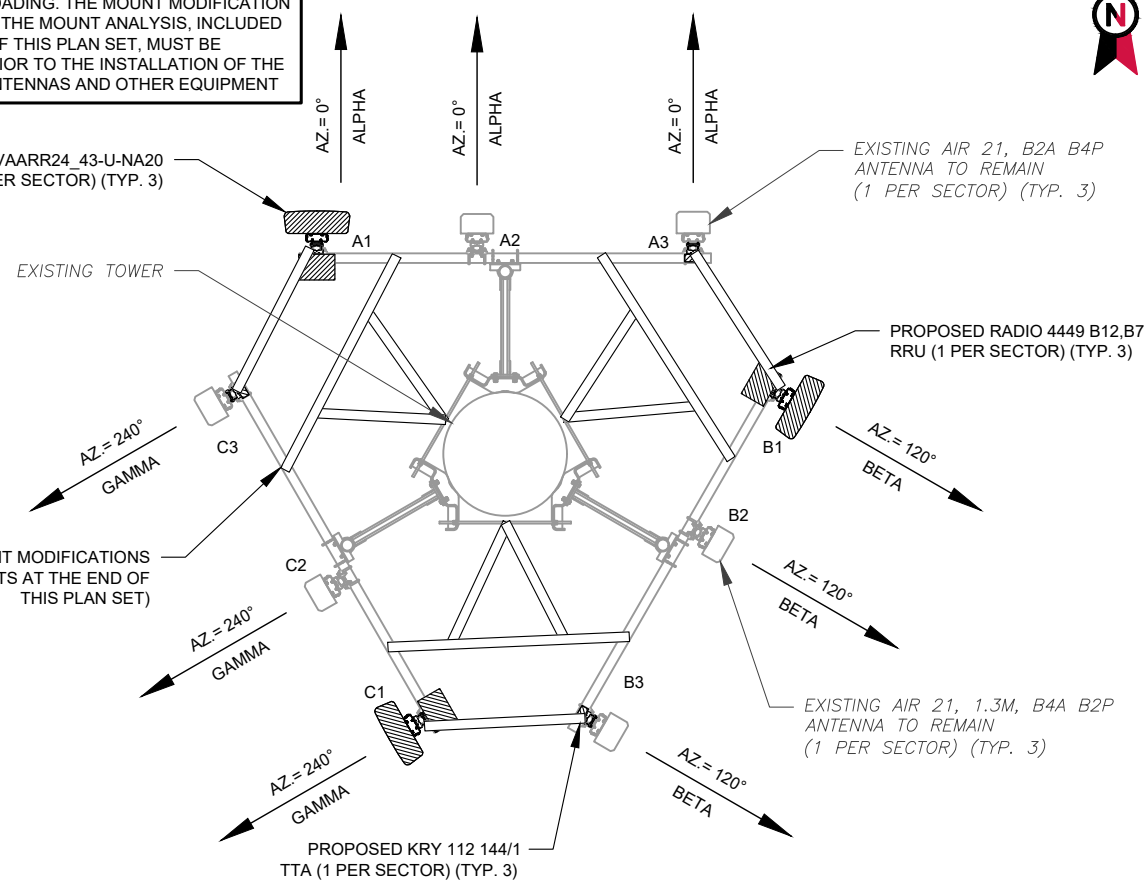
SHEET NUMBER:	REVISION:
C-101	2

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PER MOUNT ANALYSIS COMPLETED BY CLS ENGINEERING, DATED 09/03/20, THE EXISTING MOUNT CAN NOT ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT MODIFICATION PROPOSED IN THE MOUNT ANALYSIS, INCLUDED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT



1 EXISTING ANTENNA PLAN



2 FINAL ANTENNA PLAN

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0	FOR CONSTRUCTION	EF	06/25/19
1	REV. ANT. MODEL & MA	EB	07/25/19
2	MOUNT MODS	EB	09/04/20

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283419
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BRANFORD CT
 SITE ADDRESS:
 123 PINE ORCHARD ROAD
 BRANFORD, CT 06405

SEAL:

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DATE DRAWN:	06/25/19
ATC JOB NO:	12951856

ANTENNA INFORMATION & SCHEDULE

SHEET NUMBER:	REVISION:
C-501	2

	A	B	C	D	E	F	G	H
1	EXISTING ANTENNA / EQUIPMENT SCHEDULE							
2	SECTOR	ANT.	MANUFACTURER (MODEL #)	RAD CENTER	AZIMUTH (TN)	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT
3	ALPHA	A1	LNX-6515DS-VTM	122'-0"	0°	0°	2°	RRUS 11 B12
4	ALPHA	A2	AIR 21, 1.3M, B4A B2P	122'-0"	0°	0°	2°	-
5	ALPHA	A3	AIR 21, 1.3M, B2A B4P	122'-0"	0°	0°	2°	KRY 112 71
6	BETA	B1	LNX-6515DS-VTM	122'-0"	120°	0°	2°	RRUS 11 B12
7	BETA	B2	AIR 21, 1.3M, B4A B2P	122'-0"	120°	0°	2°	-
8	BETA	B3	AIR 21, 1.3M, B2A B4P	122'-0"	120°	0°	2°	KRY 112 71
9	GAMMA	C1	LNX-6515DS-VTM	122'-0"	240°	0°	2°	RRUS 11 B12
10	GAMMA	C2	AIR 21, 1.3M, B4A B2P	122'-0"	240°	0°	2°	-
11	GAMMA	C3	AIR 21, 1.3M, B2A B4P	122'-0"	240°	0°	2°	KRY 112 71

- NOTES
- BASED ON APPROVED ATC APPLICATION 12927144, DATED 04/02/2019. CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
 - ATC HAS NOT YET VERIFIED ANY EXISTING ANTENNA CONFIG OR MOUNT CONFIG. CONTRACTOR TO VERIFY MOUNT CONFIG HAS SUFFICIENT SPACE FOR PROPOSED LESSEE EQUIPMENT (EQUIP) (I.E. CLEARANCES, MOUNT PIPE, SUFFICIENT LENGTH, ETC.) ATC DID NOT ANALYZE ANTENNA MOUNT TO DETERMINE ADEQUATE STRUCTURAL CAPACITY FOR ANY LESSEE LOADING.
 - ALL PROPOSED EQUIP INCLUDING ANTENNAS, COAX, ETC. SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS ON FILE WITH ATC'S CM.
 - CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.
 - POSITIONS START WITH FIRST PIPE ON THE LEFT SIDE (AS VIEWED FROM BEHIND THE MOUNT).

	FINAL ANTENNA / EQUIPMENT SCHEDULE							
	SECTOR	ANT.	MANUFACTURER (MODEL #)	RAD CENTER	AZIMUTH (TN)	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT
	ALPHA	A1	APXVAARR24_43-U-NA20	120'-0"	0°	0°	2°	RADIO 4449 B12,B71
	ALPHA	A2	AIR 21, 1.3M, B4A B2P	122'-0"	0°	0°	2°	-
	ALPHA	A3	AIR 21, 1.3M, B2A B4P	122'-0"	0°	0°	2°	KRY 112 144/1
	BETA	B1	APXVAARR24_43-U-NA20	120'-0"	120°	0°	2°	RADIO 4449 B12,B71
	BETA	B2	AIR 21, 1.3M, B4A B2P	122'-0"	120°	0°	2°	-
	BETA	B3	AIR 21, 1.3M, B2A B4P	122'-0"	120°	0°	2°	KRY 112 144/1
	GAMMA	C1	APXVAARR24_43-U-NA20	120'-0"	240°	0°	2°	RADIO 4449 B12,B71
	GAMMA	C2	AIR 21, 1.3M, B4A B2P	122'-0"	240°	0°	2°	-
	GAMMA	C3	AIR 21, 1.3M, B2A B4P	122'-0"	240°	0°	2°	KRY 112 144/1

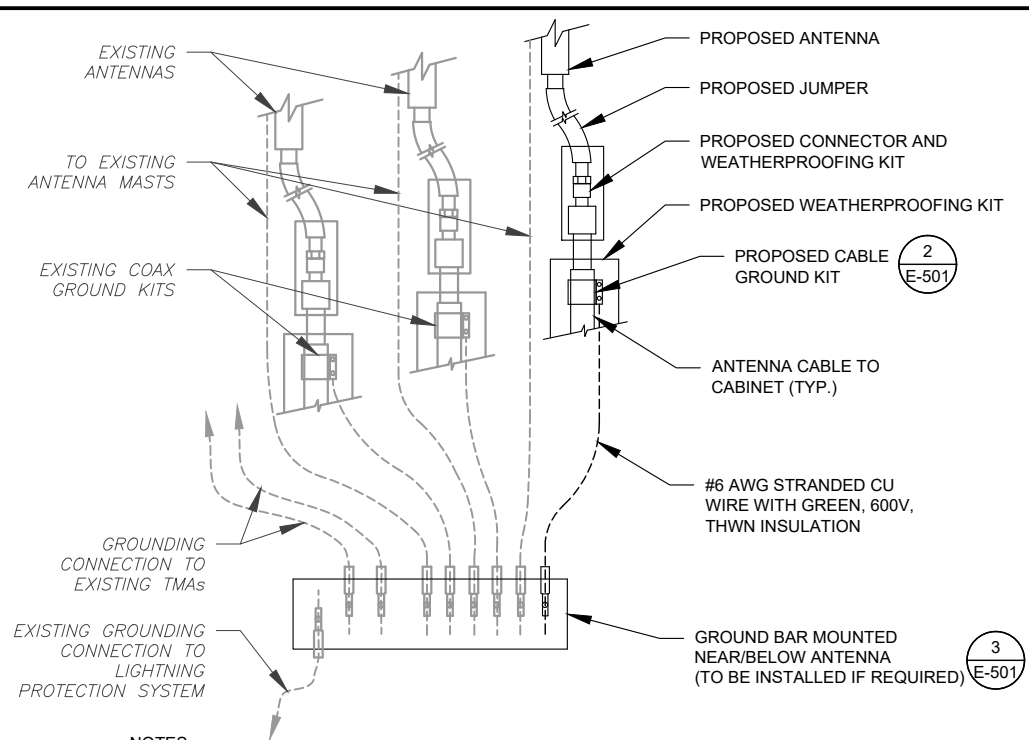
CURRENT FIBER DISTRIBUTION/OVP BOX		CURRENT CABLING SUMMARY			STATUS ABBREVIATIONS		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS	RMV:	REL:	DSC:
-	-	(6) 1-5/8"	(1) 1-5/8"	RMN	TO BE REMOVED	TO BE RELOCATED	TO BE DISCONNECTED & REMAIN
-	-	(6) 1-5/8"	-	RMV	TO BE ADDED		

3 ANTENNA SCHEDULE

CABLE LENGTHS FOR JUMPERS
 FIBER DISTRIBUTION/OVP TO RRU: 15'
 RRU TO COMBINER: 10'
 COMBINER TO ANTENNA: 10'

PROPOSED FIBER DISTRIBUTION/OVP BOX		PROPOSED CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	(6) 1-5/8"	(1) 1-5/8"	RMN
-	-	-	(3) 1-5/8"	ADD

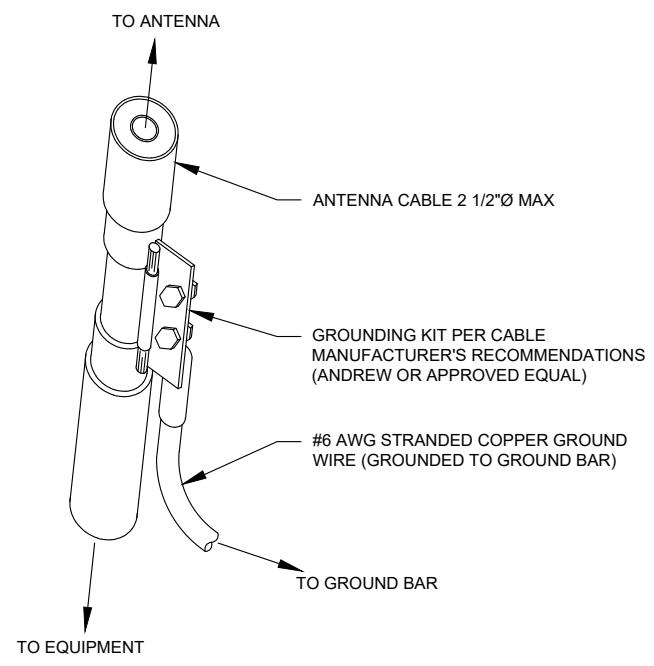
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NOTES:

1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH T-MOBILE GROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH T-MOBILE GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.

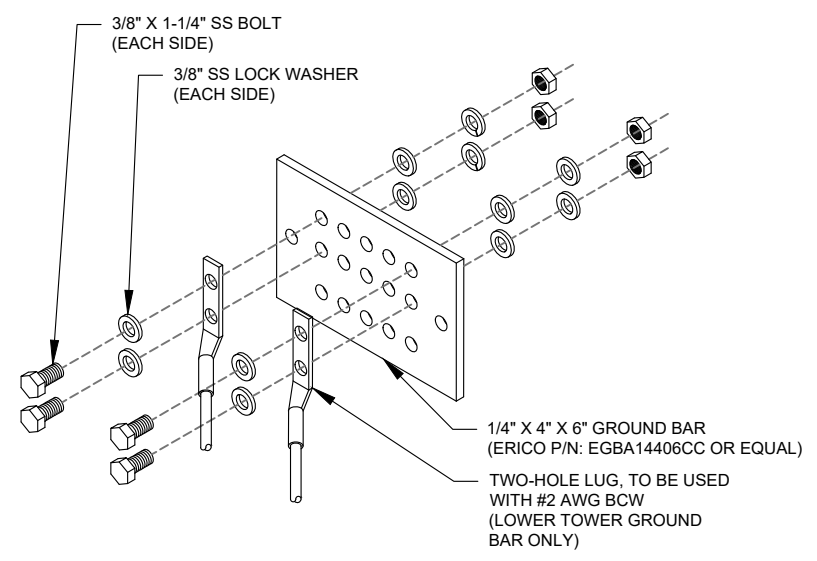
1 TYPICAL ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE



GROUND KIT NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. CONTRACTOR SHALL PROVIDE WEATHERPROOFING KIT (ANDREW PART NUMBER 221213) AND INSTALL/TAPE PER MANUFACTURER'S SPECIFICATIONS.

2 CABLE GROUND KIT CONNECTION DETAIL
SCALE: NOT TO SCALE



GROUND BAR NOTES:

1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

3 TOWER GROUND BAR DETAIL
SCALE: NOT TO SCALE

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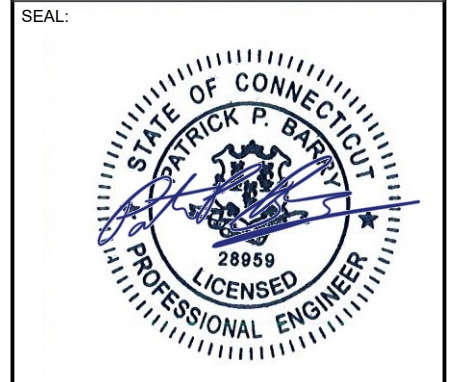
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0	FOR CONSTRUCTION	EF	06/25/19

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283419

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BRANFORD CT**

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DRAWN BY:	EF
APPROVED BY:	PB
DATE DRAWN:	06/25/19
ATC JOB NO:	12951856

GROUNDING DETAILS

SHEET NUMBER:	REVISION:
E-501	0

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Existing RAN Equipment	
Template: 702Cu	
Enclosure	1
Enclosure Type	RBS 6131
Baseband	DUW30 (x2) DUG20 DUS41
Hybrid Cable System	Ericsson 9x18 HCS *Select Length*
Radio	RU22 (x 6)

Proposed RAN Equipment	
Template: 67D02C Outdoor	
Enclosure	1
Enclosure Type	RBS 6131
Baseband	DUW30 U2100 DUW30 U1900 DUG20 G1900 BB 6630 L2100 L700 L600 BB 6630 N600 [DARK]
Hybrid Cable System	Ericsson 9x18 HCS *Select Length* Ericsson 6x12 HCS *Select Length & AWG* (x 3)
Radio	RU22 (x 6) U2100

RAN Scope of Work:

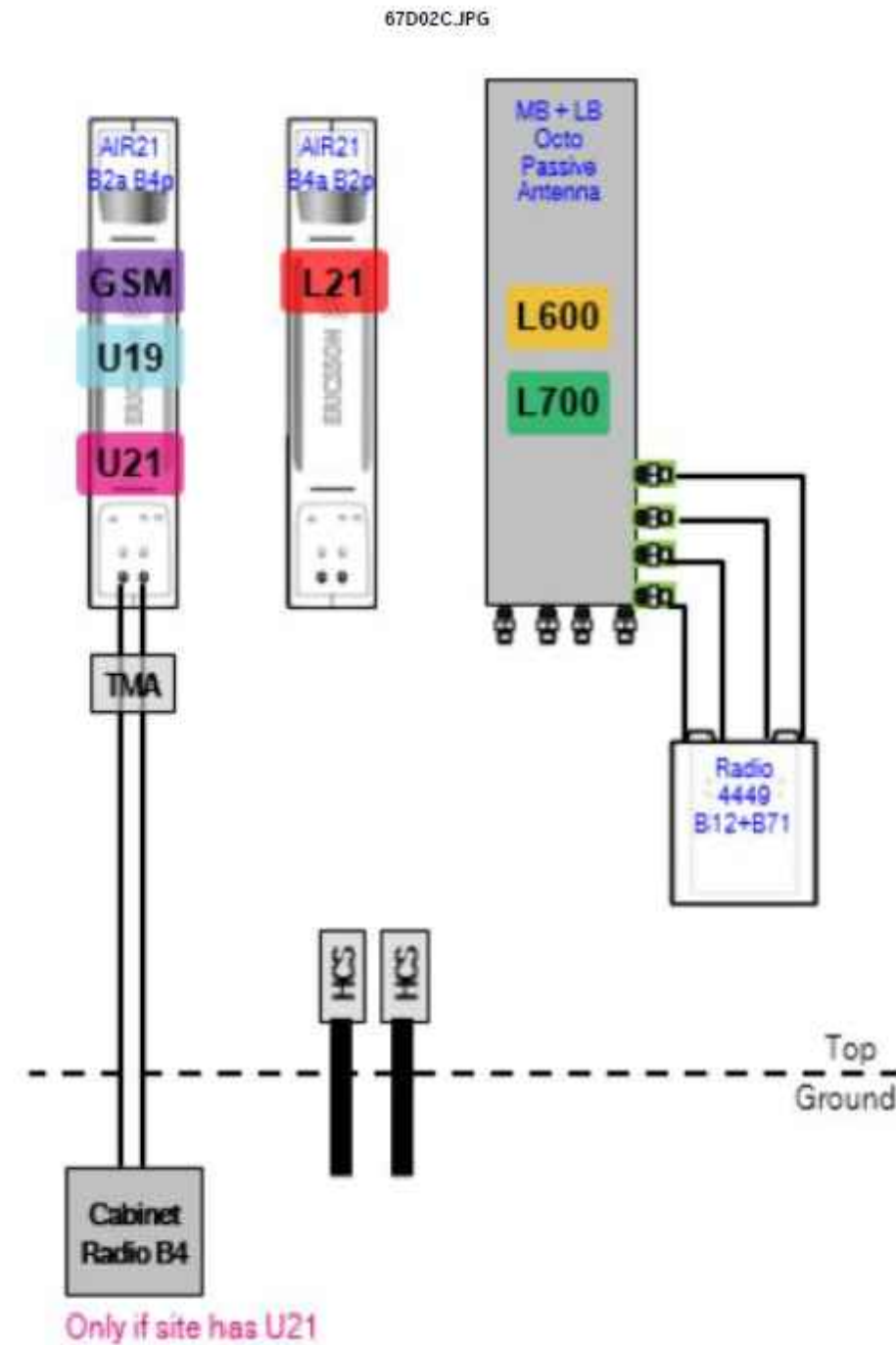
Replace (1) DUS41 with (1) BB6630 for L2100, L700, and L600.
 Add (1) BB6630 for future 5G N600.

Add (3) 6X12 HCS.

Existing (12) Coaxial Lines; (1) 9X18. Remove (6) Coaxial Lines.

Add (3) 6X12 HCS, Length and AWG will decide by Dev.

Swap (3) LNX 6515 Antennas with (3) 8' Octoport antennas @ P1. Swap (3) RRUS11 B12 with (3) Radios 4449.



Only if site has U21

2 ANTENNA CONFIGURATION
 SCALE: NOT TO SCALE

NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

SUPPLEMENTAL

SHEET NUMBER: R-601
 REVISION: 0



This report was prepared for American Tower Corporation by



Antenna Mount Analysis Report

ATC Site Name : PINE ORCHARD BRANFORD CT
ATC Asset Number : 283419
Engineering Number : 12927144_C9_06
Mount Elevation : 121 ft
Carrier : T-Mobile
Carrier Site Name : Amtrak_Branford
Carrier Site Number : CTNH801B
Site Location : 123 Pine Orchard Road
 Branford, CT 06405-3939
 41.274861, -72.793078
County : New Haven
Date : September 1, 2020
Max Usage : 78%
Result : Pass (Pending Mods)

Prepared By:
Jennifer Soza
CLS Engineering PLLC

Reviewed By:
Tyler M. Barker, P.E.
CLS Engineering PLLC



Digitally signed
by Tyler M.
Barker PE
Date:
2020.09.03
14:34:34-04'00'

Tyler M. Barker
CLS Engineering PLLC
Director of Engineering
PE # 32402 Exp. 1/31/2021
COA # PEC.021833 Exp. 8/14/2022

Mount Analysis for American Tower
283419 - PINE ORCHARD BRANFORD CT

September 1, 2020
CLS Engineering PLLC Project #41124-12927144_C9_06-03-MOD

Introduction

The proposed equipment is to be mounted to the existing T-Arms. This proposed mounting configuration was analyzed using RISA-3D, a commercially available finite element analysis software package. A selection of input and output from our analysis is attached to the end of this report.

Supporting Documents

Structural Data	Site Photos, dated February 20, 2018
Previous Analyses	Structural Analysis by American Tower, Engineering #OAA694357_C3_01, dated February 10, 2017 Mount Analysis by CLS Engineering PLLC for American Tower, Engineering #12927144, dated August 20, 2020
Loading Data	ATC Application 12927144

Analysis

Codes	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
Basic Wind Speed	130 mph, V_{ult} / 100.7 mph, V_{asd} (3-Second Gust)
Basic Wind Speed w/ Ice	50 mph (3-Second Gust) w/ 0.75" Radial Ice (Escalating)
Exposure Category	B
Max. Topographic Factor, K_{zt}	1.00
Risk Category	II
Maintenance Live Load	L_M : 500 lb

Conclusion

Based on the analysis, the antenna mount meets the requirements per the applicable codes listed above. The mounting configuration considered in this analysis will be capable of supporting the referenced loading pursuant to referenced standards once the referenced modifications are installed.

This analysis incorporates modifications per CLS Engineering PLLC, dated September 03, 2020.

- Install bracing pipes at the existing T-Arm mount. Connect to existing face horizontal pipe with Site Pro 1 PUCK or equal, as shown.
- Install (1) Site Pro 1 PRK-SFS-L support rail reinforcement kit at proposed bracing pipes as specified. Collar to be installed as high as possible on monopole. Do not pinch safety climb. .
- Connect outermost mount pipes with proposed bracing pipe using Site Pro 1 SCX1-K or equal, as shown.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

SUPPLEMENTAL

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. PLEASE REFERENCE THE MOUNT ANALYSIS REPORT FOR COMPLETE MOUNT ANALYSIS CALCULATIONS AND DETAILS. SUPPLEMENTAL PAGES INCLUDED IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS TO VERIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONTRUCTION.

SHEET NUMBER: **R-602** REVISION: **2**



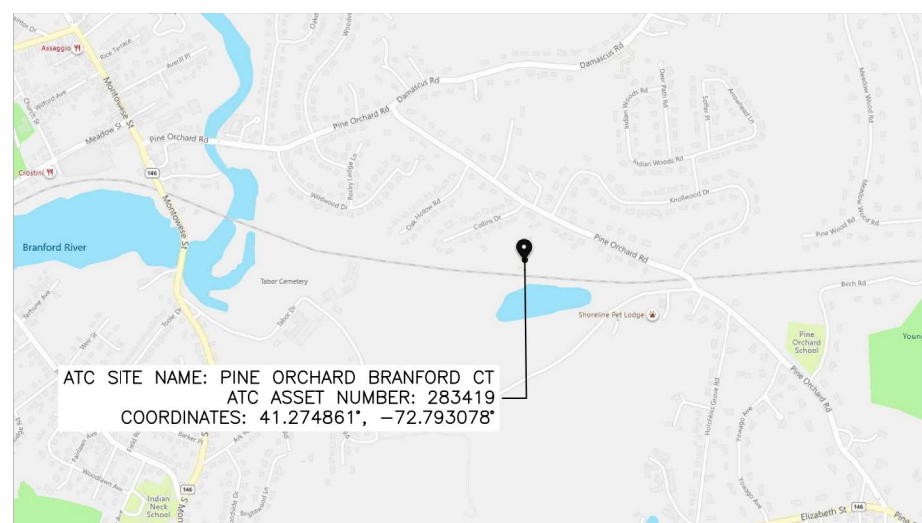
CARRIER SITE NAME: AMTRAK_BRANFORD
CARRIER SITE NUMBER: CTNH801B
ATC SITE NAME: PINE ORCHARD BRANFORD CT
ATC ASSET NUMBER: 283419
ENGINEERING NUMBER: 12927144_C9_06
STRUCTURE TYPE: 123'-0" MONOPOLE
PROJECT SCOPE: MOUNT REINFORCEMENT



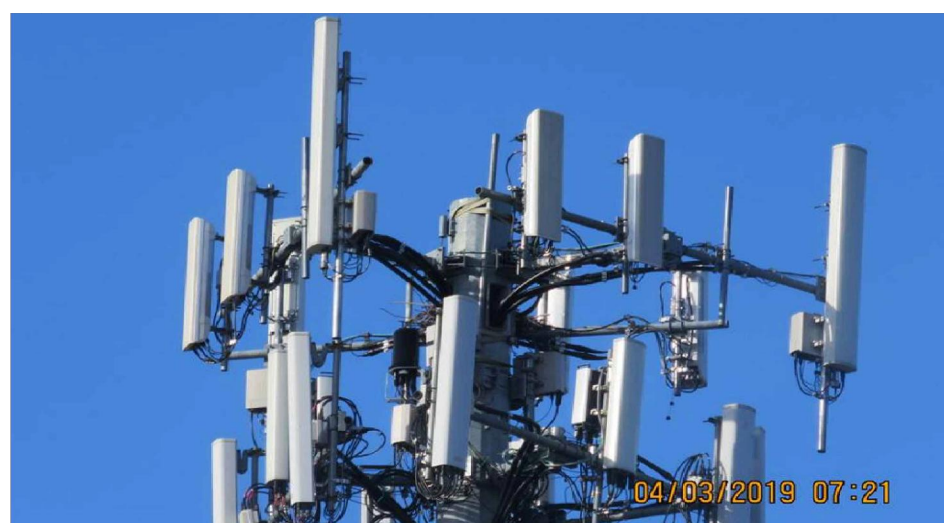
CLS ENGINEERING PLLC
 319 CHAPANOKE ROAD, SUITE 118, RALEIGH, NC 27803
 PH: (405)348-5460 FAX: (405)341-4625

CLS PROJECT ID: 41124-283419-12927144
 COA# PEC.001833 EXP. 08/14/2022

LOCATION MAP



STRUCTURE ELEVATION PHOTOGRAPH



DRAWING INDEX

SHEET	SHEET DESCRIPTION	REV
T-1	TITLE SHEET & DRAWING INDEX	0
GN-1	STRUCTURAL NOTES	0
IN-1	MODIFICATION INSPECTION NOTES	0
S-1	MOUNT VIEWS & MODIFICATION SCHEDULE	0
S-2	MODIFICATION DETAIL VIEWS	0
S-3	REFERENCE CUT SHEET	0

REVISIONS

REV.	DATE	DESCRIPTION	INITIALS
A	09/02/20	PRELIMINARY ISSUE	HRP
0	09/02/20	FOR CONSTRUCTION	HRP

NOT FOR CONSTRUCTION UNLESS
 LABELED AS CONSTRUCTION SET

SCOPE OF WORK

- THIS MODIFICATION PLAN HAS BEEN DESIGNED UTILIZING THE STRUCTURAL ANALYSIS BY CLS ENGINEERING, PROJECT #41124-12927144_C9_06-03-MOD, DATED SEPTEMBER 3, 2020.
- FULL MODIFICATION SCHEDULE CAN BE FOUND ON S-1.
- CONTRACTOR SHALL SCHEDULE A SITE VISIT TO CONFIRM ALL EXISTING STRUCTURE DIMENSIONS, SITE CONSTRAINTS, PROPOSED REINFORCING DIMENSIONS, THE CLEARANCES OF THE PROPOSED REINFORCING, EXISTING FOUNDATION INFORMATION, EXISTING SITE UTILITIES, AND ALL OTHER INFORMATION NECESSARY TO PERFORM THE WORK ON THESE DRAWINGS IN ORDER TO ELIMINATE THE RISK OF RFIS ONCE CONSTRUCTION AND FABRICATION HAVE BEGUN. THE CONTRACTOR SHALL NOT BEGIN FABRICATION OR CONSTRUCTION PRIOR TO PERFORMING THIS SITE VISIT AND VALIDATING THE INFORMATION ON THESE DRAWINGS AND ANY ADDITIONAL INFORMATION THE CONTRACTOR NEEDS TO PERFORM THE WORK.
- THE CONTRACTOR SHALL PERFORM THIS PRE-CONSTRUCTION WORK AND REPORT ALL DISCREPANCIES TO THE CUSTOMER AND THE ENGINEER OF RECORD OR BE LIABLE FOR THE LABOR & MATERIALS FOR DISCREPANCIES NOT CAUGHT BY THE CONTRACTOR'S DUE DILIGENCE SITE VISIT.



PE# 32402 EXP: 1/31/2021

DRIVING DIRECTIONS

DEPART FROM MITCHELL INTERNATIONAL AIRPORT:
 HEAD NORTH ON MKE DEPARTURES TOWARD MKE ARRIVALS 453 FT, BEAR RIGHT ONTO MKE ARRIVALS 0.3 MI, TAKE RAMP FOR WI-119 W TOWARD CHICAGO 1.3 MI, TAKE RAMP LEFT FOR I-41 8.2 MI, TAKE RAMP RIGHT TOWARD SEVEN MILE RD 0.3 MI, TURN LEFT ONTO 7 MILE RD 2.0 MI, TURN RIGHT ONTO WI-38 5.1 MI, TURN RIGHT ONTO WI-32 2.3 MI, TURN LEFT ONTO 4 MILE RD 1.8 MI, ROAD NAME CHANGES TO E 4 MILE RD 0.3 MI, TURN RIGHT 354 FT, TURN RIGHT 102 FT, ARRIVE AT YOUR DESTINATION ON THE RIGHT.

PROJECT TEAM

ENGINEER/ARCHITECT:
 CLS ENGINEERING, PLLC.
 319 CHAPANOKE ROAD,
 SUITE 118
 RALEIGH, NC 27603
 (405) 348-5460

STRUCTURE OWNER:
 AMERICAN TOWER
 10 PRESIDENTIAL WAY
 WOBURN, MA 1801

OWNER SITE NAME:
 PINE ORCHARD BRANFORD CT

APPLICANT/CUSTOMER:
 T-MOBILE
 12920 SE 38TH STREET
 BELLEVUE, WA 98006

OWNER SITE NUMBER:
 283419

PROJECT INFORMATION

STRUCTURE TYPE:	MONOPOLE
STRUCTURE HEIGHT:	123'-0"
LATITUDE:	41.274861° (NAD 83)
LONGITUDE:	-72.793078° (NAD 83)
ADDRESS:	283419 - PINE ORCHARD BRANFORD CT 123 PINE ORCHARD ROAD BRANFORD, CT 06405-3939
COUNTY:	NEW HAVEN
CODE JURISDICTION:	CITY OF BRANFORD
GROUND ELEVATION:	35' AMSL

ONE CALL



**CALL CONNECTICUT ONE-CALL
 3 DAYS BEFORE YOU DIG
 811 OR 1-800-922-4455**

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT OR ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR THE SAME.

ATC SITE NAME:

PINE ORCHARD BRANFORD CT
 ATC ASSET #: 283419
 123 PINE ORCHARD ROAD
 BRANFORD, CT 06405-3939

SHEET TITLE

TITLE SHEET &
 DRAWING INDEX

SHEET NUMBER

T-1

CODE COMPLIANCE

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES.

STRUCTURAL CODE: IBC 2015
 CONNECTICUT STATE BUILDING CODE: IBC 2018
 DESIGN STANDARD: TIA-222-G

GENERAL NOTES

- THESE MODIFICATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF TIA/EIA-222, ASCE 7, AWS, ACI, AND AISC. MATERIALS AND SERVICES PROVIDED BY THE CONTRACTOR SHALL CONFORM TO THE ABOVE-MENTIONED CODES AND THE CONTRACT SPECIFICATIONS.
- ALL MATERIALS UTILIZED FOR THIS PROJECT MUST BE NEW AND FREE OF ANY DEFECTS.
- ALL PRODUCT OR MATERIAL SUBSTITUTIONS PROPOSED BY THE CONTRACTOR SHALL BE APPROVED IN WRITING BY THE ENGINEER. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENGINEER SUITABLE TO DETERMINE IF SUBSTITUTE IS ACCEPTABLE FOR USE AND MEETS THE ORIGINAL DESIGN CRITERIA. DIFFERENCES FROM THE ORIGINAL DESIGN, INCLUDING MAINTENANCE, REPAIR AND REPLACEMENT, SHALL BE NOTED. ESTIMATES OF COSTS/CREDITS ASSOCIATED WITH THE SUBSTITUTION (INCLUDING RE-DESIGN COSTS AND COSTS TO SUB-CONTRACTORS) SHALL BE PROVIDED TO THE ENGINEER. CONTRACTOR SHALL PROVIDE ADDITIONAL DOCUMENTATION AND/OR SPECIFICATIONS TO THE ENGINEER AS REQUESTED.
- PROVIDE STRUCTURAL STEEL SHOP DRAWING(S) TO THE ENGINEER OF RECORD FOR APPROVAL PRIOR TO FABRICATION.
- UNLESS NOTED OTHERWISE, ALL NEW MEMBERS AND REINFORCING SHALL MAINTAIN THE EXISTING MEMBER WORK LINES AND NOT INTRODUCE ECCENTRICITIES INTO THE STRUCTURE.
- ANY CONTRACTOR-CAUSED DAMAGE TO PROPERTY OF THE LAND OWNER, PROPERTY OF THE STRUCTURE OWNER, PROPERTY OF THE CUSTOMER, SITE FENCING OR GATES, ANY AND ALL UTILITY AND/OR SERVICE LINES, SHOWN OR NOT SHOWN ON THE PLANS, SHALL BE REPAIRED OR REPLACED AT THE SOLE COST OF THE CONTRACTOR AND SHALL BE ACCOMPLISHED BY THE CONTRACTOR OR SUBCONTRACTOR AS APPROVED BY THE ENGINEER OF RECORD AND LAND OWNER. DAMAGE TO EQUIPMENT OR PROPERTY OF ANY KIND BELONGING TO OTHER COMPANIES (BESIDES THE INDICATED CUSTOMER) SHALL BE ADDRESSED BY THE CONTRACTOR WITH THE COMPANIES THAT OWN THE DAMAGED ITEMS.

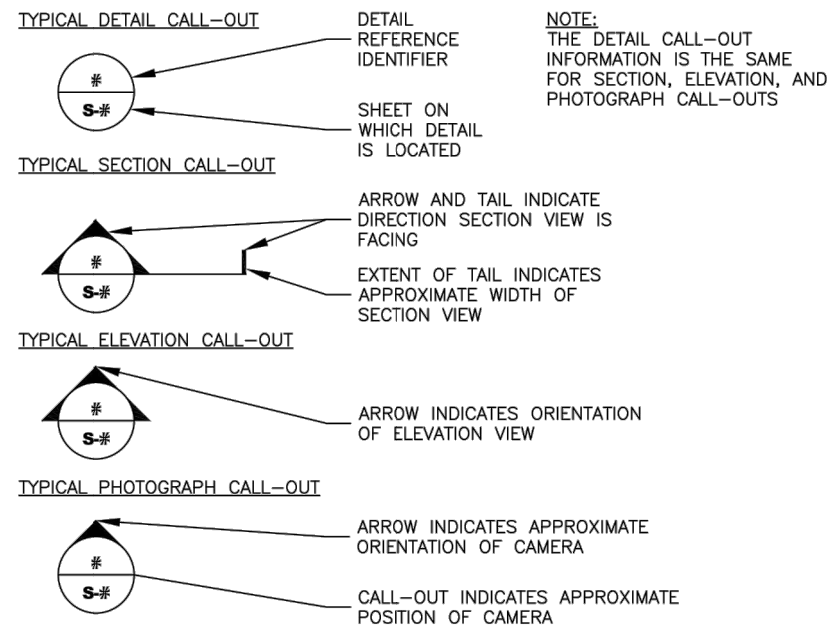
STRUCTURAL STEEL NOTES

- STRUCTURAL STEEL SHALL COMPLY WITH THE FOLLOWING SPECIFICATIONS:
 - STRUCTURAL STEEL SHAPES, PLATES AND BARS (EXCEPT W-SHAPES)- ASTM A36, $F_y=36$ KSI
 - PIPES - ASTM A53, GRADE B, $F_y=35$ KSI
 - HSS-SHAPES - ASTM A500, GRADE B, $F_y=42$ KSI (ROUND)
 $F_y=46$ KSI (SQUARE & RECTANGULAR)
 - ANCHOR & ALL-THREAD RODS - ASTM F1554, GRADE 55
 - STRUCTURAL BOLTS $1/2"$ AND LARGER - ASTM A325
 - STRUCTURAL BOLTS SMALLER THAN $1/2"$ - DIMENSIONS: ASME B18.2.1
MATERIAL: SAE J429 GRADE 5 | THREADING: ASME B1.1, UNC, CLASS 2A | FINISH: HOT-DIP GALVANIZED OR ZINC-PLATED
 - SHEET METAL SCREWS - DIMENSIONS: ASME B18.6.3
MATERIAL: SAE J933 | FINISH: HOT-DIP GALVANIZED OR ZINC-PLATED
 - NUTS FOR BOLTS/ALL-THREAD - ASTM A563 (THREADING TO MATCH BOLT)
 - WASHERS FOR BOLTS/ALL-THREAD - ASTM F436
 - W & WT SHAPES - ASTM A36, $F_y=36$ KSI
ALTERNATE SPEC: ASTM A992 (IF OTHER SPEC IS UNAVAILABLE)
- STRUCTURAL BOLTS SHALL CONFORM TO THIS NOTE. ALL BOLT HOLES SHALL BE STANDARD SIZE BOLT HOLES PER AISC 360, UNLESS OTHERWISE NOTED. ALL HOLES SHALL BE SHOP DRILLED OR SUB-PUNCHED AND REAMED. BURNING OF HOLES IS NOT PERMITTED. WHERE SLOTTED OR OVERSIZE HOLES ARE SPECIFIED ON THE DRAWINGS, EXTRA-THICK ASTM F436 PLATE WASHERS SHALL BE USED ($5/16"$ MINIMUM THICKNESS) WITH A DIAMETER SUITABLE TO COVER THE EXTENTS OF THE SLOT OR HOLE. BOLTS SHALL BE HEAVY-HEX WHERE AVAILABLE IN THE SIZE AND GRADE SPECIFIED, OTHERWISE BOLTS SHALL BE HEX HEAD CAP SCREWS.
- ALL STEEL HARDWARE, INCLUDING ADHESIVE OR EMBEDDED ANCHOR BOLTS AND THEIR ACCESSORIES, SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153 (EXCEPT BOLTS SMALLER THAN $1/2"$ SHALL CONFORM TO FE/ZN 3 AT PER ASTM F1941 WHERE HOT-DIP GALVANIZED BOLTS ARE NOT AVAILABLE). ALL STEEL MEMBERS, INCLUDING WELDMENTS, SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123. REPAIR DAMAGE TO GALVANIZED COATINGS USING ASTM A780 PROCEDURES WITH A ZINC RICH PAINT (SUCH AS ZRC GALVILITE) FOR GALVANIZING DAMAGED BY HANDLING, TRANSPORTING, CUTTING, WELDING, OR BOLTING. DO NOT HEAT SURFACES TO WHICH REPAIR PAINT HAS BEEN APPLIED. CALL OUT HOLES REQUIRED FOR HOT-DIP GALVANIZING ON SHOP DRAWINGS.
- WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1 "STRUCTURAL WELDING CODE - STEEL". WELD ELECTRODES SHALL BE E70XX. UNLESS OTHERWISE NOTED, PROVIDE CONTINUOUS FILLET WELDS WITH MINIMUM SIZE OF $3/16$ INCH OR OF A SIZE EQUAL TO THE THICKNESS OF THE THINNER MATERIAL BEING JOINED (WHICHEVER IS LESS). FOR ACUTE OR OBTUSE JOINT ANGLES, THE FILLET WELD LEG SIZE SHALL BE ADJUSTED AS REQUIRED TO MAINTAIN THE EFFECTIVE THROAT OF A $3/16$ INCH FILLET WELD IN A 90° JOINT. ALL WELD SIZES SHOWN IN INCHES.
- PRIOR TO WELDING, THE CONTRACTOR SHALL SUBMIT CERTIFICATION FOR EACH WELDER STATING THE TYPE OF WELDING AND POSITIONS QUALIFIED FOR, THE CODE AND PROCEDURE QUALIFIED UNDER, DATE QUALIFIED, AND THE FIRM AND INDIVIDUAL CERTIFYING THE QUALIFICATION TESTS. THIS INFORMATION SHALL BE SUBMITTED TO THE MODIFICATION INSPECTOR (SEE SHEET S-003) AS WELL AS ANY THIRD-PARTY CERTIFIED WELD INSPECTOR (CW).
- MEMBERS SHALL BE SHOP-FABRICATED AND WELDED TO THE EXTENT PRACTICABLE IN ORDER TO REDUCE FIELD INSTALLATION COSTS.

CONTRACTOR NOTES

- PRIOR TO BEGINNING CONSTRUCTION, ALL CONTRACTORS AND SUBCONTRACTORS MUST ACKNOWLEDGE IN WRITING TO STRUCTURE OWNER THAT THEY HAVE OBTAINED, UNDERSTAND, AND WILL FOLLOW STRUCTURE OWNER STANDARDS OF PRACTICE, CONSTRUCTION GUIDELINES, ALL SITE AND STRUCTURE/TOWER SAFETY PROCEDURES, ALL PRODUCT LIMITATIONS AND INSTALLATION PROCEDURES USED ON SITE, AND PROPOSED MODIFICATIONS DESCRIBED. RECEIPT OF ACKNOWLEDGEMENT MUST OCCUR PRIOR TO BEGINNING CONSTRUCTION OR CLIMBING. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO PROVIDE THIS DOCUMENTATION FOR STRUCTURE OWNER ON COMPANY LETTERHEAD AND THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OBTAIN THIS DOCUMENTATION FROM ANY SUBCONTRACTORS (ON SUBCONTRACTOR LETTERHEAD) AND DELIVER IT TO THE STRUCTURE OWNER.
- IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT REPRESENTED ON THESE DRAWINGS, OR ANY CONDITIONS THAT WOULD INTERFERE WITH THE INSTALLATION OF THE MODIFICATIONS, THE ENGINEER OF RECORD SHALL BE CONTACTED IMMEDIATELY TO EVALUATE THE SIGNIFICANCE OF THE DEVIATION.
- THE CONTRACTOR SHALL SOLICIT AND HIRE THE SERVICES OF A QUALIFIED MODIFICATION INSPECTOR PRIOR TO BEGINNING CONSTRUCTION. THE MODIFICATION INSPECTOR MAY BE AN EMPLOYEE OF THE CONTRACTOR'S FIRM, HOWEVER THE INSPECTOR'S ONLY DUTIES SHALL BE INSPECTION, TESTING, AND REPORT CREATION AS REQUIRED ON THE "MODIFICATION INSPECTION NOTES" SHEET. THE INSPECTOR SHALL BE QUALIFIED AS A REGISTERED PROFESSIONAL ENGINEER (PE) OR AS AN ENGINEERING INTERN (EI) OR ENGINEER IN TRAINING (EIT) UNDER THE SUPERVISION OF A REGISTERED PROFESSIONAL ENGINEER (PE). IT IS ALSO ACCEPTABLE FOR THE CONTRACTOR TO SUBCONTRACT THE MODIFICATION INSPECTOR DUTIES TO A THIRD PARTY FIRM MEETING THE ABOVE REQUIREMENTS.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD AND TOWER OWNER OF THE PLANNED CONSTRUCTION & INSPECTION SCHEDULE, AS WELL AS ANY CHANGES TO THE SCHEDULE, WITHIN TWO BUSINESS DAYS OF THE COMPLETION OF THE SCHEDULE OR SCHEDULE REVISION BOTH PRIOR TO BEGINNING CONSTRUCTION AND DURING CONSTRUCTION AS THE SCHEDULE CHANGES. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD WHEN PHASES OF CONSTRUCTION HAVE BEEN MOVED UP AND SHALL GIVE THE ENGINEER ADEQUATE NOTICE SO THAT THE ENGINEER OF RECORD MAY, AT THEIR DISCRETION, INSPECT PORTIONS OF THE WORK THAT ARE DEEMED CRITICAL TO THE INTEGRITY OF THE STRUCTURE. FAILURE TO PROVIDE THIS NOTICE MAY RESULT IN REJECTION OF THE CONTRACTOR'S WORK. THE CONTRACTOR SHALL ALSO NOTIFY THE ENGINEER OF RECORD AND THE STRUCTURE OWNER WHEN THE WORK HAS BEEN COMPLETED WITHIN 2 BUSINESS DAYS OF THE COMPLETION OF THE WORK AND ASSOCIATED MODIFICATION INSPECTIONS & TESTING.
- IT IS ASSUMED THAT ANY STRUCTURAL MODIFICATION WORK SPECIFIED ON THESE PLANS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TOWER CONSTRUCTION EXPERIENCE. THIS INCLUDES PROVIDING THE NECESSARY CERTIFICATIONS TO THE STRUCTURE OWNER AND ENGINEER INCLUDING BUT NOT LIMITED TO TOWER CLIMBER AND RESCUE CLIMBER CERTIFICATIONS, QUALIFIED WELDER CERTIFICATES, CERTIFIED WELDING INSPECTOR CREDENTIALS, ET CETERA.
- THESE DRAWINGS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES AND PROCEDURES.
- CONTRACTOR SHALL WORK WITHIN THE LIMITS OF THE STRUCTURE OWNER'S PROPERTY OR LEASE AREA AND APPROVED EASEMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY WORK IS WITHIN THESE BOUNDARIES. CONTRACTOR SHALL EMPLOY A SURVEYOR AS REQUIRED. ANY WORK OUTSIDE THESE BOUNDARIES SHALL BE APPROVED IN WRITING BY THE LAND OWNER PRIOR TO MOBILIZATION. CONSTRUCTION STAKING AND BOUNDARY MARKING IS THE RESPONSIBILITY OF THE CONTRACTOR.

SYMBOLS AND CALL-OUTS

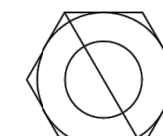


STANDARD ABBREVIATIONS

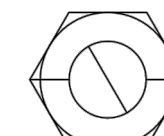
AFF	ABOVE FINISHED FLOOR	LONG	LONGITUDINAL
ARCH	ARCHITECT, -URAL	MAS	MASONRY
BLDG	BUILDING	MATL	MATERIAL
BOD	BOTTOM OF DECK	MAX	MAXIMUM
BOT	BOTTOM	MECH	MECHANICAL
BRCG	BRACING	MFR	MANUFACTURER
BRDG	BRIDGING	MIN	MINIMUM
C	CHANNEL	MOD	MODIFICATION
CL	CENTER LINE	MPH	MILES PER HOUR
CLR	CLEAR	MRI	MEAN RECURRENCE INTERVAL
CMU	CONCRETE MASONRY UNIT	#	NUMBER
CONC	CONCRETE	NTS	NOT TO SCALE
CONT	CONTINUOUS	OC	ON CENTER
DIA (OR) ϕ	DIAMETER	OPH	OPPOSITE HAND
DWGS	DRAWINGS	OPNG	OPENING
EA	EACH	PC	PIECE
EL	ELEVATION	PL	PLATE
EQ, EQUIV	EQUAL, EQUIVALENT	PSF	POUNDS PER SQUARE FOOT
EW	EACH WAY	PSI	POUNDS PER SQUARE INCH
EXIST	EXISTING	REF	REFERENCE
' OR FT	FEET (DIMENSION)	REINF	REINFORCE/REINFORCEMENT
f'c	COMPRESSIVE STRESS	REQD	REQUIRED
FDN	FOUNDATION	REV	REVISION
FTG	FOOTING	SF	SQUARE FEET
GALV	GALVANIZED	SIM	SIMILAR
HORIZ	HORIZONTAL	SR	SOLID ROUND (SHAPE)
HSS	HOLLOW STRUCTURAL SHAPES	STD	STANDARD
		T&B	TOP AND BOTTOM
KIP	KILOPOUNDS (1000 LBS PER UNIT)	THK	THICKNESS
KSI	KIPS PER SQUARE INCH	TOF	TOP OF FOOTING
" OR IN	INCH	TOM	TOP OF MASONRY
L	ANGLE	TOS	TOP OF STEEL
LB	POUND	TYP	TYPICAL
LLH	LONG LEG HORIZONTAL	UON	UNLESS OTHERWISE NOTED
LLV	LONG LEG VERTICAL	VERT	VERTICAL
		W/	WITH

BOLT TIGHTENING PROCEDURE

- TIGHTEN BOLTS BY AISC "TURN OF THE NUT" METHOD USING THE CHART BELOW:
 - BOLT LENGTHS UP TO AND INCLUDING FOUR DIAMETERS: +1/3 TURN BEYOND SNUG TIGHT
 - BOLT LENGTHS OVER FOUR AND UP TO EIGHT DIAMETERS: +1/2 TURN BEYOND SNUG TIGHT
 - BOLT LENGTHS OVER EIGHT AND UP TO TWELVE DIAMETERS: +2/3 TURN BEYOND SNUG TIGHT
- SPLICE BOLTS SUBJECT TO DIRECT TENSION SHALL BE INSTALLED AND TIGHTENED AS PER SECTION 8(d)(1) OF THE AISC MANUAL OF STEEL CONSTRUCTION. THE INSTALLATION PROCEDURE IS AS FOLLOWS:
 - "FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES AND BE TIGHTENED BY ONE OF THE METHODS DESCRIBED IN SUBSECTION 8(d)(1) THROUGH 8(d)(4).
 - 8(d)(1) TURN-OF-THE-NUT TIGHTENING. BOLTS SHALL BE INSTALLED IN ALL HOLES OF THE CONNECTION AND BROUGHT TO A SNUG TIGHT CONDITION. SNUG TIGHT IS DEFINED AS THE TIGHTNESS THAT EXISTS WHEN THE PLIES OF A JOINT ARE IN FIRM CONTACT. THIS MAY BE OBTAINED BY A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF A MAN USING AN ORDINARY SPUD WRENCH. SNUG TIGHTENING SHALL PROGRESS SYSTEMATICALLY...UNTIL ALL THE BOLTS ARE SIMULTANEOUSLY SNUG TIGHT AND THE CONNECTION IS FULLY COMPACTED. FOLLOWING THIS INITIAL OPERATION, ALL BOLTS IN THE CONNECTION SHALL BE TIGHTENED FURTHER BY THE APPLICABLE AMOUNT OF ROTATION SPECIFIED ABOVE. DURING THE TIGHTENING OPERATION, THERE SHALL BE NO ROTATION OF THE PART NOT TURNED BY THE WRENCH. TIGHTENING SHALL PROGRESS SYSTEMATICALLY.

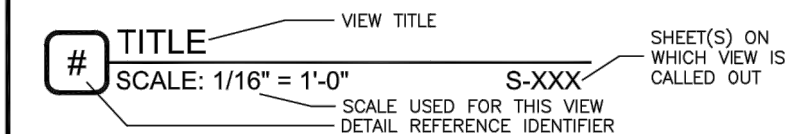


BEFORE $1/3$ TURN



AFTER $1/3$ TURN

SECTION / ELEVATION / DETAIL VIEW CALLOUTS



T-Mobile



CLS ENGINEERING PLLC
319 CHAPANOKE ROAD, SUITE 118, RALEIGH, NC 27603
PH: (405)348-5480 FAX: (405)341-4625

CLS PROJECT ID: 41124-283419-12927144
COA# PEC.001833 EXP. 08/14/2022

REVISIONS

REV.	DATE	DESCRIPTION	INITIALS
A	09/02/20	PRELIMINARY ISSUE	HRP
0	09/02/20	FOR CONSTRUCTION	HRP

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET



Tyler M. Barker
CLS Engineering PLLC
Director of Engineering
PE # 32402 Exp. 1/31/2021
COA # PEC.001833 Exp. 8/14/2022

09/03/2020

PE# 32402 EXP: 1/31/2021

ATC SITE NAME:

PINE ORCHARD BRANFORD CT

ATC ASSET #: 283419

123 PINE ORCHARD ROAD
BRANFORD, CT 06405-3939

SHEET TITLE

STRUCTURAL NOTES

SHEET NUMBER

GN-1

PRE-CONSTRUCTION INSPECTION CHECKLIST

CONSTRUCTION AND/OR INSTALLATION INSPECTIONS REQUIRED FOR REPORT? (CHECK=YES, BLANK=NO)	INSPECTION REPORT ITEM
√	MODIFICATION INSPECTION CHECKLIST
√	SHOP DRAWINGS APPROVED BY ENGINEER OF RECORD (LATEST REVISION)
√	FABRICATION INSPECTION
	FABRICATOR'S CERTIFIED WELD INSPECTOR (CWI)
	FABRICATOR'S QUALIFIED PERSONNEL FOR WELDING
√	MATERIAL TEST REPORT(S) / MILL CERTIFICATE(S)
	FABRICATOR'S NON-DESTRUCTIVE TESTING (NDT) TECHNICIAN
√	PACKING SLIPS FOR STRUCTURAL MATERIALS

CONSTRUCTION INSPECTION CHECKLIST

CONSTRUCTION AND/OR INSTALLATION INSPECTIONS REQUIRED FOR REPORT? (CHECK=YES, BLANK=NO)	INSPECTION REPORT ITEM
√	CONSTRUCTION INSPECTIONS
	FOUNDATION INSPECTIONS
	CONCRETE COMPRESSIVE STRENGTH AND SLUMP TESTING RESULTS/CERTIFICATES
	ADHESIVE ANCHOR ROD(S) INSTALLATION INSPECTION
	BASE PLATE GROUT INSPECTION
	THIRD-PARTY CERTIFIED WELD INSPECTION (INCLUDING IBC SPECIAL INSPECTIONS)
	SOIL EXCAVATION - DENSITY TESTING, COMPACTION INSPECTION/VERIFICATION, USE OF SUITABLE FILL
√	GALVANIZING REPAIR MATERIAL PREPARATION, INSPECTION, & PAINT APPLICATION
	GUY WIRE (RE-)TENSION REPORT AND INSPECTION
√	PRIME CONTRACTOR'S AS-BUILT DOCUMENTS (SIGNED & DATED)

POST-CONSTRUCTION INSPECTION CHECKLIST

CONSTRUCTION AND/OR INSTALLATION INSPECTIONS REQUIRED FOR REPORT? (CHECK=YES, BLANK=NO)	INSPECTION REPORT ITEM
√	MODIFICATION INSPECTOR'S ISSUE LIST (INCLUDING CORRECTIVE ACTIONS TAKEN) AND/OR REDLINED RECORD DRAWINGS
	POST-INSTALLED ADHESIVE ANCHOR ROD PULL-OUT TESTING
√	PHOTOGRAPHS OF MODIFICATIONS (INCLUDE PHOTOS OF BOTH SIDES OF WELDED OR BOLTED CONNECTIONS, OF OVERALL AND DETAIL VIEWS OF INSTALLED MODIFICATIONS, AND BEFORE/AFTER PHOTOS OF ANY ISSUES IDENTIFIED BY THE INSPECTOR)

GENERAL NOTES

1. THE POST-MODIFICATION INSPECTION IS A VISUAL EXAMINATION OF STRUCTURE MODIFICATIONS AND A REVIEW OF ANY REQUIRED CONSTRUCTION INSPECTIONS, TESTING, AND OTHER DATA TO VERIFY THAT THE MODIFICATIONS ARE INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AS DESIGNED BY THE ENGINEER OF RECORD. THE CONTRACT DOCUMENTS INCLUDE THESE MODIFICATION DRAWINGS, ANY PROJECT SPECIFICATIONS REFERENCED TO IN THE PROJECT NOTES OR OTHERWISE PROVIDED WITH THE DRAWINGS, AND OTHER DOCUMENTS OR DRAWINGS PROVIDED WITH THE MODIFICATION DRAWINGS WITH THE INTENT THAT THEY BE USED AS A DESIGN AID OR GUIDELINE FOR CONSTRUCTION.
2. THE POST-MODIFICATION INSPECTION SHALL CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A QUALITATIVE REVIEW OF THE ENGINEERING ASPECTS OF THE DESIGN OR THE DESIGN DRAWINGS. THE MODIFICATION INSPECTOR IS NOT TAKING OWNERSHIP OF THE MODIFICATION DESIGN IN THE PERFORMANCE OF THEIR DUTIES. OWNERSHIP OF THE MODIFICATION DESIGN'S EFFECTIVENESS AND INTENT, AS WELL AS ALL ASSOCIATED RISK, LIES WITH THE ENGINEER OF RECORD AT ALL TIMES.
3. TO ENSURE THAT THE REQUIREMENTS OF THE POST-MODIFICATION INSPECTION ARE MET, IT IS ESSENTIAL THAT COORDINATION BETWEEN THE PRIME CONTRACTOR AND THE MODIFICATION INSPECTOR BEGIN AS SOON AS THE PROJECT IS FUNDED AND WORK ENTERS THE PLANNING STAGE. THE PRIME CONTRACTOR AND MODIFICATION INSPECTOR SHALL BE PROACTIVE IN IDENTIFYING CONSTRUCTION ISSUES AND COMMUNICATING THESE ISSUES TO EACH OTHER AND TO THE ENGINEER OF RECORD AND STRUCTURE OWNER & CUSTOMER, AS REQUIRED.

INSPECTION AND REPORT RECOMMENDATIONS

1. THE FOLLOWING ARE PROVIDED WITH THE INTENT OF ENHANCING THE EFFECTIVENESS OF THE MODIFICATION INSPECTION AND IMPROVING THE EFFICIENCY OF THE PROCESS OF COLLECTING AND COMPILING THE INFORMATION INTO A USABLE REPORT:
 - 1.1. IT IS RECOMMENDED THAT THE PRIME CONTRACTOR PROVIDE THE MODIFICATION INSPECTOR AT LEAST 5 BUSINESS DAYS NOTICE FOR WHEN THE SITE WILL BE READY FOR THE MODIFICATION INSPECTION.
 - 1.2. THE PRIME CONTRACTOR AND THE MODIFICATION INSPECTOR SHALL COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
 - 1.3. THE PRIME CONTRACTOR AND MODIFICATION INSPECTOR SHALL BOTH BE PRESENT DURING THE INITIAL INSPECTION IN ORDER TO ALLOW FOR THE REMEDIATION OF DEFICIENCIES DURING THE INSPECTION, AS PRACTICABLE. IT MAY BE PREFERABLE TO KEEP WORK CREWS AND THEIR EQUIPMENT ON-SITE TO REMEDIATE DEFICIENCIES DURING INSPECTIONS.

INSPECTION RESCHEDULING AND CANCELLATION

1. IF THE PRIME CONTRACTOR AND MODIFICATION INSPECTOR HAVE AGREED UPON A TIME AND DATE FOR A GIVEN INSPECTION AND EITHER PARTY RESCHEDULES OR CANCELS THE INSPECTION, THE STRUCTURE OWNER SHALL NOT BE RESPONSIBLE FOR COSTS, FEES, LOST DEPOSITS, OR OTHER EXPENSES INCURRED BY THE PRIME CONTRACTOR, THEIR SUBCONTRACTOR(S), OR THE MODIFICATION INSPECTOR DUE TO THESE SCHEDULING CHANGES. EXCEPTIONS MAY BE MADE IN THE EVENT OF UNCONTROLLABLE SITUATIONS SUCH AS NATURAL DISASTERS, SEVERE WEATHER, OR OTHER CONDITIONS THAT COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.

REMEDATION OF FAILING INSPECTION

1. IN THE EVENT THAT ANY PORTION OF THE MODIFICATION WORK IS DETERMINED TO BE UNSATISFACTORY BY THE MODIFICATION INSPECTOR, THE PRIME CONTRACTOR SHALL WORK WITH THE MODIFICATION INSPECTOR TO CREATE A PLAN OF ACTION THAT WILL EITHER:
 - 1.1. REPAIR THE DEFICIENT WORK TO SATISFACTORY CONDITION AND INCLUDE A SUBSEQUENT RE-INSPECTION OF THE WORK TO VERIFY THAT IT IS SATISFACTORY
 - 1.2. OR, WITH THE PERMISSION OF THE STRUCTURE OWNER AND/OR CUSTOMER, THE PRIME CONTRACTOR MAY WORK WITH THE ENGINEER OF RECORD TO REVIEW THE AS-BUILT CONDITION OF THE MODIFICATION TO DETERMINE IF IT IS STRUCTURALLY ACCEPTABLE. IF THIS ACTION IS NOT ACCEPTABLE TO ANY PARTY, THE PRIME CONTRACTOR SHALL PROCEED TO REPAIR THE DEFICIENT WORK TO A SATISFACTORY CONDITION.

MODIFICATION INSPECTOR'S RESPONSIBILITIES

1. THE MODIFICATION INSPECTOR SHALL CONTACT THE PRIME CONTRACTOR AS SOON AS THEY HAVE RECEIVED A PURCHASE ORDER OR PAYMENT FOR THIS INSPECTION. THE MODIFICATION INSPECTOR SHALL REVIEW THE REQUIREMENTS OF THE INSPECTION CHECKLIST, SHALL WORK WITH THE PRIME CONTRACTOR TO DEVELOP A SCHEDULE OF NECESSARY ON-SITE INSPECTIONS, AND SHALL DISCUSS ANY SITE-SPECIFIC INSPECTION REQUIREMENTS OR OTHER CONCERNS.
2. THE MODIFICATION INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL PRIME CONTRACTOR INSPECTION AND TEST REPORTS (INCLUDING THOSE OF ASSIGNED SUB-CONTRACTORS), SHALL REVIEW THE REPORTS FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS, SHALL CONDUCT THE NECESSARY ON-SITE INSPECTIONS, AND SHALL COMPILE AND SUBMIT THE MODIFICATION INSPECTION REPORT.

PRIME CONTRACTOR'S RESPONSIBILITIES

1. THE PRIME CONTRACTOR SHALL CONTACT THE MODIFICATION INSPECTOR AS SOON AS THEY HAVE RECEIVED A PURCHASE ORDER OR PAYMENT FOR THE MODIFICATION INSTALLATION OR PROJECT. THE PRIME CONTRACTOR SHALL REVIEW THE REQUIREMENTS OF THE MODIFICATION INSPECTION CHECKLIST, SHALL WORK WITH THE MODIFICATION INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, AND SHALL DISCUSS SPECIFIC INSPECTION AND TESTING REQUIREMENTS WITH THE MODIFICATION INSPECTOR IN DETAIL TO OBTAIN A FULL UNDERSTANDING OF THE REQUIRED INSPECTIONS AND TESTING.
2. THE PRIME CONTRACTOR SHALL PERFORM AND RECORD THE TESTING AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MODIFICATION INSPECTION CHECKLIST.

PHOTOGRAPHY REQUIREMENTS

1. THE PRIME CONTRACTOR AND MODIFICATION INSPECTOR SHALL, BETWEEN THE EFFORTS OF BOTH PARTIES AND THEIR EMPLOYED PERSONNEL, PROVIDE PHOTOGRAPHS WITH THE INSPECTION REPORT TO INCLUDE THE FOLLOWING:
 - a. GENERAL SITE PHOTOGRAPHS PRE-CONSTRUCTION
 - b. MODIFICATION INSTALLATION PHOTOGRAPHS DURING CONSTRUCTION/ERECTION OPERATIONS AND INSPECTIONS
 - b.1. RAW MATERIALS
 - b.2. PHOTOS OF DETAILED WORK REQUIRED ON THE DRAWINGS (CONNECTIONS, WELDMENTS, FIELD-FABRICATED MEMBERS, ETC)
 - b.3. WELD PREPARATION AND COMPLETED WELD INSPECTION (INCLUDING A FILLET WELD SIZE GAUGE, AS APPLICABLE)
 - b.4. BOLT INSTALLATION AND TORQUE/PRETENSION.
 - b.5. FINAL INSTALLED CONDITION (AFTER DEFICIENT CONDITIONS, IF ANY, ARE REMEDIATED).
 - b.6. REPAIR OF SURFACE COATINGS (INCLUDING GALVANIZING AND/OR PAINT COATING)
 - c. POST-MODIFICATION PHOTOGRAPHS OF THE SITE & WORK.
 - d. PHOTOGRAPHS OF THE FINAL STATE OF THE SITE AT CONCLUSION OF THE WORK BY THE PRIME CONTRACTOR, ASSOCIATED SUBCONTRACTORS, AND THE MODIFICATION INSPECTOR.
 - e. OTHER PHOTOS MAY BE INCLUDED AT PRIME CONTRACTOR & MODIFICATION INSPECTOR'S DISCRETION.

NOTE: PHOTOS OF MODIFICATIONS INSTALLED ON THE STRUCTURE ABOVE AN ELEVATION OF 20 FT SHALL REQUIRE PHOTOS TAKEN FROM THE STRUCTURE AS WELL AS OVERALL PHOTOGRAPHS OF THE MODIFICATIONS TAKEN FROM THE GROUND.

OWNER INSPECTIONS

1. THE STRUCTURE OWNER MAY CONDUCT INSPECTIONS TO VERIFY THE QUALITY AND COMPLETENESS OF THE PREVIOUSLY COMPLETED MODIFICATION INSPECTION REPORTS FOR THE MODIFICATION INSTALLATION WORK.
2. INSPECTIONS MAY BE COMPLETED BY A 3RD-PARTY FIRM OF THE STRUCTURE OWNER'S CHOOSING AFTER A MODIFICATION PROJECT IS COMPLETED AND A PASSING MODIFICATION INSPECTION REPORT IS ISSUED.



319 CHAPANOKE ROAD, SUITE 118, RALEIGH, NC 27603
PH: (405)348-5460 FAX: (405)341-4625

CLS PROJECT ID: 41124-283419-12927144
COA# PEC.001833 EXP. 08/14/2022

REVISIONS

REV.	DATE	DESCRIPTION	INITIALS
A	09/02/20	PRELIMINARY ISSUE	HRP
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NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET



PE# 32402 EXP: 1/31/2021

ATC SITE NAME:

PINE ORCHARD BRANFORD CT

ATC ASSET #: 283419

123 PINE ORCHARD ROAD
BRANFORD, CT 06405-3939

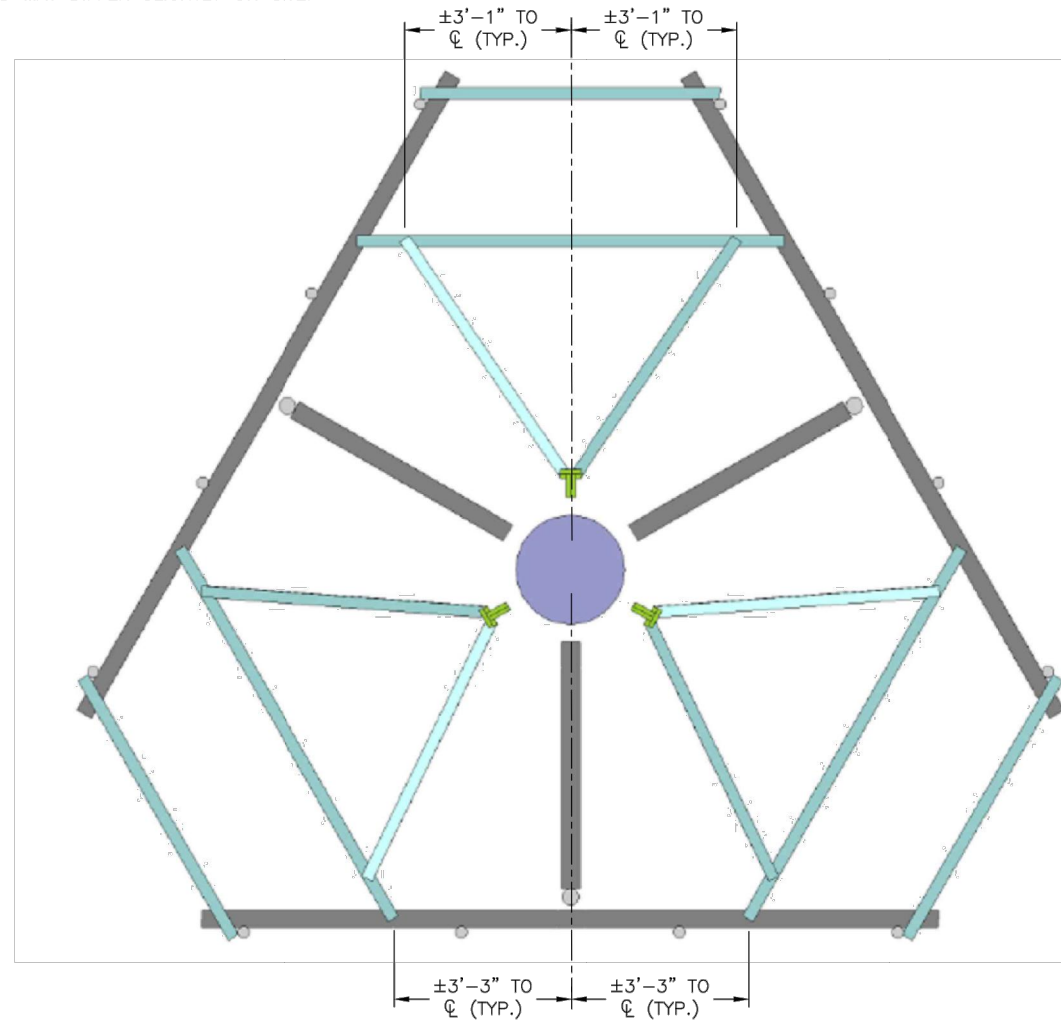
SHEET TITLE

MODIFICATION
INSPECTION NOTES

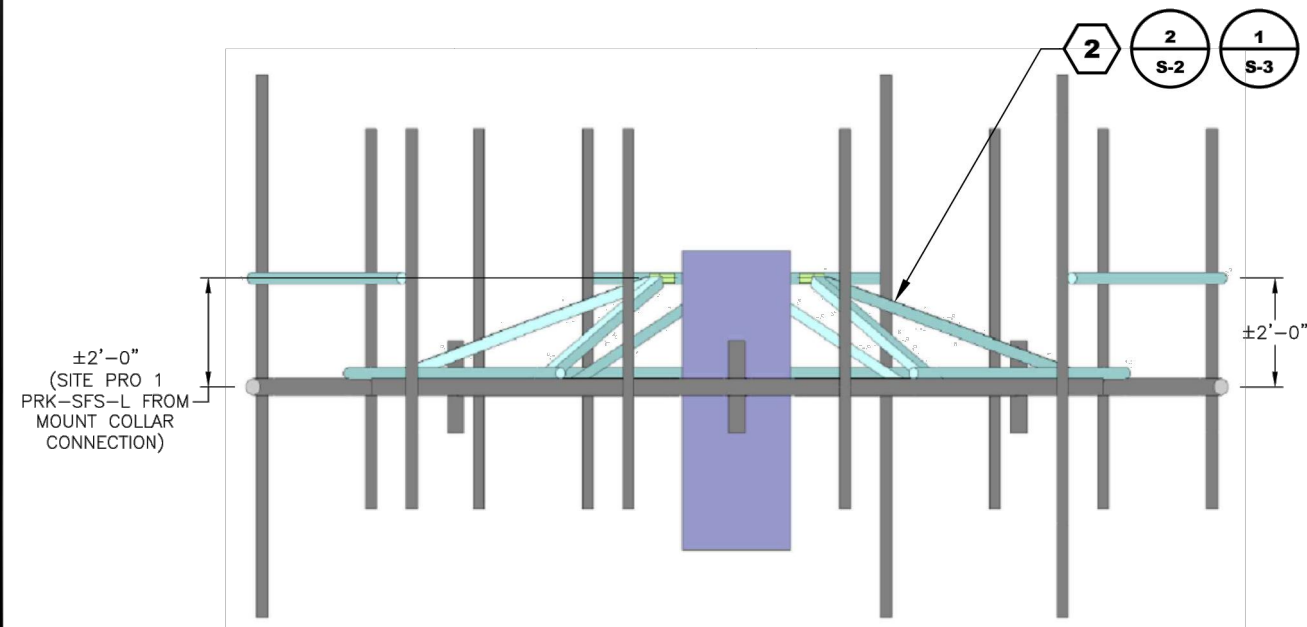
SHEET NUMBER

IN-1

NOTE:
EXISTING MOUNT SHOWN IS REPRESENTATIVE TO ILLUSTRATE
MODIFICATION AND MAY DIFFER SLIGHTLY ON SITE.



1 MOUNT - PLAN VIEW
SCALE: N.T.S.

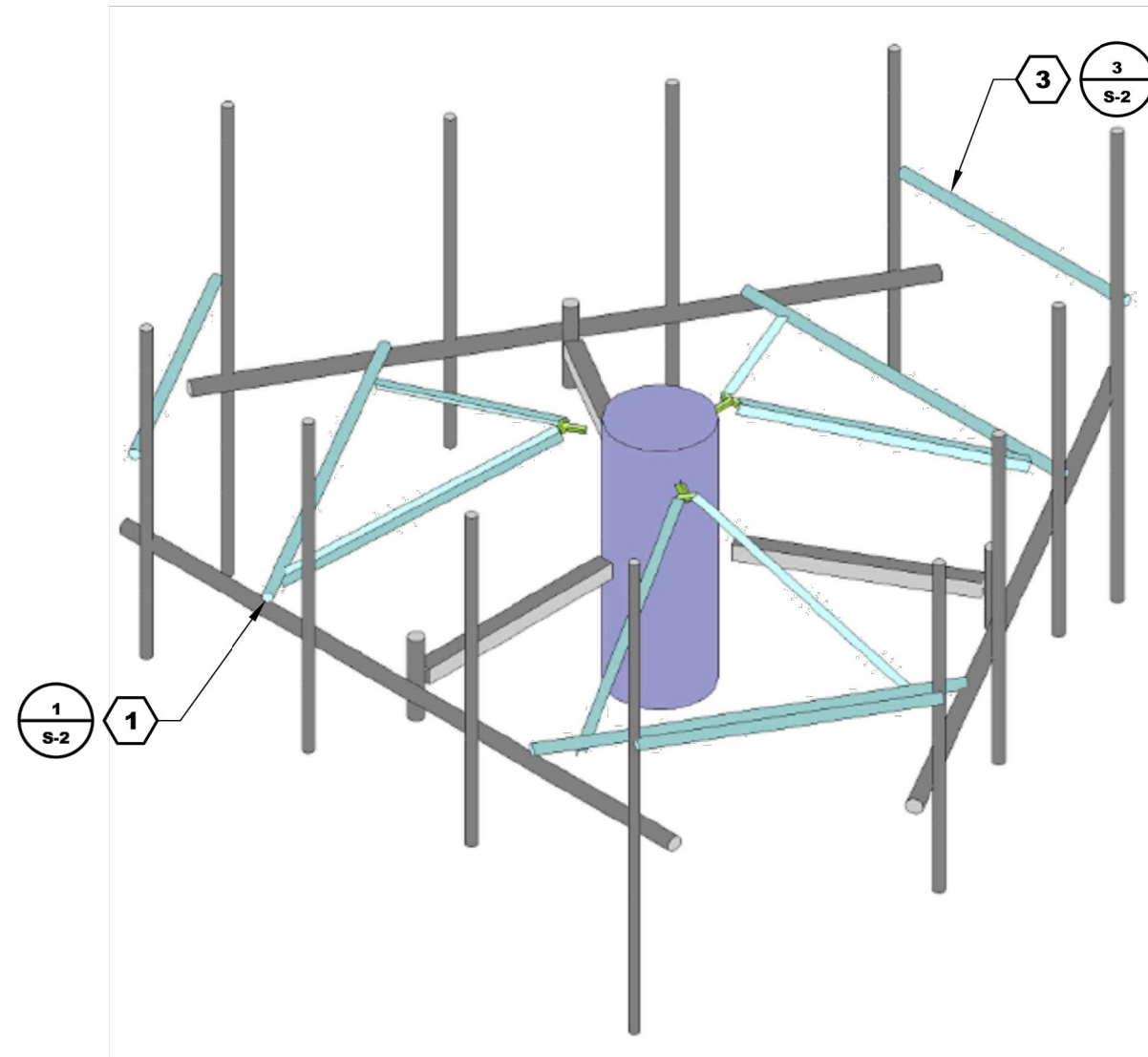


2 MOUNT - FRONT ELEVATION VIEW
SCALE: N.T.S.

- ### CONSTRUCTION NOTES
- SCOPE OF WORK MUST BE COMPLETED AT WIND SPEEDS < 20 MPH.
 - ALL DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHOULD FIELD VERIFY ALL DIMENSIONS BEFORE FABRICATION OF STEEL AND COMMENCEMENT OF WORK. FIELD CUT MEMBERS AS REQUIRED.
 - ALL HARDWARE FOR SITE PRO 1 PUCK CONNECTION TO FACE HORIZONTAL PIPE SHOULD BE INSTALLED WITH "TURN OF THE NUT" METHOD (RE: GN-1).

MODIFICATION SCHEDULE

LABEL	ELEVATION	SCOPE	MATERIAL	NOTES
1	±121'-0"	INSTALL BRACING PIPES AT THE EXISTING T-ARM MOUNT. CONNECT TO EXISTING FACE HORIZONTAL PIPE WITH SITE PRO 1 PUCK OR EQUAL, AS SHOWN.	PIPE 2 STD X 9'-6" LONG SITE PRO 1 PUCK	S-1 S-2
2	±121'-0"	INSTALL (1) SITE PRO 1 PRK-SFS-L SUPPORT RAIL REINFORCEMENT KIT AT PROPOSED BRACING PIPES AS SPECIFIED. COLLAR TO BE INSTALLED AS HIGH AS POSSIBLE ON MONOPOLE. DO NOT PINCH SAFETY CLIMB.	SITE PRO 1 PRK-SFS-L	S-1 S-2 S-3
3	±121'-0"	CONNECT OUTERMOST MOUNT PIPES WITH PROPOSED BRACING PIPE USING SITE PRO 1 SCX1-K OR EQUAL, AS SHOWN.	PIPE 2 STD X 7'-0" LONG SITE PRO 1 SCX1-K	S-1 S-2



3 MOUNT - ISOMETRIC VIEW
SCALE: N.T.S.



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Tyler M. Barker
CLS Engineering PLLC
Director of Engineering
PE # 32402 Exp. 1/31/2021
COA # PEC.001833 Exp. 8/14/2022

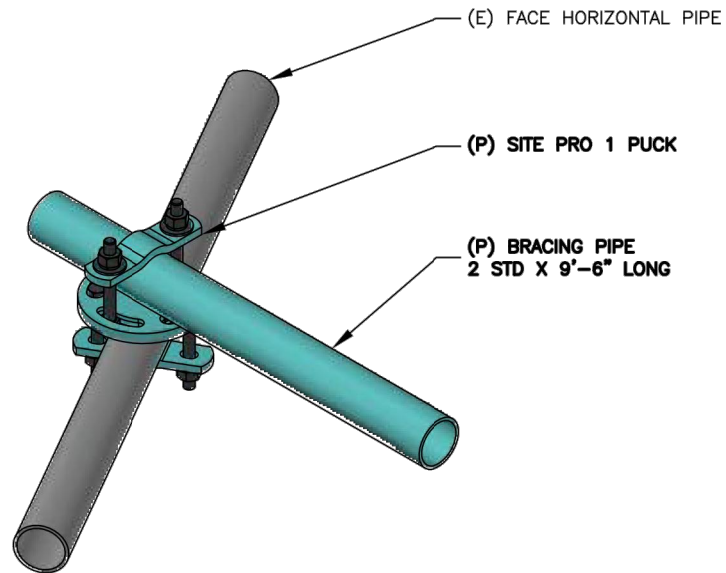
09/03/2020

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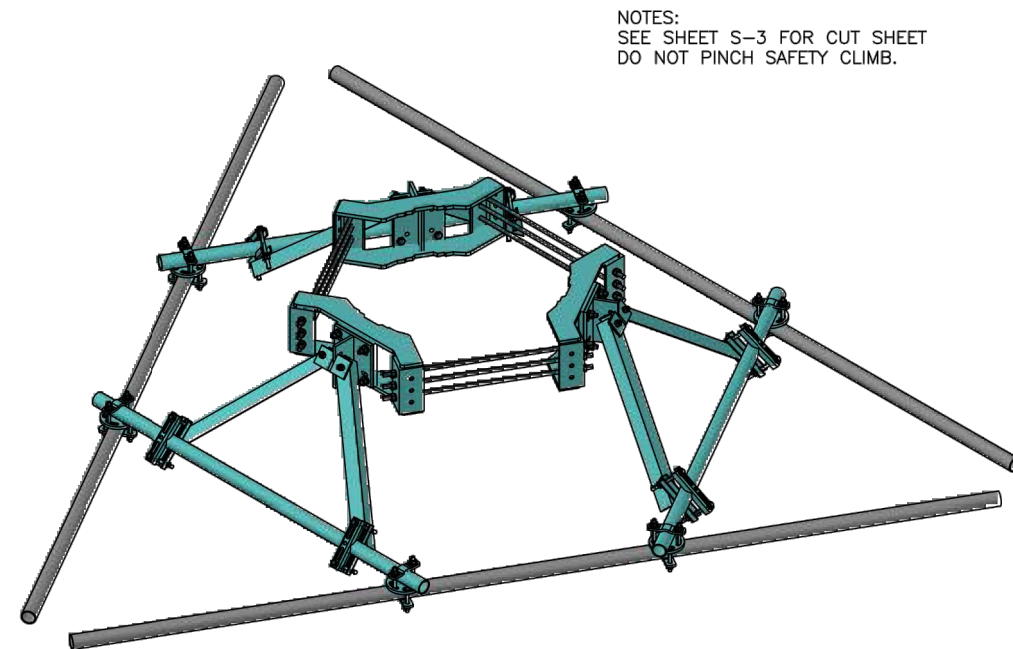
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PINE ORCHARD BRANFORD CT
ATC ASSET #: 283419
123 PINE ORCHARD ROAD
BRANFORD, CT 06405-3939

SHEET TITLE
**MOUNT VIEWS &
MODIFICATION SCHEDULE**

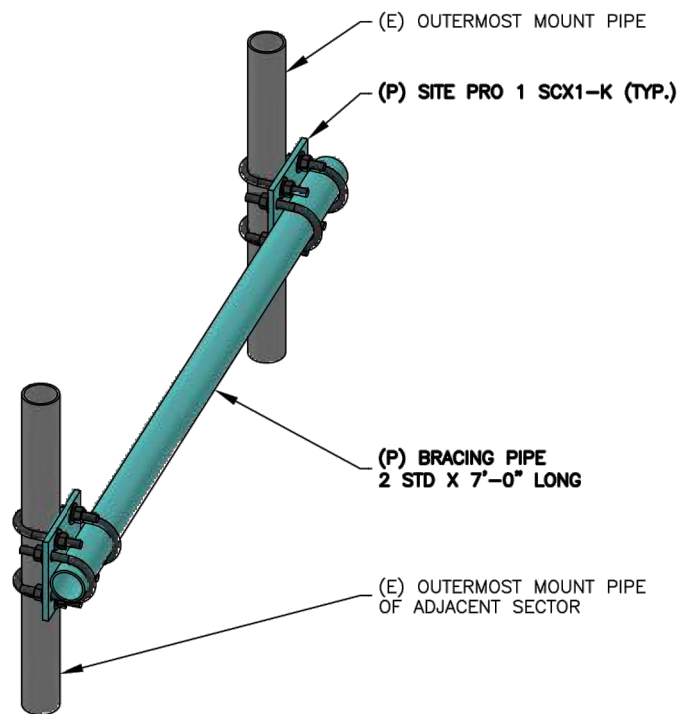
SHEET NUMBER
S-1



1 SITE PRO 1 PUCK CONNECTION
SCALE: N.T.S.



2 SITE PRO 1 PRK-SFS-L
SCALE: N.T.S.



3 BRACING PIPE CONNECTION DETAIL
SCALE: N.T.S.

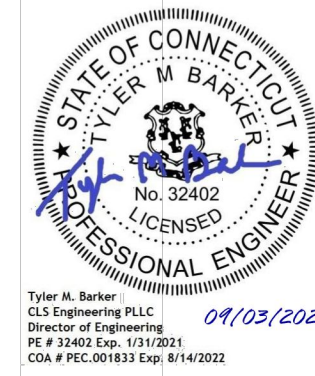


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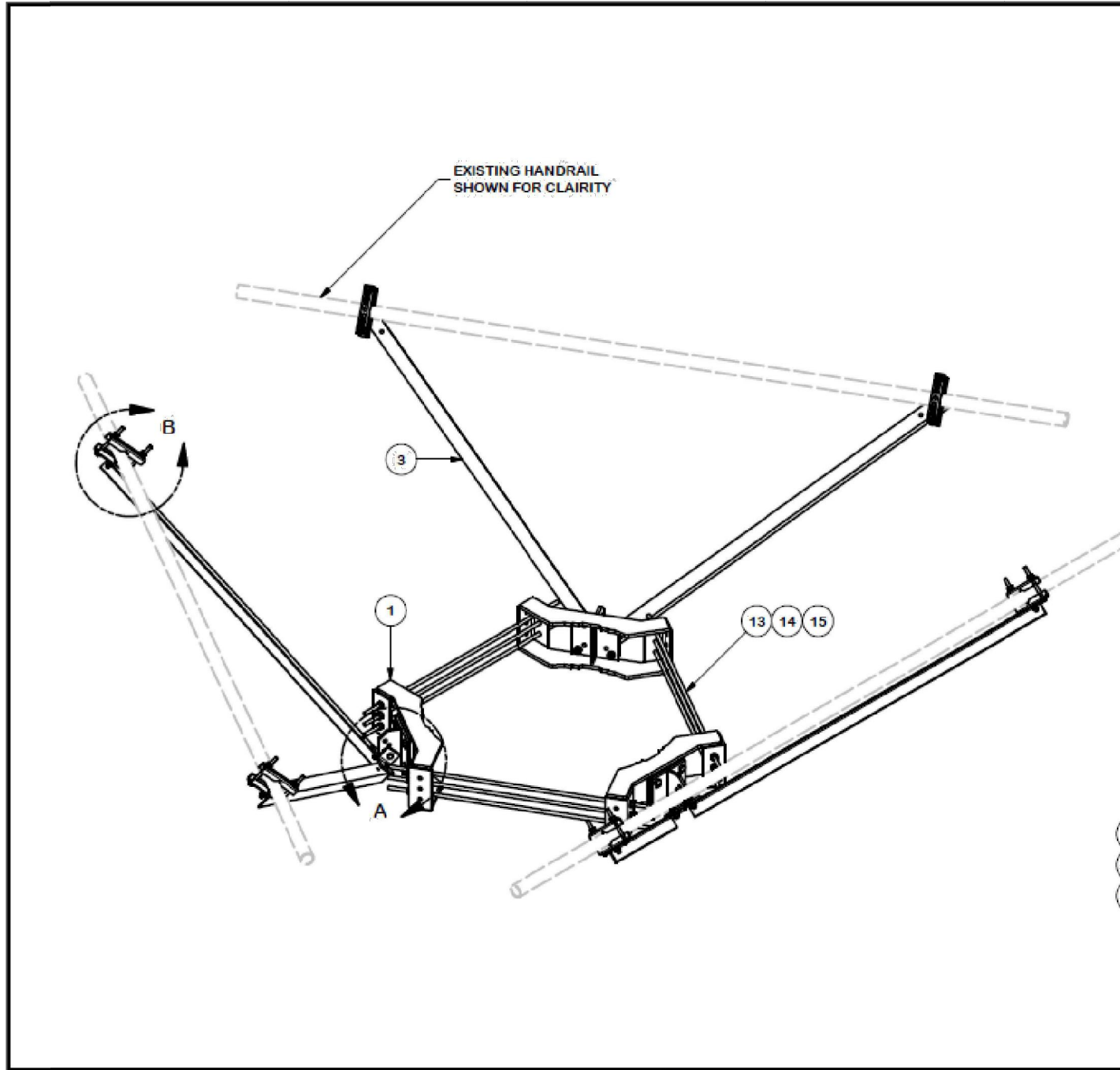
ATC SITE NAME:
PINE ORCHARD BRANFORD CT
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123 PINE ORCHARD ROAD
BRANFORD, CT 06405-3939

SHEET TITLE
MODIFICATION
DETAIL VIEWS

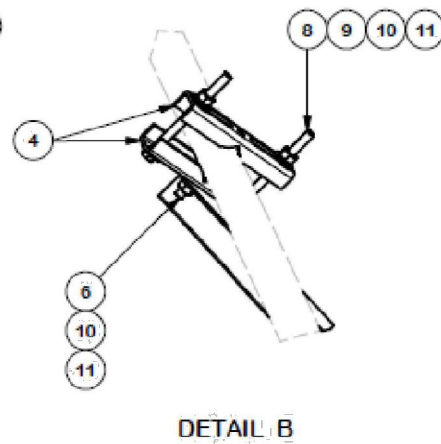
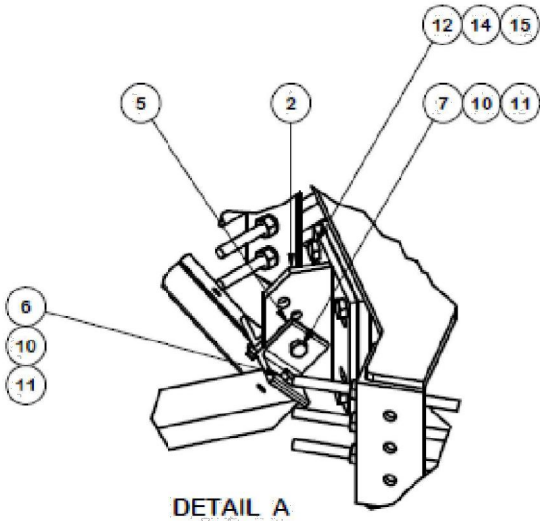
SHEET NUMBER

S-2

NOTE:
DO NOT PINCH SAFETY CLIMB.



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	X-LWRM	RING MOUNT WELDMENT		68.81	206.42
2	3	X-TBW	T-BRACKET WELDMENT		13.60	40.80
3	6	X-254924	DIAGONAL ANGLE - SITE PRO 1	72 in	19.71	118.24
4	12	X-STU	STIFF ARM CHANNEL BRACKET	8 1/2 in	1.37	16.46
5	6	SHCM-T	CHAIN MOUNT TIGHTENER BRACKET	3 in	1.86	11.15
6	12	G12112	1/2" x 1-1/2" HDG HEX BOLT GR5	1/2 in	0.15	1.77
7	3	G12212	1/2" x 2-1/2" HDG HEX BOLT GR5	2 1/2 in	0.20	0.61
8	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	4.91
9	24	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	0.82
10	27	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.38
11	27	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	1.93
12	12	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	3.75
13	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)	24 in	0.40	3.59
13	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)	48 in	0.40	3.59
14	30	G58LW	5/8" HDG LOCKWASHER		0.03	0.78
15	30	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	3.90
					TOTAL WT. #	642.04



REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	CHANGED MAX. DIA. FOR HANDRAIL CONNECTION	SP1	BC	10/25/2017

TOLERANCE NOTES
 TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$)
 DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING ($\pm 0.030"$)
 ALL OTHER ASSEMBLY ($\pm 0.060"$)

PROPRIETARY NOTE:
 THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION	
HANDRAIL REINFORCEMENT KIT (LONG)	
CPD NO.	SP1
DRAWN BY	CSL3 2/23/2017
ENG. APPROVAL	3RD PARTY
DRAWING USAGE	SHOP
CHECKED BY	BMC 9/8/2017

SITE PRO 1

Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX

Engineering:
 Support Team:
 1-888-753-7446

A valmont COMPANY

PART NO. PRK-SFS-L
 DWG. NO. PRK-SFS-L

1 OF 3



CLS ENGINEERING PLLC
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STATE OF CONNECTICUT
 TYLER M BARKER
 No. 32402
 LICENSED PROFESSIONAL ENGINEER

Tyler M. Barker
 CLS Engineering PLLC
 Director of Engineering
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SHEET TITLE
 REFERENCE CUT SHEET

SHEET NUMBER
S-3

G:\USERS\CRAIG.DUNN\DESKTOP\41124-283419-12927144-REV.DWG - CLS PROJECT ID: 41124-283419-12927144

Exhibit D

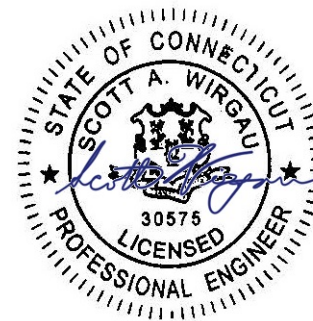
Structural Analysis Report



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 123 ft Monopole
ATC Site Name : PINE ORCHARD BRANFORD CT, CT
ATC Asset Number : 283419
Engineering Number : 12927144_C3_05
Proposed Carrier : T-MOBILE
Carrier Site Name : Amtrak_Branford
Carrier Site Number : CTNH801B
Site Location : 123 Pine Orchard Road
Branford, CT 06405-3939
41.274900,-72.793100
County : New Haven
Date : September 10, 2020
Max Usage : 53%
Result : Pass



Prepared By:
Kilian Bestram
Structural Engineer

Reviewed By:

Authorized by "EOR"
07 Oct 2020 05:03:52

COA: PEC.0001553



Table of Contents

Introduction	1
Supporting Documents	1
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Deflection and Sway	3
Standard Conditions	4
Calculations	Attached



Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 123 ft monopole to reflect the change in loading by T-MOBILE.

Supporting Documents

Tower Drawings	Sabre Job #11-05276, dated June 2, 2010
Foundation Drawing	Sabre Job #11-05276, dated June 2, 2010
Geotechnical Report	Terracon Project #J2105131, dated April 2, 2010
Mount Analysis and Modifications	ATC Project #12927144_C9_06, dated September 1, 2020

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	122 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Crest Height (H):	0 ft
Spectral Response:	$S_s = 0.20, S_1 = 0.05$
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.



Existing and Reserved Equipment

Elev. ¹ (ft)	Qty	Antenna	Mount Type	Lines	Carrier
122.0	3	Ericsson AIR 21, 1.3M, B4A B2P	T-Arm	(1) 1 5/8" (1.63"-41.3mm) Fiber (6) 1 5/8" Coax	T-MOBILE
	3	Ericsson AIR 21, 1.3 M, B2A B4P			
112.0	3	Ericsson RRUS 11 (Band 12)	T-Arm	(2) 0.45" (11.5mm) Fiber (1) 0.40" (10.3mm) Fiber (2) 0.78" (19.7mm) 8 AWG 6 (12) 1 5/8" Coax (1) 2" conduit	AT&T MOBILITY
	3	Commscope SBNHH-1D65A			
	1	Raycap DC6-48-60-18-8F			
	6	Powerwave Allgon TT19-08BP111-001			
	6	Powerwave Allgon P90-15-XLH-RR			
	3	Ericsson RRUS 32 B2			
102.0	3	Alcatel-Lucent B66 RRH4x45	T-Arm	(2) 1 5/8" (1.63"-41.3mm) Fiber (12) 1 5/8" Coax	VERIZON WIRELESS
	2	Raycap RC2DC-3315-PF-48			
	2	Swedcom SC-E 6016 REV2			
	6	Andrew SBNHH-1D65B			
	4	Antel LPA-80063/6CF			
	3	Alcatel-Lucent RRH2x60 700			

Equipment to be Removed

Elev. ¹ (ft)	Qty	Antenna	Mount Type	Lines	Carrier
120.0	3	Ericsson RRUS 11 B12	-	*(11) 1 5/8" Coax	T-MOBILE
	3	Andrew LNX-6515DS-VTM			
	3	Ericsson KRY 112 71			

Proposed Equipment

Elev. ¹ (ft)	Qty	Antenna	Mount Type	Lines	Carrier
120.0	3	Ericsson KRY 112 144/1	T-Arm	(3) 1 5/8" (1.63" – 41.3mm) Fiber	T-MOBILE
	3	Ericsson Radio 4449 B12, B71			
	3	RFS APXVAARR24_43-U-NA20			

¹ Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

* (6) coax are being physically removed and (5) coax are being removed from the lease

Install proposed coax inside the pole shaft.



Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	44%	Pass
Shaft	53%	Pass
Base Plate	37%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	3,210.8	4,334.6	2,002.3	46%
Shear (Kips)	36.1	48.7	22.9	47%

* The design reactions are factored by 1.35 per ANSI/TIA-222-H, Sec. 15.6.2

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
122.0	Ericsson AIR 21, 1.3M, B4A B2P	T-MOBILE	0.878	0.770
	Ericsson AIR 21, 1.3 M, B2A B4P			
120.0	Ericsson KRY 112 144/1			
	Ericsson Radio 4449 B12, B71			
	RFS APXVAARR24_43-U-NA20			

*Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-H



Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

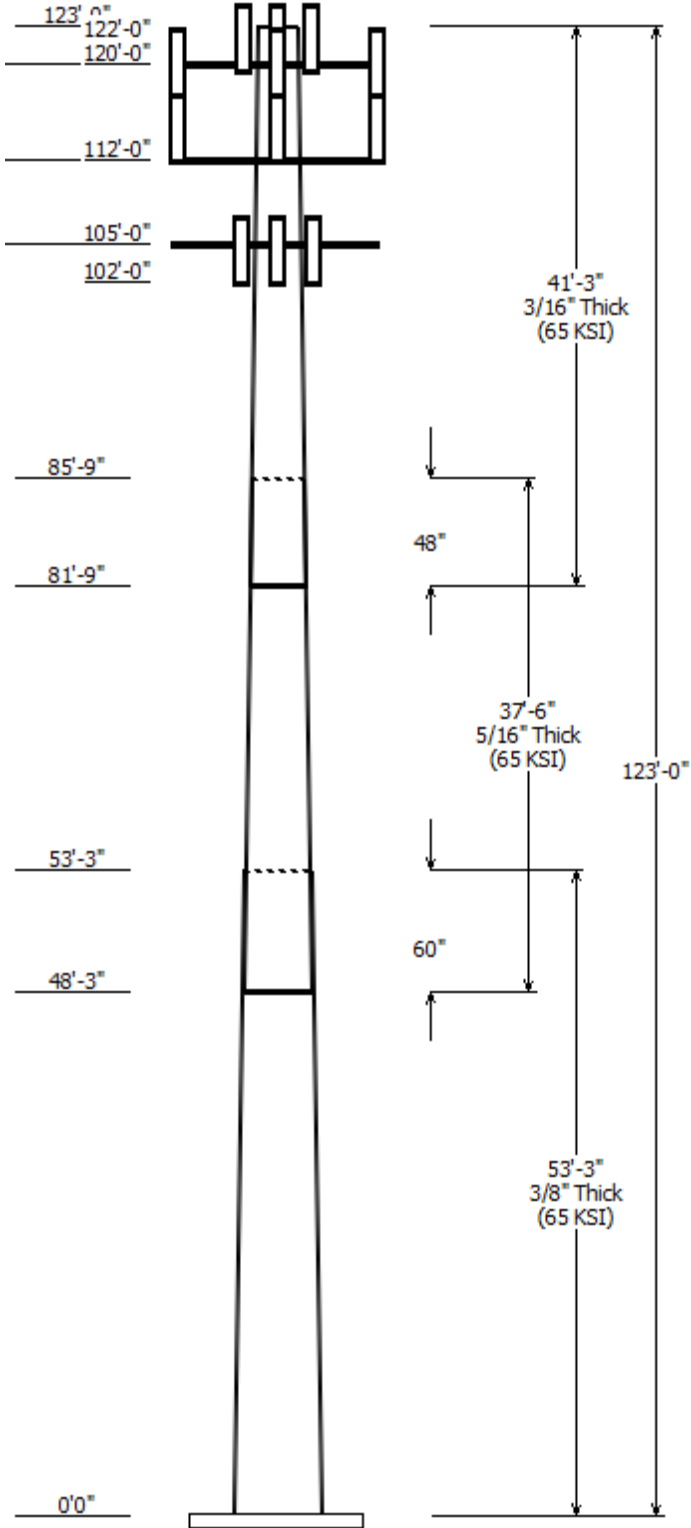
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.



Job Information	
Client : T-MOBILE	Code: ANSI/TIA-222-H
Pole : 283419	
Location : PINE ORCHARD BRANFORD CT, CT	
Description :	Risk Category : II
Shape : 18 Sides	Exposure : C
Height : 123.00 (ft)	Topo Method : Method 1
Base Elev (ft): 0.00	Topographic Category : 1
Taper: 0.25000@in/ft)	

Sections Properties						
Shaft Section	Length (ft)	Diameter (in)		Thick Joint (in)	Overlap Length (in)	Steel Grade
		Top	Bottom			
1	53.250	37.43	50.75	0.375	0.000	18 Sides 65
2	37.500	29.93	39.31	0.313	60.000	18 Sides 65
3	41.250	21.00	31.31	0.188	48.000	18 Sides 65

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
122.000	122.000	3	Ericsson AIR 21, 1.3M, B4A B2P
122.000	122.000	3	Ericsson AIR 21, 1.3 M, B2A B4
120.000	120.000	3	RFS APXVAARR24_43-U-NA20
120.000	120.000	3	Ericsson Radio 4449 B12,B71
120.000	120.000	3	Ericsson KRY 112 144/1
120.000	120.000	3	Generic Flat T-Arm
112.000	114.000	3	Ericsson RRUS 11 (Band 12)
112.000	112.000	3	Round T-Arm
112.000	114.000	3	Commscope SBNHH-1D65A
112.000	114.000	3	Ericsson RRUS 32 B2
112.000	114.000	1	Raycap DC6-48-60-18-8F
112.000	114.000	6	Powerwave Allgon TT19-
112.000	114.000	6	Powerwave Allgon P90-15-
105.000	105.000	3	Round T-Arm
102.000	103.000	4	Antel LPA-80063/6CF
102.000	103.000	6	Andrew SBNHH-1D65B
102.000	103.000	2	Swedcom SC-E 6016 REV2
102.000	103.000	2	Raycap RC2DC-3315-PF-48
102.000	103.000	3	Alcatel-Lucent B66 RRH4x45
102.000	103.000	3	Alcatel-Lucent RRH2x60 700

Linear Appurtenance			
Elev (ft) From	To	Description	Exposed To Wind
0.000	102.0	1 5/8" (1.63"-	No
0.000	102.0	1 5/8" Coax	No
0.000	112.0	0.40" (10.3mm)	No
0.000	112.0	0.45" (11.5mm)	No
0.000	112.0	0.78" (19.7mm) 8	No
0.000	112.0	1 5/8" Coax	No
0.000	112.0	2" conduit	No
0.000	120.0	1 5/8" (1.63"-	No
0.000	122.0	1 5/8" (1.63"-	No
0.000	122.0	1 5/8" Coax	No

Load Cases	
1.2D + 1.0W	122 mph with No Ice
0.9D + 1.0W	122 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic

0.9D - 1.0Ev + 1.0Eh
1.0D + 1.0W

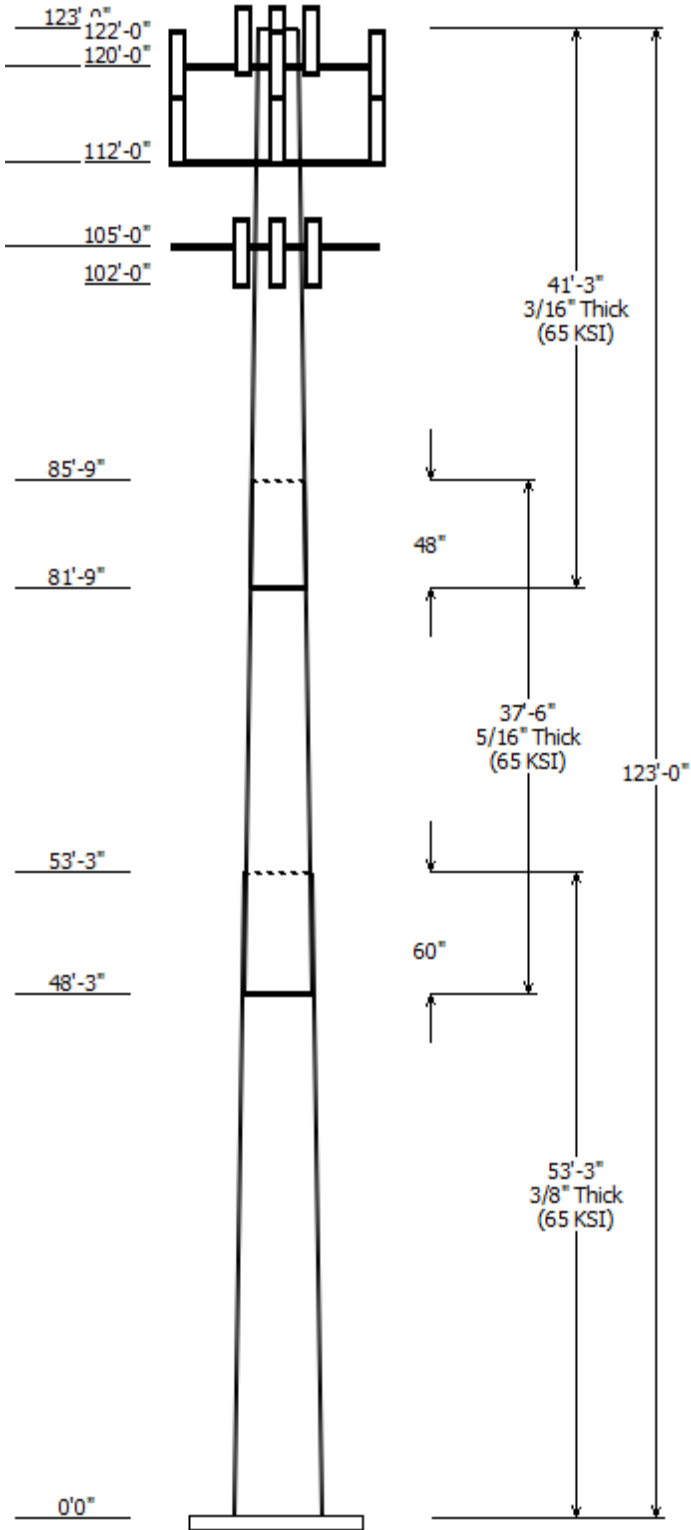
Seismic (Reduced DL)
Serviceability 60 mph

Reactions

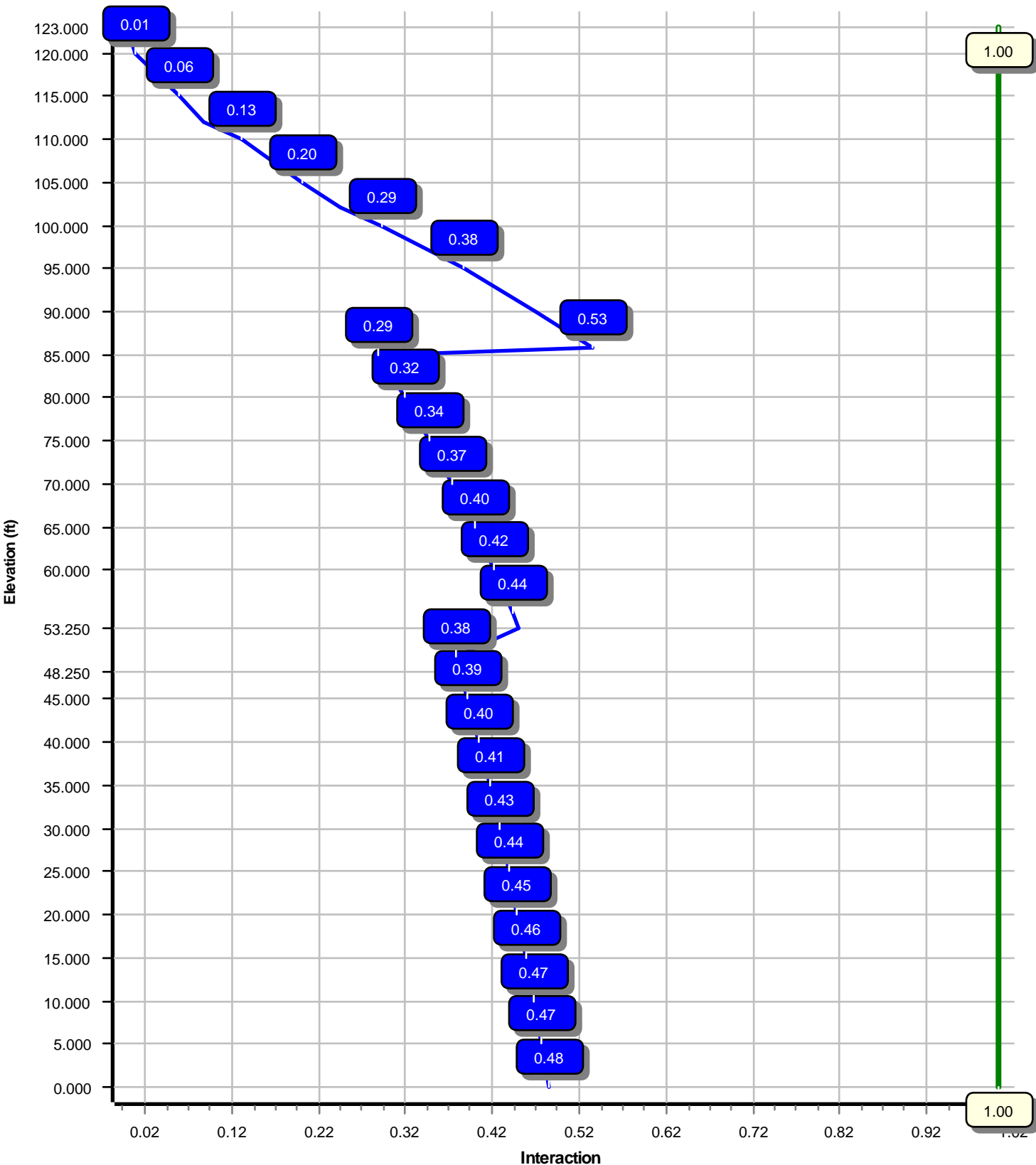
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.0W	2002.32	22.88	30.73
0.9D + 1.0W	1990.63	22.87	23.04
1.2D + 1.0Di + 1.0Wi	487.77	5.77	41.44
1.2D + 1.0Ev + 1.0Eh	89.12	0.96	30.36
0.9D - 1.0Ev + 1.0Eh	88.50	0.95	20.94
1.0D + 1.0W	431.79	4.95	25.63

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000



Load Case : 1.2D + 1.0W
Max Ratio 53.17% at 85.8 ft



Site Number: 283419

Code: ANSI/TIA-222-H

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Site Name: PINE ORCHARD BRANFORD CT, Engineering Number: 12927144_C3_05

9/10/2020 5:38:20 PM

Customer: T-MOBILE

Analysis Parameters

Location :	New Haven County, CT	Height (ft) :	123
Code :	ANSI/TIA-222-H	Base Diameter (in) :	50.75
Shape :	18 Sides	Top Diameter (in) :	21.00
Pole Type :	Taper	Taper (in/ft) :	0.250
Pole Manufacturer :	Sabre	Rotation (deg) :	0.00
Kd (non-service) :	0.95	Ke :	1.00

Ice & Wind Parameters

Exposure Category:	C	Design Wind Speed Without Ice:	122 mph
Risk Category:	II	Design Wind Speed With Ice:	50 mph
Topographic Factor Procedure:	Method 1	Operational Wind Speed:	60 mph
Topographic Category:	1	Design Ice Thickness:	1.00 in
Crest Height:	0 ft	HMSL:	30.00 ft

Seismic Parameters

Analysis Method:	Equivalent Lateral Force Method		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	1.52		
T_L (sec):	6	p :	1
S_s :	0.201	S_1 :	0.053
F_a :	1.600	F_v :	2.400
S_{ds} :	0.214	S_{d1} :	0.085
		C_s :	0.037
		C_s Max:	0.037
		C_s Min:	0.030

Load Cases

1.2D + 1.0W	122 mph with No Ice
0.9D + 1.0W	122 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom						Top						
							Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-18	53.250	0.3750	65		0.00	9,429	50.75	0.00	59.96	19223.0	22.10	135.33	37.43	53.25	44.11	7655.6	15.84	99.83	0.250000
2-18	37.500	0.3125	65	Slip	60.00	4,343	39.31	48.25	38.68	7433.4	20.42	125.80	29.93	85.75	29.38	3258.1	15.13	95.80	0.250000
3-18	41.250	0.1875	65	Slip	48.00	2,169	31.31	81.75	18.52	2267.1	27.68	167.00	21.00	123.00	12.39	677.8	17.99	112.00	0.250000
Shaft Weight						15,940													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor	Weight (lb)	Ice EPAa (sf)	Orientation Factor
122.00	Ericsson AIR 21, 1.3 M, B2A B4P	3	0.80	0.000	83.00	6.049	0.71	178.42	7.462	0.71
122.00	Ericsson AIR 21, 1.3M, B4A B2P	3	0.80	0.000	81.50	6.092	0.70	176.57	7.507	0.70
120.00	Ericsson KRY 112 144/1	3	0.80	0.000	11.00	0.351	0.50	18.01	0.616	0.50
120.00	Ericsson Radio 4449 B12,B71	3	0.80	0.000	74.00	1.639	0.50	110.50	2.189	0.50
120.00	Generic Flat T-Arm	3	0.75	0.000	312.50	12.900	0.67	482.81	18.231	0.67
120.00	RFS APXVAARR24_43-U-NA20	3	0.80	0.000	127.90	20.243	0.63	383.83	22.661	0.63
112.00	Powerwave Allgon TT19-	6	0.80	2.000	16.00	0.553	0.50	29.09	0.884	0.50
112.00	Raycap DC6-48-60-18-8F	1	0.80	2.000	20.00	1.260	1.00	54.13	1.687	1.00
112.00	Ericsson RRUS 32 B2	3	0.80	2.000	53.00	2.743	0.67	100.68	3.501	0.67
112.00	Ericsson RRUS 11 (Band 12)	3	0.80	2.000	50.00	2.990	0.67	94.19	3.781	0.67
112.00	Commscope SBNHH-1D65A	3	0.80	2.000	33.50	5.883	0.69	121.24	7.262	0.69
112.00	Powerwave Allgon P90-15-XLH-	6	0.80	2.000	53.00	8.133	0.67	159.77	9.940	0.67
112.00	Round T-Arm	3	0.75	0.000	250.00	9.700	0.67	385.48	15.044	0.67
105.00	Round T-Arm	3	0.75	0.000	250.00	9.700	0.67	384.53	15.007	0.67
102.00	Alcatel-Lucent RRH2x60 700	3	0.80	1.000	56.70	2.150	0.67	100.40	2.793	0.67
102.00	Alcatel-Lucent B66 RRH4x45	3	0.80	1.000	67.00	2.580	0.67	112.50	3.304	0.67
102.00	Raycap RC2DC-3315-PF-48	2	0.80	1.000	32.00	3.781	0.77	102.39	4.630	0.77
102.00	Swedcom SC-E 6016 REV2	2	0.80	1.000	25.00	7.630	0.83	149.77	8.556	0.83
102.00	Andrew SBNHH-1D65B	6	0.80	1.000	50.70	8.173	0.69	163.38	9.990	0.69
102.00	Antel LPA-80063/6CF	4	0.80	1.000	27.00	9.593	0.76	202.07	10.446	0.76
Totals	Num Loadings:20									
		66			5,310.50			11,427.65		

Linear Appurtenance Properties

Load Case Azimuth (deg) :

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Max Coax / Flat Row	Dist Between Rows (in)	Dist Between Cols (in)	Azimuth (deg)	Dist From Face (in)	Dist Exposed To Wind Carrier
0.00	122.00	1	1 5/8" (1.63"-41.3mm)	1.63	1.61	N 0	0.00	0.00	0	0.00	N T-MOBILE
0.00	122.00	6	1 5/8" Coax	1.98	0.82	N 0	0.00	0.00	0	0.00	N T-MOBILE
0.00	120.00	3	1 5/8" (1.63"-41.3mm)	1.63	1.61	N 0	0.00	0.00	0	0.00	N T-MOBILE
0.00	112.00	1	0.40" (10.3mm) Fiber	0.40	0.09	N 0	0.00	0.00	0	0.00	N AT&T MOBILITY
0.00	112.00	2	0.45" (11.5mm) Fiber	0.45	0.08	N 0	0.00	0.00	0	0.00	N
0.00	112.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N 0	0.00	0.00	0	0.00	N AT&T MOBILITY
0.00	112.00	12	1 5/8" Coax	1.98	0.82	N 0	0.00	0.00	0	0.00	N AT&T MOBILITY
0.00	112.00	1	2" conduit	2.38	3.65	N 0	0.00	0.00	0	0.00	N AT&T MOBILITY
0.00	102.00	2	1 5/8" (1.63"-41.3mm)	1.63	1.61	N 0	0.00	0.00	0	0.00	N VERIZON WIRELESS
0.00	102.00	12	1 5/8" Coax	1.98	0.82	N 0	0.00	0.00	0	0.00	N VERIZON WIRELESS

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in ³)	Z (in ³)	Weight (lb)
0.00		0.3750	50.750	59.957	19,223.0	22.10	135.33	75.4	746.0	0.0	0.0
5.00		0.3750	49.500	58.469	17,827.2	21.51	132.00	76.1	709.3	0.0	1,007.4
10.00		0.3750	48.250	56.981	16,500.7	20.92	128.67	76.8	673.6	0.0	982.1
15.00		0.3750	47.000	55.493	15,241.7	20.34	125.33	77.5	638.7	0.0	956.8
20.00		0.3750	45.750	54.006	14,048.4	19.75	122.00	78.2	604.8	0.0	931.5
25.00		0.3750	44.500	52.518	12,919.0	19.16	118.67	78.9	571.8	0.0	906.2
30.00		0.3750	43.250	51.030	11,851.9	18.57	115.33	79.6	539.7	0.0	880.9
35.00		0.3750	42.000	49.542	10,845.2	17.99	112.00	80.2	508.6	0.0	855.6
40.00		0.3750	40.750	48.055	9,897.2	17.40	108.67	80.9	478.4	0.0	830.3
45.00		0.3750	39.500	46.567	9,006.1	16.81	105.33	81.6	449.1	0.0	804.9
48.25	Bot - Section 2	0.3750	38.688	45.600	8,456.6	16.43	103.17	82.1	430.5	0.0	509.6
50.00		0.3750	38.250	45.079	8,170.2	16.22	102.00	82.3	420.7	0.0	499.0
53.25	Top - Section 1	0.3125	38.063	37.442	6,741.3	19.71	121.80	78.2	348.8	0.0	911.7
55.00		0.3125	37.625	37.008	6,509.6	19.47	120.40	78.5	340.8	0.0	221.7
60.00		0.3125	36.375	35.768	5,877.1	18.76	116.40	79.3	318.2	0.0	619.1
65.00		0.3125	35.125	34.528	5,286.9	18.06	112.40	80.2	296.5	0.0	598.0
70.00		0.3125	33.875	33.289	4,737.6	17.35	108.40	81.0	275.5	0.0	576.9
75.00		0.3125	32.625	32.049	4,227.7	16.65	104.40	81.8	255.2	0.0	555.8
80.00		0.3125	31.375	30.809	3,755.8	15.94	100.40	82.6	235.8	0.0	534.7
81.75	Bot - Section 3	0.3125	30.938	30.375	3,599.3	15.69	99.00	82.6	229.1	0.0	182.2
85.00		0.3125	30.125	29.569	3,320.4	15.23	96.40	82.6	217.1	0.0	533.6
85.75	Top - Section 2	0.1875	30.313	17.927	2,055.5	26.74	161.67	69.9	133.6	0.0	121.1
90.00		0.1875	29.250	17.295	1,845.6	25.74	156.00	71.1	124.3	0.0	254.7
95.00		0.1875	28.000	16.551	1,617.6	24.57	149.33	72.5	113.8	0.0	287.9
100.0		0.1875	26.750	15.807	1,409.1	23.39	142.67	73.9	103.8	0.0	275.3
102.0		0.1875	26.250	15.510	1,331.0	22.92	140.00	74.4	99.9	0.0	106.6
105.0		0.1875	25.500	15.064	1,219.4	22.22	136.00	75.3	94.2	0.0	156.1
110.0		0.1875	24.250	14.320	1,047.5	21.04	129.33	76.7	85.1	0.0	250.0
112.0		0.1875	23.750	14.022	983.6	20.57	126.67	77.2	81.6	0.0	96.4
115.0		0.1875	23.000	13.576	892.6	19.87	122.67	78.0	76.4	0.0	140.9
120.0		0.1875	21.750	12.832	753.8	18.69	116.00	79.4	68.3	0.0	224.6
122.0		0.1875	21.250	12.534	702.5	18.22	113.33	80.0	65.1	0.0	86.3
123.0		0.1875	21.000	12.386	677.8	17.99	112.00	80.2	63.6	0.0	42.4
15,940.4											

Load Case: 1.2D + 1.0W	122 mph with No Ice	21 Iterations
Gust Response Factor :1.10		
Dead Load Factor :1.20		
Wind Load Factor :1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		261.7	0.0					0.0	0.0	261.7	0.0	0.0	0.0
5.00		516.9	1,208.9					0.0	236.0	516.9	1,445.0	0.0	0.0
10.00		503.8	1,178.6					0.0	236.0	503.8	1,414.6	0.0	0.0
15.00		498.4	1,148.2					0.0	236.0	498.4	1,384.2	0.0	0.0
20.00		506.0	1,117.8					0.0	236.0	506.0	1,353.8	0.0	0.0
25.00		516.2	1,087.4					0.0	236.0	516.2	1,323.5	0.0	0.0
30.00		521.4	1,057.1					0.0	236.0	521.4	1,293.1	0.0	0.0
35.00		523.2	1,026.7					0.0	236.0	523.2	1,262.7	0.0	0.0
40.00		522.1	996.3					0.0	236.0	522.1	1,232.3	0.0	0.0
45.00		428.7	965.9					0.0	236.0	428.7	1,202.0	0.0	0.0
48.25	Bot - Section 2	259.8	611.6					0.0	153.4	259.8	765.0	0.0	0.0
50.00		260.7	598.9					0.0	82.6	260.7	681.5	0.0	0.0
53.25	Top - Section 1	259.6	1,094.1					0.0	153.4	259.6	1,247.5	0.0	0.0
55.00		346.5	266.0					0.0	82.6	346.5	348.6	0.0	0.0
60.00		507.7	742.9					0.0	236.0	507.7	979.0	0.0	0.0
65.00		498.6	717.6					0.0	236.0	498.6	953.7	0.0	0.0
70.00		488.5	692.3					0.0	236.0	488.5	928.3	0.0	0.0
75.00		477.3	667.0					0.0	236.0	477.3	903.0	0.0	0.0
80.00		316.8	641.7					0.0	236.0	316.8	877.7	0.0	0.0
81.75	Bot - Section 3	231.4	218.6					0.0	82.6	231.4	301.2	0.0	0.0
85.00		184.6	640.4					0.0	153.4	184.6	793.8	0.0	0.0
85.75	Top - Section 2	225.8	145.3					0.0	35.4	225.8	180.8	0.0	0.0
90.00		410.4	305.6					0.0	200.6	410.4	506.3	0.0	0.0
95.00		430.6	345.5					0.0	236.0	430.6	581.6	0.0	0.0
100.00		294.3	330.3					0.0	236.0	294.3	566.4	0.0	0.0
102.00	Appurtenance(s)	204.1	127.9	3,687.4	0.0	3,687.4	1,076.8	0.0	94.4	3,891.5	1,299.1	0.0	0.0
105.00	Appurtenance(s)	317.9	187.3	743.7	0.0	0.0	900.0	0.0	94.6	1,061.6	1,181.9	0.0	0.0
110.00		272.6	300.0					0.0	157.7	272.6	457.6	0.0	0.0
112.00	Appurtenance(s)	188.3	115.7	3,209.4	0.0	4,911.0	1,912.2	0.0	63.1	3,397.6	2,091.0	0.0	0.0
115.00		291.9	169.0					0.0	40.9	291.9	209.9	0.0	0.0
120.00	Appurtenance(s)	249.5	269.6	2,743.2	0.0	0.0	1,891.4	0.0	68.2	2,992.7	2,229.2	0.0	0.0
122.00	Appurtenance(s)	99.2	103.6	1,078.3	0.0	0.0	592.2	0.0	15.7	1,177.5	711.5	0.0	0.0
123.00		29.6	50.9					0.0	0.0	29.6	50.9	0.0	0.0
Totals:										23,106.2	30,756.4	0.00	0.00

Load Case: 1.2D + 1.0W

122 mph with No Ice

21 Iterations

Gust Response Factor :1.10

Dead Load Factor :1.20

Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-30.73	-22.88	0.00	-2,002.32	0.00	2,002.32	4,069.07	1,052.24	4,787.63	4,219.32	0.00	0.00	0.483
5.00	-29.23	-22.44	0.00	-1,887.91	0.00	1,887.91	4,004.48	1,026.13	4,553.01	4,048.54	0.08	-0.14	0.474
10.00	-27.76	-22.00	0.00	-1,775.72	0.00	1,775.72	3,938.03	1,000.02	4,324.28	3,879.29	0.31	-0.29	0.465
15.00	-26.32	-21.56	0.00	-1,665.71	0.00	1,665.71	3,869.74	973.91	4,101.44	3,711.71	0.69	-0.44	0.456
20.00	-24.91	-21.11	0.00	-1,557.91	0.00	1,557.91	3,799.59	947.80	3,884.50	3,545.95	1.23	-0.59	0.446
25.00	-23.54	-20.64	0.00	-1,452.36	0.00	1,452.36	3,727.59	921.69	3,673.45	3,382.14	1.93	-0.74	0.436
30.00	-22.20	-20.16	0.00	-1,349.15	0.00	1,349.15	3,653.75	895.58	3,468.30	3,220.43	2.79	-0.90	0.426
35.00	-20.89	-19.67	0.00	-1,248.35	0.00	1,248.35	3,578.04	869.47	3,269.04	3,060.96	3.81	-1.05	0.414
40.00	-19.62	-19.18	0.00	-1,149.98	0.00	1,149.98	3,500.49	843.36	3,075.67	2,903.89	5.00	-1.21	0.402
45.00	-18.39	-18.77	0.00	-1,054.07	0.00	1,054.07	3,421.09	817.25	2,888.20	2,749.35	6.35	-1.37	0.389
48.25	-17.60	-18.51	0.00	-993.07	0.00	993.07	3,368.49	800.28	2,769.51	2,650.32	7.32	-1.47	0.380
50.00	-16.90	-18.26	0.00	-960.67	0.00	960.67	3,339.84	791.14	2,706.63	2,597.48	7.87	-1.53	0.375
53.25	-15.64	-17.99	0.00	-901.32	0.00	901.32	2,635.64	657.11	2,240.55	2,046.33	8.95	-1.64	0.447
55.00	-15.26	-17.66	0.00	-869.84	0.00	869.84	2,614.77	649.49	2,188.92	2,006.40	9.56	-1.69	0.440
60.00	-14.24	-17.17	0.00	-781.52	0.00	781.52	2,553.87	627.73	2,044.74	1,893.48	11.43	-1.87	0.419
65.00	-13.26	-16.68	0.00	-695.67	0.00	695.67	2,491.13	605.97	1,905.46	1,782.39	13.49	-2.05	0.396
70.00	-12.30	-16.20	0.00	-612.27	0.00	612.27	2,426.53	584.22	1,771.10	1,673.28	15.73	-2.23	0.372
75.00	-11.37	-15.72	0.00	-531.29	0.00	531.29	2,360.09	562.46	1,641.65	1,566.29	18.16	-2.40	0.345
80.00	-10.47	-15.38	0.00	-452.71	0.00	452.71	2,288.96	540.70	1,517.11	1,459.75	20.76	-2.57	0.316
81.75	-10.16	-15.15	0.00	-425.79	0.00	425.79	2,256.72	533.08	1,474.68	1,418.72	21.71	-2.62	0.305
85.00	-9.36	-14.94	0.00	-376.55	0.00	376.55	2,196.84	518.94	1,397.48	1,344.07	23.53	-2.73	0.285
85.75	-9.17	-14.72	0.00	-365.35	0.00	365.35	1,128.57	314.63	856.05	700.67	23.96	-2.75	0.532
90.00	-8.65	-14.31	0.00	-302.80	0.00	302.80	1,107.06	303.53	796.73	662.92	26.47	-2.87	0.467
95.00	-8.04	-13.88	0.00	-231.25	0.00	231.25	1,080.04	290.48	729.68	618.75	29.59	-3.08	0.383
100.00	-7.47	-13.56	0.00	-161.88	0.00	161.88	1,051.16	277.42	665.57	574.96	32.92	-3.25	0.291
102.00	-6.38	-9.61	0.00	-131.06	0.00	131.06	1,039.10	272.20	640.75	557.59	34.29	-3.31	0.242
105.00	-5.25	-8.49	0.00	-102.22	0.00	102.22	1,020.44	264.37	604.41	531.71	36.40	-3.39	0.198
110.00	-4.80	-8.20	0.00	-59.76	0.00	59.76	987.87	251.31	546.19	489.13	40.00	-3.48	0.128
112.00	-2.92	-4.68	0.00	-38.46	0.00	38.46	974.32	246.09	523.73	472.32	41.46	-3.51	0.085
115.00	-2.73	-4.38	0.00	-24.42	0.00	24.42	953.44	238.26	490.93	447.37	43.68	-3.54	0.058
120.00	-0.69	-1.25	0.00	-2.54	0.00	2.54	917.17	225.20	438.61	406.57	47.40	-3.56	0.007
122.00	-0.05	-0.03	0.00	-0.03	0.00	0.03	902.14	219.98	418.50	390.56	48.89	-3.56	0.000
123.00	0.00	-0.03	0.00	0.00	0.00	0.00	894.51	217.37	408.63	382.62	49.63	-3.56	0.000

Load Case: 0.9D + 1.0W

122 mph with No Ice (Reduced DL)

21 Iterations

Gust Response Factor :1.10

Dead Load Factor :0.90

Wind Load Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		261.7	0.0					0.0	0.0	261.7	0.0	0.0	0.0
5.00		516.9	906.7					0.0	177.0	516.9	1,083.7	0.0	0.0
10.00		503.8	883.9					0.0	177.0	503.8	1,060.9	0.0	0.0
15.00		498.4	861.1					0.0	177.0	498.4	1,038.2	0.0	0.0
20.00		506.0	838.4					0.0	177.0	506.0	1,015.4	0.0	0.0
25.00		516.2	815.6					0.0	177.0	516.2	992.6	0.0	0.0
30.00		521.4	792.8					0.0	177.0	521.4	969.8	0.0	0.0
35.00		523.2	770.0					0.0	177.0	523.2	947.0	0.0	0.0
40.00		522.1	747.2					0.0	177.0	522.1	924.3	0.0	0.0
45.00		428.7	724.4					0.0	177.0	428.7	901.5	0.0	0.0
48.25	Bot - Section 2	259.8	458.7					0.0	115.1	259.8	573.7	0.0	0.0
50.00		260.7	449.1					0.0	62.0	260.7	511.1	0.0	0.0
53.25	Top - Section 1	259.6	820.5					0.0	115.1	259.6	935.6	0.0	0.0
55.00		346.5	199.5					0.0	62.0	346.5	261.5	0.0	0.0
60.00		507.7	557.2					0.0	177.0	507.7	734.2	0.0	0.0
65.00		498.6	538.2					0.0	177.0	498.6	715.2	0.0	0.0
70.00		488.5	519.2					0.0	177.0	488.5	696.3	0.0	0.0
75.00		477.3	500.2					0.0	177.0	477.3	677.3	0.0	0.0
80.00		316.8	481.3					0.0	177.0	316.8	658.3	0.0	0.0
81.75	Bot - Section 3	231.4	164.0					0.0	62.0	231.4	225.9	0.0	0.0
85.00		184.6	480.3					0.0	115.1	184.6	595.3	0.0	0.0
85.75	Top - Section 2	225.8	109.0					0.0	26.6	225.8	135.6	0.0	0.0
90.00		410.4	229.2					0.0	150.5	410.4	379.7	0.0	0.0
95.00		430.6	259.1					0.0	177.0	430.6	436.2	0.0	0.0
100.00		294.3	247.7					0.0	177.0	294.3	424.8	0.0	0.0
102.00	Appurtenance(s)	204.1	95.9	3,687.4	0.0	3,687.4	807.6	0.0	70.8	3,891.5	974.3	0.0	0.0
105.00	Appurtenance(s)	317.9	140.4	743.7	0.0	0.0	675.0	0.0	71.0	1,061.6	886.4	0.0	0.0
110.00		272.6	225.0					0.0	118.3	272.6	343.2	0.0	0.0
112.00	Appurtenance(s)	188.3	86.8	3,209.4	0.0	4,911.0	1,434.1	0.0	47.3	3,397.6	1,568.3	0.0	0.0
115.00		291.9	126.8					0.0	30.7	291.9	157.4	0.0	0.0
120.00	Appurtenance(s)	249.5	202.2	2,743.2	0.0	0.0	1,418.6	0.0	51.1	2,992.7	1,671.9	0.0	0.0
122.00	Appurtenance(s)	99.2	77.7	1,078.3	0.0	0.0	444.1	0.0	11.8	1,177.5	533.6	0.0	0.0
123.00		29.6	38.2					0.0	0.0	29.6	38.2	0.0	0.0
Totals:										23,106.2	23,067.3	0.00	0.00

Load Case: 0.9D + 1.0W

122 mph with No Ice (Reduced DL)

21 Iterations

Gust Response Factor :1.10

Dead Load Factor :0.90

Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-23.04	-22.87	0.00	-1,990.63	0.00	1,990.63	4,069.07	1,052.24	4,787.63	4,219.32	0.00	0.00	0.478
5.00	-21.90	-22.41	0.00	-1,876.27	0.00	1,876.27	4,004.48	1,026.13	4,553.01	4,048.54	0.08	-0.14	0.469
10.00	-20.78	-21.96	0.00	-1,764.22	0.00	1,764.22	3,938.03	1,000.02	4,324.28	3,879.29	0.31	-0.29	0.461
15.00	-19.69	-21.50	0.00	-1,654.44	0.00	1,654.44	3,869.74	973.91	4,101.44	3,711.71	0.69	-0.44	0.451
20.00	-18.63	-21.04	0.00	-1,546.94	0.00	1,546.94	3,799.59	947.80	3,884.50	3,545.95	1.22	-0.59	0.442
25.00	-17.59	-20.55	0.00	-1,441.76	0.00	1,441.76	3,727.59	921.69	3,673.45	3,382.14	1.92	-0.74	0.432
30.00	-16.57	-20.06	0.00	-1,338.99	0.00	1,338.99	3,653.75	895.58	3,468.30	3,220.43	2.77	-0.89	0.421
35.00	-15.58	-19.57	0.00	-1,238.67	0.00	1,238.67	3,578.04	869.47	3,269.04	3,060.96	3.79	-1.04	0.410
40.00	-14.61	-19.07	0.00	-1,140.84	0.00	1,140.84	3,500.49	843.36	3,075.67	2,903.89	4.97	-1.20	0.398
45.00	-13.68	-18.65	0.00	-1,045.51	0.00	1,045.51	3,421.09	817.25	2,888.20	2,749.35	6.31	-1.36	0.385
48.25	-13.09	-18.39	0.00	-984.90	0.00	984.90	3,368.49	800.28	2,769.51	2,650.32	7.27	-1.46	0.376
50.00	-12.56	-18.14	0.00	-952.71	0.00	952.71	3,339.84	791.14	2,706.63	2,597.48	7.81	-1.52	0.371
53.25	-11.60	-17.87	0.00	-893.76	0.00	893.76	2,635.64	657.11	2,240.55	2,046.33	8.89	-1.62	0.442
55.00	-11.31	-17.54	0.00	-862.49	0.00	862.49	2,614.77	649.49	2,188.92	2,006.40	9.49	-1.68	0.435
60.00	-10.54	-17.04	0.00	-774.80	0.00	774.80	2,553.87	627.73	2,044.74	1,893.48	11.35	-1.86	0.414
65.00	-9.80	-16.55	0.00	-689.59	0.00	689.59	2,491.13	605.97	1,905.46	1,782.39	13.39	-2.04	0.392
70.00	-9.07	-16.06	0.00	-606.85	0.00	606.85	2,426.53	584.22	1,771.10	1,673.28	15.62	-2.21	0.367
75.00	-8.37	-15.58	0.00	-526.54	0.00	526.54	2,360.09	562.46	1,641.65	1,566.29	18.03	-2.38	0.340
80.00	-7.69	-15.25	0.00	-448.63	0.00	448.63	2,288.96	540.70	1,517.11	1,459.75	20.61	-2.54	0.311
81.75	-7.46	-15.02	0.00	-421.94	0.00	421.94	2,256.72	533.08	1,474.68	1,418.72	21.55	-2.60	0.302
85.00	-6.85	-14.82	0.00	-373.12	0.00	373.12	2,196.84	518.94	1,397.48	1,344.07	23.36	-2.70	0.282
85.75	-6.71	-14.59	0.00	-362.01	0.00	362.01	1,128.57	314.63	856.05	700.67	23.79	-2.73	0.525
90.00	-6.31	-14.18	0.00	-299.98	0.00	299.98	1,107.06	303.53	796.73	662.92	26.27	-2.85	0.460
95.00	-5.85	-13.75	0.00	-229.06	0.00	229.06	1,080.04	290.48	729.68	618.75	29.37	-3.06	0.378
100.00	-5.42	-13.44	0.00	-160.31	0.00	160.31	1,051.16	277.42	665.57	574.96	32.67	-3.23	0.286
102.00	-4.66	-9.51	0.00	-129.73	0.00	129.73	1,039.10	272.20	640.75	557.59	34.03	-3.29	0.238
105.00	-3.82	-8.40	0.00	-101.21	0.00	101.21	1,020.44	264.37	604.41	531.71	36.12	-3.36	0.195
110.00	-3.48	-8.11	0.00	-59.19	0.00	59.19	987.87	251.31	546.19	489.13	39.69	-3.45	0.126
112.00	-2.12	-4.63	0.00	-38.05	0.00	38.05	974.32	246.09	523.73	472.32	41.15	-3.48	0.083
115.00	-1.98	-4.33	0.00	-24.16	0.00	24.16	953.44	238.26	490.93	447.37	43.34	-3.51	0.056
120.00	-0.50	-1.24	0.00	-2.51	0.00	2.51	917.17	225.20	438.61	406.57	47.03	-3.53	0.007
122.00	-0.04	-0.03	0.00	-0.03	0.00	0.03	902.14	219.98	418.50	390.56	48.51	-3.53	0.000
123.00	0.00	-0.03	0.00	0.00	0.00	0.00	894.51	217.37	408.63	382.62	49.24	-3.53	0.000

Load Case: 1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice	20 Iterations
Gust Response Factor :1.10	Ice Dead Load Factor :1.00	
Dead Load Factor :1.20		Ice Importance Factor :1.00
Wind Load Factor :1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		74.5	0.0					0.0	0.0	74.5	0.0	0.0	0.0
5.00		147.4	1,452.3					0.0	236.0	147.4	1,688.3	0.0	0.0
10.00		144.1	1,443.9					0.0	236.0	144.1	1,679.9	0.0	0.0
15.00		142.9	1,420.5					0.0	236.0	142.9	1,656.6	0.0	0.0
20.00		145.4	1,392.3					0.0	236.0	145.4	1,628.4	0.0	0.0
25.00		148.7	1,361.5					0.0	236.0	148.7	1,597.6	0.0	0.0
30.00		150.5	1,329.1					0.0	236.0	150.5	1,565.2	0.0	0.0
35.00		151.3	1,295.6					0.0	236.0	151.3	1,531.7	0.0	0.0
40.00		151.3	1,261.3					0.0	236.0	151.3	1,497.3	0.0	0.0
45.00		124.4	1,226.3					0.0	236.0	124.4	1,462.3	0.0	0.0
48.25	Bot - Section 2	75.5	779.0					0.0	153.4	75.5	932.4	0.0	0.0
50.00		75.8	689.9					0.0	82.6	75.8	772.5	0.0	0.0
53.25	Top - Section 1	75.5	1,260.6					0.0	153.4	75.5	1,414.0	0.0	0.0
55.00		101.0	355.1					0.0	82.6	101.0	437.7	0.0	0.0
60.00		148.2	990.8					0.0	236.0	148.2	1,226.8	0.0	0.0
65.00		145.9	959.3					0.0	236.0	145.9	1,195.3	0.0	0.0
70.00		143.3	927.5					0.0	236.0	143.3	1,163.5	0.0	0.0
75.00		140.4	895.4					0.0	236.0	140.4	1,131.4	0.0	0.0
80.00		93.4	863.1					0.0	236.0	93.4	1,099.2	0.0	0.0
81.75	Bot - Section 3	68.3	295.4					0.0	82.6	68.3	378.0	0.0	0.0
85.00		54.5	781.5					0.0	153.4	54.5	934.9	0.0	0.0
85.75	Top - Section 2	66.9	177.8					0.0	35.4	66.9	213.2	0.0	0.0
90.00		121.8	483.8					0.0	200.6	121.8	684.5	0.0	0.0
95.00		128.2	547.6					0.0	236.0	128.2	783.7	0.0	0.0
100.00		87.8	524.8					0.0	236.0	87.8	760.8	0.0	0.0
102.00	Appurtenance(s)	61.1	204.6	726.3	0.0	726.3	2,868.6	0.0	94.4	787.4	3,167.6	0.0	0.0
105.00	Appurtenance(s)	95.5	299.4	193.3	0.0	0.0	1,213.6	0.0	94.6	288.7	1,607.6	0.0	0.0
110.00		82.1	478.8					0.0	157.7	82.1	636.5	0.0	0.0
112.00	Appurtenance(s)	56.9	186.1	710.7	0.0	1,028.7	3,234.6	0.0	63.1	767.6	3,483.8	0.0	0.0
115.00		88.5	271.6					0.0	40.9	88.5	312.5	0.0	0.0
120.00	Appurtenance(s)	75.9	432.3	572.1	0.0	0.0	2,990.4	0.0	68.2	648.0	3,490.9	0.0	0.0
122.00	Appurtenance(s)	30.8	167.4	223.3	0.0	0.0	1,038.2	0.0	15.7	254.1	1,221.3	0.0	0.0
123.00		9.6	82.5					0.0	0.0	9.6	82.5	0.0	0.0
Totals:										5,833.13	41,437.8	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 1.00 in Radial Ice

20 Iterations

Gust Response Factor :1.10

Ice Dead Load Factor :1.00

Dead Load Factor :1.20

Ice Importance Factor :1.00

Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-41.44	-5.77	0.00	-487.77	0.00	487.77	4,069.07	1,052.24	4,787.63	4,219.32	0.00	0.00	0.126
5.00	-39.74	-5.65	0.00	-458.92	0.00	458.92	4,004.48	1,026.13	4,553.01	4,048.54	0.02	-0.04	0.123
10.00	-38.06	-5.53	0.00	-430.68	0.00	430.68	3,938.03	1,000.02	4,324.28	3,879.29	0.07	-0.07	0.121
15.00	-36.40	-5.40	0.00	-403.06	0.00	403.06	3,869.74	973.91	4,101.44	3,711.71	0.17	-0.11	0.118
20.00	-34.77	-5.28	0.00	-376.04	0.00	376.04	3,799.59	947.80	3,884.50	3,545.95	0.30	-0.14	0.115
25.00	-33.17	-5.14	0.00	-349.66	0.00	349.66	3,727.59	921.69	3,673.45	3,382.14	0.47	-0.18	0.112
30.00	-31.60	-5.01	0.00	-323.94	0.00	323.94	3,653.75	895.58	3,468.30	3,220.43	0.68	-0.22	0.109
35.00	-30.07	-4.87	0.00	-298.90	0.00	298.90	3,578.04	869.47	3,269.04	3,060.96	0.92	-0.25	0.106
40.00	-28.57	-4.73	0.00	-274.55	0.00	274.55	3,500.49	843.36	3,075.67	2,903.89	1.21	-0.29	0.103
45.00	-27.10	-4.61	0.00	-250.89	0.00	250.89	3,421.09	817.25	2,888.20	2,749.35	1.54	-0.33	0.099
48.25	-26.17	-4.54	0.00	-235.90	0.00	235.90	3,368.49	800.28	2,769.51	2,650.32	1.77	-0.35	0.097
50.00	-25.40	-4.47	0.00	-227.95	0.00	227.95	3,339.84	791.14	2,706.63	2,597.48	1.90	-0.37	0.095
53.25	-23.98	-4.39	0.00	-213.43	0.00	213.43	2,635.64	657.11	2,240.55	2,046.33	2.16	-0.39	0.113
55.00	-23.54	-4.30	0.00	-205.74	0.00	205.74	2,614.77	649.49	2,188.92	2,006.40	2.31	-0.41	0.112
60.00	-22.31	-4.16	0.00	-184.24	0.00	184.24	2,553.87	627.73	2,044.74	1,893.48	2.76	-0.45	0.106
65.00	-21.12	-4.02	0.00	-163.44	0.00	163.44	2,491.13	605.97	1,905.46	1,782.39	3.25	-0.49	0.100
70.00	-19.95	-3.88	0.00	-143.35	0.00	143.35	2,426.53	584.22	1,771.10	1,673.28	3.79	-0.53	0.094
75.00	-18.82	-3.74	0.00	-123.95	0.00	123.95	2,360.09	562.46	1,641.65	1,566.29	4.37	-0.57	0.087
80.00	-17.72	-3.64	0.00	-105.25	0.00	105.25	2,288.96	540.70	1,517.11	1,459.75	4.99	-0.61	0.080
81.75	-17.34	-3.58	0.00	-98.87	0.00	98.87	2,256.72	533.08	1,474.68	1,418.72	5.21	-0.62	0.077
85.00	-16.41	-3.52	0.00	-87.25	0.00	87.25	2,196.84	518.94	1,397.48	1,344.07	5.65	-0.65	0.072
85.75	-16.19	-3.45	0.00	-84.61	0.00	84.61	1,128.57	314.63	856.05	700.67	5.75	-0.65	0.135
90.00	-15.51	-3.33	0.00	-69.94	0.00	69.94	1,107.06	303.53	796.73	662.92	6.35	-0.68	0.120
95.00	-14.72	-3.21	0.00	-53.27	0.00	53.27	1,080.04	290.48	729.68	618.75	7.09	-0.73	0.100
100.00	-13.96	-3.12	0.00	-37.24	0.00	37.24	1,051.16	277.42	665.57	574.96	7.88	-0.77	0.078
102.00	-10.80	-2.29	0.00	-30.28	0.00	30.28	1,039.10	272.20	640.75	557.59	8.20	-0.78	0.065
105.00	-9.20	-1.98	0.00	-23.42	0.00	23.42	1,020.44	264.37	604.41	531.71	8.70	-0.80	0.053
110.00	-8.56	-1.89	0.00	-13.52	0.00	13.52	987.87	251.31	546.19	489.13	9.55	-0.82	0.036
112.00	-5.09	-1.07	0.00	-8.71	0.00	8.71	974.32	246.09	523.73	472.32	9.90	-0.83	0.024
115.00	-4.78	-0.98	0.00	-5.48	0.00	5.48	953.44	238.26	490.93	447.37	10.42	-0.84	0.017
120.00	-1.30	-0.28	0.00	-0.58	0.00	0.58	917.17	225.20	438.61	406.57	11.30	-0.84	0.003
122.00	-0.08	-0.01	0.00	-0.01	0.00	0.01	902.14	219.98	418.50	390.56	11.65	-0.84	0.000
123.00	0.00	-0.01	0.00	0.00	0.00	0.00	894.51	217.37	408.63	382.62	11.83	-0.84	0.000

Load Case: 1.0D + 1.0W

Serviceability 60 mph

20 Iterations

Gust Response Factor :1.10

Dead Load Factor :1.00

Wind Load Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		56.6	0.0					0.0	0.0	56.6	0.0	0.0	0.0
5.00		111.9	1,007.4					0.0	196.7	111.9	1,204.1	0.0	0.0
10.00		109.0	982.1					0.0	196.7	109.0	1,178.8	0.0	0.0
15.00		107.9	956.8					0.0	196.7	107.9	1,153.5	0.0	0.0
20.00		109.5	931.5					0.0	196.7	109.5	1,128.2	0.0	0.0
25.00		111.7	906.2					0.0	196.7	111.7	1,102.9	0.0	0.0
30.00		112.8	880.9					0.0	196.7	112.8	1,077.6	0.0	0.0
35.00		113.2	855.6					0.0	196.7	113.2	1,052.3	0.0	0.0
40.00		113.0	830.3					0.0	196.7	113.0	1,027.0	0.0	0.0
45.00		92.8	804.9					0.0	196.7	92.8	1,001.6	0.0	0.0
48.25	Bot - Section 2	56.2	509.6					0.0	127.9	56.2	637.5	0.0	0.0
50.00		56.4	499.0					0.0	68.8	56.4	567.9	0.0	0.0
53.25	Top - Section 1	56.2	911.7					0.0	127.9	56.2	1,039.6	0.0	0.0
55.00		75.0	221.7					0.0	68.8	75.0	290.5	0.0	0.0
60.00		109.9	619.1					0.0	196.7	109.9	815.8	0.0	0.0
65.00		107.9	598.0					0.0	196.7	107.9	794.7	0.0	0.0
70.00		105.7	576.9					0.0	196.7	105.7	773.6	0.0	0.0
75.00		103.3	555.8					0.0	196.7	103.3	752.5	0.0	0.0
80.00		68.6	534.7					0.0	196.7	68.6	731.4	0.0	0.0
81.75	Bot - Section 3	50.1	182.2					0.0	68.8	50.1	251.0	0.0	0.0
85.00		39.9	533.6					0.0	127.9	39.9	661.5	0.0	0.0
85.75	Top - Section 2	48.9	121.1					0.0	29.5	48.9	150.6	0.0	0.0
90.00		88.8	254.7					0.0	167.2	88.8	421.9	0.0	0.0
95.00		93.2	287.9					0.0	196.7	93.2	484.6	0.0	0.0
100.00		63.7	275.3					0.0	196.7	63.7	472.0	0.0	0.0
102.00	Appurtenance(s)	44.2	106.6	798.0	0.0	798.0	897.3	0.0	78.7	842.2	1,082.5	0.0	0.0
105.00	Appurtenance(s)	68.8	156.1	160.9	0.0	0.0	750.0	0.0	78.8	229.7	984.9	0.0	0.0
110.00		59.0	250.0					0.0	131.4	59.0	381.4	0.0	0.0
112.00	Appurtenance(s)	40.7	96.4	694.5	0.0	1,062.8	1,593.5	0.0	52.6	735.3	1,742.5	0.0	0.0
115.00		63.2	140.9					0.0	34.1	63.2	174.9	0.0	0.0
120.00	Appurtenance(s)	54.0	224.6	593.7	0.0	0.0	1,576.2	0.0	56.8	647.7	1,857.6	0.0	0.0
122.00	Appurtenance(s)	21.5	86.3	233.4	0.0	0.0	493.5	0.0	13.1	254.8	592.9	0.0	0.0
123.00		6.4	42.4					0.0	0.0	6.4	42.4	0.0	0.0
Totals:										5,000.43	25,630.3	0.00	0.00

Load Case: 1.0D + 1.0W

Serviceability 60 mph

20 Iterations

Gust Response Factor :1.10

Dead Load Factor :1.00

Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-25.63	-4.95	0.00	-431.79	0.00	431.79	4,069.07	1,052.24	4,787.63	4,219.32	0.00	0.00	0.109
5.00	-24.42	-4.85	0.00	-407.04	0.00	407.04	4,004.48	1,026.13	4,553.01	4,048.54	0.02	-0.03	0.107
10.00	-23.24	-4.75	0.00	-382.78	0.00	382.78	3,938.03	1,000.02	4,324.28	3,879.29	0.07	-0.06	0.105
15.00	-22.08	-4.66	0.00	-359.01	0.00	359.01	3,869.74	973.91	4,101.44	3,711.71	0.15	-0.09	0.102
20.00	-20.95	-4.56	0.00	-335.73	0.00	335.73	3,799.59	947.80	3,884.50	3,545.95	0.27	-0.13	0.100
25.00	-19.85	-4.45	0.00	-312.94	0.00	312.94	3,727.59	921.69	3,673.45	3,382.14	0.42	-0.16	0.098
30.00	-18.77	-4.35	0.00	-290.67	0.00	290.67	3,653.75	895.58	3,468.30	3,220.43	0.60	-0.19	0.095
35.00	-17.72	-4.24	0.00	-268.93	0.00	268.93	3,578.04	869.47	3,269.04	3,060.96	0.82	-0.23	0.093
40.00	-16.69	-4.13	0.00	-247.71	0.00	247.71	3,500.49	843.36	3,075.67	2,903.89	1.08	-0.26	0.090
45.00	-15.68	-4.04	0.00	-227.04	0.00	227.04	3,421.09	817.25	2,888.20	2,749.35	1.37	-0.29	0.087
48.25	-15.04	-3.99	0.00	-213.89	0.00	213.89	3,368.49	800.28	2,769.51	2,650.32	1.58	-0.32	0.085
50.00	-14.48	-3.93	0.00	-206.91	0.00	206.91	3,339.84	791.14	2,706.63	2,597.48	1.70	-0.33	0.084
53.25	-13.44	-3.88	0.00	-194.12	0.00	194.12	2,635.64	657.11	2,240.55	2,046.33	1.93	-0.35	0.100
55.00	-13.14	-3.81	0.00	-187.34	0.00	187.34	2,614.77	649.49	2,188.92	2,006.40	2.06	-0.36	0.098
60.00	-12.33	-3.70	0.00	-168.31	0.00	168.31	2,553.87	627.73	2,044.74	1,893.48	2.46	-0.40	0.094
65.00	-11.53	-3.59	0.00	-149.82	0.00	149.82	2,491.13	605.97	1,905.46	1,782.39	2.91	-0.44	0.089
70.00	-10.75	-3.49	0.00	-131.86	0.00	131.86	2,426.53	584.22	1,771.10	1,673.28	3.39	-0.48	0.083
75.00	-10.00	-3.38	0.00	-114.42	0.00	114.42	2,360.09	562.46	1,641.65	1,566.29	3.91	-0.52	0.077
80.00	-9.27	-3.31	0.00	-97.50	0.00	97.50	2,288.96	540.70	1,517.11	1,459.75	4.47	-0.55	0.071
81.75	-9.02	-3.26	0.00	-91.70	0.00	91.70	2,256.72	533.08	1,474.68	1,418.72	4.68	-0.57	0.069
85.00	-8.36	-3.22	0.00	-81.09	0.00	81.09	2,196.84	518.94	1,397.48	1,344.07	5.07	-0.59	0.064
85.75	-8.20	-3.17	0.00	-78.68	0.00	78.68	1,128.57	314.63	856.05	700.67	5.16	-0.59	0.120
90.00	-7.78	-3.08	0.00	-65.21	0.00	65.21	1,107.06	303.53	796.73	662.92	5.70	-0.62	0.105
95.00	-7.30	-2.99	0.00	-49.80	0.00	49.80	1,080.04	290.48	729.68	618.75	6.38	-0.66	0.087
100.00	-6.82	-2.92	0.00	-34.85	0.00	34.85	1,051.16	277.42	665.57	574.96	7.09	-0.70	0.067
102.00	-5.75	-2.07	0.00	-28.21	0.00	28.21	1,039.10	272.20	640.75	557.59	7.39	-0.71	0.056
105.00	-4.77	-1.83	0.00	-22.01	0.00	22.01	1,020.44	264.37	604.41	531.71	7.84	-0.73	0.046
110.00	-4.39	-1.76	0.00	-12.87	0.00	12.87	987.87	251.31	546.19	489.13	8.62	-0.75	0.031
112.00	-2.65	-1.01	0.00	-8.28	0.00	8.28	974.32	246.09	523.73	472.32	8.94	-0.76	0.020
115.00	-2.48	-0.94	0.00	-5.26	0.00	5.26	953.44	238.26	490.93	447.37	9.41	-0.76	0.014
120.00	-0.63	-0.27	0.00	-0.55	0.00	0.55	917.17	225.20	438.61	406.57	10.21	-0.77	0.002
122.00	-0.04	-0.01	0.00	-0.01	0.00	0.01	902.14	219.98	418.50	390.56	10.54	-0.77	0.000
123.00	0.00	-0.01	0.00	0.00	0.00	0.00	894.51	217.37	408.63	382.62	10.70	-0.77	0.000

Equivalent Lateral Forces Method Analysis

Spectral Response Acceleration for Short Period (S_s):	0.20
Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.05
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.21
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.08
Seismic Response Coefficient (C_s):	0.04
Upper Limit C_s	0.04
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	1.52
Redundancy Factor (ρ):	1.00
Seismic Force Distribution Exponent (k):	1.51
Total Unfactored Dead Load:	25.63 k
Seismic Base Shear (E):	0.95 k

Load Case 1.2D + 1.0Ev + 1.0Eh

Seismic

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
32	122.50	42	60	0.004	4	53
31	121.00	99	138	0.009	9	124
30	117.50	281	374	0.025	24	350
29	113.50	175	221	0.015	14	217
28	111.00	149	182	0.012	12	185
27	107.50	381	443	0.030	28	474
26	103.50	235	258	0.017	16	292
25	101.00	185	196	0.013	13	230
24	97.50	472	474	0.032	30	587
23	92.50	485	449	0.030	29	602
22	87.88	422	362	0.024	23	524
21	85.38	151	124	0.008	8	187
20	83.38	661	524	0.035	33	822
19	80.88	251	190	0.013	12	312
18	77.50	731	519	0.035	33	909
17	72.50	753	483	0.032	31	935
16	67.50	774	446	0.030	28	962
15	62.50	795	408	0.027	26	988
14	57.50	816	369	0.025	24	1,014
13	54.13	291	120	0.008	8	361
12	51.63	1,040	400	0.027	25	1,292
11	49.13	568	203	0.014	13	706
10	46.63	637	210	0.014	13	792
9	42.50	1,002	287	0.019	18	1,245
8	37.50	1,027	244	0.016	16	1,276

7	32.50	1,052	201	0.013	13	1,308
6	27.50	1,078	160	0.011	10	1,339
5	22.50	1,103	121	0.008	8	1,371
4	17.50	1,128	85	0.006	5	1,402
3	12.50	1,154	52	0.003	3	1,434
2	7.50	1,179	25	0.002	2	1,465
1	2.50	1,204	5	0.000	0	1,497
Ericsson AIR 21, 1.3	122.00	249	350	0.023	22	309
Ericsson AIR 21, 1.3	122.00	244	344	0.023	22	304
Ericsson KRY 112 144	120.00	33	45	0.003	3	41
Ericsson Radio 4449	120.00	222	305	0.020	19	276
Generic Flat T-Arm	120.00	938	1,287	0.086	82	1,165
RFS APXVAARR24_43-U-	120.00	384	527	0.035	34	477
Powerwave Allgon TT1	112.00	96	119	0.008	8	119
Raycap DC6-48-60-18-	112.00	20	25	0.002	2	25
Ericsson RRUS 32 B2	112.00	159	197	0.013	13	198
Ericsson RRUS 11 (Ba	112.00	150	186	0.012	12	186
Commscope SBNHH-1D65	112.00	101	124	0.008	8	125
Powerwave Allgon P90	112.00	318	393	0.026	25	395
Round T-Arm	112.00	750	928	0.062	59	932
Round T-Arm	105.00	750	842	0.056	54	932
Alcatel-Lucent RRH2x	102.00	170	183	0.012	12	211
Alcatel-Lucent B66 R	102.00	201	216	0.014	14	250
Raycap RC2DC-3315-PF	102.00	64	69	0.005	4	80
Swedcom SC-E 6016 RE	102.00	50	54	0.004	3	62
Andrew SBNHH-1D65B	102.00	304	327	0.022	21	378
Antel LPA-80063/6CF	102.00	108	116	0.008	7	134
		25,630	14,967	1.000	954	31,855

Load Case 0.9D - 1.0Ev + 1.0Eh

Seismic (Reduced DL)

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
32	122.50	42	60	0.004	4	36
31	121.00	99	138	0.009	9	85
30	117.50	281	374	0.025	24	241
29	113.50	175	221	0.015	14	150
28	111.00	149	182	0.012	12	128
27	107.50	381	443	0.030	28	327
26	103.50	235	258	0.017	16	201
25	101.00	185	196	0.013	13	159
24	97.50	472	474	0.032	30	405
23	92.50	485	449	0.030	29	415
22	87.88	422	362	0.024	23	362
21	85.38	151	124	0.008	8	129
20	83.38	661	524	0.035	33	567
19	80.88	251	190	0.013	12	215
18	77.50	731	519	0.035	33	627
17	72.50	753	483	0.032	31	645
16	67.50	774	446	0.030	28	663
15	62.50	795	408	0.027	26	681
14	57.50	816	369	0.025	24	699
13	54.13	291	120	0.008	8	249
12	51.63	1,040	400	0.027	25	891
11	49.13	568	203	0.014	13	487
10	46.63	637	210	0.014	13	546
9	42.50	1,002	287	0.019	18	859
8	37.50	1,027	244	0.016	16	880
7	32.50	1,052	201	0.013	13	902
6	27.50	1,078	160	0.011	10	924
5	22.50	1,103	121	0.008	8	945

Site Number: 283419

Code: ANSI/TIA-222-H

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Site Name: PINE ORCHARD BRANFORD CT, Engineering Number: 12927144_C3_05

9/10/2020 5:38:29 PM

Customer: T-MOBILE

4	17.50	1,128	85	0.006	5	967
3	12.50	1,154	52	0.003	3	989
2	7.50	1,179	25	0.002	2	1,010
1	2.50	1,204	5	0.000	0	1,032
Ericsson AIR 21, 1.3	122.00	249	350	0.023	22	213
Ericsson AIR 21, 1.3	122.00	244	344	0.023	22	210
Ericsson KRY 112 144	120.00	33	45	0.003	3	28
Ericsson Radio 4449	120.00	222	305	0.020	19	190
Generic Flat T-Arm	120.00	938	1,287	0.086	82	804
RFS APXVAARR24_43-U-	120.00	384	527	0.035	34	329
Powerwave Allgon TT1	112.00	96	119	0.008	8	82
Raycap DC6-48-60-18-	112.00	20	25	0.002	2	17
Ericsson RRUS 32 B2	112.00	159	197	0.013	13	136
Ericsson RRUS 11 (Ba	112.00	150	186	0.012	12	129
Commscope SBNHH-1D65	112.00	101	124	0.008	8	86
Powerwave Allgon P90	112.00	318	393	0.026	25	273
Round T-Arm	112.00	750	928	0.062	59	643
Round T-Arm	105.00	750	842	0.056	54	643
Alcatel-Lucent RRH2x	102.00	170	183	0.012	12	146
Alcatel-Lucent B66 R	102.00	201	216	0.014	14	172
Raycap RC2DC-3315-PF	102.00	64	69	0.005	4	55
Swedcom SC-E 6016 RE	102.00	50	54	0.004	3	43
Andrew SBNHH-1D65B	102.00	304	327	0.022	21	261
Antel LPA-80063/6CF	102.00	108	116	0.008	7	93
		25,630	14,967	1.000	954	21,968

Load Case 1.2D + 1.0Ev + 1.0Eh

Seismic

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-30.36	-0.96	0.00	-89.12	0.00	89.12	4,069.07	1,052.24	4,787.63	4,219.32	0.00	0.00	0.029
5.00	-28.89	-0.96	0.00	-84.35	0.00	84.35	4,004.48	1,026.13	4,553.01	4,048.54	0.00	-0.01	0.028
10.00	-27.46	-0.96	0.00	-79.56	0.00	79.56	3,938.03	1,000.02	4,324.28	3,879.29	0.01	-0.01	0.027
15.00	-26.06	-0.95	0.00	-74.78	0.00	74.78	3,869.74	973.91	4,101.44	3,711.71	0.03	-0.02	0.027
20.00	-24.69	-0.95	0.00	-70.01	0.00	70.01	3,799.59	947.80	3,884.50	3,545.95	0.06	-0.03	0.026
25.00	-23.35	-0.94	0.00	-65.27	0.00	65.27	3,727.59	921.69	3,673.45	3,382.14	0.09	-0.03	0.026
30.00	-22.04	-0.93	0.00	-60.57	0.00	60.57	3,653.75	895.58	3,468.30	3,220.43	0.12	-0.04	0.025
35.00	-20.76	-0.92	0.00	-55.92	0.00	55.92	3,578.04	869.47	3,269.04	3,060.96	0.17	-0.05	0.024
40.00	-19.52	-0.90	0.00	-51.35	0.00	51.35	3,500.49	843.36	3,075.67	2,903.89	0.22	-0.05	0.023
45.00	-18.73	-0.89	0.00	-46.86	0.00	46.86	3,421.09	817.25	2,888.20	2,749.35	0.28	-0.06	0.023
48.25	-18.02	-0.87	0.00	-43.98	0.00	43.98	3,368.49	800.28	2,769.51	2,650.32	0.33	-0.07	0.022
50.00	-16.73	-0.85	0.00	-42.45	0.00	42.45	3,339.84	791.14	2,706.63	2,597.48	0.35	-0.07	0.021
53.25	-16.37	-0.84	0.00	-39.69	0.00	39.69	2,635.64	657.11	2,240.55	2,046.33	0.40	-0.07	0.026
55.00	-15.35	-0.82	0.00	-38.22	0.00	38.22	2,614.77	649.49	2,188.92	2,006.40	0.43	-0.08	0.025
60.00	-14.36	-0.79	0.00	-34.14	0.00	34.14	2,553.87	627.73	2,044.74	1,893.48	0.51	-0.08	0.024
65.00	-13.40	-0.76	0.00	-30.18	0.00	30.18	2,491.13	605.97	1,905.46	1,782.39	0.60	-0.09	0.022
70.00	-12.47	-0.73	0.00	-26.36	0.00	26.36	2,426.53	584.22	1,771.10	1,673.28	0.70	-0.10	0.021
75.00	-11.56	-0.70	0.00	-22.70	0.00	22.70	2,360.09	562.46	1,641.65	1,566.29	0.81	-0.11	0.019
80.00	-11.25	-0.69	0.00	-19.20	0.00	19.20	2,288.96	540.70	1,517.11	1,459.75	0.93	-0.11	0.018
81.75	-10.42	-0.65	0.00	-18.00	0.00	18.00	2,256.72	533.08	1,474.68	1,418.72	0.97	-0.12	0.017
85.00	-10.24	-0.65	0.00	-15.87	0.00	15.87	2,196.84	518.94	1,397.48	1,344.07	1.05	-0.12	0.016
85.75	-9.71	-0.62	0.00	-15.39	0.00	15.39	1,128.57	314.63	856.05	700.67	1.07	-0.12	0.031
90.00	-9.11	-0.59	0.00	-12.75	0.00	12.75	1,107.06	303.53	796.73	662.92	1.18	-0.13	0.027
95.00	-8.52	-0.56	0.00	-9.78	0.00	9.78	1,080.04	290.48	729.68	618.75	1.31	-0.14	0.024
100.00	-8.29	-0.55	0.00	-6.97	0.00	6.97	1,051.16	277.42	665.57	574.96	1.46	-0.14	0.020
102.00	-6.89	-0.47	0.00	-5.87	0.00	5.87	1,039.10	272.20	640.75	557.59	1.52	-0.15	0.017
105.00	-5.48	-0.38	0.00	-4.46	0.00	4.46	1,020.44	264.37	604.41	531.71	1.61	-0.15	0.014
110.00	-5.30	-0.37	0.00	-2.54	0.00	2.54	987.87	251.31	546.19	489.13	1.77	-0.15	0.011
112.00	-3.10	-0.23	0.00	-1.79	0.00	1.79	974.32	246.09	523.73	472.32	1.83	-0.15	0.007
115.00	-2.75	-0.20	0.00	-1.11	0.00	1.11	953.44	238.26	490.93	447.37	1.93	-0.15	0.005
120.00	-0.67	-0.05	0.00	-0.10	0.00	0.10	917.17	225.20	438.61	406.57	2.09	-0.16	0.001
122.00	0.00	0.00	0.00	0.00	0.00	0.00	902.14	219.98	418.50	390.56	2.16	-0.16	0.000
123.00	0.00	0.00	0.00	0.00	0.00	0.00	894.51	217.37	408.63	382.62	2.19	-0.16	0.000

Load Case 0.9D - 1.0Ev + 1.0Eh

Seismic (Reduced DL)

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-20.94	-0.95	0.00	-88.50	0.00	88.50	4,069.07	1,052.24	4,787.63	4,219.32	0.00	0.00	0.026
5.00	-19.93	-0.96	0.00	-83.72	0.00	83.72	4,004.48	1,026.13	4,553.01	4,048.54	0.00	-0.01	0.026
10.00	-18.94	-0.95	0.00	-78.95	0.00	78.95	3,938.03	1,000.02	4,324.28	3,879.29	0.01	-0.01	0.025
15.00	-17.97	-0.95	0.00	-74.18	0.00	74.18	3,869.74	973.91	4,101.44	3,711.71	0.03	-0.02	0.025
20.00	-17.02	-0.94	0.00	-69.43	0.00	69.43	3,799.59	947.80	3,884.50	3,545.95	0.05	-0.03	0.024
25.00	-16.10	-0.94	0.00	-64.70	0.00	64.70	3,727.59	921.69	3,673.45	3,382.14	0.09	-0.03	0.023
30.00	-15.20	-0.92	0.00	-60.03	0.00	60.03	3,653.75	895.58	3,468.30	3,220.43	0.12	-0.04	0.023
35.00	-14.32	-0.91	0.00	-55.41	0.00	55.41	3,578.04	869.47	3,269.04	3,060.96	0.17	-0.05	0.022
40.00	-13.46	-0.89	0.00	-50.86	0.00	50.86	3,500.49	843.36	3,075.67	2,903.89	0.22	-0.05	0.021
45.00	-12.91	-0.88	0.00	-46.40	0.00	46.40	3,421.09	817.25	2,888.20	2,749.35	0.28	-0.06	0.021
48.25	-12.43	-0.87	0.00	-43.54	0.00	43.54	3,368.49	800.28	2,769.51	2,650.32	0.33	-0.07	0.020
50.00	-11.54	-0.84	0.00	-42.03	0.00	42.03	3,339.84	791.14	2,706.63	2,597.48	0.35	-0.07	0.020
53.25	-11.29	-0.83	0.00	-39.29	0.00	39.29	2,635.64	657.11	2,240.55	2,046.33	0.40	-0.07	0.023
55.00	-10.59	-0.81	0.00	-37.83	0.00	37.83	2,614.77	649.49	2,188.92	2,006.40	0.42	-0.07	0.023
60.00	-9.91	-0.78	0.00	-33.78	0.00	33.78	2,553.87	627.73	2,044.74	1,893.48	0.51	-0.08	0.022
65.00	-9.24	-0.76	0.00	-29.86	0.00	29.86	2,491.13	605.97	1,905.46	1,782.39	0.60	-0.09	0.020
70.00	-8.60	-0.73	0.00	-26.08	0.00	26.08	2,426.53	584.22	1,771.10	1,673.28	0.70	-0.10	0.019
75.00	-7.97	-0.69	0.00	-22.45	0.00	22.45	2,360.09	562.46	1,641.65	1,566.29	0.80	-0.11	0.018
80.00	-7.76	-0.68	0.00	-18.99	0.00	18.99	2,288.96	540.70	1,517.11	1,459.75	0.92	-0.11	0.016
81.75	-7.19	-0.65	0.00	-17.79	0.00	17.79	2,256.72	533.08	1,474.68	1,418.72	0.96	-0.11	0.016
85.00	-7.06	-0.64	0.00	-15.69	0.00	15.69	2,196.84	518.94	1,397.48	1,344.07	1.04	-0.12	0.015
85.75	-6.70	-0.62	0.00	-15.21	0.00	15.21	1,128.57	314.63	856.05	700.67	1.06	-0.12	0.028
90.00	-6.28	-0.59	0.00	-12.60	0.00	12.60	1,107.06	303.53	796.73	662.92	1.17	-0.13	0.025
95.00	-5.88	-0.56	0.00	-9.67	0.00	9.67	1,080.04	290.48	729.68	618.75	1.30	-0.13	0.021
100.00	-5.72	-0.54	0.00	-6.88	0.00	6.88	1,051.16	277.42	665.57	574.96	1.45	-0.14	0.017
102.00	-4.75	-0.46	0.00	-5.80	0.00	5.80	1,039.10	272.20	640.75	557.59	1.51	-0.14	0.015
105.00	-3.78	-0.38	0.00	-4.41	0.00	4.41	1,020.44	264.37	604.41	531.71	1.60	-0.15	0.012
110.00	-3.65	-0.37	0.00	-2.51	0.00	2.51	987.87	251.31	546.19	489.13	1.75	-0.15	0.009
112.00	-2.14	-0.22	0.00	-1.77	0.00	1.77	974.32	246.09	523.73	472.32	1.82	-0.15	0.006
115.00	-1.89	-0.20	0.00	-1.10	0.00	1.10	953.44	238.26	490.93	447.37	1.91	-0.15	0.004
120.00	-0.46	-0.05	0.00	-0.10	0.00	0.10	917.17	225.20	438.61	406.57	2.07	-0.15	0.001
122.00	0.00	0.00	0.00	0.00	0.00	0.00	902.14	219.98	418.50	390.56	2.14	-0.15	0.000
123.00	0.00	0.00	0.00	0.00	0.00	0.00	894.51	217.37	408.63	382.62	2.17	-0.15	0.000

Analysis Summary

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W	22.88	0.00	30.73	0.00	0.00	2002.32	85.75	0.53
0.9D + 1.0W	22.87	0.00	23.04	0.00	0.00	1990.63	85.75	0.52
1.2D + 1.0Di + 1.0Wi	5.77	0.00	41.44	0.00	0.00	487.77	85.75	0.14
1.2D + 1.0Ev + 1.0Eh	0.96	0.00	30.36	0.00	0.00	89.12	85.75	0.03
0.9D - 1.0Ev + 1.0Eh	0.95	0.00	20.94	0.00	0.00	88.50	85.75	0.03
1.0D + 1.0W	4.95	0.00	25.63	0.00	0.00	431.79	85.75	0.12

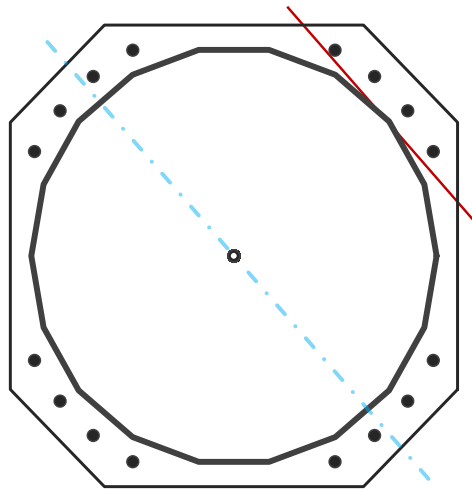
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	18	-
Diameter	50.75	in
Thickness	0.375	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	2002.3	k-ft
Axial, Pu	30.7	k
Shear, Vu	22.9	k
Neutral Axis	312	°

Report Capacities		
Component	Capacity	Result
Base Plate	37%	Pass
Anchor Rods	44%	Pass
Dwyidag	-	-

Base Plate		
Shape	Square	-
Width	57	in
Thickness	2 3/4	in
Grade	A572-50	
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Clip	12	in
Orientation Offset	°	
Anchor Rod Detail	d	η=0.5
Clear Distance	3	in
Applied Moment, Mu	941.6	k
Bending Stress, φMn	2529.8	k



Original Anchor Rods		
Arrangement	Cluster	-
Quantity	16	-
Diameter, φ	2 1/4	in
Bolt Circle	57	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	°	
Applied Force, Pu	107.1	k
Anchor Rods, φPn	243.6	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	22.9	2002.3	1.00
Anchor Rod Forces	22.9	2002.3	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in ²	in ²	in ⁴	#	in ⁴
Pole	59.0458	3.2803	0.1543		18732.41
Bolt	3.9761	3.2477	0.8393	4.5	21116.92
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Square	-
Width, W	57	in
Thickness, t	2.75	in
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Base Plate Chord	25.951	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods		
Anchor Rod Quantity, N	16	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	57	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	107.1	k
Applied Shear, Vu	0.1	k
Compressive Capacity, φPn	243.6	k
Tensile Capacity, φRnt	0.440	OK
Interaction Capacity	0.441	OK

External Base Plate		
Chord Length AA	29.735	in
Additional AA	0.000	in
Section Modulus, Z	56.218	in ³
Applied Moment, Mu	941.6	k-ft
Bending Capacity, φMn	2529.8	k-ft
Capacity, Mu/φMn	0.372	OK
Chord Length AB	28.950	in
Additional AB	0.000	in
Section Modulus, Z	54.734	in ³
Applied Moment, Mu	778.1	k-ft
Bending Capacity, φMn	2463.0	k-ft
Capacity, Mu/φMn	0.316	OK
Bend Line Length	0.000	in
Additional Bend Line	0.000	in
Section Modulus, Z	0.000	in ³
Applied Moment, Mu	0.0	k-ft
Bending Capacity, φMn	0.0	k-ft
Capacity, Mu/φMn		

Internal Base Plate		
Arc Length	0.000	in
Section Modulus, Z	0.000	in ³
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, φMn	0.0	k-ft
Capacity, Mu/φMn		

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Exhibit E

Mount Analysis



AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by

CLSENGINEERING
PLLC

Antenna Mount Analysis Report

ATC Site Name : PINE ORCHARD BRANFORD CT
ATC Asset Number : 283419
Engineering Number : 12927144_C9_06
Mount Elevation : 121 ft
Carrier : T-Mobile
Carrier Site Name : Amtrak_Branford
Carrier Site Number : CTNH801B
Site Location : 123 Pine Orchard Road
Branford, CT 06405-3939
41.274861, -72.793078
County : New Haven
Date : September 1, 2020
Max Usage : 78%
Result : Pass (Pending Mods)

Prepared By:
Jennifer Soza
CLS Engineering PLLC

Reviewed By:
Tyler M. Barker, P.E.
CLS Engineering PLLC



Tyler M. Barker
CLS Engineering PLLC
Director of Engineering
PE # 32402 Exp. 1/31/2021
COA # PEC.001833 Exp. 8/14/2022



Digitally signed
by Tyler M.
Barker PE
Date:
2020.09.03
14:34:34-04'00'

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Structure Usages 3

Standard Conditions 4

Calculations Attached

Introduction

The proposed equipment is to be mounted to the existing T-Arms. This proposed mounting configuration was analyzed using RISA-3D, a commercially available finite element analysis software package. A selection of input and output from our analysis is attached to the end of this report.

Supporting Documents

Structural Data	Site Photos, dated February 20, 2018
Previous Analyses	Structural Analysis by American Tower, Engineering #OAA694357_C3_01, dated February 10, 2017 Mount Analysis by CLS Engineering PLLC for American Tower, Engineering #12927144, dated August 20, 2020
Loading Data	ATC Application 12927144

Analysis

Codes	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
Basic Wind Speed	130 mph, V_{ult} / 100.7 mph, V_{asd} (3-Second Gust)
Basic Wind Speed w/ Ice	50 mph (3-Second Gust) w/ 0.75" Radial Ice (Escalating)
Exposure Category	B
Max. Topographic Factor, K_{zt}	1.00
Risk Category	II
Maintenance Live Load	L_M : 500 lb

Conclusion

Based on the analysis, the antenna mount meets the requirements per the applicable codes listed above. The mounting configuration considered in this analysis will be capable of supporting the referenced loading pursuant to referenced standards once the referenced modifications are installed.

This analysis incorporates modifications per CLS Engineering PLLC, dated September 03, 2020.

- **Install bracing pipes at the existing T-Arm mount. Connect to existing face horizontal pipe with Site Pro 1 PUCK or equal, as shown.**
- **Install (1) Site Pro 1 PRK-SFS-L support rail reinforcement kit at proposed bracing pipes as specified. Collar to be installed as high as possible on monopole. Do not pinch safety climb. .**
- **Connect outermost mount pipes with proposed bracing pipe using Site Pro 1 SCX1-K or equal, as shown.**

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Antenna Loading

Elevation (ft)		Antennas	
Mount	Rad.	#	Name
121.0	121.0	3	RFS Celwave APXVAARR24_43-U-NA20
		3	Ericsson AIR 21, 1.3 M, B2A B4P
		3	Ericsson AIR 21, 1.3 M, B4A B2P
		3	Ericsson RADIO 4449 B12/B71
		3	Ericsson KRY 112 144/1

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Bracing Members	78%	Pass
Face Horizontals	64%	Pass
Mount Pipes	55%	Pass
Stand-Off Horizontals	49%	Pass

Standard Conditions

This analysis is inclusive of the antenna supporting frames/mounts and all recorded connections that will support the equipment listed in this report. It considers only the theoretical capacity of structural components and it is not a condition assessment. The validity of the analysis may be dependent on the accuracy of structural information supplied by others. The client is responsible for verifying this information. If any provided information is revised after completion of this analysis, CLS Engineering PLLC should be notified immediately to revise results.

This analysis assumes the following:

1. The tower or other superstructure and mounts (if existing) were properly constructed as per the original design and have been properly maintained in accordance with applicable code standards.
2. Member sizes and strengths are accurate as supplied or are assumed as stated in the calculations.
3. In the absence of sufficient design information, all welds and connections are assumed to develop at least the capacity of the connected member, unless otherwise stated in this analysis.
4. All prior structural modifications, if any, are assumed to be correctly installed and fully effective.
5. The loading configuration is complete and accurate as supplied and/or as modeled in the previous analysis. All appurtenances are assumed to be properly installed and supported as per manufacturer requirements.
6. Some conservative assumptions may be used regarding appurtenances and their projected areas based on careful interpretation of data supplied, previous experience and standard industry practice.

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of the report. All opinions and conclusions contained herein are subject to revision based upon receipt of new or updated information. All services are provided exercising a level of care and diligence equivalent to the standard of our profession. No warranty or guarantee, either expressed or implied, is offered. All services are confidential in nature and this report will not be released to any other party without the client's consent. The use of this analysis is limited to the expressed purpose for which it was commissioned and it may not be reused, copied or disseminated for any other purpose without consent from CLS Engineering PLLC.

All services were performed, results obtained and recommendations made in accordance with generally accepted engineering principles and practices. CLS Engineering PLLC is not responsible for the conclusions, opinions or recommendations made by others based on the information supplied in this analysis.

It is not possible to have the fully detailed information necessary to perform a complete and thorough analysis of every structural sub-component of an existing structure. The structural analysis by CLS Engineering PLLC verifies the adequacy of the primary members of the structure. CLS Engineering PLLC provides a limited scope of service in that we cannot verify the adequacy of every weld, bolt, gusset, etc.

Project & Site Information

CLS Project ID		41124-12927144_C9_06-03-MOD
Client Information	Carrier Name	T-Mobile
	Client Name	American Tower
	Site #	283419
	Site Name	PINE ORCHARD BRANFORD CT
	Application #	12927144
Site Location	Address	123 Pine Orchard Road, Branford, CT 06405-3939
	County	New Haven
	GPS	41.274861, -72.793078
	Elevation AMSL (ft)	35

Mount & Supporting Structure

Mount Configuration	Mount Type	T-Arms
Nominal AGL Elevations (ft)	Mount Elevation	121
	Default Antenna Rad	121
Supporting Structure	Structure Type	Monopole
	Height (TOS) (ft)	123

Wind & Ice Loading

TIA Standard	TIA-222-G
Building Code	2015 IBC
Basic Wind Speed, V (bare)	130.0 mph
Basic Wind Speed, V (ice)	50.0 mph
Design Ice Thickness, t _i	0.75 in

Mod Summary

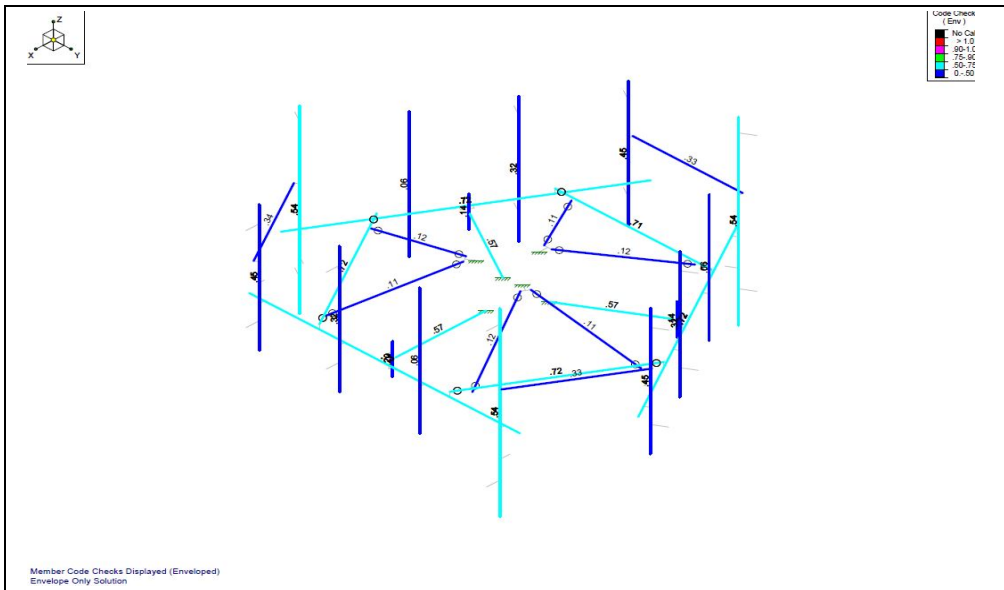
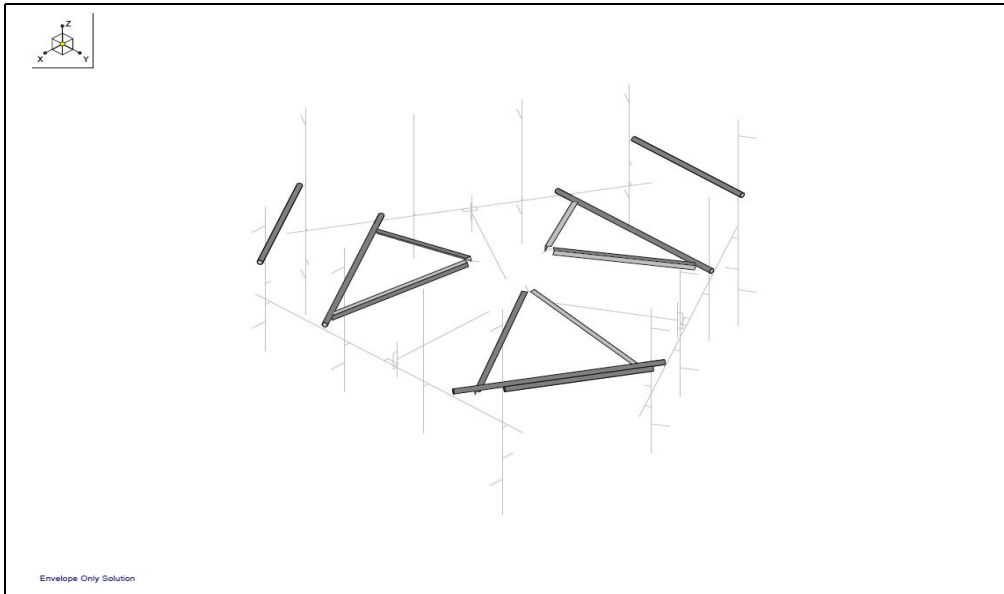
Install (1) proposed Support Rail Brace at each sector (3 total).	\$ 1,875
Install (1) proposed Kicker Kit.	\$ 3,125
Install (1) proposed Support Rail Brace at each sector (3 total).	\$ 1,875
	\$ -
	\$ -
	\$ -
	\$ -
	\$ -
	\$ -
Post Mod Usage	72%
Cost + Mobilization	\$ 9,875

Cost Estimate

Replacement Summary

PV-LPPGS-12M-HR25-AP4 Platform with Support Rail and Kickers (or equivalent)	\$29,500
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Cost Estimate





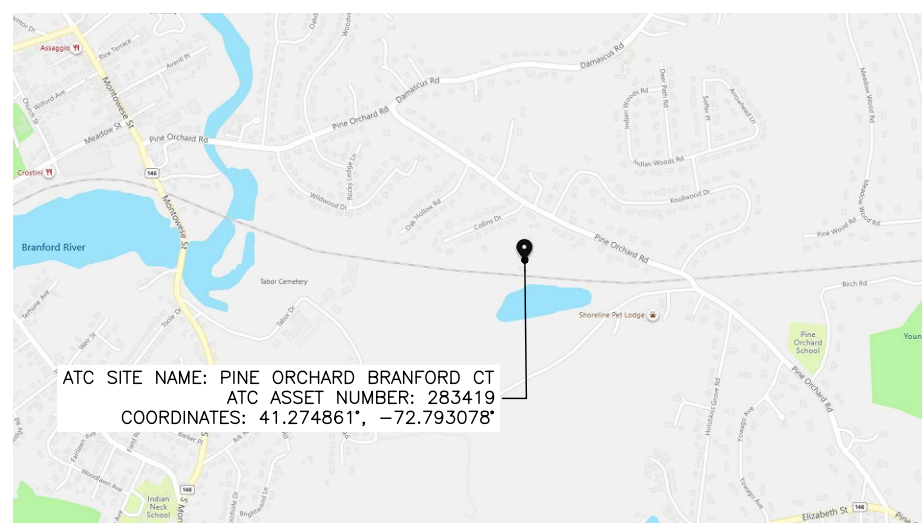
CARRIER SITE NAME: AMTRAK_BRANFORD
CARRIER SITE NUMBER: CTNH801B
ATC SITE NAME: PINE ORCHARD BRANFORD CT
ATC ASSET NUMBER: 283419
ENGINEERING NUMBER: 12927144_C9_06
STRUCTURE TYPE: 123'-0" MONOPOLE
PROJECT SCOPE: MOUNT REINFORCEMENT



319 CHAPANOKE ROAD, SUITE 118, RALEIGH, NC 27603
 PH: (405)348-5460 FAX: (405)341-4625

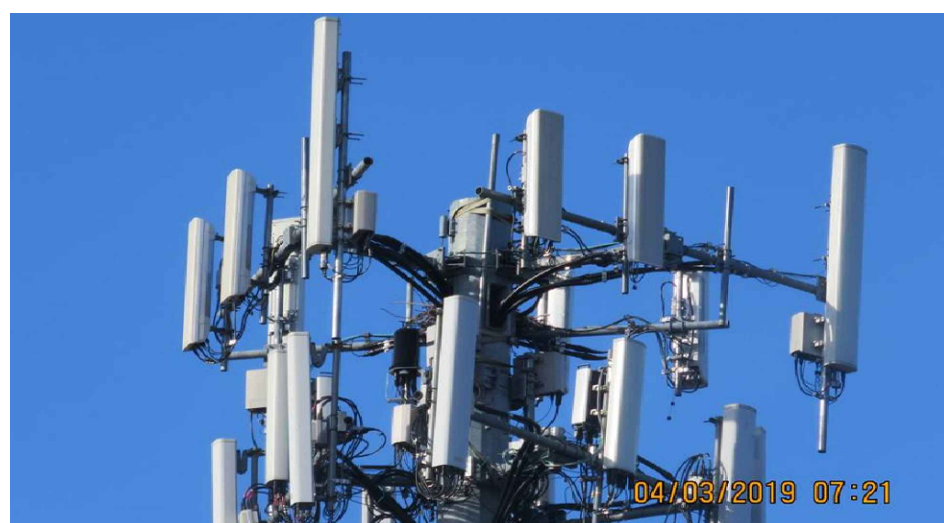
CLS PROJECT ID: 41124-283419-12927144
 COA# PEC.001833 EXP. 08/14/2022

LOCATION MAP



ATC SITE NAME: PINE ORCHARD BRANFORD CT
 ATC ASSET NUMBER: 283419
 COORDINATES: 41.274861°, -72.793078°

STRUCTURE ELEVATION PHOTOGRAPH



04/03/2019 07:21

DRAWING INDEX

SHEET	SHEET DESCRIPTION	REV
T-1	TITLE SHEET & DRAWING INDEX	0
GN-1	STRUCTURAL NOTES	0
IN-1	MODIFICATION INSPECTION NOTES	0
S-1	MOUNT VIEWS & MODIFICATION SCHEDULE	0
S-2	MODIFICATION DETAIL VIEWS	0
S-3	REFERENCE CUT SHEET	0

REVISIONS

REV.	DATE	DESCRIPTION	INITIALS
A	09/02/20	PRELIMINARY ISSUE	HRP
0	09/02/20	FOR CONSTRUCTION	HRP

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

SCOPE OF WORK

- THIS MODIFICATION PLAN HAS BEEN DESIGNED UTILIZING THE STRUCTURAL ANALYSIS BY CLS ENGINEERING, PROJECT #41124-12927144_C9_06-03-MOD, DATED SEPTEMBER 3, 2020.
- FULL MODIFICATION SCHEDULE CAN BE FOUND ON S-1.
- CONTRACTOR SHALL SCHEDULE A SITE VISIT TO CONFIRM ALL EXISTING STRUCTURE DIMENSIONS, SITE CONSTRAINTS, PROPOSED REINFORCING DIMENSIONS, THE CLEARANCES OF THE PROPOSED REINFORCING, EXISTING FOUNDATION INFORMATION, EXISTING SITE UTILITIES, AND ALL OTHER INFORMATION NECESSARY TO PERFORM THE WORK ON THESE DRAWINGS IN ORDER TO ELIMINATE THE RISK OF RFIS ONCE CONSTRUCTION AND FABRICATION HAVE BEGUN. THE CONTRACTOR SHALL NOT BEGIN FABRICATION OR CONSTRUCTION PRIOR TO PERFORMING THIS SITE VISIT AND VALIDATING THE INFORMATION ON THESE DRAWINGS AND ANY ADDITIONAL INFORMATION THE CONTRACTOR NEEDS TO PERFORM THE WORK.
- THE CONTRACTOR SHALL PERFORM THIS PRE-CONSTRUCTION WORK AND REPORT ALL DISCREPANCIES TO THE CUSTOMER AND THE ENGINEER OF RECORD OR BE LIABLE FOR THE LABOR & MATERIALS FOR DISCREPANCIES NOT CAUGHT BY THE CONTRACTOR'S DUE DILIGENCE SITE VISIT.



Tyler M. Barker
 CLS Engineering PLLC
 Director of Engineering
 PE # 32402 Exp. 1/31/2021
 COA # PEC.001833 Exp. 8/14/2022

PE# 32402 EXP: 1/31/2021

DRIVING DIRECTIONS

DEPART FROM MITCHELL INTERNATIONAL AIRPORT:
 HEAD NORTH ON MKE DEPARTURES TOWARD MKE ARRIVALS 453 FT, BEAR RIGHT ONTO MKE ARRIVALS 0.3 MI, TAKE RAMP FOR WI-119 W TOWARD CHICAGO 1.3 MI, TAKE RAMP LEFT FOR I-41 8.2 MI, TAKE RAMP RIGHT TOWARD SEVEN MILE RD 0.3 MI, TURN LEFT ONTO 7 MILE RD 2.0 MI, TURN RIGHT ONTO WI-38 5.1 MI, TURN RIGHT ONTO WI-32 2.3 MI, TURN LEFT ONTO 4 MILE RD 1.8 MI, ROAD NAME CHANGES TO E 4 MILE RD 0.3 MI, TURN RIGHT 354 FT, TURN RIGHT 102 FT, ARRIVE AT YOUR DESTINATION ON THE RIGHT.

PROJECT TEAM

ENGINEER/ARCHITECT:
 CLS ENGINEERING, PLLC.
 319 CHAPANOKE ROAD,
 SUITE 118
 RALEIGH, NC 27603
 (405) 348-5460

STRUCTURE OWNER:
 AMERICAN TOWER
 10 PRESIDENTIAL WAY
 WOBURN, MA 1801

OWNER SITE NAME:
 PINE ORCHARD BRANFORD CT

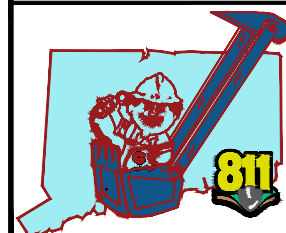
APPLICANT/CUSTOMER:
 T-MOBILE
 12920 SE 38TH STREET
 BELLEVUE, WA 98006

OWNER SITE NUMBER:
 283419

PROJECT INFORMATION

STRUCTURE TYPE:	MONOPOLE
STRUCTURE HEIGHT:	123'-0"
LATITUDE:	41.274861° (NAD 83)
LONGITUDE:	-72.793078° (NAD 83)
ADDRESS:	283419 - PINE ORCHARD BRANFORD CT 123 PINE ORCHARD ROAD BRANFORD, CT 06405-3939
COUNTY:	NEW HAVEN
CODE JURISDICTION:	CITY OF BRANFORD
GROUND ELEVATION:	35' AMSL

ONE CALL



**CALL CONNECTICUT ONE-CALL
 3 DAYS BEFORE YOU DIG
 811 OR 1-800-922-4455**

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT OR ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR THE SAME.

CODE COMPLIANCE

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES.

STRUCTURAL CODE: IBC 2015
 CONNECTICUT STATE BUILDING CODE: IBC 2018
 DESIGN STANDARD: TIA-222-G

ATC SITE NAME:

PINE ORCHARD BRANFORD CT
 ATC ASSET #: 283419
 123 PINE ORCHARD ROAD
 BRANFORD, CT 06405-3939

SHEET TITLE

TITLE SHEET & DRAWING INDEX

SHEET NUMBER

T-1

GENERAL NOTES

- THESE MODIFICATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GOVERNING PROVISIONS OF TIA/EIA-222, ASCE 7, AWS, ACI, AND AISC. MATERIALS AND SERVICES PROVIDED BY THE CONTRACTOR SHALL CONFORM TO THE ABOVE-MENTIONED CODES AND THE CONTRACT SPECIFICATIONS.
- ALL MATERIALS UTILIZED FOR THIS PROJECT MUST BE NEW AND FREE OF ANY DEFECTS.
- ALL PRODUCT OR MATERIAL SUBSTITUTIONS PROPOSED BY THE CONTRACTOR SHALL BE APPROVED IN WRITING BY THE ENGINEER. CONTRACTOR SHALL PROVIDE DOCUMENTATION TO ENGINEER SUITABLE TO DETERMINE IF SUBSTITUTE IS ACCEPTABLE FOR USE AND MEETS THE ORIGINAL DESIGN CRITERIA. DIFFERENCES FROM THE ORIGINAL DESIGN, INCLUDING MAINTENANCE, REPAIR AND REPLACEMENT, SHALL BE NOTED. ESTIMATES OF COSTS/CREDITS ASSOCIATED WITH THE SUBSTITUTION (INCLUDING RE-DESIGN COSTS AND COSTS TO SUB-CONTRACTORS) SHALL BE PROVIDED TO THE ENGINEER. CONTRACTOR SHALL PROVIDE ADDITIONAL DOCUMENTATION AND/OR SPECIFICATIONS TO THE ENGINEER AS REQUESTED.
- PROVIDE STRUCTURAL STEEL SHOP DRAWING(S) TO THE ENGINEER OF RECORD FOR APPROVAL PRIOR TO FABRICATION.
- UNLESS NOTED OTHERWISE, ALL NEW MEMBERS AND REINFORCING SHALL MAINTAIN THE EXISTING MEMBER WORK LINES AND NOT INTRODUCE ECCENTRICITIES INTO THE STRUCTURE.
- ANY CONTRACTOR-CAUSED DAMAGE TO PROPERTY OF THE LAND OWNER, PROPERTY OF THE STRUCTURE OWNER, PROPERTY OF THE CUSTOMER, SITE FENCING OR GATES, ANY AND ALL UTILITY AND/OR SERVICE LINES, SHOWN OR NOT SHOWN ON THE PLANS, SHALL BE REPAIRED OR REPLACED AT THE SOLE COST OF THE CONTRACTOR AND SHALL BE ACCOMPLISHED BY THE CONTRACTOR OR SUBCONTRACTOR AS APPROVED BY THE ENGINEER OF RECORD AND LAND OWNER. DAMAGE TO EQUIPMENT OR PROPERTY OF ANY KIND BELONGING TO OTHER COMPANIES (BESIDES THE INDICATED CUSTOMER) SHALL BE ADDRESSED BY THE CONTRACTOR WITH THE COMPANIES THAT OWN THE DAMAGED ITEMS.

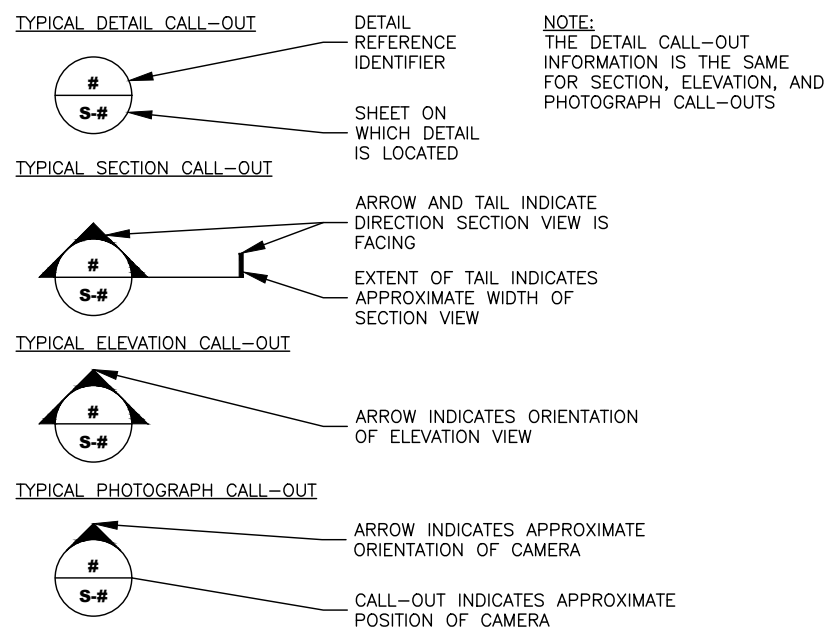
STRUCTURAL STEEL NOTES

- STRUCTURAL STEEL SHALL COMPLY WITH THE FOLLOWING SPECIFICATIONS:
 - STRUCTURAL STEEL SHAPES, PLATES AND BARS (EXCEPT W-SHAPES)- ASTM A36, Fy=36 KSI
 - PIPES - ASTM A53, GRADE B, Fy=35 KSI
 - HSS-SHAPES - ASTM A500, GRADE B, Fy=42 KSI (ROUND)
Fy=46 KSI (SQUARE & RECTANGULAR)
 - ANCHOR & ALL-THREAD RODS - ASTM F1554, GRADE 55
 - STRUCTURAL BOLTS 1/2"Ø AND LARGER - ASTM A325
 - STRUCTURAL BOLTS SMALLER THAN 1/2"Ø - DIMENSIONS: ASME B18.2.1
MATERIAL: SAE J429 GRADE 5 | THREADING: ASME B1.1, UNC, CLASS 2A | FINISH: HOT-DIP GALVANIZED OR ZINC-PLATED
 - SHEET METAL SCREWS - DIMENSIONS: ASME B18.6.3
MATERIAL: SAE J933 | FINISH: HOT-DIP GALVANIZED OR ZINC-PLATED
 - NUTS FOR BOLTS/ALL-THREAD - ASTM A563 (THREADING TO MATCH BOLT)
 - WASHERS FOR BOLTS/ALL-THREAD - ASTM F436
 - W & WT SHAPES - ASTM A36, Fy=36 KSI
ALTERNATE SPEC: ASTM A992 (IF OTHER SPEC IS UNAVAILABLE)
- STRUCTURAL BOLTS SHALL CONFORM TO THIS NOTE. ALL BOLT HOLES SHALL BE STANDARD SIZE BOLT HOLES PER AISC 360, UNLESS OTHERWISE NOTED. ALL HOLES SHALL BE SHOP DRILLED OR SUB-PUNCHED AND REAMED. BURNING OF HOLES IS NOT PERMITTED. WHERE SLOTTED OR OVERSIZE HOLES ARE SPECIFIED ON THE DRAWINGS, EXTRA-THICK ASTM F436 PLATE WASHERS SHALL BE USED (5/16" MINIMUM THICKNESS) WITH A DIAMETER SUITABLE TO COVER THE EXTENTS OF THE SLOT OR HOLE. BOLTS SHALL BE HEAVY-HEX WHERE AVAILABLE IN THE SIZE AND GRADE SPECIFIED, OTHERWISE BOLTS SHALL BE HEX HEAD CAP SCREWS.
- ALL STEEL HARDWARE, INCLUDING ADHESIVE OR EMBEDDED ANCHOR BOLTS AND THEIR ACCESSORIES, SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A153 (EXCEPT BOLTS SMALLER THAN 1/2" SHALL CONFORM TO FE/ZN 3 AT PER ASTM F1941 WHERE HOT-DIP GALVANIZED BOLTS ARE NOT AVAILABLE). ALL STEEL MEMBERS, INCLUDING WELDMENTS, SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123. REPAIR DAMAGE TO GALVANIZED COATINGS USING ASTM A780 PROCEDURES WITH A ZINC RICH PAINT (SUCH AS ZRC GALVILITE) FOR GALVANIZING DAMAGED BY HANDLING, TRANSPORTING, CUTTING, WELDING, OR BOLTING. DO NOT HEAT SURFACES TO WHICH REPAIR PAINT HAS BEEN APPLIED. CALL OUT HOLES REQUIRED FOR HOT-DIP GALVANIZING ON SHOP DRAWINGS.
- WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1 "STRUCTURAL WELDING CODE - STEEL". WELD ELECTRODES SHALL BE E70XX. UNLESS OTHERWISE NOTED, PROVIDE CONTINUOUS FILLET WELDS WITH MINIMUM SIZE OF 3/16 INCH OR OF A SIZE EQUAL TO THE THICKNESS OF THE THINNER MATERIAL BEING JOINED (WHICHEVER IS LESS). FOR ACUTE OR OBTUSE JOINT ANGLES, THE FILLET WELD LEG SIZE SHALL BE ADJUSTED AS REQUIRED TO MAINTAIN THE EFFECTIVE THROAT OF A 3/16 INCH FILLET WELD IN A 90° JOINT. ALL WELD SIZES SHOWN IN INCHES.
- PRIOR TO WELDING, THE CONTRACTOR SHALL SUBMIT CERTIFICATION FOR EACH WELDER STATING THE TYPE OF WELDING AND POSITIONS QUALIFIED FOR, THE CODE AND PROCEDURE QUALIFIED UNDER, DATE QUALIFIED, AND THE FIRM AND INDIVIDUAL CERTIFYING THE QUALIFICATION TESTS. THIS INFORMATION SHALL BE SUBMITTED TO THE MODIFICATION INSPECTOR (SEE SHEET S-003) AS WELL AS ANY THIRD-PARTY CERTIFIED WELD INSPECTOR (CW).
- MEMBERS SHALL BE SHOP-FABRICATED AND WELDED TO THE EXTENT PRACTICABLE IN ORDER TO REDUCE FIELD INSTALLATION COSTS.

CONTRACTOR NOTES

- PRIOR TO BEGINNING CONSTRUCTION, ALL CONTRACTORS AND SUBCONTRACTORS MUST ACKNOWLEDGE IN WRITING TO STRUCTURE OWNER THAT THEY HAVE OBTAINED, UNDERSTAND, AND WILL FOLLOW STRUCTURE OWNER STANDARDS OF PRACTICE, CONSTRUCTION GUIDELINES, ALL SITE AND STRUCTURE/TOWER SAFETY PROCEDURES, ALL PRODUCT LIMITATIONS AND INSTALLATION PROCEDURES USED ON SITE, AND PROPOSED MODIFICATIONS DESCRIBED. RECEIPT OF ACKNOWLEDGEMENT MUST OCCUR PRIOR TO BEGINNING CONSTRUCTION OR CLIMBING. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO PROVIDE THIS DOCUMENTATION FOR STRUCTURE OWNER ON COMPANY LETTERHEAD AND THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OBTAIN THIS DOCUMENTATION FROM ANY SUBCONTRACTORS (ON SUBCONTRACTOR LETTERHEAD) AND DELIVER IT TO THE STRUCTURE OWNER.
- IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT REPRESENTED ON THESE DRAWINGS, OR ANY CONDITIONS THAT WOULD INTERFERE WITH THE INSTALLATION OF THE MODIFICATIONS, THE ENGINEER OF RECORD SHALL BE CONTACTED IMMEDIATELY TO EVALUATE THE SIGNIFICANCE OF THE DEVIATION.
- THE CONTRACTOR SHALL SOLICIT AND HIRE THE SERVICES OF A QUALIFIED MODIFICATION INSPECTOR PRIOR TO BEGINNING CONSTRUCTION. THE MODIFICATION INSPECTOR MAY BE AN EMPLOYEE OF THE CONTRACTOR'S FIRM, HOWEVER THE INSPECTOR'S ONLY DUTIES SHALL BE INSPECTION, TESTING, AND REPORT CREATION AS REQUIRED ON THE "MODIFICATION INSPECTION NOTES" SHEET. THE INSPECTOR SHALL BE QUALIFIED AS A REGISTERED PROFESSIONAL ENGINEER (PE) OR AS AN ENGINEERING INTERN (EI) OR ENGINEER IN TRAINING (EIT) UNDER THE SUPERVISION OF A REGISTERED PROFESSIONAL ENGINEER (PE). IT IS ALSO ACCEPTABLE FOR THE CONTRACTOR TO SUBCONTRACT THE MODIFICATION INSPECTOR DUTIES TO A THIRD PARTY FIRM MEETING THE ABOVE REQUIREMENTS.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD AND TOWER OWNER OF THE PLANNED CONSTRUCTION & INSPECTION SCHEDULE, AS WELL AS ANY CHANGES TO THE SCHEDULE, WITHIN TWO BUSINESS DAYS OF THE COMPLETION OF THE SCHEDULE OR SCHEDULE REVISION BOTH PRIOR TO BEGINNING CONSTRUCTION AND DURING CONSTRUCTION AS THE SCHEDULE CHANGES. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD WHEN PHASES OF CONSTRUCTION HAVE BEEN MOVED UP AND SHALL GIVE THE ENGINEER ADEQUATE NOTICE SO THAT THE ENGINEER OF RECORD MAY, AT THEIR DISCRETION, INSPECT PORTIONS OF THE WORK THAT ARE DEEMED CRITICAL TO THE INTEGRITY OF THE STRUCTURE. FAILURE TO PROVIDE THIS NOTICE MAY RESULT IN REJECTION OF THE CONTRACTOR'S WORK. THE CONTRACTOR SHALL ALSO NOTIFY THE ENGINEER OF RECORD AND THE STRUCTURE OWNER WHEN THE WORK HAS BEEN COMPLETED WITHIN 2 BUSINESS DAYS OF THE COMPLETION OF THE WORK AND ASSOCIATED MODIFICATION INSPECTIONS & TESTING.
- IT IS ASSUMED THAT ANY STRUCTURAL MODIFICATION WORK SPECIFIED ON THESE PLANS WILL BE ACCOMPLISHED BY KNOWLEDGEABLE WORKMEN WITH TOWER CONSTRUCTION EXPERIENCE. THIS INCLUDES PROVIDING THE NECESSARY CERTIFICATIONS TO THE STRUCTURE OWNER AND ENGINEER INCLUDING BUT NOT LIMITED TO TOWER CLIMBER AND RESCUE CLIMBER CERTIFICATIONS, QUALIFIED WELDER CERTIFICATES, CERTIFIED WELDING INSPECTOR CREDENTIALS, ET CETERA.
- THESE DRAWINGS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION METHODS, MEANS, TECHNIQUES, SEQUENCES AND PROCEDURES.
- CONTRACTOR SHALL WORK WITHIN THE LIMITS OF THE STRUCTURE OWNER'S PROPERTY OR LEASE AREA AND APPROVED EASEMENTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY WORK IS WITHIN THESE BOUNDARIES. CONTRACTOR SHALL EMPLOY A SURVEYOR AS REQUIRED. ANY WORK OUTSIDE THESE BOUNDARIES SHALL BE APPROVED IN WRITING BY THE LAND OWNER PRIOR TO MOBILIZATION. CONSTRUCTION STAKING AND BOUNDARY MARKING IS THE RESPONSIBILITY OF THE CONTRACTOR.

SYMBOLS AND CALL-OUTS



STANDARD ABBREVIATIONS

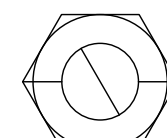
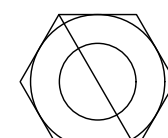
AFF	ABOVE FINISHED FLOOR	LONG	LONGITUDINAL
ARCH	ARCHITECT, -URAL	MAS	MASONRY
BLDG	BUILDING	MATL	MATERIAL
BOD	BOTTOM OF DECK	MAX	MAXIMUM
BOT	BOTTOM	MECH	MECHANICAL
BRCG	BRACING	MFR	MANUFACTURER
BRDG	BRIDGING	MIN	MINIMUM
C	CHANNEL	MOD	MODIFICATION
CL	CENTER LINE	MPH	MILES PER HOUR
CLR	CLEAR	MRI	MEAN RECURRENCE INTERVAL
CMU	CONCRETE MASONRY UNIT	#	NUMBER
CONC	CONCRETE	NTS	NOT TO SCALE
CONT	CONTINUOUS	OC	ON CENTER
DIA (OR) Ø	DIAMETER	OPH	OPPOSITE HAND
DWGS	DRAWINGS	OPNG	OPENING
EA	EACH	PC	PIECE
EL	ELEVATION	PL	PLATE
EQ, EQUIV	EQUAL, EQUIVALENT	PSF	POUNDS PER SQUARE FOOT
EW	EACH WAY	PSI	POUNDS PER SQUARE INCH
EXIST	EXISTING	REF	REFERENCE
' OR FT	FEET (DIMENSION)	REINF	REINFORCE/REINFORCEMENT
f'c	COMPRESSIVE STRESS	REQD	REQUIRED
FDN	FOUNDATION	REV	REVISION
FTG	FOOTING	SF	SQUARE FEET
GALV	GALVANIZED	SIM	SIMILAR
HORIZ	HORIZONTAL	SR	SOLID ROUND (SHAPE)
HSS	HOLLOW STRUCTURAL SHAPES	STD	STANDARD
		T&B	TOP AND BOTTOM
KIP	KILOPOUNDS (1000 LBS PER UNIT)	THK	THICKNESS
KSI	KIPS PER SQUARE INCH	TOF	TOP OF FOOTING
" OR IN	INCH	TOM	TOP OF MASONRY
L	ANGLE	TOS	TOP OF STEEL
LB	POUND	TYP	TYPICAL
LLH	LONG LEG HORIZONTAL	UON	UNLESS OTHERWISE NOTED
LLV	LONG LEG VERTICAL	VERT	VERTICAL
		W/	WITH

BOLT TIGHTENING PROCEDURE

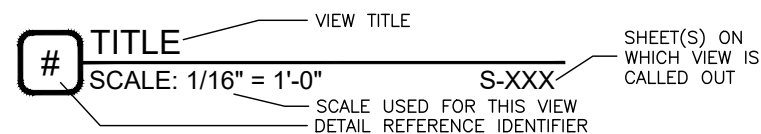
- TIGHTEN BOLTS BY AISC "TURN OF THE NUT" METHOD USING THE CHART BELOW:
 - BOLT LENGTHS UP TO AND INCLUDING FOUR DIAMETERS:
+1/3 TURN BEYOND SNUG TIGHT
 - BOLT LENGTHS OVER FOUR AND UP TO EIGHT DIAMETERS:
+1/2 TURN BEYOND SNUG TIGHT
 - BOLT LENGTHS OVER EIGHT AND UP TO TWELVE DIAMETERS:
+2/3 TURN BEYOND SNUG TIGHT
- SPLICE BOLTS SUBJECT TO DIRECT TENSION SHALL BE INSTALLED AND TIGHTENED AS PER SECTION 8(d)(1) OF THE AISC MANUAL OF STEEL CONSTRUCTION. THE INSTALLATION PROCEDURE IS AS FOLLOWS:

"FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES AND BE TIGHTENED BY ONE OF THE METHODS DESCRIBED IN SUBSECTION 8(d)(1) THROUGH 8(d)(4).

8(d)(1) TURN-OF-THE-NUT TIGHTENING.
BOLTS SHALL BE INSTALLED IN ALL HOLES OF THE CONNECTION AND BROUGHT TO A SNUG TIGHT CONDITION. SNUG TIGHT IS DEFINED AS THE TIGHTNESS THAT EXISTS WHEN THE PLIES OF A JOINT ARE IN FIRM CONTACT. THIS MAY BE OBTAINED BY A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF A MAN USING AN ORDINARY SPUD WRENCH. SNUG TIGHTENING SHALL PROGRESS SYSTEMATICALLY...UNTIL ALL THE BOLTS ARE SIMULTANEOUSLY SNUG TIGHT AND THE CONNECTION IS FULLY COMPACTED. FOLLOWING THIS INITIAL OPERATION, ALL BOLTS IN THE CONNECTION SHALL BE TIGHTENED FURTHER BY THE APPLICABLE AMOUNT OF ROTATION SPECIFIED ABOVE. DURING THE TIGHTENING OPERATION, THERE SHALL BE NO ROTATION OF THE PART NOT TURNED BY THE WRENCH. TIGHTENING SHALL PROGRESS SYSTEMATICALLY.



SECTION / ELEVATION / DETAIL VIEW CALLOUTS



T-Mobile



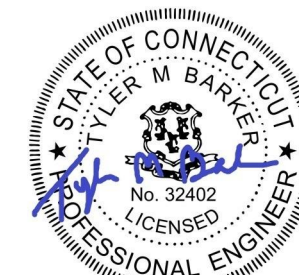
CLS ENGINEERING PLLC
319 CHAPANOKE ROAD, SUITE 118, RALEIGH, NC 27603
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CLS PROJECT ID: 41124-283419-12927144
COA# PEC.001833 EXP. 08/14/2022

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Tyler M. Barker
CLS Engineering PLLC
Director of Engineering
PE # 32402 Exp. 1/31/2021
COA # PEC.001833 Exp. 8/14/2022

PE# 32402 EXP: 1/31/2021

ATC SITE NAME:

PINE ORCHARD BRANFORD CT

ATC ASSET #: 283419

123 PINE ORCHARD ROAD
BRANFORD, CT 06405-3939

SHEET TITLE

STRUCTURAL NOTES

SHEET NUMBER

GN-1

PRE-CONSTRUCTION INSPECTION CHECKLIST

CONSTRUCTION AND/OR INSTALLATION INSPECTIONS REQUIRED FOR REPORT? (CHECK=YES, BLANK=NO)	INSPECTION REPORT ITEM
√	MODIFICATION INSPECTION CHECKLIST
√	SHOP DRAWINGS APPROVED BY ENGINEER OF RECORD (LATEST REVISION)
√	FABRICATION INSPECTION
	FABRICATOR'S CERTIFIED WELD INSPECTOR (CWI)
	FABRICATOR'S QUALIFIED PERSONNEL FOR WELDING
√	MATERIAL TEST REPORT(S) / MILL CERTIFICATE(S)
	FABRICATOR'S NON-DESTRUCTIVE TESTING (NDT) TECHNICIAN
√	PACKING SLIPS FOR STRUCTURAL MATERIALS

CONSTRUCTION INSPECTION CHECKLIST

CONSTRUCTION AND/OR INSTALLATION INSPECTIONS REQUIRED FOR REPORT? (CHECK=YES, BLANK=NO)	INSPECTION REPORT ITEM
√	CONSTRUCTION INSPECTIONS
	FOUNDATION INSPECTIONS
	CONCRETE COMPRESSIVE STRENGTH AND SLUMP TESTING RESULTS/CERTIFICATES
	ADHESIVE ANCHOR ROD(S) INSTALLATION INSPECTION
	BASE PLATE GROUT INSPECTION
	THIRD-PARTY CERTIFIED WELD INSPECTION (INCLUDING IBC SPECIAL INSPECTIONS)
	SOIL EXCAVATION - DENSITY TESTING, COMPACTION INSPECTION/VERIFICATION, USE OF SUITABLE FILL
√	GALVANIZING REPAIR MATERIAL PREPARATION, INSPECTION, & PAINT APPLICATION
	GUY WIRE (RE-)TENSION REPORT AND INSPECTION
√	PRIME CONTRACTOR'S AS-BUILT DOCUMENTS (SIGNED & DATED)

POST-CONSTRUCTION INSPECTION CHECKLIST

CONSTRUCTION AND/OR INSTALLATION INSPECTIONS REQUIRED FOR REPORT? (CHECK=YES, BLANK=NO)	INSPECTION REPORT ITEM
√	MODIFICATION INSPECTOR'S ISSUE LIST (INCLUDING CORRECTIVE ACTIONS TAKEN) AND/OR REDLINED RECORD DRAWINGS
	POST-INSTALLED ADHESIVE ANCHOR ROD PULL-OUT TESTING
√	PHOTOGRAPHS OF MODIFICATIONS (INCLUDE PHOTOS OF BOTH SIDES OF WELDED OR BOLTED CONNECTIONS, OF OVERALL AND DETAIL VIEWS OF INSTALLED MODIFICATIONS, AND BEFORE/AFTER PHOTOS OF ANY ISSUES IDENTIFIED BY THE INSPECTOR)

GENERAL NOTES

1. THE POST-MODIFICATION INSPECTION IS A VISUAL EXAMINATION OF STRUCTURE MODIFICATIONS AND A REVIEW OF ANY REQUIRED CONSTRUCTION INSPECTIONS, TESTING, AND OTHER DATA TO VERIFY THAT THE MODIFICATIONS ARE INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AS DESIGNED BY THE ENGINEER OF RECORD. THE CONTRACT DOCUMENTS INCLUDE THESE MODIFICATION DRAWINGS, ANY PROJECT SPECIFICATIONS REFERENCED TO IN THE PROJECT NOTES OR OTHERWISE PROVIDED WITH THE DRAWINGS, AND OTHER DOCUMENTS OR DRAWINGS PROVIDED WITH THE MODIFICATION DRAWINGS WITH THE INTENT THAT THEY BE USED AS A DESIGN AID OR GUIDELINE FOR CONSTRUCTION.
2. THE POST-MODIFICATION INSPECTION SHALL CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A QUALITATIVE REVIEW OF THE ENGINEERING ASPECTS OF THE DESIGN OR THE DESIGN DRAWINGS. THE MODIFICATION INSPECTOR IS NOT TAKING OWNERSHIP OF THE MODIFICATION DESIGN IN THE PERFORMANCE OF THEIR DUTIES. OWNERSHIP OF THE MODIFICATION DESIGN'S EFFECTIVENESS AND INTENT, AS WELL AS ALL ASSOCIATED RISK, LIES WITH THE ENGINEER OF RECORD AT ALL TIMES.
3. TO ENSURE THAT THE REQUIREMENTS OF THE POST-MODIFICATION INSPECTION ARE MET, IT IS ESSENTIAL THAT COORDINATION BETWEEN THE PRIME CONTRACTOR AND THE MODIFICATION INSPECTOR BEGIN AS SOON AS THE PROJECT IS FUNDED AND WORK ENTERS THE PLANNING STAGE. THE PRIME CONTRACTOR AND MODIFICATION INSPECTOR SHALL BE PROACTIVE IN IDENTIFYING CONSTRUCTION ISSUES AND COMMUNICATING THESE ISSUES TO EACH OTHER AND TO THE ENGINEER OF RECORD AND STRUCTURE OWNER & CUSTOMER, AS REQUIRED.

MODIFICATION INSPECTOR'S RESPONSIBILITIES

1. THE MODIFICATION INSPECTOR SHALL CONTACT THE PRIME CONTRACTOR AS SOON AS THEY HAVE RECEIVED A PURCHASE ORDER OR PAYMENT FOR THIS INSPECTION. THE MODIFICATION INSPECTOR SHALL REVIEW THE REQUIREMENTS OF THE INSPECTION CHECKLIST, SHALL WORK WITH THE PRIME CONTRACTOR TO DEVELOP A SCHEDULE OF NECESSARY ON-SITE INSPECTIONS, AND SHALL DISCUSS ANY SITE-SPECIFIC INSPECTION REQUIREMENTS OR OTHER CONCERNS.
2. THE MODIFICATION INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL PRIME CONTRACTOR INSPECTION AND TEST REPORTS (INCLUDING THOSE OF ASSIGNED SUB-CONTRACTORS), SHALL REVIEW THE REPORTS FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS, SHALL CONDUCT THE NECESSARY ON-SITE INSPECTIONS, AND SHALL COMPILER AND SUBMIT THE MODIFICATION INSPECTION REPORT.

INSPECTION AND REPORT RECOMMENDATIONS

1. THE FOLLOWING ARE PROVIDED WITH THE INTENT OF ENHANCING THE EFFECTIVENESS OF THE MODIFICATION INSPECTION AND IMPROVING THE EFFICIENCY OF THE PROCESS OF COLLECTING AND COMPILING THE INFORMATION INTO A USABLE REPORT:
 - 1.1. IT IS RECOMMENDED THAT THE PRIME CONTRACTOR PROVIDE THE MODIFICATION INSPECTOR AT LEAST 5 BUSINESS DAYS NOTICE FOR WHEN THE SITE WILL BE READY FOR THE MODIFICATION INSPECTION.
 - 1.2. THE PRIME CONTRACTOR AND THE MODIFICATION INSPECTOR SHALL COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
 - 1.3. THE PRIME CONTRACTOR AND MODIFICATION INSPECTOR SHALL BOTH BE PRESENT DURING THE INITIAL INSPECTION IN ORDER TO ALLOW FOR THE REMEDIATION OF DEFICIENCIES DURING THE INSPECTION, AS PRACTICABLE. IT MAY BE PREFERABLE TO KEEP WORK CREWS AND THEIR EQUIPMENT ON-SITE TO REMEDIATE DEFICIENCIES DURING INSPECTIONS.

PRIME CONTRACTOR'S RESPONSIBILITIES

1. THE PRIME CONTRACTOR SHALL CONTACT THE MODIFICATION INSPECTOR AS SOON AS THEY HAVE RECEIVED A PURCHASE ORDER OR PAYMENT FOR THE MODIFICATION INSTALLATION OR PROJECT. THE PRIME CONTRACTOR SHALL REVIEW THE REQUIREMENTS OF THE MODIFICATION INSPECTION CHECKLIST, SHALL WORK WITH THE MODIFICATION INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, AND SHALL DISCUSS SPECIFIC INSPECTION AND TESTING REQUIREMENTS WITH THE MODIFICATION INSPECTOR IN DETAIL TO OBTAIN A FULL UNDERSTANDING OF THE REQUIRED INSPECTIONS AND TESTING.
2. THE PRIME CONTRACTOR SHALL PERFORM AND RECORD THE TESTING AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MODIFICATION INSPECTION CHECKLIST.

INSPECTION RESCHEDULING AND CANCELLATION

1. IF THE PRIME CONTRACTOR AND MODIFICATION INSPECTOR HAVE AGREED UPON A TIME AND DATE FOR A GIVEN INSPECTION AND EITHER PARTY RESCHEDULES OR CANCELS THE INSPECTION, THE STRUCTURE OWNER SHALL NOT BE RESPONSIBLE FOR COSTS, FEES, LOST DEPOSITS, OR OTHER EXPENSES INCURRED BY THE PRIME CONTRACTOR, THEIR SUBCONTRACTOR(S), OR THE MODIFICATION INSPECTOR DUE TO THESE SCHEDULING CHANGES. EXCEPTIONS MAY BE MADE IN THE EVENT OF UNCONTROLLABLE SITUATIONS SUCH AS NATURAL DISASTERS, SEVERE WEATHER, OR OTHER CONDITIONS THAT COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.

PHOTOGRAPHY REQUIREMENTS

1. THE PRIME CONTRACTOR AND MODIFICATION INSPECTOR SHALL, BETWEEN THE EFFORTS OF BOTH PARTIES AND THEIR EMPLOYED PERSONNEL, PROVIDE PHOTOGRAPHS WITH THE INSPECTION REPORT TO INCLUDE THE FOLLOWING:
 - a. GENERAL SITE PHOTOGRAPHS PRE-CONSTRUCTION
 - b. MODIFICATION INSTALLATION PHOTOGRAPHS DURING CONSTRUCTION/ERECTION OPERATIONS AND INSPECTIONS
 - b.1. RAW MATERIALS
 - b.2. PHOTOS OF DETAILED WORK REQUIRED ON THE DRAWINGS (CONNECTIONS, WELDMENTS, FIELD-FABRICATED MEMBERS, ETC)
 - b.3. WELD PREPARATION AND COMPLETED WELD INSPECTION (INCLUDING A FILLET WELD SIZE GAUGE, AS APPLICABLE)
 - b.4. BOLT INSTALLATION AND TORQUE/PRETENSION.
 - b.5. FINAL INSTALLED CONDITION (AFTER DEFICIENT CONDITIONS, IF ANY, ARE REMEDIATED).
 - b.6. REPAIR OF SURFACE COATINGS (INCLUDING GALVANIZING AND/OR PAINT COATING)
 - c. POST-MODIFICATION PHOTOGRAPHS OF THE SITE & WORK.
 - d. PHOTOGRAPHS OF THE FINAL STATE OF THE SITE AT CONCLUSION OF THE WORK BY THE PRIME CONTRACTOR, ASSOCIATED SUBCONTRACTORS, AND THE MODIFICATION INSPECTOR.
 - e. OTHER PHOTOS MAY BE INCLUDED AT PRIME CONTRACTOR & MODIFICATION INSPECTOR'S DISCRETION.

NOTE: PHOTOS OF MODIFICATIONS INSTALLED ON THE STRUCTURE ABOVE AN ELEVATION OF 20 FT SHALL REQUIRE PHOTOS TAKEN FROM THE STRUCTURE AS WELL AS OVERALL PHOTOGRAPHS OF THE MODIFICATIONS TAKEN FROM THE GROUND.

OWNER INSPECTIONS

1. THE STRUCTURE OWNER MAY CONDUCT INSPECTIONS TO VERIFY THE QUALITY AND COMPLETENESS OF THE PREVIOUSLY COMPLETED MODIFICATION INSPECTION REPORTS FOR THE MODIFICATION INSTALLATION WORK.
2. INSPECTIONS MAY BE COMPLETED BY A 3RD-PARTY FIRM OF THE STRUCTURE OWNER'S CHOOSING AFTER A MODIFICATION PROJECT IS COMPLETED AND A PASSING MODIFICATION INSPECTION REPORT IS ISSUED.



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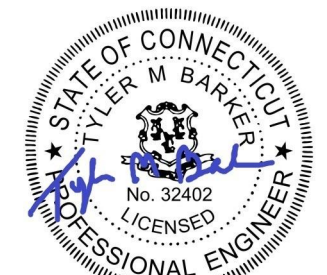
CLS PROJECT ID: 41124-283419-12927144

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PE# 32402 EXP: 1/31/2021

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ATC ASSET #: 283419

123 PINE ORCHARD ROAD
BRANFORD, CT 06405-3939

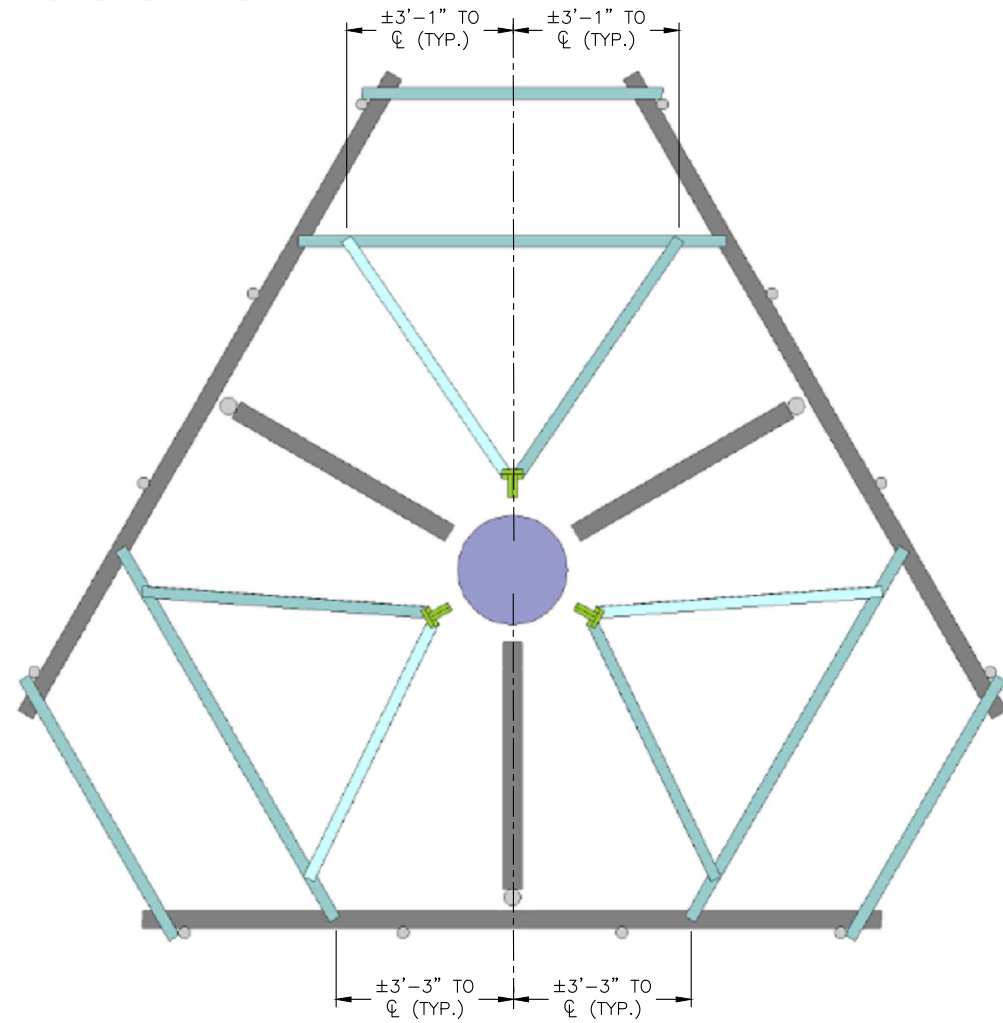
SHEET TITLE

MODIFICATION
INSPECTION NOTES

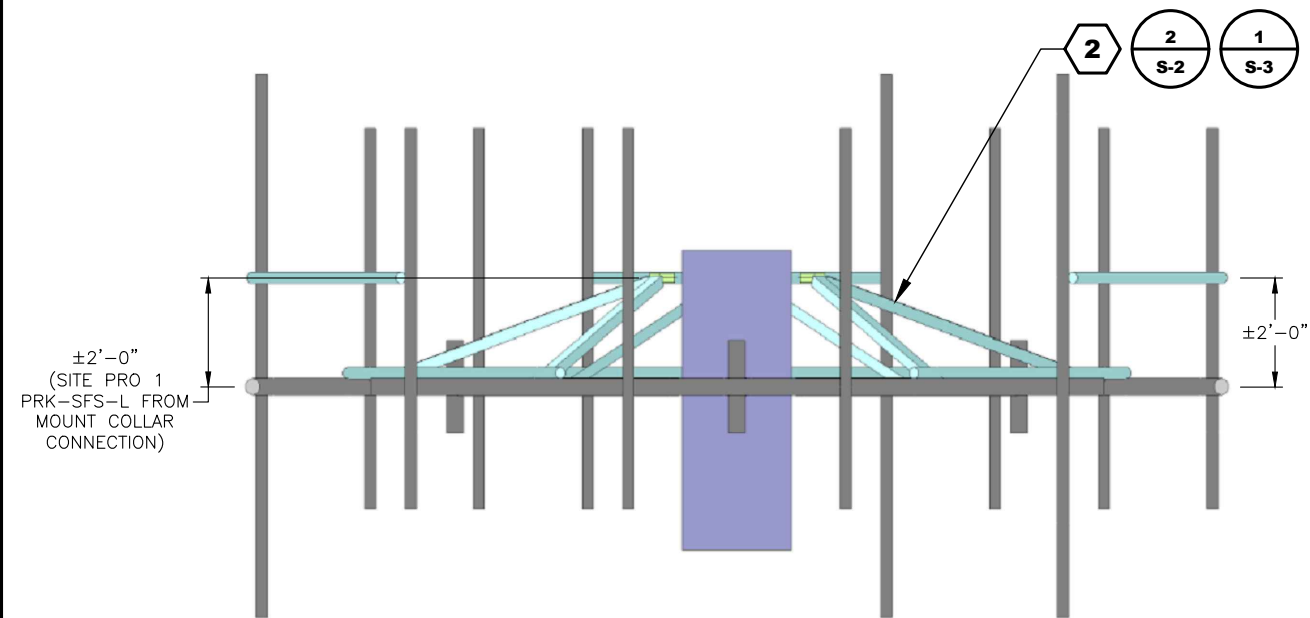
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IN-1

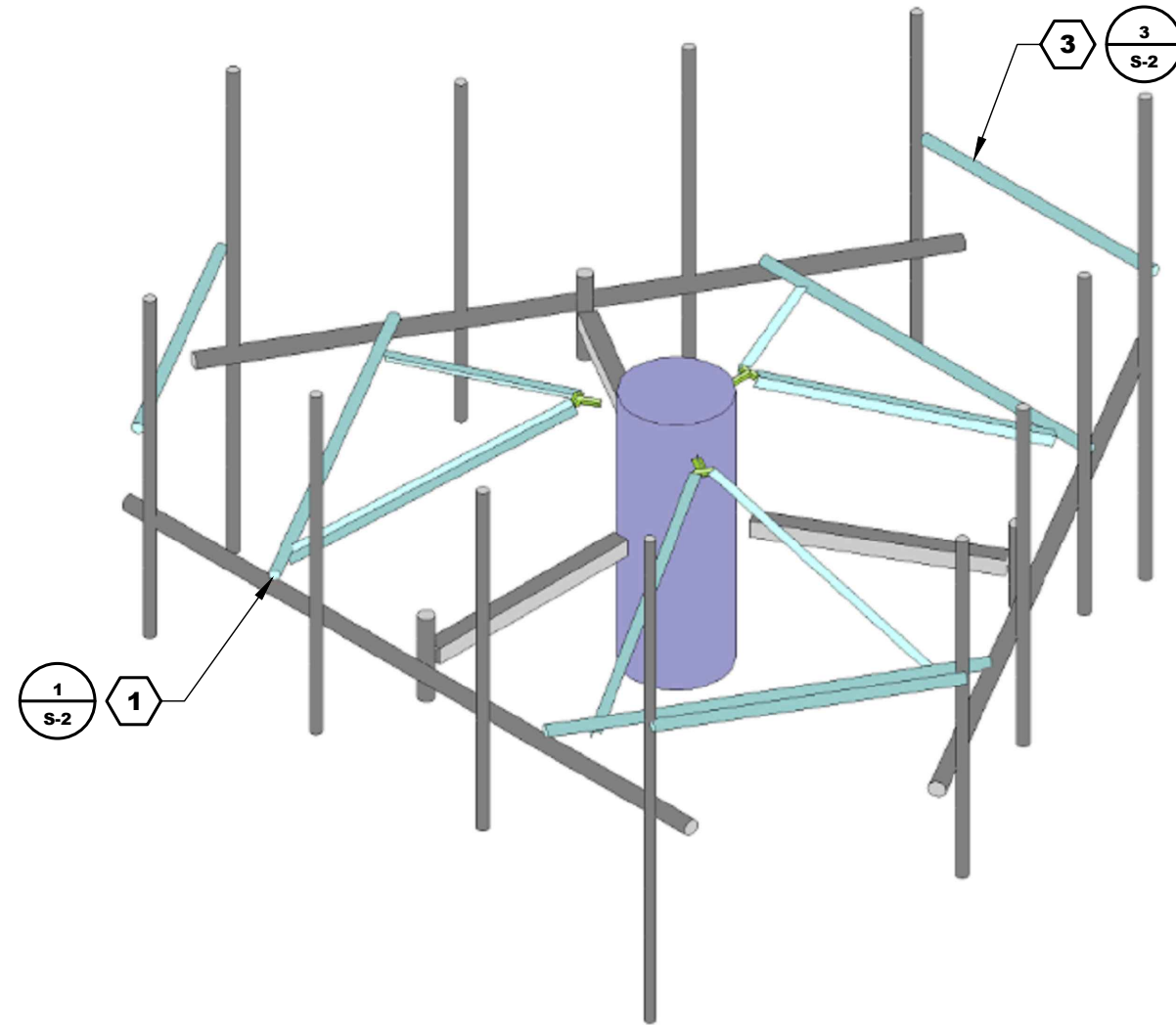
NOTE:
EXISTING MOUNT SHOWN IS REPRESENTATIVE TO ILLUSTRATE
MODIFICATION AND MAY DIFFER SLIGHTLY ON SITE.



1 MOUNT - PLAN VIEW
SCALE: N.T.S.



2 MOUNT - FRONT ELEVATION VIEW
SCALE: N.T.S.



3 MOUNT - ISOMETRIC VIEW
SCALE: N.T.S.

CONSTRUCTION NOTES

- SCOPE OF WORK MUST BE COMPLETED AT WIND SPEEDS < 20 MPH.
- ALL DIMENSIONS ARE APPROXIMATE. CONTRACTOR SHOULD FIELD VERIFY ALL DIMENSIONS BEFORE FABRICATION OF STEEL AND COMMENCEMENT OF WORK. FIELD CUT MEMBERS AS REQUIRED.
- ALL HARDWARE FOR SITE PRO 1 PUCK CONNECTION TO FACE HORIZONTAL PIPE SHOULD BE INSTALLED WITH "TURN OF THE NUT" METHOD (RE: GN-1).

MODIFICATION SCHEDULE

LABEL	ELEVATION	SCOPE	MATERIAL	NOTES
1	±121'-0"	INSTALL BRACING PIPES AT THE EXISTING T-ARM MOUNT. CONNECT TO EXISTING FACE HORIZONTAL PIPE WITH SITE PRO 1 PUCK OR EQUAL, AS SHOWN.	PIPE 2 STD X 9'-6" LONG SITE PRO 1 PUCK	S-1 S-2
2	±121'-0"	INSTALL (1) SITE PRO 1 PRK-SFS-L SUPPORT RAIL REINFORCEMENT KIT AT PROPOSED BRACING PIPES AS SPECIFIED. COLLAR TO BE INSTALLED AS HIGH AS POSSIBLE ON MONOPOLE. DO NOT PINCH SAFETY CLIMB.	SITE PRO 1 PRK-SFS-L	S-1 S-2 S-3
3	±121'-0"	CONNECT OUTERMOST MOUNT PIPES WITH PROPOSED BRACING PIPE USING SITE PRO 1 SCX1-K OR EQUAL, AS SHOWN.	PIPE 2 STD X 7'-0" LONG SITE PRO 1 SCX1-K	S-1 S-2



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09/03/2020

PE# 32402 EXP: 1/31/2021

ATC SITE NAME:

PINE ORCHARD BRANFORD CT
ATC ASSET #: 283419
123 PINE ORCHARD ROAD
BRANFORD, CT 06405-3939

SHEET TITLE

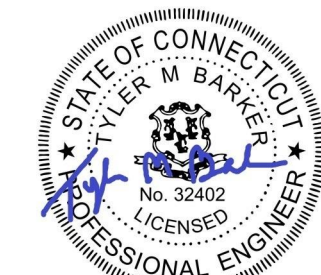
MOUNT VIEWS &
MODIFICATION SCHEDULE

SHEET NUMBER

S-1

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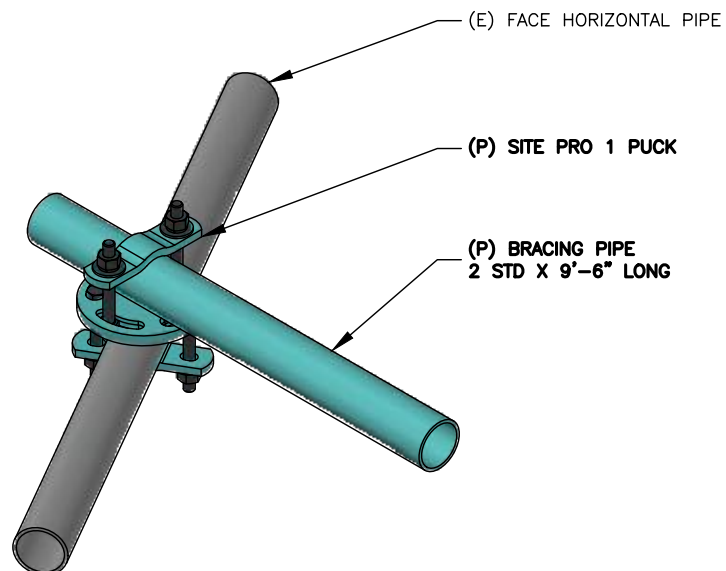
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123 PINE ORCHARD ROAD
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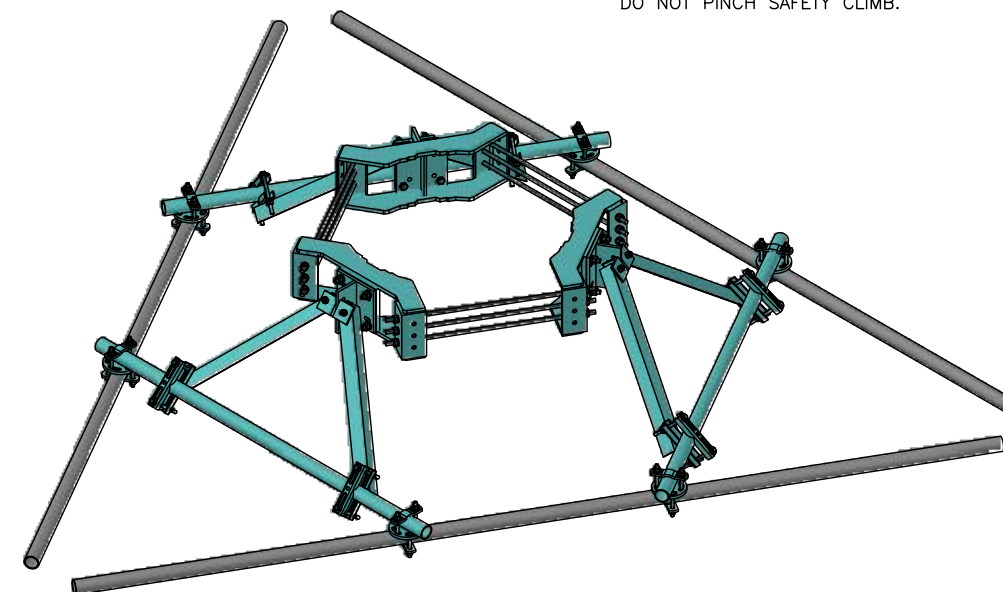
SHEET TITLE
MODIFICATION
DETAIL VIEWS

SHEET NUMBER
S-2

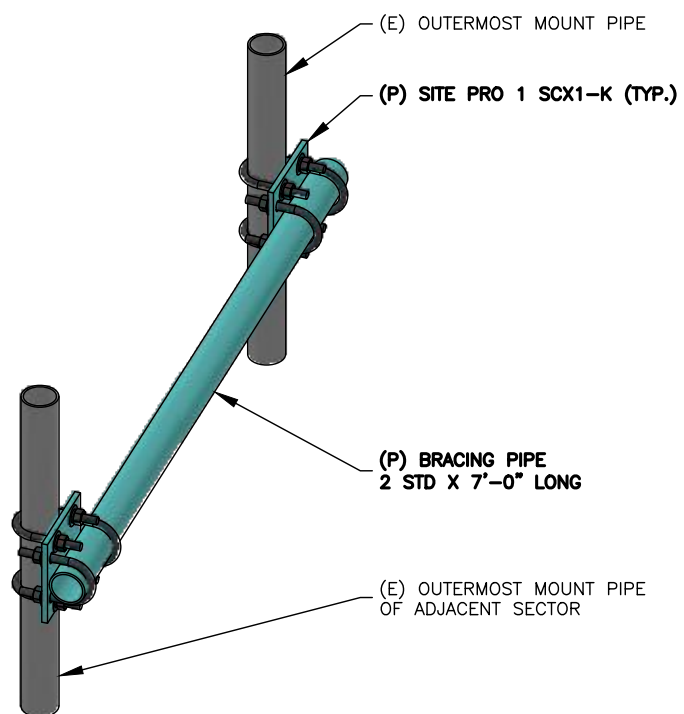
NOTES:
SEE SHEET S-3 FOR CUT SHEET
DO NOT PINCH SAFETY CLIMB.



1 SITE PRO 1 PUCK CONNECTION
SCALE: N.T.S.

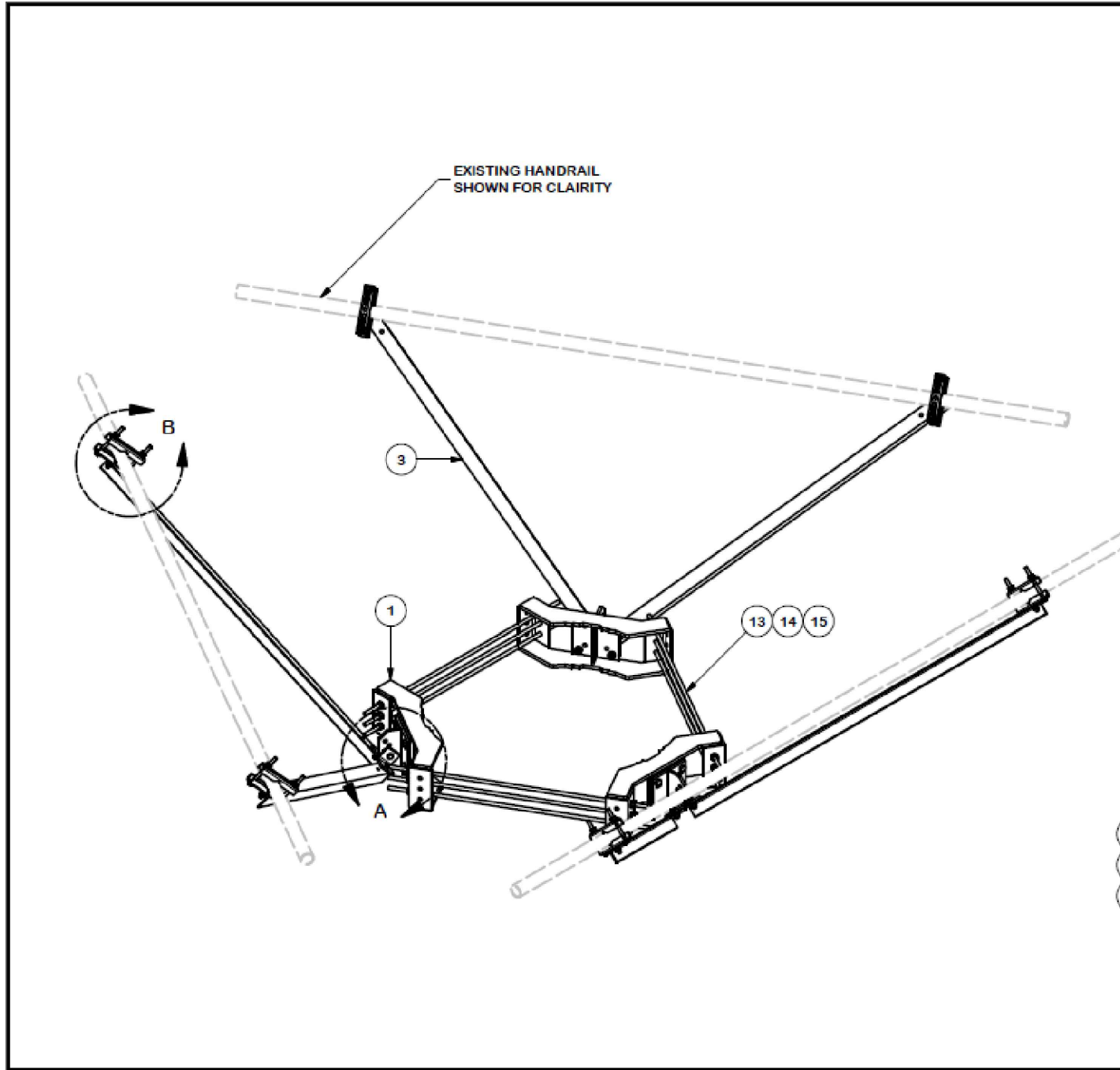


2 SITE PRO 1 PRK-SFS-L
SCALE: N.T.S.

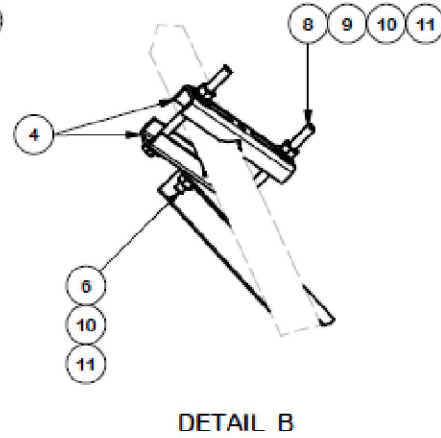
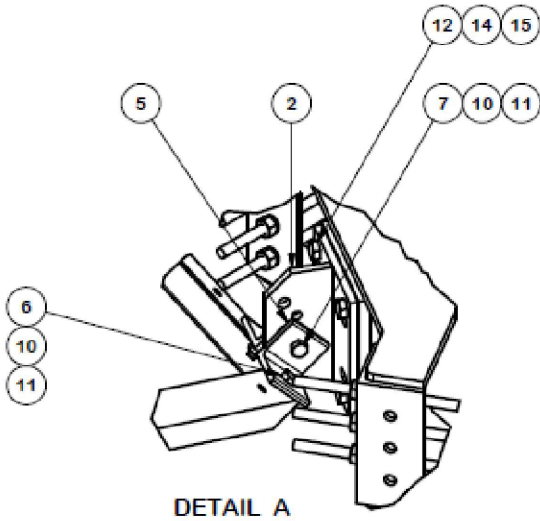


3 BRACING PIPE CONNECTION DETAIL
SCALE: N.T.S.

NOTE:
DO NOT PINCH SAFETY CLIMB.



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	X-LWRM	RING MOUNT WELDMENT		68.81	206.42
2	3	X-TBW	T-BRACKET WELDMENT		13.60	40.80
3	6	X-254924	DIAGONAL ANGLE - SITE PRO 1	72 in	19.71	118.24
4	12	X-STU	STIFF ARM CHANNEL BRACKET	8 1/2 in	1.37	16.46
5	6	SHCM-T	CHAIN MOUNT TIGHTENER BRACKET	3 in	1.86	11.15
6	12	G12112	1/2" x 1-1/2" HDG HEX BOLT GR5	1/2 in	0.15	1.77
7	3	G12212	1/2" x 2-1/2" HDG HEX BOLT GR5	2 1/2 in	0.20	0.61
8	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	4.91
9	24	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	0.82
10	27	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.38
11	27	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	1.93
12	12	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	3.75
13	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)	24 in	0.40	3.59
13	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)	48 in	0.40	3.59
14	30	G58LW	5/8" HDG LOCKWASHER		0.03	0.78
15	30	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	3.90
TOTAL WT. #						642.04



TOLERANCE NOTES
 TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
 SAWED, SHEARED AND GAS CUT EDGES ($\pm 0.030"$)
 DRILLED AND GAS CUT HOLES ($\pm 0.030"$) - NO CONING OF HOLES
 LASER CUT EDGES AND HOLES ($\pm 0.010"$) - NO CONING OF HOLES
 BENDS ARE $\pm 1/2$ DEGREE
 ALL OTHER MACHINING ($\pm 0.030"$)
 ALL OTHER ASSEMBLY ($\pm 0.060"$)

DESCRIPTION			
HANDRAIL REINFORCEMENT KIT (LONG)			
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
SP1	CSL3 2/23/2017	3RD PARTY	PRK-SFS-L
CLASS	SUB	DRAWING USAGE	CHECKED BY
81	02	SHOP	BMC 9/8/2017
DWG. NO.		PRK-SFS-L	

SITE PRO 1
 A valmont COMPANY

Locations:
 New York, NY
 Atlanta, GA
 Los Angeles, CA
 Plymouth, IN
 Salem, OR
 Dallas, TX

Engineering Support Team:
 1-888-753-7446

1 OF 3

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	CHANGED MAX. DIA. FOR HANDRAIL CONNECTION	SP1	BC	10/25/2017

PROPRIETARY NOTE:
 THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.



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STATE OF CONNECTICUT
 TYLER M BARKER
 No. 32402
 LICENSED PROFESSIONAL ENGINEER

Tyler M. Barker
 CLS Engineering PLLC
 Director of Engineering
 PE # 32402 Exp. 1/31/2021
 COA # PEC.001833 Exp. 8/14/2022

09/03/2020

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 123 PINE ORCHARD ROAD
 BRANFORD, CT 06405-3939

SHEET TITLE
 REFERENCE CUT SHEET

SHEET NUMBER
S-3

G:\USERS\CRAIG.DUNN\DESKTOP\41124-283419-12927144-REV.0.DWG - CLS PROJECT ID: 41124-283419-12927144

Wind & Ice Loading			
Nominal Mount Elevation (AGL), z_{mount}	121 ft	K_a	0.90
Nominal Rad Elevation (AGL), z_{rad}	121 ft	K_d	0.95
Elevation AMSL (ft)	-	K_e	-
TIA Standard	G	K_z	1.04
Basic Wind Speed, V_{ult} (bare)	130 mph	K_{zt}	1.00
Basic Wind Speed, V (ice)	50 mph	K_s	-
Design Ice Thickness, t_i	3/4 in	t_{iz}	1.71 in
Exposure Category	B	G_h	1.00
Risk Category	II	q_z (bare)	42.9 psf
Seismic Response Coeff., C_s	-	q_z (ice)	6.3 psf

Live Loading	
At Mount Pipes, L_M	500 lb
Joint Labels Considered	M1
	M2
	M3
	M4

Section Set Label	Shape Label	F_A (lb/ft)		Ice Wt. (lb/ft)
		Bare	Ice	
Main Offset tube	HSS4X4X4	25.73	2.24	14.19
Main Face Pipe	PIPE_3.0	13.51	3.95	10.87
Vertical pipe	PIPE_3.0	13.51	3.95	10.87
Mount Pipe	PIPE_2.0	9.17	3.31	8.52
MOD Bracing Pipe	PIPE_2.0	9.17	3.31	8.52
MOD SFS	L2.5x2.5x3	16.08	2.13	9.96

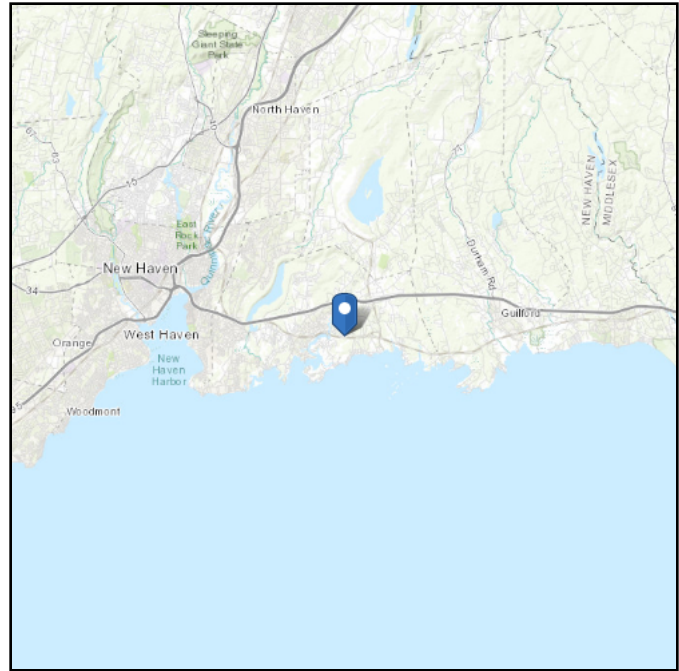
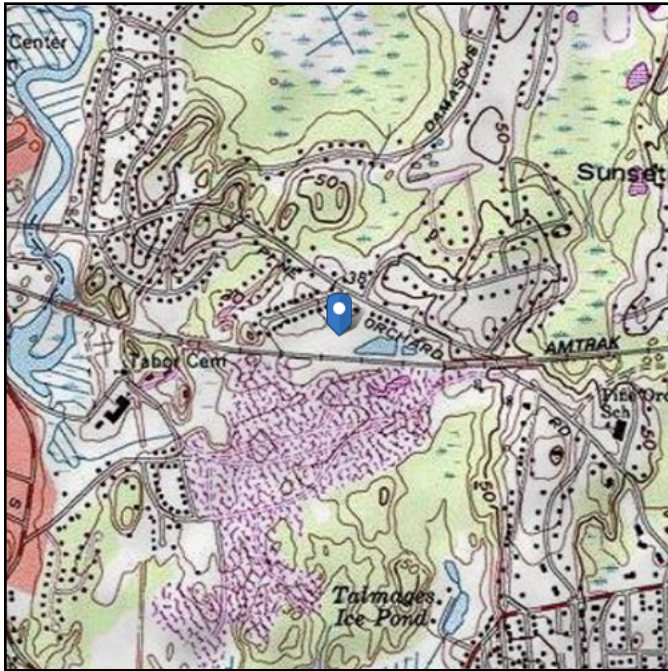
Appurtenances																														
Appurtenance Model	Status	Azimuth Offset ($^\circ$, \cup)	Rad Elev. Override (ft)	Swap Width & Depth	Area Factor		Qty. per Azimuth			Total Qty. Override	0° Joints		120° Joints		240° Joints		Height (in)	Width (in)	Depth (in)	Weight (Bare) (lb)	Shape	Weight of Ice (lb)	EPA_A (Bare) (ft ²)		EPA_A (Ice) (ft ²)		F_A (Bare) (lb)		F_A (Ice) (lb)	
					Front	Side	0°	120°	240°		1	2	1	2	1	2							N	T	N	T	N	T	N	T
APXVAARR24_43-U-NA20				<input type="checkbox"/>			1	1	1	3	A1	A2	b1	b2	g1	g2	95.9	24	8.7	153.3	Generic	384.63	14.67	5.32	17.27	7.61	566.28	205.36	98.60	43.45
AIR 21, 1.3 M, B2A B4P				<input type="checkbox"/>			1	1	1	3	A3	A4	b3	b4	g3	g4	56	12	8	132.2	Flat	164.66	6.05	4.36	8.02	6.22	233.52	168.13	45.77	35.51
AIR 21, 1.3 M, B4A B2P				<input type="checkbox"/>			1	1	1	3	A5	A6	b5	b6	g5	g6	56	12	8	132.2	Flat	164.66	6.05	4.36	8.02	6.22	233.52	168.13	45.77	35.51
RADIO 4449 B12/B71				<input type="checkbox"/>			1	1	1	3	AR1		ar2		ar3		15	13.2	9.3	74	Flat	55.22	1.65	1.16	2.55	1.95	63.69	44.87	14.56	11.14
KRY 112 144/1				<input type="checkbox"/>			1	1	1	3	AT1		at2		at3		7	6	3	11	Flat	10.85	0.35	0.18	0.82	0.56	13.51	6.76	4.67	3.18

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 35.19 ft (NAVD 88)
Latitude: 41.274861
Longitude: -72.793078



Wind

Results:

Wind Speed:	127 Vmph
10-year MRI	78 Vmph
25-year MRI	88 Vmph
50-year MRI	95 Vmph
100-year MRI	104 Vmph

NOTE:
Special Wind Region
Local jurisdiction requires 130mph Vult for this location per requirements of 2018 Connecticut State Building Code

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014

Date Accessed: Tue Sep 01 2020

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

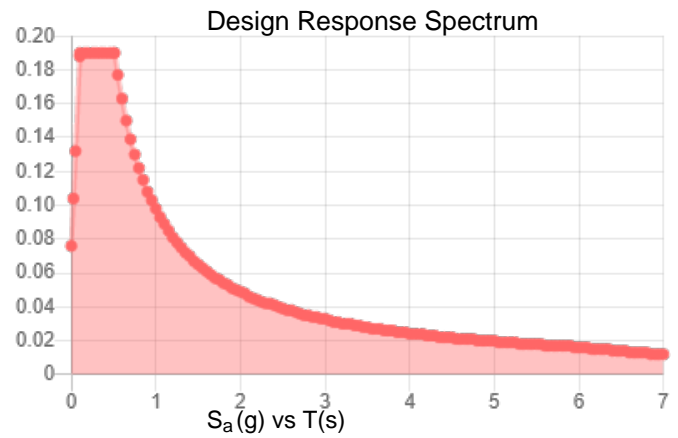
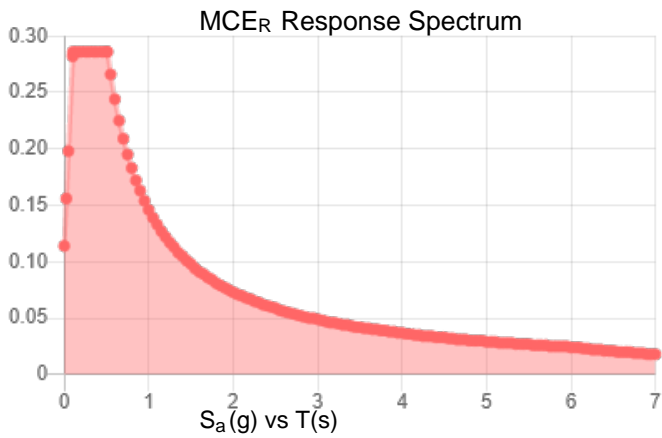
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Stiff Soil

Results:

S_s :	0.179	S_{DS} :	0.19
S_1 :	0.061	S_{D1} :	0.098
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.092
S_{MS} :	0.286	PGA _M :	0.147
S_{M1} :	0.146	F _{PGA} :	1.6
		I_e :	1

Seismic Design Category B



Data Accessed:

Tue Sep 01 2020

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 0.75 in.
Concurrent Temperature: 15 F
Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8

Date Accessed: Tue Sep 01 2020

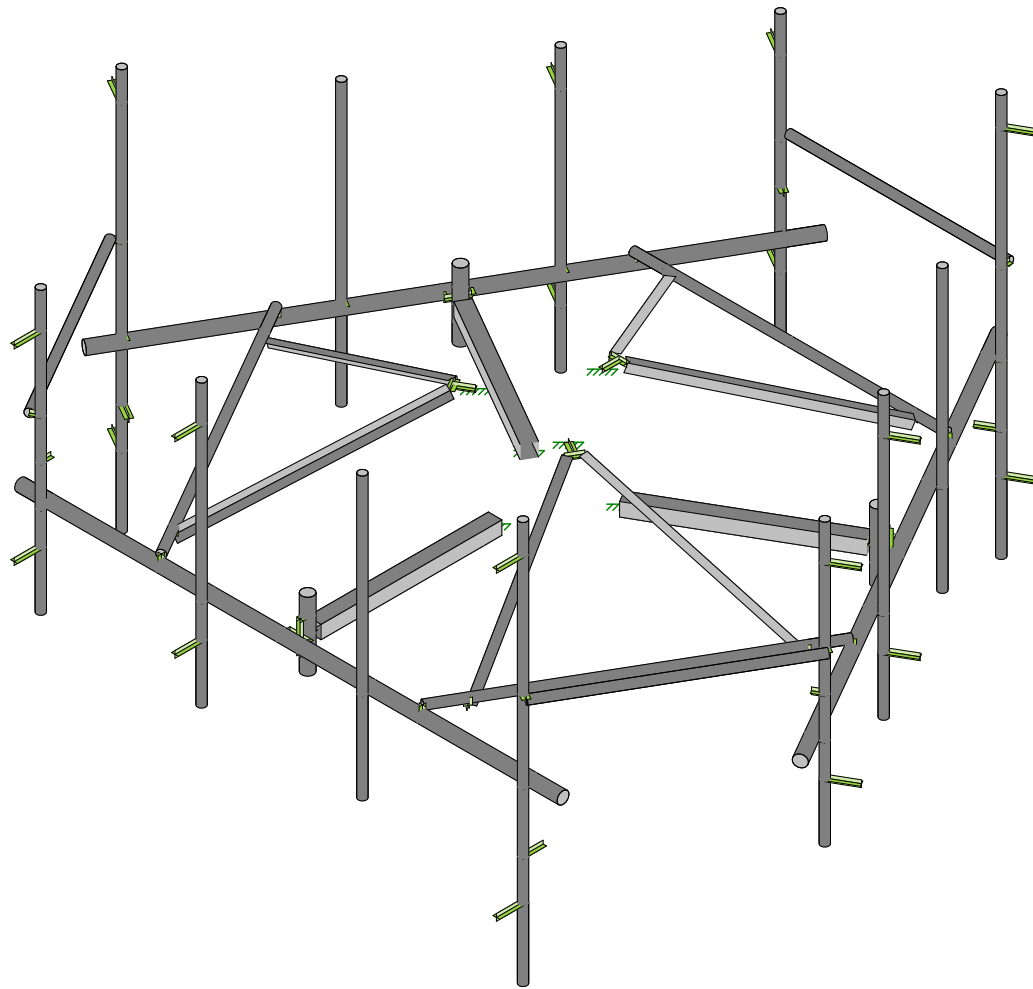
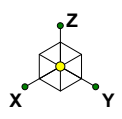
Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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Envelope Only Solution

Telamon CLS

JLS

41124-12927144_C9_06-03-MOD

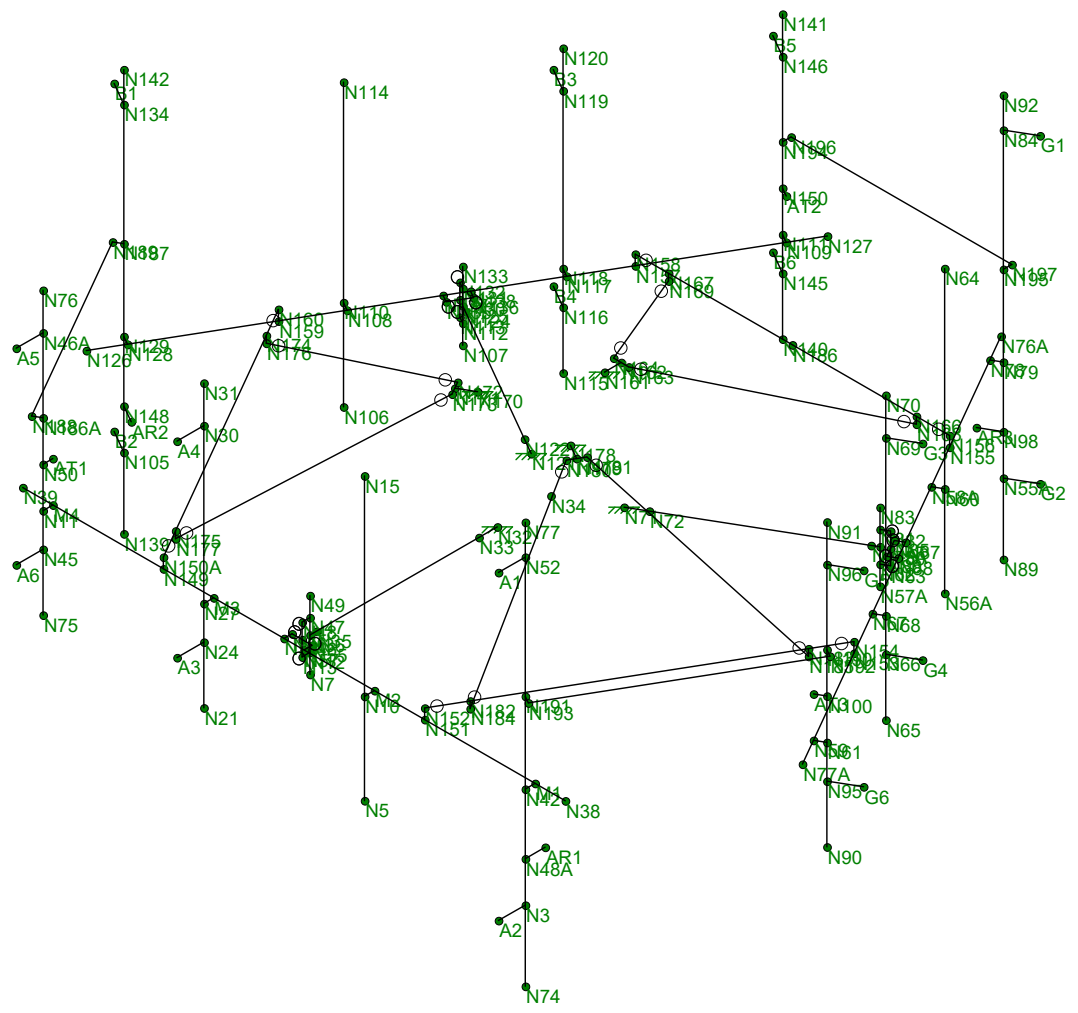
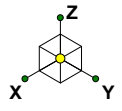
41124-12927144-PINE ORCHARD BRANFORD CT-283419

Rendered

SK - 1

Sept 1, 2020 at 4:35 PM

41124-12927144-03-MOD.r3d

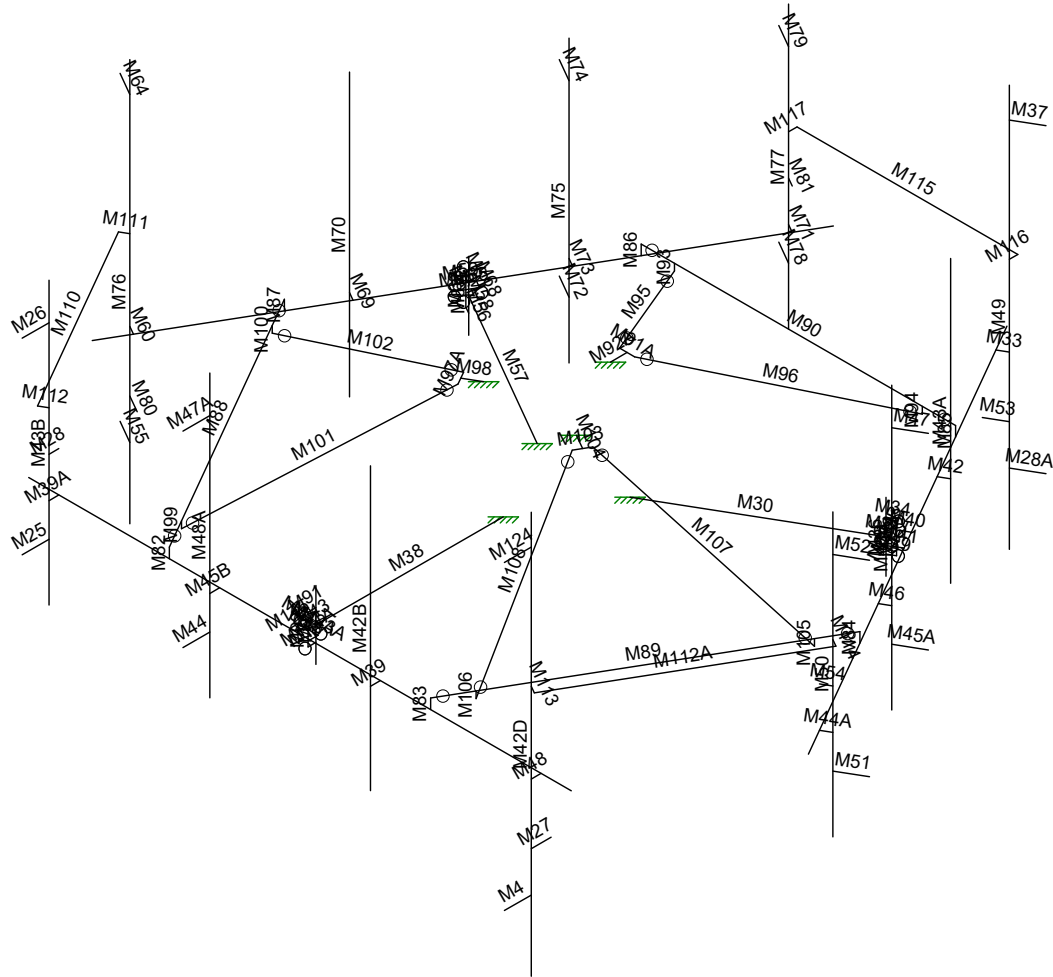
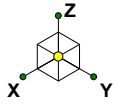


Envelope Only Solution

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41124-12927144_C9_06-03-MOD

41124-12927144-PINE ORCHARD BRANFORD CT-283419
Joint Labels

SK - 2
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41124-12927144-03-MOD.r3d

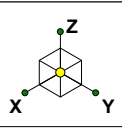


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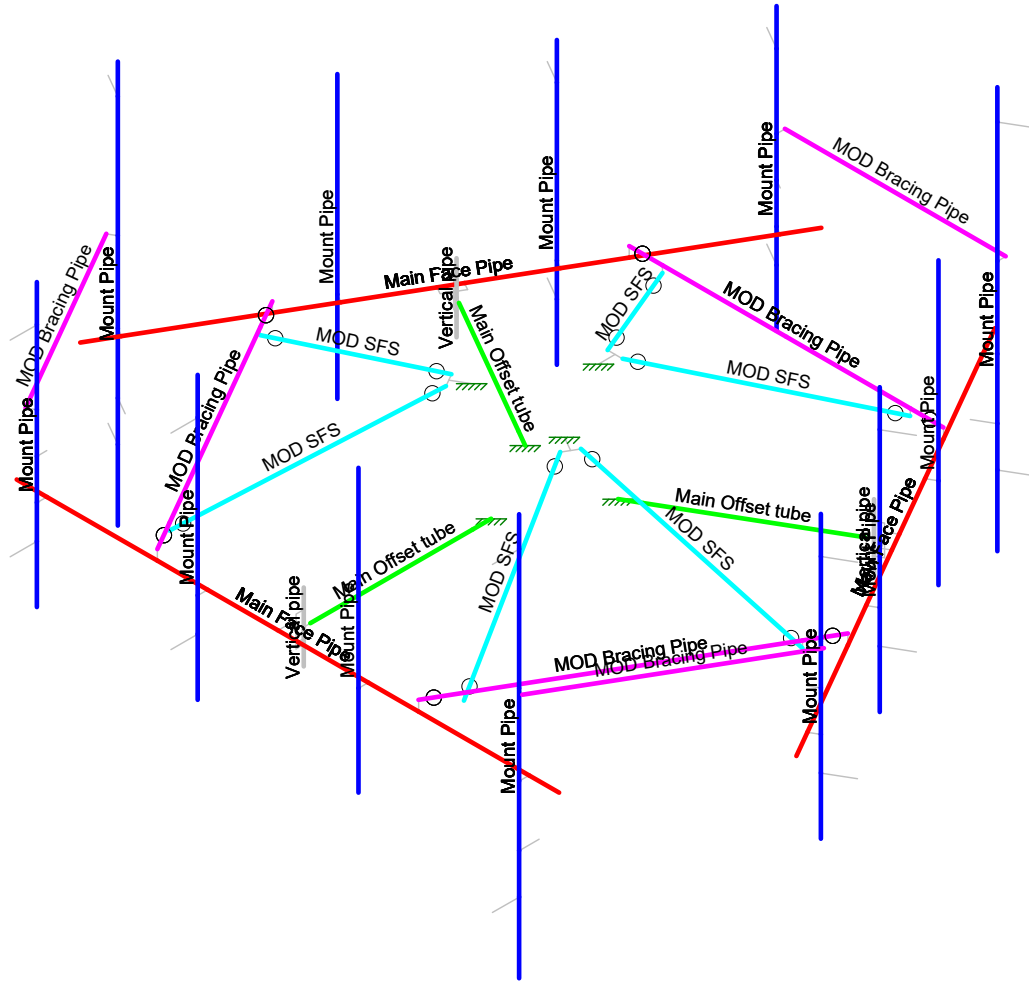
Telamon CLS
JLS
41124-12927144_C9_06-03-MOD

41124-12927144-PINE ORCHARD BRANFORD CT-283419
Member Labels

SK - 3
Sept 1, 2020 at 4:35 PM
41124-12927144-03-MOD.r3d



- Section Sets
- Mount Pipe
 - Main Offset tube
 - Main Face Pipe
 - Vertical pipe
 - MOD Bracing Pipe
 - MOD SFS
 - RIGID

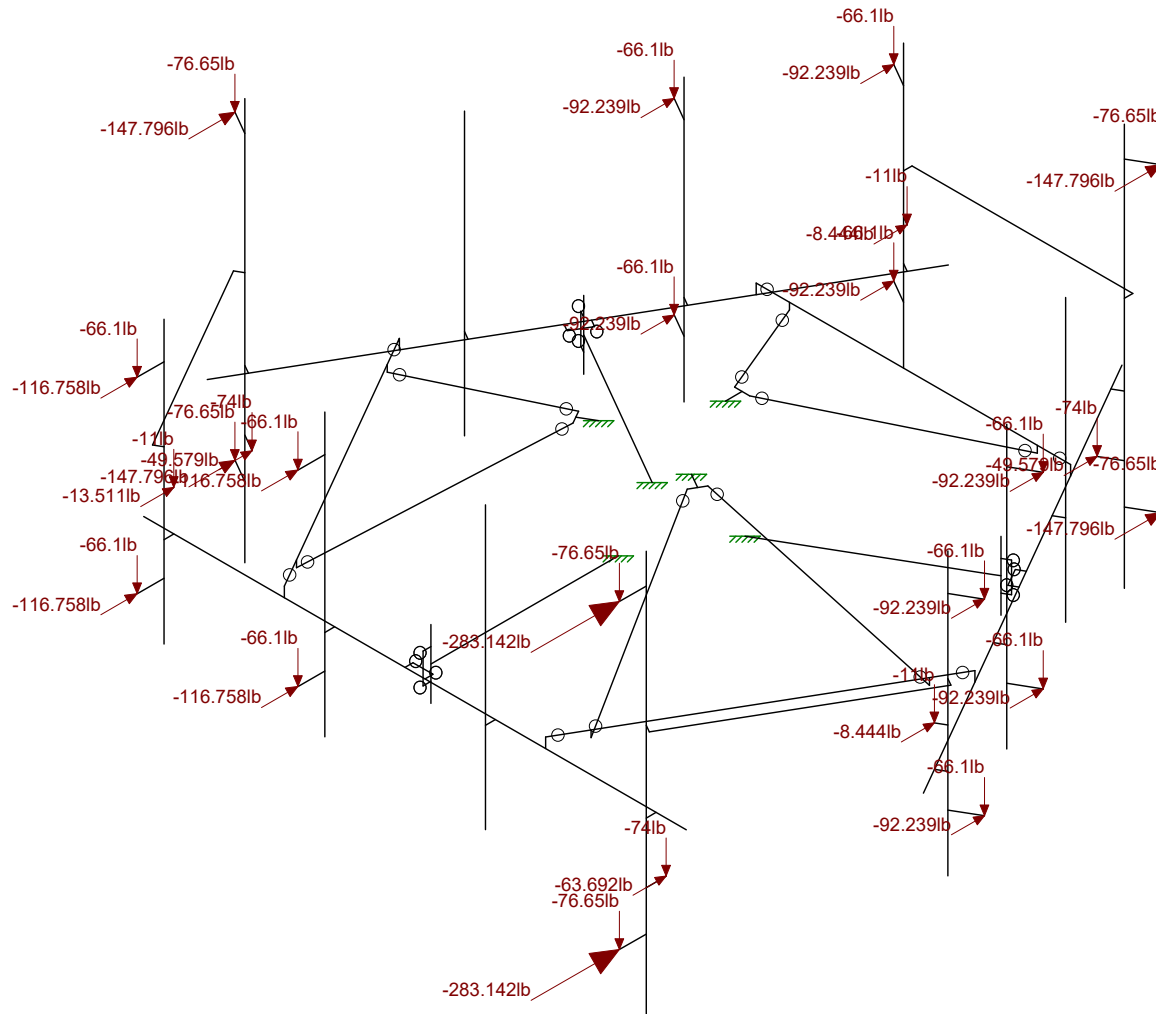
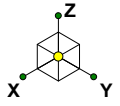


Envelope Only Solution

Telamon CLS
JLS
41124-12927144_C9_06-03-MOD

41124-12927144-PINE ORCHARD BRANFORD CT-283419
Section Sets

SK - 4
Sept 1, 2020 at 4:35 PM
41124-12927144-03-MOD.r3d

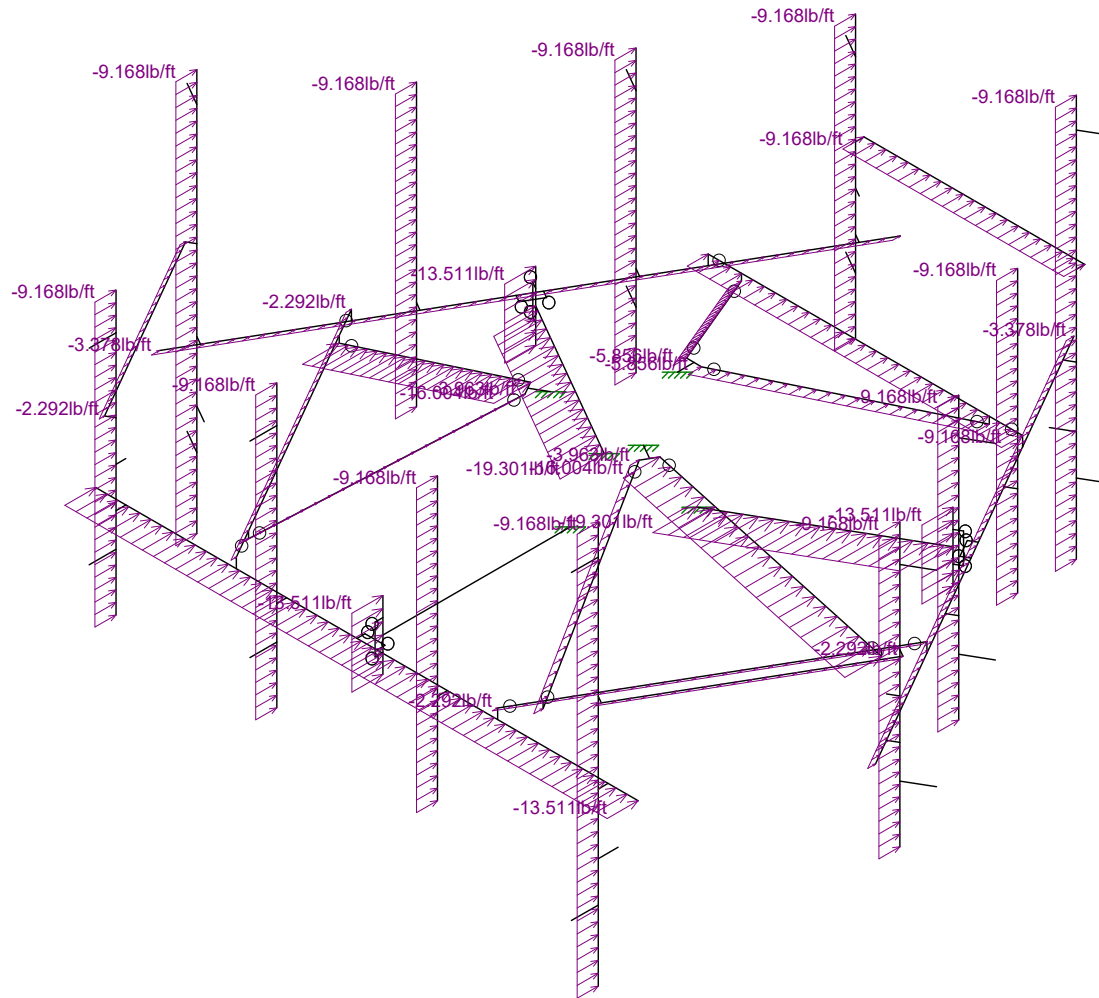
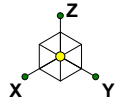


Loads: LC 1, DISPLAY (1.0D + 1.0W_0°)
Envelope Only Solution

Telamon CLS
JLS
41124-12927144_C9_06-03-MOD

41124-12927144-PINE ORCHARD BRANFORD CT-283419
Joint Loads - Dead and Normal Wind

SK - 5
Sept 1, 2020 at 4:36 PM
41124-12927144-03-MOD.r3d

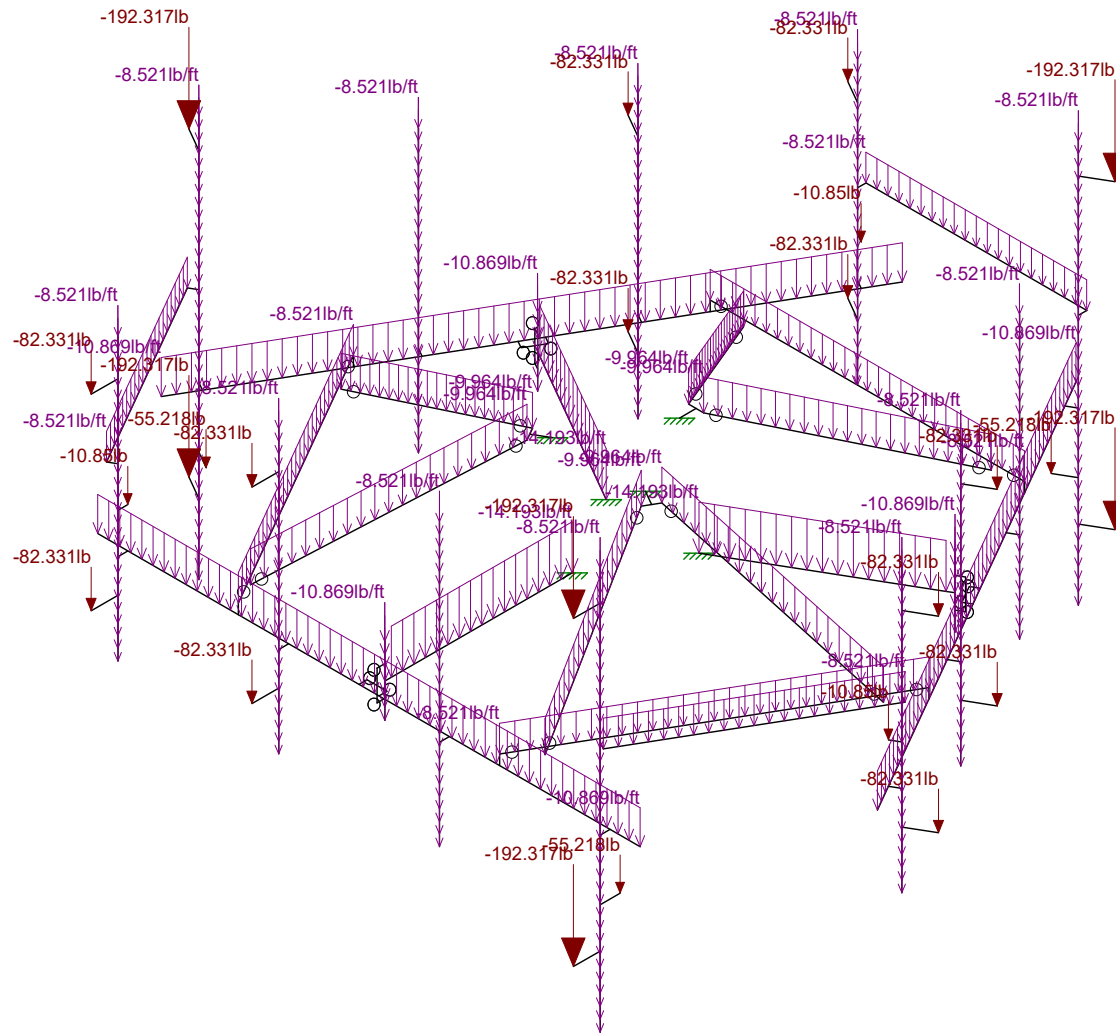
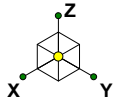


Loads: BLC 4, Structure Wind 0°
Envelope Only Solution

Telamon CLS
JLS
41124-12927144_C9_06-03-MOD

41124-12927144-PINE ORCHARD BRANFORD CT-283419
Distributed Load - Normal Wind

SK - 6
Sept 1, 2020 at 4:36 PM
41124-12927144-03-MOD.r3d

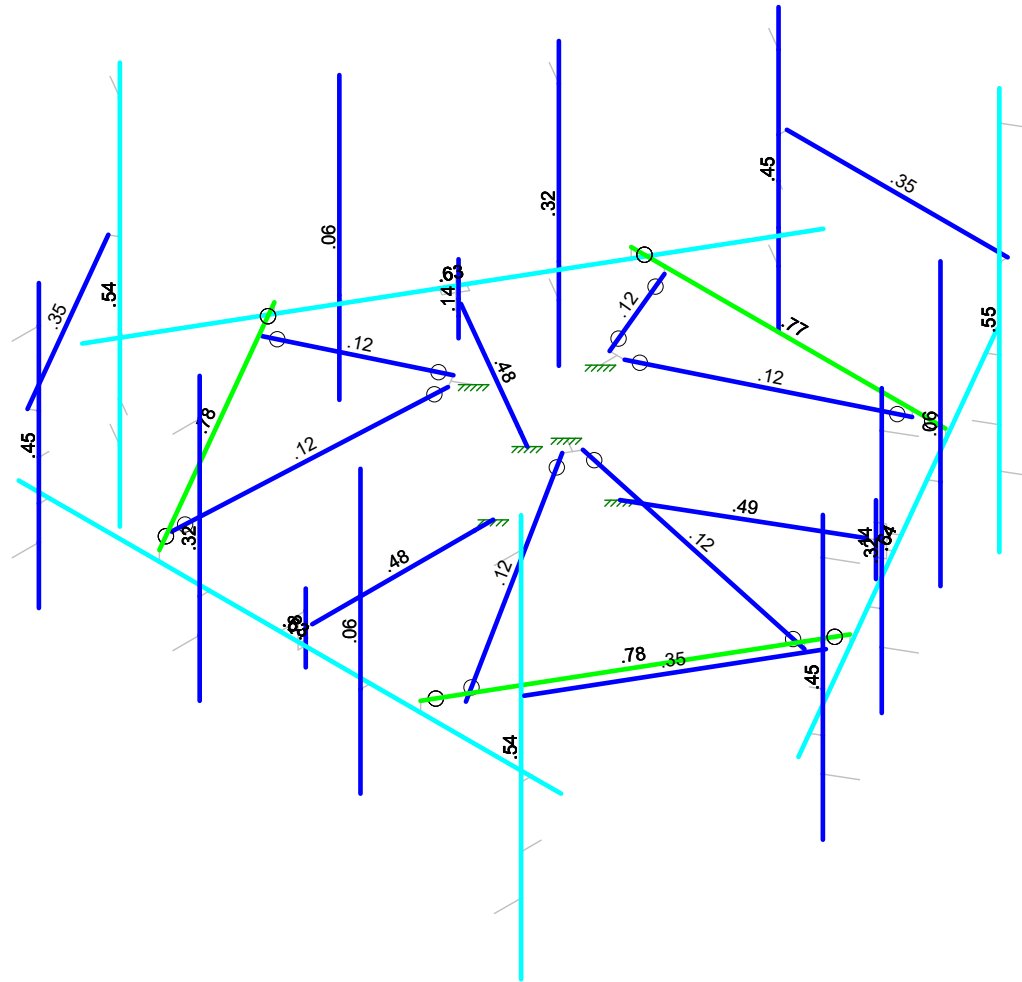
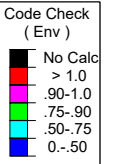
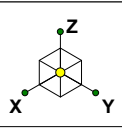


Loads: BLC 2, Ice Dead
Envelope Only Solution

Telamon CLS
JLS
41124-12927144_C9_06-03-MOD

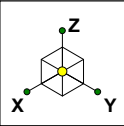
41124-12927144-PINE ORCHARD BRANFORD CT-283419
Ice Dead Loads

SK - 7
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41124-12927144-03-MOD.r3d

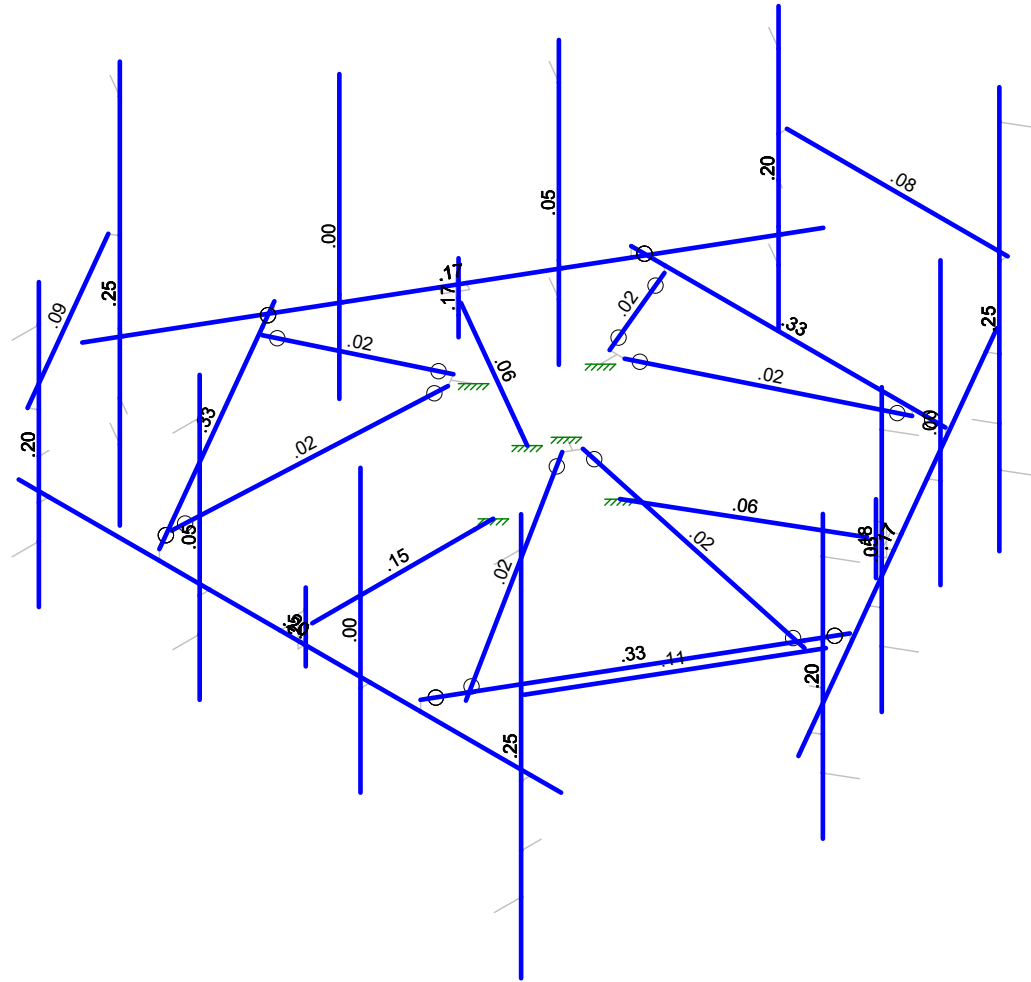


Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Telamon CLS	41124-12927144-PINE ORCHARD BRANFORD CT-283419 Envelope Member Unity Check Results - Bending	SK - 8
JLS		Sept 1, 2020 at 4:37 PM
41124-12927144_C9_06-03-MOD		41124-12927144-03-MOD.r3d



Black	No Calc
Red	> 1.0
Pink	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Telamon CLS	41124-12927144-PINE ORCHARD BRANFORD CT-283419 Envelope Member Check Results - Shear	SK - 9
JLS		Sept 1, 2020 at 4:37 PM
41124-12927144_C9_06-03-MOD		41124-12927144-03-MOD.r3d

Basic Load Cases

	BLC Description	Category	X Gravi...	Y Gravi...	Z Gravity	Joint	Point	Distributed	Area(Member)	Surfac...
1	Dead	DL			-1	24				
2	Ice Dead	RL				24		33		
4	Structure Wind 0°	None						32		
5	Structure Wind 30°	None						60		
6	Structure Wind 45°	None						66		
7	Structure Wind 60°	None						64		
8	Structure Wind 90°	None						30		
9	Structure Wind 120°	None						64		
10	Structure Wind 135°	None						66		
11	Structure Wind 150°	None						60		
12	Structure Wind w/ Ice 0°	None						32		
13	Structure Wind w/ Ice 30°	None						60		
14	Structure Wind w/ Ice 45°	None						66		
15	Structure Wind w/ Ice 60°	None						64		
16	Structure Wind w/ Ice 90°	None						30		
17	Structure Wind w/ Ice 120°	None						64		
18	Structure Wind w/ Ice 135°	None						66		
19	Structure Wind w/ Ice 150°	None						60		
20	Antenna Wind 0°	None				24				
21	Antenna Wind 30°	None				48				
22	Antenna Wind 45°	None				48				
23	Antenna Wind 60°	None				48				
24	Antenna Wind 90°	None				24				
25	Antenna Wind 120°	None				48				
26	Antenna Wind 135°	None				48				
27	Antenna Wind 150°	None				48				
28	Antenna Wind w/ Ice 0°	None				24				
29	Antenna Wind w/ Ice 30°	None				48				
30	Antenna Wind w/ Ice 45°	None				48				
31	Antenna Wind w/ Ice 60°	None				48				
32	Antenna Wind w/ Ice 90°	None				24				
33	Antenna Wind w/ Ice 120°	None				48				
34	Antenna Wind w/ Ice 135°	None				48				
35	Antenna Wind w/ Ice 150°	None				48				
39	Maintenance Live 500 (1)	OL1				1				
40	Maintenance Live 500 (2)	OL2				1				
41	Maintenance Live 500 (3)	OL3				1				
42	Maintenance Live 500 (4)	OL4				1				

Load Combinations

	Description	So...	P...	S...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...
1	DISPLAY (1.0D + ...	Yes	Y		DL	1	20	1					
2	1.4D	Yes	Y		DL	1.4							
3	1.2D + 1.0W 0°	Yes	Y		DL	1.2	4	1	20	1			
4	1.2D + 1.0W 30°	Yes	Y		DL	1.2	5	1	21	1			
5	1.2D + 1.0W 45°	Yes	Y		DL	1.2	6	1	22	1			
6	1.2D + 1.0W 60°	Yes	Y		DL	1.2	7	1	23	1			
7	1.2D + 1.0W 90°	Yes	Y		DL	1.2	8	1	24	1			
8	1.2D + 1.0W 120°	Yes	Y		DL	1.2	9	1	25	1			
9	1.2D + 1.0W 135°	Yes	Y		DL	1.2	10	1	26	1			
10	1.2D + 1.0W 150°	Yes	Y		DL	1.2	11	1	27	1			
11	1.2D + 1.0W 180°	Yes	Y		DL	1.2	4	-1	20	-1			
12	1.2D + 1.0W 210°	Yes	Y		DL	1.2	5	-1	21	-1			
13	1.2D + 1.0W 225°	Yes	Y		DL	1.2	6	-1	22	-1			

Load Combinations (Continued)

	Description	So...	P...	S...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...
14	1.2D + 1.0W_240°	Yes	Y		DL 1.2	7	-1	23	-1				
15	1.2D + 1.0W_270°	Yes	Y		DL 1.2	8	-1	24	-1				
16	1.2D + 1.0W_300°	Yes	Y		DL 1.2	9	-1	25	-1				
17	1.2D + 1.0W_315°	Yes	Y		DL 1.2	10	-1	26	-1				
18	1.2D + 1.0W_330°	Yes	Y		DL 1.2	11	-1	27	-1				
19	1.2D + 1.0Di + 1.0...	Yes	Y		DL 1.2	12	1	28	1	RL	1		
20	1.2D + 1.0Di + 1.0...	Yes	Y		DL 1.2	13	1	29	1	RL	1		
21	1.2D + 1.0Di + 1.0...	Yes	Y		DL 1.2	14	1	30	1	RL	1		
22	1.2D + 1.0Di + 1.0...	Yes	Y		DL 1.2	15	1	31	1	RL	1		
23	1.2D + 1.0Di + 1.0...	Yes	Y		DL 1.2	16	1	32	1	RL	1		
24	1.2D + 1.0Di + 1.0...	Yes	Y		DL 1.2	17	1	33	1	RL	1		
25	1.2D + 1.0Di + 1.0...	Yes	Y		DL 1.2	18	1	34	1	RL	1		
26	1.2D + 1.0Di + 1.0...	Yes	Y		DL 1.2	19	1	35	1	RL	1		
27	1.2D + 1.0Di + 1.0...	Yes	Y		DL 1.2	12	-1	28	-1	RL	1		
28	1.2D + 1.0Di + 1.0...	Yes	Y		DL 1.2	13	-1	29	-1	RL	1		
29	1.2D + 1.0Di + 1.0...	Yes	Y		DL 1.2	14	-1	30	-1	RL	1		
30	1.2D + 1.0Di + 1.0...	Yes	Y		DL 1.2	15	-1	31	-1	RL	1		
31	1.2D + 1.0Di + 1.0...	Yes	Y		DL 1.2	16	-1	32	-1	RL	1		
32	1.2D + 1.0Di + 1.0...	Yes	Y		DL 1.2	17	-1	33	-1	RL	1		
33	1.2D + 1.0Di + 1.0...	Yes	Y		DL 1.2	18	-1	34	-1	RL	1		
34	1.2D + 1.0Di + 1.0...	Yes	Y		DL 1.2	19	-1	35	-1	RL	1		
35	1.2D + 1.5Lm_1 + ...	Yes	Y		DL 1.2	4	.056	20	.056	OL1	1.5		
36	1.2D + 1.5Lm_1 + ...	Yes	Y		DL 1.2	5	.056	21	.056	OL1	1.5		
37	1.2D + 1.5Lm_1 + ...	Yes	Y		DL 1.2	6	.056	22	.056	OL1	1.5		
38	1.2D + 1.5Lm_1 + ...	Yes	Y		DL 1.2	7	.056	23	.056	OL1	1.5		
39	1.2D + 1.5Lm_1 + ...	Yes	Y		DL 1.2	8	.056	24	.056	OL1	1.5		
40	1.2D + 1.5Lm_1 + ...	Yes	Y		DL 1.2	9	.056	25	.056	OL1	1.5		
41	1.2D + 1.5Lm_1 + ...	Yes	Y		DL 1.2	10	.056	26	.056	OL1	1.5		
42	1.2D + 1.5Lm_1 + ...	Yes	Y		DL 1.2	11	.056	27	.056	OL1	1.5		
43	1.2D + 1.5Lm_1 + ...	Yes	Y		DL 1.2	4	-.056	20	-.056	OL1	1.5		
44	1.2D + 1.5Lm_1 + ...	Yes	Y		DL 1.2	5	-.056	21	-.056	OL1	1.5		
45	1.2D + 1.5Lm_1 + ...	Yes	Y		DL 1.2	6	-.056	22	-.056	OL1	1.5		
46	1.2D + 1.5Lm_1 + ...	Yes	Y		DL 1.2	7	-.056	23	-.056	OL1	1.5		
47	1.2D + 1.5Lm_1 + ...	Yes	Y		DL 1.2	8	-.056	24	-.056	OL1	1.5		
48	1.2D + 1.5Lm_1 + ...	Yes	Y		DL 1.2	9	-.056	25	-.056	OL1	1.5		
49	1.2D + 1.5Lm_1 + ...	Yes	Y		DL 1.2	10	-.056	26	-.056	OL1	1.5		
50	1.2D + 1.5Lm_1 + ...	Yes	Y		DL 1.2	11	-.056	27	-.056	OL1	1.5		
51	1.2D + 1.5Lm_2 + ...	Yes	Y		DL 1.2	4	.056	20	.056	OL2	1.5		
52	1.2D + 1.5Lm_2 + ...	Yes	Y		DL 1.2	5	.056	21	.056	OL2	1.5		
53	1.2D + 1.5Lm_2 + ...	Yes	Y		DL 1.2	6	.056	22	.056	OL2	1.5		
54	1.2D + 1.5Lm_2 + ...	Yes	Y		DL 1.2	7	.056	23	.056	OL2	1.5		
55	1.2D + 1.5Lm_2 + ...	Yes	Y		DL 1.2	8	.056	24	.056	OL2	1.5		
56	1.2D + 1.5Lm_2 + ...	Yes	Y		DL 1.2	9	.056	25	.056	OL2	1.5		
57	1.2D + 1.5Lm_2 + ...	Yes	Y		DL 1.2	10	.056	26	.056	OL2	1.5		
58	1.2D + 1.5Lm_2 + ...	Yes	Y		DL 1.2	11	.056	27	.056	OL2	1.5		
59	1.2D + 1.5Lm_2 + ...	Yes	Y		DL 1.2	4	-.056	20	-.056	OL2	1.5		
60	1.2D + 1.5Lm_2 + ...	Yes	Y		DL 1.2	5	-.056	21	-.056	OL2	1.5		
61	1.2D + 1.5Lm_2 + ...	Yes	Y		DL 1.2	6	-.056	22	-.056	OL2	1.5		
62	1.2D + 1.5Lm_2 + ...	Yes	Y		DL 1.2	7	-.056	23	-.056	OL2	1.5		
63	1.2D + 1.5Lm_2 + ...	Yes	Y		DL 1.2	8	-.056	24	-.056	OL2	1.5		
64	1.2D + 1.5Lm_2 + ...	Yes	Y		DL 1.2	9	-.056	25	-.056	OL2	1.5		
65	1.2D + 1.5Lm_2 + ...	Yes	Y		DL 1.2	10	-.056	26	-.056	OL2	1.5		
66	1.2D + 1.5Lm_2 + ...	Yes	Y		DL 1.2	11	-.056	27	-.056	OL2	1.5		
67	1.2D + 1.5Lm_3 + ...	Yes	Y		DL 1.2	4	.056	20	.056	OL3	1.5		
68	1.2D + 1.5Lm_3 + ...	Yes	Y		DL 1.2	5	.056	21	.056	OL3	1.5		
69	1.2D + 1.5Lm_3 + ...	Yes	Y		DL 1.2	6	.056	22	.056	OL3	1.5		
70	1.2D + 1.5Lm_3 + ...	Yes	Y		DL 1.2	7	.056	23	.056	OL3	1.5		

Load Combinations (Continued)

	Description	So...P...	S...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...	BLC Fac...
71	1.2D + 1.5Lm_3 + ...	Yes	Y	DL	1.2	8	.056	24	.056	OL3	1.5		
72	1.2D + 1.5Lm_3 + ...	Yes	Y	DL	1.2	9	.056	25	.056	OL3	1.5		
73	1.2D + 1.5Lm_3 + ...	Yes	Y	DL	1.2	10	.056	26	.056	OL3	1.5		
74	1.2D + 1.5Lm_3 + ...	Yes	Y	DL	1.2	11	.056	27	.056	OL3	1.5		
75	1.2D + 1.5Lm_3 + ...	Yes	Y	DL	1.2	4	-.056	20	-.056	OL3	1.5		
76	1.2D + 1.5Lm_3 + ...	Yes	Y	DL	1.2	5	-.056	21	-.056	OL3	1.5		
77	1.2D + 1.5Lm_3 + ...	Yes	Y	DL	1.2	6	-.056	22	-.056	OL3	1.5		
78	1.2D + 1.5Lm_3 + ...	Yes	Y	DL	1.2	7	-.056	23	-.056	OL3	1.5		
79	1.2D + 1.5Lm_3 + ...	Yes	Y	DL	1.2	8	-.056	24	-.056	OL3	1.5		
80	1.2D + 1.5Lm_3 + ...	Yes	Y	DL	1.2	9	-.056	25	-.056	OL3	1.5		
81	1.2D + 1.5Lm_3 + ...	Yes	Y	DL	1.2	10	-.056	26	-.056	OL3	1.5		
82	1.2D + 1.5Lm_3 + ...	Yes	Y	DL	1.2	11	-.056	27	-.056	OL3	1.5		
83	1.2D + 1.5Lm_4 + ...	Yes	Y	DL	1.2	4	.056	20	.056	OL4	1.5		
84	1.2D + 1.5Lm_4 + ...	Yes	Y	DL	1.2	5	.056	21	.056	OL4	1.5		
85	1.2D + 1.5Lm_4 + ...	Yes	Y	DL	1.2	6	.056	22	.056	OL4	1.5		
86	1.2D + 1.5Lm_4 + ...	Yes	Y	DL	1.2	7	.056	23	.056	OL4	1.5		
87	1.2D + 1.5Lm_4 + ...	Yes	Y	DL	1.2	8	.056	24	.056	OL4	1.5		
88	1.2D + 1.5Lm_4 + ...	Yes	Y	DL	1.2	9	.056	25	.056	OL4	1.5		
89	1.2D + 1.5Lm_4 + ...	Yes	Y	DL	1.2	10	.056	26	.056	OL4	1.5		
90	1.2D + 1.5Lm_4 + ...	Yes	Y	DL	1.2	11	.056	27	.056	OL4	1.5		
91	1.2D + 1.5Lm_4 + ...	Yes	Y	DL	1.2	4	-.056	20	-.056	OL4	1.5		
92	1.2D + 1.5Lm_4 + ...	Yes	Y	DL	1.2	5	-.056	21	-.056	OL4	1.5		
93	1.2D + 1.5Lm_4 + ...	Yes	Y	DL	1.2	6	-.056	22	-.056	OL4	1.5		
94	1.2D + 1.5Lm_4 + ...	Yes	Y	DL	1.2	7	-.056	23	-.056	OL4	1.5		
95	1.2D + 1.5Lm_4 + ...	Yes	Y	DL	1.2	8	-.056	24	-.056	OL4	1.5		
96	1.2D + 1.5Lm_4 + ...	Yes	Y	DL	1.2	9	-.056	25	-.056	OL4	1.5		
97	1.2D + 1.5Lm_4 + ...	Yes	Y	DL	1.2	10	-.056	26	-.056	OL4	1.5		
98	1.2D + 1.5Lm_4 + ...	Yes	Y	DL	1.2	11	-.056	27	-.056	OL4	1.5		

Hot Rolled Steel Properties

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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design ...	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Mount Pipe	PIPE 2.0	Beam	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
2	Main Offset tube	HSS4X4X4	Beam	None	A500 Gr...	Typical	3.37	7.8	7.8	12.8
3	Main Face Pipe	PIPE 3.0	Beam	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
4	Vertical pipe	PIPE 3.0	Beam	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
5	Support Platform pipe	PIPE 2.0	Beam	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
6	Double MP PL	PL2.25X0.5	Beam	None	A36 Gr....	Typical	1.125	.023	.475	.081
7	MOD Bracing Pipe	PIPE 2.0	Beam	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
8	MOD SFS	L2.5x2.5x3	Beam	None	A36 Gr....	Typical	.901	.535	.535	.011

Hot Rolled Steel Design Parameters

	Label	Shape	Length[...]	Lbyy[in]	Lbzz[in]	Lcomp top[...]	Lcomp bot[...]	L-torq...	Kyy	Kzz	Cb	Functi...
1	M38	Main Offset tube	54			Lbyy						Lateral
2	M45	Main Face Pipe	162			Lbyy						Lateral
3	M97	Vertical pipe	20.4			Lbyy						Lateral
4	M42B	Mount Pipe	84			Lbyy						Lateral
5	M48A	Mount Pipe	84			Lbyy						Lateral
6	M42D	Mount Pipe	120			Lbyy						Lateral
7	M43B	Mount Pipe	84			Lbyy						Lateral
8	M30	Main Offset tube	54			Lbyy						Lateral
9	M32	Main Face Pipe	162			Lbyy						Lateral
10	M36	Vertical pipe	20.4			Lbyy						Lateral
11	M43A	Mount Pipe	84			Lbyy						Lateral
12	M48B	Mount Pipe	84			Lbyy						Lateral
13	M49	Mount Pipe	120			Lbyy						Lateral
14	M50	Mount Pipe	84			Lbyy						Lateral
15	M57	Main Offset tube	54			Lbyy						Lateral
16	M59	Main Face Pipe	162			Lbyy						Lateral
17	M63	Vertical pipe	20.4			Lbyy						Lateral
18	M70	Mount Pipe	84			Lbyy						Lateral
19	M75	Mount Pipe	84			Lbyy						Lateral
20	M76	Mount Pipe	120			Lbyy						Lateral
21	M77	Mount Pipe	84			Lbyy						Lateral
22	M88	MOD Bracing Pipe	93.848			Lbyy						Lateral
23	M89	MOD Bracing Pipe	93.848			Lbyy						Lateral
24	M90	MOD Bracing Pipe	93.848			Lbyy						Lateral
25	M95	MOD SFS	65.957			Lbyy						Lateral
26	M96	MOD SFS	65.957			Lbyy						Lateral
27	M101	MOD SFS	65.957			Lbyy						Lateral
28	M102	MOD SFS	65.957			Lbyy						Lateral
29	M107	MOD SFS	65.957			Lbyy						Lateral
30	M108	MOD SFS	65.957			Lbyy						Lateral
31	M110	MOD Bracing Pipe	65.941			Lbyy						Lateral
32	M112A	MOD Bracing Pipe	65.941			Lbyy						Lateral
33	M115	MOD Bracing Pipe	65.941			Lbyy						Lateral

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	M4						Yes	** NA **			None
2	M16	OOOXOX					Yes	** NA **			None
3	M38						Yes				None
4	M43						Yes	** NA **			None
5	M45						Yes				None
6	M48						Yes	** NA **			None
7	M91	OOOXOX					Yes	** NA **			None
8	M92						Yes	** NA **			None
9	M97						Yes				None
10	M124						Yes	** NA **			None
11	M142A						Yes	** NA **			None
12	M143A						Yes	** NA **			None
13	M144A		OOOXOO				Yes	** NA **			None
14	M145		OOOXOO				Yes	** NA **			None
15	M39						Yes	** NA **			None
16	M42B						Yes				None
17	M39A						Yes	** NA **			None
18	M44						Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
19	M45B						Yes	** NA **			None
20	M47A						Yes	** NA **			None
21	M48A						Yes				None
22	M42D						Yes				None
23	M43B						Yes				None
24	M25						Yes	** NA **			None
25	M26						Yes	** NA **			None
26	M27						Yes	** NA **			None
27	M28						Yes	** NA **			None
28	M28A						Yes	** NA **			None
29	M29	OOOXOX					Yes	** NA **			None
30	M30						Yes				None
31	M31						Yes	** NA **			None
32	M32						Yes				None
33	M33						Yes	** NA **			None
34	M34	OOOXOX					Yes	** NA **			None
35	M35						Yes	** NA **			None
36	M36						Yes				None
37	M37						Yes	** NA **			None
38	M38A						Yes	** NA **			None
39	M39B						Yes	** NA **			None
40	M40		OOOXOO				Yes	** NA **			None
41	M41		OOOXOO				Yes	** NA **			None
42	M42						Yes	** NA **			None
43	M43A						Yes				None
44	M44A						Yes	** NA **			None
45	M45A						Yes	** NA **			None
46	M46						Yes	** NA **			None
47	M47						Yes	** NA **			None
48	M48B						Yes				None
49	M49						Yes				None
50	M50						Yes				None
51	M51						Yes	** NA **			None
52	M52						Yes	** NA **			None
53	M53						Yes	** NA **			None
54	M54						Yes	** NA **			None
55	M55						Yes	** NA **			None
56	M56	OOOXOX					Yes	** NA **			None
57	M57						Yes				None
58	M58						Yes	** NA **			None
59	M59						Yes				None
60	M60						Yes	** NA **			None
61	M61	OOOXOX					Yes	** NA **			None
62	M62						Yes	** NA **			None
63	M63						Yes				None
64	M64						Yes	** NA **			None
65	M65						Yes	** NA **			None
66	M66						Yes	** NA **			None
67	M67		OOOXOO				Yes	** NA **			None
68	M68		OOOXOO				Yes	** NA **			None
69	M69						Yes	** NA **			None
70	M70						Yes				None
71	M71						Yes	** NA **			None
72	M72						Yes	** NA **			None
73	M73						Yes	** NA **			None
74	M74						Yes	** NA **			None
75	M75						Yes				None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
76	M76						Yes				None
77	M77						Yes				None
78	M78						Yes	** NA **			None
79	M79						Yes	** NA **			None
80	M80						Yes	** NA **			None
81	M81						Yes	** NA **			None
82	M82						Yes	** NA **			None
83	M83						Yes	** NA **			None
84	M84						Yes	** NA **			None
85	M85						Yes	** NA **			None
86	M86						Yes	** NA **			None
87	M87						Yes	** NA **			None
88	M88	BenPIN	BenPIN				Yes				None
89	M89	BenPIN	BenPIN				Yes				None
90	M90	BenPIN	BenPIN				Yes				None
91	M91A						Yes	** NA **			None
92	M92A						Yes	** NA **			None
93	M93						Yes	** NA **			None
94	M94						Yes	** NA **			None
95	M95	BenPIN	BenPIN				Yes				None
96	M96	BenPIN	BenPIN				Yes				None
97	M97A						Yes	** NA **			None
98	M98						Yes	** NA **			None
99	M99						Yes	** NA **			None
100	M100						Yes	** NA **			None
101	M101	BenPIN	BenPIN				Yes				None
102	M102	BenPIN	BenPIN				Yes				None
103	M103						Yes	** NA **			None
104	M104						Yes	** NA **			None
105	M105						Yes	** NA **			None
106	M106						Yes	** NA **			None
107	M107	BenPIN	BenPIN				Yes				None
108	M108	BenPIN	BenPIN				Yes				None
109	M110						Yes				None
110	M111						Yes	** NA **			None
111	M112						Yes	** NA **			None
112	M112A						Yes				None
113	M113						Yes	** NA **			None
114	M114						Yes	** NA **			None
115	M115						Yes	** NA **			None
116	M116						Yes	** NA **			None
117	M117						Yes	** NA **			None

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N32	max	434.472	4	757.092	16	1353.543	19	1708.313	41	-1968.43	11	2150.263	16
2		min	-400.536	12	-751.671	8	284.977	11	-1637.068	97	-7326.792	19	-2177.1...	8
3	N71	max	759.528	3	651.145	15	1362.552	30	6195.627	30	4009.122	31	2150.71	11
4		min	-768.444	11	-629.394	7	288.905	6	1668.083	6	1073.258	39	-2201.5...	3
5	N121	max	712.236	3	550.781	15	1362.738	24	-1763.241	16	3402.46	24	2164.626	6
6		min	-706.068	11	-578.259	7	288.449	16	-6546.982	24	915.581	16	-2175.6...	14
7	N161	max	2621.311	19	976.52	15	1301.183	19	115.487	7	544.3	19	157.474	7
8		min	223.556	11	-984.667	7	137.554	11	-114.24	15	58.222	11	-156.202	15
9	N170	max	313.345	18	2367.527	31	1322.647	30	-29.648	7	-7.446	18	163.285	17
10		min	-1383.379	27	-5.567	7	136.499	6	-485.749	31	-277.319	27	-161.845	9

Envelope Joint Reactions (Continued)

Joint	X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC	
11	N178	max 536.05	3	-191.344	15	1322.57	24	475.747	24	37.256	3	157.471	12
12		min -1548.552	11	-2297.2...	23	135.221	17	52.303	16	-295.101	27	-156.228	4
13	Totals:	max 4391.416	3	4391.476	15	7558.661	21						
14		min -4391.349	11	-4391.3...	7	2558.337	1						

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

Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pn...	phi*Pn...	phi*Mn...	phi*Mn.....	Eqn	
1	M89	PIPE 2.0	.783	10.867	27	.331	83.97		22	15432...	32130	1871.6...	1871.6.....	H1-1b
2	M88	PIPE 2.0	.783	10.867	32	.331	83.97		27	15432...	32130	1871.6...	1871.6.....	H1-1b
3	M90	PIPE 2.0	.773	10.867	22	.327	83.97		32	15432...	32130	1871.6...	1871.6.....	H1-1b
4	M32	PIPE 3.0	.636	76.737	27	.170	85.263		7	24533...	65205	5748.75	5748.75...	H1-1b
5	M59	PIPE 3.0	.635	76.737	22	.172	85.263		17	24533...	65205	5748.75	5748.75...	H1-1b
6	M45	PIPE 3.0	.633	76.737	32	.201	78.442		48	24533...	65205	5748.75	5748.75...	H1-1b
7	M49	PIPE 2.0	.547	68.211	5	.254	68.211		14	9836.5...	32130	1871.6...	1871.6.....	H3-6
8	M76	PIPE 2.0	.536	68.211	15	.254	68.211		8	9836.5...	32130	1871.6...	1871.6.....	H1-1b
9	M42D	PIPE 2.0	.536	68.211	10	.254	68.211		3	9836.5...	32130	1871.6...	1871.6.....	H1-1b
10	M30	HSS4X4X4	.486	0	32	.064	0	y	34	12818...	139518	16180.5	16180.5...	H1-1b
11	M38	HSS4X4X4	.482	0	21	.148	0	y	38	12818...	139518	16180.5	16180.5...	H1-1b
12	M57	HSS4X4X4	.480	0	26	.061	0	y	27	12818...	139518	16180.5	16180.5...	H1-1b
13	M77	PIPE 2.0	.446	56.589	4	.199	56.589		7	17855...	32130	1871.6...	1871.6.....	H1-1b
14	M50	PIPE 2.0	.446	56.589	10	.199	56.589		12	17855...	32130	1871.6...	1871.6.....	H1-1b
15	M43B	PIPE 2.0	.446	56.589	15	.205	56.589		17	17855...	32130	1871.6...	1871.6.....	H1-1b
16	M110	PIPE 2.0	.353	0	9	.088	65.941		87	22370...	32130	1871.6...	1871.6.....	H1-1b
17	M112A	PIPE 2.0	.347	0	3	.107	0		42	22370...	32130	1871.6...	1871.6.....	H1-1b
18	M115	PIPE 2.0	.346	0	14	.079	0		4	22370...	32130	1871.6...	1871.6.....	H1-1b
19	M48A	PIPE 2.0	.325	56.589	11	.047	56.589		15	17855...	32130	1871.6...	1871.6.....	H1-1b
20	M75	PIPE 2.0	.325	56.589	16	.047	56.589		4	17855...	32130	1871.6...	1871.6.....	H1-1b
21	M48B	PIPE 2.0	.325	56.589	6	.047	56.589		10	17855...	32130	1871.6...	1871.6.....	H1-1b
22	M97	PIPE 3.0	.183	10.307	45	.246	10.307		48	64204...	65205	5748.75	5748.75...	H1-1b
23	M36	PIPE 3.0	.138	10.093	20	.177	10.093		3	64204...	65205	5748.75	5748.75...	H1-1b
24	M63	PIPE 3.0	.136	10.093	31	.175	10.093		14	64204...	65205	5748.75	5748.75...	H1-1b
25	M102	L2.5x2.5x3	.123	32.631	32	.021	65.957	y	20	10870...	29192.4	872.574	1621.5.....	H2-1
26	M108	L2.5x2.5x3	.123	32.631	27	.021	65.957	y	31	10870...	29192.4	872.574	1621.5.....	H2-1
27	M96	L2.5x2.5x3	.123	32.631	21	.021	65.957	y	26	10870...	29192.4	872.574	1621.5.....	H2-1
28	M107	L2.5x2.5x3	.119	32.631	23	.022	0	z	33	10870...	29192.4	872.574	1621.5.....	H2-1
29	M101	L2.5x2.5x3	.119	32.631	28	.022	65.957	z	23	10870...	29192.4	872.574	1621.5.....	H2-1
30	M95	L2.5x2.5x3	.118	32.631	33	.022	65.957	z	28	10870...	29192.4	872.574	1621.5.....	H2-1
31	M42B	PIPE 2.0	.055	56.589	9	.004	56.589		9	17855...	32130	1871.6...	1871.6.....	H1-1b
32	M43A	PIPE 2.0	.055	56.589	3	.004	56.589		3	17855...	32130	1871.6...	1871.6.....	H1-1b
33	M70	PIPE 2.0	.055	56.589	14	.004	56.589		14	17855...	32130	1871.6...	1871.6.....	H1-1b

Exhibit F

Power Density/RF Emissions Report

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

T-Mobile Existing Facility

Site ID: CTNH801B

**Amtrak_Branford
123 Pine Orchard Road
Branford, Connecticut 06405**

May 30, 2019

EBI Project Number: 6219001995

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	12.45%

May 30, 2019

T-Mobile

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

Emissions Analysis for Site: CTNH801B - Amtrak_Branford

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **123 Pine Orchard Road in Branford, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 123 Pine Orchard Road in Branford, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

- 6) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 7) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 8) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antennas used in this modeling are the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR 21 for the 2100 MHz channel(s), the Ericsson AIR 21 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector A, , the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR 21 for the 2100 MHz channel(s), the Ericsson AIR 21 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector B, , the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR 21 for the 2100 MHz channel(s), the Ericsson AIR 21 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 10) The antenna mounting height centerlines of the proposed antennas are 120 and 122 feet above ground level (AGL).
- 11) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 12) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 700 MHz	Frequency Bands:	600 MHz / 700 MHz	Frequency Bands:	600 MHz / 700 MHz
Gain:	12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 13.35 dBd
Height (AGL):	120 feet	Height (AGL):	120 feet	Height (AGL):	120 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	2,481.08	ERP (W):	2,481.08	ERP (W):	2,481.08
Antenna A2 MPE %:	1.43%	Antenna B2 MPE %:	1.43%	Antenna C2 MPE %:	1.43%
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.35 dBd	Gain:	15.35 dBd	Gain:	15.35 dBd
Height (AGL):	122 feet	Height (AGL):	122 feet	Height (AGL):	122 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	4,113.21	ERP (W):	4,113.21	ERP (W):	4,113.21
Antenna A3 MPE %:	0.99%	Antenna B3 MPE %:	0.99%	Antenna C3 MPE %:	0.99%
Antenna #:	4	Antenna #:	4	Antenna #:	4
Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.35 dBd
Height (AGL):	122 feet	Height (AGL):	122 feet	Height (AGL):	122 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	8,226.43	ERP (W):	8,226.43	ERP (W):	8,226.43
Antenna A4 MPE %:	1.99%	Antenna B4 MPE %:	1.99%	Antenna C4 MPE %:	1.99%

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	4.41%
AT&T	1.35%
Verizon	6.69%
Site Total MPE % :	12.45%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	4.41%
T-Mobile Sector B Total:	4.41%
T-Mobile Sector C Total:	4.41%
Site Total MPE % :	
	12.45%

T-Mobile Maximum MPE Power Values (Sector A)							
T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 600 MHz LTE	2	591.73	120.0	2.95	600 MHz LTE	400	0.74%
T-Mobile 700 MHz LTE	2	648.82	120.0	3.24	700 MHz LTE	467	0.69%
T-Mobile 2100 MHz LTE	2	2056.61	122.0	9.94	2100 MHz LTE	1000	0.99%
T-Mobile 1900 MHz GSM	4	1028.30	122.0	9.94	1900 MHz GSM	1000	0.99%
T-Mobile 1900 MHz UMTS	2	1028.30	122.0	4.97	1900 MHz UMTS	1000	0.50%
T-Mobile 2100 MHz UMTS	2	1028.30	122.0	4.97	2100 MHz UMTS	1000	0.50%
						Total:	4.41%

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

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	4.41%
Sector B:	4.41%
Sector C:	4.41%
T-Mobile Maximum MPE % (Sector A):	4.41%
Site Total:	12.45%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **12.45%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Exhibit G

Mailing Receipts/Proof of Notice

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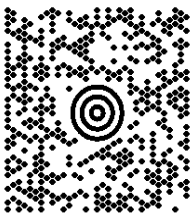
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CT 065 2-01 

UPS 2ND DAY AIR 2 TRACKING #: 1Z V25 742 02 9894 1661

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Reference #1: CTNH801B Reference #2: 1 Sel XOL 20.10.17 NV45 34.0A 10/2020*

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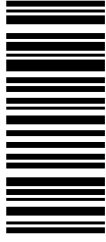
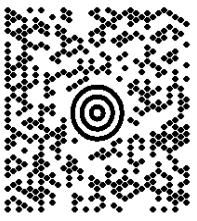
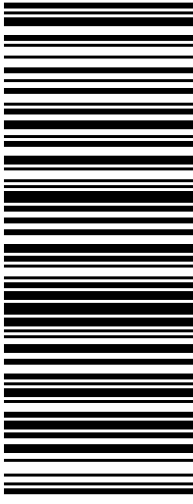

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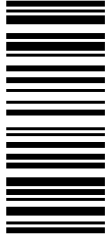
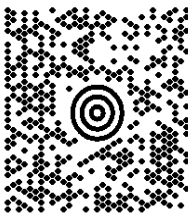
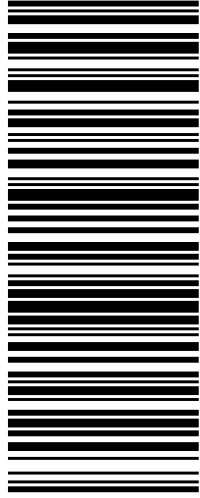

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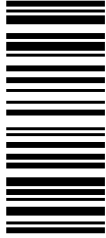
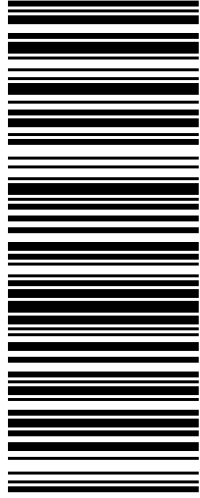

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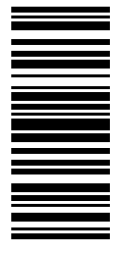
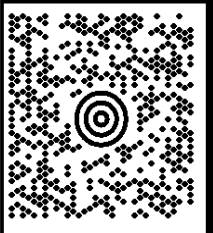
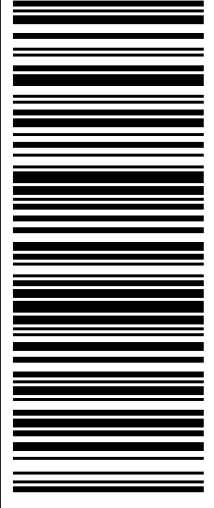

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