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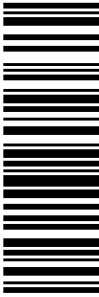


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FOLD HERE

<p>1 LBS</p> <p>1 OF 1</p> <p>PATRICIA NOWAK 508-265-5599 CENTERLINE COMMUNICATIONS, LLC 750 WEST CENTER STREET WEST BRIDGEWATER MA 02379</p> <p>SHIP TO: MELANIE A. BACHMAN 18608272935 CONNECTICUT SITING COUNCIL EXECUTIVE DIRECTOR TEN FRANKLIN SQUARE NEW BRITAIN CT 06051-2655</p>	<p>CT 067 9-06</p> 	<p>UPS GROUND</p> <p>TRACKING #: 1Z 9Y4 503 03 3524 9734</p> 	<p>BILLING: P/P</p> <p>Reference # 1: CT5864 - CSC</p> <p>CS 22.0.12. WNTNV50 34.0A 10/2020*</p> 
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October 23, 2020

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

Regarding: Notice of Exempt Modification – AT&T Site CT5864
Address: 330 Route 66 South (aka Middletown Road), Columbia, CT

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC (hereinafter “AT&T”) currently maintains a wireless telecommunications facility on an existing 149’ monopole tower (the “Tower”) at the above-referenced address, latitude 41.68986389, longitude -72.32518611. Said Tower is owned by American Tower Corporation.

AT&T desires to modify its existing telecommunications facility on the Tower by swapping (6) antennas, swapping (3) remote radio units, adding (6) remote radio units, adding (1) surge arrestor with accompanying lines, as well as, other related modifications, as more particularly detailed and described in the enclosed Construction Drawings prepared Infinigy Engineering, PLLC, dated September 9, 2020. Enclosed please also find a Mount Analysis prepared by CLS Engineering PLLC dated July 29, 2020. The centerline height of the antennas will be at 150 feet.

The construction of the Tower was originally approved by the Town of Columbia via special permit on January 11, 2000. The Connecticut Siting Council approved an extension of the Tower under Petition No. 586 on February 11, 2003.

Please accept this letter as notification pursuant to R.C.S.A §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 following individuals: The Honorable Steven M. Everett, First Selectman of the Town of Columbia; Constance Kisluk, Zoning Enforcement Officer of the Town of Columbia; John and Myra J. Pekarski, as the property owner; and American Tower Corporation, as Tower owner. Enclosed please find property cards and a GIS map of the property.

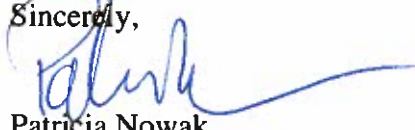
The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2). Specifically:

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require an 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 modified facility will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. *Please find a Radio Frequency Emissions Report for AT&T's modified facility enclosed herewith.*
5. The proposed modifications will not cause an ineligible change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading. *Enclosed please find the Structural Analysis Report dated July 31, 2020 and prepared by American Tower Corporation.*

For the foregoing reasons, AT&T 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,

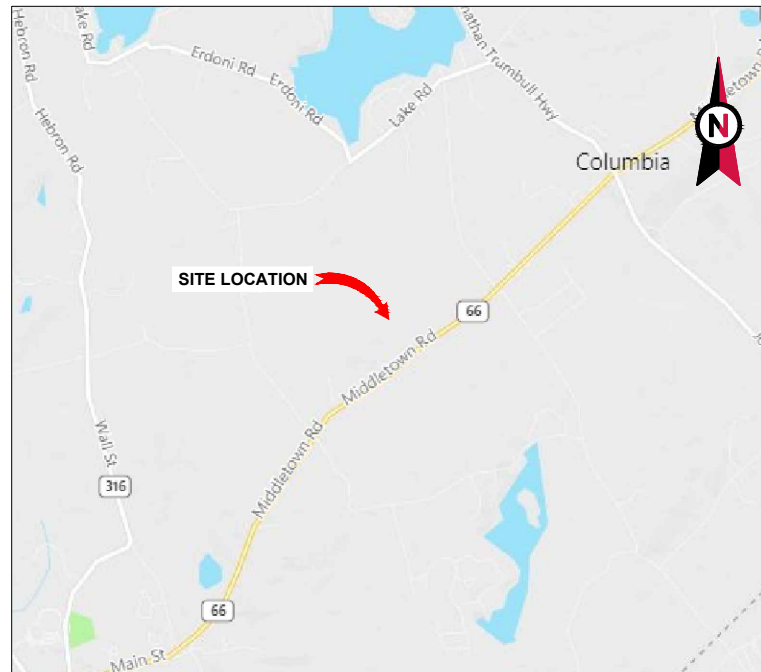


Patricia Nowak
Site Acquisition Consultant
Centerline Communications, LLC
750 West Center Street, Suite 301
West Bridgewater, MA 02379
pnowak@clinellc.com

Enclosures: Exhibit 1 – Construction Drawings
Exhibit 2 - Mount Analysis
Exhibit 3 – Property Cards and GIS Map
Exhibit 4 – Radio Frequency Emissions Report
Exhibit 5 – Structural Analysis

cc: The Honorable Steven M. Everett, First Selectman of the Town of Columbia
Constance Kisluk, Zoning Enforcement Officer of the Town of Columbia
John and Myra J. Pekarski, as the property owner
American Tower Corporation, as Tower owner

EXHIBIT 1



VICINITY MAP

CURRENT PROJECTS:
 LTE 2C - PACE #: MRCTB047253
 4TX4RX SOFTWARE RETROFIT - PACE #: MRCTB047237
 5G NR 1DR-1 - PACE #: MRCTB047171
 LTE 3C - PACE #: MRCTB048190
 LTE 4C - PACE #: MRCTB048189

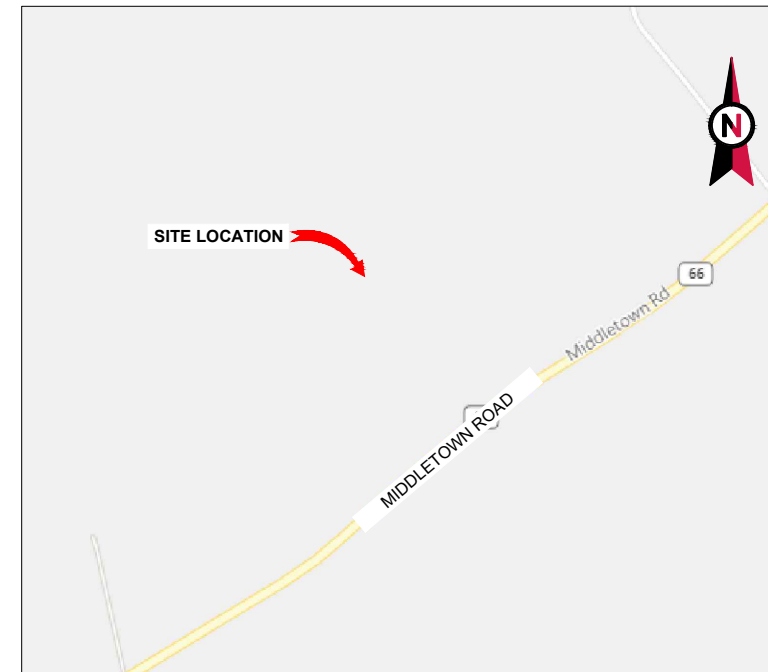


AMERICAN TOWER®

ATC SITE NAME: COLUMBIA CENTRAL
 ATC SITE NUMBER: 302528
 AT&T PACE NUMBER: MRCTB047253
 AT&T SITE ID: CT5864
 AT&T FA CODE: 100770977
 AT&T SITE NAME: CLUMBIA SOUTH EAST
 SITE ADDRESS: 330 MIDDLETOWN ROAD
 COLUMBIA, CT 06237-1528

AT&T MOBILITY PLAN: LTE 2C, 4TX4RX SOFTWARE RETROFIT,
 5G NR 1DR-1, LTE 3C, LTE 4C

**AT&T MOBILITY
 ANTENNA AMENDMENT PLAN**



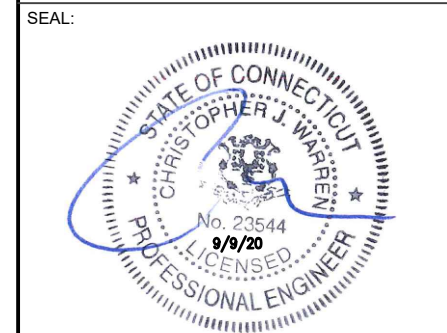
LOCATION MAP



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 ENGINEERING, PLLC**
 1211 SR 436, SUITE 101
 CASSELBERRY, FL 32707 OFFICE: 407-278-6750

REV.	DESCRIPTION	BY	DATE
A	PRELIM	DB	08/17/20
0	CONSTRUCTION	RDM	09/09/20

ATC SITE NUMBER:
302528
 ATC SITE NAME:
COLUMBIA CENTRAL
 AT&T MOBILITY SITE NAME:
CLUMBIA SOUTH EAST
 SITE ADDRESS:
 330 MIDDLETOWN ROAD
 COLUMBIA, CT 06237-1528



DATE DRAWN:	08/17/20
ATC JOB NO:	13252626_G3
CUSTOMER ID:	CT5864
CUSTOMER #:	100770977

TITLE SHEET

SHEET NUMBER:
G-001
 REVISION:
0

COMPLIANCE CODE	PROJECT SUMMARY	PROJECT DESCRIPTION	SHEET INDEX				
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. 1. 2018 INTERNATIONAL BUILDING CODE (IBC) 2. 2017 NATIONAL ELECTRIC CODE (NEC) 3. LOCAL BUILDING CODE 4. CITY/COUNTY ORDINANCES	<u>SITE ADDRESS:</u> 330 MIDDLETOWN ROAD COLUMBIA, CT 06237-1528 COUNTY: TOLLAND <u>GEOGRAPHIC COORDINATES:</u> LATITUDE: 41.68986389 LONGITUDE: -72.32518611 GROUND ELEVATION: 638' AMSL	THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW: <u>TOWER WORK:</u> REMOVE (6) ANTENNA(S), (3) RRH(S), (1) MOUNT, (12) DIPLEXER(S) AND (6) COAX CABLE(S) INSTALL (6) ANTENNA(S), (9) RRH(S), (1) MOUNT (1) SQUID(S), (2) DC TRUNK(S) AND (1) FIBER TRUNK(S) EXISTING (3) ANTENNA(S), (4) DIPLEXER(S), (4) TMA(S), (1) SQUID(S), (6) COAX CABLE(S), (2) DC TRUNK(S) AND (1) FIBER TRUNK(S) TO REMAIN EXISTING (2) DIPLEXER(S) AND (2) TMA(S) TO BE RELOCATED <u>GROUND WORK:</u> INSTALL (1) 6630 AND (1) IDLE, (1) BREAKER PANEL FLEX CABINET, (1) DC-12, AND (1) FIBER MANAGEMENT BOX	SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
	<u>PROJECT TEAM</u> <u>TOWER OWNER:</u> AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801 <u>ENGINEER:</u> INFINIGY ENGINEERING, PLLC 1211 SR 436, SUITE 101 CASSELBERRY, FL 32707 OFFICE: 407-278-6750 <u>PROPERTY OWNER:</u> JOHN PEKARSKI 330 MIDDLETOWN ROAD - COLUMBIA - CT - 06237	<u>PROJECT NOTES</u> 1. THE FACILITY IS UNMANNED. 2. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE. 3. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE. 4. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED. 5. HANDICAP ACCESS IS NOT REQUIRED.	G-001	TITLE SHEET	0	08/17/20	DB
<u>UTILITY COMPANIES</u> POWER COMPANY: EVERSOURCE PHONE: (877) 659-6326 TELEPHONE COMPANY: FRONTIER COMMUNICATIONS PHONE: (800) 376-6843	<u>PROJECT LOCATION DIRECTIONS</u> TAKE RT 2 TO EXIT 12 (RT 66 EAST). FOLLOW INTO COLUMBIA PAST JCT W/RT 85. JUST BEFORE THE JCT W / RT 87, ACCESS ROAD WILL BE ON LEFT SIDE OF ROAD.	G-002	GENERAL NOTES	0	08/17/20	DB	
		C-001	OVERALL SITE PLAN	0	08/17/20	DB	
		C-101	DETAILED SITE PLAN	0	08/17/20	DB	
		C-201	TOWER ELEVATION	0	08/17/20	DB	
		C-401	RF SCHEDULE AND ANTENNA INSTALLATION	0	08/17/20	DB	
		C-501	CONSTRUCTION DETAILS	0	08/17/20	DB	
		C-502	EQUIPMENT SPECIFICATIONS	0	08/17/20	DB	
		E-501	GROUNDING DETAILS	0	08/17/20	DB	
		R-601	SUPPLEMENTAL	0	08/17/20	DB	
		R-602	SUPPLEMENTAL	0	08/17/20	DB	
		R-603	SUPPLEMENTAL	0	08/17/20	DB	
		R-604	SUPPLEMENTAL	0	08/17/20	DB	

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GENERAL CONSTRUCTION NOTES:

1. OWNER FURNISHED MATERIALS, AT&T MOBILITY "THE COMPANY" WILL PROVIDE AND THE CONTRACTOR WILL INSTALL
 - A. BTS EQUIPMENT FRAME (PLATFORM) AND ICEBRIDGE SHELTER (GROUND BUILD/CO-LOCATE ONLY)
 - B. AC/TELCO INTERFACE BOX (PPC)
 - C. ICE BRIDGE (CABLE TRAY WITH COVER) (GROUND BUILD/CO-LOCATE ONLY, GC TO FURNISH AND INSTALL FOR ROOFTOP INSTALLATION)
 - D. TOWERS, MONOPOLES
 - E. TOWER LIGHTING
 - F. GENERATORS & LIQUID PROPANE TANK
 - G. ANTENNA STANDARD BRACKETS, FRAMES AND PIPES FOR MOUNTING
 - H. ANTENNAS (INSTALLED BY OTHERS)
 - I. TRANSMISSION LINE
 - J. TRANSMISSION LINE JUMPERS
 - K. TRANSMISSION LINE CONNECTORS WITH WEATHERPROOFING KITS
 - L. TRANSMISSION LINE GROUND KITS
 - M. HANGERS
 - N. HOISTING GRIPS
 - O. BTS EQUIPMENT
2. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL OTHER MATERIALS FOR THE COMPLETE INSTALLATION OF THE SITE INCLUDING, BUT NOT LIMITED TO, SUCH MATERIALS AS FENCING, STRUCTURAL STEEL SUPPORTING SUB-FRAME FOR PLATFORM, ROOFING LABOR AND MATERIALS, GROUNDING RINGS, GROUNDING WIRES, COPPER-CLAD OR XIT CHEMICAL GROUND ROD(S), BUSS BARS, TRANSFORMERS AND DISCONNECT SWITCHES WHERE APPLICABLE, TEMPORARY ELECTRICAL POWER, CONDUIT, LANDSCAPING COMPOUND STONE, CRANES, CORE DRILLING, SLEEPERS AND RUBBER MATTING, REBAR, CONCRETE CAISSONS, PADS AND/OR AUGER MOUNTS, MISCELLANEOUS FASTENERS, CABLE TRAYS, NON-STANDARD ANTENNA FRAMES AND ALL OTHER MATERIAL AND LABOR REQUIRED TO COMPLETE THE JOB ACCORDING TO THE DRAWINGS AND SPECIFICATIONS. IT IS THE POSITION OF AT&T MOBILITY TO APPLY FOR PERMITTING AND CONTRACTOR RESPONSIBLE FOR PICKUP AND PAYMENT OF REQUIRED PERMITS.
3. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS.
4. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
6. 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.
7. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
8. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
9. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
11. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
12. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE AT&T MOBILITY REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE AT&T MOBILITY REP PRIOR TO PROCEEDING.
13. EACH CONTRACTOR SHALL COOPERATE WITH THE AT&T MOBILITY REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
14. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE AT&T MOBILITY CONSTRUCTION MANAGER.
15. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
16. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE AT&T MOBILITY REP AND ENGINEER OF RECORD IMMEDIATELY.
17. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
18. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
19. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH AMERICAN TOWER CORPORATION (ATC) AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
20. CONTRACTOR SHALL FURNISH AT&T MOBILITY AND AMERICAN TOWER CORPORATION (ATC) WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
21. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH AT&T MOBILITY 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.

22. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH AT&T MOBILITY REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY AT&T MOBILITY MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
23. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH AT&T MOBILITY SPECIFICATIONS AND REQUIREMENTS.
24. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO AT&T MOBILITY FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
25. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO AT&T MOBILITY SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
26. 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.
27. CONTRACTOR SHALL NOTIFY AT&T MOBILITY 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.
28. 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.
29. 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.
30. 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 AT&T MOBILITY REP. ANY WORK FOUND BY THE AT&T MOBILITY REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
31. 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.
32. AT&T MOBILITY FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE AT&T MOBILITY WAREHOUSE, NO LATER THAN 48HR AFTER BEING NOTIFIED INSURED, STORED, UNCRATE, PROTECTED AND INSTALLED BY THE CONTRACTOR WITH ALL APPURTENANCES REQUIRED TO PLACE THE EQUIPMENT IN OPERATION, READY FOR USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EQUIPMENT AFTER PICKING IT UP.
33. AT&T MOBILITY OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OWN OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO AT&T MOBILITY OR THEIR ARCHITECT/ENGINEER.

SPECIAL CONSTRUCTION

ANTENNA INSTALLATION NOTES:

1. WORK INCLUDED:
 - A. ANTENNA AND COAXIAL CABLES ARE FURNISHED BY AT&T MOBILITY UNDER A SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL AND
 - B. INSTALL ANTENNA AS INDICATED ON DRAWINGS AND AT&T MOBILITY SPECIFICATIONS.
 - C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS
 - D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE.
 - E. CONTRACTOR SHALL PROVIDE FOUR (4) SETS OF SWEEP TESTS USING ANRITZU-PACKARD 8713B RF SCALAR NETWORK ANALYZER. SUBMIT FREQUENCY DOMAIN REFLECTOMETER(FDR) TESTS RESULTS TO THE PROJECT MANAGER. SWEEP TESTS SHALL BE AS PER ATTACHED RFS "MINIMUM FIELD TESTING RECOMMENDED FOR ANTENNA AND HELIAX COAXIAL CABLE SYSTEMS" DATED 10/5/93. TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING SERVICE AND BE BOUND AND SUBMITTED WITHIN ONE WEEK OF WORK COMPLETION.
 - F. INSTALL COAXIAL CABLES AND TERMINATING BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTIONS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.
 - G. ANTENNA AND COAXIAL CABLE GROUNDING:
2. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTORS/SPLICE WEATHERPROOFING KIT #221213 OR

EQUAL.

3. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS)

ALL DISCREPANCIES FROM WHAT IS SHOWN ON THESE CONSTRUCTION DRAWINGS SHALL BE COMMUNICATED TO ATC ENGINEERING IMMEDIATELY FOR CORRECTION OR RE-DESIGN. FAILURE TO COMMUNICATE DIRECTLY WITH ATC ENGINEERING OR ANY CHANGES FROM THE DESIGN CONDUCTED WITHOUT PRIOR APPROVAL FROM ATC ENGINEERING SHALL BE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR.



AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC

INFINIGY®
ENGINEERING, PLLC

1211 SR 436, SUITE 101
CASSELBERRY, FL 32707 OFFICE: 407-278-6750

REV.	DESCRIPTION	BY	DATE
A	PRELIM	DB	08/17/20
0	CONSTRUCTION	RDM	09/09/20

ATC SITE NUMBER:

302528

ATC SITE NAME:

COLUMBIA CENTRAL

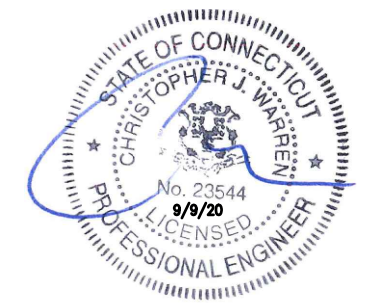
AT&T MOBILITY SITE NAME:

CLUMBIA SOUTH EAST

SITE ADDRESS:

330 MIDDLETOWN ROAD
COLUMBIA, CT 06237-1528

SEAL:



DATE DRAWN:	08/17/20
ATC JOB NO:	13252626_G3
CUSTOMER ID:	CT5864
CUSTOMER #:	100770977

GENERAL NOTES

SHEET NUMBER:
G-002

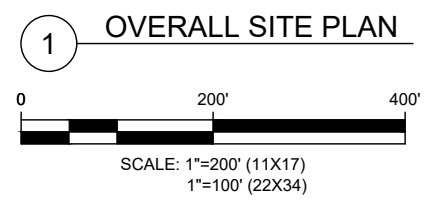
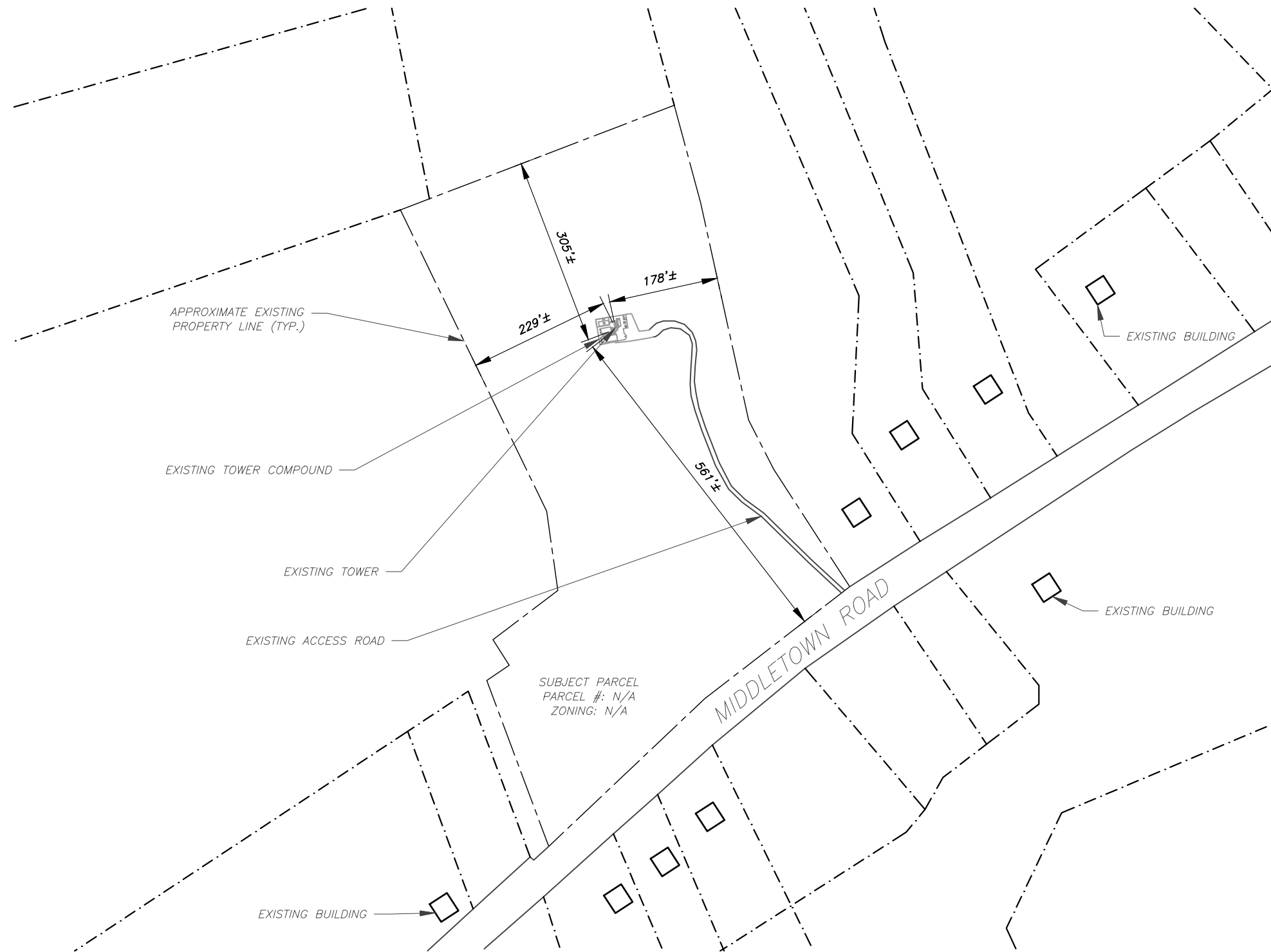
REVISION:
0

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NOTES:

- BOUNDARY LINES OBTAINED FROM TOLLAND COUNTY ONLINE GIS.
- ZONING INFORMATION OBTAINED FROM TOLLAND COUNTY

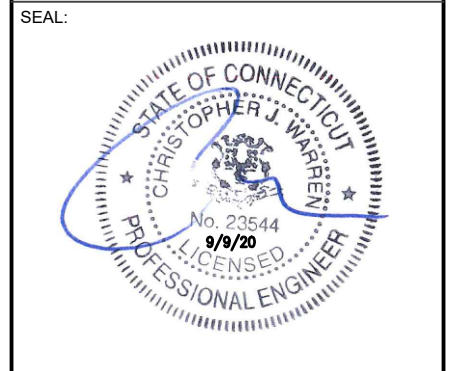
INFORMATION CONTAINED WITHIN THESE DRAWINGS IS BASED ON PROVIDED INFORMATION. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION.



INFINIGY
ENGINEERING, PLLC
1211 SR 436, SUITE 101
CASSELBERRY, FL 32707 OFFICE: 407-278-6750

REV.	DESCRIPTION	BY	DATE
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ATC SITE NUMBER:
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ATC SITE NAME:
COLUMBIA CENTRAL
AT&T MOBILITY SITE NAME:
CLUMBIA SOUTH EAST
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330 MIDDLETOWN ROAD
COLUMBIA, CT 06237-1528



DATE DRAWN:	08/17/20
ATC JOB NO:	13252626_G3
CUSTOMER ID:	CT5864
CUSTOMER #:	100770977

OVERALL SITE PLAN

SHEET NUMBER: C-001	REVISION: 0
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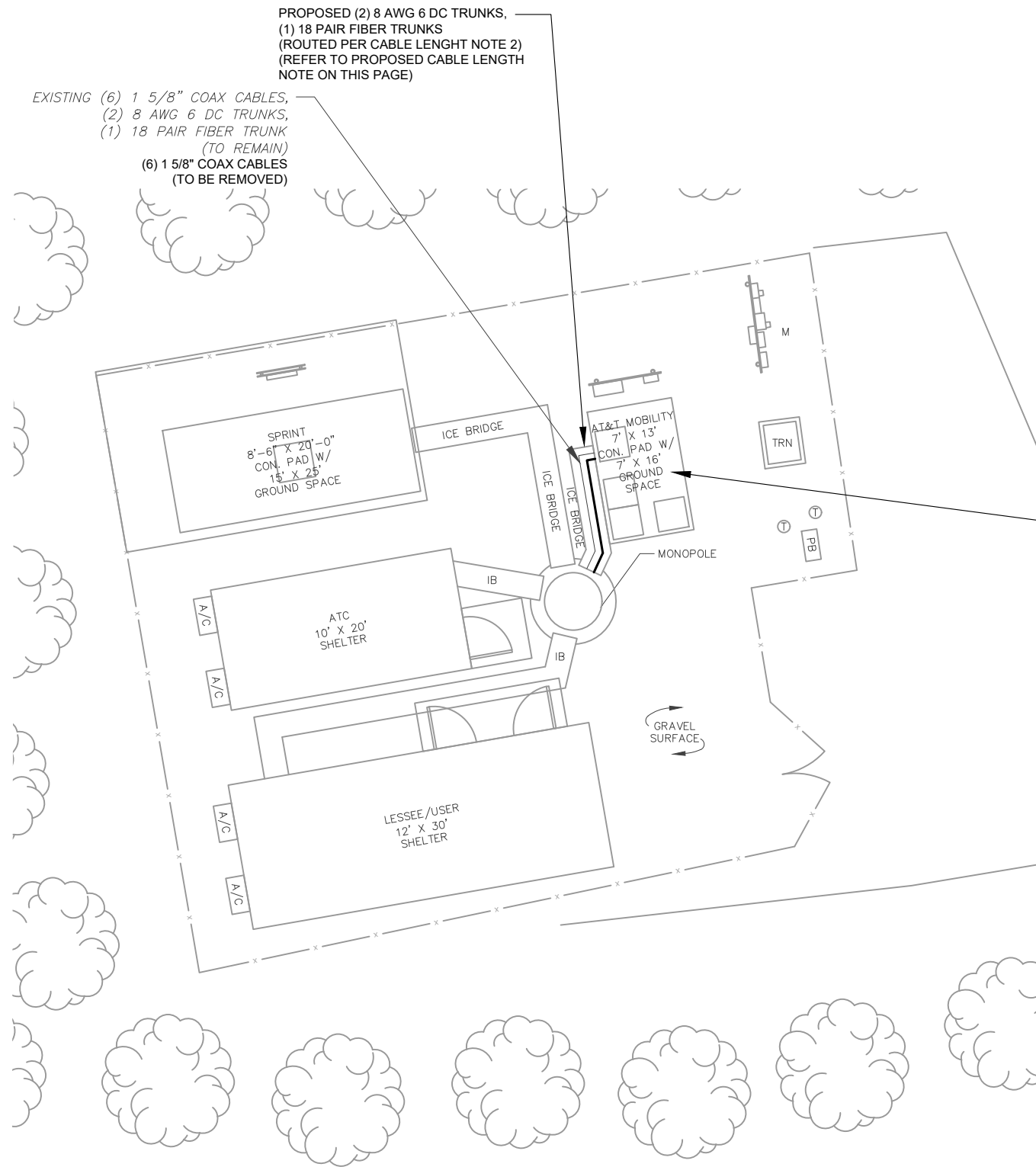
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SITE PLAN NOTES:

- 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.
- 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.

INFORMATION CONTAINED WITHIN THESE DRAWINGS IS BASED ON PROVIDED INFORMATION. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION.

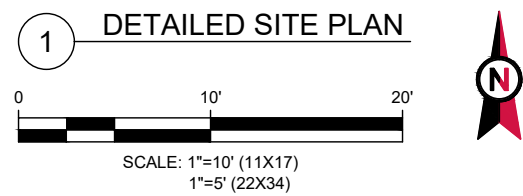
LEGEND	
⊗	GROUNDING TEST WELL
ATS	AUTOMATIC TRANSFER SWITCH
B	BOLLARD
CSC	CELL SITE CABINET
D	DISCONNECT
E	ELECTRICAL
F	FIBER
GEN	GENERATOR
G	GENERATOR RECEPTACAL
HH, V	HAND HOLE, VAULT
IB	ICE BRIDGE
K	KENTROX BOX
LC	LIGHTING CONTROL
M	METER
PB	PULL BOX
PP	POWER POLE
T	TELCO
TRN	TRANSFORMER
—x—	CHAINLINK FENCE



PROPOSED (1) 6630, (1) IDLE, (1) BREAKER PANEL FLEX CABINET, (1) DC-12, AND (1) FIBER MANAGEMENT BOX TO BE INSTALLED

PROPOSED CABLE LENGTH:

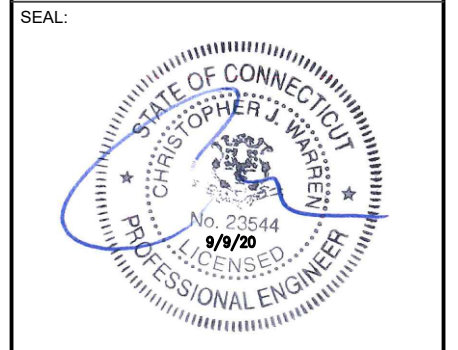
- ESTIMATED LENGTH OF PROPOSED CABLE IS **184'**. ESTIMATED LENGTH OF CABLE WAS PROVIDED BY CUSTOMER OR CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM THE SHELTER ENTRY PLATE TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES), CDS DEFER TO GREATEST CABLE LENGTH.
- 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.



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ENGINEERING, PLLC
1211 SR 436, SUITE 101
CASSELBERRY, FL 32707 OFFICE: 407-278-6750

REV.	DESCRIPTION	BY	DATE
A	PRELIM	DB	08/17/20
0	CONSTRUCTION	RDM	09/09/20

ATC SITE NUMBER:
302528
ATC SITE NAME:
COLUMBIA CENTRAL
AT&T MOBILITY SITE NAME:
CLUMBIA SOUTH EAST
SITE ADDRESS:
330 MIDDLETOWN ROAD
COLUMBIA, CT 06237-1528



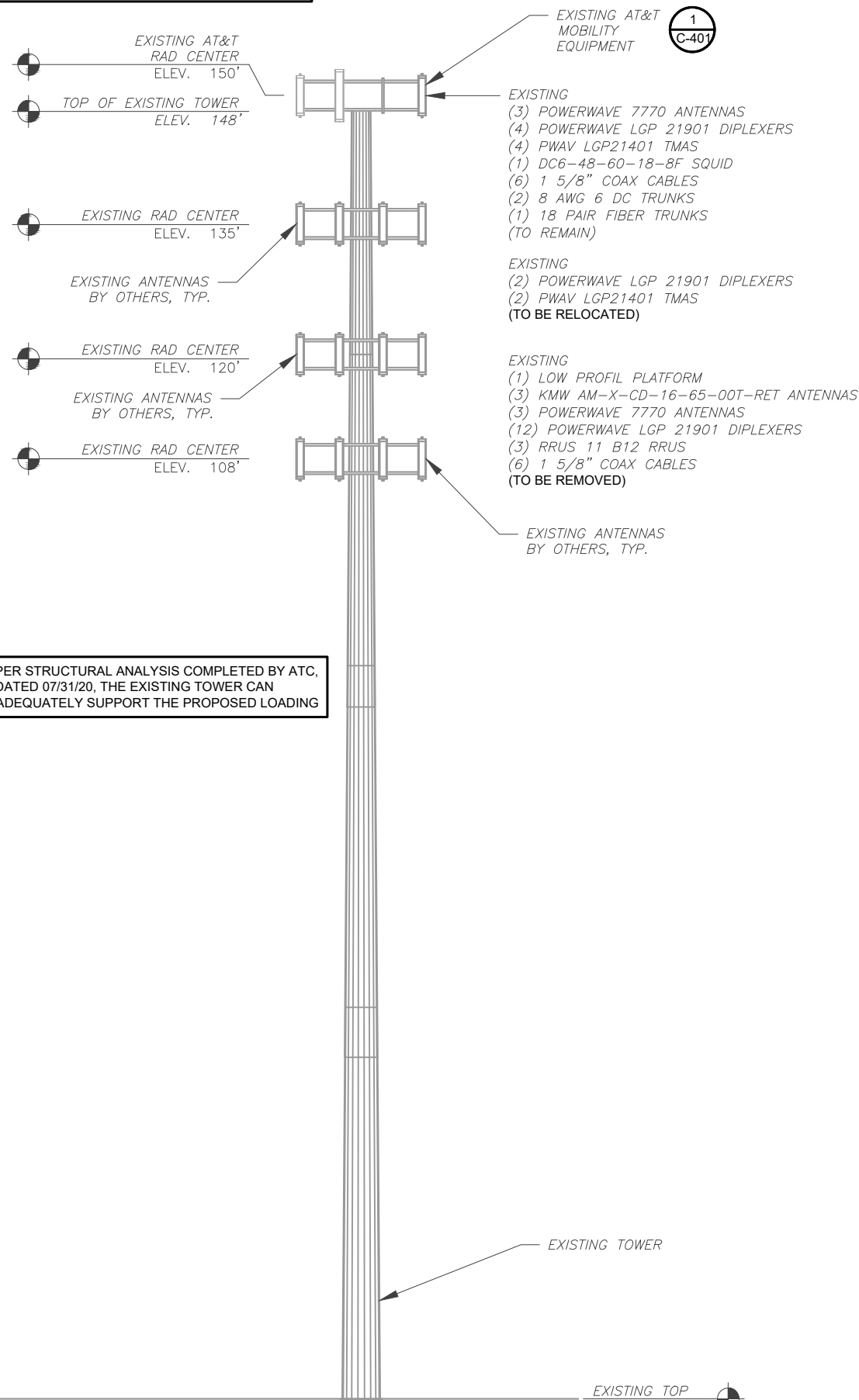
DATE DRAWN:	08/17/20
ATC JOB NO:	13252626_G3
CUSTOMER ID:	CT5864
CUSTOMER #:	100770977

DETAILED SITE PLAN

SHEET NUMBER: C-101	REVISION: 0
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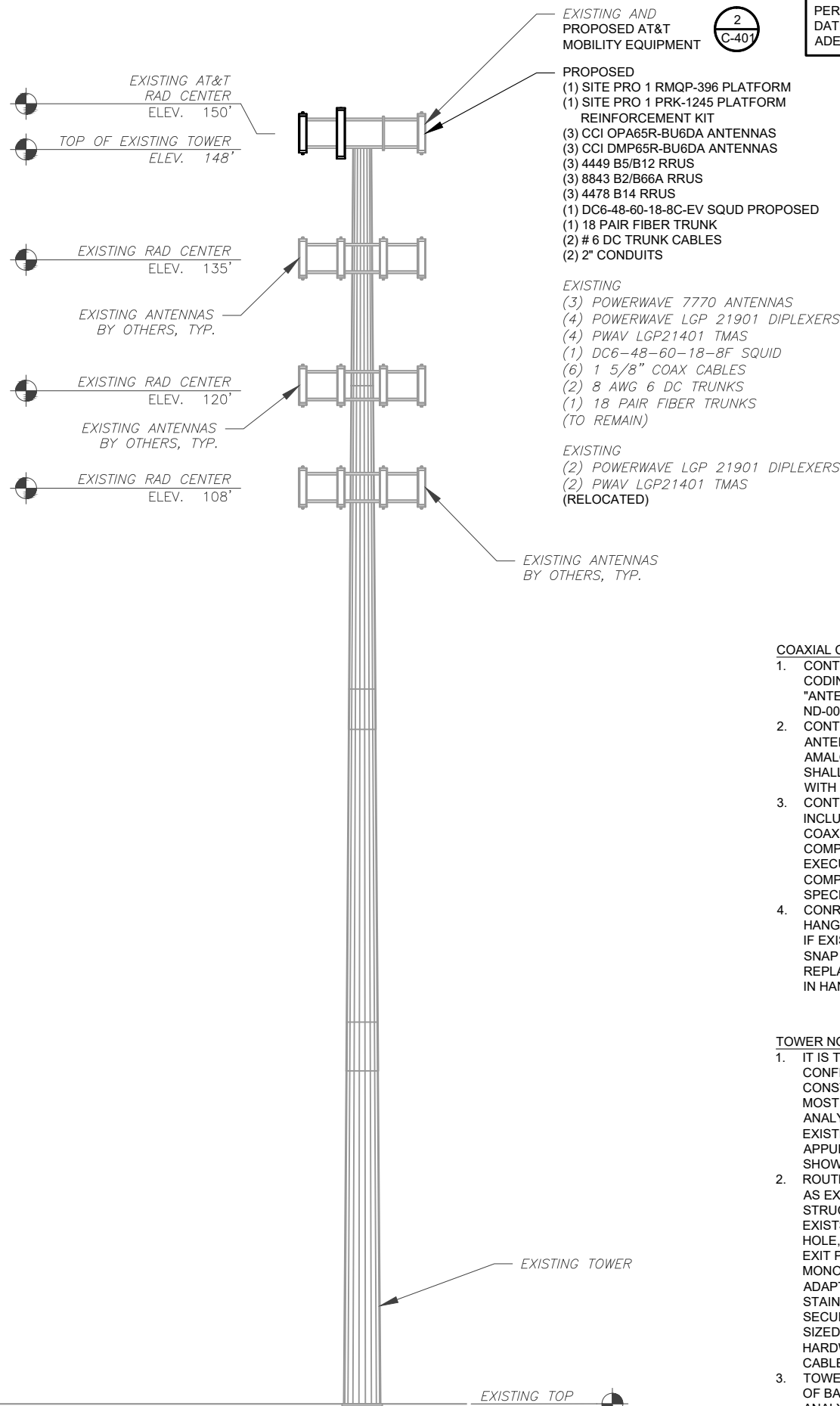
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EXISTING CONFIGURATION IS BASED ON RFDS. CONTRACTOR TO VERIFY EXISTING CONDITIONS.



PER STRUCTURAL ANALYSIS COMPLETED BY ATC, DATED 07/31/20, THE EXISTING TOWER CAN ADEQUATELY SUPPORT THE PROPOSED LOADING

1 EXISTING TOWER ELEVATION
SCALE: N.T.S.



PER MOUNT ANALYSIS COMPLETED BY ATC, DATED 07/29/20, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING

- COAXIAL CABLE NOTES:**
- CONTRACTOR SHALL CONFIRM COAX COLOR CODING PRIOR TO CONSTRUCTION. REFER TO "ANTENNA SYSTEM LABELING STANDARD" ND-00027 LATEST VERISON.
 - CONTRACTOR SHALL WEATHERPROOF ALL ANTENNA CONNECTORS WITH SELF AMALGAMATING TAPE. WEATHERPROOFING SHALL BE COMPLETED IN STRICT ACCORDANCE WITH AT&T STANDARDS.
 - CONTRACTOR SHALL GROUND ALL EQUIPMENT. INCLUDING ANTENNAS, RET MOTORS, TMA'S, COAX CABLES, AND RET CONTROL CBALES AS A COMPLETE SYTEM. GROUNDING SHALL BE EXECUTED BY QUALIFIED WIREMEN IN COMPLIANCE WITH MANUFACTURER'S SPECIFICATION AND RECOMMENDATION.
 - CONTRACTOR TO VERIFY THAT EXISTING COAX HANGERS ARE STACKABLE SNAP IN HANGERS. IF EXISTING HANGERS ARE NOT STACKABLE SNAP IN HANGERS THE CONTRACTOR SHALL REPLACE EXISTING HANGERS WITH NEW SNAP IN HANGERS IF APPLICABLE.
- TOWER NOTE:**
- 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.
 - TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)

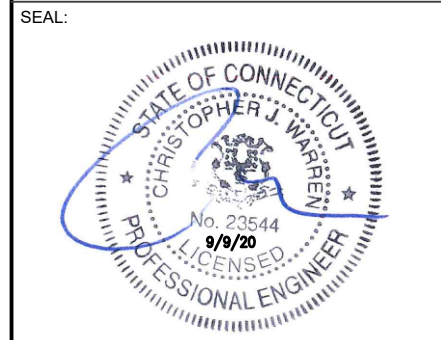
2 PROPOSED TOWER ELEVATION
SCALE: N.T.S.



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REV.	DESCRIPTION	BY	DATE
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0	CONSTRUCTION	RDM	09/09/20

ATC SITE NUMBER:
302528
ATC SITE NAME:
COLUMBIA CENTRAL
AT&T MOBILITY SITE NAME:
CLUMBIA SOUTH EAST
SITE ADDRESS:
330 MIDDLETOWN ROAD
COLUMBIA, CT 06237-1528



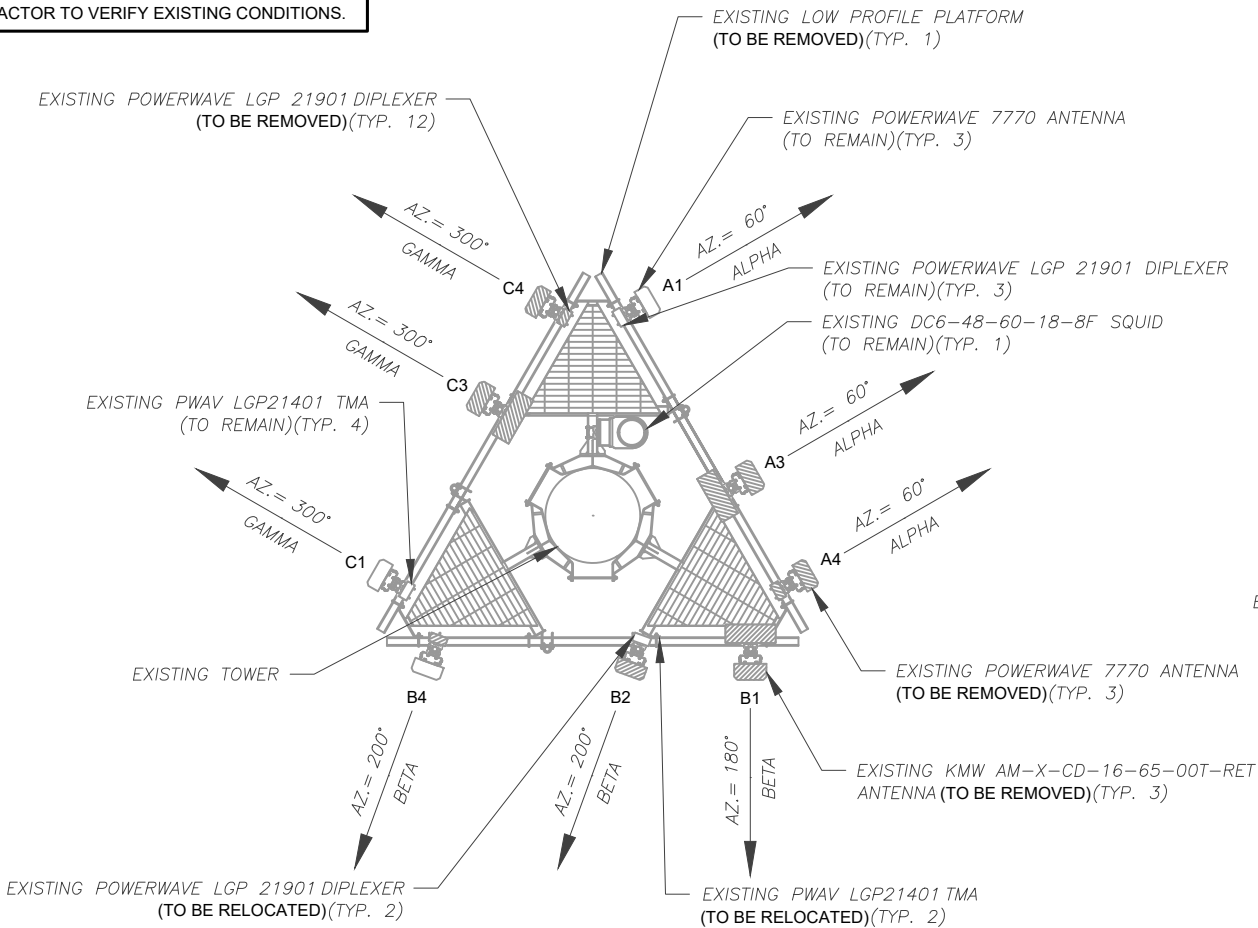
DATE DRAWN:	08/17/20
ATC JOB NO:	13252626_G3
CUSTOMER ID:	CT5864
CUSTOMER #:	100770977

TOWER ELEVATION

SHEET NUMBER: C-201	REVISION: 0
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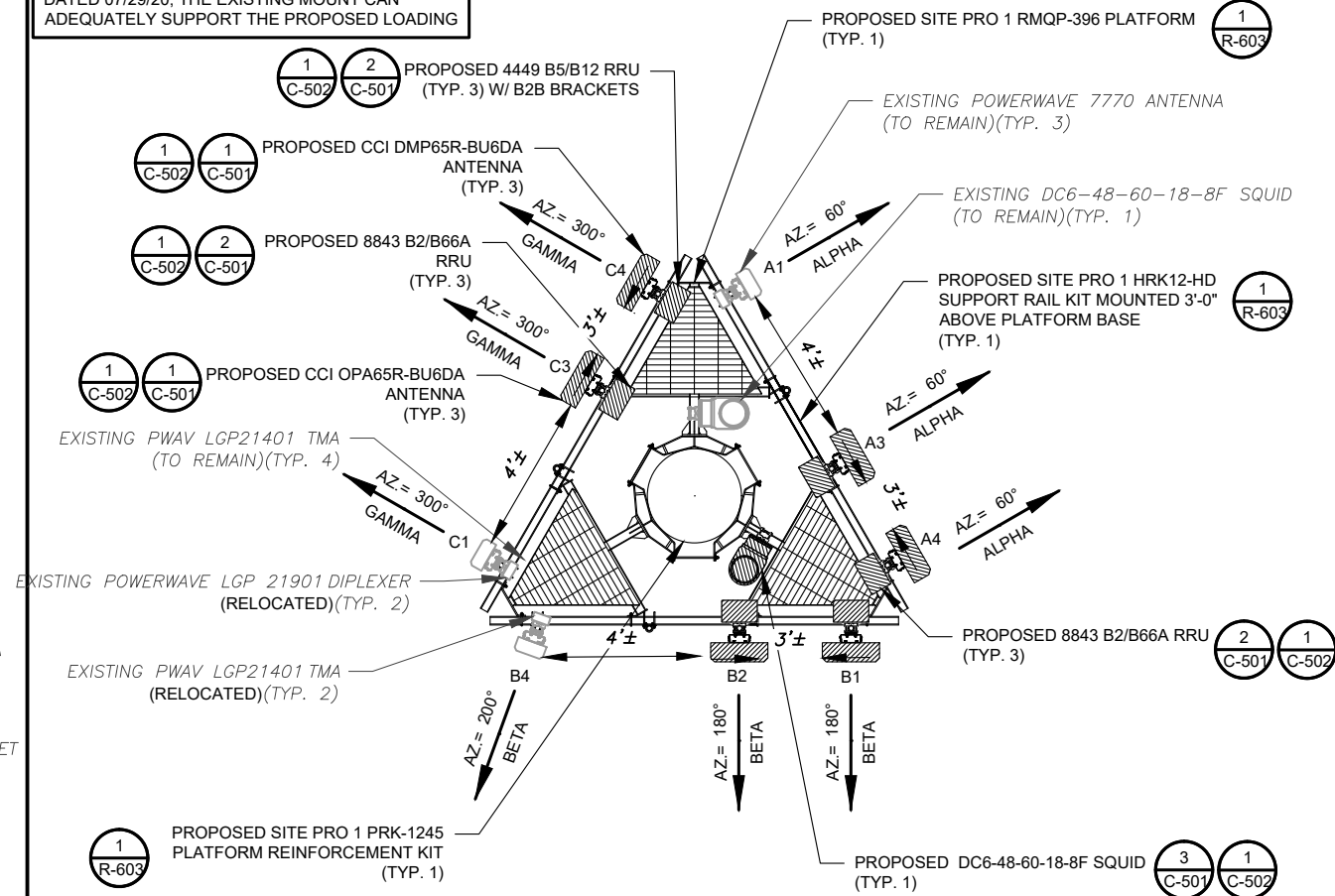
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EXISTING CONFIGURATIONS ARE BASED ON RFDS. CONTRACTOR TO VERIFY EXISTING CONDITIONS.



1 CURRENT ANTENNA PLAN
SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY ATC, DATED 07/29/20, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING



2 FINAL ANTENNA PLAN
SCALE: N.T.S.

PROPOSED RRUs MUST BE INSTALLED A MINIMUM OF 8" AWAY FROM ALL ANTENNAS

EXISTING ANTENNA SCHEDULE									
LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY		
SECTOR	RAD	AZ	POS	ANTENNA	BAND	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS	
ALPHA	150'	60°	A1	POWERWAVE 7770	UMTS 850/UMTS1900	RMN	(2) POWERWAVE LGP 21901 (2) PWAV LGP21401	RMN RMN	
			A2	-	-	-	-	-	
			A3	KMW AM-X-CD-16-65-00T-RET	LTE 700	RMV	RRUS-11 B12	RMV	
			A4	POWERWAVE 7770	GSM 850	RMV	(4) POWERWAVE LGP 21901	RMV	
BETA	150'	180°	B1	KMW AM-X-CD-16-65-00T-RET	LTE 700	RMV	RRUS-11 B12	RMV	
			B2	POWERWAVE 7770	UMTS 850/UMTS1900	RMV	(2) POWERWAVE LGP 21901 (2) PWAV LGP21401	REL REL	
		200°	B3	-	-	-	-	-	
			B4	POWERWAVE 7770	GSM 850	RMN	(4) POWERWAVE LGP 21901	RMV	
GAMMA	150'	300°	C1	POWERWAVE 7770	UMTS 850/UMTS1900	RMN	(2) POWERWAVE LGP 21901 (2) PWAV LGP21401	RMN RMN	
			C2	-	-	-	-	-	
			C3	KMW AM-X-CD-16-65-00T-RET	LTE 700	RMV	RRUS-11 B12	RMV	
			C4	POWERWAVE 7770	GSM 850	RMV	(4) POWERWAVE LGP 21901	RMV	

NOTES

- CONFIRM WITH AT&T MOBILITY REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
- CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.
- THE ANTENNA ORIENTATION PLAN IS A SCHEMATIC. ATC DID NOT CONFIRM EXISTING SITE CONDITIONS INCLUDING, BUT NOT LIMITED TO, ANTENNA AZIMUTHS, MOUNT CONFIGURATIONS AND TOWER ORIENTATION. SCALES SHOWN ARE FOR REFERENCE ONLY AND EXISTING DIMENSIONS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO INSTALLATION AND NOTIFY ATC OF ANY DISCREPANCIES. CONTRACTOR TO ENSURE PROPER SEPARATION IN ACCORDANCE WITH AT&T'S FIRSTNET REQUIREMENTS (SEE SHEET R-602)
-

FINAL ANTENNA SCHEDULE									
LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY		
SECTOR	RAD	AZ	POS	ANTENNA	BAND	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS	
ALPHA	150'	60°	A1	POWERWAVE 7770	UMTS 850	RMN	(2) POWERWAVE LGP 21901 (2) PWAV LGP21401	RMN RMN	
			A2	-	-	-	-	-	
			A3	CCI OPA65R-BU6DA	LTE 700/LTE 1900	ADD	4478 B14	ADD	
			A4	CCI DMP65R-BU6DA	LTE 700/LTE 850 LTE AWS/5G 850	ADD	4449 B5/B12 8843 B2/B66A	ADD ADD	
BETA	150'	180°	B1	CCI DMP65R-BU6DA	LTE 700/LTE 850 LTE AWS/5G 850	ADD	4449 B5/B12 8843 B2/B66A	ADD ADD	
			B2	CCI OPA65R-BU6DA	LTE 700/LTE 1900	ADD	4478 B14	ADD	
		200°	B3	-	-	-	-	-	
			B4	POWERWAVE 7770	UMTS 850	RMN	(2) POWERWAVE LGP 21901 (2) PWAV LGP21401	REL REL	
GAMMA	150'	300°	C1	POWERWAVE 7770	UMTS 850	RMN	(2) POWERWAVE LGP 21901 (2) PWAV LGP21401	RMN RMN	
			C2	-	-	-	-	-	
			C3	CCI OPA65R-BU6DA	LTE 700/LTE 1900	ADD	4478 B14	ADD	
			C4	CCI DMP65R-BU6DA	LTE 700/LTE 850 LTE AWS/5G 850	ADD	4449 B5/B12 8843 B2/B66A	ADD ADD	

EXISTING FIBER DISTRIBUTION/SQUID		EXISTING CABLING SUMMARY			
MODEL NUMBER	STATUS	COAX	DC	FIBER	STATUS
(1) DC6-48-60-18-8F	RMN	(6) 1 5/8"	(2) 8 AWG 6	(1) 18 PAIR	RMN
-	-	(6) 1 5/8"	-	-	RMV

STATUS ABBREVIATIONS
 RMV: TO BE REMOVED
 RMN: TO REMAIN
 REL: TO BE RELOCATED
 ADD: TO BE ADDED

CABLE LENGTHS FOR JUMPERS
 JUNCTION BOX TO RRU: 15'
 RRU TO ANTENNA: 10'

3 EQUIPMENT SCHEDULES

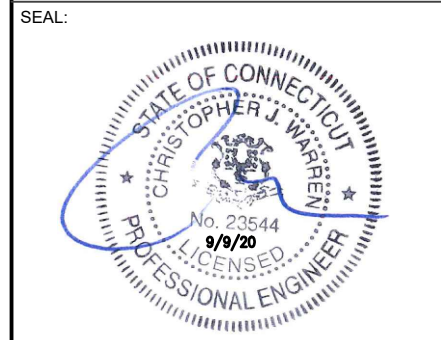
FINAL FIBER DISTRIBUTION/SQUID		FINAL CABLING SUMMARY			
MODEL NUMBER	STATUS	COAX	DC	FIBER	STATUS
(1) DC6-48-60-18-8F	RMN	(6) 1 5/8"	(2) 8 AWG 6	(1) 18 PAIR	RMN
(1) DC6-48-60-18-8C-EV	ADD	-	(2) #6 DC TRUNKS	(1) 18 PAIR	ADD



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REV.	DESCRIPTION	BY	DATE
A	PRELIM	DB	08/17/20
0	CONSTRUCTION	RDM	09/09/20

ATC SITE NUMBER:
302528
 ATC SITE NAME:
COLUMBIA CENTRAL
 AT&T MOBILITY SITE NAME:
CLUMBIA SOUTH EAST
 SITE ADDRESS:
 330 MIDDLETOWN ROAD
 COLUMBIA, CT 06237-1528



DATE DRAWN:	08/17/20
ATC JOB NO:	13252626_G3
CUSTOMER ID:	CT5864
CUSTOMER #:	100770977

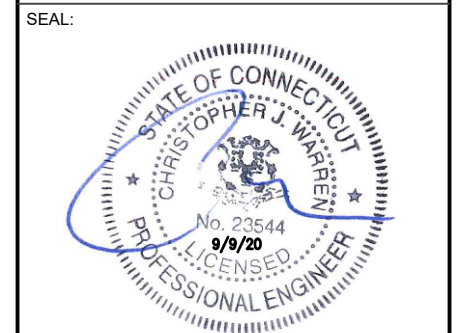
RF SCHEDULE AND ANTENNA INSTALLATION

SHEET NUMBER:
C-401
 REVISION:
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REV.	DESCRIPTION	BY	DATE
A	PRELIM	DB	08/17/20
0	CONSTRUCTION	RDM	09/09/20

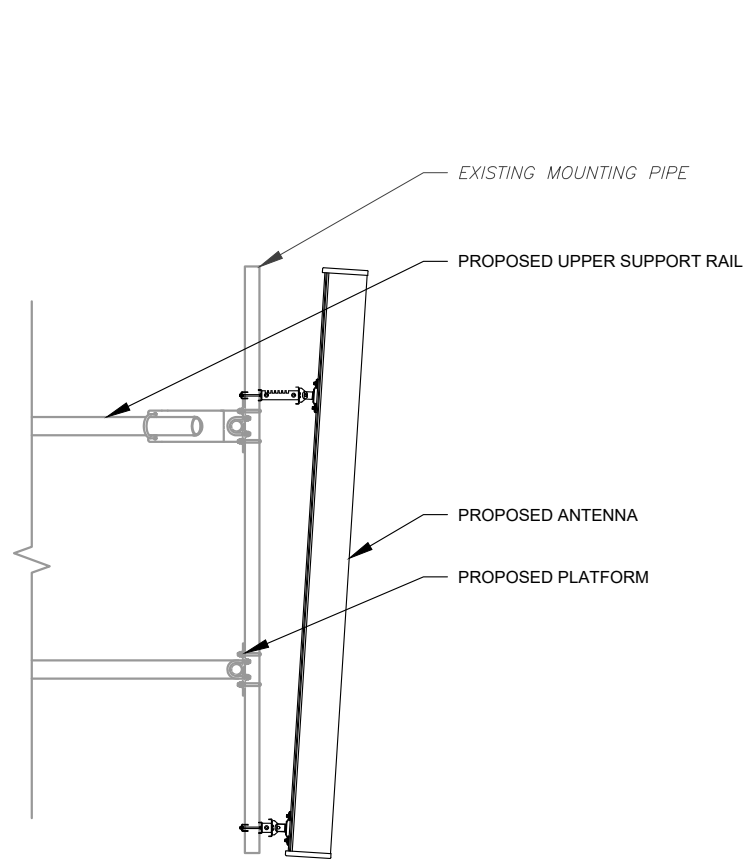
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302528
ATC SITE NAME:
COLUMBIA CENTRAL
AT&T MOBILITY SITE NAME:
CLUMBIA SOUTH EAST
SITE ADDRESS:
330 MIDDLETOWN ROAD
COLUMBIA, CT 06237-1528



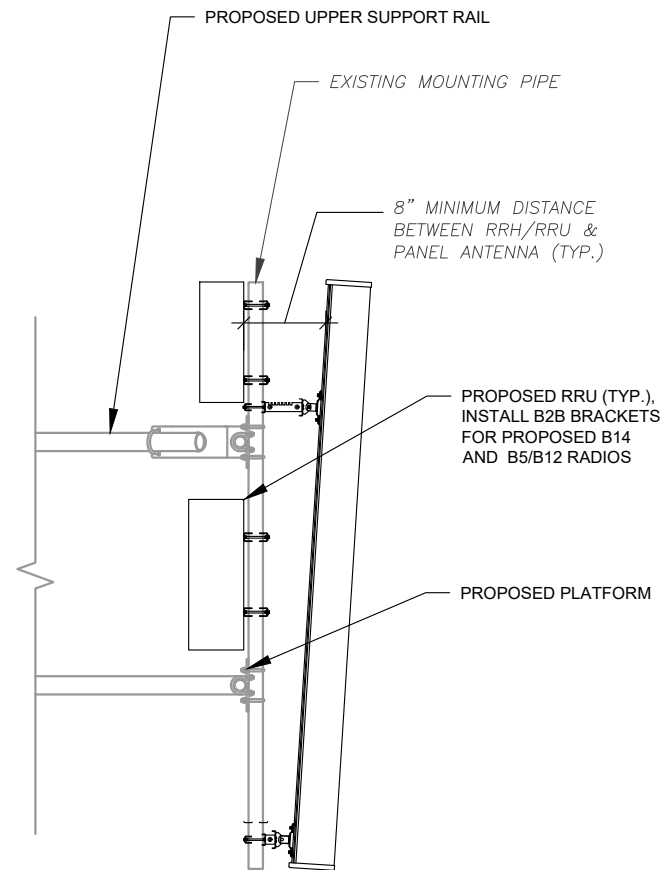
DATE DRAWN:	08/17/20
ATC JOB NO:	13252626_G3
CUSTOMER ID:	CT5864
CUSTOMER #:	100770977

**CONSTRUCTION
DETAILS**

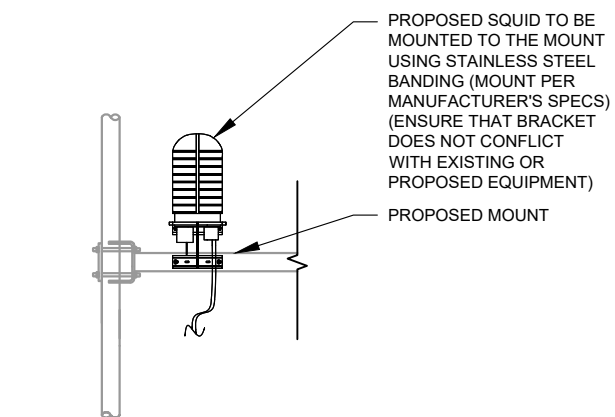
SHEET NUMBER:	REVISION:
C-501	0



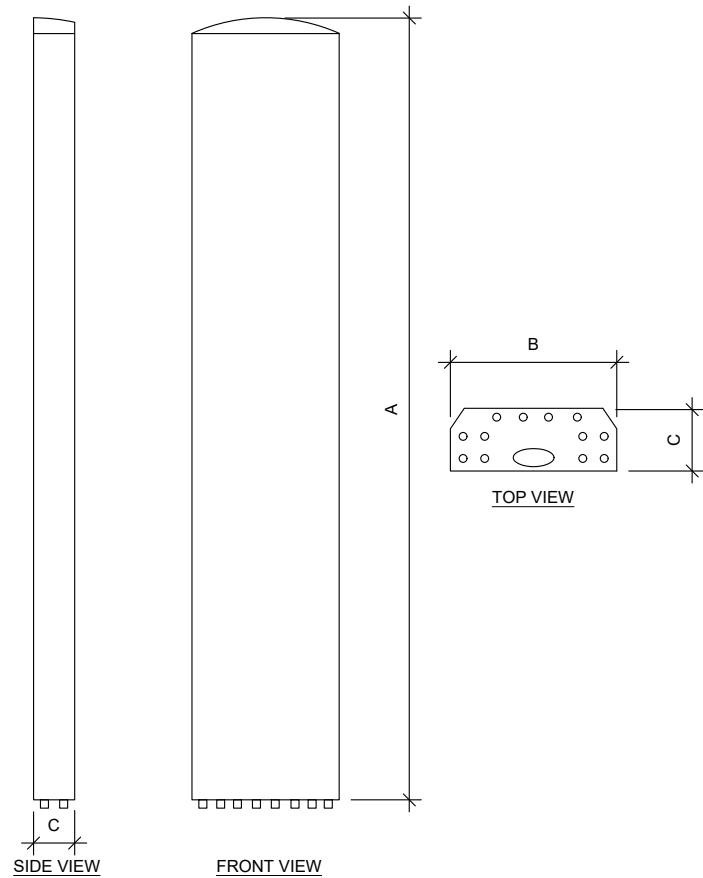
1 ANTENNA DETAIL
SCALE: N.T.S.



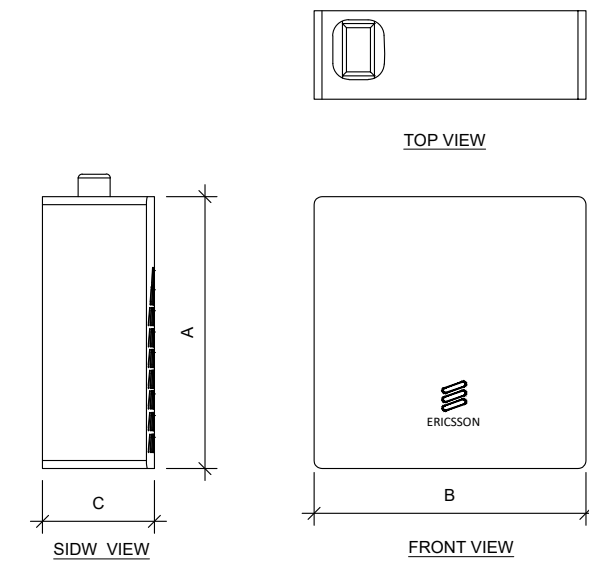
2 RRU DETAIL
SCALE: N.T.S.



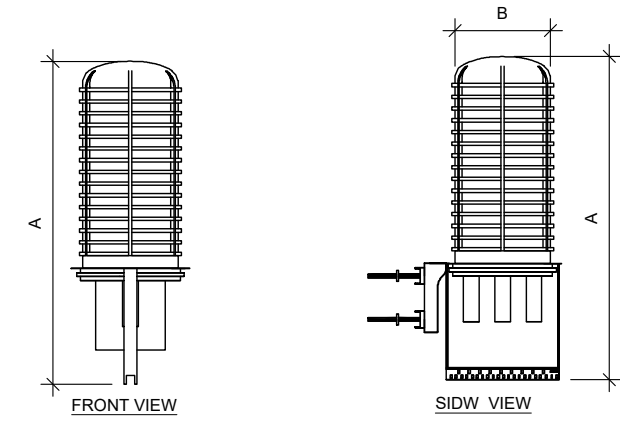
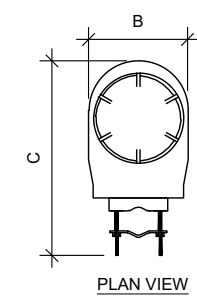
3 PROPOSED SQUID MOUNTING
SCALE: N.T.S.



ANTENNA SPECIFICATIONS				
ANTENNA MODEL	A	B	C	WEIGHT (LBS)
CCI OPA65R-BU6DA	71.2"	21.0"	7.8"	63.2
CCI DMP65R-BU6DA	71.2"	20.7"	7.7"	79.4



RRU SPECIFICATIONS				
RRU MODEL	A	B	C	WEIGHT (LBS)
4478 B14	18.1"	13.4"	8.3"	59.4
4449 B5/B12	17.9"	13.2"	9.4"	71.0
8843 B2/B66A	14.9"	13.2"	10.9"	72.0



RAYCAP SPECIFICATIONS				
RAYCAP MODEL	A	B	C	WEIGHT (LBS)
DC6-48-60-18-8C-EV	24.0"	11.0"	11.0"	31.8

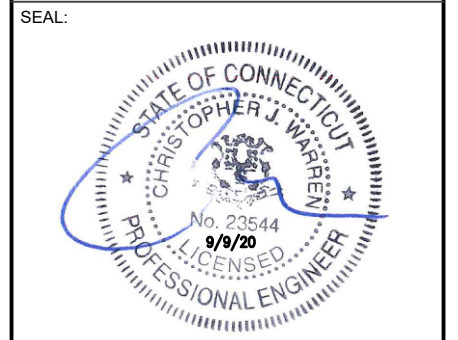
1 EQUIPMENT SPECIFICATIONS
SCALE: N.T.S.



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REV.	DESCRIPTION	BY	DATE
A	PRELIM	DB	08/17/20
0	CONSTRUCTION	RDM	09/09/20

ATC SITE NUMBER:
302528
ATC SITE NAME:
COLUMBIA CENTRAL
AT&T MOBILITY SITE NAME:
CLUMBIA SOUTH EAST
SITE ADDRESS:
330 MIDDLETOWN ROAD
COLUMBIA, CT 06237-1528

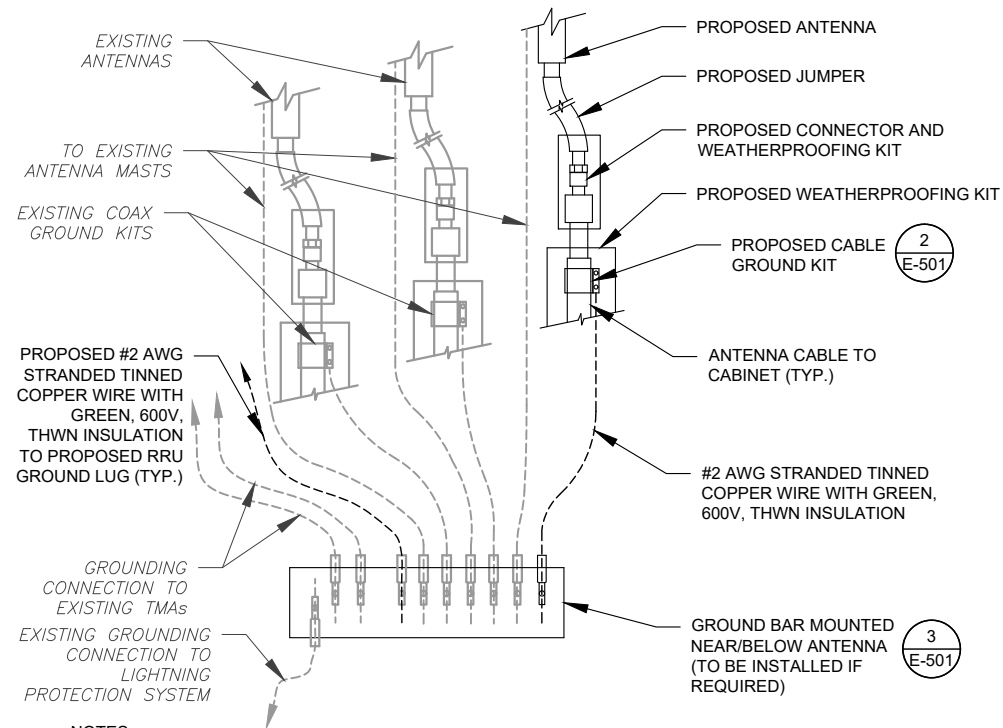


DATE DRAWN:	08/17/20
ATC JOB NO:	13252626_G3
CUSTOMER ID:	CT5864
CUSTOMER #:	100770977

EQUIPMENT SPECIFICATIONS

SHEET NUMBER: C-502	REVISION: 0
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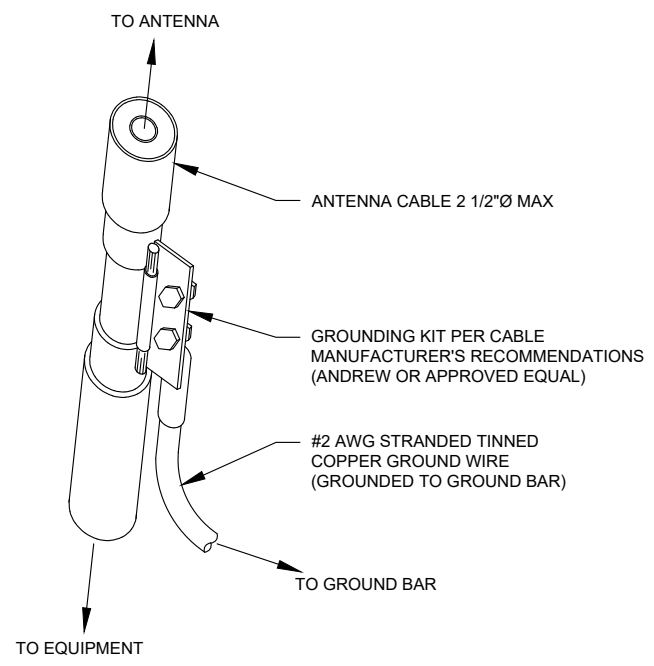
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NOTES:

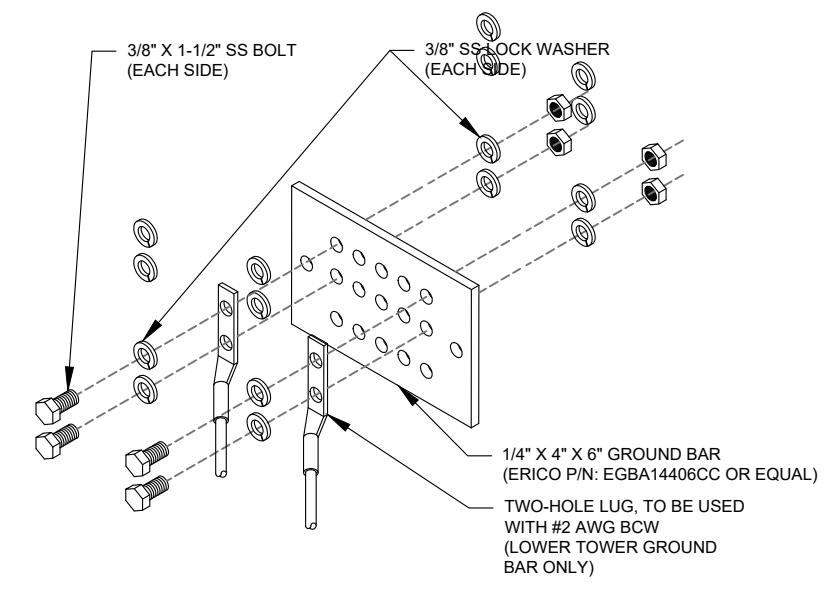
1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH AT&T MOBILITY GROUNDING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

1 TYPICAL ANTENNA GROUNDING DIAGRAM
SCALE: N.T.S.



- 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.

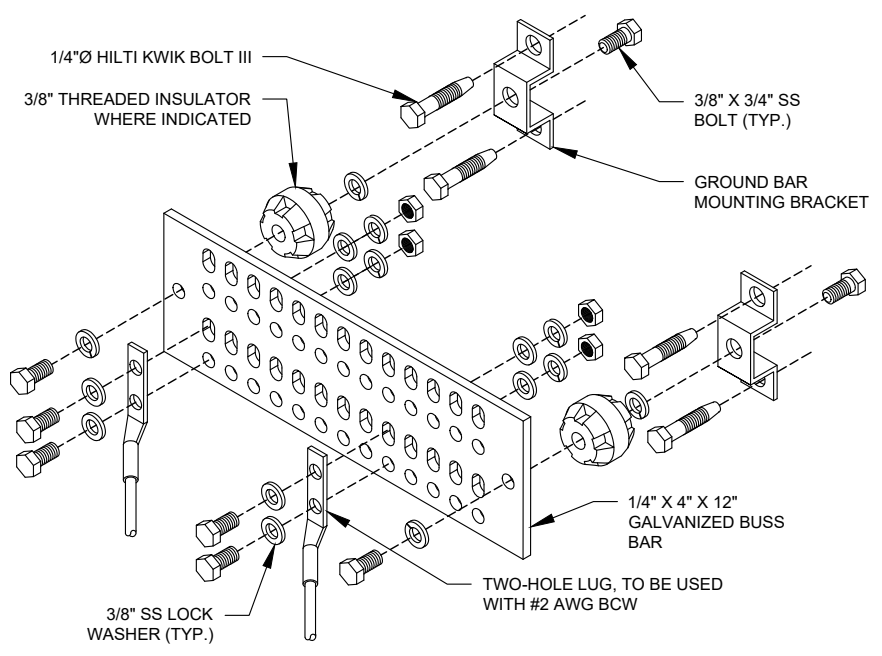
2 CABLE GROUND KIT CONNECTION DETAIL
SCALE: N.T.S.



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.

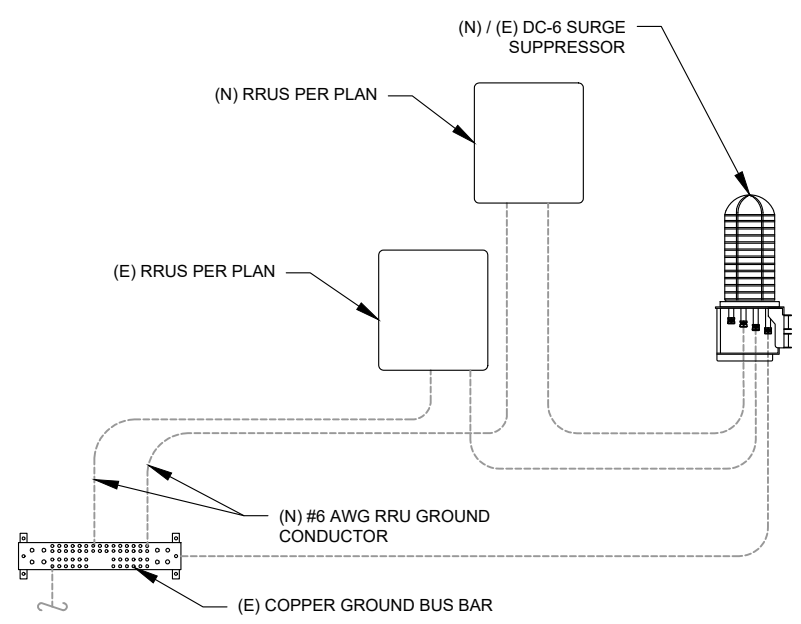
3 TOWER GROUND BAR DETAIL
SCALE: N.T.S.



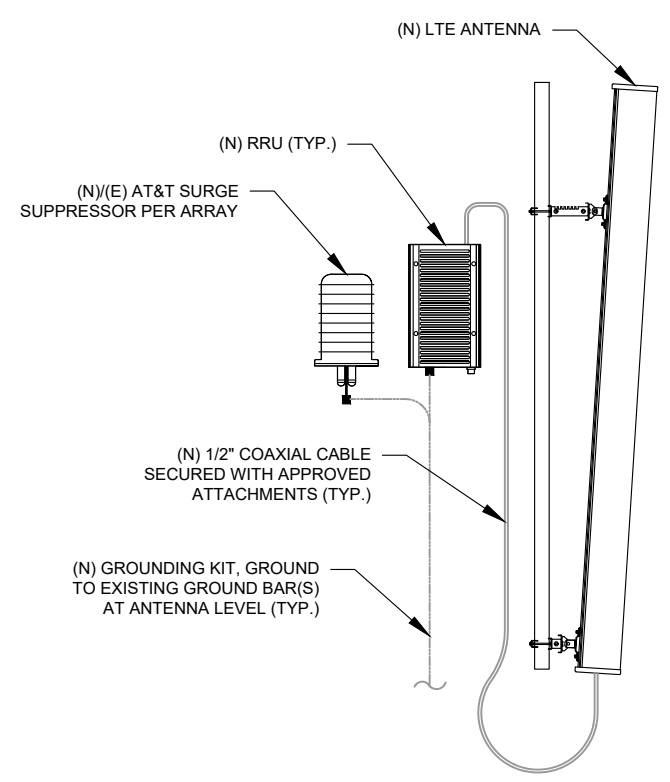
GROUND BAR NOTES

1. GROUND KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR SHALL BE BOLTED TO STRUCTURAL MEMBER OR ANCHORED TO CONCRETE SLAB W/ HILTI KWIK BOLT III.

4 MAIN GROUND BAR DETAIL
SCALE: N.T.S.



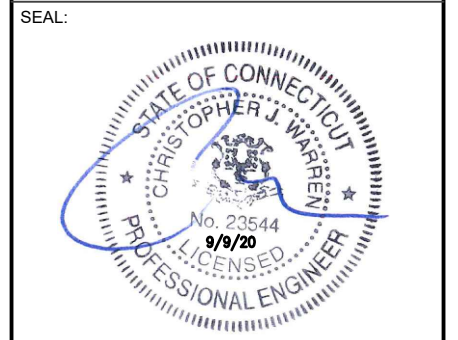
5 RRU GROUNDING
SCALE: N.T.S.



6 ANTENNA/RRU GROUNDING
SCALE: N.T.S.

REV.	DESCRIPTION	BY	DATE
A	PRELIM	DB	08/17/20
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AT&T MOBILITY SITE NAME:
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SITE ADDRESS:
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COLUMBIA, CT 06237-1528



DATE DRAWN:	08/17/20
ATC JOB NO:	13252626_G3
CUSTOMER ID:	CT5864
CUSTOMER #:	100770977

GROUNDING DETAILS

SHEET NUMBER:	REVISION:
E-501	0

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This report was prepared for American Tower Corporation by



Antenna Mount Analysis Report

ATC Site Name : Columbia Central
 ATC Asset Number : 302528
 Engineering Number : 13252626
 Mount Elevation : 146 ft
 Carrier : AT&T Mobility
 Carrier Site Name : MRCTB047253
 Carrier Site Number : CTL05864
 Site Location : 330 Middletown Road
 Columbia, CT 06237-1528
 41.68986389, -72.32518611
 County : Tolland
 Date : July 29, 2020
 Max Usage : 65%
 Result : Pass (Replacement)

Prepared By:
Prathamesh Padwal
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. 11/17/2021
 CMAA REG. 08/03/13 Exp. 07/04/2023

Introduction

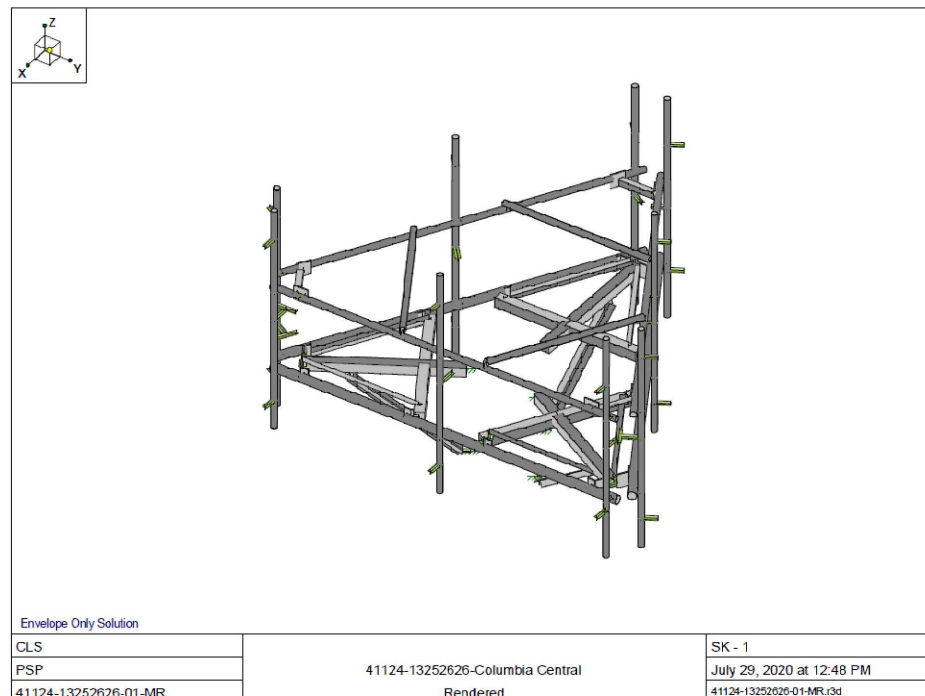
The proposed equipment is to be mounted to the proposed Site Pro 1 RMQP-396 Platform w/ Support Rails. This proposed mounting configuration was analyzed using RISA-3D, a commercially available finite element analysis software package. A selection of input and output from our analysis is attached to the end of this report.

Supporting Documents

Structural Data	Site Photos, dated March 19, 2019 Site Pro 1 assembly drawing, DWG. #PRK-1245, dated September 19, 2018 Site Pro 1 assembly drawing, DWG. #RMQP-3XX, dated July 07, 2015 Site Pro 1 assembly drawing, DWG. #HRK12-HD, dated March 31, 2015
Previous Analyses	Tower SA by ATC, Engineering #OAA713126_CS_02, March 22, 2018
Loading Data	ATC Application, Project #13252626, dated July 21, 2020 AT&T RFDS, ID #3719815, Version 2.00, dated June 29, 2020

Analysis

Codes	TIA-222-H
Basic Wind Speed	120 mph, V _{base} (3-Second Gust)
Basic Wind Speed w/ Ice	50 mph (3-Second Gust) w/ 1" Radial Ice (Escalating)
Exposure Category	C
Max. Topographic Factor, K _z	1.00
Risk Category	II
Maintenance Live Load	L _{sc} : 500 lb
Spectral Response	S _c : 0.20; S _s : 0.06; Site Class: D



Envelope Only Solution		
CLS	41124-13252626-Columbia Central	SK - 1
PSP	Rendered	July 29, 2020 at 12:48 PM
41124-13252626-01-MR		41124-13252626-01-MR.r3d

1 MOUNT ANALYSIS

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 following scope is executed:

- Replace existing Platform mount with (1) new Site Pro 1 RMQP-396 platform mount.
- Install Site Pro 1 HRK12-HD Support Rail kit 3'-0" above the Platform Base. Connect to all mount pipes using SCX-2 crossover plates (Total 9) included in the kit.
- Install (1) proposed Site Pro 1 PRK-1245 platform reinforcement kit on proposed platform mount as shown in the following sketches.
- All mount pipes are to be installed equidistant from each other as shown in the assembly drawings.
- Install existing and proposed antennas such that they are vertically centered on the mount. Install existing and proposed RRUS and TMAs behind the antennas.

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.



REV.	DESCRIPTION	BY	DATE
A	PRELIM	DB	08/17/20
0	CONSTRUCTION	RDM	09/09/20

ATC SITE NUMBER:
302528
 ATC SITE NAME:
COLUMBIA CENTRAL
 AT&T MOBILITY SITE NAME:
CLUMBIA SOUTH EAST
 SITE ADDRESS:
330 MIDDLETOWN ROAD
COLUMBIA, CT 06237-1528

SEAL:



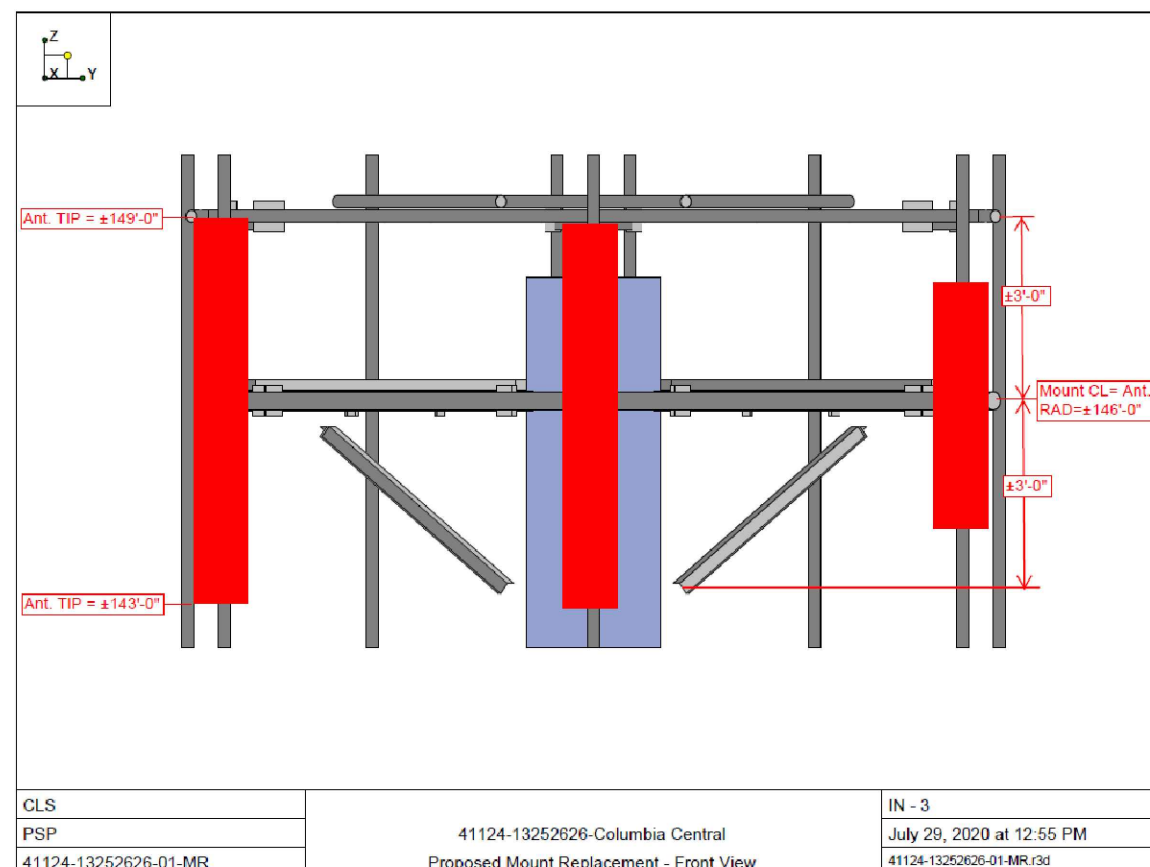
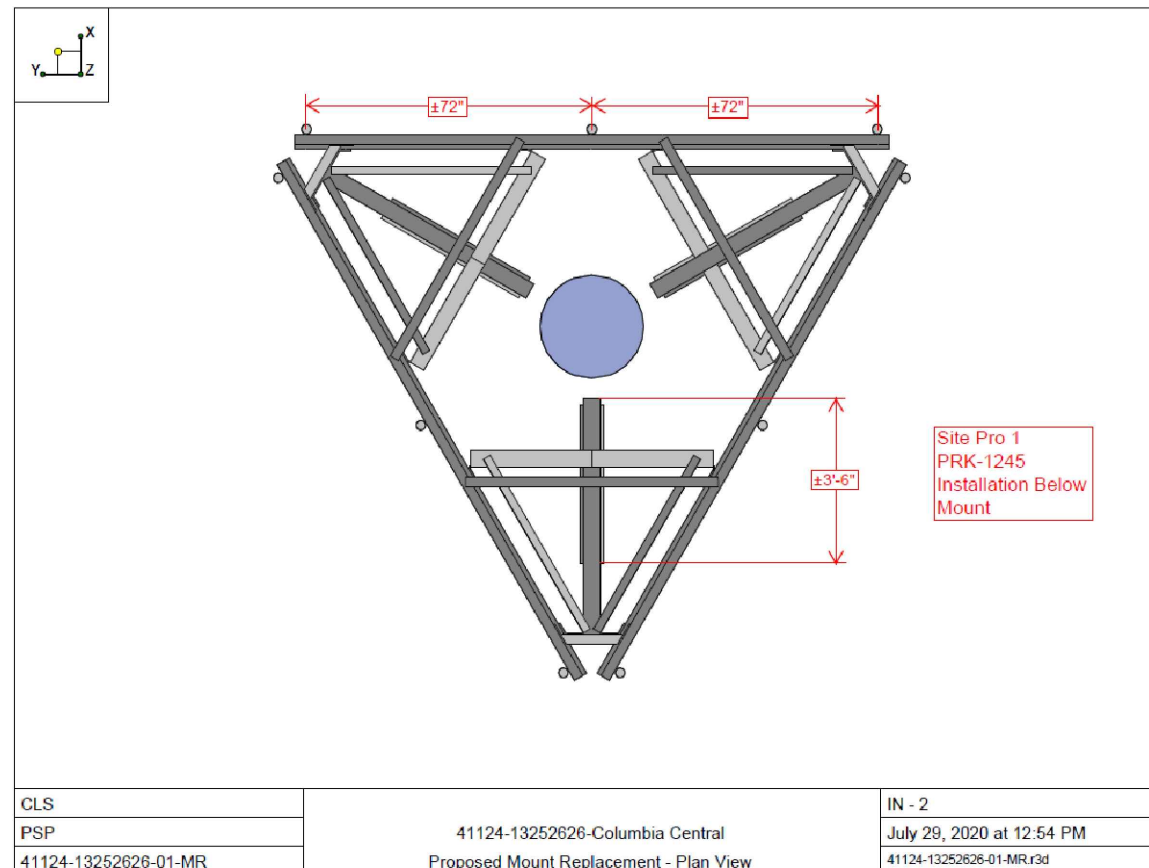
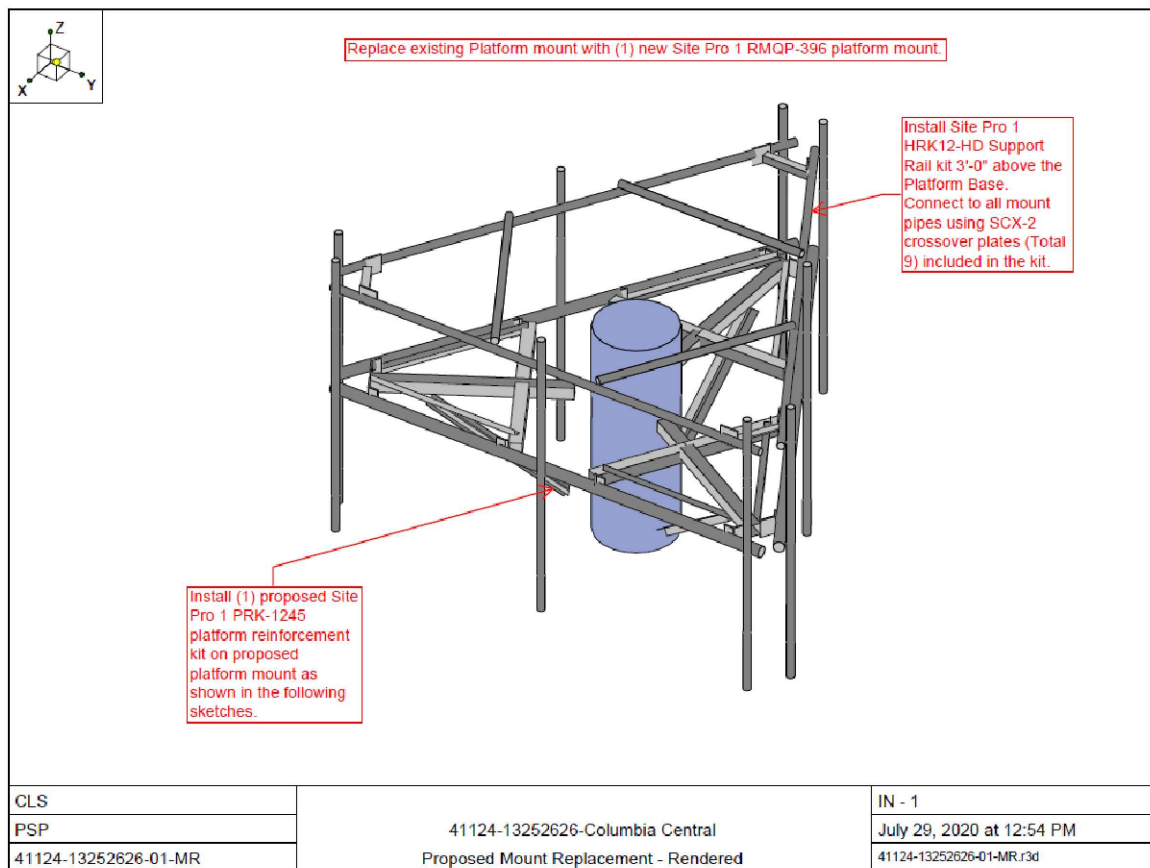
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ATC JOB NO:	13252626_G3
CUSTOMER ID:	CT5864
CUSTOMER #:	100770977

SUPPLEMENTAL

SHEET NUMBER:
R-601

REVISION:
0

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 CONSTRUCTION.



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 CONSTRUCTION.

REV.	DESCRIPTION	BY	DATE
A	PRELIM	DB	08/17/20
0	CONSTRUCTION	RDM	09/09/20

ATC SITE NUMBER:
302528
ATC SITE NAME:
COLUMBIA CENTRAL
AT&T MOBILITY SITE NAME:
CLUMBIA SOUTH EAST
SITE ADDRESS:
330 MIDDLETOWN ROAD
COLUMBIA, CT 06237-1528

SEAL:



DATE DRAWN:	08/17/20
ATC JOB NO:	13252626_G3
CUSTOMER ID:	CT5864
CUSTOMER #:	100770977

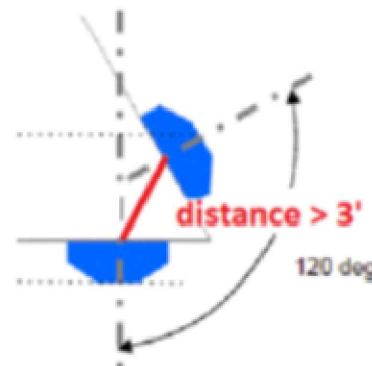
SUPPLEMENTAL

SHEET NUMBER: R-602	REVISION: 0
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RF REQUIREMENTS FOR 700 B14 FIRSTNET, 700 B12, 700D B29 ANTENNA SEPARATION

- Horizontal separation (side to side of antenna): $\geq 3'$
- Vertical separation (between the tips of the antennas): $> 3'$
- Inter-sector separation: $> 3'$ between the center of the antenna backplanes.



- Please note additional horizontal separation may be required if B14 antennas azimuth are different from others or antennas are severely angled with respect to the mount.
- Typical 3' horizontal separation can tolerate skew angle up to 6° .



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



INFINIGY
ENGINEERING, PLLC
1211 SR 436, SUITE 101
CASSELBERRY, FL 32707 OFFICE: 407-278-6750

REV.	DESCRIPTION	BY	DATE
A	PRELIM	DB	08/17/20
0	CONSTRUCTION	RDM	09/09/20

ATC SITE NUMBER:
302528
ATC SITE NAME:
COLUMBIA CENTRAL
AT&T MOBILITY SITE NAME:
CLUMBIA SOUTH EAST
SITE ADDRESS:
330 MIDDLETOWN ROAD
COLUMBIA, CT 06237-1528

SEAL:



DATE DRAWN:	08/17/20
ATC JOB NO:	13252626_G3
CUSTOMER ID:	CT5864
CUSTOMER #:	100770977

SUPPLEMENTAL

SHEET NUMBER: R-604	REVISION: 0
-------------------------------	-----------------------

EXHIBIT 2



AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by

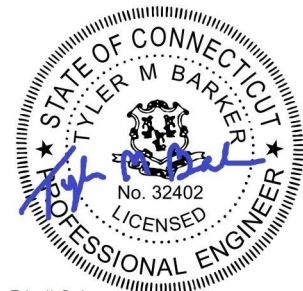
CLSENGINEERING
PLLC

Antenna Mount Analysis Report

ATC Site Name : Columbia Central
ATC Asset Number : 302528
Engineering Number : 13252626
Mount Elevation : 146 ft
Carrier : AT&T Mobility
Carrier Site Name : MRCTB047253
Carrier Site Number : CTL05864
Site Location : 330 Middletown Road
Columbia, CT 06237-1528
41.68986389, -72.32518611
County : Tolland
Date : July 29, 2020
Max Usage : 65%
Result : Pass (Replacement)

Prepared By:
Prathamesh Padwal
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. 8/14/2020

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Supporting Documents 2

Analysis 2

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Structure Usages 3

Standard Conditions 4

Calculations Attached

Introduction

The proposed equipment is to be mounted to the proposed Site Pro 1 RMQP-396 Platform w/ Support Rails. 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.

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Structural Data	Site Photos, dated March 19, 2019 Site Pro 1 assembly drawing, DWG. #PRK-1245, dated September 19, 2018 Site Pro 1 assembly drawing, DWG. #RMQP-3XX, dated July 07, 2015 Site Pro 1 assembly drawing, DWG. #HRK12-HD, dated March 31, 2015
Previous Analyses	Tower SA by ATC, Engineering #OAA713126_C3_02, March 22, 2018
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Codes	TIA-222-H
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Exposure Category	C
Max. Topographic Factor, K_{zt}	1.00
Risk Category	II
Maintenance Live Load	L_M : 500 lb
Spectral Response	S_s : 0.20; S_1 : 0.06; Site Class: D

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 following scope is executed:

- **Replace existing Platform mount with (1) new Site Pro 1 RMQP-396 platform mount.**
- **Install Site Pro 1 HRK12-HD Support Rail kit 3'-0" above the Platform Base. Connect to all mount pipes using SCX-2 crossover plates (Total 9) included in the kit.**
- **Install (1) proposed Site Pro 1 PRK-1245 platform reinforcement kit on proposed platform mount as shown in the following sketches.**
- **All mount pipes are to be installed equidistant from each other as shown in the assembly drawings.**
- **Install existing and proposed antennas such that they are vertically centered on the mount. Install existing and proposed RRUS and TMAs behind the antennas.**

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Antenna Loading

Elevation (ft)		Antennas	
Mount	Rad.	#	Name
146.0	146.0	3	CCI DMP65R-BU6DA
		3	CCI OPA65R-BU6D
		3	Powerwave 7770
		3	Ericsson RRUS 4449 B5/B12
		3	Ericsson RRUS 4478 B14
		3	Ericsson RRUS 8843 B2/B66A
		6	Powerwave LGP 21401
		2	Raycap DC6-48-60-18-8F

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Support Rail Corner	65%	Pass
Mount Pipes	59%	Pass
Corner Plates	42%	Pass
Stand-Off Side Plates	42%	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.

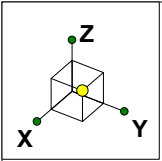
This analysis assumes the following:

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.

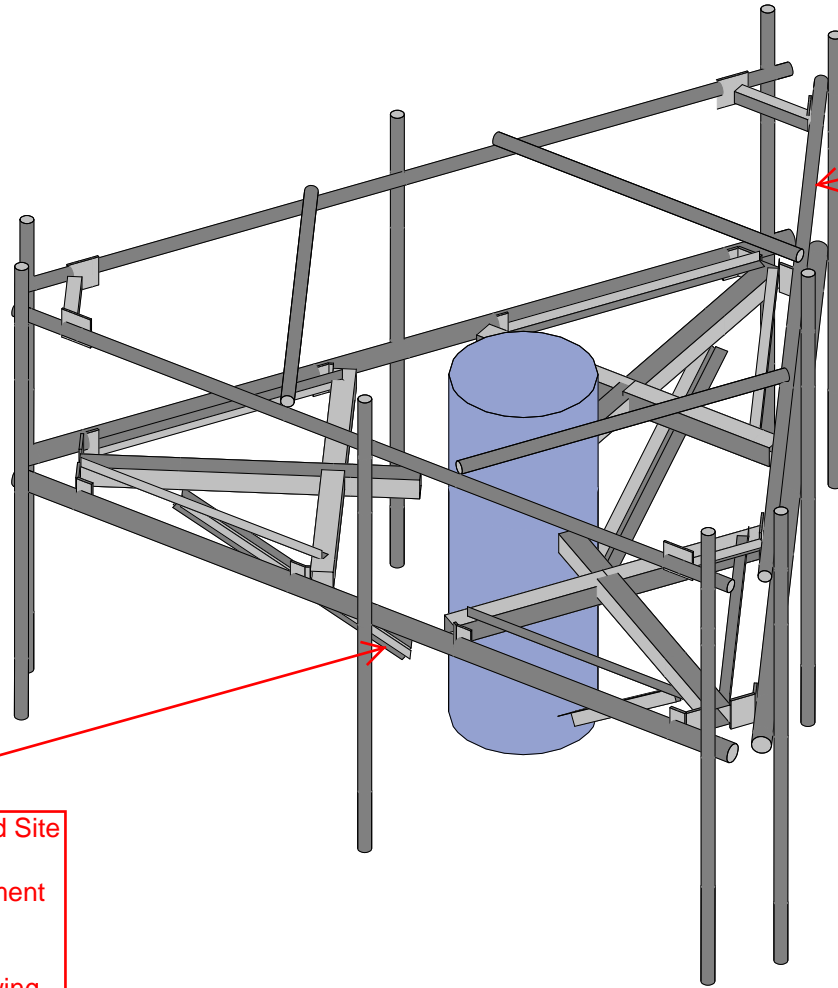
All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of the report. All opinions and conclusions contained herein are subject to revision based upon receipt of new or updated information. All services are provided 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.



Replace existing Platform mount with (1) new Site Pro 1 RMQP-396 platform mount.



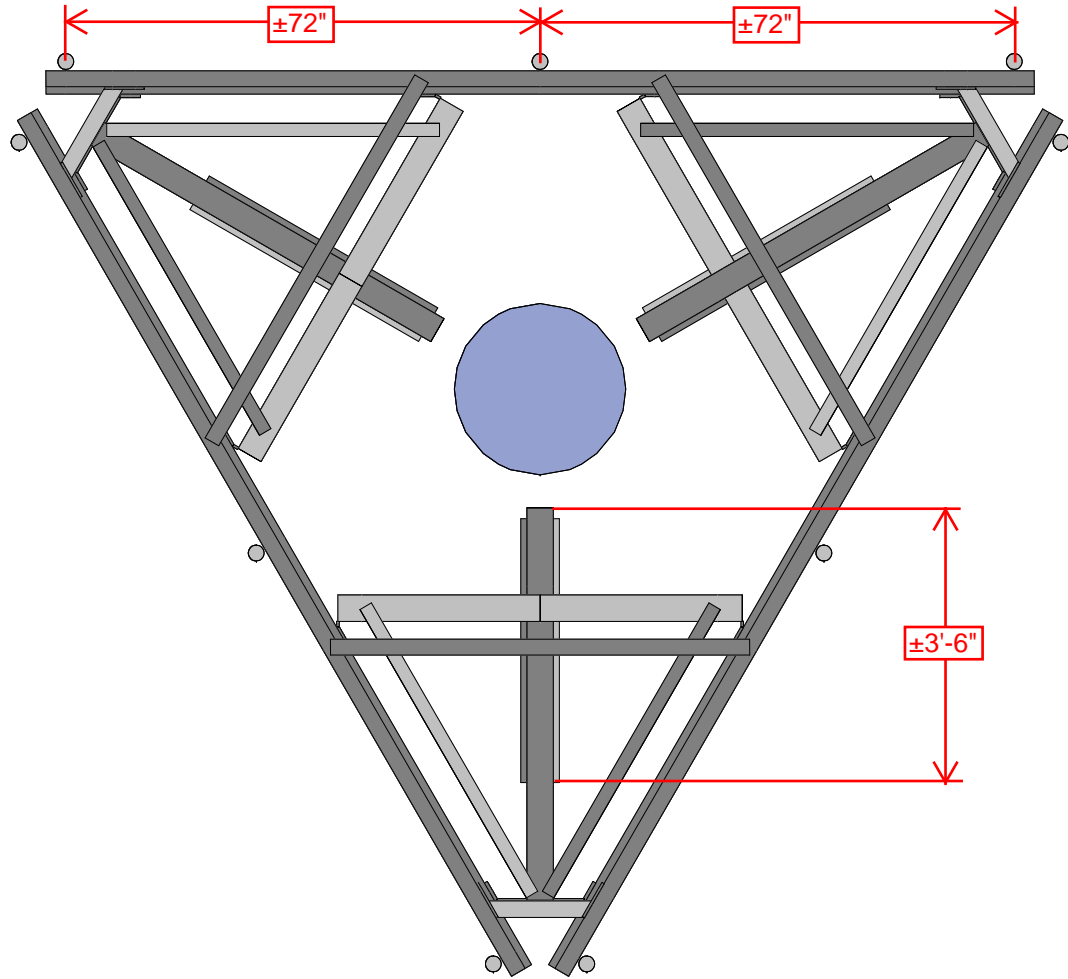
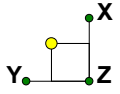
Install Site Pro 1 HRK12-HD Support Rail kit 3'-0" above the Platform Base. Connect to all mount pipes using SCX-2 crossover plates (Total 9) included in the kit.

Install (1) proposed Site Pro 1 PRK-1245 platform reinforcement kit on proposed platform mount as shown in the following sketches.

CLS
PSP
41124-13252626-01-MR

41124-13252626-Columbia Central
Proposed Mount Replacement - Rendered

IN - 1
July 29, 2020 at 12:54 PM
41124-13252626-01-MR.r3d

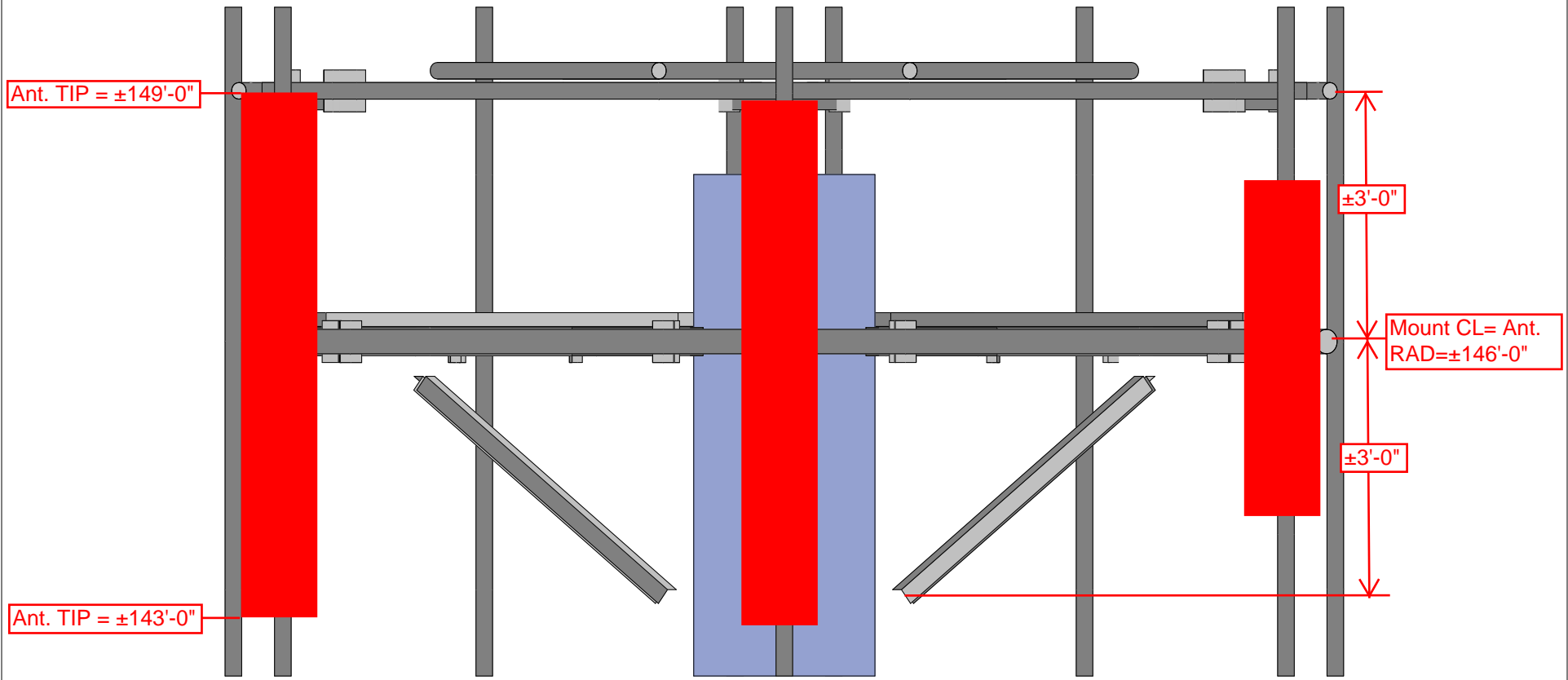
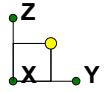


Site Pro 1
PRK-1245
Installation Below
Mount

CLS
PSP
41124-13252626-01-MR

41124-13252626-Columbia Central
Proposed Mount Replacement - Plan View

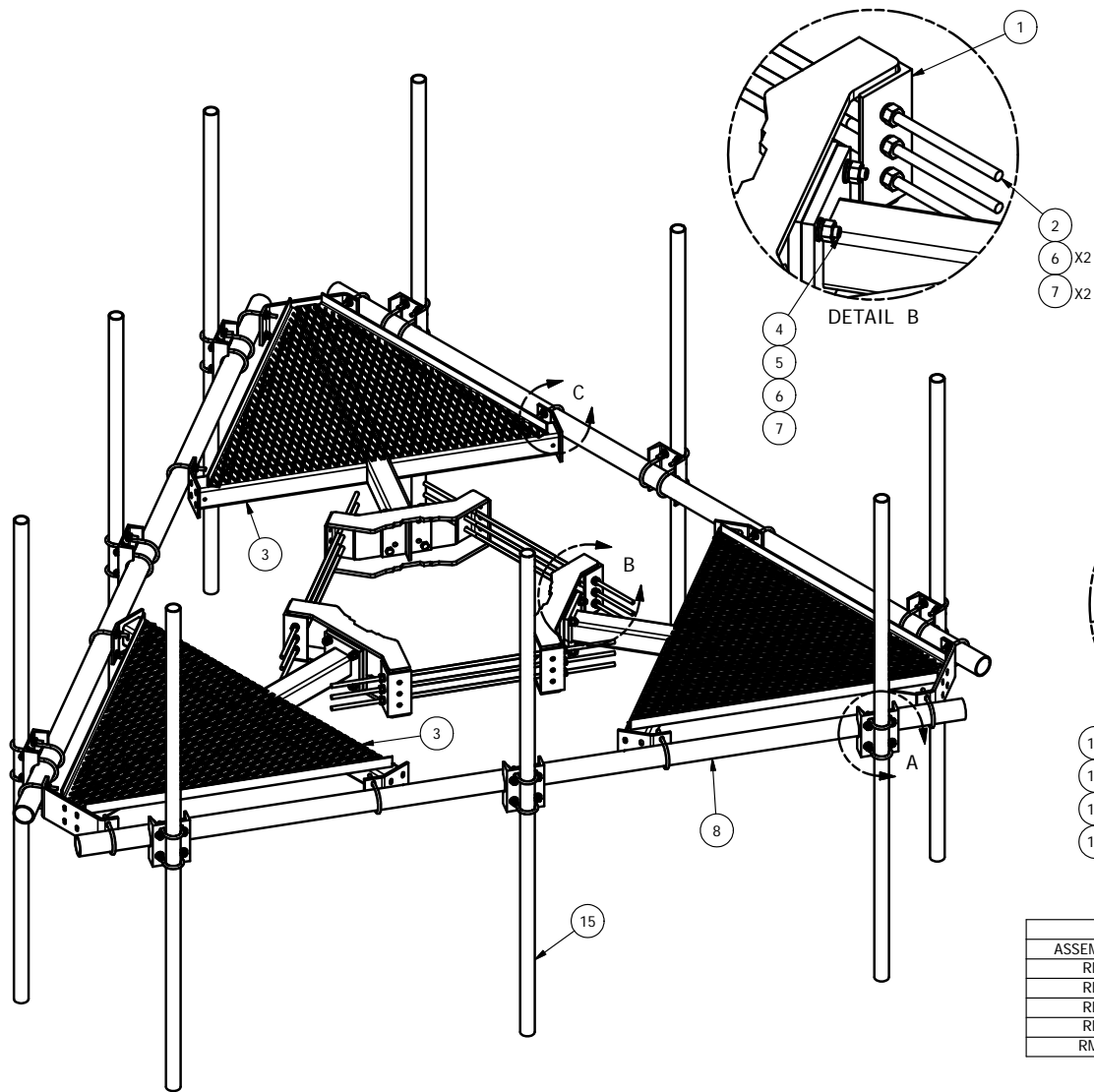
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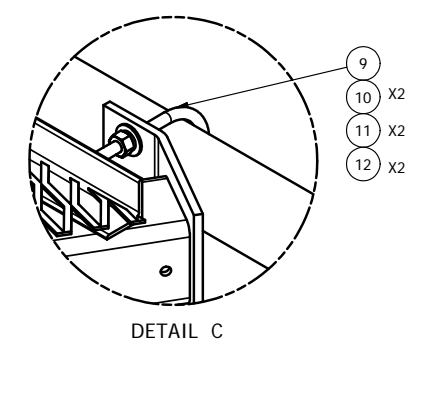
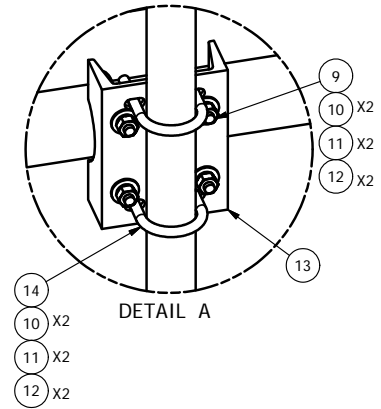
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41124-13252626-01-MR

41124-13252626-Columbia Central
Proposed Mount Replacement - Front View

IN - 3
July 29, 2020 at 12:55 PM
41124-13252626-01-MR.r3d



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	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)		0.40	3.59
2	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)		0.40	3.59
3	3	X-SV196	LOW PROFILE PLATFORM CORNER		212.10	636.31
4	12	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2.75	0.36	4.27
5	12	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.41
6	30	G58LW	5/8" HDG LOCKWASHER		0.03	0.78
7	30	A58NUT	5/8" HDG A325 HEX NUT		0.13	3.90
8	3	P3150	3-1/2" X 150" SCH 40 GALVANIZED PIPE	150.000 in	94.80	284.40
9	30	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.26	7.71
10	96	G12FW	1/2" HDG USS FLATWASHER		0.03	3.27
11	96	G12LW	1/2" HDG LOCKWASHER		0.01	1.33
12	96	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	6.88
13	9	X-SP219	SMALL SUPPORT CROSS PLATE	8.250 in	8.61	77.50
14	18	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.26	4.63
15	9	B	ANTENNA MOUNTING PIPE	C	D	E



2-3/8" O.D. VERTICAL MOUNTING PIPES					
ASSEMBLY NO. "A"	PART NO. "B"	LENGTH, "C"	UNIT WEIGHT, "D"	NET WEIGHT, "E"	TOTAL WEIGHT
RMQP-363	P263	63"	20.18	181.62	1494.37
RMQP-372	P272	72"	23.07	207.63	1520.38
RMQP-384	P284	84"	26.91	242.19	1554.94
RMQP-396	P296	96"	30.76	276.84	1589.59
RMQP-3126	P2126	126"	40.75	366.75	1679.50

A	ADDED 10' 6" ANTENNA MOUNTING PIPES	CEK	7/7/2015
REV	DESCRIPTION OF REVISIONS	CPD	BY DATE
REVISION HISTORY			

TOLERANCE NOTE
TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE: SAWED, SHEARED AND GAS CUT EDGES (± 0.030")
DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES
LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE - ALL OTHER MACHINING (± 0.030")
ALL OTHER ASSEMBLY (± 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
 LOW PROFILE CO-LOCATION PLATFORM
 FOR 9 ANTENNAS WITH 12' 6" FACE WIDTH
 FOR 12" - 38" DIAMETER POLES

DRAWN BY
 CEK 1/19/2012

CPD NO.
 semb

DRAWING USAGE
 CUSTOMER

ENG. APPROVAL
 BMC

CHECKED BY
 1/23/2012

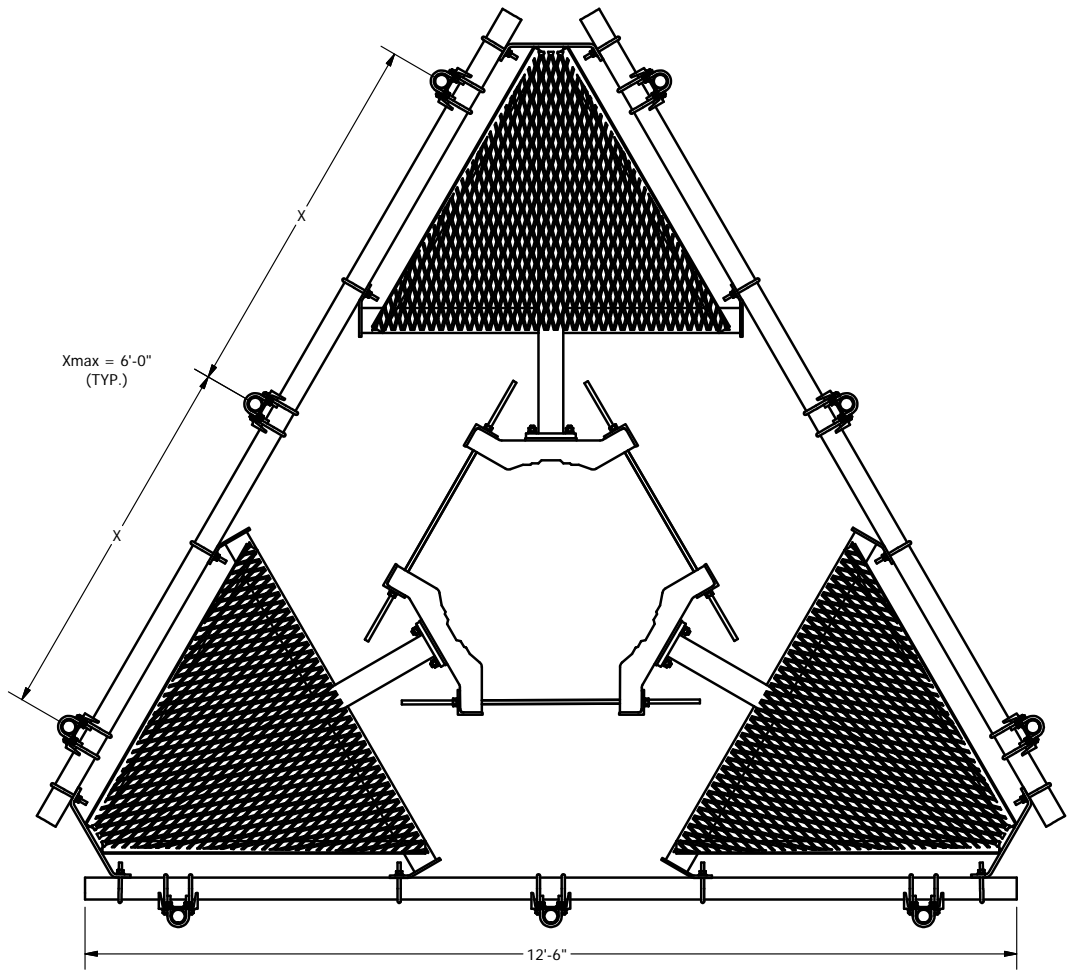
SITE PRO 1
Engineering Support Team: 1-888-753-7446
A valmont COMPANY

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

PART NO. SEE ASSEMBLY NO. "A"

DWG. NO. RMQP-3XX

PAGE 2



TOLERANCE NOTE

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

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DESCRIPTION

**LOW PROFILE CO-LOCATION PLATFORM
 FOR 9 ANTENNAS WITH 12' 6" FACE WIDTH
 FOR 12" - 38" DIAMETER POLES**



Engineering
 Support Team:
 1-888-753-7446

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

A valmont COMPANY

DRAWN BY

CEK 1/19/2012

CPD NO.

semb

DRAWING USAGE

CUSTOMER

ENG. APPROVAL

BMC

1/23/2012

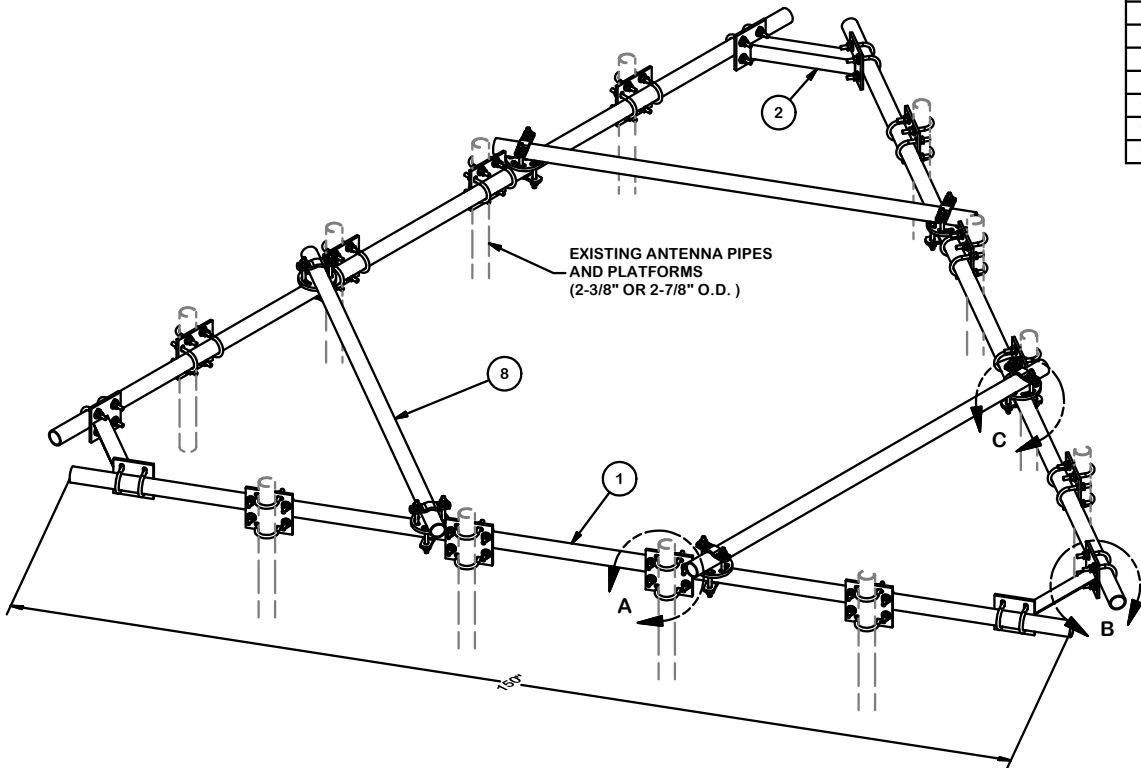
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SEE ASSEMBLY NO. "A"

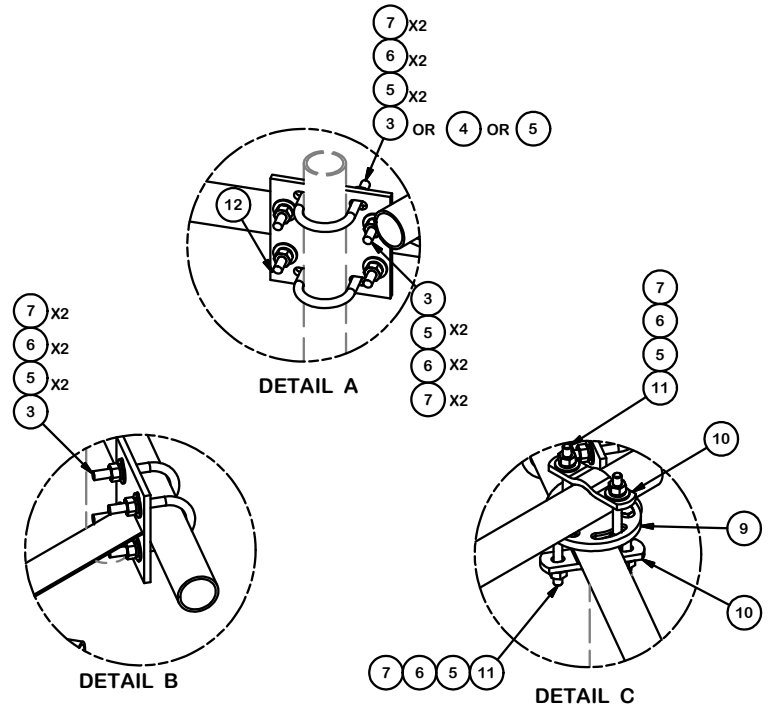
DWG. NO.

RMQP-3XX

A	ADDED 10' 6" ANTENNA MOUNTING PIPES	CEK	7/7/2015
REV	DESCRIPTION OF REVISIONS	CPD	BY DATE
REVISION HISTORY			



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	P2150	2-3/8" OD X 150" SCH 40 GALVANIZED PIPE	150 in	45.77	137.31
2	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
3	60	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.26	15.42
4	24	X-UB1300	1/2" X 3" X 5" X 2" U-BOLT (HDG.)		0.26	6.17
5	144	G12FW	1/2" HDG USS FLATWASHER		0.03	4.91
6	144	G12LW	1/2" HDG LOCKWASHER		0.01	2.00
7	144	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	10.31
8	3	P272	2-3/8" X 72" SCH 40 GALVANIZED PIPE	72 in	23.07	69.20
9	6	X-127594	FLAT DISK CLAMP PLATE 4" CENTERS (GALV.)		2.48	14.90
10	12	X-100064	CLAMP (S) (4" V-CLAMP) GALVANIZED		0.91	10.95
11	24	G1204	1/2" x 4" HDG HEX BOLT GR5 FULL THREAD	4 in	0.27	6.48
12	12	SCX2	CROSSOVER PLATE	7 in	4.80	57.56
TOTAL WT. #						406.61



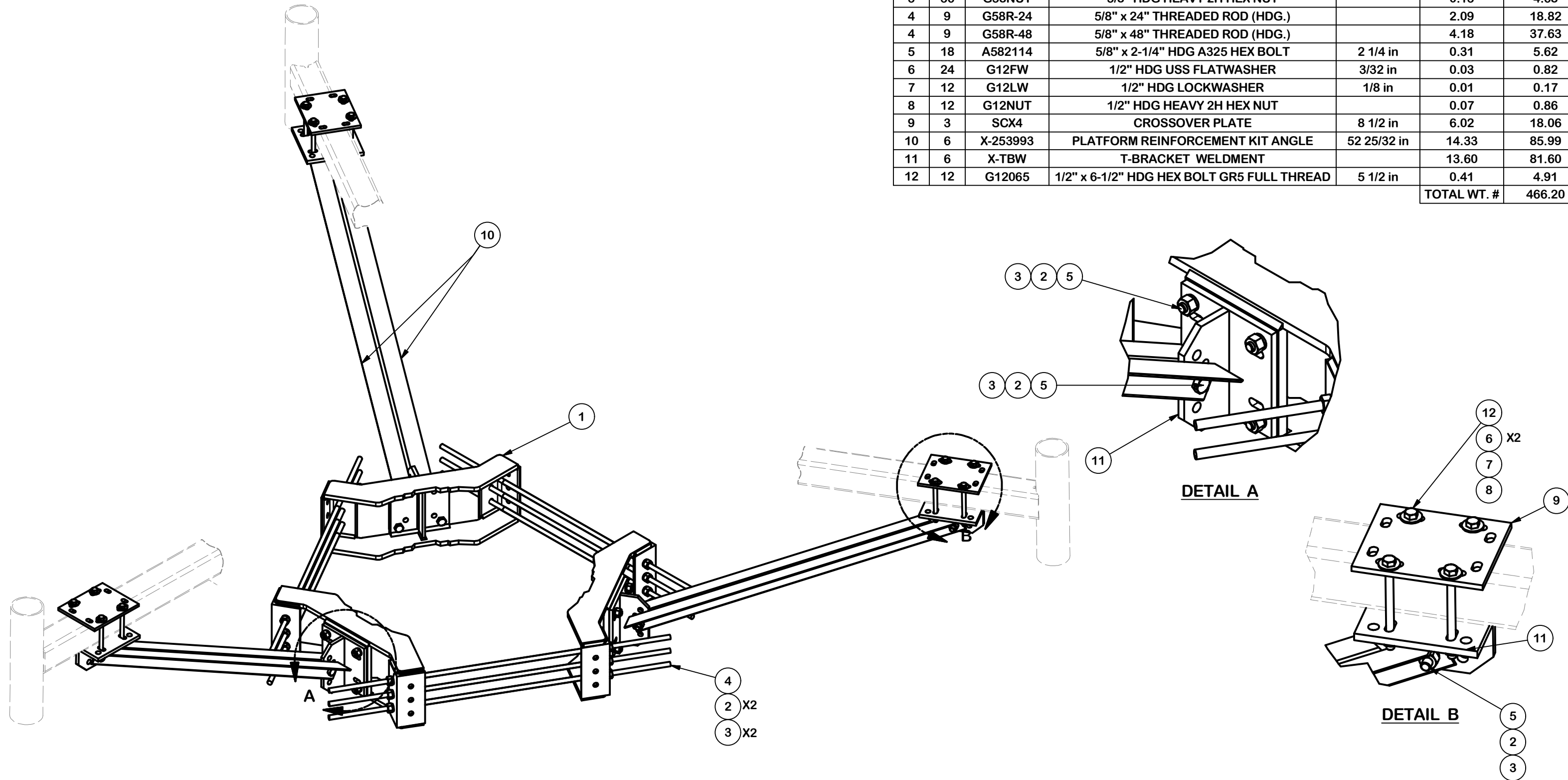
TOLERANCE NOTES
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 ALL OTHER MACHINING ($\pm 0.030"$)
 ALL OTHER ASSEMBLY ($\pm 0.060"$)

PROPRIETARY NOTE:
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DESCRIPTION		HEAVY DUTY HANDRAIL KIT FOR 12' PLATFORMS WITH 2-3/8" OR 2-7/8" ANTENNA PIPES	
CPD NO.	DRAWN BY	ENG. APPROVAL	
	CEK 3/31/2015		
CLASS	SUB	DRAWING USAGE	CHECKED BY
81	01	CUSTOMER	BMC 3/31/2015

 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
PART NO.	HRK12-HD
DWG. NO.	HRK12-HD

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	36	G58LW	5/8" HDG LOCKWASHER		0.03	0.94
3	36	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	4.68
4	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)		2.09	18.82
4	9	G58R-48	5/8" x 48" THREADED ROD (HDG.)		4.18	37.63
5	18	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	5.62
6	24	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	0.82
7	12	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.17
8	12	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	0.86
9	3	SCX4	CROSSOVER PLATE	8 1/2 in	6.02	18.06
10	6	X-253993	PLATFORM REINFORCEMENT KIT ANGLE	52 25/32 in	14.33	85.99
11	6	X-TBW	T-BRACKET WELDMENT		13.60	81.60
12	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	5 1/2 in	0.41	4.91
					TOTAL WT. #	466.20



REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
B	CHANGED X-253992 TO X-TBW		CEK	9/19/2018
A	CHANGED ALL 5/8" BOLTS TO A582114	4488	CEK	10/1/2015

REVISION HISTORY

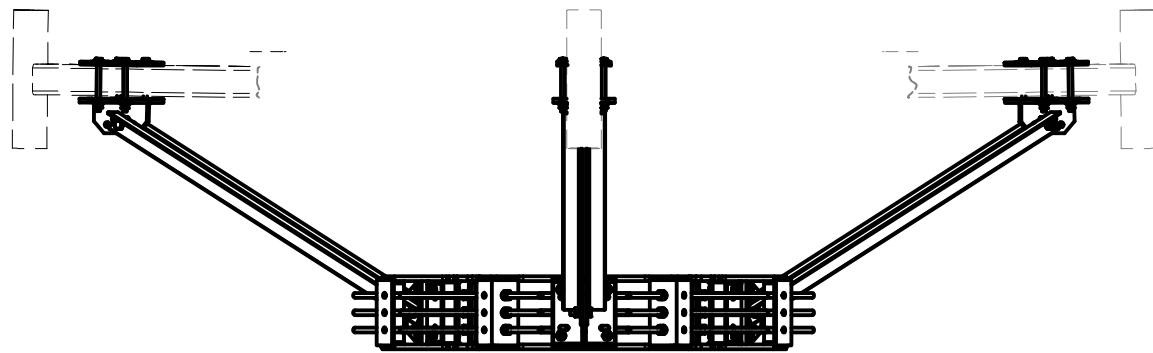
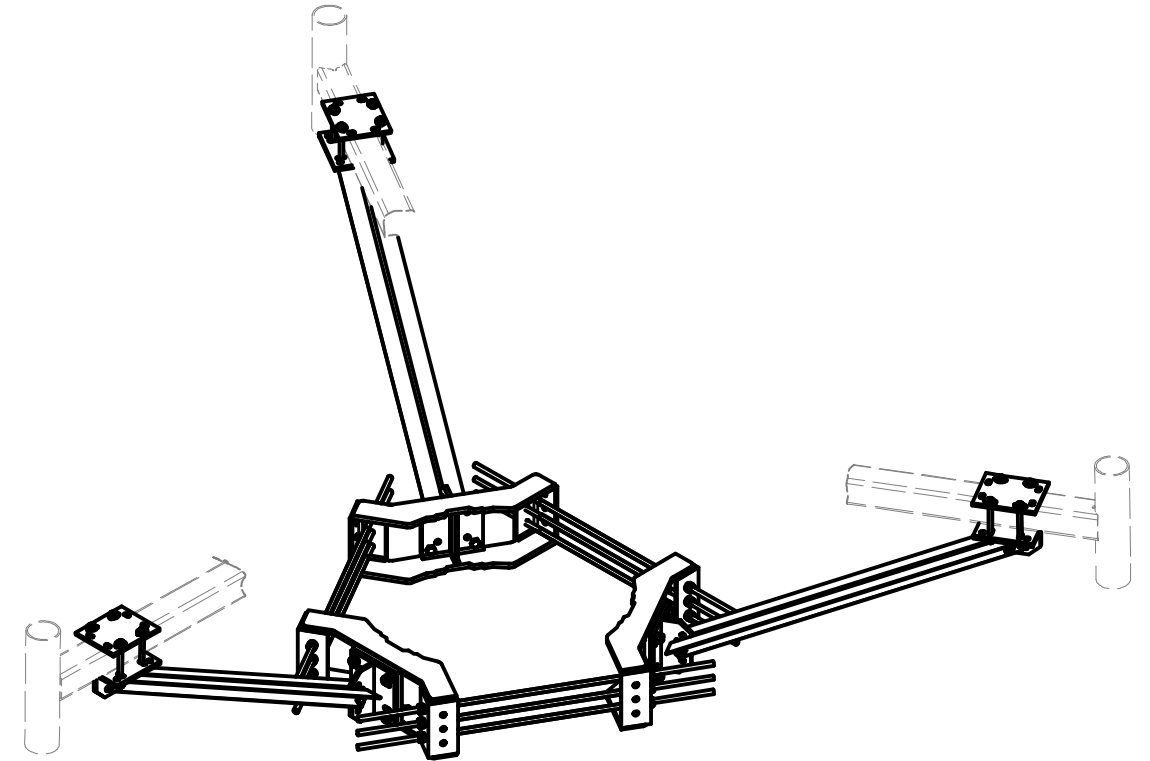
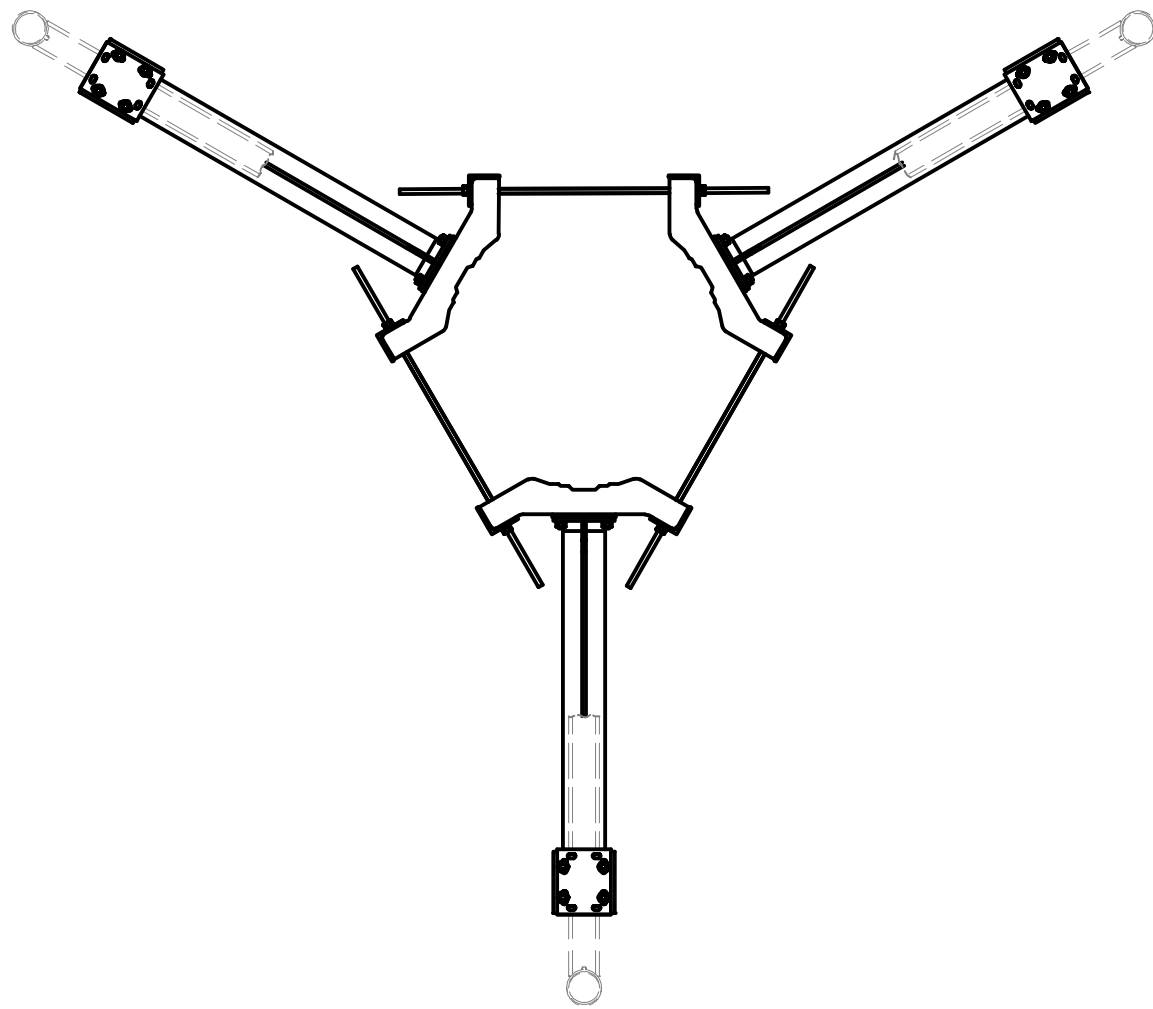
TOLERANCE NOTES

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 ($\pm 0.060"$)

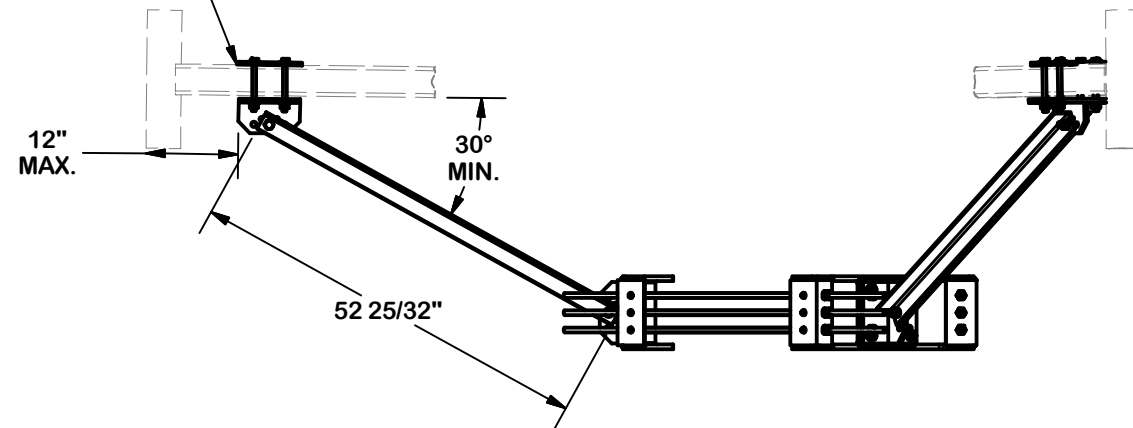
PROPRIETARY NOTE:
 THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION			
PLATFORM REINFORCEMENT ON A 12" TO 45" POLE 4' 6" ANGLE			
CPD NO.	DRAWN BY	ENG. APPROVAL	
4488	CEK 4/11/2014		
CLASS	SUB	DRAWING USAGE	CHECKED BY
81	01	CUSTOMER	BMC 1/18/2016

 A valmont COMPANY	Engineering Support Team: 1-888-753-7446	Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX
	PART NO. <h2 style="text-align: center;">PRK-1245</h2>	DWG. NO. <h2 style="text-align: center;">PRK-1245</h2>



FITS UP TO 4" ROUND OR SQUARE TUBES



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
**PLATFORM REINFORCEMENT
 ON A 12" TO 45" POLE
 4' 6" ANGLE**

CPD NO. 4488	DRAWN BY CEK 4/11/2014	ENG. APPROVAL
CLASS 81	SUB 01	DRAWING USAGE CUSTOMER
CHECKED BY BMC 1/18/2016		

SITE PRO 1
 A valmont COMPANY

Engineering Support Team:
 1-888-753-7446

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

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
B	CHANGED X-253992 TO X-TBW		CEK	9/19/2018
A	CHANGED ALL 5/8" BOLTS TO A582114	4488	CEK	10/1/2015

REVISION HISTORY

PART NO. PRK-1245	PAGE 2 OF 2
DWG. NO. PRK-1245	

Wind & Ice Loading			
Nominal Mount Elevation (AGL), z_{mount}	146 ft	K_a	0.90
Nominal Rad Elevation (AGL), z_{rad}	146 ft	K_d	0.95
Elevation AMSL (ft)	632 ft	K_e	0.98
TIA Standard	H	K_z	1.37
Basic Wind Speed, V_{ult} (bare)	120 mph	K_{zt}	1.00
Basic Wind Speed, V (ice)	50 mph	K_s	1.00
Design Ice Thickness, t_i	1 in	t_{iz}	1.16 in
Exposure Category	C	G_h	1.00
Risk Category	II	q_z (bare)	46.9 psf
Seismic Response Coeff., C_s	0.00	q_z (ice)	8.1 psf

Live Loading	
At Mount Pipes, L_M	500 lb
Joint Labels Considered	m1
	m2
	m3

Member Distributed Loading				
Section Set Label	Shape Label	F_A (lb/ft)		Ice Wt. (lb/ft)
		Bare	Ice	
Offset End Plate	0.5 x 6 Plate	42.22	6.11	7.51
Offset Side Plate	0.38 X 6 Plate	42.22	6.11	7.40
Offset Tube	HSS4X4X3	28.15	2.07	8.86
Platform Horizontal Pipe	PIPE_3.0	14.78	4.27	6.61
Grating Angle	L2x2x3	14.07	1.88	5.14
Mount Pipe	PIPE_2.0	10.03	3.44	5.01
Support Rail	PIPE_2.0	10.03	3.44	5.01
SR Conn Plate	PL6x0.375	42.22	6.11	7.40
SR Conn Angle	L2.5x2.5x4	17.59	1.93	6.04
SR Bracing	PIPE_2.0	10.03	3.44	5.01
PRK-1245	L2.5x2.5x3	17.59	1.93	6.04

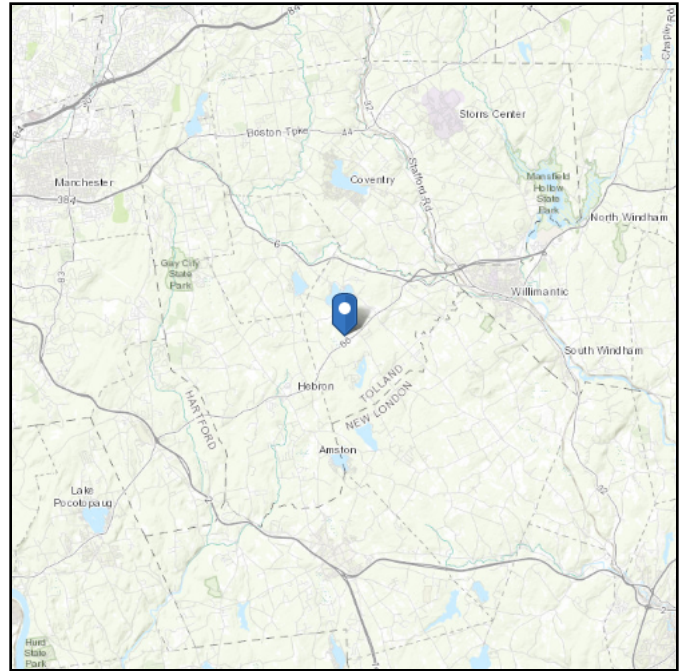
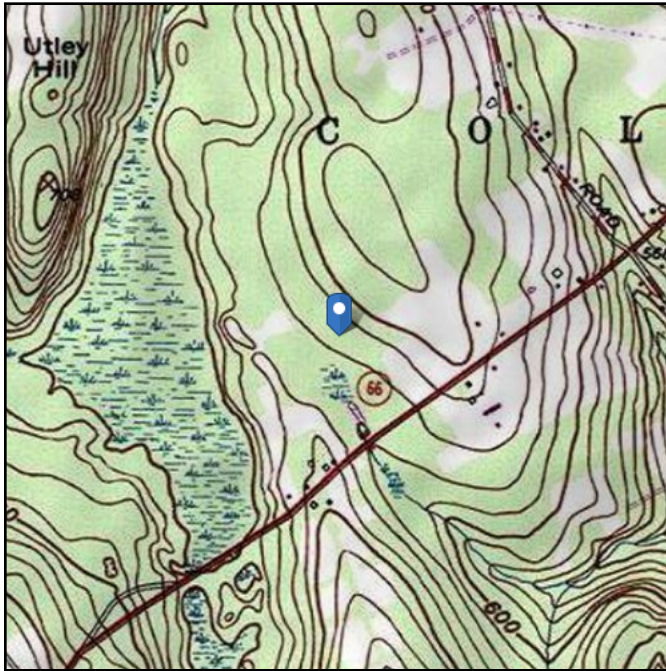
Appurtenances																														
Appurtenance Model	Status	Azimuth Offset ($^{\circ}$, \cup)	Rad Elev. Override (ft)	Swap Width & Depth	Area Factor		Qty. per Azimuth			Total Qty. Override	0° Joints		120° Joints		240° Joints		Height (in)	Width (in)	Depth (in)	Weight (Bare) (lb)	Shape	Weight 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		
DMP65R-BU6D				<input type="checkbox"/>			1	1	1		a5	a6	b1	b2	g5	g6	71.2	20.7	7.7	89.3	Generic	171.64	11.93	4.48	13.67	5.97	503.71	189.15	100.21	43.73
OPA65R-BU6D				<input type="checkbox"/>			1		1		a3	a4			g3	g4	71.2	21	7.8	63.5	Generic	174.12	12.22	4.54	13.98	6.05	515.95	191.69	102.50	44.34
7770				<input type="checkbox"/>			1		1		a1	a2			g1	g2	55	11	5	35	Generic	75.72	3.42	1.56	4.30	2.37	144.40	65.87	31.53	17.39
LGP 21401				<input checked="" type="checkbox"/>	0		2	2	2		t1		t2		t3		14.4	9.2	2.6	14.1	Flat	19.56	0.00	1.10	0.00	1.61	0.00	46.61	0.00	11.77
RRUS 4478 B14				<input checked="" type="checkbox"/>	0.5		1		1		ar1				gr1		16.5	13.4	7.7	59.9	Flat	36.85	0.53	1.84	0.79	2.47	22.35	77.79	5.76	18.07
RRUS 4449 B5/B12				<input checked="" type="checkbox"/>	0.5	0.5	1	1	1		ar2		br1		gr2		17.9	13.19	9.44	71	Flat	42.95	0.70	0.98	0.99	1.31	29.73	41.54	7.26	9.58
RRUS 8843 B2/B66A				<input checked="" type="checkbox"/>	0.5	0.5	1	1	1		ar3		br2		gr3		14.9	13.2	10.9	72	Flat	40.84	0.68	0.82	0.95	1.11	28.57	34.60	6.95	8.16
DC6-48-60-18-8F				<input type="checkbox"/>			1				rc1						24	11	11	18.9	Round	41.11	1.28	1.28	1.70	1.70	54.18	54.18	12.49	12.49
DC6-48-60-18-8F				<input type="checkbox"/>				1					rc2				24	11	11	18.9	Round	41.11	1.28	1.28	1.70	1.70	54.18	54.18	12.49	12.49
OPA65R-BU6D		20		<input type="checkbox"/>				1					b3	b4			71.2	21	7.8	63.5	Generic	174.12	12.22	4.54	13.98	6.05	515.95	191.69	102.50	44.34
7770		20		<input type="checkbox"/>				1					b5	b6			55	11	5	35	Generic	75.72	3.42	1.56	4.30	2.37	144.40	65.87	31.53	17.39
RRUS 4478 B14		20		<input checked="" type="checkbox"/>	0.5			1					br3				16.5	13.4	7.7	59.9	Flat	36.85	0.53	1.84	0.79	2.47	22.35	77.79	5.76	18.07

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 631.9 ft (NAVD 88)
Latitude: 41.689864
Longitude: -72.325186



Wind

Results:

Wind Speed:	120 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	92 Vmph
100-year MRI	99 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1-CC.2-4

Date Accessed: Mon Jul 27 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 7-16 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 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

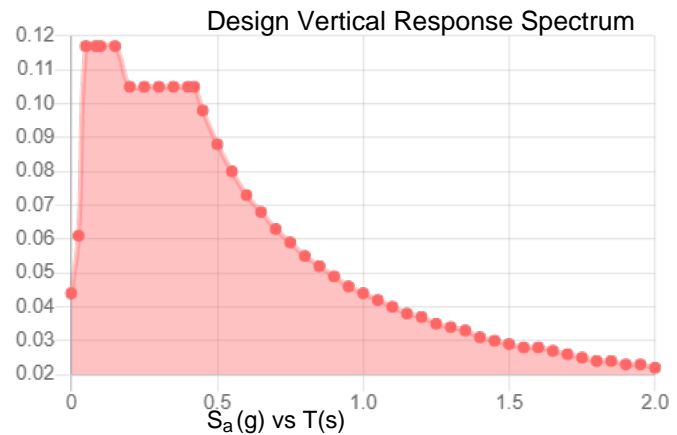
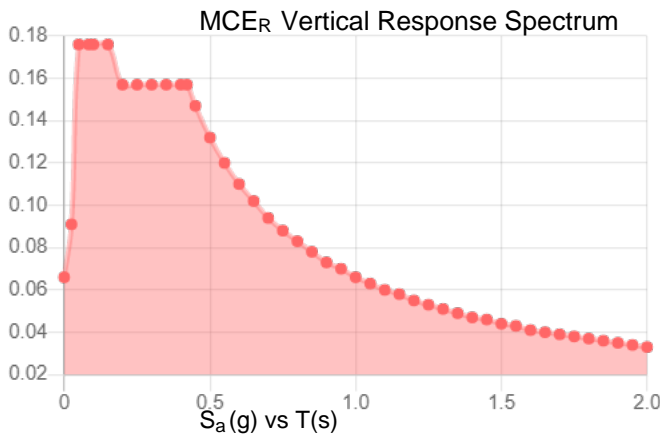
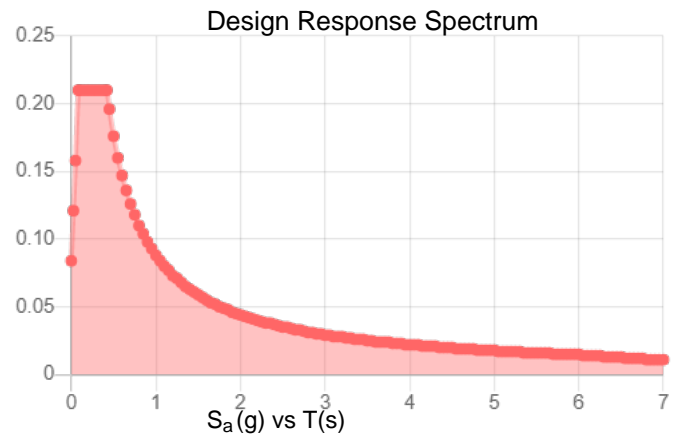
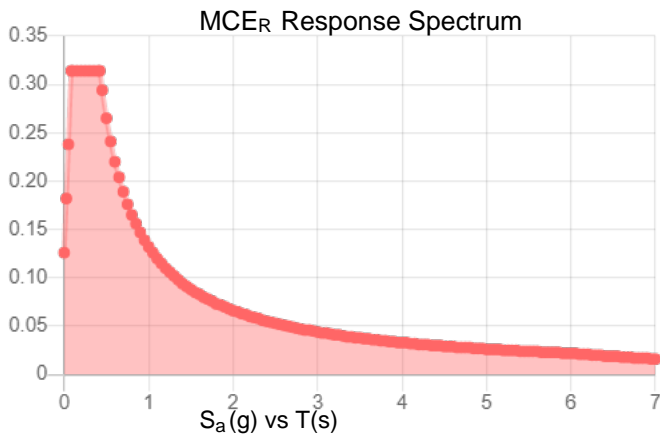
Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

Site Soil Class: D - Default (see Section 11.4.3)

Results:

S_s :	0.196	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.107
F_v :	2.4	PGA _M :	0.17
S_{MS} :	0.314	F_{PGA} :	1.585
S_{M1} :	0.132	I_e :	1
S_{DS} :	0.21	C_v :	0.7

Seismic Design Category B



Data Accessed: Mon Jul 27 2020
Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness: 1.00 in.
Concurrent Temperature: 15 F
Gust Speed: 50 mph

Data Source: Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

Date Accessed: Mon Jul 27 2020

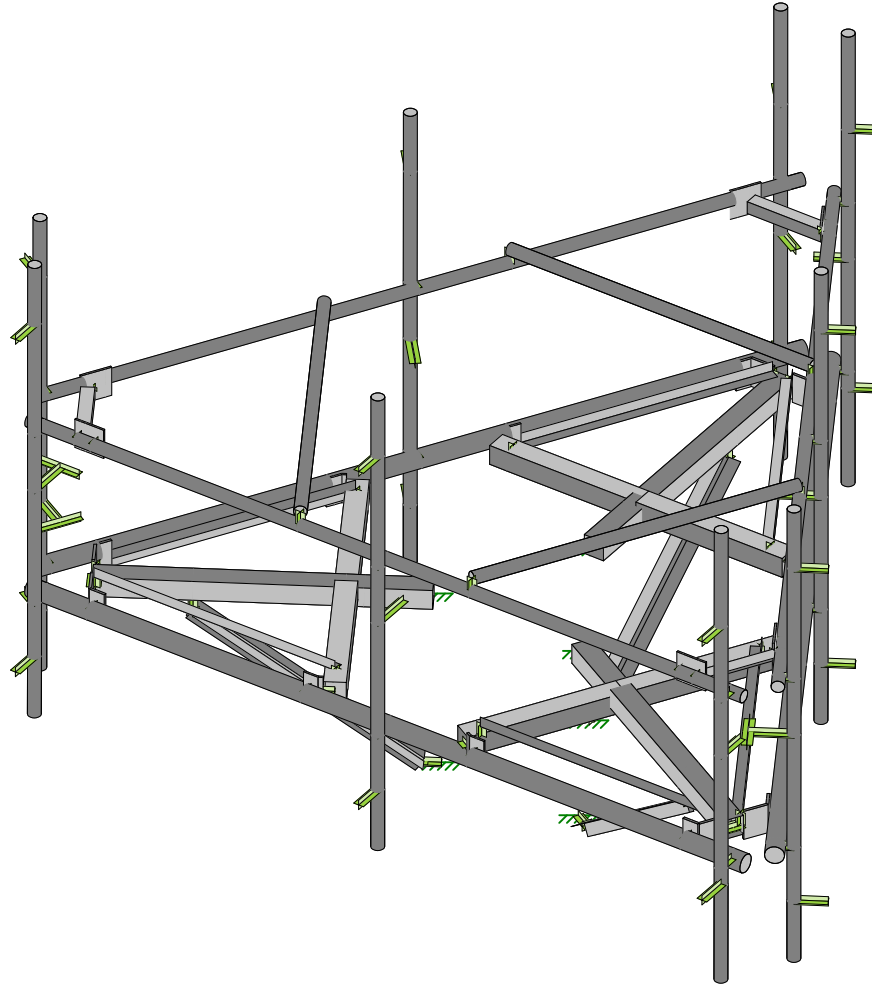
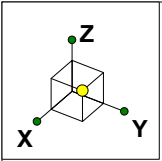
Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-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.

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In using this Tool, you expressly assume all risks associated with your use. Under no circumstances shall ASCE or its officers, directors, employees, members, affiliates, or agents be liable to you or any other person for any direct, indirect, special, incidental, or consequential damages arising from or related to your use of, or reliance on, the Tool or any information obtained therein. To the fullest extent permitted by law, you agree to release and hold harmless ASCE from any and all liability of any nature arising out of or resulting from any use of data provided by the ASCE 7 Hazard Tool.

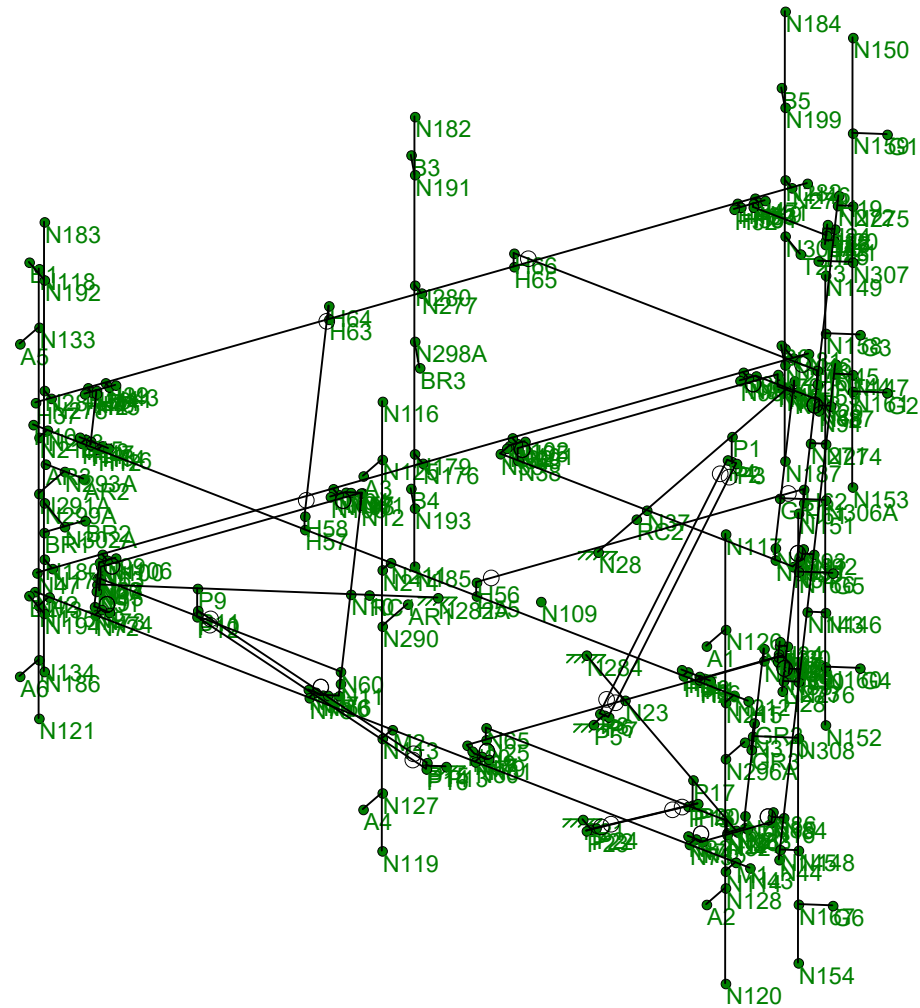
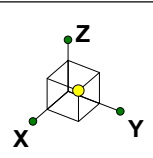


Envelope Only Solution

CLS
PSP
41124-13252626-01-MR

41124-13252626-Columbia Central
Rendered

SK - 1
July 29, 2020 at 12:48 PM
41124-13252626-01-MR.r3d

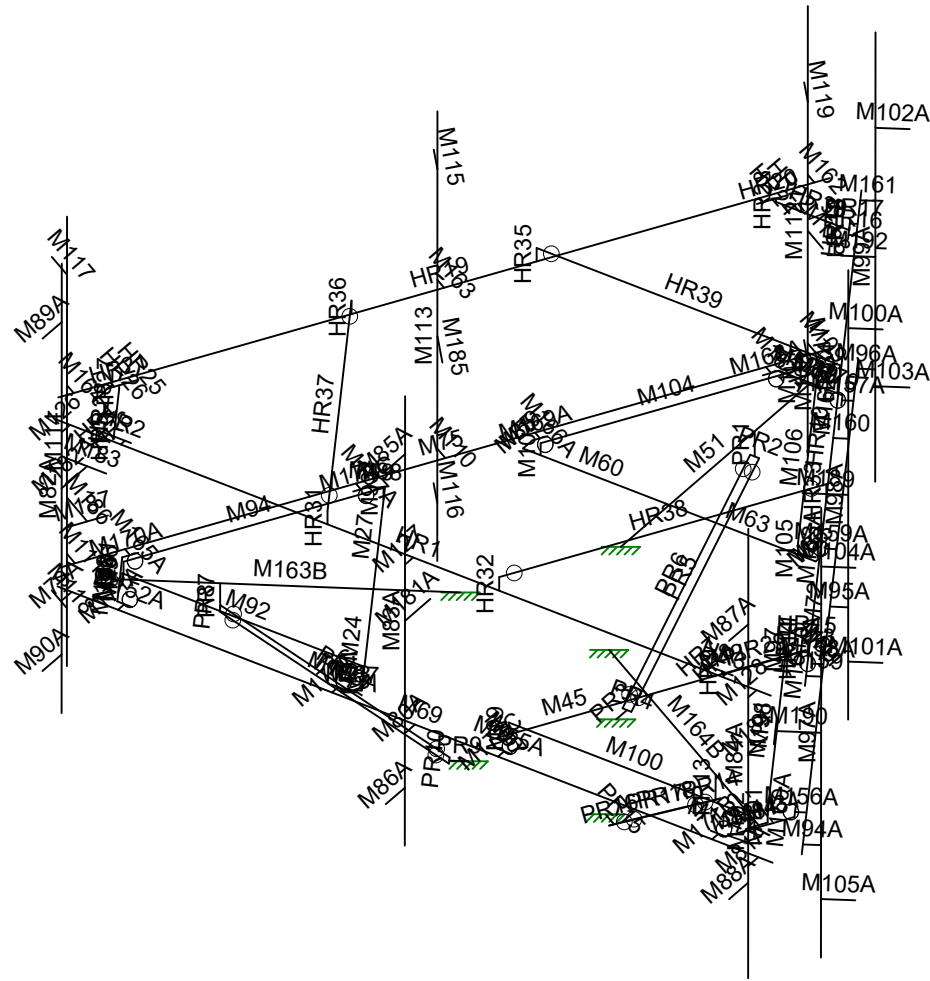
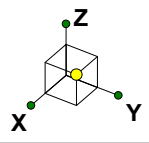


Envelope Only Solution

CLS
PSP
41124-13252626-01-MR

41124-13252626-Columbia Central
Joint Labels

SK - 2
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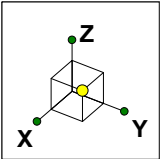


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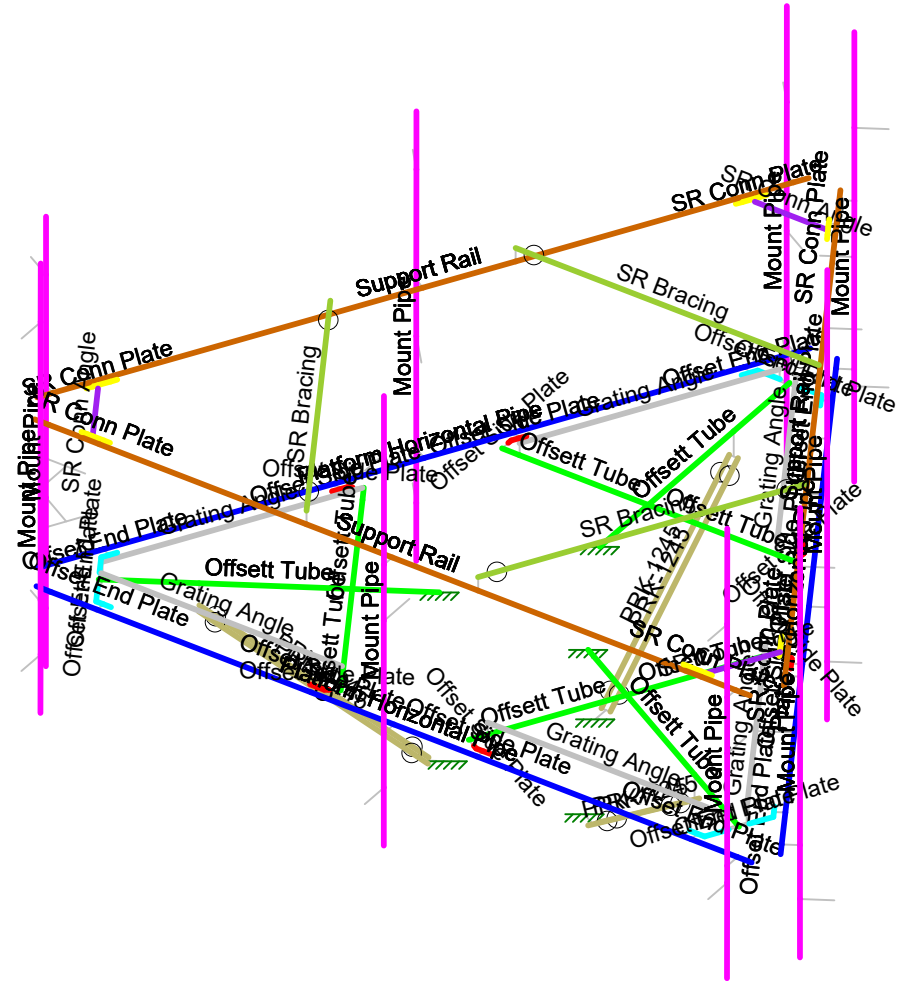
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PSP
41124-13252626-01-MR

41124-13252626-Columbia Central
Member Labels

SK - 3
July 29, 2020 at 12:48 PM
41124-13252626-01-MR.r3d



- Section Sets
- Platform Horizontal Pipe
 - Offset Tube
 - Offset Side Plate
 - Grating Angle
 - Mount Pipe
 - Offset End Plate
 - Support Rail
 - SR Conn Plate
 - SR Conn Angle
 - PRK-1245
 - SR Bracing
 - RIGID

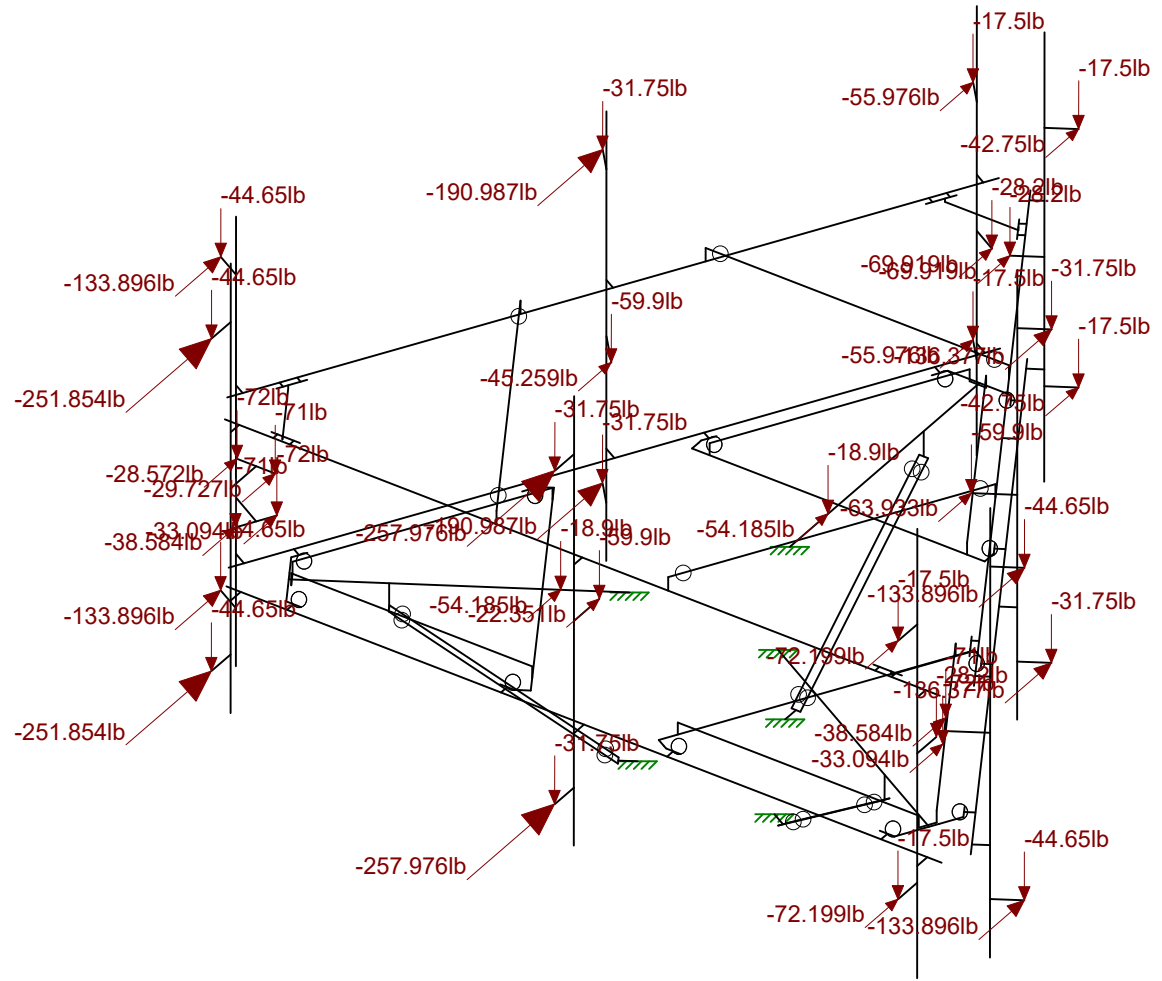
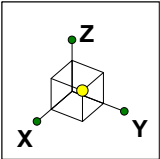


Envelope Only Solution

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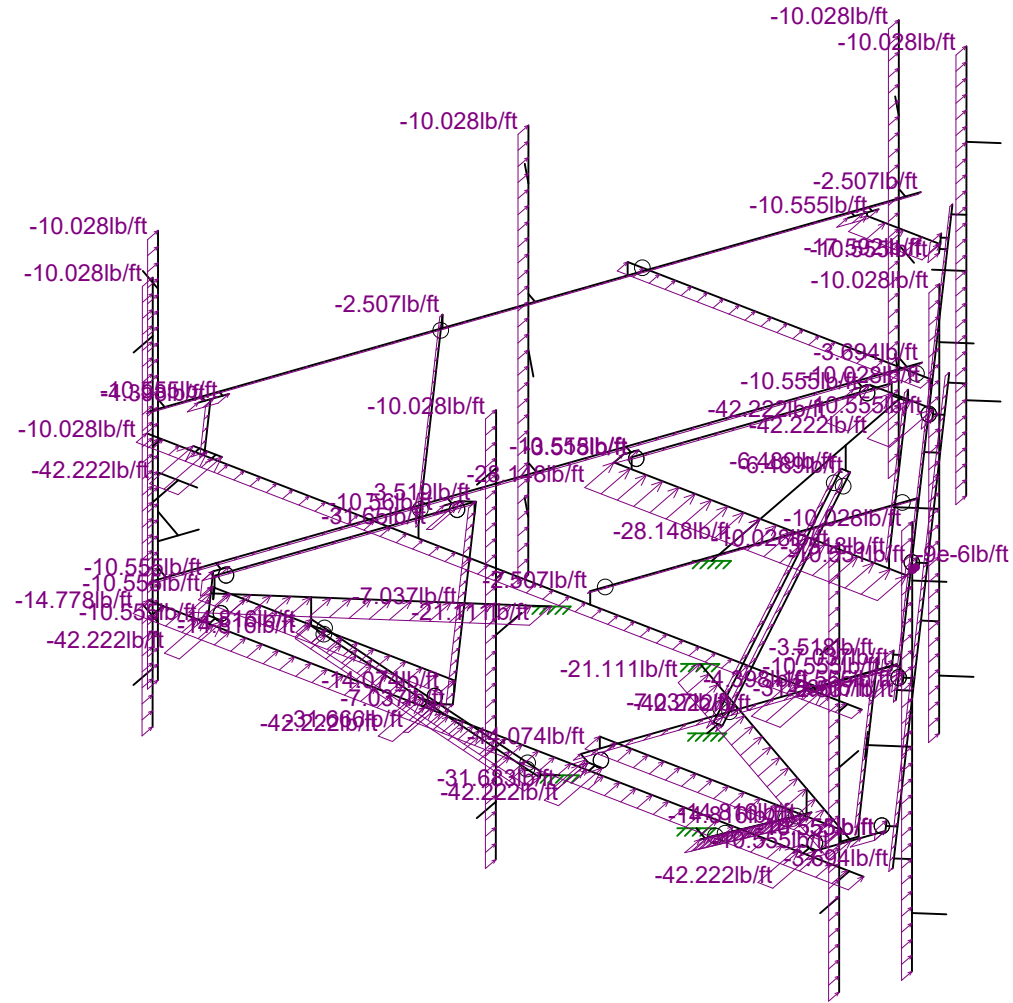
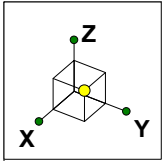
41124-13252626-Columbia Central
Section Sets

SK - 4
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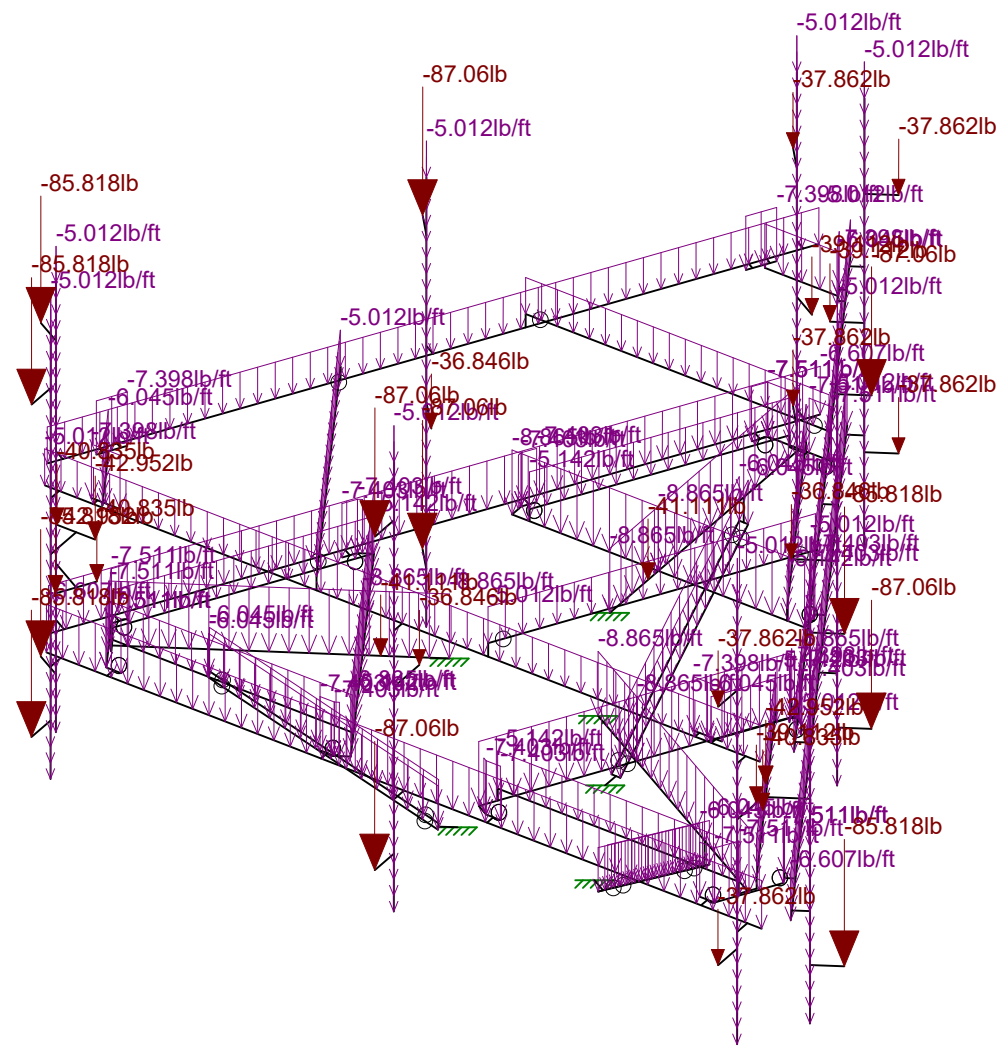
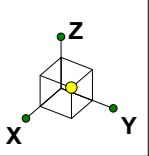
Loads: LC 1, DISPLAY (1.0D + 1.0W_0°)
Envelope Only Solution

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PSP		July 29, 2020 at 12:49 PM
41124-13252626-01-MR		41124-13252626-01-MR.r3d



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

CLS	41124-13252626-Columbia Central Distributed Load - Normal Wind	SK - 6
PSP		July 29, 2020 at 12:49 PM
41124-13252626-01-MR		41124-13252626-01-MR.r3d



Loads: BLC 2, Ice Dead
Envelope Only Solution

CLS

PSP

41124-13252626-01-MR

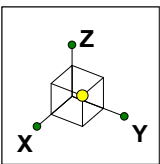
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Ice Dead Loads

SK - 7

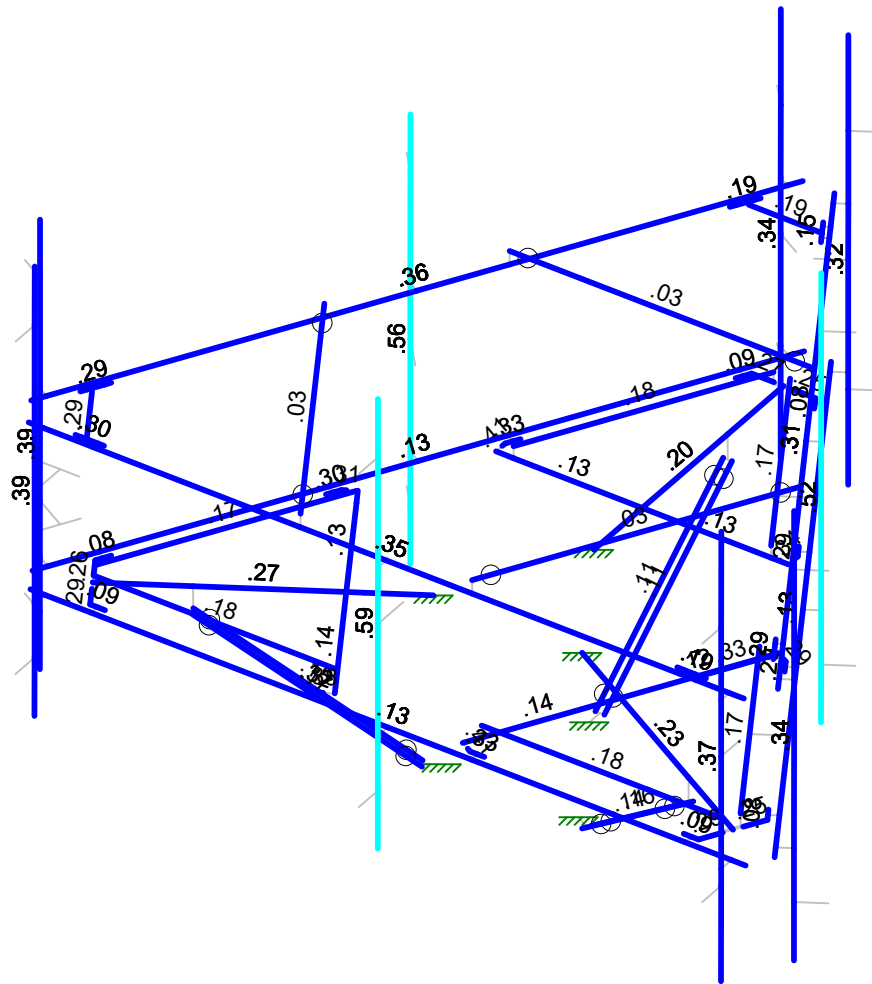
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41124-13252626-01-MR.r3d



Code Check (Env)

- No Calc
- > 1.0
- .90-1.0
- .75-90
- .50-75
- 0-.50

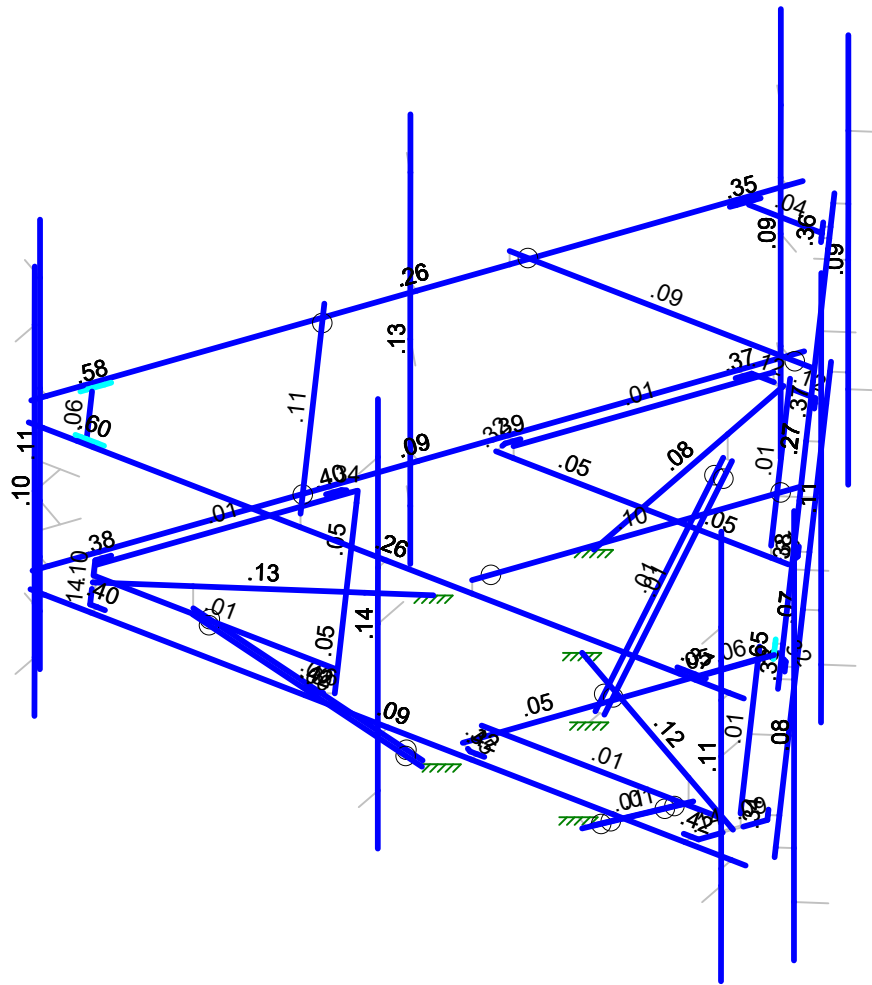
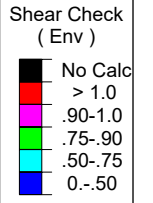
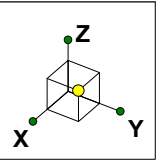


Member Code Checks Displayed (Enveloped)
Envelope Only Solution

CLS
PSP
41124-13252626-01-MR

41124-13252626-Columbia Central Envelope Member Unity Check Results - Bending
--

SK - 8 July 29, 2020 at 12:50 PM 41124-13252626-01-MR.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

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PSP
41124-13252626-01-MR

41124-13252626-Columbia Central
Envelope Member Check Results - Shear

SK - 9
July 29, 2020 at 12:50 PM
41124-13252626-01-MR.r3d

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
1	Dead	DL			-1	32			
2	Ice Dead	RL				32		72	
4	Structure Wind 0°	None						70	
5	Structure Wind 30°	None						112	
6	Structure Wind 45°	None						144	
7	Structure Wind 60°	None						140	
8	Structure Wind 90°	None						57	
9	Structure Wind 120°	None						140	
10	Structure Wind 135°	None						144	
11	Structure Wind 150°	None						112	
12	Structure Wind w/ Ice ...	None						70	
13	Structure Wind w/ Ice ...	None						116	
14	Structure Wind w/ Ice ...	None						144	
15	Structure Wind w/ Ice ...	None						140	
16	Structure Wind w/ Ice ...	None						58	
17	Structure Wind w/ Ice ...	None						140	
18	Structure Wind w/ Ice ...	None						144	
19	Structure Wind w/ Ice ...	None						116	
20	Antenna Wind 0°	None				31			
21	Antenna Wind 30°	None				64			
22	Antenna Wind 45°	None				64			
23	Antenna Wind 60°	None				62			
24	Antenna Wind 90°	None				32			
25	Antenna Wind 120°	None				62			
26	Antenna Wind 135°	None				64			
27	Antenna Wind 150°	None				64			
28	Antenna Wind w/ Ice 0°	None				31			
29	Antenna Wind w/ Ice ...	None				64			
30	Antenna Wind w/ Ice ...	None				64			
31	Antenna Wind w/ Ice ...	None				62			
32	Antenna Wind w/ Ice ...	None				32			
33	Antenna Wind w/ Ice ...	None				62			
34	Antenna Wind w/ Ice ...	None				64			
35	Antenna Wind w/ Ice ...	None				64			
36	Seismic X	ELX							
37	Seismic Y	ELY							
38	Seismic Z	ELZ							
39	Maintenance Live 50...	OL1				1			
40	Maintenance Live 50...	OL2				1			
41	Maintenance Live 50...	OL3				1			

Load Combinations

	Description	Sol..	PD..	SR..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..	BLC Fact..
1	DISPLAY ...	Yes	Y		DL	1	20	1							
2	1.4D	Yes	Y		DL	1.4									
3	1.2D + 1.0...	Yes	Y		DL	1.2	4	1	20	1					
4	1.2D + 1.0...	Yes	Y		DL	1.2	5	1	21	1					
5	1.2D + 1.0...	Yes	Y		DL	1.2	6	1	22	1					
6	1.2D + 1.0...	Yes	Y		DL	1.2	7	1	23	1					
7	1.2D + 1.0...	Yes	Y		DL	1.2	8	1	24	1					
8	1.2D + 1.0...	Yes	Y		DL	1.2	9	1	25	1					
9	1.2D + 1.0...	Yes	Y		DL	1.2	10	1	26	1					
10	1.2D + 1.0...	Yes	Y		DL	1.2	11	1	27	1					
11	1.2D + 1.0...	Yes	Y		DL	1.2	4	-1	20	-1					

Load Combinations (Continued)

	Description	Sol.	PD	SR	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.
12	1.2D + 1.0..	Yes	Y		DL 1.2	5	-1	21	-1				
13	1.2D + 1.0..	Yes	Y		DL 1.2	6	-1	22	-1				
14	1.2D + 1.0..	Yes	Y		DL 1.2	7	-1	23	-1				
15	1.2D + 1.0..	Yes	Y		DL 1.2	8	-1	24	-1				
16	1.2D + 1.0..	Yes	Y		DL 1.2	9	-1	25	-1				
17	1.2D + 1.0..	Yes	Y		DL 1.2	10	-1	26	-1				
18	1.2D + 1.0..	Yes	Y		DL 1.2	11	-1	27	-1				
19	1.2D + 1.0..	Yes	Y		DL 1.2	12	1	28	1	RL	1		
20	1.2D + 1.0..	Yes	Y		DL 1.2	13	1	29	1	RL	1		
21	1.2D + 1.0..	Yes	Y		DL 1.2	14	1	30	1	RL	1		
22	1.2D + 1.0..	Yes	Y		DL 1.2	15	1	31	1	RL	1		
23	1.2D + 1.0..	Yes	Y		DL 1.2	16	1	32	1	RL	1		
24	1.2D + 1.0..	Yes	Y		DL 1.2	17	1	33	1	RL	1		
25	1.2D + 1.0..	Yes	Y		DL 1.2	18	1	34	1	RL	1		
26	1.2D + 1.0..	Yes	Y		DL 1.2	19	1	35	1	RL	1		
27	1.2D + 1.0..	Yes	Y		DL 1.2	12	-1	28	-1	RL	1		
28	1.2D + 1.0..	Yes	Y		DL 1.2	13	-1	29	-1	RL	1		
29	1.2D + 1.0..	Yes	Y		DL 1.2	14	-1	30	-1	RL	1		
30	1.2D + 1.0..	Yes	Y		DL 1.2	15	-1	31	-1	RL	1		
31	1.2D + 1.0..	Yes	Y		DL 1.2	16	-1	32	-1	RL	1		
32	1.2D + 1.0..	Yes	Y		DL 1.2	17	-1	33	-1	RL	1		
33	1.2D + 1.0..	Yes	Y		DL 1.2	18	-1	34	-1	RL	1		
34	1.2D + 1.0..	Yes	Y		DL 1.2	19	-1	35	-1	RL	1		
35	1.2D + 1.0..	Yes	Y		DL 1.2	ELX	-1	ELY					
36	1.2D + 1.0..	Yes	Y		DL 1.2	ELX	-.866	ELY	.5				
37	1.2D + 1.0..	Yes	Y		DL 1.2	ELX	-.707	ELY	.707				
38	1.2D + 1.0..	Yes	Y		DL 1.2	ELX	-.5	ELY	.866				
39	1.2D + 1.0..	Yes	Y		DL 1.2	ELX		ELY	1				
40	1.2D + 1.0..	Yes	Y		DL 1.2	ELX	.5	ELY	.866				
41	1.2D + 1.0..	Yes	Y		DL 1.2	ELX	.707	ELY	.707				
42	1.2D + 1.0..	Yes	Y		DL 1.2	ELX	.866	ELY	.5				
43	1.2D + 1.0..	Yes	Y		DL 1.2	ELX	1	ELY					
44	1.2D + 1.0..	Yes	Y		DL 1.2	ELX	.866	ELY	-.5				
45	1.2D + 1.0..	Yes	Y		DL 1.2	ELX	.707	ELY	-.707				
46	1.2D + 1.0..	Yes	Y		DL 1.2	ELX	.5	ELY	-.866				
47	1.2D + 1.0..	Yes	Y		DL 1.2	ELX		ELY	-1				
48	1.2D + 1.0..	Yes	Y		DL 1.2	ELX	-.5	ELY	-.866				
49	1.2D + 1.0..	Yes	Y		DL 1.2	ELX	-.707	ELY	-.707				
50	1.2D + 1.0..	Yes	Y		DL 1.2	ELX	-.866	ELY	-.5				
51	0.9D + 1.0..	Yes	Y		DL .9	ELX	-1	ELY					
52	0.9D + 1.0..	Yes	Y		DL .9	ELX	-.866	ELY	.5				
53	0.9D + 1.0..	Yes	Y		DL .9	ELX	-.707	ELY	.707				
54	0.9D + 1.0..	Yes	Y		DL .9	ELX	-.5	ELY	.866				
55	0.9D + 1.0..	Yes	Y		DL .9	ELX		ELY	1				
56	0.9D + 1.0..	Yes	Y		DL .9	ELX	.5	ELY	.866				
57	0.9D + 1.0..	Yes	Y		DL .9	ELX	.707	ELY	.707				
58	0.9D + 1.0..	Yes	Y		DL .9	ELX	.866	ELY	.5				
59	0.9D + 1.0..	Yes	Y		DL .9	ELX	1	ELY					
60	0.9D + 1.0..	Yes	Y		DL .9	ELX	.866	ELY	-.5				
61	0.9D + 1.0..	Yes	Y		DL .9	ELX	.707	ELY	-.707				
62	0.9D + 1.0..	Yes	Y		DL .9	ELX	.5	ELY	-.866				
63	0.9D + 1.0..	Yes	Y		DL .9	ELX		ELY	-1				
64	0.9D + 1.0..	Yes	Y		DL .9	ELX	-.5	ELY	-.866				
65	0.9D + 1.0..	Yes	Y		DL .9	ELX	-.707	ELY	-.707				
66	0.9D + 1.0..	Yes	Y		DL .9	ELX	-.866	ELY	-.5				
67	1.2D + 1.5..	Yes	Y		DL 1.2	4	.066	20	.066	OL1	1.5		
68	1.2D + 1.5..	Yes	Y		DL 1.2	5	.066	21	.066	OL1	1.5		

Load Combinations (Continued)

	Description	Sol.	PD	SR	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.
69	1.2D + 1.5..	Yes	Y		DL	1.2	6	.066	22	.066	OL1	1.5		
70	1.2D + 1.5..	Yes	Y		DL	1.2	7	.066	23	.066	OL1	1.5		
71	1.2D + 1.5..	Yes	Y		DL	1.2	8	.066	24	.066	OL1	1.5		
72	1.2D + 1.5..	Yes	Y		DL	1.2	9	.066	25	.066	OL1	1.5		
73	1.2D + 1.5..	Yes	Y		DL	1.2	10	.066	26	.066	OL1	1.5		
74	1.2D + 1.5..	Yes	Y		DL	1.2	11	.066	27	.066	OL1	1.5		
75	1.2D + 1.5..	Yes	Y		DL	1.2	4	-.066	20	-.066	OL1	1.5		
76	1.2D + 1.5..	Yes	Y		DL	1.2	5	-.066	21	-.066	OL1	1.5		
77	1.2D + 1.5..	Yes	Y		DL	1.2	6	-.066	22	-.066	OL1	1.5		
78	1.2D + 1.5..	Yes	Y		DL	1.2	7	-.066	23	-.066	OL1	1.5		
79	1.2D + 1.5..	Yes	Y		DL	1.2	8	-.066	24	-.066	OL1	1.5		
80	1.2D + 1.5..	Yes	Y		DL	1.2	9	-.066	25	-.066	OL1	1.5		
81	1.2D + 1.5..	Yes	Y		DL	1.2	10	-.066	26	-.066	OL1	1.5		
82	1.2D + 1.5..	Yes	Y		DL	1.2	11	-.066	27	-.066	OL1	1.5		
83	1.2D + 1.5..	Yes	Y		DL	1.2	4	.066	20	.066	OL2	1.5		
84	1.2D + 1.5..	Yes	Y		DL	1.2	5	.066	21	.066	OL2	1.5		
85	1.2D + 1.5..	Yes	Y		DL	1.2	6	.066	22	.066	OL2	1.5		
86	1.2D + 1.5..	Yes	Y		DL	1.2	7	.066	23	.066	OL2	1.5		
87	1.2D + 1.5..	Yes	Y		DL	1.2	8	.066	24	.066	OL2	1.5		
88	1.2D + 1.5..	Yes	Y		DL	1.2	9	.066	25	.066	OL2	1.5		
89	1.2D + 1.5..	Yes	Y		DL	1.2	10	.066	26	.066	OL2	1.5		
90	1.2D + 1.5..	Yes	Y		DL	1.2	11	.066	27	.066	OL2	1.5		
91	1.2D + 1.5..	Yes	Y		DL	1.2	4	-.066	20	-.066	OL2	1.5		
92	1.2D + 1.5..	Yes	Y		DL	1.2	5	-.066	21	-.066	OL2	1.5		
93	1.2D + 1.5..	Yes	Y		DL	1.2	6	-.066	22	-.066	OL2	1.5		
94	1.2D + 1.5..	Yes	Y		DL	1.2	7	-.066	23	-.066	OL2	1.5		
95	1.2D + 1.5..	Yes	Y		DL	1.2	8	-.066	24	-.066	OL2	1.5		
96	1.2D + 1.5..	Yes	Y		DL	1.2	9	-.066	25	-.066	OL2	1.5		
97	1.2D + 1.5..	Yes	Y		DL	1.2	10	-.066	26	-.066	OL2	1.5		
98	1.2D + 1.5..	Yes	Y		DL	1.2	11	-.066	27	-.066	OL2	1.5		
99	1.2D + 1.5..	Yes	Y		DL	1.2	4	.066	20	.066	OL3	1.5		
100	1.2D + 1.5..	Yes	Y		DL	1.2	5	.066	21	.066	OL3	1.5		
101	1.2D + 1.5..	Yes	Y		DL	1.2	6	.066	22	.066	OL3	1.5		
102	1.2D + 1.5..	Yes	Y		DL	1.2	7	.066	23	.066	OL3	1.5		
103	1.2D + 1.5..	Yes	Y		DL	1.2	8	.066	24	.066	OL3	1.5		
104	1.2D + 1.5..	Yes	Y		DL	1.2	9	.066	25	.066	OL3	1.5		
105	1.2D + 1.5..	Yes	Y		DL	1.2	10	.066	26	.066	OL3	1.5		
106	1.2D + 1.5..	Yes	Y		DL	1.2	11	.066	27	.066	OL3	1.5		
107	1.2D + 1.5..	Yes	Y		DL	1.2	4	-.066	20	-.066	OL3	1.5		
108	1.2D + 1.5..	Yes	Y		DL	1.2	5	-.066	21	-.066	OL3	1.5		
109	1.2D + 1.5..	Yes	Y		DL	1.2	6	-.066	22	-.066	OL3	1.5		
110	1.2D + 1.5..	Yes	Y		DL	1.2	7	-.066	23	-.066	OL3	1.5		
111	1.2D + 1.5..	Yes	Y		DL	1.2	8	-.066	24	-.066	OL3	1.5		
112	1.2D + 1.5..	Yes	Y		DL	1.2	9	-.066	25	-.066	OL3	1.5		
113	1.2D + 1.5..	Yes	Y		DL	1.2	10	-.066	26	-.066	OL3	1.5		
114	1.2D + 1.5..	Yes	Y		DL	1.2	11	-.066	27	-.066	OL3	1.5		

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1...	Density[k/f...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
3	A992	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

Hot Rolled Steel Properties (Continued)

	Label	E [ksi]	G [ksi]	Nu	Therm (/1...	Density[k/f...	Yield[ksi]	Ry	Fu[ksi]	Rt
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Platform Horizontal ...	PIPE 3.0	Beam	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
2	Offset Tube	HSS4X4X3	Beam	None	A36 Gr.36	Typical	2.58	6.21	6.21	10
3	Offset Side Plate	0.38 X 6 Plate	Beam	None	A36 Gr.36	Typical	2.28	.027	6.84	.105
4	Grating Angle	L2x2x3	Beam	None	A36 Gr.36	Typical	.722	.271	.271	.009
5	Mount Pipe	PIPE 2.0	Beam	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
6	Offset End Plate	0.5 x 6 Plate	Beam	None	A36 Gr.36	Typical	3	.063	9	.237
7	Support Rail	PIPE 2.0	Beam	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
8	SR Conn Plate	PL6x0.375	Beam	None	A36 Gr.36	Typical	2.25	.026	6.75	.101
9	SR Conn Angle	L2.5x2.5x4	Beam	None	A36 Gr.36	Typical	1.19	.692	.692	.026
10	PRK-1245	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical	.901	.535	.535	.011
11	SR Bracing	PIPE 2.0	Beam	None	A53 Gr.B	Typical	1.02	.627	.627	1.25

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[...	Lcomp bot[...	L-torq...	Kyy	Kzz	Cb	Functi...
1	M17	Offset End Plate	4.688									Lateral
2	M19	Offset Side Plate	.875									Lateral
3	M23	Offset Side Plate	.875									Lateral
4	M24	Offset Tube	30.688									Lateral
5	M27	Offset Tube	30.687									Lateral
6	M34	Offset End Plate	4.688									Lateral
7	M37	Offset Side Plate	.875									Lateral
8	M41	Offset Side Plate	.875									Lateral
9	M42	Offset Tube	30.688									Lateral
10	M45	Offset Tube	30.687									Lateral
11	M51	Offset Tube	59.538									Lateral
12	M52	Offset End Plate	4.688									Lateral
13	M55	Offset Side Plate	.875									Lateral
14	M59	Offset Side Plate	.875									Lateral
15	M60	Offset Tube	30.688									Lateral
16	M63	Offset Tube	30.687									Lateral
17	M69	Platform Horizo...	150		56							Lateral
18	M72	Platform Horizo...	150		56							Lateral
19	M75	Platform Horizo...	150									Lateral
20	M79	Offset End Plate	4.688									Lateral
21	M81	Offset End Plate	4.688									Lateral
22	M83	Offset End Plate	4.688									Lateral
23	M92	Grating Angle	50.542									Lateral
24	M94	Grating Angle	50.542									Lateral
25	M98	Grating Angle	50.542									Lateral
26	M100	Grating Angle	50.542									Lateral
27	M104	Grating Angle	50.542									Lateral
28	M106	Grating Angle	50.542									Lateral
29	M152A	Offset End Plate	3.122									Lateral
30	M153A	Offset Side Plate	3									Lateral
31	M154A	Offset End Plate	3.122									Lateral
32	M155A	Offset Side Plate	3									Lateral
33	M160A	Offset End Plate	3.122									Lateral
34	M161A	Offset Side Plate	3									Lateral
35	M162A	Offset End Plate	3.122									Lateral
36	M163A	Offset Side Plate	3									Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[j...]	Lcomp bot[j...]	L-torq...	Kyy	Kzz	Cb	Functi...
37	M168A	Offset End Plate	3.122									Lateral
38	M169A	Offset Side Plate	3									Lateral
39	M170A	Offset End Plate	3.122									Lateral
40	M171C	Offset Side Plate	3									Lateral
41	M82A	Mount Pipe	96									Lateral
42	M83A	Mount Pipe	96									Lateral
43	M84A	Mount Pipe	96									Lateral
44	M97A	Mount Pipe	96									Lateral
45	M98A	Mount Pipe	96									Lateral
46	M99A	Mount Pipe	96									Lateral
47	M112	Mount Pipe	96									Lateral
48	M113	Mount Pipe	96									Lateral
49	M114	Mount Pipe	96									Lateral
50	M163B	Offset Tube	59.538									Lateral
51	M164B	Offset Tube	59.538									Lateral
52	HR1	Support Rail	150									Lateral
53	HR2	SR Conn Plate	6									Lateral
54	HR3	SR Conn Plate	6									Lateral
55	HR10	Support Rail	150									Lateral
56	HR11	SR Conn Plate	6									Lateral
57	HR12	SR Conn Plate	6									Lateral
58	HR19	Support Rail	150									Lateral
59	HR20	SR Conn Plate	6									Lateral
60	HR21	SR Conn Plate	6									Lateral
61	HR28	SR Conn Angle	15.408									Lateral
62	HR29	SR Conn Angle	15.408									Lateral
63	HR30	SR Conn Angle	15.408									Lateral
64	HR37	SR Bracing	63.624									Lateral
65	HR38	SR Bracing	63.624									Lateral
66	HR39	SR Bracing	63.624									Lateral
67	PR5	PRK-1245	50.427									Lateral
68	PR6	PRK-1245	50.427									Lateral
69	PR11	PRK-1245	50.427									Lateral
70	PR12	PRK-1245	50.427									Lateral
71	PR17	PRK-1245	50.427									Lateral
72	PR18	PRK-1245	50.427									Lateral

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical Defl Ratio Opti...	Analysis ...	Inactive	Seismi...
1	M17						Yes			None
2	M19						Yes			None
3	M23						Yes			None
4	M24						Yes			None
5	M26						Yes	** NA **		None
6	M27						Yes			None
7	M34						Yes			None
8	M37						Yes			None
9	M41						Yes			None
10	M42						Yes			None
11	M44						Yes	** NA **		None
12	M45						Yes			None
13	M51						Yes	Default		None
14	M52						Yes			None
15	M55						Yes			None
16	M59						Yes			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ratio	Opti...	Analysis ...	Inactive	Seismi...
17	M60						Yes					None
18	M62						Yes	** NA **				None
19	M63						Yes					None
20	M69						Yes					None
21	M72						Yes					None
22	M75						Yes					None
23	M79						Yes					None
24	M80						Yes	** NA **				None
25	M81						Yes					None
26	M82						Yes	** NA **				None
27	M83						Yes					None
28	M84						Yes	** NA **				None
29	M85						Yes	** NA **				None
30	M86						Yes	** NA **				None
31	M87						Yes	** NA **				None
32	M88						Yes	** NA **				None
33	M89						Yes	** NA **				None
34	M90						Yes	** NA **				None
35	M91						Yes	** NA **				None
36	M92						Yes					None
37	M93						Yes	** NA **				None
38	M94						Yes					None
39	M95						Yes	** NA **				None
40	M96						Yes	** NA **				None
41	M97						Yes	** NA **				None
42	M98						Yes					None
43	M99						Yes	** NA **				None
44	M100						Yes					None
45	M101						Yes	** NA **				None
46	M102						Yes	** NA **				None
47	M103						Yes	** NA **				None
48	M104						Yes					None
49	M105						Yes	** NA **				None
50	M106						Yes					None
51	M107						Yes	** NA **				None
52	M108						Yes	** NA **				None
53	M171A		000X00				Yes	** NA **				None
54	M171B		000X00				Yes	** NA **				None
55	M172C		000X00				Yes	** NA **				None
56	M173C		000X00				Yes	** NA **				None
57	M152A						Yes					None
58	M153A						Yes					None
59	M154A						Yes					None
60	M155A						Yes					None
61	M156A		000X00				Yes	** NA **				None
62	M157A		000X00				Yes	** NA **				None
63	M158A		000X00				Yes	** NA **				None
64	M159A		000X00				Yes	** NA **				None
65	M160A						Yes					None
66	M161A						Yes					None
67	M162A						Yes					None
68	M163A						Yes					None
69	M164A		000X00				Yes	** NA **				None
70	M165A		000X00				Yes	** NA **				None
71	M166A		000X00				Yes	** NA **				None
72	M167A		000X00				Yes	** NA **				None
73	M168A						Yes					None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ratio	Opti...	Analysis ...	Inactive	Seismi...
74	M169A						Yes					None
75	M170A						Yes					None
76	M171C						Yes					None
77	M79A						Yes	** NA **				None
78	M80A						Yes	** NA **				None
79	M81A						Yes	** NA **				None
80	M82A						Yes					None
81	M83A						Yes					None
82	M84A						Yes					None
83	M85A						Yes	** NA **				None
84	M86A						Yes	** NA **				None
85	M87A						Yes	** NA **				None
86	M88A						Yes	** NA **				None
87	M89A						Yes	** NA **				None
88	M90A						Yes	** NA **				None
89	M94A						Yes	** NA **				None
90	M95A						Yes	** NA **				None
91	M96A						Yes	** NA **				None
92	M97A						Yes					None
93	M98A						Yes					None
94	M99A						Yes					None
95	M100A						Yes	** NA **				None
96	M101A						Yes	** NA **				None
97	M102A						Yes	** NA **				None
98	M103A						Yes	** NA **				None
99	M104A						Yes	** NA **				None
100	M105A						Yes	** NA **				None
101	M109						Yes	** NA **				None
102	M110						Yes	** NA **				None
103	M111						Yes	** NA **				None
104	M112						Yes	** NA **				None
105	M113						Yes					None
106	M114						Yes					None
107	M115						Yes	** NA **				None
108	M116						Yes	** NA **				None
109	M117						Yes	** NA **				None
110	M118						Yes	** NA **				None
111	M119						Yes	** NA **				None
112	M120						Yes	** NA **				None
113	M126						Yes	** NA **				None
114	M127						Yes	** NA **				None
115	M128						Yes	** NA **				None
116	M159						Yes	** NA **				None
117	M160						Yes	** NA **				None
118	M161						Yes	** NA **				None
119	M162						Yes	** NA **				None
120	M163						Yes	** NA **				None
121	M164						Yes	** NA **				None
122	M163B						Yes					None
123	M164B						Yes					None
124	HR1						Yes					None
125	HR2						Yes					None
126	HR3						Yes					None
127	HR4						Yes	** NA **				None
128	HR5						Yes	** NA **				None
129	HR6						Yes	** NA **				None
130	HR7						Yes	** NA **				None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ratio	Opti...	Analysis ...	Inactive	Seismi...
131	HR8						Yes	** NA **				None
132	HR9						Yes	** NA **				None
133	HR10						Yes					None
134	HR11						Yes					None
135	HR12						Yes					None
136	HR13						Yes	** NA **				None
137	HR14						Yes	** NA **				None
138	HR15						Yes	** NA **				None
139	HR16						Yes	** NA **				None
140	HR17						Yes	** NA **				None
141	HR18						Yes	** NA **				None
142	HR19						Yes					None
143	HR20						Yes					None
144	HR21						Yes					None
145	HR22						Yes	** NA **				None
146	HR23						Yes	** NA **				None
147	HR24						Yes	** NA **				None
148	HR25						Yes	** NA **				None
149	HR26						Yes	** NA **				None
150	HR27						Yes	** NA **				None
151	HR28						Yes					None
152	HR29						Yes					None
153	HR30						Yes					None
154	HR31						Yes	** NA **				None
155	HR32						Yes	** NA **				None
156	HR33						Yes	** NA **				None
157	HR34						Yes	** NA **				None
158	HR35						Yes	** NA **				None
159	HR36						Yes	** NA **				None
160	HR37	BenPIN	BenPIN				Yes					None
161	HR38	BenPIN	BenPIN				Yes					None
162	HR39	BenPIN	BenPIN				Yes					None
163	M181A						Yes	** NA **				None
164	M182A						Yes	** NA **				None
165	M183						Yes	** NA **				None
166	M184						Yes	** NA **				None
167	M185						Yes	** NA **				None
168	M186						Yes	** NA **				None
169	M187						Yes	** NA **				None
170	M188						Yes	** NA **				None
171	M189						Yes	** NA **				None
172	M190						Yes	** NA **				None
173	M191						Yes	** NA **				None
174	M192						Yes	** NA **				None
175	PR1						Yes	** NA **				None
176	PR2						Yes	** NA **				None
177	PR3						Yes	** NA **				None
178	PR4						Yes	** NA **				None
179	PR5	BenPIN	BenPIN				Yes					None
180	PR6	BenPIN	BenPIN				Yes					None
181	PR7						Yes	** NA **				None
182	PR8						Yes	** NA **				None
183	PR9						Yes	** NA **				None
184	PR10						Yes	** NA **				None
185	PR11	BenPIN	BenPIN				Yes					None
186	PR12	BenPIN	BenPIN				Yes					None
187	PR13						Yes	** NA **				None

Member Advanced Data (Continued)

Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Ratio	Opti...	Analysis ...	Inactive	Seismi...
188	PR14					Yes	** NA **				None
189	PR15					Yes	** NA **				None
190	PR16					Yes	** NA **				None
191	PR17	BenPIN	BenPIN			Yes					None
192	PR18	BenPIN	BenPIN			Yes					None

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

Member	Shape	Code Check	Loc[in]	LC	Shear	...	Loc[in]	Dir	LC	phi*Pnc [phi*Pnt [L	phi*Mn y	phi*Mn z	Cb	Eqn
1	HR11	PL6x0.375	.293	2.274	6	.649	2.274	y	14	62014.296	72900	569.531	9112.5	1...	H1-1b
2	HR2	PL6x0.375	.304	2.274	3	.600	2.274	y	3	62014.296	72900	569.531	9112.5	1...	H1-1b
3	HR21	PL6x0.375	.294	3.726	17	.583	4.705	y	16	62014.296	72900	569.531	9112.5	1...	H1-1b
4	M153A	0.38 X 6 Plate	.320	1.5	4	.424	3	y	11	71019.885	73872	584.82	9234	3...	H1-1b
5	M154A	0.5 x 6 Plate	.093	0	9	.419	0	y	11	94834.571	97200	1012.5	12150	3...	H1-1b
6	M155A	0.38 X 6 Plate	.332	3	18	.418	3	y	11	71020.258	73872	584.82	9234	3...	H1-1b
7	M171C	0.38 X 6 Plate	.298	1.5	7	.400	3	y	16	71020.258	73872	584.82	9234	3...	H1-1b
8	M152A	0.5 x 6 Plate	.094	0	13	.397	0	y	11	94834.571	97200	1012.5	12150	3...	H1-1b
9	M169A	0.38 X 6 Plate	.328	3	10	.389	3	y	16	71019.885	73872	584.82	9234	3...	H1-1b
10	M161A	0.38 X 6 Plate	.291	1.5	15	.383	3	y	6	71019.885	73872	584.82	9234	3...	H1-1b
11	M170A	0.5 x 6 Plate	.084	0	15	.379	0	y	17	94834.571	97200	1012.5	12150	3...	H1-1b
12	M163A	0.38 X 6 Plate	.286	1.5	12	.378	3	y	5	71020.258	73872	584.82	9234	3...	H1-1b
13	HR3	PL6x0.375	.190	3.695	18	.375	4.705	y	11	62014.296	72900	569.531	9112.5	1...	H1-1b
14	M162A	0.5 x 6 Plate	.082	0	12	.367	0	y	4	94834.571	97200	1012.5	12150	3...	H1-1b
15	M168A	0.5 x 6 Plate	.090	0	10	.365	0	y	16	94834.571	97200	1012.5	12150	3...	H1-1b
16	HR12	PL6x0.375	.153	3.695	4	.358	3.726	y	14	62014.296	72900	569.531	9112.5	1...	H1-1b
17	M23	0.38 X 6 Plate	.383	.875	5	.356	.875	y	11	73624.978	73872	584.82	9234	1...	H1-1b
18	HR20	PL6x0.375	.192	2.305	10	.347	2.274	y	8	62014.296	72900	569.531	9112.5	1...	H1-1b
19	M37	0.38 X 6 Plate	.414	.875	18	.345	.875	y	11	73624.978	73872	584.82	9234	1...	H1-1b
20	M160A	0.5 x 6 Plate	.079	0	7	.343	0	y	6	94834.571	97200	1012.5	12150	3...	H1-1b
21	M19	0.38 X 6 Plate	.307	.875	7	.338	.875	y	17	73624.978	73872	584.82	9234	1...	H1-1b
22	M41	0.38 X 6 Plate	.293	.875	15	.325	.875	y	5	73624.978	73872	584.82	9234	1...	H1-1b
23	M59	0.38 X 6 Plate	.408	.875	10	.322	.875	y	16	73624.978	73872	584.82	9234	1...	H1-1b
24	M55	0.38 X 6 Plate	.335	.875	12	.309	.875	y	6	73624.978	73872	584.82	9234	1...	H1-1b
25	HR10	PIPE 2.0	.309	9.474	13	.273	9.474		14	6295.422	32130	1871.625	1871.625	2...	H3-6
26	HR19	PIPE 2.0	.364	140....	3	.262	140....		16	6295.422	32130	1871.625	1871.625	1...	H1-1b
27	HR1	PIPE 2.0	.353	9.474	9	.258	9.474		3	6295.422	32130	1871.625	1871.625	2...	H1-1b
28	M83	0.5 x 6 Plate	.294	0	9	.144	0	y	12	91950.093	97200	1012.5	12150	1...	H1-1b
29	M83A	PIPE 2.0	.586	71.747	15	.144	48		7	14916.096	32130	1871.625	1871.625	1...	H1-1b
30	M17	0.5 x 6 Plate	.293	4.688	13	.142	4.688	y	114	91950.093	97200	1012.5	12150	1...	H1-1b
31	M163B	HSS4X4X3	.269	0	10	.132	59.224	y	17	77356.048	83592	9909	9909	2...	H1-1b
32	M113	PIPE 2.0	.561	71.747	11	.127	48		4	14916.096	32130	1871.625	1871.625	1...	H1-1b
33	M164B	HSS4X4X3	.229	42.303	9	.125	59.224	y	6	77356.048	83592	9909	9909	1...	H1-1b
34	M52	0.5 x 6 Plate	.272	4.688	3	.121	4.688	y	16	91950.093	97200	1012.5	12150	1...	H1-1b
35	M79	0.5 x 6 Plate	.250	0	4	.119	0	y	6	91950.093	97200	1012.5	12150	1...	H1-1b
36	M114	PIPE 2.0	.393	71.747	3	.114	71.747		3	14916.096	32130	1871.625	1871.625	2...	H1-1b
37	HR37	PIPE 2.0	.027	31.812	6	.112	0		18	22936.876	32130	1871.625	1871.625	1...	H1-1b
38	M98A	PIPE 2.0	.521	71.747	10	.111	48		18	14916.096	32130	1871.625	1871.625	1...	H1-1b
39	M84A	PIPE 2.0	.369	71.747	15	.105	71.747		6	14916.096	32130	1871.625	1871.625	2...	H1-1b
40	HR38	PIPE 2.0	.027	31.812	16	.104	0		4	22936.876	32130	1871.625	1871.625	1...	H1-1b
41	M81	0.5 x 6 Plate	.263	0	15	.102	0	y	10	91950.093	97200	1012.5	12150	1...	H1-1b
42	M82A	PIPE 2.0	.387	71.747	8	.100	71.747		8	14916.096	32130	1871.625	1871.625	2...	H1-1b
43	M34	0.5 x 6 Plate	.248	4.688	7	.094	4.688	y	12	91950.093	97200	1012.5	12150	1...	H1-1b
44	M99A	PIPE 2.0	.317	71.747	10	.091	71.747		17	14916.096	32130	1871.625	1871.625	1...	H1-1b
45	HR39	PIPE 2.0	.027	31.812	11	.090	0		15	22936.876	32130	1871.625	1871.625	1...	H1-1b
46	M112	PIPE 2.0	.336	71.747	12	.089	71.747		5	14916.096	32130	1871.625	1871.625	1...	H1-1b
47	M69	PIPE 3.0	.131	12.632	14	.089	12.632		10	28250.554	65205	5748.75	5748.75	1...	H1-1b

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

Member	Shape	Code Check	Loc[in]	LC	Shear	Loc[in]	Dir	LC	phi*Pnc I...	phi*Pnt I...	phi*Mn y...	phi*Mn z...	Cb	Eqn	
48	M75	PIPE 3.0	.132	12.632	3	.086	137....	18	28250.554	65205	5748.75	5748.75	1...	H1-1b	
49	M51	HSS4X4X3	.203	42.303	3	.085	59.224	z	15	77356.048	83592	9909	9909	1...	H1-1b
50	M97A	PIPE 2.0	.339	71.747	18	.084	71.747		3	14916.096	32130	1871.625	1871.625	1...	H1-1b
51	M72	PIPE 3.0	.125	12.632	9	.074	12.632		6	28250.554	65205	5748.75	5748.75	1.6	H1-1b
52	HR28	L2.5x2.5x4	.286	15.408	3	.063	0	z	18	36536.53	38556	1113.554	2537.388	2...	H2-1
53	HR29	L2.5x2.5x4	.326	15.408	14	.058	15.408	z	5	36536.53	38556	1113.554	2537.388	2...	H2-1
54	M24	HSS4X4X3	.140	30.688	13	.052	3.553	y	12	81887.865	83592	9909	9909	1...	H1-1b
55	M27	HSS4X4X3	.128	0	14	.052	27.134	y	15	81887.909	83592	9909	9909	1...	H1-1b
56	M42	HSS4X4X3	.121	30.688	8	.051	3.553	y	7	81887.865	83592	9909	9909	1...	H1-1b
57	M60	HSS4X4X3	.134	30.688	3	.051	3.553	y	18	81887.865	83592	9909	9909	1...	H1-1b
58	M45	HSS4X4X3	.145	0	9	.051	27.134	y	10	81887.909	83592	9909	9909	1...	H1-1b
59	M63	HSS4X4X3	.125	0	4	.050	27.134	y	4	81887.909	83592	9909	9909	1...	H1-1b
60	HR30	L2.5x2.5x4	.187	0	14	.044	15.408	z	15	36536.53	38556	1113.554	2537.388	2...	H2-1
61	M92	L2x2x3	.180	0	12	.009	0	z	11	9618.888	23392.8	557.717	1191.881	1...	H2-1
62	M94	L2x2x3	.173	0	16	.009	0	y	16	9618.956	23392.8	557.717	1093.469	1...	H2-1
63	M98	L2x2x3	.173	0	7	.009	0	z	6	9618.888	23392.8	557.717	1168.544	1...	H2-1
64	M100	L2x2x3	.184	50.542	9	.008	50.542	z	5	9618.956	23392.8	557.717	1208.647	2...	H2-1
65	M104	L2x2x3	.177	0	17	.008	0	z	9	9618.888	23392.8	557.717	1165.2	1...	H2-1
66	M106	L2x2x3	.171	0	5	.008	0	y	14	9618.956	23392.8	557.717	1160.026	1...	H2-1
67	PR18	L2.5x2.5x3	.156	25.214	5	.006	50.427	y	4	16406.712	29192.4	872.574	1692.843	1...	H2-1
68	PR17	L2.5x2.5x3	.137	25.214	12	.006	0	z	4	16406.712	29192.4	872.574	1692.843	1...	H2-1
69	PR5	L2.5x2.5x3	.113	24.948	6	.006	0	z	7	16406.712	29192.4	872.574	1692.843	1...	H2-1
70	PR6	L2.5x2.5x3	.112	24.948	16	.006	0	y	7	16406.712	29192.4	872.574	1692.843	1...	H2-1
71	PR11	L2.5x2.5x3	.176	25.214	17	.005	50.427	z	18	16406.712	29192.4	872.574	1692.843	1...	H2-1
72	PR12	L2.5x2.5x3	.170	25.214	10	.005	50.427	y	18	16406.712	29192.4	872.574	1692.843	1...	H2-1

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	N282A	max	1378.411	3	4473.161	14	393.662	86	199.279	11	309.838	17	2483.83	18
2		min	-2676.67	11	-2249.163	6	-138.473	110	-358.68	3	-645.445	89	-2505.18	10
3	N284	max	1076.401	16	2601.974	16	436.334	96	381.758	3	321.118	5	1845.192	13
4		min	-2028.057	8	-4192	8	-97.738	72	-119.297	11	-641.197	93	-1800.914	5
5	N28	max	4463.472	3	901.692	15	455.001	27	368.787	7	494.677	27	1070.763	7
6		min	-3316.602	11	-889.921	7	78.001	1	-357.877	15	-25.807	3	-1090.53	15
7	P13	max	1631.426	30	-226.772	6	2538.781	30	-40.792	6	-28.464	4	147.795	18
8		min	131.036	6	-2826.092	30	194.823	6	-619.568	30	-356.52	29	-147.867	10
9	P21	max	1318.609	24	2283.863	24	2060.32	24	507.686	24	1.728	16	113.801	13
10		min	-66.686	16	-115.337	16	-107.218	16	-33.822	16	-285.281	72	-124.39	5
11	P5	max	555.291	11	73.59	15	1600.543	3	49.897	7	450.153	3	85.366	7
12		min	-2046.428	3	-73.609	7	-429.843	11	-50.252	15	-120.893	11	-85.835	15
13	Totals:	max	5527.78	3	5293.657	15	6332.286	19						
14		min	-5527.788	11	-5293.655	7	2242.947	51						

EXHIBIT 3

330 RT 66 SOUTH

Location 330 RT 66 SOUTH

Mblu 028 / / 019 / /

Acct# 00165000

Owner PEKARSKI JOHN & MYRA J

Assessment \$176,420

Appraisal \$367,600

PID 1657

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2016	\$194,900	\$172,700	\$367,600

Assessment			
Valuation Year	Improvements	Land	Total
2016	\$136,600	\$39,820	\$176,420

Owner of Record

Owner PEKARSKI JOHN & MYRA J
Co-Owner SHUTT MARY J
Address 330 RT 66 SOUTH
COLUMBIA, CT 06237

Sale Price \$0
Certificate
Book & Page 0227/0002
Sale Date 05/08/2018

Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
PEKARSKI JOHN & M JEANETTE	\$0		0143/0397	03/11/2003
PEKARSKI JOHN	\$65,000		0143/0388	03/11/2003
PEKARSKI JOHN & ALEXANDER	\$0		0058/0422	10/08/1981

Building Information

Building 1 : Section 1

Year Built: 1760
Living Area: 3,626
Replacement Cost: \$296,899
Building Percent Good: 60

Replacement Cost
Less Depreciation:

\$178,100

Building Attributes

Field	Description
Style	Colonial
Model	Residential
Grade:	Average +10
Stories:	2 Stories
Occupancy	2
Exterior Wall 1	Asbest Shingle
Exterior Wall 2	Pre-Fab Wood
Roof Structure:	Gable/Hip
Roof Cover	Asphalt
Interior Wall 1	Plastered
Interior Wall 2	Drywall/Sheet
Interior Flr 1	Inlaid Sht Gds
Interior Flr 2	Carpet
Heat Fuel	Oil
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	6 Bedrooms
Total Bthrms:	3
Total Half Baths:	1
Total Xtra Fixtrs:	
Total Rooms:	12 Rooms
Bath Style:	Average
Kitchen Style:	Average
Whirlpool	
Fireplace(s)	
Fndtn. Level	

Building Photo



(http://images.vgsi.com/photos2/ColumbiaCTPhotos/A00\00\81\11.jpg)

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
FFL	First Floor Living	1,813	1,813
FUS	Upper Story, Finished	1,813	1,813
FOP	Porch, Open, Finished	48	0
UAT	Attic, Unfinished	999	0
UBM	Basement, Unfinished	804	0
		5,477	3,626

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
XKIT	Extra Kitchen	1 UNITS	\$700	1

Land

Land Use

Land Line Valuation

Use Code 1015
Description Single Fam W/ In-Law
Zone LCR
Neighborhood 11
Alt Land Appr No
Category

Size (Acres) 26.27
Frontage 1054
Depth 0
Assessed Value \$39,820
Appraised Value \$172,700

Outbuildings

Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
SHD1	Shed Frame			180 S.F.	\$1,300	1
SHD1	Shed Frame			348 S.F.	\$2,400	1
MLK	Milk House			192 S.F.	\$1,600	1
IMP	Implement Shed			544 S.F.	\$3,500	1
FGR1	Garage-Ave			256 S.F.	\$2,400	1
SHD1	Shed Frame			280 S.F.	\$2,000	1
SHD1	Shed Frame			64 S.F.	\$400	1
IMP	Implement Shed			384 S.F.	\$2,500	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$194,900	\$172,700	\$367,600
2016	\$194,900	\$172,700	\$367,600
2015	\$188,100	\$172,700	\$360,800

Assessment			
Valuation Year	Improvements	Land	Total
2017	\$136,600	\$39,820	\$176,420
2016	\$136,600	\$39,820	\$176,420
2015	\$131,800	\$38,200	\$170,000

330 RT 66 SOUTH

Location 330 RT 66 SOUTH

Mblu 028/ / 019/ CELL/

Acct# 028019CEL

Owner AMERICAN TOWER CORPORATION

Assessment \$721,400

Appraisal \$1,030,600

PID 102278

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2016	\$1,030,600	\$0	\$1,030,600

Assessment			
Valuation Year	Improvements	Land	Total
2016	\$721,400	\$0	\$721,400

Owner of Record

Owner AMERICAN TOWER CORPORATION
Co-Owner SPECTRASITE COMMUNICATIONS INC.
Address P.O. BOX 723597
ATLANTA, GA 31139

Sale Price \$0
Certificate
Book & Page 999
Sale Date 09/30/2011

Ownership History

Ownership History
No Data for Ownership History

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Replacement Cost: \$0
Building Percent Good:
Replacement Cost
Less Depreciation: \$0

Building Attributes

Field	Description
Style	Outbuildings
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Whirlpool	
Fireplace(s)	
Fndtn. Level	

Building Photo



(<http://images.vgsi.com/photos2/ColumbiaCTPhotos/A00\00\83\43.jpg>)

Building Layout

Building Layout

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code 3900
Description Dev Land
Zone
Neighborhood
Alt Land Appr Category No

Land Line Valuation

Size (Acres) 0
Frontage
Depth
Assessed Value \$0
Appraised Value \$0

Outbuildings

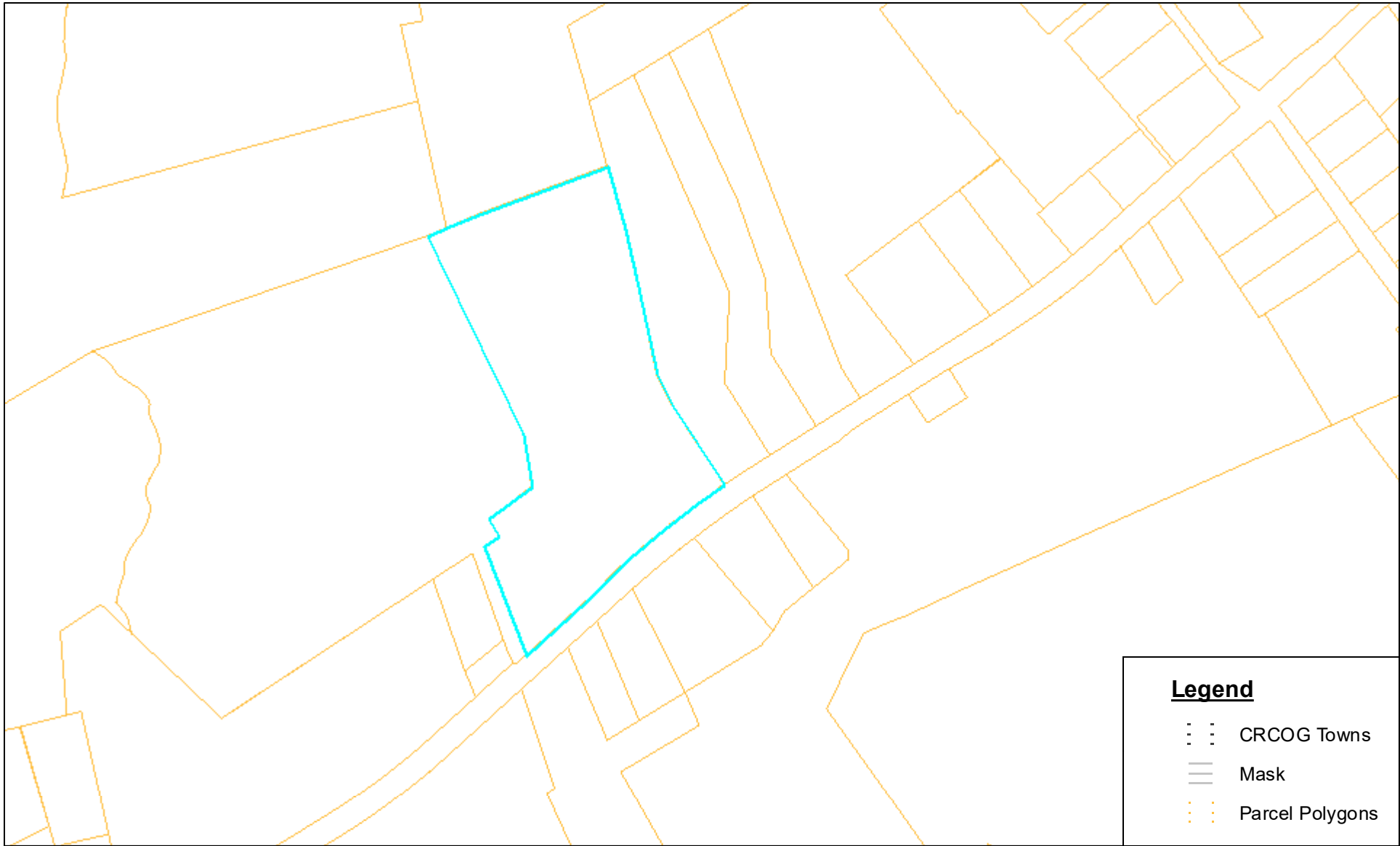
Outbuildings						<u>Legend</u>
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
CELL	Cell Tower			4 UNITS	\$800,000	1
FN3	Fence-6' Chain			200 L.F.	\$2,000	1
CELS	Cell Shed			240 S.F.	\$27,000	1
CELS	Cell Shed			192 S.F.	\$21,600	1
	CELL SITE			1 UNITS	\$180,000	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$1,030,600	\$0	\$1,030,600
2016	\$1,030,600	\$0	\$1,030,600
2015	\$885,000	\$0	\$885,000

Assessment			
Valuation Year	Improvements	Land	Total
2017	\$721,400	\$0	\$721,400
2016	\$721,400	\$0	\$721,400
2015	\$619,500	\$0	\$619,500

330 RT 66 South



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Working together for a better region.

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Scale
1:9,028
Created: 7/31/2020

EXHIBIT 4



**Lawrence Behr
Associates** INC
www.lbagroup.com

Radio Frequency Emissions Report

SITE NAME:

302528 Columbia Central

LOCATION:

Columbia, Connecticut

COMPANY:

**American Tower Corporation
Woburn, Massachusetts**

September 15th, 2020

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DISCLAIMER NOTICE

This work is based upon our best interpretation of available information. However, these data and their interpretation are constantly changing. Therefore, we do not warrant that any undertaking based on this report will be successful, or that others will not require further research or actions in support of this proposal or future undertaking. In the event of errors, our liability is strictly limited to replacement of this document with a corrected one. Liability for consequential damages is specifically disclaimed. Any use of this document constitutes an agreement to hold Lawrence Behr Associates, Inc. and its employees harmless and indemnify it for any and all liability, claims, demands, and litigation expenses and attorney's fees arising out of such use.

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GREENVILLE, NORTH CAROLINA

RADIO FREQUENCY EMISSIONS REPORT

302528 Columbia Central

Columbia, Connecticut

INTRODUCTION

Lawrence Behr Associates, Inc. (LBA) has been retained by American Tower Corporation (ATC) of Woburn, Massachusetts to evaluate the RF emissions of an existing tower at this location. AT&T is adding emitters to this site and the purpose of this study is to determine if, after the addition of the AT&T emitters, the site is in Compliance with FCC Regulations. This study determined that **THIS SITE IS IN COMPLIANCE** with Federal Regulations.

Details regarding the FCC Rules and the methodology used to determine compliance may be seen below.

SITE AND FACILITY CONSIDERATIONS

Site 302528 Columbia Central is located at 330 Middletown Road in Columbia, Connecticut at coordinates 41.68986, -72.32518. The support structure is a 149' monopole.

All data used in this study was provided by one or more of the following sources:

1. ATC furnished data
2. Compiled from carrier and manufacturer standard configurations
3. Empirical data collected by LBA

AT&T proposes to add antennas to the tower at the 150' level. The structure already supports several antennas. This study only considers the new AT&T facility in detail.

The load list may be seen in Appendix 1. Appendix 2 contains the AT&T channel counts, frequency bands, and power levels. AT&T Antenna information may be seen in Appendix 3.

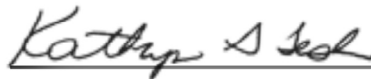
POWER DENSITY CALCULATIONS

Based upon the provided information and the FCC limits for exposure as outlined in 47 CFR 1.1307(b)(1) - (b)(3), the power levels and percentages of the FCC's allowable general population limit are shown in Appendix 4. Calculations were done at industry standard average head height of six feet above ground level.

A summary of the power density from all emitters may be seen in Appendix 5.

These limits are based upon the Information Relating to MPE Standards found in Appendix 6. Study methodology may be seen in Appendix 7, which describes the Non-Ionizing Radiation Prediction Models. Approximate radiation patterns may be found in Appendix 5. This site ***IS*** in compliance with FCC OET-65 MPE limits.

September 15th, 2020



Kathryn G. Tesh
Wireless Services Manager



APPENDIX 1 *Load List*

Proposed	Customer	RAD Height (ft)	Equipment Quantity	Equipment Type	Manufacturer	Model Number	Line Quantity	Line size	Mount Type	Azimuths	TX Frequency	RX Frequency
Yes	AT&T MOBILITY	150	3	PANEL	CCI	DMP65R-BUGDA			Low Profile Platform	60/180/300	21445-2155, 2170-2180, 728-746, 845-849, 890-894	1745-1755, 1770-1780, 704-716, 824-845, 869-890
Yes	AT&T MOBILITY	150	3	PANEL	CCI	OPA65R-BUGD			Low Profile Platform	60/200/300	1930-1945, 1965-1990, 728-746	1850-1865, 1885-1910, 704-716
No	AT&T MOBILITY	150	3	PANEL	Powerwave Allgon	7770.00	6	1 5/8" Coax	Low Profile Platform	60/200/300	1930-1935, 1945-1950, 1965-1970, 891-894	1850-1855, 1865-1870, 1885-1890, 846-849
No	AT&T MOBILITY	146	3	PANEL	KMW	AM-X-CD-16-65-00T-RET			Low Profile Platform	60/180/300	1930-1990, 704-716, 880-894	1850-1910, 734-746, 835-850
No	AT&T MOBILITY	146	6	PANEL	Powerwave Allgon	7770.00	12	1 5/8" Coax	Low Profile Platform	60/180/300	1930-1935, 1945-1950, 1965-1970, 891-894	1850-1855, 1865-1870, 1885-1890, 846-849
No	VERIZON WIRELESS	137	6	PANEL	Antel	LPA-80063/4CF	6	1 5/8" Coax	Low Profile Platform	0/120/240	869-880, 890-892	824-835, 845-847
No	VERIZON WIRELESS	137	3	PANEL	Antel	BXA-70063/6CF	3	1 5/8" Coax	Low Profile Platform	0/120/240	746-757	776-787
No	VERIZON WIRELESS	137	3	PANEL	Amphenol Antel	BXA-171063-8CF-EDIN-X	3	1 5/8" Coax	Low Profile Platform	0/120/240	1970-1975	1890-1895
No	SPRINT NEXTEL	107	3	PANEL	Commscope	NNVV-65B-R4			Platform with Handrails	340/90/220	1850-1995, 806-869	1850-1995, 806-869
No	SPRINT NEXTEL	107	3	PANEL	RFS	APXVTM14-ALU-120			Platform with Handrails	340/90/220	2496-2690	2496-2690



APPENDIX 2

AT&T Channels Used

Antenna	Technology	Frequency Band	Channel Count	Transmitter Power per Channel (W)
AT&T A1	LTE	2100	1	40
AT&T A2	LTE	2100	1	40
AT&T A3	LTE	700	1	40
AT&T A4	UMTS	850	1	40
AT&T A5	UMTS	850	1	40
AT&T A6	LTE	1900	1	40
AT&T A7	LTE	1900	1	40
AT&T A8	LTE	700	1	40
AT&T A9	LTE	1900	1	40
AT&T A10	LTE	1900	1	40
AT&T A11	LTE	1900	1	40
AT&T A12	UMTS	850	1	40
AT&T A13	LTE	1900	1	40
AT&T A14	LTE	700	1	40
AT&T A15	UMTS	850	1	40
AT&T A16	LTE	1900	1	40
AT&T A17	LTE	2100	1	40
AT&T A18	LTE	700	1	40
AT&T A19	UMTS	850	1	40
AT&T B1	LTE	2100	1	40
AT&T B2	LTE	2100	1	40
AT&T B3	LTE	700	1	40
AT&T B4	UMTS	850	1	40
AT&T B5	UMTS	850	1	40
AT&T B6	LTE	1900	1	40
AT&T B7	LTE	1900	1	40
AT&T B8	LTE	700	1	40
AT&T B9	LTE	1900	1	40
AT&T B10	LTE	1900	1	40
AT&T B11	LTE	1900	1	40
AT&T B12	UMTS	850	1	40
AT&T B13	LTE	1900	1	40
AT&T B14	LTE	700	1	40
AT&T B15	UMTS	850	1	40
AT&T B16	LTE	1900	1	40
AT&T B17	LTE	2100	1	40
AT&T B18	LTE	700	1	40
AT&T B19	UMTS	850	1	40
AT&T C1	LTE	2100	1	40
AT&T C2	LTE	2100	1	40
AT&T C3	LTE	700	1	40
AT&T C4	UMTS	850	1	40
AT&T C5	UMTS	850	1	40
AT&T C6	LTE	1900	1	40
AT&T C7	LTE	1900	1	40
AT&T C8	LTE	700	1	40
AT&T C9	LTE	1900	1	40
AT&T C10	LTE	1900	1	40
AT&T C11	LTE	1900	1	40
AT&T C12	UMTS	850	1	40
AT&T C13	LTE	1900	1	40
AT&T C14	LTE	700	1	40
AT&T C15	UMTS	850	1	40
AT&T C16	LTE	1900	1	40
AT&T C17	LTE	2100	1	40
AT&T C18	LTE	700	1	40
AT&T C19	UMTS	850	1	40

APPENDIX 3

AT&T Antenna Information

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	AT&T A1	CCI DMP65R-BU6DA	150
A	AT&T A2	CCI DMP65R-BU6DA	150
A	AT&T A3	CCI DMP65R-BU6DA	150
A	AT&T A4	CCI DMP65R-BU6DA	150
A	AT&T A5	CCI DMP65R-BU6DA	150
A	AT&T A6	CCI OPA65R-BU6D	150
A	AT&T A7	CCI OPA65R-BU6D	150
A	AT&T A8	CCI OPA65R-BU6D	150
A	AT&T A9	Powerwave Allgon 7770.00	150
A	AT&T A10	Powerwave Allgon 7770.00	150
A	AT&T A11	Powerwave Allgon 7770.00	150
A	AT&T A12	Powerwave Allgon 7770.00	150
A	AT&T A13	MW AM-X-CD-16-65-00T-RE	150
A	AT&T A14	MW AM-X-CD-16-65-00T-RE	150
A	AT&T A15	MW AM-X-CD-16-65-00T-RE	150
A	AT&T A16	Powerwave Allgon 7770.00	150
A	AT&T A17	Powerwave Allgon 7770.00	150
A	AT&T A18	Powerwave Allgon 7770.00	150
A	AT&T A19	Powerwave Allgon 7770.00	150
B	AT&T B1	CCI DMP65R-BU6DA	150
B	AT&T B2	CCI DMP65R-BU6DA	150
B	AT&T B3	CCI DMP65R-BU6DA	150
B	AT&T B4	CCI DMP65R-BU6DA	150
B	AT&T B5	CCI DMP65R-BU6DA	150
B	AT&T B6	CCI OPA65R-BU6D	150
B	AT&T B7	CCI OPA65R-BU6D	150
B	AT&T B8	CCI OPA65R-BU6D	150
B	AT&T B9	Powerwave Allgon 7770.00	150
B	AT&T B10	Powerwave Allgon 7770.00	150
B	AT&T B11	Powerwave Allgon 7770.00	150
B	AT&T B12	Powerwave Allgon 7770.00	150
B	AT&T B13	MW AM-X-CD-16-65-00T-RE	150
B	AT&T B14	MW AM-X-CD-16-65-00T-RE	150
B	AT&T B15	MW AM-X-CD-16-65-00T-RE	150
B	AT&T B16	Powerwave Allgon 7770.00	150
B	AT&T B17	Powerwave Allgon 7770.00	150
B	AT&T B18	Powerwave Allgon 7770.00	150
B	AT&T B19	Powerwave Allgon 7770.00	150
C	AT&T C1	CCI DMP65R-BU6DA	150
C	AT&T C2	CCI DMP65R-BU6DA	150
C	AT&T C3	CCI DMP65R-BU6DA	150
C	AT&T C4	CCI DMP65R-BU6DA	150
C	AT&T C5	CCI DMP65R-BU6DA	150
C	AT&T C6	CCI OPA65R-BU6D	150
C	AT&T C7	CCI OPA65R-BU6D	150
C	AT&T C8	CCI OPA65R-BU6D	150
C	AT&T C9	Powerwave Allgon 7770.00	150
C	AT&T C10	Powerwave Allgon 7770.00	150
C	AT&T C11	Powerwave Allgon 7770.00	150
C	AT&T C12	Powerwave Allgon 7770.00	150
C	AT&T C13	MW AM-X-CD-16-65-00T-RE	150
C	AT&T C14	MW AM-X-CD-16-65-00T-RE	150
C	AT&T C15	MW AM-X-CD-16-65-00T-RE	150
C	AT&T C16	Powerwave Allgon 7770.00	150
C	AT&T C17	Powerwave Allgon 7770.00	150
C	AT&T C18	Powerwave Allgon 7770.00	150
C	AT&T C19	Powerwave Allgon 7770.00	150

APPENDIX 5

Summary of Power Density

Carriers	Power Density Value (% of General Population)
AT&T All Sectors:	1.1956%
Other Carriers:	3.9844%
Site Total:	5.1800%
Site Compliance Status:	Compliant



APPENDIX 6

Information Pertaining to MPE Studies

In 1985, the FCC first adopted guidelines to be used for evaluating human exposure to RF emissions. The FCC revised and updated these guidelines on August 1, 1996, as a result of a rule-making proceeding initiated in 1993. The new guidelines incorporate limits for Maximum Permissible Exposure (MPE) in terms of electric and magnetic field strength and power density for transmitters operating at frequencies between 300 kHz and 100 GHz.

The FCC's MPE limits are based on exposure limits recommended by the National Council on Radiation Protection and Measurements (NCRP) and, over a wide range of frequencies, the exposure limits were developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI) to replace the 1982 ANSI guidelines. Limits for localized absorption are based on recommendations of both ANSI/IEEE and NCRP.

The FCC's limits, and the NCRP and ANSI/IEEE limits on which they are based, are derived from exposure criteria quantified in terms of specific absorption rate (SAR). The basis for these limits is a whole-body averaged SAR threshold level of 4 watts per kilogram (4 W/kg), as averaged over the entire mass of the body, above which expert organizations have determined that potentially hazardous exposures may occur. The MPE limits are derived by incorporating safety factors that lead, in some cases, to limits that are more conservative than the limits originally adopted by the FCC in 1985. Where more conservative limits exist, they do not arise from a fundamental change in the RF safety criteria for whole-body averaged SAR, but from a precautionary desire to protect subgroups of the general population who, potentially, may be more at risk.

The FCC exposure limits are also based on data showing that the human body absorbs RF energy at some frequencies more efficiently than at others. The most restrictive limits occur in the frequency range of 30-300 MHz where whole-body absorption of RF energy by human beings is most efficient. At other frequencies, whole-body absorption is less efficient, and consequently, the MPE limits are less restrictive.

MPE limits are defined in terms of power density (units of milliwatts per centimeter squared: mW/cm²), electric field strength (units of volts per meter: V/m) and magnetic field strength (units of amperes per meter: A/m). The far-field of a transmitting antenna is where the electric field vector (E), the

magnetic field vector (H), and the direction of propagation can be considered to be all mutually orthogonal ("plane-wave" conditions).

The FCC guidelines define two separate tiers of exposure limits. As defined by the FCC, these limits are:

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.

General population/uncontrolled exposure limits apply to situations in which the general public 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 public 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. Additional details can be found in FCC OET 65.

For the purposes of this study, only General population/uncontrolled exposure limits were studied.

APPENDIX 7

MPE Standards Methodology

This study predicts RF field strength and power density levels that emanate from communications system antennae. It considers all transmitter power levels (less filter and line losses) delivered to each active transmitting antenna at the communications site. Calculations are performed to determine power density and MPE levels for each antenna as well as composite levels from all antennas. The calculated levels are based on where a human (Observer) would be standing at various locations at the site. The point of interest where the MPE level is predicted is based on the height of the Observer.

Compliance with the FCC limits on RF emissions are determined by spatially averaging a person's exposure over the projected area of an adult human body, that is approximately six-feet or two-meters, as defined in the ANSI/IEEE C95.1 standard. The MPE limits are specified as time-averaged exposure limits. This means that exposure is averaged over an identifiable time interval. It is 30 minutes for the general population/uncontrolled RF environment and 6 minutes for the occupational/controlled RF environment. However, in the case of the general public, time averaging should not be applied because the general public is typically not aware of RF exposure and they do not have control of their exposure time. Therefore, it should be assumed that any RF exposure to the general public will be continuous.

The FCC's limits for exposure at different frequencies are shown in the following Tables.

Limits for Occupational/Controlled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3 - 3.0	614	1.63	100*	6
3.0 - 30	1842/f	4.89/f	900/F ²	6
30 - 300	61.4	0.163	1.0	6
300 - 1500	--	--	f/300	6
1500 - 100,000	--	--	5	6

Where:

f = frequency

* = Plane-wave equivalent power density

Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3 - 1.34	614	1.63	100*	30
1.34 - 30	824/f	2.19/f	180/F ²	30
30 - 300	27.5	0.073	0.2	30
300 - 1500	--	--	f/1500	30
1500 - 100,000	--	--	1.0	30

Where:

f = frequency

* = Plane-wave equivalent power density

General population/uncontrolled exposures apply in situations in which the general public may be exposed or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

It is important to understand that these limits apply cumulatively to all sources of RF emissions affecting a given area. For example, if several different communications system antennas occupy a shared facility such as a tower or rooftop, then the total exposure from all systems at the facility must be within compliance of the FCC guidelines.

The field strength emanating from an antenna can be estimated based on the characteristics of an antenna radiating in free space. There are basically two field areas associated with a radiating antenna. When close to the antenna, the region is known as the Near Field. Within this region, the characteristics of the RF fields are very complex and the wave front is extremely curved. As you move further from the antenna, the wave front has less curvature and becomes planar. The wave front still

has a curvature but it appears to occupy a flat plane in space (plane-wave radiation). This region is known as the Far Field.

Two models are utilized to predict Near and Far field power densities. They are based on the formulae in FCC OET 65. As this study is concerned only with Near Field calculations, we will only describe the model used for this study. For additional details, refer to FCC OET Bulletin 65.

Cylindrical Model (Near Field Predictions)

Spatially averaged plane-wave equivalent power densities parallel to the antenna may be estimated by dividing the antenna input power by the surface area of an imaginary cylinder surrounding the length of the radiating antenna. While the actual power density will vary along the height of the antenna, the average value along its length will closely follow the relation given by the following equation:

$$S = P \div 2\pi RL$$

Where:

S = Power Density

P = Total Power into antenna

R = Distance from the antenna

L = Antenna aperture length

For directional-type antennas, power densities can be estimated by dividing the input power by that portion of a cylindrical surface area corresponding to the angular beam width of the antenna. For example, for the case of a 120-degree azimuthal beam width, the surface area should correspond to 1/3 that of a full cylinder. This would increase the power density near the antenna by a factor of three over that for a purely omni-directional antenna. Mathematically, this can be represented by the following formula:

$$S = (180 / \theta_{BW}) P \div \pi RL$$

Where:

S = Power Density

θ_{BW} = Beam width of antenna in degrees (3 dB half-power point)

P = Total Power into antenna

R = Distance from the antenna

L = Antenna aperture length

If the antenna is a 360-degree omni-directional antenna, this formula would be equivalent to the previous formula.

Spherical Model (Far Field Predictions)

Spatially averaged plane-wave power densities in the Far Field of an antenna may be estimated by considering the additional factors of antenna gain and reflective waves that would contribute to exposure.

The radiation pattern of an antenna has developed in the Far Field region and the power gain needs to be considered in exposure predictions. Also, if the vertical radiation pattern of the antenna is considered, the exposure predictions would most likely be reduced significantly at ground level, resulting in a more realistic estimate of the actual exposure levels.

Additionally, to model a truly "worst case" prediction of exposure levels at or near a surface, such as at ground-level or on a rooftop, reflection off the surface of antenna radiation power can be assumed, resulting in a potential four-fold increase in power density.

These additional factors are considered and the Far Field prediction model is determined by the following equation:

$$S = EIRP \times Rc \div 4\pi R^2$$

Where:

S = Power Density

EIRP = Effective Radiated Power from antenna

Rc = Reflection Coefficient (2.56)

R = Distance from the antenna

The EIRP includes the antenna gain. If the antenna pattern is considered, the antenna gain is relative based on the horizontal and vertical pattern gain values at that particular location in space, on a rooftop or on the ground. However, it is recommended that the antenna radiation pattern characteristics not be considered to provide a conservative "worst case" prediction. This is the equation is utilized for the Far Field exposure predictions herein.

EXHIBIT 5



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 148 ft Monopole
ATC Site Name : Columbia Central, CT
ATC Asset Number : 302528
Engineering Number : 13252626_C3_03
Proposed Carrier : AT&T MOBILITY
Carrier Site Name : MRCTB047253
Carrier Site Number : CTL05864
Site Location : 330 Middletown Road
Columbia, CT 06237-1528
41.689900,-72.325200
County : Tolland
Date : July 31, 2020
Max Usage : 54%
Result : Pass

Prepared By:
Hansol Shin
Structural Engineer I

Reviewed By:



COA: PEC.0001553



Table of Contents

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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 148 ft monopole to reflect the change in loading by AT&T MOBILITY.

Supporting Documents

Tower Drawings	Summit Manufacturing Design #13998, dated May 2, 2001
Foundation Drawing	Summit Manufacturing Design #13998, dated April 30, 2001
Geotechnical Report	Tectonic Engineering Consultants Report #1170-C878B, dated January 26, 2001
Mount Analysis	ATC Project #13252626, dated July 29, 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:	120 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:	B
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
150.0	6	Powerwave Allgon LGP21401	Low Profile Platform	(2) 0.78" (19.7mm) 8 AWG 6 (6) 1 5/8" Coax	AT&T MOBILITY
	1	Raycap DC6-48-60-18-8F ("Squid")			
	3	Powerwave Allgon 7770.00			
135.0	6	RFS FD9R6004/2C-3L	Low Profile Platform	(12) 1 5/8" Coax	VERIZON WIRELESS
	3	Amphenol Antel BXA-171063-8CF-EDIN-X			
	6	Antel LPA-80063/4CF			
	3	Antel BXA-70063/6CF_			
124.0	12	Decibel DB844H90E-XY	Low Profile Platform	(12) 1 1/4" Coax	SPRINT NEXTEL
108.0	6	Alcatel-Lucent RRH2x50-08	Platform with Handrail	(6) 1 1/4" Coax (4) 1 1/4" Hybriflex Cable	
	3	Alcatel-Lucent 1900 MHz 4X45 RRH			
	3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
	3	RFS APXVTM14-ALU-I20			
	3	Commscope NNVV-65B-R4			
58.0	1	Generic GPS	Leg	(1) 1/2" Coax	
30.0	1	Generic GPS	Leg	(1) 1/2" Coax	VERIZON WIRELESS

Equipment to be Removed

Elev. ¹ (ft)	Qty	Antenna	Mount Type	Lines	Carrier
150.0	6	LGP Allgon LGP21903	-	(1) 0.39" (10 mm) Cable (6) 1 5/8" Coax	AT&T MOBILITY
	3	KMW AM-X-CD-16-65-00T-RET			
	3	Powerwave Allgon 7770.00			
	3	Ericsson RRUS-11			

Proposed Equipment

Elev. ¹ (ft)	Qty	Antenna	Mount Type	Lines	Carrier
150.0	1	Raycap DC6-48-60-18-8F ("Squid")	Low Profile Platform	(2) 0.39" (10mm) Fiber Trunk (2) 0.78" (19.7mm) 8 AWG 6 (2) 2" conduit	AT&T MOBILITY
	3	Ericsson RRUS 8843 B2, B66A			
	3	Ericsson RRUS 4478 B14			
	3	Ericsson RRUS 4449 B5, B12			
	3	CCI DMP65R-BU6DA			
	3	CCI OPA65R-BU6D			

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

Install proposed lines inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	49%	Pass
Shaft	54%	Pass
Base Plate	37%	Pass
Flange	50%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	3,316.0	4,476.6	2,291.6	51%
Shear (Kips)	35.0	47.3	21.9	46%

* 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) (°)
150.0	Raycap DC6-48-60-18-8F ("Squid")	AT&T MOBILITY	0.338	0.230
	Ericsson RRUS 8843 B2, B66A			
	Ericsson RRUS 4478 B14			
	Ericsson RRUS 4449 B5, B12			
	CCI DMP65R-BU6DA			
	CCI OPA65R-BU6D			

*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:

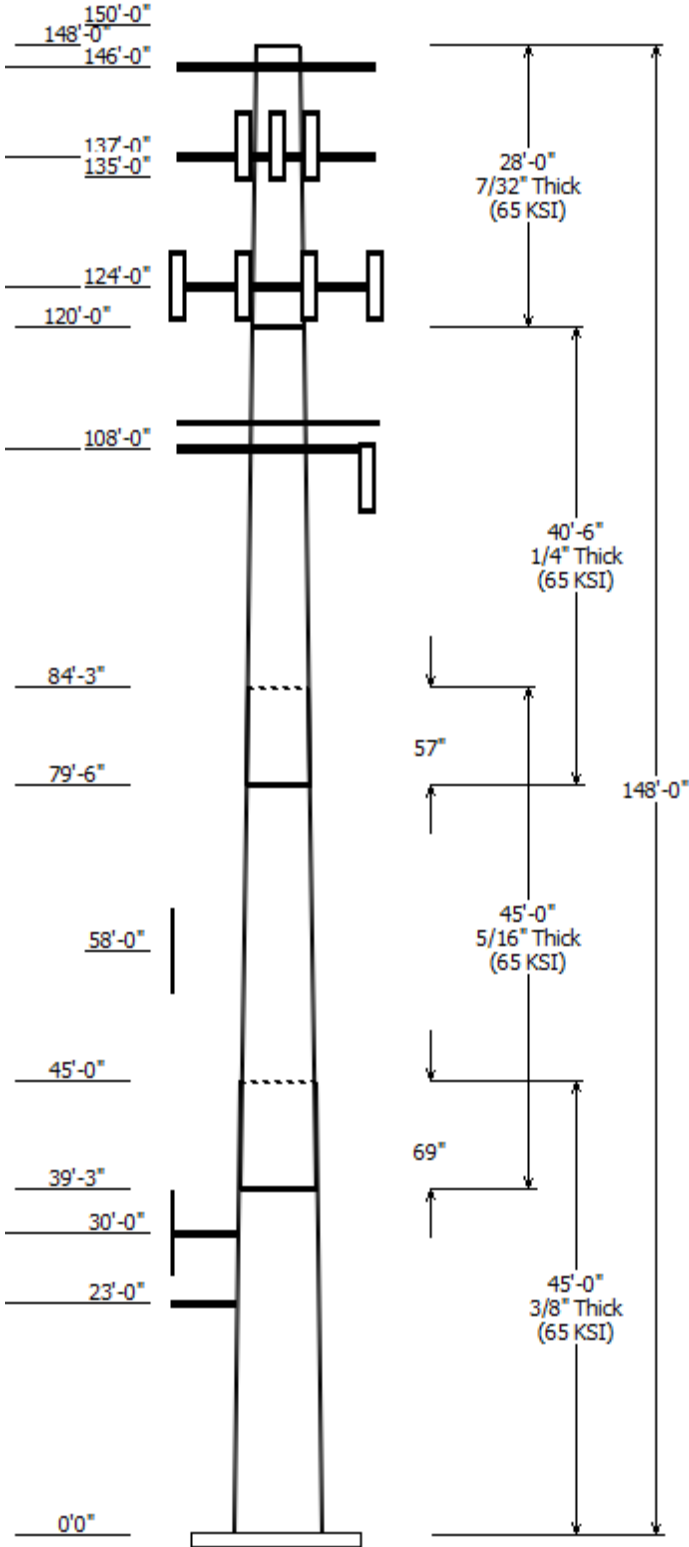
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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 : AT&T MOBILITY	Code: ANSI/TIA-222-H
Pole : 302528	
Location : Columbia Central, CT	
Description : 148' Summit Monopole	Risk Category : II
Shape : 18 Sides	Exposure : B
Height : 148.00 (ft)	Topo Method : Method 1
Base Elev (ft): 0.00	Topographic Category : 1
Taper: 0.181424(in/ft)	

Sections Properties							
Shaft Section	Length (ft)	Diameter (in)		Thick (in)	Joint Type	Overlap Length (in)	Steel Grade
		Across Flats Top	Across Flats Bottom				
1	45.000	43.56	51.72	0.375		0.000	18 Sides 65
2	45.000	37.06	45.23	0.313	Slip Joint	69.000	18 Sides 65
3	40.500	31.08	38.42	0.250	Slip Joint	57.000	18 Sides 65
4	28.000	26.00	31.08	0.219	Butt Joint	0.000	18 Sides 65

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
150.000	150.000	3	CCI OPA65R-BU6D
150.000	150.000	3	CCI DMP65R-BU6DA
150.000	146.000	3	Powerwave Allgon 7770.00
150.000	150.000	3	Ericsson RRUS 4449 B5, B12
150.000	150.000	3	Ericsson RRUS 4478 B14
150.000	150.000	3	Ericsson RRUS 8843 B2, B66A
150.000	146.000	1	Raycap DC6-48-60-18-8F
150.000	146.000	1	Raycap DC6-48-60-18-8F
150.000	146.000	6	Powerwave Allgon LGP21401
146.000	146.000	1	Round Low Profile Platform
137.000	137.000	1	Round Low Profile Platform
135.000	137.000	3	Antel BXA-70063/6CF_
135.000	137.000	6	Antel LPA-80063/4CF
135.000	137.000	3	Amphenol Antel BXA-171063-
135.000	137.000	6	RFS FD9R6004/2C-3L
124.000	124.000	1	Round Low Profile Platform
124.000	124.000	12	Decibel DB844H90E-XY
108.000	107.000	3	Commscope NNVV-65B-R4
108.000	107.000	3	RFS APXVTM14-ALU-I20
108.000	107.000	3	Alcatel-Lucent TD-RRH8x20-25
108.000	107.000	3	Alcatel-Lucent 1900 MHz 4X45
108.000	107.000	6	Alcatel-Lucent RRH2x50-08
108.000	108.000	1	Generic Round Platform with
58.000	58.000	1	Generic GPS
30.000	30.000	1	Stand-Off
30.000	30.000	1	Generic GPS
23.000	23.000	1	Side Arm

Linear Appurtenance			
From Elev (ft)	To Elev (ft)	Description	Exposed To Wind
0.000	30.000	1/2" Coax	No
0.000	58.000	1/2" Coax	No
0.000	108.0	1 1/4" Coax	No
0.000	108.0	1 1/4" Hybriflex	No
0.000	124.0	1 1/4" Coax	No
0.000	135.0	1 5/8" Coax	No
0.000	150.0	0.39" (10mm)	No
0.000	150.0	0.78" (19.7mm) 8	No
0.000	150.0	0.78" (19.7mm) 8	No

0.000	150.0	1 5/8" Coax	No
0.000	150.0	2" conduit	No

Load Cases

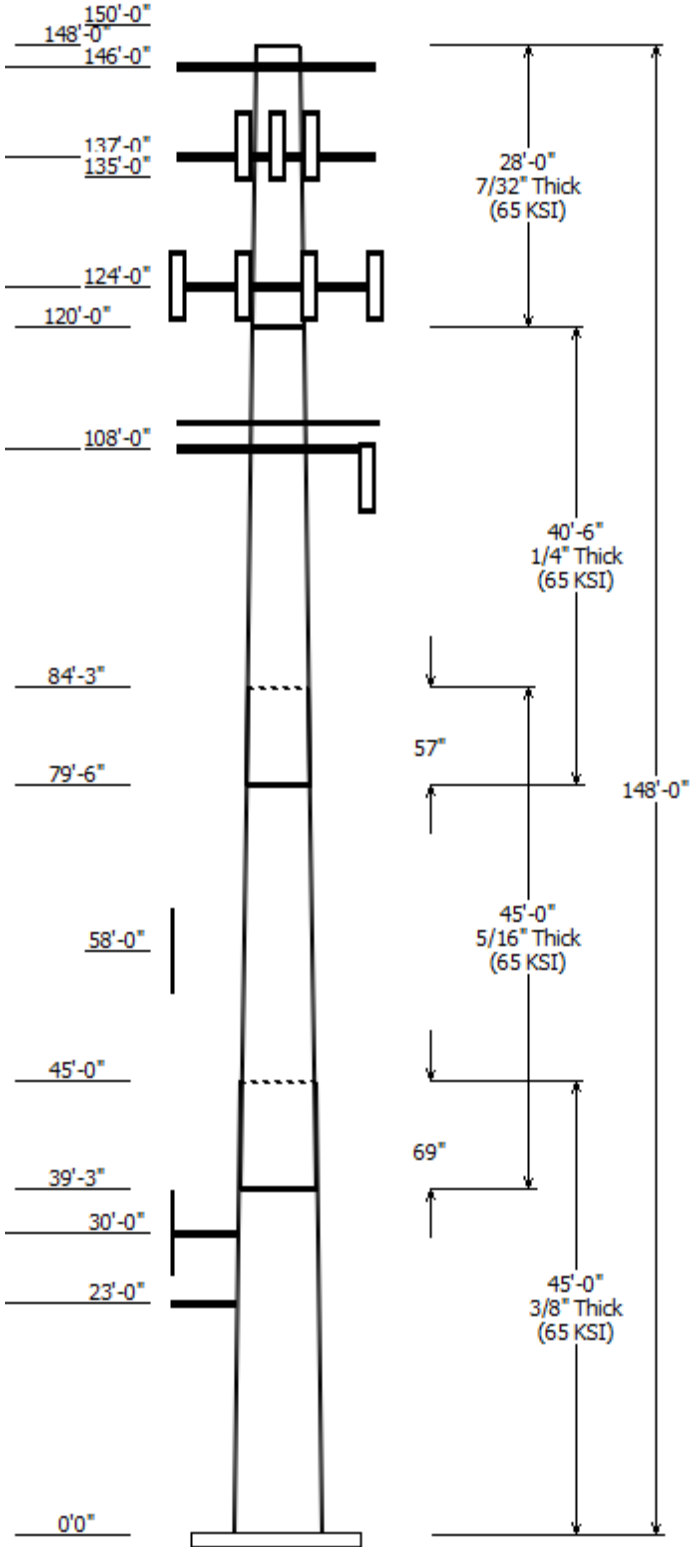
1.2D + 1.0W	120 mph with No Ice
0.9D + 1.0W	120 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph

Reactions

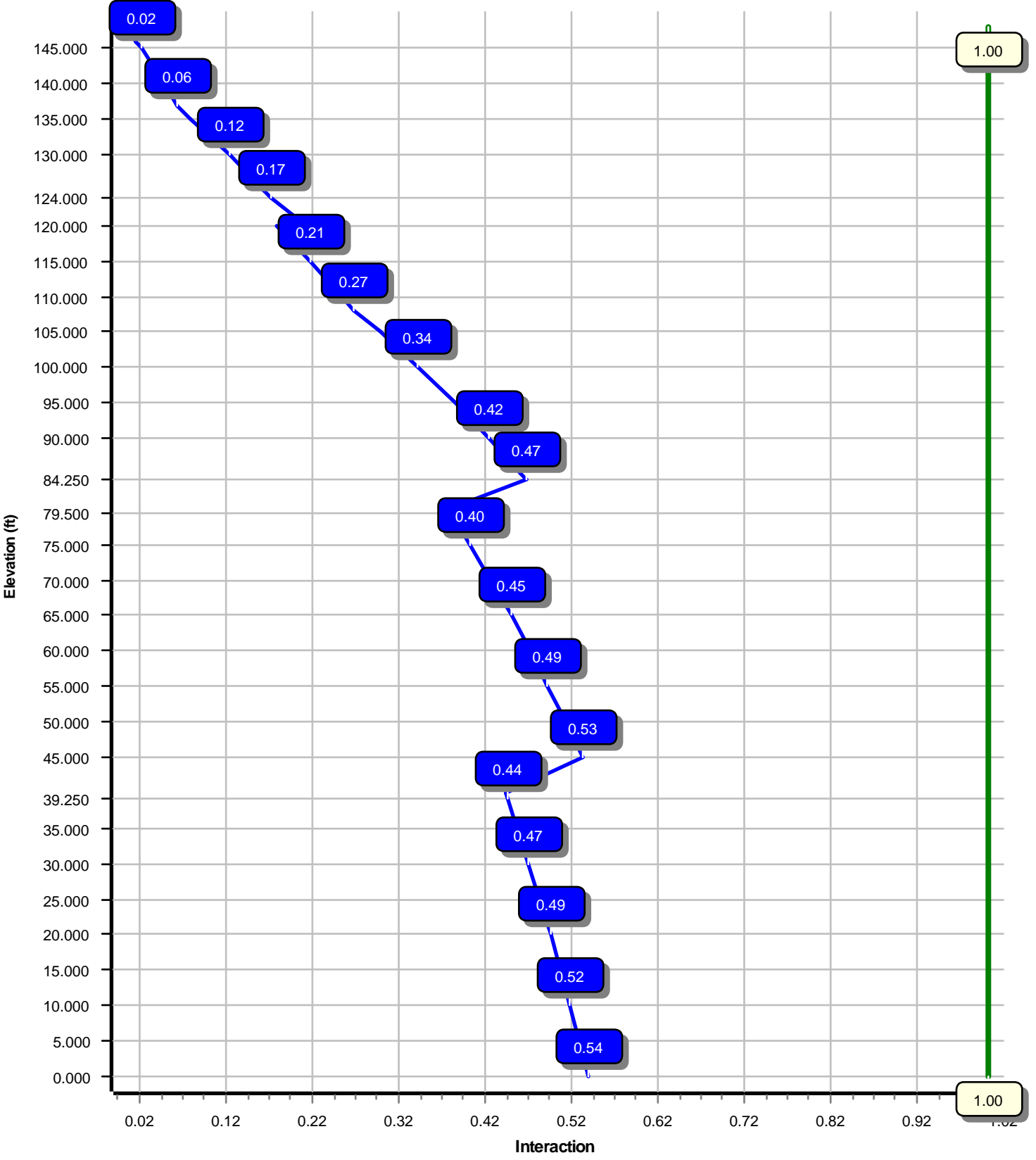
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.0W	2291.61	21.93	42.88
0.9D + 1.0W	2265.89	21.92	32.15
1.2D + 1.0Di + 1.0Wi	600.14	5.84	56.88
1.2D + 1.0Ev + 1.0Eh	129.42	1.08	42.88
0.9D - 1.0Ev + 1.0Eh	127.60	1.07	29.63
1.0D + 1.0W	509.06	4.90	35.76

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 53.72% at 0.0 ft



Site Number: 302528

Code: ANSI/TIA-222-H

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Site Name: Columbia Central, CT

Engineering Number: 13252626_C3_03

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Customer: AT&T MOBILITY

Analysis Parameters

Location :	Tolland County, CT	Height (ft) :	148
Code :	ANSI/TIA-222-H	Base Diameter (in) :	51.73
Shape :	18 Sides	Top Diameter (in) :	26.00
Pole Type :	Taper	Taper (in/ft) :	0.181
Pole Manufacturer :	Summit Manufacturing	Rotation (deg) :	0.00
Kd (non-service) :	0.95	Ke :	0.98

Ice & Wind Parameters

Exposure Category:	B	Design Wind Speed Without Ice:	120 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:	638.00 ft

Seismic Parameters

Analysis Method:	Equivalent Lateral Force Method		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	2.29		
T _L (sec):	6	p:	1
S _s :	0.196	S ₁ :	0.055
F _a :	1.600	F _v :	2.400
S _{ds} :	0.209	S _{d1} :	0.088
		C _s :	0.030
		C _s Max:	0.030
		C _s Min:	0.030

Load Cases

1.2D + 1.0W	120 mph with No Ice
0.9D + 1.0W	120 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

Site Number: 302528

Code: ANSI/TIA-222-H

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Site Name: Columbia Central, CT

Engineering Number:13252626_C3_03

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Customer: AT&T MOBILITY

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom				Top				Taper (in/ft)				
							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
1-18	45.000	0.3750	65		0.00	8,615	51.72	0.00	61.12	20361.7	22.56	137.94	43.56	45.00	51.40	12112.2	18.72	116.16	0.181424
2-18	45.000	0.3125	65	Slip	69.00	6,202	45.23	39.25	44.55	11356.3	23.76	144.74	37.06	84.25	36.45	6221.3	19.15	118.61	0.181424
3-18	40.500	0.2500	65	Slip	57.00	3,773	38.42	79.50	30.29	5578.4	25.34	153.71	31.08	120.00	24.46	2937.6	20.16	124.32	0.181424
4-18	28.000	0.2187	65	Butt	0.00	1,873	31.08	120.00	21.42	2577.7	23.29	142.11	26.00	148.00	17.90	1502.8	19.20	118.88	0.181424
Shaft Weight						20,463													

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
150.00	Powerwave Allgon LGP21401	6	0.80	-4.000	14.10	1.104	0.50	30.73	1.580	0.50
150.00	Raycap DC6-48-60-18-8F	1	0.80	-4.000	31.80	1.470	1.00	72.93	1.936	1.00
150.00	Raycap DC6-48-60-18-8F	1	0.80	-4.000	31.80	1.470	1.00	72.93	1.936	1.00
150.00	Ericsson RRUS 8843 B2, B66A	3	0.80	0.000	72.00	1.639	0.50	112.86	2.202	0.50
150.00	Ericsson RRUS 4478 B14	3	0.80	0.000	59.90	1.842	0.50	96.76	2.440	0.50
150.00	Ericsson RRUS 4449 B5, B12	3	0.80	0.000	71.00	1.969	0.50	113.97	2.591	0.50
150.00	Powerwave Allgon 7770.00	3	0.80	-4.000	35.00	5.508	0.65	118.18	6.194	0.65
150.00	CCI DMP65R-BU6DA	3	0.80	0.000	79.40	12.709	0.63	251.14	14.568	0.63
150.00	CCI OPA65R-BU6D	3	0.80	0.000	63.20	12.871	0.63	237.44	14.736	0.63
146.00	Round Low Profile Platform	1	1.00	0.000	1,500.00	21.700	1.00	1,931.50	34.487	1.00
137.00	Round Low Profile Platform	1	1.00	0.000	1,500.00	21.700	1.00	1,928.59	34.401	1.00
135.00	RFS FD9R6004/2C-3L	6	0.80	2.000	2.60	0.314	0.50	7.88	0.569	0.50
135.00	Amphenol Antel BXA-171063-	3	0.80	2.000	10.50	2.940	0.67	53.66	4.032	0.67
135.00	Antel LPA-80063/4CF	6	0.80	2.000	20.00	6.142	0.76	148.58	6.813	0.76
135.00	Antel BXA-70063/6CF	3	0.80	2.000	17.00	7.569	0.65	110.31	9.389	0.65
124.00	Decibel DB844H90E-XY	12	0.80	0.000	14.00	3.615	0.73	80.16	3.604	0.73
124.00	Round Low Profile Platform	1	1.00	0.000	1,500.00	21.700	1.00	1,923.96	34.263	1.00
108.00	Alcatel-Lucent RRH2x50-08	6	0.75	-1.000	52.90	1.701	0.50	91.15	2.258	0.50
108.00	Alcatel-Lucent 1900 MHz 4X45	3	0.75	-1.000	60.00	2.322	0.67	112.02	3.020	0.67
108.00	Alcatel-Lucent TD-RRH8x20-25	3	0.75	-1.000	70.00	4.046	0.61	131.01	4.903	0.61
108.00	RFS APXVTM14-ALU-I20	3	0.75	-1.000	56.20	6.342	0.66	145.09	7.748	0.66
108.00	Commscope NNVV-65B-R4	3	0.75	-1.000	77.40	12.271	0.64	239.61	14.081	0.64
108.00	Generic Round Platform with	1	1.00	0.000	2,500.00	27.200	1.00	3,545.60	42.980	1.00
58.00	Generic GPS	1	1.00	0.000	10.00	0.900	1.00	27.73	1.287	1.00
30.00	Generic GPS	1	1.00	0.000	10.00	0.900	1.00	26.50	1.261	1.00
30.00	Stand-Off	1	1.00	0.000	100.00	3.000	1.00	127.49	3.884	1.00
23.00	Side Arm	1	1.00	0.000	100.00	3.000	1.00	126.83	3.862	1.00
Totals	Num Loadings:27	82			10,004.00			17,582.24		

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)	Dist Azimuth (deg)	Dist From Face (in)	Exposed To Wind Carrier
0.00	150.00	2	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0.00	0	N AT&T MOBILITY
0.00	150.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0.00	0.00	0	N AT&T MOBILITY
0.00	150.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0.00	0.00	0	N AT&T MOBILITY
0.00	150.00	6	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	N AT&T MOBILITY
0.00	150.00	2	2" conduit	2.38	3.65	N	0	0.00	0.00	0	N AT&T MOBILITY
0.00	135.00	12	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	N VERIZON WIRELESS
0.00	124.00	12	1 1/4" Coax	1.55	0.63	N	0	0.00	0.00	0	N SPRINT NEXTEL
0.00	108.00	6	1 1/4" Coax	1.55	0.63	N	0	0.00	0.00	0	N SPRINT NEXTEL

Site Number: 302528

Code: ANSI/TIA-222-H

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Site Name: Columbia Central, CT

Engineering Number:13252626_C3_03

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Customer: AT&T MOBILITY

0.00	108.00	4	1 1/4" Hybriflex Cable	1.54	1.00	N	0	0.00	0.00	0	0.00	N	SPRINT NEXTEL
0.00	58.00	1	1/2" Coax	0.63	0.15	N	0	0.00	0.00	0	0.00	N	SPRINT NEXTEL
0.00	30.00	1	1/2" Coax	0.63	0.15	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	51.726	61.118	20,361.7	22.56	137.94	74.9	775.3	0.0	0.0
5.00		0.3750	50.819	60.038	19,301.6	22.13	135.52	75.4	748.1	0.0	1,030.7
10.00		0.3750	49.911	58.959	18,278.9	21.71	133.10	75.9	721.3	0.0	1,012.3
15.00		0.3750	49.004	57.879	17,293.0	21.28	130.68	76.4	695.1	0.0	993.9
20.00		0.3750	48.097	56.799	16,343.2	20.85	128.26	76.9	669.3	0.0	975.6
23.00		0.3750	47.553	56.152	15,790.4	20.60	126.81	77.2	654.0	0.0	576.5
25.00		0.3750	47.190	55.720	15,428.9	20.43	125.84	77.4	644.0	0.0	380.7
30.00		0.3750	46.283	54.640	14,549.2	20.00	123.42	77.9	619.2	0.0	938.8
35.00		0.3750	45.376	53.560	13,703.7	19.57	121.00	78.4	594.8	0.0	920.5
39.25	Bot - Section 2	0.3750	44.605	52.643	13,011.3	19.21	118.95	78.8	574.5	0.0	767.9
40.00		0.3750	44.469	52.481	12,891.6	19.15	118.58	78.9	571.0	0.0	247.7
45.00	Top - Section 1	0.3125	44.187	43.516	10,583.3	23.17	141.40	74.1	471.7	0.0	1,631.7
50.00		0.3125	43.280	42.616	9,940.3	22.66	138.49	74.8	452.4	0.0	732.7
55.00		0.3125	42.372	41.717	9,323.9	22.15	135.59	75.4	433.4	0.0	717.4
58.00		0.3125	41.828	41.177	8,966.6	21.84	133.85	75.7	422.2	0.0	423.1
60.00		0.3125	41.465	40.817	8,733.6	21.63	132.69	76.0	414.8	0.0	279.0
65.00		0.3125	40.558	39.917	8,168.7	21.12	129.79	76.6	396.7	0.0	686.8
70.00		0.3125	39.651	39.018	7,628.7	20.61	126.88	77.2	378.9	0.0	671.5
75.00		0.3125	38.744	38.118	7,113.0	20.10	123.98	77.8	361.6	0.0	656.2
79.50	Bot - Section 3	0.3125	37.928	37.308	6,669.3	19.64	121.37	78.3	346.3	0.0	577.5
80.00		0.3125	37.837	37.218	6,621.1	19.59	121.08	78.4	344.7	0.0	114.9
84.25	Top - Section 2	0.2500	37.566	29.609	5,209.1	24.73	150.26	72.3	273.1	0.0	965.3
85.00		0.2500	37.430	29.501	5,152.3	24.64	149.72	72.4	271.1	0.0	75.4
90.00		0.2500	36.523	28.781	4,784.3	24.00	146.09	73.2	258.0	0.0	495.8
95.00		0.2500	35.615	28.061	4,434.3	23.36	142.46	73.9	245.2	0.0	483.6
100.0		0.2500	34.708	27.342	4,101.7	22.72	138.83	74.7	232.8	0.0	471.3
105.0		0.2500	33.801	26.622	3,786.3	22.08	135.20	75.4	220.6	0.0	459.1
108.0		0.2500	33.257	26.190	3,605.0	21.69	133.03	75.9	213.5	0.0	269.6
110.0		0.2500	32.894	25.902	3,487.4	21.44	131.58	76.2	208.8	0.0	177.3
115.0		0.2500	31.987	25.182	3,204.7	20.80	127.95	76.9	197.3	0.0	434.6
120.0	Top - Section 3	0.2500	31.080	24.463	2,937.6	20.16	124.32	77.7	186.2	0.0	422.3
120.0	Bot - Section 4	0.2187	31.080	21.422	2,577.7	23.29	142.11	74.0	163.4	0.0	
124.0		0.2187	30.354	20.918	2,400.1	22.71	138.79	74.7	155.7	0.0	288.1
125.0		0.2187	30.173	20.792	2,357.0	22.56	137.96	74.9	153.9	0.0	71.0
130.0		0.2187	29.266	20.162	2,149.3	21.83	133.82	75.7	144.6	0.0	348.4
135.0		0.2187	28.359	19.533	1,954.1	21.10	129.67	76.6	135.7	0.0	337.7
137.0		0.2187	27.996	19.281	1,879.5	20.81	128.01	76.9	132.2	0.0	132.1
140.0		0.2187	27.451	18.903	1,771.2	20.37	125.52	77.4	127.1	0.0	194.9
145.0		0.2187	26.544	18.273	1,600.0	19.64	121.37	78.3	118.7	0.0	316.3
146.0		0.2187	26.363	18.147	1,567.2	19.49	120.54	78.5	117.1	0.0	62.0
148.0		0.2187	26.000	17.896	1,502.8	19.20	118.88	78.8	113.8	0.0	122.6
20,462.6											

Load Case: 1.2D + 1.0W	120 mph with No Ice	24 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		208.6	0.0					0.0	0.0	208.6	0.0	0.0	0.0
5.00		413.6	1,236.8					0.0	241.1	413.6	1,477.9	0.0	0.0
10.00		406.2	1,214.8					0.0	241.1	406.2	1,455.8	0.0	0.0
15.00		398.8	1,192.7					0.0	241.1	398.8	1,433.8	0.0	0.0
20.00		314.3	1,170.7					0.0	241.1	314.3	1,411.8	0.0	0.0
23.00	Appurtenance(s)	193.9	691.8	79.1	0.0	0.0	120.0	0.0	144.6	272.9	956.5	0.0	0.0
25.00		267.3	456.8					0.0	96.4	267.3	553.2	0.0	0.0
30.00	Appurtenance(s)	381.2	1,126.6	102.9	0.0	0.0	132.0	0.0	241.1	484.0	1,499.7	0.0	0.0
35.00		356.5	1,104.5					0.0	240.2	356.5	1,344.7	0.0	0.0
39.25	Bot - Section 2	195.4	921.5					0.0	204.2	195.4	1,125.7	0.0	0.0
40.00		230.7	297.2					0.0	36.0	230.7	333.2	0.0	0.0
45.00	Top - Section 1	403.9	1,958.1					0.0	240.2	403.9	2,198.3	0.0	0.0
50.00		407.8	879.3					0.0	240.2	407.8	1,119.4	0.0	0.0
55.00		327.9	860.9					0.0	240.2	327.9	1,101.1	0.0	0.0
58.00	Appurtenance(s)	205.6	507.7	28.7	0.0	0.0	12.0	0.0	144.1	234.2	663.8	0.0	0.0
60.00		288.3	334.8					0.0	95.7	288.3	430.5	0.0	0.0
65.00		411.9	824.2					0.0	239.3	411.9	1,063.4	0.0	0.0
70.00		411.3	805.8					0.0	239.3	411.3	1,045.1	0.0	0.0
75.00		389.5	787.4					0.0	239.3	389.5	1,026.7	0.0	0.0
79.50	Bot - Section 3	204.8	693.0					0.0	215.4	204.8	908.3	0.0	0.0
80.00		195.9	137.9					0.0	23.9	195.9	161.8	0.0	0.0
84.25	Top - Section 2	206.0	1,158.4					0.0	203.4	206.0	1,361.8	0.0	0.0
85.00		235.3	90.5					0.0	35.9	235.3	126.4	0.0	0.0
90.00		407.1	595.0					0.0	239.3	407.1	834.2	0.0	0.0
95.00		403.2	580.3					0.0	239.3	403.2	819.5	0.0	0.0
100.00		398.7	565.6					0.0	239.3	398.7	804.9	0.0	0.0
105.00		315.9	550.9					0.0	239.3	315.9	790.2	0.0	0.0
108.00	Appurtenance(s)	195.6	323.5	2,550.2	0.0	-1,515.9	4,329.8	0.0	143.6	2,745.8	4,796.9	0.0	0.0
110.00		270.6	212.7					0.0	77.0	270.6	289.7	0.0	0.0
115.00		382.4	521.5					0.0	192.6	382.4	714.1	0.0	0.0
120.00	Top - Section 3	339.1	506.8					0.0	192.6	339.1	699.4	0.0	0.0
124.00	Appurtenance(s)	186.4	345.8	1,860.6	0.0	0.0	2,001.6	0.0	154.1	2,047.0	2,501.5	0.0	0.0
125.00		220.0	85.2					0.0	29.4	220.0	114.6	0.0	0.0
130.00		362.4	418.1					0.0	147.2	362.4	565.3	0.0	0.0
135.00	Appurtenance(s)	250.1	405.2	1,615.6	0.0	3,231.3	261.7	0.0	147.2	1,865.7	814.2	0.0	0.0
137.00	Appurtenance(s)	175.6	158.5	883.2	0.0	0.0	1,800.0	0.0	35.3	1,058.8	1,993.8	0.0	0.0
140.00		276.5	233.9					0.0	52.9	276.5	286.8	0.0	0.0
145.00		205.4	379.5					0.0	88.2	205.4	467.7	0.0	0.0
146.00	Appurtenance(s)	101.0	74.4	899.4	0.0	0.0	1,800.0	0.0	17.6	1,000.4	1,892.0	0.0	0.0
148.00		67.2	147.2					0.0	35.3	67.2	182.5	0.0	0.0
Totals:										19,631.6	41,366.1	0.00	0.00

Load Case: 1.2D + 1.0W

120 mph with No Ice

24 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	-42.88	-21.93	0.00	-2,291.61	0.00	2,291.61	4,118.20	1,072.62	4,974.87	4,353.59	0.00	0.00	0.537
5.00	-41.35	-21.63	0.00	-2,181.95	0.00	2,181.95	4,072.56	1,053.67	4,800.67	4,228.73	0.08	-0.16	0.527
10.00	-39.83	-21.33	0.00	-2,073.79	0.00	2,073.79	4,025.94	1,034.72	4,629.59	4,104.60	0.33	-0.31	0.516
15.00	-38.35	-21.03	0.00	-1,967.15	0.00	1,967.15	3,978.35	1,015.78	4,461.60	3,981.24	0.74	-0.47	0.504
20.00	-36.89	-20.78	0.00	-1,862.02	0.00	1,862.02	3,929.78	996.83	4,296.72	3,858.72	1.32	-0.63	0.492
23.00	-35.91	-20.54	0.00	-1,799.69	0.00	1,799.69	3,900.18	985.46	4,199.29	3,785.63	1.75	-0.72	0.485
25.00	-35.32	-20.34	0.00	-1,758.60	0.00	1,758.60	3,880.24	977.88	4,134.95	3,737.09	2.06	-0.79	0.480
30.00	-33.77	-19.92	0.00	-1,656.91	0.00	1,656.91	3,829.73	958.93	3,976.28	3,616.40	2.97	-0.94	0.467
35.00	-32.39	-19.63	0.00	-1,557.29	0.00	1,557.29	3,778.24	939.98	3,820.71	3,496.71	4.05	-1.10	0.454
39.25	-31.24	-19.45	0.00	-1,473.88	0.00	1,473.88	3,733.70	923.88	3,690.92	3,395.80	5.09	-1.24	0.443
40.00	-30.88	-19.26	0.00	-1,459.29	0.00	1,459.29	3,725.77	921.04	3,668.25	3,378.07	5.29	-1.26	0.441
45.00	-28.64	-18.88	0.00	-1,362.98	0.00	1,362.98	2,904.05	763.71	3,026.37	2,623.51	6.69	-1.42	0.530
50.00	-27.48	-18.53	0.00	-1,268.56	0.00	1,268.56	2,867.09	747.92	2,902.54	2,536.20	8.26	-1.57	0.510
55.00	-26.34	-18.23	0.00	-1,175.93	0.00	1,175.93	2,829.16	732.13	2,781.29	2,449.43	9.99	-1.75	0.490
58.00	-25.66	-18.02	0.00	-1,121.24	0.00	1,121.24	2,805.94	722.65	2,709.78	2,397.65	11.12	-1.85	0.477
60.00	-25.20	-17.77	0.00	-1,085.21	0.00	1,085.21	2,790.26	716.34	2,662.62	2,363.26	11.91	-1.92	0.469
65.00	-24.10	-17.39	0.00	-996.38	0.00	996.38	2,750.38	700.55	2,546.55	2,277.75	14.02	-2.09	0.447
70.00	-23.02	-17.00	0.00	-909.44	0.00	909.44	2,709.53	684.76	2,433.06	2,192.95	16.29	-2.26	0.424
75.00	-21.97	-16.63	0.00	-824.43	0.00	824.43	2,667.70	668.97	2,322.16	2,108.92	18.74	-2.42	0.400
79.50	-21.05	-16.41	0.00	-749.59	0.00	749.59	2,629.23	654.76	2,224.56	2,033.99	21.09	-2.56	0.377
80.00	-20.88	-16.24	0.00	-741.39	0.00	741.39	2,624.90	653.18	2,213.84	2,025.71	21.36	-2.57	0.375
84.25	-19.50	-16.00	0.00	-672.37	0.00	672.37	1,926.96	519.64	1,751.35	1,481.22	23.71	-2.70	0.465
85.00	-19.36	-15.79	0.00	-660.38	0.00	660.38	1,922.93	517.74	1,738.61	1,472.69	24.14	-2.73	0.459
90.00	-18.50	-15.39	0.00	-581.44	0.00	581.44	1,895.51	505.11	1,654.81	1,416.03	27.09	-2.90	0.421
95.00	-17.67	-15.00	0.00	-504.47	0.00	504.47	1,867.11	492.48	1,573.09	1,359.70	30.21	-3.06	0.381
100.00	-16.85	-14.60	0.00	-429.48	0.00	429.48	1,837.73	479.85	1,493.43	1,303.74	33.49	-3.21	0.340
105.00	-16.05	-14.27	0.00	-356.50	0.00	356.50	1,807.38	467.21	1,415.85	1,248.21	36.93	-3.35	0.295
108.00	-11.41	-11.25	0.00	-313.70	0.00	313.70	1,788.71	459.64	1,370.29	1,215.12	39.05	-3.42	0.265
110.00	-11.13	-10.98	0.00	-291.19	0.00	291.19	1,776.06	454.58	1,340.33	1,193.17	40.50	-3.47	0.251
115.00	-10.42	-10.57	0.00	-236.28	0.00	236.28	1,743.76	441.95	1,266.88	1,138.67	44.19	-3.58	0.214
120.00	-9.73	-10.20	0.00	-183.41	0.00	183.41	1,710.49	429.32	1,195.51	1,084.77	47.98	-3.67	0.175
120.00	-9.73	-10.20	0.00	-183.41	0.00	183.41	1,426.71	375.95	1,047.92	906.64	47.98	-3.67	0.210
124.00	-7.36	-8.01	0.00	-142.60	0.00	142.60	1,406.12	367.11	999.22	872.40	51.08	-3.73	0.169
125.00	-7.25	-7.78	0.00	-134.59	0.00	134.59	1,400.87	364.90	987.23	863.87	51.87	-3.75	0.161
130.00	-6.70	-7.39	0.00	-95.67	0.00	95.67	1,374.06	353.85	928.35	821.49	55.83	-3.82	0.122
135.00	-6.01	-5.48	0.00	-55.48	0.00	55.48	1,346.27	342.80	871.27	779.55	59.86	-3.87	0.076
137.00	-4.09	-4.29	0.00	-44.52	0.00	44.52	1,334.88	338.38	848.95	762.91	61.48	-3.88	0.062
140.00	-3.83	-4.00	0.00	-31.65	0.00	31.65	1,317.51	331.75	816.01	738.11	63.93	-3.90	0.046
145.00	-3.37	-3.76	0.00	-11.67	0.00	11.67	1,287.77	320.70	762.56	697.23	68.02	-3.92	0.019
146.00	-1.55	-2.63	0.00	-7.91	0.00	7.91	1,281.70	318.49	752.09	689.12	68.84	-3.92	0.013
148.00	0.00	-2.52	0.00	-2.65	0.00	2.65	1,269.46	314.07	731.36	672.99	70.48	-3.92	0.004

Load Case: 0.9D + 1.0W	120 mph with No Ice (Reduced DL)	24 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		208.6	0.0					0.0	0.0	208.6	0.0	0.0	0.0
5.00		413.6	927.6					0.0	180.8	413.6	1,108.4	0.0	0.0
10.00		406.2	911.1					0.0	180.8	406.2	1,091.9	0.0	0.0
15.00		398.8	894.5					0.0	180.8	398.8	1,075.3	0.0	0.0
20.00		314.3	878.0					0.0	180.8	314.3	1,058.8	0.0	0.0
23.00	Appurtenance(s)	193.9	518.9	79.1	0.0	0.0	90.0	0.0	108.5	272.9	717.4	0.0	0.0
25.00		267.3	342.6					0.0	72.3	267.3	414.9	0.0	0.0
30.00	Appurtenance(s)	381.2	844.9	102.9	0.0	0.0	99.0	0.0	180.8	484.0	1,124.8	0.0	0.0
35.00		356.5	828.4					0.0	180.1	356.5	1,008.5	0.0	0.0
39.25	Bot - Section 2	195.4	691.1					0.0	153.1	195.4	844.3	0.0	0.0
40.00		230.7	222.9					0.0	27.0	230.7	249.9	0.0	0.0
45.00	Top - Section 1	403.9	1,468.6					0.0	180.1	403.9	1,648.7	0.0	0.0
50.00		407.8	659.5					0.0	180.1	407.8	839.6	0.0	0.0
55.00		327.9	645.7					0.0	180.1	327.9	825.8	0.0	0.0
58.00	Appurtenance(s)	205.6	380.8	28.7	0.0	0.0	9.0	0.0	108.1	234.2	497.9	0.0	0.0
60.00		288.3	251.1					0.0	71.8	288.3	322.9	0.0	0.0
65.00		411.9	618.1					0.0	179.5	411.9	797.6	0.0	0.0
70.00		411.3	604.3					0.0	179.5	411.3	783.8	0.0	0.0
75.00		389.5	590.6					0.0	179.5	389.5	770.0	0.0	0.0
79.50	Bot - Section 3	204.8	519.7					0.0	161.5	204.8	681.2	0.0	0.0
80.00		195.9	103.4					0.0	17.9	195.9	121.3	0.0	0.0
84.25	Top - Section 2	206.0	868.8					0.0	152.5	206.0	1,021.3	0.0	0.0
85.00		235.3	67.9					0.0	26.9	235.3	94.8	0.0	0.0
90.00		407.1	446.2					0.0	179.5	407.1	625.7	0.0	0.0
95.00		403.2	435.2					0.0	179.5	403.2	614.7	0.0	0.0
100.00		398.7	424.2					0.0	179.5	398.7	603.6	0.0	0.0
105.00		315.9	413.2					0.0	179.5	315.9	592.6	0.0	0.0
108.00	Appurtenance(s)	195.6	242.6	2,550.2	0.0	-1,515.9	3,247.4	0.0	107.7	2,745.8	3,597.7	0.0	0.0
110.00		270.6	159.5					0.0	57.8	270.6	217.3	0.0	0.0
115.00		382.4	391.1					0.0	144.4	382.4	535.6	0.0	0.0
120.00	Top - Section 3	339.1	380.1					0.0	144.4	339.1	524.5	0.0	0.0
124.00	Appurtenance(s)	186.4	259.3	1,860.6	0.0	0.0	1,501.2	0.0	115.6	2,047.0	1,876.1	0.0	0.0
125.00		220.0	63.9					0.0	22.1	220.0	86.0	0.0	0.0
130.00		362.4	313.6					0.0	110.4	362.4	424.0	0.0	0.0
135.00	Appurtenance(s)	250.1	303.9	1,615.6	0.0	3,231.3	196.3	0.0	110.4	1,865.7	610.6	0.0	0.0
137.00	Appurtenance(s)	175.6	118.9	883.2	0.0	0.0	1,350.0	0.0	26.5	1,058.8	1,495.3	0.0	0.0
140.00		276.5	175.4					0.0	39.7	276.5	215.1	0.0	0.0
145.00		205.4	284.6					0.0	66.1	205.4	350.8	0.0	0.0
146.00	Appurtenance(s)	101.0	55.8	899.4	0.0	0.0	1,350.0	0.0	13.2	1,000.4	1,419.0	0.0	0.0
148.00		67.2	110.4					0.0	26.5	67.2	136.8	0.0	0.0
Totals:										19,631.6	31,024.6	0.00	0.00

Load Case: 0.9D + 1.0W	120 mph with No Ice (Reduced DL)	24 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	-32.15	-21.92	0.00	-2,265.89	0.00	2,265.89	4,118.20	1,072.62	4,974.87	4,353.59	0.00	0.00	0.529
5.00	-30.99	-21.59	0.00	-2,156.30	0.00	2,156.30	4,072.56	1,053.67	4,800.67	4,228.73	0.08	-0.15	0.518
10.00	-29.84	-21.26	0.00	-2,048.37	0.00	2,048.37	4,025.94	1,034.72	4,629.59	4,104.60	0.33	-0.31	0.507
15.00	-28.71	-20.93	0.00	-1,942.08	0.00	1,942.08	3,978.35	1,015.78	4,461.60	3,981.24	0.74	-0.46	0.495
20.00	-27.61	-20.67	0.00	-1,837.44	0.00	1,837.44	3,929.78	996.83	4,296.72	3,858.72	1.31	-0.62	0.484
23.00	-26.87	-20.42	0.00	-1,775.44	0.00	1,775.44	3,900.18	985.46	4,199.29	3,785.63	1.73	-0.71	0.476
25.00	-26.42	-20.20	0.00	-1,734.60	0.00	1,734.60	3,880.24	977.88	4,134.95	3,737.09	2.04	-0.78	0.471
30.00	-25.25	-19.77	0.00	-1,633.61	0.00	1,633.61	3,829.73	958.93	3,976.28	3,616.40	2.94	-0.93	0.459
35.00	-24.20	-19.45	0.00	-1,534.78	0.00	1,534.78	3,778.24	939.98	3,820.71	3,496.71	4.00	-1.09	0.446
39.25	-23.33	-19.27	0.00	-1,452.10	0.00	1,452.10	3,733.70	923.88	3,690.92	3,395.80	5.03	-1.22	0.434
40.00	-23.06	-19.07	0.00	-1,437.65	0.00	1,437.65	3,725.77	921.04	3,668.25	3,378.07	5.22	-1.24	0.432
45.00	-21.37	-18.69	0.00	-1,342.29	0.00	1,342.29	2,904.05	763.71	3,026.37	2,623.51	6.60	-1.40	0.520
50.00	-20.49	-18.32	0.00	-1,248.86	0.00	1,248.86	2,867.09	747.92	2,902.54	2,536.20	8.15	-1.55	0.500
55.00	-19.63	-18.01	0.00	-1,157.28	0.00	1,157.28	2,829.16	732.13	2,781.29	2,449.43	9.86	-1.72	0.480
58.00	-19.11	-17.79	0.00	-1,103.25	0.00	1,103.25	2,805.94	722.65	2,709.78	2,397.65	10.98	-1.82	0.468
60.00	-18.76	-17.53	0.00	-1,067.67	0.00	1,067.67	2,790.26	716.34	2,662.62	2,363.26	11.76	-1.89	0.459
65.00	-17.93	-17.14	0.00	-980.02	0.00	980.02	2,750.38	700.55	2,546.55	2,277.75	13.83	-2.06	0.437
70.00	-17.11	-16.75	0.00	-894.30	0.00	894.30	2,709.53	684.76	2,433.06	2,192.95	16.08	-2.22	0.415
75.00	-16.32	-16.37	0.00	-810.54	0.00	810.54	2,667.70	668.97	2,322.16	2,108.92	18.49	-2.38	0.391
79.50	-15.63	-16.16	0.00	-736.86	0.00	736.86	2,629.23	654.76	2,224.56	2,033.99	20.80	-2.52	0.369
80.00	-15.49	-15.98	0.00	-728.78	0.00	728.78	2,624.90	653.18	2,213.84	2,025.71	21.07	-2.54	0.366
84.25	-14.46	-15.75	0.00	-660.87	0.00	660.87	1,926.96	519.64	1,751.35	1,481.22	23.38	-2.66	0.455
85.00	-14.35	-15.53	0.00	-649.06	0.00	649.06	1,922.93	517.74	1,738.61	1,472.69	23.81	-2.69	0.449
90.00	-13.70	-15.13	0.00	-571.41	0.00	571.41	1,895.51	505.11	1,654.81	1,416.03	26.71	-2.86	0.412
95.00	-13.07	-14.73	0.00	-495.75	0.00	495.75	1,867.11	492.48	1,573.09	1,359.70	29.79	-3.01	0.372
100.00	-12.45	-14.33	0.00	-422.08	0.00	422.08	1,837.73	479.85	1,493.43	1,303.74	33.02	-3.16	0.331
105.00	-11.85	-14.01	0.00	-350.41	0.00	350.41	1,807.38	467.21	1,415.85	1,248.21	36.40	-3.29	0.288
108.00	-8.41	-11.06	0.00	-308.39	0.00	308.39	1,788.71	459.64	1,370.29	1,215.12	38.50	-3.37	0.259
110.00	-8.20	-10.79	0.00	-286.26	0.00	286.26	1,776.06	454.58	1,340.33	1,193.17	39.92	-3.42	0.245
115.00	-7.67	-10.39	0.00	-232.30	0.00	232.30	1,743.76	441.95	1,266.88	1,138.67	43.55	-3.52	0.209
120.00	-7.15	-10.03	0.00	-180.34	0.00	180.34	1,710.49	429.32	1,195.51	1,084.77	47.29	-3.61	0.171
120.00	-7.15	-10.03	0.00	-180.34	0.00	180.34	1,426.71	375.95	1,047.92	906.64	47.29	-3.61	0.205
124.00	-5.40	-7.87	0.00	-140.22	0.00	140.22	1,406.12	367.11	999.22	872.40	50.34	-3.68	0.165
125.00	-5.33	-7.65	0.00	-132.35	0.00	132.35	1,400.87	364.90	987.23	863.87	51.11	-3.69	0.157
130.00	-4.92	-7.27	0.00	-94.09	0.00	94.09	1,374.06	353.85	928.35	821.49	55.02	-3.76	0.119
135.00	-4.43	-5.37	0.00	-54.53	0.00	54.53	1,346.27	342.80	871.27	779.55	58.98	-3.81	0.073
137.00	-3.01	-4.21	0.00	-43.80	0.00	43.80	1,334.88	338.38	848.95	762.91	60.58	-3.82	0.060
140.00	-2.81	-3.92	0.00	-31.16	0.00	31.16	1,317.51	331.75	816.01	738.11	62.99	-3.84	0.044
145.00	-2.47	-3.69	0.00	-11.55	0.00	11.55	1,287.77	320.70	762.56	697.23	67.02	-3.86	0.019
146.00	-1.12	-2.60	0.00	-7.85	0.00	7.85	1,281.70	318.49	752.09	689.12	67.83	-3.86	0.012
148.00	0.00	-2.52	0.00	-2.65	0.00	2.65	1,269.46	314.07	731.36	672.99	69.44	-3.86	0.004

Load Case: 1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice	23 Iterations
Gust Response Factor :1.10	Ice Dead Load Factor :1.00	Ice Importance Factor :1.00
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		61.3	0.0					0.0	0.0	61.3	0.0	0.0	0.0
5.00		121.8	1,486.5					0.0	241.1	121.8	1,727.6	0.0	0.0
10.00		120.0	1,489.1					0.0	241.1	120.0	1,730.1	0.0	0.0
15.00		118.0	1,476.5					0.0	241.1	118.0	1,717.6	0.0	0.0
20.00		93.2	1,459.0					0.0	241.1	93.2	1,700.1	0.0	0.0
23.00	Appurtenance(s)	57.5	866.5	17.7	0.0	0.0	139.8	0.0	144.6	75.2	1,151.0	0.0	0.0
25.00		79.4	573.7					0.0	96.4	79.4	670.1	0.0	0.0
30.00	Appurtenance(s)	113.4	1,417.3	23.6	0.0	0.0	164.8	0.0	241.1	136.9	1,823.2	0.0	0.0
35.00		106.2	1,394.6					0.0	240.2	106.2	1,634.8	0.0	0.0
39.25	Bot - Section 2	58.2	1,167.3					0.0	204.2	58.2	1,371.5	0.0	0.0
40.00		68.8	341.3					0.0	36.0	68.8	377.4	0.0	0.0
45.00	Top - Section 1	120.6	2,248.6					0.0	240.2	120.6	2,488.8	0.0	0.0
50.00		121.9	1,167.2					0.0	240.2	121.9	1,407.4	0.0	0.0
55.00		98.1	1,145.8					0.0	240.2	98.1	1,386.0	0.0	0.0
58.00	Appurtenance(s)	61.6	677.8	7.1	0.0	0.0	25.5	0.0	144.1	68.7	847.4	0.0	0.0
60.00		86.5	447.7					0.0	95.7	86.5	543.5	0.0	0.0
65.00		123.7	1,102.1					0.0	239.3	123.7	1,341.4	0.0	0.0
70.00		123.7	1,079.8					0.0	239.3	123.7	1,319.1	0.0	0.0
75.00		117.3	1,057.3					0.0	239.3	117.3	1,296.6	0.0	0.0
79.50	Bot - Section 3	61.7	932.5					0.0	215.4	61.7	1,147.8	0.0	0.0
80.00		59.1	164.8					0.0	23.9	59.1	188.8	0.0	0.0
84.25	Top - Section 2	62.1	1,383.9					0.0	203.4	62.1	1,587.3	0.0	0.0
85.00		71.1	130.3					0.0	35.9	71.1	166.2	0.0	0.0
90.00		123.1	854.8					0.0	239.3	123.1	1,094.1	0.0	0.0
95.00		122.1	835.3					0.0	239.3	122.1	1,074.6	0.0	0.0
100.00		121.0	815.6					0.0	239.3	121.0	1,054.9	0.0	0.0
105.00		96.0	795.9					0.0	239.3	96.0	1,035.1	0.0	0.0
108.00	Appurtenance(s)	59.5	468.7	600.8	0.0	-317.0	6,170.9	0.0	143.6	660.3	6,783.2	0.0	0.0
110.00		82.5	308.8					0.0	77.0	82.5	385.8	0.0	0.0
115.00		116.8	756.0					0.0	192.6	116.8	948.6	0.0	0.0
120.00	Top - Section 3	103.7	735.9					0.0	192.6	103.7	928.5	0.0	0.0
124.00	Appurtenance(s)	57.1	525.6	408.8	0.0	0.0	3,126.5	0.0	154.1	465.9	3,806.2	0.0	0.0
125.00		67.5	130.0					0.0	29.4	67.5	159.4	0.0	0.0
130.00		111.4	636.1					0.0	147.2	111.4	783.3	0.0	0.0
135.00	Appurtenance(s)	77.0	617.6	334.6	0.0	669.1	1,378.3	0.0	147.2	411.6	2,143.1	0.0	0.0
137.00	Appurtenance(s)	54.2	242.6	243.1	0.0	0.0	2,135.6	0.0	35.3	297.3	2,413.5	0.0	0.0
140.00		85.5	357.9					0.0	52.9	85.5	410.9	0.0	0.0
145.00		63.6	580.3					0.0	88.2	63.6	668.5	0.0	0.0
146.00	Appurtenance(s)	31.3	114.3	248.2	0.0	0.0	2,138.5	0.0	17.6	279.5	2,270.5	0.0	0.0
148.00		20.8	226.2					0.0	35.3	20.8	261.5	0.0	0.0
Totals:									5,382.08	53,845.1	0.00	0.00	

Load Case: 1.2D + 1.0Di + 1.0Wi		50 mph with 1.00 in Radial Ice		23 Iterations	
Gust Response Factor :1.10		Ice Dead Load Factor :1.00		Ice Importance Factor :1.00	
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	-56.88	-5.84	0.00	-600.14	0.00	600.14	4,118.20	1,072.62	4,974.87	4,353.59	0.00	0.00	0.152
5.00	-55.15	-5.76	0.00	-570.92	0.00	570.92	4,072.56	1,053.67	4,800.67	4,228.73	0.02	-0.04	0.149
10.00	-53.42	-5.68	0.00	-542.12	0.00	542.12	4,025.94	1,034.72	4,629.59	4,104.60	0.09	-0.08	0.145
15.00	-51.69	-5.59	0.00	-513.73	0.00	513.73	3,978.35	1,015.78	4,461.60	3,981.24	0.19	-0.12	0.142
20.00	-49.99	-5.52	0.00	-485.76	0.00	485.76	3,929.78	996.83	4,296.72	3,858.72	0.35	-0.16	0.139
23.00	-48.84	-5.46	0.00	-469.19	0.00	469.19	3,900.18	985.46	4,199.29	3,785.63	0.46	-0.19	0.136
25.00	-48.17	-5.41	0.00	-458.26	0.00	458.26	3,880.24	977.88	4,134.95	3,737.09	0.54	-0.21	0.135
30.00	-46.34	-5.30	0.00	-431.23	0.00	431.23	3,829.73	958.93	3,976.28	3,616.40	0.78	-0.25	0.131
35.00	-44.70	-5.21	0.00	-404.76	0.00	404.76	3,778.24	939.98	3,820.71	3,496.71	1.06	-0.29	0.128
39.25	-43.33	-5.16	0.00	-382.61	0.00	382.61	3,733.70	923.88	3,690.92	3,395.80	1.33	-0.32	0.124
40.00	-42.95	-5.11	0.00	-378.74	0.00	378.74	3,725.77	921.04	3,668.25	3,378.07	1.38	-0.33	0.124
45.00	-40.46	-5.00	0.00	-353.20	0.00	353.20	2,904.05	763.71	3,026.37	2,623.51	1.75	-0.37	0.149
50.00	-39.05	-4.90	0.00	-328.20	0.00	328.20	2,867.09	747.92	2,902.54	2,536.20	2.15	-0.41	0.143
55.00	-37.66	-4.81	0.00	-303.71	0.00	303.71	2,829.16	732.13	2,781.29	2,449.43	2.61	-0.45	0.137
58.00	-36.81	-4.75	0.00	-289.28	0.00	289.28	2,805.94	722.65	2,709.78	2,397.65	2.90	-0.48	0.134
60.00	-36.27	-4.68	0.00	-279.77	0.00	279.77	2,790.26	716.34	2,662.62	2,363.26	3.11	-0.50	0.131
65.00	-34.92	-4.57	0.00	-256.37	0.00	256.37	2,750.38	700.55	2,546.55	2,277.75	3.65	-0.54	0.125
70.00	-33.60	-4.46	0.00	-233.52	0.00	233.52	2,709.53	684.76	2,433.06	2,192.95	4.25	-0.59	0.119
75.00	-32.30	-4.35	0.00	-211.22	0.00	211.22	2,667.70	668.97	2,322.16	2,108.92	4.88	-0.63	0.112
79.50	-31.15	-4.29	0.00	-191.65	0.00	191.65	2,629.23	654.76	2,224.56	2,033.99	5.49	-0.66	0.106
80.00	-30.97	-4.23	0.00	-189.51	0.00	189.51	2,624.90	653.18	2,213.84	2,025.71	5.56	-0.67	0.105
84.25	-29.38	-4.16	0.00	-171.51	0.00	171.51	1,926.96	519.64	1,751.35	1,481.22	6.17	-0.70	0.131
85.00	-29.21	-4.10	0.00	-168.39	0.00	168.39	1,922.93	517.74	1,738.61	1,472.69	6.28	-0.71	0.130
90.00	-28.12	-3.99	0.00	-147.87	0.00	147.87	1,895.51	505.11	1,654.81	1,416.03	7.04	-0.75	0.119
95.00	-27.04	-3.87	0.00	-127.94	0.00	127.94	1,867.11	492.48	1,573.09	1,359.70	7.85	-0.79	0.109
100.00	-25.98	-3.75	0.00	-108.59	0.00	108.59	1,837.73	479.85	1,493.43	1,303.74	8.70	-0.83	0.097
105.00	-24.95	-3.65	0.00	-89.84	0.00	89.84	1,807.38	467.21	1,415.85	1,248.21	9.59	-0.86	0.086
108.00	-18.18	-2.89	0.00	-78.89	0.00	78.89	1,788.71	459.64	1,370.29	1,215.12	10.14	-0.88	0.075
110.00	-17.79	-2.81	0.00	-73.11	0.00	73.11	1,776.06	454.58	1,340.33	1,193.17	10.51	-0.89	0.071
115.00	-16.84	-2.68	0.00	-59.07	0.00	59.07	1,743.76	441.95	1,266.88	1,138.67	11.46	-0.92	0.062
120.00	-15.91	-2.57	0.00	-45.65	0.00	45.65	1,710.49	429.32	1,195.51	1,084.77	12.44	-0.94	0.051
120.00	-15.91	-2.57	0.00	-45.65	0.00	45.65	1,426.71	375.95	1,047.92	906.64	12.44	-0.94	0.062
124.00	-12.12	-2.04	0.00	-35.36	0.00	35.36	1,406.12	367.11	999.22	872.40	13.24	-0.96	0.049
125.00	-11.96	-1.98	0.00	-33.32	0.00	33.32	1,400.87	364.90	987.23	863.87	13.44	-0.96	0.047
130.00	-11.18	-1.85	0.00	-23.44	0.00	23.44	1,374.06	353.85	928.35	821.49	14.46	-0.98	0.037
135.00	-9.04	-1.41	0.00	-13.50	0.00	13.50	1,346.27	342.80	871.27	779.55	15.49	-0.99	0.024
137.00	-6.63	-1.07	0.00	-10.68	0.00	10.68	1,334.88	338.38	848.95	762.91	15.91	-1.00	0.019
140.00	-6.22	-0.98	0.00	-7.48	0.00	7.48	1,317.51	331.75	816.01	738.11	16.54	-1.00	0.015
145.00	-5.56	-0.90	0.00	-2.60	0.00	2.60	1,287.77	320.70	762.56	697.23	17.59	-1.01	0.008
146.00	-3.29	-0.58	0.00	-1.69	0.00	1.69	1,281.70	318.49	752.09	689.12	17.80	-1.01	0.005
148.00	0.00	-0.52	0.00	-0.53	0.00	0.53	1,269.46	314.07	731.36	672.99	18.22	-1.01	0.001

Load Case: 1.0D + 1.0W	Serviceability 60 mph	23 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		46.7	0.0					0.0	0.0	46.7	0.0	0.0	0.0
5.00		92.5	1,030.7					0.0	200.9	92.5	1,231.6	0.0	0.0
10.00		90.9	1,012.3					0.0	200.9	90.9	1,213.2	0.0	0.0
15.00		89.2	993.9					0.0	200.9	89.2	1,194.8	0.0	0.0
20.00		70.3	975.6					0.0	200.9	70.3	1,176.5	0.0	0.0
23.00	Appurtenance(s)	43.4	576.5	17.7	0.0	0.0	100.0	0.0	120.5	61.0	797.1	0.0	0.0
25.00		59.8	380.7					0.0	80.4	59.8	461.0	0.0	0.0
30.00	Appurtenance(s)	85.3	938.8	23.0	0.0	0.0	110.0	0.0	200.9	108.3	1,249.7	0.0	0.0
35.00		79.7	920.5					0.0	200.1	79.7	1,120.6	0.0	0.0
39.25	Bot - Section 2	43.7	767.9					0.0	170.1	43.7	938.1	0.0	0.0
40.00		51.6	247.7					0.0	30.0	51.6	277.7	0.0	0.0
45.00	Top - Section 1	90.4	1,631.7					0.0	200.1	90.4	1,831.9	0.0	0.0
50.00		91.2	732.7					0.0	200.1	91.2	932.9	0.0	0.0
55.00		73.4	717.4					0.0	200.1	73.4	917.6	0.0	0.0
58.00	Appurtenance(s)	46.0	423.1	6.4	0.0	0.0	10.0	0.0	120.1	52.4	553.2	0.0	0.0
60.00		64.5	279.0					0.0	79.8	64.5	358.8	0.0	0.0
65.00		92.1	686.8					0.0	199.4	92.1	886.2	0.0	0.0
70.00		92.0	671.5					0.0	199.4	92.0	870.9	0.0	0.0
75.00		87.1	656.2					0.0	199.4	87.1	855.6	0.0	0.0
79.50	Bot - Section 3	45.8	577.5					0.0	179.5	45.8	756.9	0.0	0.0
80.00		43.8	114.9					0.0	19.9	43.8	134.8	0.0	0.0
84.25	Top - Section 2	46.1	965.3					0.0	169.5	46.1	1,134.8	0.0	0.0
85.00		52.6	75.4					0.0	29.9	52.6	105.3	0.0	0.0
90.00		91.1	495.8					0.0	199.4	91.1	695.2	0.0	0.0
95.00		90.2	483.6					0.0	199.4	90.2	683.0	0.0	0.0
100.00		89.2	471.3					0.0	199.4	89.2	670.7	0.0	0.0
105.00		70.7	459.1					0.0	199.4	70.7	658.5	0.0	0.0
108.00	Appurtenance(s)	43.7	269.6	570.4	0.0	-339.1	3,608.2	0.0	119.6	614.2	3,997.4	0.0	0.0
110.00		60.5	177.3					0.0	64.2	60.5	241.5	0.0	0.0
115.00		85.5	434.6					0.0	160.5	85.5	595.1	0.0	0.0
120.00	Top - Section 3	75.9	422.3					0.0	160.5	75.9	582.8	0.0	0.0
124.00	Appurtenance(s)	41.7	288.1	416.2	0.0	0.0	1,668.0	0.0	128.4	457.9	2,084.5	0.0	0.0
125.00		49.2	71.0					0.0	24.5	49.2	95.5	0.0	0.0
130.00		81.1	348.4					0.0	122.7	81.1	471.1	0.0	0.0
135.00	Appurtenance(s)	55.9	337.7	361.4	0.0	722.8	218.1	0.0	122.7	417.3	678.5	0.0	0.0
137.00	Appurtenance(s)	39.3	132.1	197.6	0.0	0.0	1,500.0	0.0	29.4	236.8	1,661.5	0.0	0.0
140.00		61.8	194.9					0.0	44.1	61.8	239.0	0.0	0.0
145.00		46.0	316.3					0.0	73.5	46.0	389.8	0.0	0.0
146.00	Appurtenance(s)	22.6	62.0	201.2	0.0	0.0	1,500.0	0.0	14.7	223.8	1,576.7	0.0	0.0
148.00		15.0	122.6					0.0	29.4	15.0	152.0	0.0	0.0
Totals:										4,391.28	34,471.8	0.00	0.00

Load Case: 1.0D + 1.0W

Serviceability 60 mph

23 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	-35.76	-4.90	0.00	-509.06	0.00	509.06	4,118.20	1,072.62	4,974.87	4,353.59	0.00	0.00	0.126
5.00	-34.53	-4.83	0.00	-484.54	0.00	484.54	4,072.56	1,053.67	4,800.67	4,228.73	0.02	-0.03	0.123
10.00	-33.31	-4.76	0.00	-460.38	0.00	460.38	4,025.94	1,034.72	4,629.59	4,104.60	0.07	-0.07	0.120
15.00	-32.11	-4.69	0.00	-436.58	0.00	436.58	3,978.35	1,015.78	4,461.60	3,981.24	0.17	-0.10	0.118
20.00	-30.93	-4.63	0.00	-413.14	0.00	413.14	3,929.78	996.83	4,296.72	3,858.72	0.29	-0.14	0.115
23.00	-30.14	-4.58	0.00	-399.25	0.00	399.25	3,900.18	985.46	4,199.29	3,785.63	0.39	-0.16	0.113
25.00	-29.67	-4.53	0.00	-390.09	0.00	390.09	3,880.24	977.88	4,134.95	3,737.09	0.46	-0.17	0.112
30.00	-28.42	-4.43	0.00	-367.45	0.00	367.45	3,829.73	958.93	3,976.28	3,616.40	0.66	-0.21	0.109
35.00	-27.30	-4.36	0.00	-345.28	0.00	345.28	3,778.24	939.98	3,820.71	3,496.71	0.90	-0.24	0.106
39.25	-26.36	-4.32	0.00	-326.73	0.00	326.73	3,733.70	923.88	3,690.92	3,395.80	1.13	-0.27	0.103
40.00	-26.08	-4.28	0.00	-323.49	0.00	323.49	3,725.77	921.04	3,668.25	3,378.07	1.17	-0.28	0.103
45.00	-24.25	-4.20	0.00	-302.09	0.00	302.09	2,904.05	763.71	3,026.37	2,623.51	1.48	-0.31	0.124
50.00	-23.31	-4.11	0.00	-281.11	0.00	281.11	2,867.09	747.92	2,902.54	2,536.20	1.83	-0.35	0.119
55.00	-22.39	-4.05	0.00	-260.54	0.00	260.54	2,829.16	732.13	2,781.29	2,449.43	2.22	-0.39	0.114
58.00	-21.84	-4.00	0.00	-248.40	0.00	248.40	2,805.94	722.65	2,709.78	2,397.65	2.47	-0.41	0.111
60.00	-21.48	-3.94	0.00	-240.40	0.00	240.40	2,790.26	716.34	2,662.62	2,363.26	2.64	-0.43	0.109
65.00	-20.59	-3.86	0.00	-220.70	0.00	220.70	2,750.38	700.55	2,546.55	2,277.75	3.11	-0.46	0.104
70.00	-19.72	-3.77	0.00	-201.43	0.00	201.43	2,709.53	684.76	2,433.06	2,192.95	3.62	-0.50	0.099
75.00	-18.86	-3.68	0.00	-182.59	0.00	182.59	2,667.70	668.97	2,322.16	2,108.92	4.16	-0.54	0.094
79.50	-18.10	-3.64	0.00	-166.01	0.00	166.01	2,629.23	654.76	2,224.56	2,033.99	4.68	-0.57	0.089
80.00	-17.97	-3.60	0.00	-164.19	0.00	164.19	2,624.90	653.18	2,213.84	2,025.71	4.74	-0.57	0.088
84.25	-16.83	-3.54	0.00	-148.90	0.00	148.90	1,926.96	519.64	1,751.35	1,481.22	5.26	-0.60	0.109
85.00	-16.73	-3.50	0.00	-146.24	0.00	146.24	1,922.93	517.74	1,738.61	1,472.69	5.35	-0.60	0.108
90.00	-16.03	-3.41	0.00	-128.76	0.00	128.76	1,895.51	505.11	1,654.81	1,416.03	6.01	-0.64	0.099
95.00	-15.35	-3.32	0.00	-111.72	0.00	111.72	1,867.11	492.48	1,573.09	1,359.70	6.70	-0.68	0.090
100.00	-14.67	-3.23	0.00	-95.12	0.00	95.12	1,837.73	479.85	1,493.43	1,303.74	7.43	-0.71	0.081
105.00	-14.01	-3.16	0.00	-78.97	0.00	78.97	1,807.38	467.21	1,415.85	1,248.21	8.19	-0.74	0.071
108.00	-10.03	-2.49	0.00	-69.50	0.00	69.50	1,788.71	459.64	1,370.29	1,215.12	8.66	-0.76	0.063
110.00	-9.78	-2.43	0.00	-64.51	0.00	64.51	1,776.06	454.58	1,340.33	1,193.17	8.98	-0.77	0.060
115.00	-9.19	-2.34	0.00	-52.35	0.00	52.35	1,743.76	441.95	1,266.88	1,138.67	9.80	-0.79	0.051
120.00	-8.61	-2.26	0.00	-40.64	0.00	40.64	1,710.49	429.32	1,195.51	1,084.77	10.64	-0.81	0.043
120.00	-8.61	-2.26	0.00	-40.64	0.00	40.64	1,426.71	375.95	1,047.92	906.64	10.64	-0.81	0.051
124.00	-6.53	-1.77	0.00	-31.60	0.00	31.60	1,406.12	367.11	999.22	872.40	11.33	-0.83	0.041
125.00	-6.43	-1.72	0.00	-29.83	0.00	29.83	1,400.87	364.90	987.23	863.87	11.50	-0.83	0.039
130.00	-5.96	-1.64	0.00	-21.20	0.00	21.20	1,374.06	353.85	928.35	821.49	12.38	-0.85	0.030
135.00	-5.29	-1.21	0.00	-12.29	0.00	12.29	1,346.27	342.80	871.27	779.55	13.28	-0.86	0.020
137.00	-3.63	-0.95	0.00	-9.87	0.00	9.87	1,334.88	338.38	848.95	762.91	13.64	-0.86	0.016
140.00	-3.40	-0.88	0.00	-7.02	0.00	7.02	1,317.51	331.75	816.01	738.11	14.18	-0.86	0.012
145.00	-3.01	-0.83	0.00	-2.60	0.00	2.60	1,287.77	320.70	762.56	697.23	15.09	-0.87	0.006
146.00	-1.43	-0.59	0.00	-1.76	0.00	1.76	1,281.70	318.49	752.09	689.12	15.27	-0.87	0.004
148.00	0.00	-0.56	0.00	-0.59	0.00	0.59	1,269.46	314.07	731.36	672.99	15.63	-0.87	0.001

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}):	0.09
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_s	0.03
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	2.29
Redundancy Factor (p):	1.00
Seismic Force Distribution Exponent (k):	1.90
Total Unfactored Dead Load:	35.76 k
Seismic Base Shear (E):	1.07 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)
39	147.00	152	1,963	0.011	12	189
38	145.50	77	970	0.005	6	95
37	142.50	390	4,743	0.026	28	484
36	138.50	239	2,755	0.015	16	297
35	136.00	161	1,798	0.010	11	201
34	132.50	460	4,880	0.027	29	572
33	127.50	471	4,642	0.026	28	585
32	124.50	96	900	0.005	5	119
31	122.00	417	3,775	0.021	22	517
30	117.50	583	4,919	0.027	29	724
29	112.50	595	4,625	0.026	28	739
28	109.00	241	1,767	0.010	11	300
27	106.50	389	2,726	0.015	16	483
26	102.50	658	4,289	0.024	26	818
25	97.50	671	3,973	0.022	24	833
24	92.50	683	3,661	0.020	22	848
23	87.50	695	3,354	0.019	20	863
22	84.63	105	477	0.003	3	131
21	82.13	1,135	4,855	0.027	29	1,409
20	79.75	135	546	0.003	3	167
19	77.25	757	2,883	0.016	17	940
18	72.50	856	2,890	0.016	17	1,062
17	67.50	871	2,568	0.014	15	1,081
16	62.50	886	2,259	0.013	13	1,100
15	59.00	359	820	0.005	5	446

14	56.50	543	1,143	0.006	7	675
13	52.50	918	1,680	0.009	10	1,139
12	47.50	933	1,413	0.008	8	1,158
11	42.50	1,832	2,247	0.012	13	2,275
10	39.63	278	298	0.002	2	345
9	37.13	938	890	0.005	5	1,165
8	32.50	1,121	826	0.005	5	1,392
7	27.50	1,140	612	0.003	4	1,415
6	24.00	461	191	0.001	1	573
5	21.50	697	235	0.001	1	866
4	17.50	1,176	268	0.001	2	1,461
3	12.50	1,195	144	0.001	1	1,484
2	7.50	1,213	55	0.000	0	1,507
1	2.50	1,232	7	0.000	0	1,529
Powerwave Allgon LGP	148.00	85	1,106	0.006	7	105
Raycap DC6-48-60-18-	148.00	32	416	0.002	2	39
Raycap DC6-48-60-18-	148.00	32	416	0.002	2	39
Ericsson RRUS 8843 B	148.00	216	2,824	0.016	17	268
Ericsson RRUS 4478 B	148.00	180	2,349	0.013	14	223
Ericsson RRUS 4449 B	148.00	213	2,785	0.015	17	265
Powerwave Allgon 777	148.00	105	1,373	0.008	8	130
CCI DMP65R-BU6DA	148.00	238	3,114	0.017	19	296
CCI OPA65R-BU6D	148.00	190	2,479	0.014	15	235
Round Low Profile PI	146.00	1,500	19,112	0.106	114	1,863
Round Low Profile PI	137.00	1,500	16,939	0.094	101	1,863
RFS FD9R6004/2C-3L	135.00	16	171	0.001	1	19
Amphenol Antel BXA-1	135.00	32	346	0.002	2	39
Antel LPA-80063/4CF	135.00	120	1,318	0.007	8	149
Antel BXA-70063/6CF_	135.00	51	560	0.003	3	63
Decibel DB844H90E-XY	124.00	168	1,570	0.009	9	209
Round Low Profile PI	124.00	1,500	14,021	0.078	84	1,863
Alcatel-Lucent RRH2x	108.00	317	2,283	0.013	14	394
Alcatel-Lucent 1900	108.00	180	1,295	0.007	8	224
Alcatel-Lucent TD-RR	108.00	210	1,510	0.008	9	261
RFS APXVTM14-ALU-I20	108.00	169	1,213	0.007	7	209
Commscope NNVV-65B-R	108.00	232	1,670	0.009	10	288
Generic Round Platfo	108.00	2,500	17,981	0.100	107	3,105
Generic GPS	58.00	10	22	0.000	0	12
Generic GPS	30.00	10	6	0.000	0	12
Stand-Off	30.00	100	63	0.000	0	124
Side Arm	23.00	100	38	0.000	0	124
		35,762	180,029	1.000	1,073	44,409

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)
39	147.00	152	1,963	0.011	12	130
38	145.50	77	970	0.005	6	66
37	142.50	390	4,743	0.026	28	334
36	138.50	239	2,755	0.015	16	205
35	136.00	161	1,798	0.010	11	139
34	132.50	460	4,880	0.027	29	395
33	127.50	471	4,642	0.026	28	404
32	124.50	96	900	0.005	5	82
31	122.00	417	3,775	0.021	22	357
30	117.50	583	4,919	0.027	29	500
29	112.50	595	4,625	0.026	28	511
28	109.00	241	1,767	0.010	11	207
27	106.50	389	2,726	0.015	16	334
26	102.50	658	4,289	0.024	26	565

Site Number: 302528

Code: ANSI/TIA-222-H

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Site Name: Columbia Central, CT

Engineering Number: 13252626_C3_03

7/31/2020 3:59:46 PM

Customer: AT&T MOBILITY

25	97.50	671	3,973	0.022	24	576
24	92.50	683	3,661	0.020	22	586
23	87.50	695	3,354	0.019	20	597
22	84.63	105	477	0.003	3	90
21	82.13	1,135	4,855	0.027	29	974
20	79.75	135	546	0.003	3	116
19	77.25	757	2,883	0.016	17	650
18	72.50	856	2,890	0.016	17	734
17	67.50	871	2,568	0.014	15	747
16	62.50	886	2,259	0.013	13	761
15	59.00	359	820	0.005	5	308
14	56.50	543	1,143	0.006	7	466
13	52.50	918	1,680	0.009	10	787
12	47.50	933	1,413	0.008	8	801
11	42.50	1,832	2,247	0.012	13	1,572
10	39.63	278	298	0.002	2	238
9	37.13	938	890	0.005	5	805
8	32.50	1,121	826	0.005	5	962
7	27.50	1,140	612	0.003	4	978
6	24.00	461	191	0.001	1	396
5	21.50	697	235	0.001	1	598
4	17.50	1,176	268	0.001	2	1,010
3	12.50	1,195	144	0.001	1	1,025
2	7.50	1,213	55	0.000	0	1,041
1	2.50	1,232	7	0.000	0	1,057
Powerwave Allgon LGP	148.00	85	1,106	0.006	7	73
Raycap DC6-48-60-18-	148.00	32	416	0.002	2	27
Raycap DC6-48-60-18-	148.00	32	416	0.002	2	27
Ericsson RRUS 8843 B	148.00	216	2,824	0.016	17	185
Ericsson RRUS 4478 B	148.00	180	2,349	0.013	14	154
Ericsson RRUS 4449 B	148.00	213	2,785	0.015	17	183
Powerwave Allgon 777	148.00	105	1,373	0.008	8	90
CCI DMP65R-BU6DA	148.00	238	3,114	0.017	19	204
CCI OPA65R-BU6D	148.00	190	2,479	0.014	15	163
Round Low Profile PI	146.00	1,500	19,112	0.106	114	1,287
Round Low Profile PI	137.00	1,500	16,939	0.094	101	1,287
RFS FD9R6004/2C-3L	135.00	16	171	0.001	1	13
Amphenol Antel BXA-1	135.00	32	346	0.002	2	27
Antel LPA-80063/4CF	135.00	120	1,318	0.007	8	103
Antel BXA-70063/6CF_	135.00	51	560	0.003	3	44
Decibel DB844H90E-XY	124.00	168	1,570	0.009	9	144
Round Low Profile PI	124.00	1,500	14,021	0.078	84	1,287
Alcatel-Lucent RRH2x	108.00	317	2,283	0.013	14	272
Alcatel-Lucent 1900	108.00	180	1,295	0.007	8	154
Alcatel-Lucent TD-RR	108.00	210	1,510	0.008	9	180
RFS APXVTM14-ALU-I20	108.00	169	1,213	0.007	7	145
Commscope NNVV-65B-R	108.00	232	1,670	0.009	10	199
Generic Round Platfo	108.00	2,500	17,981	0.100	107	2,145
Generic GPS	58.00	10	22	0.000	0	9
Generic GPS	30.00	10	6	0.000	0	9
Stand-Off	30.00	100	63	0.000	0	86
Side Arm	23.00	100	38	0.000	0	86
		35,762	180,029	1.000	1,073	30,690

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	-42.88	-1.08	0.00	-129.42	0.00	129.42	4,118.20	1,072.62	4,974.87	4,353.59	0.00	0.00	0.040
5.00	-41.37	-1.08	0.00	-124.04	0.00	124.04	4,072.56	1,053.67	4,800.67	4,228.73	0.00	-0.01	0.039
10.00	-39.89	-1.09	0.00	-118.64	0.00	118.64	4,025.94	1,034.72	4,629.59	4,104.60	0.02	-0.02	0.039
15.00	-38.43	-1.09	0.00	-113.20	0.00	113.20	3,978.35	1,015.78	4,461.60	3,981.24	0.04	-0.03	0.038
20.00	-37.56	-1.09	0.00	-107.75	0.00	107.75	3,929.78	996.83	4,296.72	3,858.72	0.08	-0.04	0.037
23.00	-36.87	-1.09	0.00	-104.47	0.00	104.47	3,900.18	985.46	4,199.29	3,785.63	0.10	-0.04	0.037
25.00	-35.45	-1.09	0.00	-102.28	0.00	102.28	3,880.24	977.88	4,134.95	3,737.09	0.12	-0.05	0.037
30.00	-33.92	-1.09	0.00	-96.81	0.00	96.81	3,829.73	958.93	3,976.28	3,616.40	0.17	-0.05	0.036
35.00	-32.76	-1.09	0.00	-91.35	0.00	91.35	3,778.24	939.98	3,820.71	3,496.71	0.23	-0.06	0.035
39.25	-32.41	-1.09	0.00	-86.71	0.00	86.71	3,733.70	923.88	3,690.92	3,395.80	0.29	-0.07	0.034
40.00	-30.14	-1.08	0.00	-85.89	0.00	85.89	3,725.77	921.04	3,668.25	3,378.07	0.30	-0.07	0.034
45.00	-28.98	-1.07	0.00	-80.50	0.00	80.50	2,904.05	763.71	3,026.37	2,623.51	0.38	-0.08	0.041
50.00	-27.84	-1.07	0.00	-75.14	0.00	75.14	2,867.09	747.92	2,902.54	2,536.20	0.48	-0.09	0.039
55.00	-27.16	-1.06	0.00	-69.81	0.00	69.81	2,829.16	732.13	2,781.29	2,449.43	0.58	-0.10	0.038
58.00	-26.71	-1.06	0.00	-66.63	0.00	66.63	2,805.94	722.65	2,709.78	2,397.65	0.64	-0.11	0.037
60.00	-25.61	-1.05	0.00	-64.51	0.00	64.51	2,790.26	716.34	2,662.62	2,363.26	0.69	-0.11	0.036
65.00	-24.52	-1.03	0.00	-59.28	0.00	59.28	2,750.38	700.55	2,546.55	2,277.75	0.81	-0.12	0.035
70.00	-23.46	-1.02	0.00	-54.12	0.00	54.12	2,709.53	684.76	2,433.06	2,192.95	0.94	-0.13	0.033
75.00	-22.52	-1.00	0.00	-49.03	0.00	49.03	2,667.70	668.97	2,322.16	2,108.92	1.09	-0.14	0.032
79.50	-22.35	-1.00	0.00	-44.53	0.00	44.53	2,629.23	654.76	2,224.56	2,033.99	1.22	-0.15	0.030
80.00	-20.94	-0.97	0.00	-44.03	0.00	44.03	2,624.90	653.18	2,213.84	2,025.71	1.24	-0.15	0.030
84.25	-20.81	-0.97	0.00	-39.91	0.00	39.91	1,926.96	519.64	1,751.35	1,481.22	1.38	-0.16	0.038
85.00	-19.95	-0.95	0.00	-39.19	0.00	39.19	1,922.93	517.74	1,738.61	1,472.69	1.40	-0.16	0.037
90.00	-19.10	-0.93	0.00	-34.45	0.00	34.45	1,895.51	505.11	1,654.81	1,416.03	1.58	-0.17	0.034
95.00	-18.27	-0.90	0.00	-29.83	0.00	29.83	1,867.11	492.48	1,573.09	1,359.70	1.76	-0.18	0.032
100.00	-17.45	-0.88	0.00	-25.32	0.00	25.32	1,837.73	479.85	1,493.43	1,303.74	1.95	-0.19	0.029
105.00	-16.97	-0.86	0.00	-20.93	0.00	20.93	1,807.38	467.21	1,415.85	1,248.21	2.15	-0.20	0.026
108.00	-12.19	-0.68	0.00	-18.35	0.00	18.35	1,788.71	459.64	1,370.29	1,215.12	2.28	-0.20	0.022
110.00	-11.45	-0.65	0.00	-16.99	0.00	16.99	1,776.06	454.58	1,340.33	1,193.17	2.36	-0.20	0.021
115.00	-10.72	-0.62	0.00	-13.74	0.00	13.74	1,743.76	441.95	1,266.88	1,138.67	2.58	-0.21	0.018
120.00	-10.21	-0.60	0.00	-10.64	0.00	10.64	1,710.49	429.32	1,195.51	1,084.77	2.80	-0.22	0.016
120.00	-10.21	-0.60	0.00	-10.64	0.00	10.64	1,426.71	375.95	1,047.92	906.64	2.80	-0.22	0.019
124.00	-8.02	-0.49	0.00	-8.26	0.00	8.26	1,406.12	367.11	999.22	872.40	2.99	-0.22	0.015
125.00	-7.43	-0.46	0.00	-7.77	0.00	7.77	1,400.87	364.90	987.23	863.87	3.03	-0.22	0.014
130.00	-6.86	-0.43	0.00	-5.47	0.00	5.47	1,374.06	353.85	928.35	821.49	3.26	-0.22	0.012
135.00	-6.39	-0.40	0.00	-3.32	0.00	3.32	1,346.27	342.80	871.27	779.55	3.50	-0.23	0.009
137.00	-4.23	-0.28	0.00	-2.52	0.00	2.52	1,334.88	338.38	848.95	762.91	3.60	-0.23	0.006
140.00	-3.75	-0.25	0.00	-1.69	0.00	1.69	1,317.51	331.75	816.01	738.11	3.74	-0.23	0.005
145.00	-3.65	-0.24	0.00	-0.45	0.00	0.45	1,287.77	320.70	762.56	697.23	3.98	-0.23	0.003
146.00	-1.60	-0.11	0.00	-0.21	0.00	0.21	1,281.70	318.49	752.09	689.12	4.03	-0.23	0.002
148.00	0.00	-0.10	0.00	0.00	0.00	0.00	1,269.46	314.07	731.36	672.99	4.12	-0.23	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	-29.63	-1.07	0.00	-127.60	0.00	127.60	4,118.20	1,072.62	4,974.87	4,353.59	0.00	0.00	0.037
5.00	-28.59	-1.08	0.00	-122.23	0.00	122.23	4,072.56	1,053.67	4,800.67	4,228.73	0.00	-0.01	0.036
10.00	-27.57	-1.08	0.00	-116.83	0.00	116.83	4,025.94	1,034.72	4,629.59	4,104.60	0.02	-0.02	0.035
15.00	-26.56	-1.08	0.00	-111.42	0.00	111.42	3,978.35	1,015.78	4,461.60	3,981.24	0.04	-0.03	0.035
20.00	-25.96	-1.09	0.00	-106.01	0.00	106.01	3,929.78	996.83	4,296.72	3,858.72	0.07	-0.04	0.034
23.00	-25.48	-1.09	0.00	-102.75	0.00	102.75	3,900.18	985.46	4,199.29	3,785.63	0.10	-0.04	0.034
25.00	-24.50	-1.08	0.00	-100.58	0.00	100.58	3,880.24	977.88	4,134.95	3,737.09	0.12	-0.04	0.033
30.00	-23.44	-1.08	0.00	-95.16	0.00	95.16	3,829.73	958.93	3,976.28	3,616.40	0.17	-0.05	0.032
35.00	-22.64	-1.08	0.00	-89.75	0.00	89.75	3,778.24	939.98	3,820.71	3,496.71	0.23	-0.06	0.032
39.25	-22.40	-1.08	0.00	-85.16	0.00	85.16	3,733.70	923.88	3,690.92	3,395.80	0.29	-0.07	0.031
40.00	-20.83	-1.07	0.00	-84.36	0.00	84.36	3,725.77	921.04	3,668.25	3,378.07	0.30	-0.07	0.031
45.00	-20.03	-1.06	0.00	-79.03	0.00	79.03	2,904.05	763.71	3,026.37	2,623.51	0.38	-0.08	0.037
50.00	-19.24	-1.05	0.00	-73.74	0.00	73.74	2,867.09	747.92	2,902.54	2,536.20	0.47	-0.09	0.036
55.00	-18.77	-1.05	0.00	-68.48	0.00	68.48	2,829.16	732.13	2,781.29	2,449.43	0.57	-0.10	0.035
58.00	-18.46	-1.04	0.00	-65.35	0.00	65.35	2,805.94	722.65	2,709.78	2,397.65	0.63	-0.11	0.034
60.00	-17.69	-1.03	0.00	-63.26	0.00	63.26	2,790.26	716.34	2,662.62	2,363.26	0.68	-0.11	0.033
65.00	-16.95	-1.02	0.00	-58.12	0.00	58.12	2,750.38	700.55	2,546.55	2,277.75	0.80	-0.12	0.032
70.00	-16.21	-1.00	0.00	-53.04	0.00	53.04	2,709.53	684.76	2,433.06	2,192.95	0.93	-0.13	0.030
75.00	-15.56	-0.98	0.00	-48.05	0.00	48.05	2,667.70	668.97	2,322.16	2,108.92	1.07	-0.14	0.029
79.50	-15.45	-0.98	0.00	-43.62	0.00	43.62	2,629.23	654.76	2,224.56	2,033.99	1.20	-0.15	0.027
80.00	-14.47	-0.95	0.00	-43.13	0.00	43.13	2,624.90	653.18	2,213.84	2,025.71	1.22	-0.15	0.027
84.25	-14.38	-0.95	0.00	-39.09	0.00	39.09	1,926.96	519.64	1,751.35	1,481.22	1.36	-0.16	0.034
85.00	-13.79	-0.93	0.00	-38.38	0.00	38.38	1,922.93	517.74	1,738.61	1,472.69	1.38	-0.16	0.033
90.00	-13.20	-0.91	0.00	-33.74	0.00	33.74	1,895.51	505.11	1,654.81	1,416.03	1.55	-0.17	0.031
95.00	-12.62	-0.88	0.00	-29.21	0.00	29.21	1,867.11	492.48	1,573.09	1,359.70	1.73	-0.18	0.028
100.00	-12.06	-0.86	0.00	-24.79	0.00	24.79	1,837.73	479.85	1,493.43	1,303.74	1.92	-0.18	0.026
105.00	-11.72	-0.84	0.00	-20.50	0.00	20.50	1,807.38	467.21	1,415.85	1,248.21	2.12	-0.19	0.023
108.00	-8.42	-0.67	0.00	-17.98	0.00	17.98	1,788.71	459.64	1,370.29	1,215.12	2.24	-0.20	0.020
110.00	-7.91	-0.64	0.00	-16.65	0.00	16.65	1,776.06	454.58	1,340.33	1,193.17	2.32	-0.20	0.018
115.00	-7.41	-0.61	0.00	-13.46	0.00	13.46	1,743.76	441.95	1,266.88	1,138.67	2.54	-0.21	0.016
120.00	-7.05	-0.58	0.00	-10.43	0.00	10.43	1,710.49	429.32	1,195.51	1,084.77	2.75	-0.21	0.014
120.00	-7.05	-0.58	0.00	-10.43	0.00	10.43	1,426.71	375.95	1,047.92	906.64	2.75	-0.21	0.016
124.00	-5.54	-0.48	0.00	-8.10	0.00	8.10	1,406.12	367.11	999.22	872.40	2.93	-0.21	0.013
125.00	-5.14	-0.45	0.00	-7.62	0.00	7.62	1,400.87	364.90	987.23	863.87	2.98	-0.22	0.012
130.00	-4.74	-0.42	0.00	-5.36	0.00	5.36	1,374.06	353.85	928.35	821.49	3.21	-0.22	0.010
135.00	-4.42	-0.39	0.00	-3.26	0.00	3.26	1,346.27	342.80	871.27	779.55	3.44	-0.22	0.007
137.00	-2.92	-0.27	0.00	-2.47	0.00	2.47	1,334.88	338.38	848.95	762.91	3.53	-0.22	0.005
140.00	-2.59	-0.24	0.00	-1.66	0.00	1.66	1,317.51	331.75	816.01	738.11	3.67	-0.22	0.004
145.00	-2.52	-0.24	0.00	-0.45	0.00	0.45	1,287.77	320.70	762.56	697.23	3.91	-0.23	0.003
146.00	-1.11	-0.10	0.00	-0.21	0.00	0.21	1,281.70	318.49	752.09	689.12	3.96	-0.23	0.001
148.00	0.00	-0.10	0.00	0.00	0.00	0.00	1,269.46	314.07	731.36	672.99	4.05	-0.23	0.000

Site Number: 302528

Code: ANSI/TIA-222-H

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Site Name: Columbia Central, CT

Engineering Number: 13252626_C3_03

7/31/2020 3:59:46 PM

Customer: AT&T MOBILITY

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	21.93	0.00	42.88	0.00	0.00	2291.61	0.00	0.54
0.9D + 1.0W	21.92	0.00	32.15	0.00	0.00	2265.89	0.00	0.53
1.2D + 1.0Di + 1.0Wi	5.84	0.00	56.88	0.00	0.00	600.14	0.00	0.15
1.2D + 1.0Ev + 1.0Eh	1.08	0.00	42.88	0.00	0.00	129.42	45.00	0.04
0.9D - 1.0Ev + 1.0Eh	1.07	0.00	29.63	0.00	0.00	127.60	45.00	0.04
1.0D + 1.0W	4.90	0.00	35.76	0.00	0.00	509.06	0.00	0.13



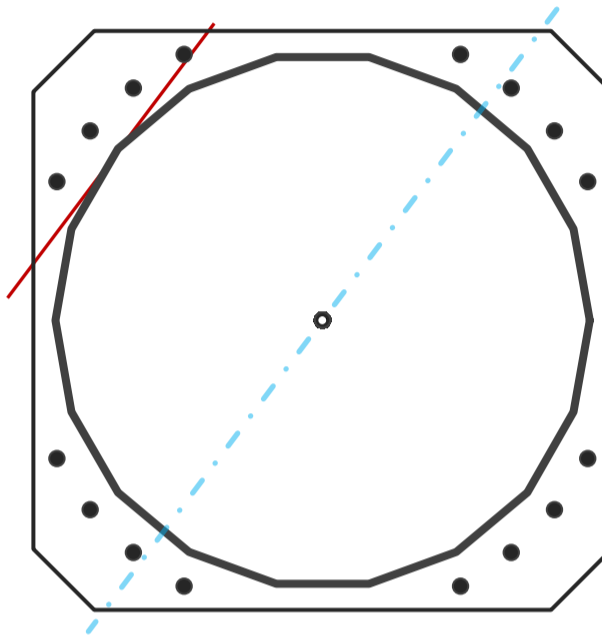
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	18	-
Diameter	51.73	in
Thickness	3/8	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	2,291.6	k-ft
Axial, Pu	42.9	k
Shear, Vu	21.9	k
Neutral Axis	53	°

Report Capacities		
Component	Capacity	Result
Base Plate	37%	Pass
Anchor Rods	49%	Pass
Dwyidag	-	-

Base Plate		
Shape	Square	-
Width	57	in
Thickness	3	in
Grade	Other	
Yield Strength, Fy	55	ksi
Tensile Strength, Fu	70	ksi
Clip	6	in
Orientation Offset	0	°
Anchor Rod Detail	d	η=0.5
Clear Distance	3	in
Applied Moment, Mu	1185.7	k
Bending Stress, φMn	3202.6	k



Original Anchor Rods		
Arrangement	Cluster	-
Quantity	16	-
Diameter, φ	2 1/4	in
Bolt Circle	59	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	0	°
Applied Force, Pu	119.0	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	21.9	2291.6	1.00
Anchor Rod Forces	21.9	2291.6	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	60.1945	3.3441	0.1573		19846.97
Bolt	3.9761	3.2477	0.8393	4.5	22623.84
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	3	in
Yield Strength, Fy	55	ksi
Tensile Strength, Fu	70	ksi
Base Plate Chord	23.938	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	59	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	119.0	k
Applied Shear, Vu	0.1	k
Compressive Capacity, ϕP_n	243.6	k
Tensile Capacity, ϕR_n	0.489	OK
Interaction Capacity	0.489	OK

External Base Plate

Chord Length AA	28.755	in
Additional AA	0.000	in
Section Modulus, Z	64.699	in ³
Applied Moment, Mu	1185.7	k-ft
Bending Capacity, ϕM_n	3202.6	k-ft
Capacity, Mu/ ϕM_n	0.370	OK

Chord Length AB	27.955	in
Additional AB	0.000	in
Section Modulus, Z	62.899	in ³
Applied Moment, Mu	1001.7	k-ft
Bending Capacity, ϕM_n	3113.5	k-ft
Capacity, Mu/ ϕM_n	0.322	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, ϕM_n	0.0	k-ft
Capacity, Mu/ ϕM_n		

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, ϕM_n	0.0	k-ft
Capacity, Mu/ ϕM_n		

Flange Plate Analysis

Flange Plate	Plate Type	Flange	@ 120 ft
	Pole Diameter	31.08	in
	Pole Thickness	0.2187	in
	Plate Diameter	39	in
	Plate Thickness	1	in
	Plate Fy	50	ksi
	Weld Length	3/16	in
	f _s Resistance	68.65	k-in
	Applied	20.17	k-in

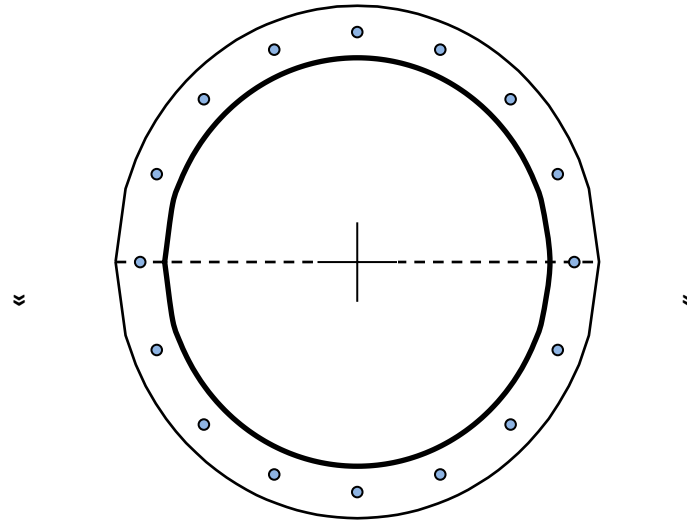
Code Rev.	H
Moment	183.4 k-ft
Axial	9.7 k

Date	7/31/2020
Engineer	HS
Site #	302528
Carrier	AT&T MOBILITY

Required Flange Thickness:
0.54 in OK

Stiffeners	#	
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Bolts	#	16	
	Bolt Circle	35	in
	(R)adial / (S)quare	R	
	Diameter	3/4	in
	Hole Diameter	7/8	in
	Type	A325	
	Fy	92	ksi
	Fu	120	ksi
	f _s Resistance	30.10	k
	Applied	15.11	k



Reinforcement	#	
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Plate Stress Ratio:
29% Pass

Bolt Stress Ratio:
50% Pass

Extra Bolts O	#	
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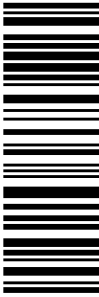


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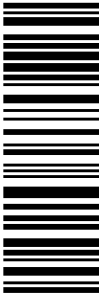


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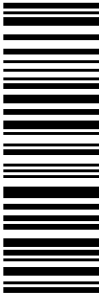
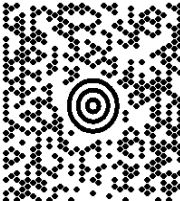
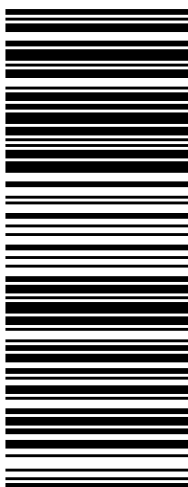

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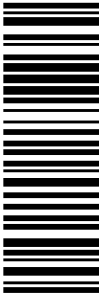
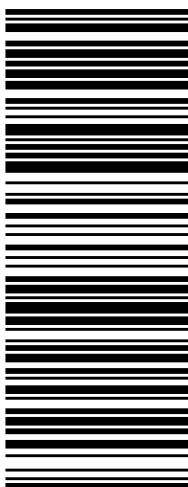

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