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3. **GETTING YOUR SHIPMENT TO UPS**  
**Customers with a Daily Pickup**  
Your driver will pickup your shipment(s) as usual.

**Customers without a Daily Pickup**


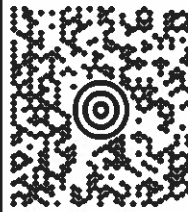

Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.  
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SOUTH EASTON ,MA 02375

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CVS STORE # 7232  
689 DEPOT ST  
NORTH EASTON ,MA 02356

UPS Access Point™  
TOWN LINE GENERAL STORE  
450 E CENTER ST  
WEST BRIDGEWATER ,MA 02379

FOLD HERE

<p>PATRICIA NOWAK 508-265-5599 CENTERLINE COMMUNICATIONS, LLC 750 WEST CENTER STREET WEST BRIDGEWATER, MA 02379</p> <p><b>SHIP TO:</b> KATHLEEN A. BLONSKI TOWN OF FARMINGTON TOWN MANAGER 1 MONTEITH DRIVE FARMINGTON CT 06032-1053</p>	<p>0.0 LBS LTR 1 OF 1</p> <p><b>CT 067 9-03</b></p>  	<p><b>UPS NEXT DAY AIR</b></p> <p>TRACKING #: 1Z 9Y4 503 01 0876 6177</p> <p><b>1</b></p>		<p><b>BILLING: P/P</b></p> <p>Reference # 1: CT1061 - Town Manager</p> <p>CS 22.0.11. WNTNV50 83.0A.12/2019</p> 
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<p>PATRICIA NOWAK 508-265-5599 CENTERLINE COMMUNICATIONS, LLC 750 WEST CENTER STREET WEST BRIDGEWATER MA 02379</p> <p><b>SHIP TO:</b> BRUCE C. CYR TOWN OF FARMINGTON ZONING ENFORCEMENT OFFICER 1 MONTEITH DRIVE FARMINGTON CT 06032-1053</p>	<p><b>0.0 LBS LTR</b></p> <p><b>1 OF 1</b></p>	<p><b>CT 067 9-03</b></p> 	<p><b>UPS NEXT DAY AIR</b></p> <p>TRACKING #: 1Z 9Y4 503 01 0200 3180</p> <p><b>1</b></p>		<p>BILLING: P/P</p> <p>Reference # 1: CT1061 - ZEO</p> <p>CS 22.0 11. WNTNVS0 83.0A 12/2019</p> 
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<p>PATRICIA NOWAK 508-263-3599 CENTERLINE COMMUNICATIONS, LLC 750 WEST CENTER STREET WEST BRIDGEWATER, MA 02379</p> <p><b>SHIP TO:</b> EIP COMMUNICATIONS 1, LLC LEGAL DEPARTMENT - SITE 701773 SUITE 108 1435 BEDFORD AVENUE <b>PITTSBURGH PA 15219-3675</b></p>	<p><b>PA 152 9-30</b></p>  	<p><b>UPS NEXT DAY AIR</b></p> <p>TRACKING #: 1Z 9Y4 503 01 0772 6211</p> <p><b>1</b></p>		<p>BILLING: P/P</p> <p>Reference # 1: CT1061 - EIP</p> <p>CS 22 0.11 WNTNVS0 83 0A 12/2019</p> 
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April 14, 2020

**VIA ELECTRONIC MAIL**

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

**Regarding: Notice of Exempt Modification – AT&T Site CT1061**  
**Address: 82 Lovely Street, Farmington, CT 06085**

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC ( hereinafter “AT&T”) currently maintains a wireless telecommunications facility on an existing 101’ Monopole Tower (the “Tower”) at the above-referenced address, latitude 41.761381, longitude -72.887526. Said Tower is owned by EIP Communications I, LLC.

AT&T desires to modify its existing telecommunications facility on the Tower by swapping (3) antennas, swapping (6) remote radio heads, and adding (1) surge arrestor with (2) DC power lines and (1) Fiber, as more particularly detailed and described in the enclosed Construction Drawings prepared by Hudson Design Group LLC, dated January 14, 2019 and last revised April 3, 2020. Enclosed please also find a Mount Analysis prepared by Hudson Design Group LLC dated January 16, 2020. The centerline height of the antennas will be at 98’.

I spoke with the Planning and Zoning Department of the Town of Farmington, CT and they did not have any copies of original approvals for the construction of the Tower. I also called and emailed the Building Department and they were not able to provide the building permit or any other documentation for the construction of the Tower.

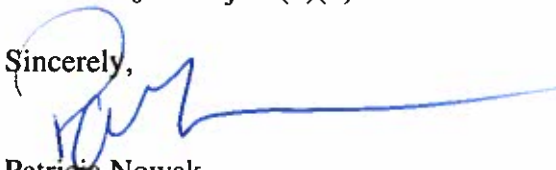
Please accept this letter as notification pursuant to R.C.S.A §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the following individuals: Kathleen A. Blonski, Town Manager of the Town of Farmington; Bruce C. Cyr, Zoning Enforcement Officer of the Town of Farmington; Mark DeVoe, Town Planner of the Town of Farmington; Southern New England as the property owner and EIP Communications I, LLC as the tower owner. Enclosed please find a property card 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 see the RF Emissions Analysis 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. *Please see the Rigorous Structural Analysis Report dated March 10, 2020 and prepared by Malouf Engineering Intl., Inc. enclosed herewith.*

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 Card and GIS Map  
                  Exhibit 4 – RF Emissions Analysis Report  
                  Exhibit 5 – Structural Analysis

cc:            Kathleen A. Blonski, Town Manager of the Town of Farmington  
                  Bruce C. Cyr, Zoning Enforcement Officer of the Town of Farmington  
                  Mark DeVoe, Town Planner of the Town of Farmington  
                  Southern New England as the property owner  
                  EIP Communications I, LLC as the tower owner

# EXHIBIT 1

**PROJECT INFORMATION**

SCOPE OF WORK: ITEMS TO BE MOUNTED ON THE EXISTING MONOPOLE:

- NEW AT&T MOUNT: C10855721C (TOTAL OF 1) TO REPLACE EXISTING MOUNT.
- NEW AT&T ANTENNAS: DMP65R-BU8DA @ POS. 4 (TYP. OF 1 PER ALPHA AND BETA SECTORS, TOTAL OF 2).
- NEW AT&T ANTENNAS: DMP65R-BU6DA @ POS. 4 (TOTAL OF 1 PER GAMMA SECTOR).
- NEW AT&T RRUS: 4449 B5/B12 (700/850) @ POS. 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: 8843 B2/B66A (PCS/AWS) @ POS. 3 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T DC & FIBER SURGE ARRESTOR DC6-48-60-18-8C-EV (TOTAL OF 1) WITH (2) DC POWER & (1) FIBER RUN.

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:

- SWAP BB WITH 6630.
- ADD (1) IDLe.
- INSTALL (1) FIBER MANAGEMENT BOX.

ITEMS TO BE REMOVED:

- EXISTING AT&T ANTENNAS: P65-15-XLH-RR @ POS. 3 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T RRUS: RRUS-11 B12 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T RRUS: RRUS-12 B2 + A2 B25 MODULE (1900) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T DIPLEXER: TT19-08BP111-001 (TYP. OF 1 PER SECTOR, TOTAL OF 3).

ITEMS TO REMAIN:

- (6) ANTENNAS, (3) TMA'S (1) SURGE ARRESTOR, (12) COAX CABLES, (2) DC POWER & (1) FIBER.

SITE ADDRESS: 82 LOVELY STREET  
UNIONVILLE, CT 06085

LATITUDE: 41.761381° N, 41° 45' 40.97" N

LONGITUDE: 72.887526° W, 72° 53' 15.09" W

TYPE OF SITE: MONOPOLE / INDOOR

STRUCTURE HEIGHT: 101'-0"±

RAD CENTER: 98'-0"± @ POS. 1 (ALPHA, BETA, AND GAMMA SECTORS)/97'-7" @ POS. 2 (ALPHA, AND BETA SECTORS)/97'-6" @ POS. 4 (ALPHA, AND BETA SECTORS)

CURRENT USE: TELECOMMUNICATIONS FACILITY

PROPOSED USE: TELECOMMUNICATIONS FACILITY



**SITE NUMBER: CT1061**

**SITE NAME: UNIONVILLE SBC CO**

**FA CODE: 10035037**

**PACE ID: MRCTB043989,MRCTB043995,MRCTB043998**

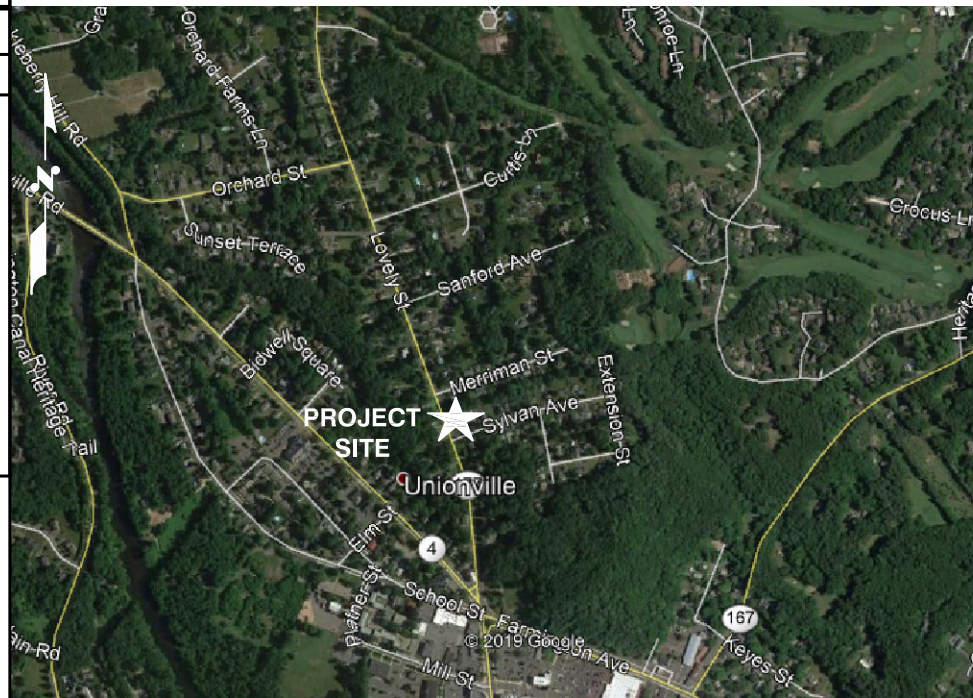
**PROJECT: LTE 3C\_5G\_BWE\_2020 UPGRADE**

**FOR ZONING  
NOT FOR CONSTRUCTION**

**VICINITY MAP**

**DIRECTIONS TO SITE:**

HEAD NORTHEAST ON ENTERPRISE DR TOWARD CAPITAL BLVD (0.31 MILES), TURN LEFT ONTO CAPITAL BLVD (0.27MI). TURN LEFT ONTO WEST ST (0.30 MILES), TURN LEFT TO MERGE ONTO I-91 S TOWARD NEW HAVEN (1.63 MILES). MERGE ONTO CT-9 N VIA EXIT 22N TOWARD NEW BRITAIN (11.08 MILES). MERGE ONTO I-84 W/US-6 VIA EXIT 32 ON LEFT TOWARD WATERBURY (1.15 MILES). MERGE ONTO CT-508/FARMINGTON AVE VIA EXIT 39 TOWARD CT-4/FARMINGTON (1.07 MILES). STAY STRAIGHT TO GO ONTO CT-4/FARMINGTON AVE (4.87 MILES), TURN RIGHT ONTO LOVELY ST/CT-177 (0.23 MILES). 82 LOVELY STREET IS ON THE RIGHT



**GENERAL NOTES**

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

**DRAWING INDEX**

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	1
GN-1	GENERAL NOTES	1
A-1	COMPOUND & EQUIPMENT PLANS	1
A-2	ANTENNA LAYOUTS & ELEVATION	1
A-3	DETAILS	1
G-1	GROUNDING DETAILS	1
RF-1	RF PLUMBING DIAGRAM	1

**72 HOURS**

**CALL BEFORE YOU DIG**

CALL TOLL FREE 1-800-922-4455

OR CALL 811

**UNDERGROUND SERVICE ALERT**

**HGD HUDSON Design Group LLC**

45 BEECHWOOD DRIVE  
NORTH ANDOVER, MA 01845

TEL: (978) 557-5553  
FAX: (978) 336-5586

**CENTERLINE COMMUNICATIONS**

750 WEST CENTER STREET, SUITE #301  
WEST BRIDGEWATER, MA 02379

**SITE NUMBER: CT1061**  
**SITE NAME: UNIONVILLE SBC CO**

82 LOVELY STREET  
UNIONVILLE, CT 06085  
HARTFORD COUNTY

**at&t**

500 ENTERPRISE DRIVE, SUITE 3A  
ROCKY HILL, CT 06067

**Professional Engineer Seal**

*Daniel P. Hamm*

STATE OF CONNECTICUT  
DANIEL P. HAMM  
No. 24178  
LICENSED PROFESSIONAL ENGINEER

1	04/03/20	ISSUED FOR ZONING	AR	AT	DPH
0	03/11/20	ISSUED FOR REVIEW	TR	AT	DPH
A	01/14/19	ISSUED FOR REVIEW	TR	AT	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D

SCALE: AS SHOWN    DESIGNED BY: AT    DRAWN BY: TR

**AT&T**

TITLE SHEET  
LTE 3C\_5G\_BWE\_2020 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT1061	T-1	1



**GROUNDING NOTES**

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTNING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81 STANDARDS) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS AND #2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

**GENERAL NOTES**

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:  
 CONTRACTOR – CENTERLINE  
 SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)  
 OWNER – AT&T MOBILITY
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. **APPLICABLE BUILDING CODES:**  
 SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

**BUILDING CODE: IBC 2015 WITH 2018 CT STATE BUILDING CODE AMENDMENTS  
 ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE (NFPA 70-2017)**

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

**AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;**

**AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;**

**TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-H, STRUCTURAL STANDARDS FOR STEEL**

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

**ABBREVIATIONS**

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

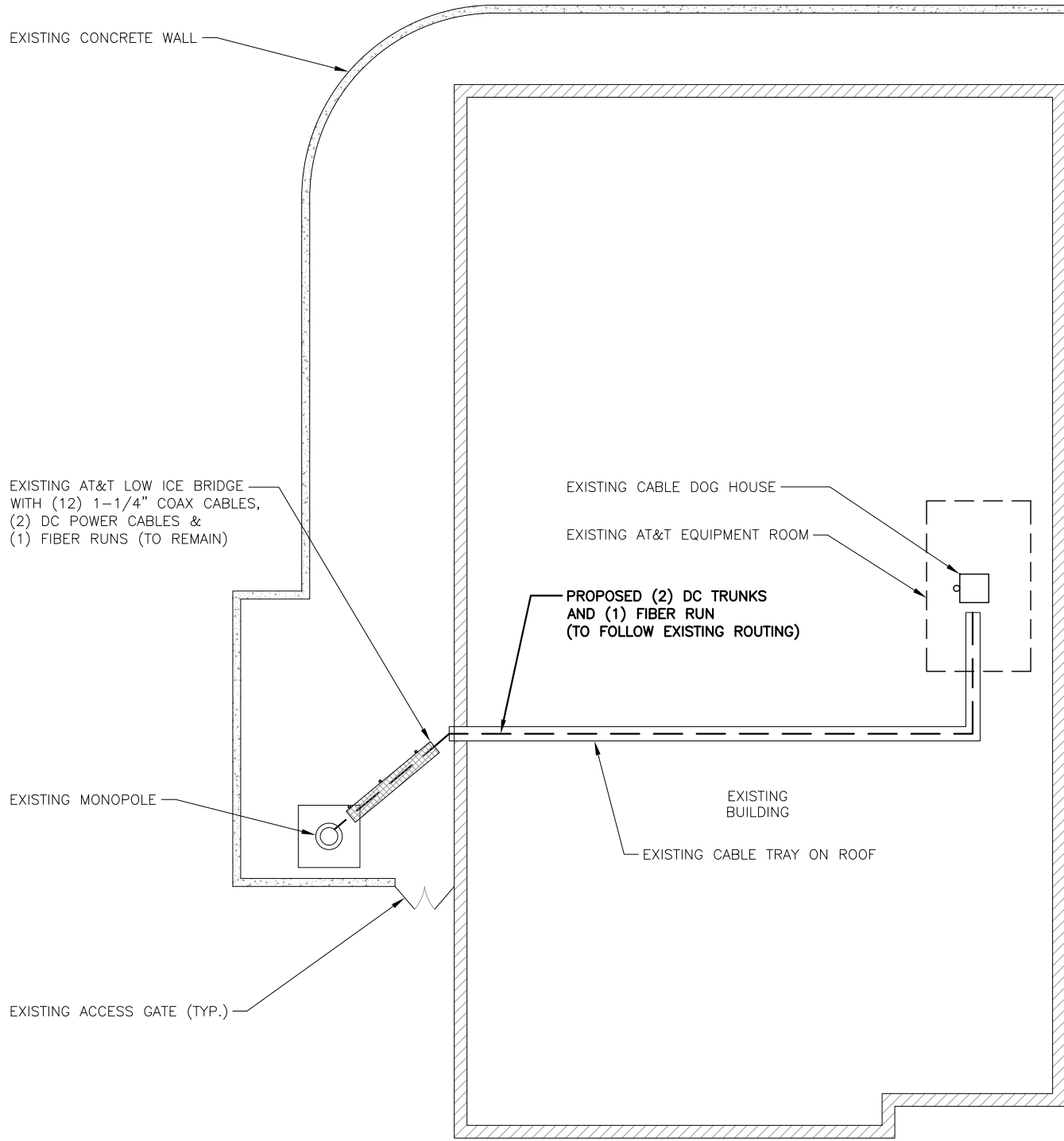
**HDG HUDSON Design Group LLC**  
 45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845  
 TEL: (978) 557-5553 FAX: (978) 336-5586

**CENTERLINE COMMUNICATIONS**  
 750 WEST CENTER STREET, SUITE #301 WEST BRIDGEWATER, MA 02379

**SITE NUMBER: CT1061  
 SITE NAME: UNIONVILLE SBC CO**  
 82 LOVELY STREET UNIONVILLE, CT 06085 HARTFORD COUNTY

**at&t**  
 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067

1 04/03/20 ISSUED FOR ZONING		AR	AT	DPH		AT&T GENERAL NOTES LTE 3C_5G_BWE_2020 UPGRADE
0 03/11/20 ISSUED FOR REVIEW		TR	AT	DPH		
A 01/14/19 ISSUED FOR REVIEW		TR	AT	DPH		
NO.	DATE	REVISIONS	BY	CHK	APP'D	
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: TR			
SITE NUMBER	DRAWING NUMBER	REV				
CT1061	GN-1	1				



EXISTING AT&T LOW ICE BRIDGE WITH (12) 1-1/4" COAX CABLES, (2) DC POWER CABLES & (1) FIBER RUNS (TO REMAIN)

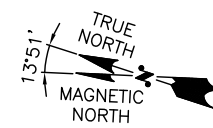
EXISTING CABLE DOG HOUSE  
EXISTING AT&T EQUIPMENT ROOM

PROPOSED (2) DC TRUNKS AND (1) FIBER RUN (TO FOLLOW EXISTING ROUTING)

EXISTING BUILDING  
EXISTING CABLE TRAY ON ROOF

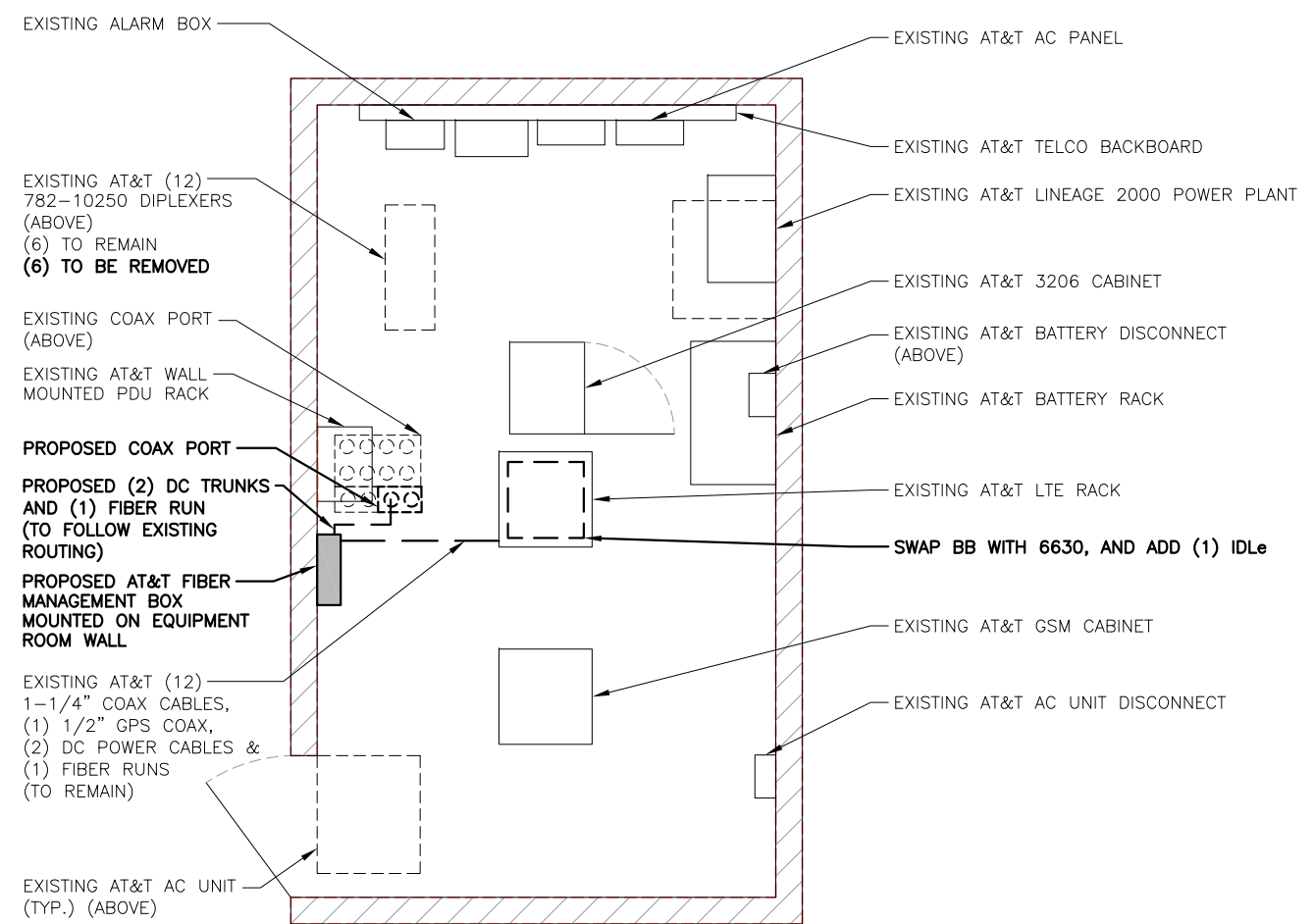
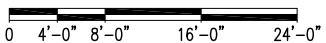
EXISTING MONOPOLE

EXISTING ACCESS GATE (TYP.)



**COMPOUND PLAN**  
22x34 SCALE: 1/8"=1'-0"  
11x17 SCALE: 1/16"=1'-0"

1  
A-1



EXISTING ALARM BOX

EXISTING AT&T (12) 782-10250 DIPLEXERS (ABOVE)  
(6) TO REMAIN  
(6) TO BE REMOVED

EXISTING COAX PORT (ABOVE)  
EXISTING AT&T WALL MOUNTED PDU RACK

PROPOSED COAX PORT  
PROPOSED (2) DC TRUNKS AND (1) FIBER RUN (TO FOLLOW EXISTING ROUTING)

PROPOSED AT&T FIBER MANAGEMENT BOX MOUNTED ON EQUIPMENT ROOM WALL

EXISTING AT&T (12) 1-1/4" COAX CABLES, (1) 1/2" GPS COAX, (2) DC POWER CABLES & (1) FIBER RUNS (TO REMAIN)

EXISTING AT&T AC UNIT (TYP.) (ABOVE)

EXISTING AT&T AC PANEL

EXISTING AT&T TELCO BACKBOARD  
EXISTING AT&T LINEAGE 2000 POWER PLANT

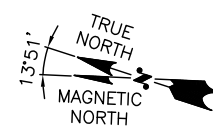
EXISTING AT&T 3206 CABINET  
EXISTING AT&T BATTERY DISCONNECT (ABOVE)

EXISTING AT&T BATTERY RACK  
EXISTING AT&T LTE RACK

SWAP BB WITH 6630, AND ADD (1) IDLe

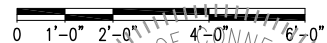
EXISTING AT&T GSM CABINET

EXISTING AT&T AC UNIT DISCONNECT



**EQUIPMENT PLAN**  
22x34 SCALE: 1/2"=1'-0"  
11x17 SCALE: 1/4"=1'-0"

2  
A-1



**HUDSON Design Group LLC**  
45 BEECHWOOD DRIVE  
NORTH ANDOVER, MA 01845  
TEL: (978) 557-5553  
FAX: (978) 336-5586

**CENTERLINE COMMUNICATIONS**  
750 WEST CENTER STREET, SUITE #301  
WEST BRIDGEWATER, MA 02379

**SITE NUMBER: CT1061**  
**SITE NAME: UNIONVILLE SBC CO**  
82 LOVELY STREET  
UNIONVILLE, CT 06085  
HARTFORD COUNTY

**at&t**  
500 ENTERPRISE DRIVE, SUITE 3A  
ROCKY HILL, CT 06067

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SCALE: AS SHOWN    DESIGNED BY: AT    DRAWN BY: TR

**DANIEL P. HAMM**  
STATE OF CONNECTICUT  
LICENSED PROFESSIONAL ENGINEER  
No. 24178

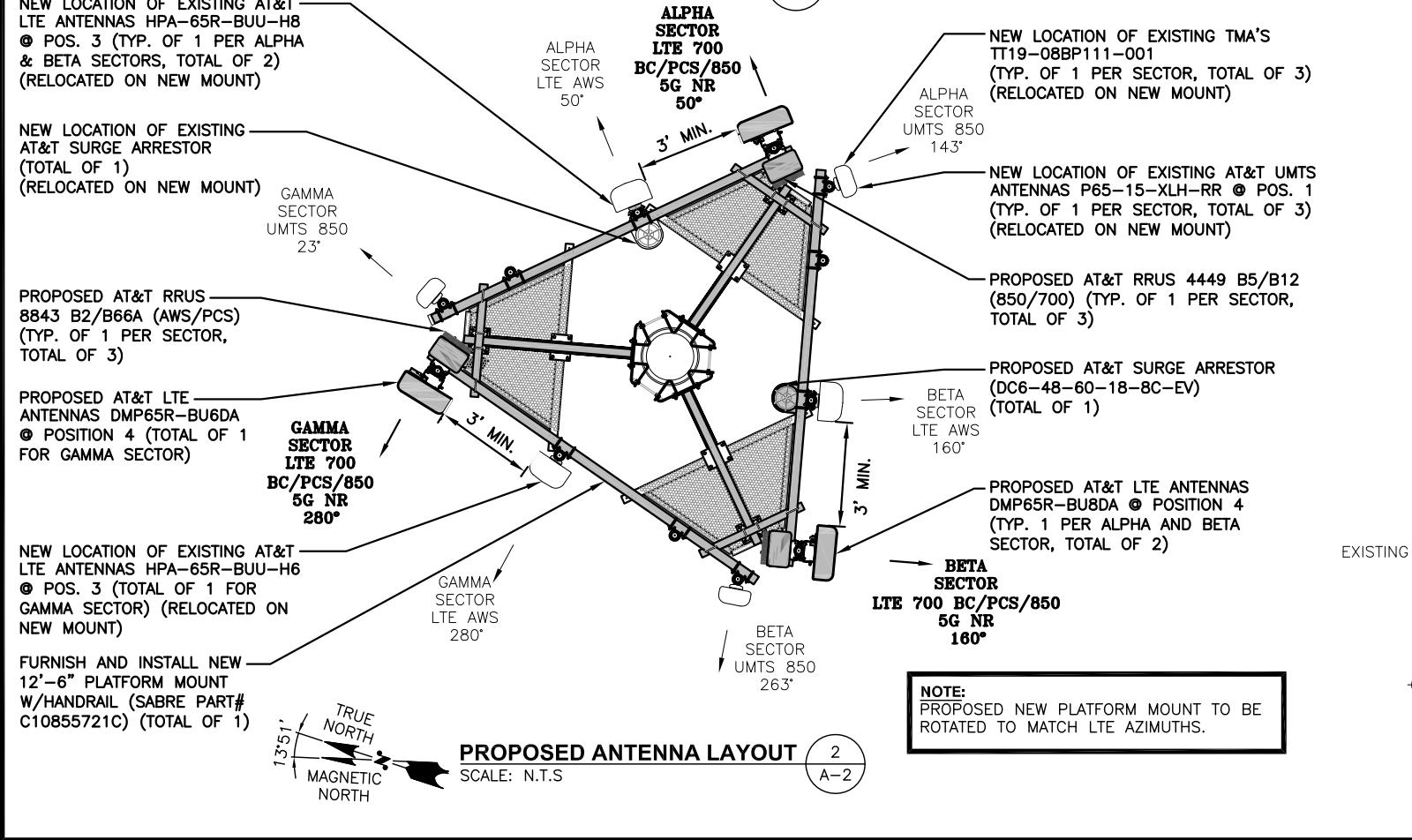
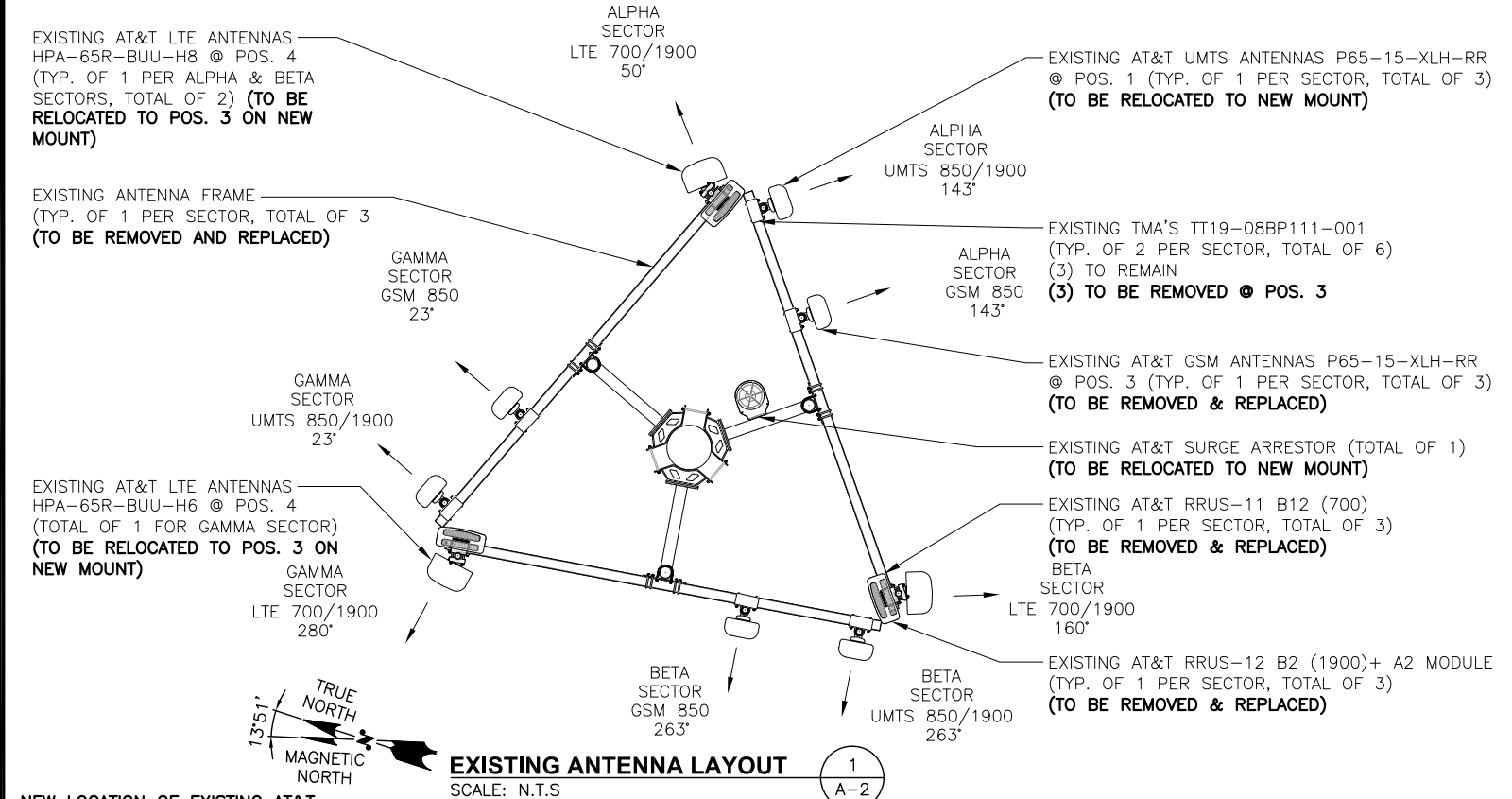
**AT&T**  
**COMPOUND & EQUIPMENT PLANS**  
**LTE 3C\_5G\_BWE\_2020 UPGRADE**  
SITE NUMBER: CT1061    DRAWING NUMBER: A-1    REV: 1

**NOTE:**  
1. REMOVE ABANDONED ANTENNAS LEFT IN THE COMPOUND (OR HAVE SOMEONE GRAB THEM SOON AS THEY HAVE BEEN THERE FOR WELL OVER A YEAR)  
2. REPAINT EXISTING ANTENNAS WHEN NEW ANTENNAS PAINTED SO THEY ALL MATCH

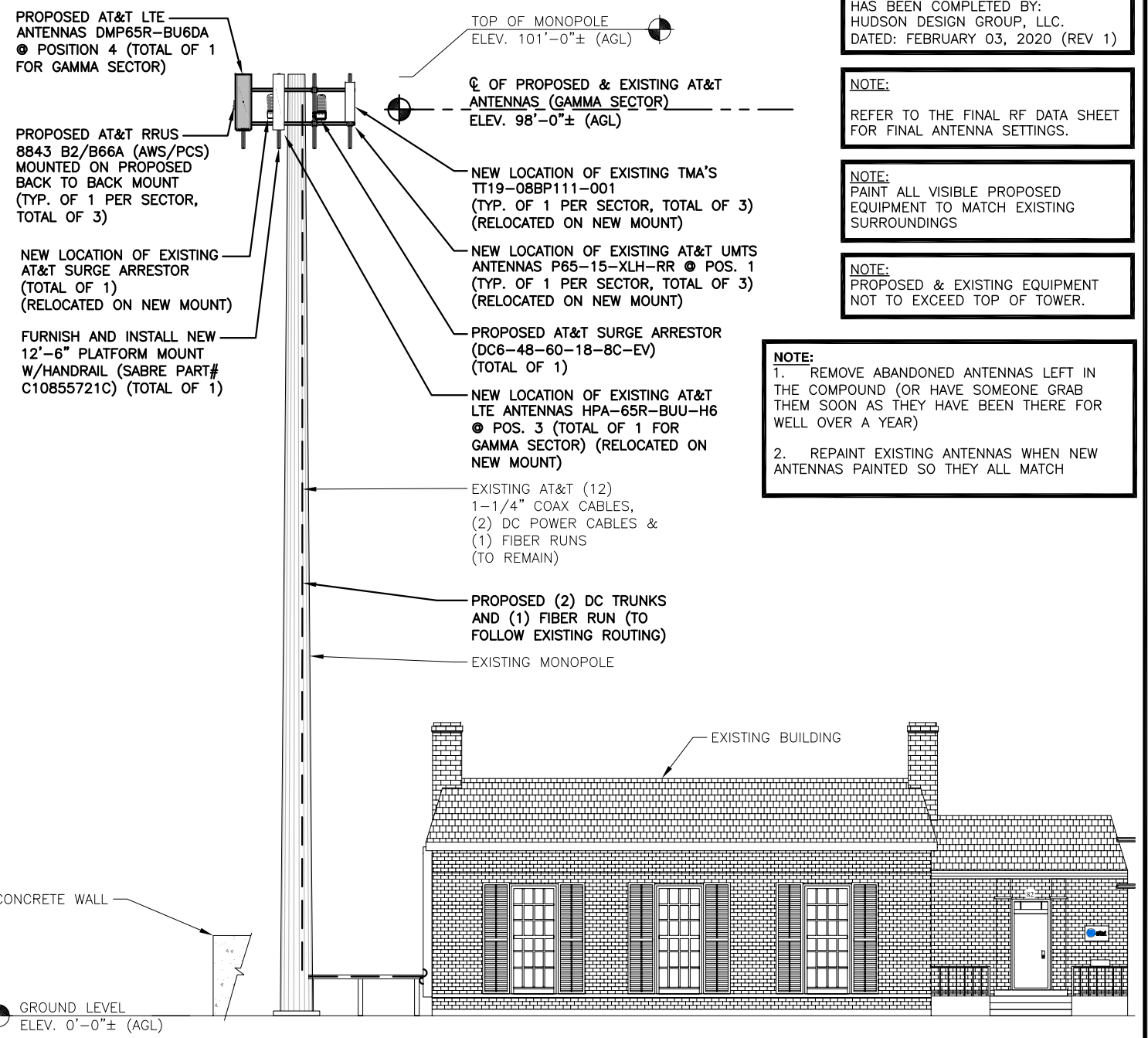
**NOTE:**  
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

**NOTE:**  
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: FEBRUARY 03, 2020 (REV 1)

**NOTE:**  
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



**NOTE:**  
PROPOSED NEW PLATFORM MOUNT TO BE ROTATED TO MATCH LTE AZIMUTHS.



**NOTE:**  
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

**NOTE:**  
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**NOTE:**  
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

**NOTE:**  
PAINT ALL VISIBLE PROPOSED EQUIPMENT TO MATCH EXISTING SURROUNDINGS

**NOTE:**  
PROPOSED & EXISTING EQUIPMENT NOT TO EXCEED TOP OF TOWER.

**NOTE:**  
1. REMOVE ABANDONED ANTENNAS LEFT IN THE COMPOUND (OR HAVE SOMEONE GRAB THEM SOON AS THEY HAVE BEEN THERE FOR WELL OVER A YEAR)  
2. REPAINT EXISTING ANTENNAS WHEN NEW ANTENNAS PAINTED SO THEY ALL MATCH

**ELEVATION**  
22x34 SCALE: 1/8"=1'-0"  
11x17 SCALE: 1/16"=1'-0"

**HUDSON**  
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**SITE NUMBER: CT1061**  
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SCALE: AS SHOWN    DESIGNED BY: AT    DRAWN BY: TR

**Daniel P. Hamm**  
No. 24178  
LICENSED PROFESSIONAL ENGINEER

**AT&T**  
**ANTENNA LAYOUTS & ELEVATION**  
**LTE 3C\_5G\_BWE\_2020 UPGRADE**  
SITE NUMBER: CT1061    DRAWING NUMBER: A-2    REV: 1



**ANTENNA SCHEDULE**

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA CL HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	EXISTING	UMTS 850	P65-15-XLH-RR	51X12X6	98'-0"±	143°	(1)(E) TT19-08BP111-001	-	-	(2)1-1/4 COAX	(E) (1) RAYCAP DC6-48-60-18-8F
A2	-	-	-	-	-	-	-	-	(2) DC POWER (1) FIBER		
A2	EXISTING	LTE AWS	HPA-65R-BUU-H8	92.4X14.8X7.4	97'-7"±	50°	-	-	-	(2)1-1/4 COAX (SPARE)	
A4	PROPOSED	LTE 700 BC/PCS/850 5G NR	DMP65R-BU8DA	96.0X20.7X7.7	97'-6"±	50°	-	(1)(P) 4449 B5/B12 (850/700) (1)(P) 8843 B2/B66A (AWS/PCS)	17.9X13.9X9.4 14.9X13.2X10.9	-	(P) (1) RAYCAP DC6-48-60-18-8C-EV
B1	EXISTING	UMTS 850	P65-15-XLH-RR	51X12X6	98'-0"±	263°	(1)(E) TT19-08BP111-001	-	-	(2)1-1/4 COAX	
B2	-	-	-	-	-	-	-	-	-	-	
B3	EXISTING	LTE AWS	HPA-65R-BUU-H8	92.4X14.8X7.4	97'-7"±	160°	-	-	-	(2)1-1/4 COAX (SPARE)	
B4	PROPOSED	LTE 700 BC/PCS/850 5G NR	DMP65R-BU8DA	96.0X20.7X7.7	97'-6"±	160°	-	(1)(P) 4449 B5/B12 (850/700) (1)(P) 8843 B2/B66A (AWS/PCS)	17.9X13.9X9.4 14.9X13.2X10.9	(P)(2) DC (P)(1) FIBER	SHARED
C1	EXISTING	UMTS 850	P65-15-XLH-RR	51X12X6	98'-0"±	23°	(1)(E) TT19-08BP111-001	-	-	(2)1-1/4 COAX	
C2	-	-	-	-	-	-	-	-	-	-	
C3	EXISTING	LTE AWS	HPA-65R-BUU-H6	72X14.8X9	98'-0"±	280°	-	-	-	(2)1-1/4 COAX (SPARE)	
C4	PROPOSED	LTE 700 BC/PCS/850 5G NR	DMP65R-BU6DA	71.2X20.7X7.7	98'-0"±	280°	-	(1)(P) 4449 B5/B12 (850/700) (1)(P) 8843 B2/B66A (AWS/PCS)	17.9X13.9X9.4 14.9X13.2X10.9	-	

**RRU CHART**

QUANTITY	MODEL	SIZE (L x W x D)
3(P)	4449 (700/850)	17.9"x13.9"x9.4"
3(P)	8843 (PCS/AWS)	14.9"x13.2"x10.9"

NOTE:  
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:  
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

NOTE:  
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: FEBRUARY 03, 2020 (REV 1)

NOTE:  
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:  
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER

PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

NOTE:  
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

**PROPOSED RRUS DETAIL** (2)  
SCALE: N.T.S.

**FINAL ANTENNA SCHEDULE** (1)  
SCALE: N.T.S.

FURNISH AND INSTALL NEW 12'-6" PLATFORM MOUNT W/HANDRAIL (SABRE PART# C10855721C) (TOTAL OF 1)

PROPOSED AT&T SURGE ARRESTOR DC6-48-60-18-8C-EV (TOTAL OF 1)

PROPOSED SURGE SUPPRESSOR MODEL NUMBERS: DC6-48-60-18-8C-EV DC6-48-60-0-8C-EV DIMENSIONS: H24.0"x9.7"φ WITH BRACKET: H31.25"x9.7"φ

STRIKESORB 30-V1 SURGE PROTECTIVE DEVICE

NOTE:  
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

**DC SURGE SUPPRESSOR DETAIL** (3)  
SCALE: N.T.S.

**PROPOSED SURGE ARRESTOR MOUNTING DETAIL** (4)  
SCALE: N.T.S.

**PROPOSED PLATFORM MOUNT DETAIL** (5)  
SCALE: N.T.S.

PROPOSED AT&T RRUS 8843 B2/B66A (AWS/PCS) (TYP. OF 1 PER SECTOR, TOTAL OF 3)

PROPOSED AT&T RRUS 4449 B5/B12 (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 3)

FURNISH AND INSTALL NEW 12'-6" PLATFORM MOUNT W/HANDRAIL (SABRE PART# C10855721C) (TOTAL OF 1)

CL OF PROPOSED & EXISTING AT&T ANTENNAS (ALPHA & BETA SECTORS)  
ELEV. 97'-6"± (AGL)

PROPOSED AT&T LTE ANTENNAS DMP65R-BU8DA @ POSITION 4 (TYP. 1 PER ALPHA AND BETA SECTOR, TOTAL OF 2)

**PROPOSED LTE ANTENNA & RRUS MOUNTING DETAIL** (6)  
22x34 SCALE: 1"=1'-0"  
11x17 SCALE: 1/2"=1'-0"

**HUDSON Design Group LLC**  
45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845  
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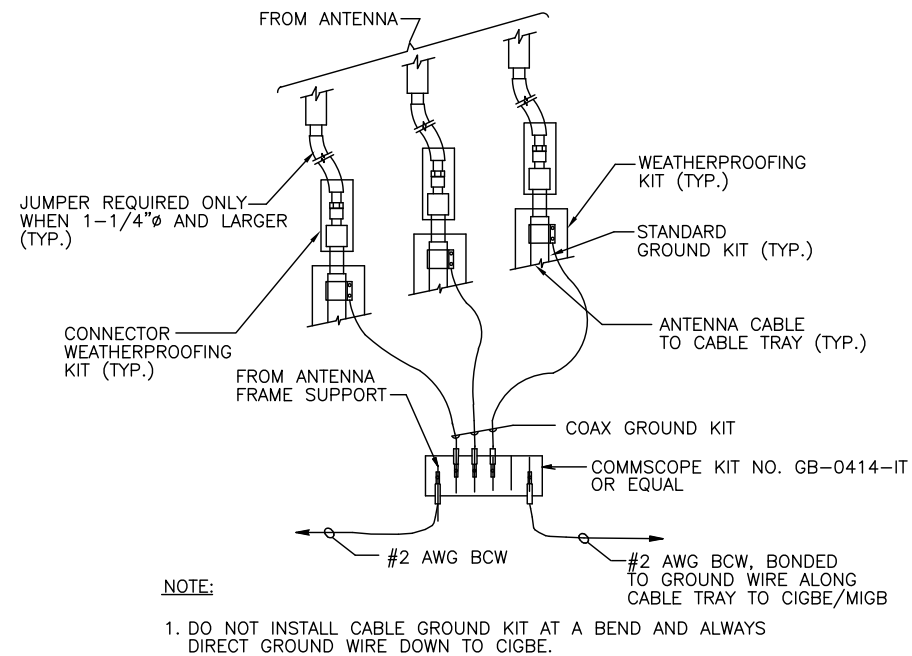
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AT&T  
DETAILS  
LTE 3C\_5G\_BWE\_2020 UPGRADE

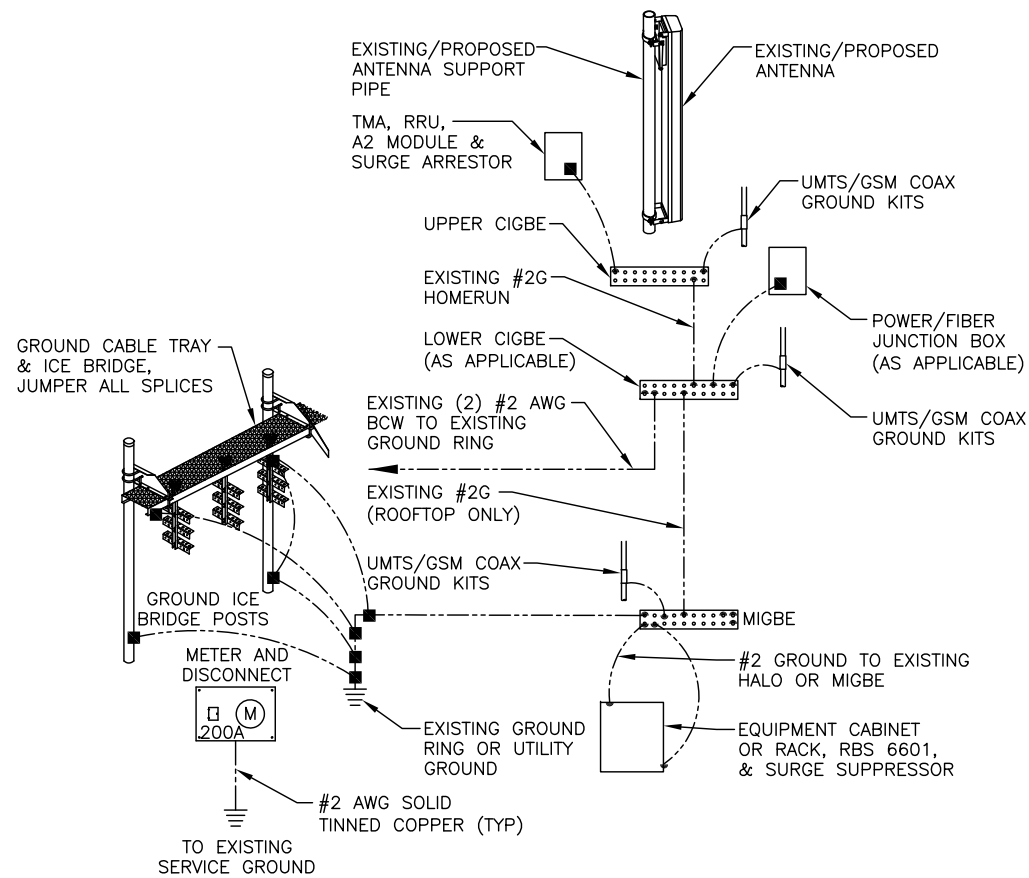
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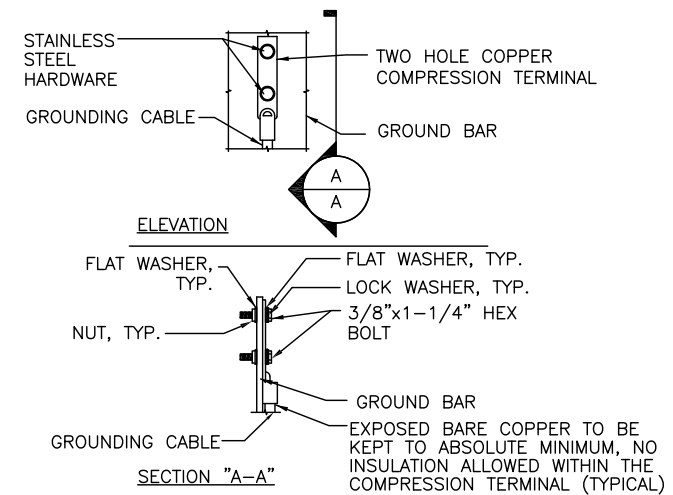
SITE NUMBER	DRAWING NUMBER	REV
CT1061	A-3	1



**GROUND WIRE TO GROUND BAR CONNECTION DETAIL** 1  
SCALE: N.T.S. G-1



**GROUNDING RISER DIAGRAM** 2  
SCALE: N.T.S. G-1



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

**TYPICAL GROUND BAR CONNECTION DETAIL** 3  
SCALE: N.T.S. G-1

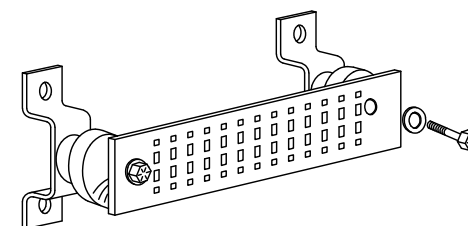
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

**SECTION "P" - SURGE PRODUCERS**

- CABLE ENTRY PORTS (HATCH PLATES) (#2 AWG)
- GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)
- TELCO GROUND BAR
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2 AWG)
- +24V POWER SUPPLY RETURN BAR (#2 AWG)
- 48V POWER SUPPLY RETURN BAR (#2 AWG)
- RECTIFIER FRAMES.

**SECTION "A" - SURGE ABSORBERS**

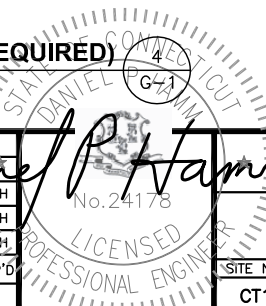
- INTERIOR GROUND RING (#2 AWG)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2 AWG)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2 AWG)
- BUILDING STEEL (IF AVAILABLE) (#2 AWG)



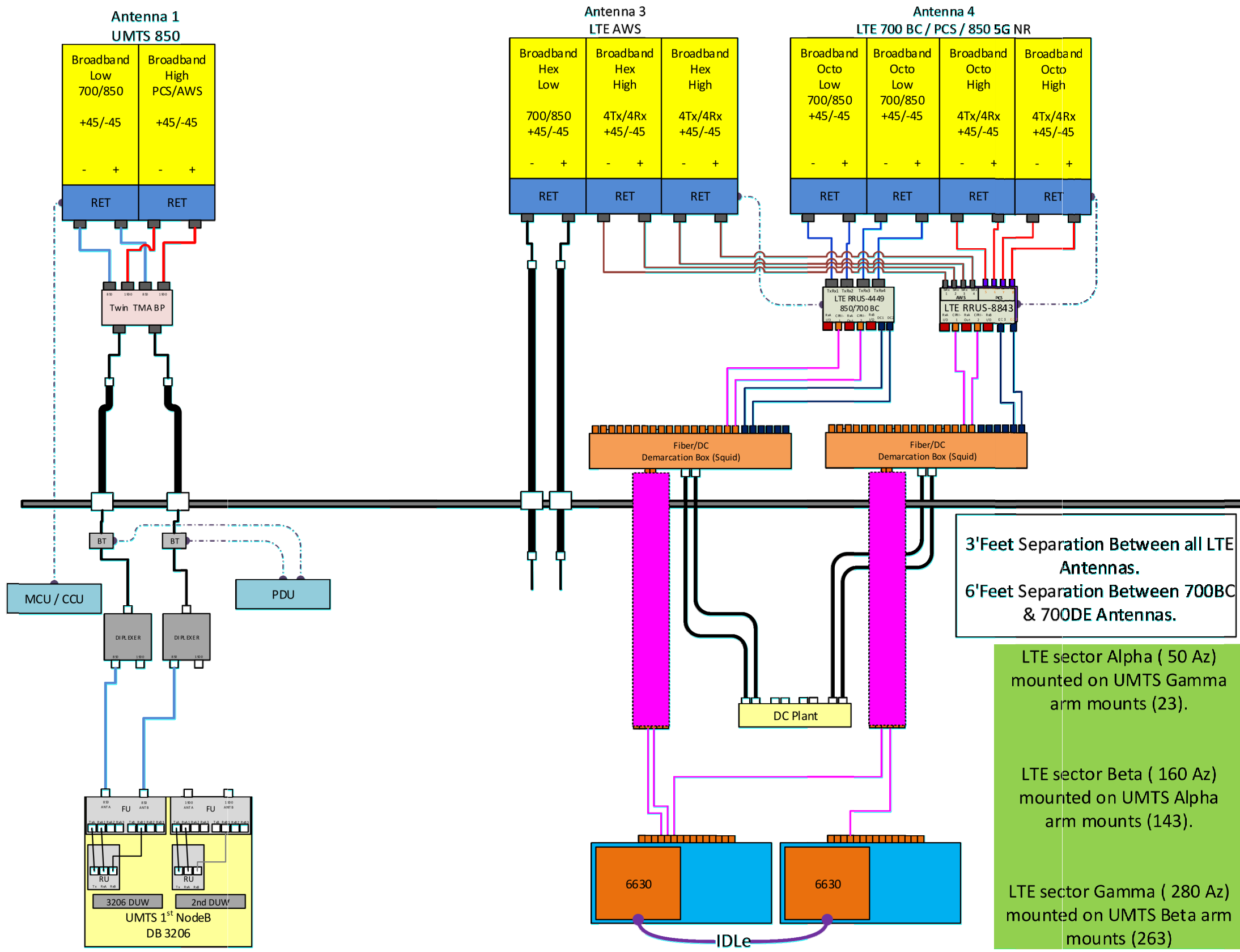
**GROUND BAR - DETAIL (AS REQUIRED)** 4  
SCALE: N.T.S. G-1

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A	01/14/19	ISSUED FOR REVIEW	TR	AT	DPH

SCALE: AS SHOWN    DESIGNED BY: AT    DRAWN BY: TR



AT&T	
GROUNDING DETAILS	
LTE 3C_5G_BWE_2020 UPGRADE	
SITE NUMBER	DRAWING NUMBER
CT1061	G-1
REV	1



**NOTE:**  
 1. CONTRACTOR TO CONFIRM ALL PARTS.  
 2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

**NOTE:**  
 REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

**RF PLUMBING DIAGRAM** 1  
 SCALE: N.T.S. RF-1

1	04/03/20	ISSUED FOR ZONING	AR	AT	DPH
0	03/11/20	ISSUED FOR REVIEW	TR	AT	DPH
A	01/14/19	ISSUED FOR REVIEW	TR	AT	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: TR		

<b>AT&amp;T</b>		
RF PLUMBING DIAGRAM		
LTE 3C_5G_BWE_2020 UPGRADE		
SITE NUMBER	DRAWING NUMBER	REV
CT1061	RF-1	1

## EXHIBIT 2

January 16, 2020



Centerline Communications  
750 West Center Street, Suite #301  
West Bridgewater, MA 02379

RE:      Site Number:            CT1061 (LTE 3C/BWE/5G)  
          FA Number:            10035037  
          PACE Number:         MRCTB043989  
          PT Number:            2051AORWZF  
          Site Name:             UNIONVILLE SBC CO  
          Site Address:         82 Lovely Street  
   Unionville, CT 06085

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by Centerline Communications to perform a mount analysis on the proposed AT&T antenna/RRH mounts to determine their capability of supporting the following additional loading:

- (3) P65-15-XLH-RR Antennas (51.0"x12.0"x6.0" – Wt. = 30 lbs. /each)
- (2) HPA-65R-BUU-H8 Antennas (92.4"x14.8"x7.4" – Wt. = 68 lbs. /each)
- (1) HPA-65R-BUU-H6 Antennas (72.0"x14.8"x7.4" – Wt. = 51 lbs. /each)
- (3) TT19-08BP111-001 TMA's (9.9"x6.7"x5.4" - Wt. = 16 lbs. /each)
- (1) Squid Surge Arrestor (24.0"x9.7"  $\Phi$  – Wt. = 33 lbs. /each)
- **(2) DMP65R-BU8DA Antennas (96.0"x20.7"x7.7" – Wt. = 96 lbs. /each)**
- **(1) DMP65R-BU6DA Antennas (71.2"x20.7"x7.7" – Wt. = 80 lbs. /each)**
- **(3) B5/B12 4449 RRH's (17.9"x13.2"x9.5" – Wt. = 71 lbs. /each)**
- **(3) B2/B66A 8843 RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)**
- **(1) Squid Surge Arrestor (24.0"x9.7"  $\Phi$  – Wt. = 33 lbs. /each)**

*\*Proposed equipment shown in bold*

Assembly drawings prepared by SitePr1o, P/N VFA12-M3-WLL, dated October 29, 2018 were available for the proposed mount. HDG's subconsultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mounts on November 19, 2019.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R13.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 125 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.5 in. An escalated ice thickness of 1.67 in was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- The mount has been analyzed with load combinations consisting of 250 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 4.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.

Based on our evaluation, we have determined that the new SitePro1 VFA12-M3-WLL mounts **ARE CAPABLE** of supporting the proposed installation with the following modifications:

- **Install new platform reinforcement kit, SitePro1 P/N PRK-1245LW (or approved equal).**

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
<b>Proposed (LTE 3C/5G) Mount Rating</b>	94	LC11	104%	<b>FAIL</b>
<b>Modified (LTE 3C/5G) Mount Rating</b>	94	LC11	78%	<b>PASS</b>

Reference Documents:

- Mount mapping report prepared by ProVertic LLC.
- Assembly drawings prepared by SitePro1 o, P/N VFA12-M3-WLL, dated October 29, 2018.

This determination was based on the following limitations and assumptions:

1. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The existing mount has been adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. HDG performed a localized analysis on the mount itself and not on the supporting tower structure.

Please feel free to contact our office should you have any questions.

Respectfully Submitted,  
Hudson Design Group LLC



Michael Cabral  
Vice President



Daniel P. Hamm, PE  
Principal

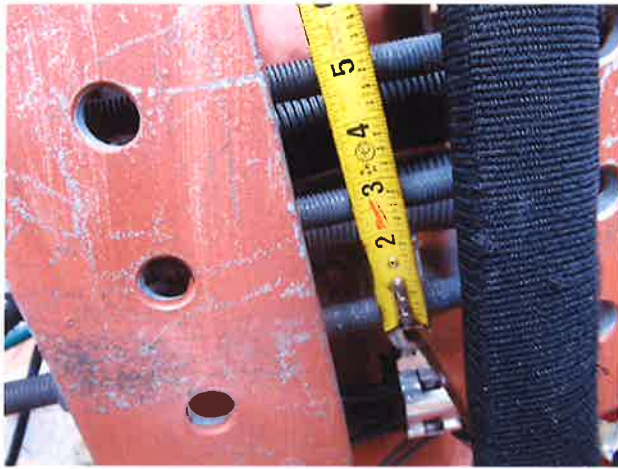


**FIELD PHOTOS:**

(Existing mounts to be removed)









**HUDSON**  
Design Group LLC

**Wind & Ice  
Calculations**

Date: 1/17/2020  
 Project Name: UNIONVILLE SBC CO  
 Project No.: CT1061  
 Designed By: ISD Checked By: MSC



**2.6.5.2 Velocity Pressure Coeff:**

$K_z = 2.01 (z/z_g)^{2/\alpha}$

$K_z =$  **0.983**

$z =$  98 (ft)  
 $z_g =$  1200 (ft)  
 $\alpha =$  7.0

$K_{zmin} \leq K_z \leq 2.01$

**Table 2-4**

Exposure	$Z_g$	$\alpha$	$K_{zmin}$	$K_c$
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

**2.6.6.2 Topographic Factor:**

**Table 2-5**

Topo. Category	$K_t$	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$K_{zt} = [1 + (K_c K_t / K_h)]^2$

$K_h = e^{(f \cdot z / H)}$

$K_{zt} =$  **#DIV/0!**

$K_h =$  **#DIV/0!**

*(If Category 1 then  $K_{zt} = 1.0$ )*

$K_c =$  (from Table 2-4)

$K_t =$  (from Table 2-5)

f = (from Table 2-5)

z = 98

$z_s =$  260 (Mean elevation of base of structure above sea level)

H = 0 (Ht. of the crest above surrounding terrain)

$K_{zt} =$  **1.00** (from 2.6.6.2.1)

$K_e =$  **0.99** (from 2.6.8)

Category = **1**

**2.6.10 Design Ice Thickness**

Max Ice Thickness =

$t_i =$  1.50 in

Importance Factor =

I = 1.0 (from Table 2-3)

$K_{iz} =$  **1.11** (from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$

$t_{iz} =$  **1.67** in

Date: 1/17/2020  
 Project Name: UNIONVILLE SBC CO  
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 Designed By: ISD Checked By: MSC



**2.6.9 Gust Effect Factor**

2.6.9.1 Self Supporting Lattice Structures

$G_h = 1.0$  Latticed Structures > 600 ft

$G_h = 0.85$  Latticed Structures 450 ft or less

$G_h = 0.85 + 0.15 [h/150 - 3.0]$

$h =$  ht. of structure

$h = 101 \quad G_h = 0.85$

2.6.9.2 Guyed Masts

$G_h = 0.85$

2.6.9.3 Pole Structures

$G_h = 1.1$

2.6.9 Appurtenances

$G_h = 1.0$

2.6.9.4 Structures Supported on Other Structures

(Cantilevered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5))

$G_h = 1.35 \quad G_h = 1.00$

2.6.11.2 Design Wind Force on Appurtenances

$F = q_z * G_h * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$

- $K_z = 0.983$  (from 2.6.5.2)
- $K_{zt} = 1.0$  (from 2.6.6.2.1)
- $K_s = 1.0$  (from 2.6.7)
- $K_e = 0.99$  (from 2.6.8)
- $K_d = 0.95$  (from Table 2-2)
- $V_{max} = 125$  mph (Ultimate Wind Speed)
- $V_{max(ice)} = 50$  mph
- $V_{30} = 30$  mph

$q_z =$	<b>36.99</b>
$q_z(ice) =$	<b>5.92</b>
$q_z(30) =$	<b>2.13</b>

**Table 2-2**

Structure Type	Wind Direction Probability Factor, $K_d$
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

**Determine Ca:**

**Table 2-9**

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Square/Rectangular HSS		$1.2 - 2.8(r_s) ≥ 0.85$	$1.4 - 4.0(r_s) ≥ 0.90$	$2.0 - 6.0(r_s) ≥ 1.25$
Round	C < 39 (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{1.0})$
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.  
 (Aspect ratio is independent of the spacing between support points of a linear appurtenance,  
 Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **1.67 in**      Angle = **0 (deg)**      Equivalent Angle = **180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
P65-15-XLH-RR Antenna	51.0	12.0	6.0	4.25	4.25	1.28	201	44	12
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	6.24	1.37	480	98	28
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	4.86	1.31	357	73	21
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	4.64	1.30	661	127	38
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.44	1.24	470	91	27
B5/B12 4449 RRH	17.9	9.5	13.2	1.18	1.88	1.20	52	13	3
B5/B12 4449 RRH (Shielded)	17.9	4.8	13.2	0.59	3.77	1.26	27	9	2
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.20	50	13	3
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	2.73	1.21	25	8	1
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	1.83	1.20	16	6	1
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	1.20	72	18	4
2" Pipe	2.4	12.0		0.20	0.20	1.20	9	4	1
2-1/2" pipe	2.9	12.0		0.24	0.24	2.00	18	8	1
3/4" Round Bar	0.8	12.0		0.06	0.06	1.25	3	3	0
5/8" Round Bar	0.6	12.0		0.05	0.05	1.25	2	3	0
PL 3-1/2X5/8	0.6	12.0		0.05	0.05	1.25	2	3	0
PL 11-1/4X5/8	0.6	12.0		0.05	0.05	1.25	2	3	0
L 2-1/2x2-1/2 Angles	2.5	12.0		0.21	0.21	1.25	10	5	1

Date: 1/17/2020  
 Project Name: UNIONVILLE 58C CO  
 Project No.: CT1061  
 Designed By: ISD Checked By: MSC



**WIND LOADS**

Angle = 30 (deg)

Ice Thickness = 1.67 in.

Equivalent Angle = 210 (deg)

**WIND LOADS WITH NO ICE:**

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
P65-15-XLH-RR Antenna	51.0	12.0	6.0	4.25	2.13	4.25	8.50	1.28	1.45	201	114	179
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	480	278	429
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	357	204	319
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	661	300	571
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	470	208	404
B5/B12 4449 RRH	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	52	73	58
B5/B12 4449 RRH (Shielded)	17.9	4.8	13.2	0.59	1.64	3.77	1.36	1.20	1.20	27	73	39
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	50	61	53
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.20	1.20	25	61	34
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	16	20	17
Surge Arrestor	24.0	9.7	9.7	1.62	1.62	2.47	2.47	1.20	1.20	72	72	72

**WIND LOADS WITH ICE:**

P65-15-XLH-RR Antenna	54.3	15.3	9.3	5.79	3.53	3.54	5.82	1.25	1.35	43	28	39
HPA-65R-BUU-H8 Antenna	95.7	18.1	10.7	12.06	7.14	5.28	8.91	1.32	1.46	94	62	86
HPA-65R-BUU-H6 Antenna	75.3	18.1	10.7	9.49	5.62	4.15	7.01	1.27	1.40	72	47	65
DMP65R-BU8DA Antenna	99.3	24.0	11.0	16.59	7.62	4.13	8.99	1.27	1.47	125	66	110
DMP65R-BU6DA Antenna	74.5	24.0	11.0	12.45	5.72	3.10	6.75	1.23	1.39	90	47	80
B5/B12 4449 RRH	21.2	12.8	16.5	1.90	2.44	1.65	1.28	1.20	1.20	13	17	14
B5/B12 4449 RRH (Shielded)	21.2	8.1	16.5	1.19	2.44	2.62	1.28	1.20	1.20	9	17	11
B2/B66A 8843 RRH	18.2	14.2	16.5	1.80	2.10	1.28	1.10	1.20	1.20	13	15	13
B2/B66A 8843 RRH (Shielded)	18.2	8.8	16.5	1.11	2.10	2.07	1.10	1.20	1.20	8	15	10
TT19-08BP111-001 TMA	13.2	8.7	10.0	0.80	0.92	1.51	1.32	1.20	1.20	6	7	6
Surge Arrestor	27.3	13.0	13.0	2.48	2.48	2.10	2.10	1.20	1.20	18	18	18

**WIND LOADS AT 30 MPH:**

P65-15-XLH-RR Antenna	51.0	12.0	6.0	4.25	2.13	4.25	8.50	1.28	1.45	12	7	10
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	28	16	25
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	21	12	18
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	38	17	33
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	27	12	23
B5/B12 4449 RRH	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	3	4	3
B5/B12 4449 RRH (Shielded)	17.9	4.8	13.2	0.59	1.64	3.77	1.36	1.20	1.20	2	4	2
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	3	3
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.20	1.20	1	3	2
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	1	1	1
Surge Arrestor	24.0	9.7	9.7	1.62	1.62	2.47	2.47	1.20	1.20	4	4	4

Date: 1/17/2020  
 Project Name: UNIONVILLE SBC CO  
 Project No.: CT1061  
 Designed By: ISD Checked By: MSC



**WIND LOADS**

Angle = 60 (deg)

Ice Thickness = 1.67 in.

Equivalent Angle = 240 (deg)

**WIND LOADS WITH NO ICE:**

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
P65-15-XLH-RR Antenna	51.0	12.0	6.0	4.25	2.13	4.25	8.50	1.28	1.45	201	114	136
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	480	278	328
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	357	204	242
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	661	300	391
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	470	208	273
B5/B12 4449 RRH	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	52	73	68
B5/B12 4449 RRH (Shielded)	17.9	4.8	13.2	0.59	1.64	3.77	1.36	1.26	1.20	27	73	61
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	50	61	58
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	25	61	52
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	16	20	19
Surge Arrestor	24.0	9.7	9.7	1.62	1.62	2.47	2.47	1.20	1.20	72	72	72

**WIND LOADS WITH ICE:**

P65-15-XLH-RR Antenna	54.3	15.3	9.3	5.79	3.53	3.54	5.82	1.25	1.35	43	28	32
HPA-65R-BUU-H8 Antenna	95.7	18.1	10.7	12.06	7.14	5.28	8.91	1.32	1.46	94	62	70
HPA-65R-BUU-H6 Antenna	75.3	18.1	10.7	9.49	5.62	4.15	7.01	1.27	1.40	72	47	53
DMP65R-BU8DA Antenna	99.3	24.0	11.0	16.59	7.62	4.13	8.99	1.27	1.47	125	66	81
DMP65R-BU6DA Antenna	74.5	24.0	11.0	12.45	5.72	3.10	6.75	1.23	1.39	90	47	58
B5/B12 4449 RRH	21.2	12.8	16.5	1.90	2.44	1.65	1.28	1.20	1.20	13	17	16
B5/B12 4449 RRH (Shielded)	21.2	8.1	16.5	1.19	2.44	2.62	1.28	1.21	1.20	9	17	15
B2/B66A 8843 RRH	18.2	14.2	16.5	1.80	2.10	1.28	1.10	1.20	1.20	13	15	14
B2/B66A 8843 RRH (Shielded)	18.2	8.8	16.5	1.11	2.10	2.07	1.10	1.20	1.20	8	15	13
TT19-08BP111-001 TMA	13.2	8.7	10.0	0.80	0.92	1.51	1.32	1.20	1.20	6	7	6
Surge Arrestor	27.3	13.0	13.0	2.48	2.48	2.10	2.10	1.20	1.20	18	18	18

**WIND LOADS AT 30 MPH:**

P65-15-XLH-RR Antenna	51.0	12.0	6.0	4.25	2.13	4.25	8.50	1.28	1.45	12	7	8
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	28	16	19
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	21	12	14
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	38	17	22
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	27	12	16
B5/B12 4449 RRH	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	3	4	4
B5/B12 4449 RRH (Shielded)	17.9	4.8	13.2	0.59	1.64	3.77	1.36	1.26	1.20	2	4	4
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	3	3
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	1	3	3
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	1	1	1
Surge Arrestor	24.0	9.7	9.7	1.62	1.62	2.47	2.47	1.20	1.20	4	4	4

Date: 1/17/2020  
 Project Name: UNIONVILLE SBC CO  
 Project No.: CT1061  
 Designed By: ISD Checked By: MSC



**WIND LOADS**

Angle = 90 (deg)      Ice Thickness = 1.67 in.      Equivalent Angle = 270 (deg)

**WIND LOADS WITH NO ICE:**

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
P65-15-XLH-RR Antenna	51.0	12.0	6.0	4.25	2.13	4.25	8.50	1.28	1.45	201	114	114
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	480	278	278
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	357	204	204
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	661	300	300
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	470	208	208
B5/B12 4449 RRH	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	52	73	73
B5/B12 4449 RRH (Shielded)	17.9	4.8	13.2	0.59	1.64	3.77	1.36	1.26	1.20	27	73	73
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	50	61	61
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	25	61	61
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	16	20	20
Surge Arrestor	24.0	9.7	9.7	1.62	1.62	2.47	2.47	1.20	1.20	72	72	72

**WIND LOADS WITH ICE:**

P65-15-XLH-RR Antenna	54.3	15.3	9.3	5.79	3.53	3.54	5.82	1.25	1.35	43	28	28
HPA-65R-BUU-H8 Antenna	95.7	18.1	10.7	12.06	7.14	5.28	8.91	1.32	1.46	94	62	62
HPA-65R-BUU-H6 Antenna	75.3	18.1	10.7	9.49	5.62	4.15	7.01	1.27	1.40	72	47	47
DMP65R-BU8DA Antenna	99.3	24.0	11.0	16.59	7.62	4.13	8.99	1.27	1.47	125	66	66
DMP65R-BU6DA Antenna	74.5	24.0	11.0	12.45	5.72	3.10	6.75	1.23	1.39	90	47	47
B5/B12 4449 RRH	21.2	12.8	16.5	1.90	2.44	1.65	1.28	1.20	1.20	13	17	17
B5/B12 4449 RRH (Shielded)	21.2	8.1	16.5	1.19	2.44	2.62	1.28	1.21	1.20	9	17	17
B2/B66A 8843 RRH	18.2	14.2	16.5	1.80	2.10	1.28	1.10	1.20	1.20	13	15	15
B2/B66A 8843 RRH (Shielded)	18.2	8.8	16.5	1.11	2.10	2.07	1.10	1.20	1.20	8	15	15
TT19-08BP111-001 TMA	13.2	8.7	10.0	0.80	0.92	1.51	1.32	1.20	1.20	6	7	7
Surge Arrestor	27.3	13.0	13.0	2.48	2.48	2.10	2.10	1.20	1.20	18	18	18

**WIND LOADS AT 30 MPH:**

P65-15-XLH-RR Antenna	51.0	12.0	6.0	4.25	2.13	4.25	8.50	1.28	1.45	12	7	7
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	28	16	16
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	21	12	12
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	38	17	17
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	27	12	12
B5/B12 4449 RRH	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	3	4	4
B5/B12 4449 RRH (Shielded)	17.9	4.8	13.2	0.59	1.64	3.77	1.36	1.26	1.20	2	4	4
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	3	3
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	1	3	3
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	1	1	1
Surge Arrestor	24.0	9.7	9.7	1.62	1.62	2.47	2.47	1.20	1.20	4	4	4



Date: 1/17/2020  
 Project Name: UNIONVILLE SBC CO  
 Project No.: CT1061  
 Designed By: ISD Checked By: MSC



**WIND LOADS**

Angle = 120 (deg)      Ice Thickness = 1.67 in.      Equivalent Angle = 300 (deg)

**WIND LOADS WITH NO ICE:**

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
P65-15-XLH-RR Antenna	51.0	12.0	6.0	4.25	2.13	4.25	8.50	1.28	1.45	201	114	136
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	480	278	328
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	357	204	242
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	661	300	391
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	470	208	273
B5/B12 4449 RRH	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	52	73	68
B5/B12 4449 RRH (Shielded)	17.9	4.8	13.2	0.59	1.64	3.77	1.36	1.26	1.20	27	73	61
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	50	61	58
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	25	61	52
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	16	20	19
Surge Arrestor	24.0	9.7	9.7	1.62	1.62	2.47	2.47	1.20	1.20	72	72	72

**WIND LOADS WITH ICE:**

P65-15-XLH-RR Antenna	54.3	15.3	9.3	5.79	3.53	3.54	5.82	1.25	1.35	43	28	32
HPA-65R-BUU-H8 Antenna	95.7	18.1	10.7	12.06	7.14	5.28	8.91	1.32	1.46	94	62	70
HPA-65R-BUU-H6 Antenna	75.3	18.1	10.7	9.49	5.62	4.15	7.01	1.27	1.40	72	47	53
DMP65R-BU8DA Antenna	99.3	24.0	11.0	16.59	7.62	4.13	8.99	1.27	1.47	125	66	81
DMP65R-BU6DA Antenna	74.5	24.0	11.0	12.45	5.72	3.10	6.75	1.23	1.39	90	47	58
B5/B12 4449 RRH	21.2	12.8	16.5	1.90	2.44	1.65	1.28	1.20	1.20	13	17	16
B5/B12 4449 RRH (Shielded)	21.2	8.1	16.5	1.19	2.44	2.62	1.28	1.21	1.20	9	17	15
B2/B66A 8843 RRH	18.2	14.2	16.5	1.80	2.10	1.28	1.10	1.20	1.20	13	15	14
B2/B66A 8843 RRH (Shielded)	18.2	8.8	16.5	1.11	2.10	2.07	1.10	1.20	1.20	8	15	13
TT19-08BP111-001 TMA	13.2	8.7	10.0	0.80	0.92	1.51	1.32	1.20	1.20	6	7	6
Surge Arrestor	27.3	13.0	13.0	2.48	2.48	2.10	2.10	1.20	1.20	18	18	18

**WIND LOADS AT 30 MPH:**

P65-15-XLH-RR Antenna	51.0	12.0	6.0	4.25	2.13	4.25	8.50	1.28	1.45	12	7	8
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	28	16	19
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	21	12	14
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	38	17	22
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	27	12	16
B5/B12 4449 RRH	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	3	4	4
B5/B12 4449 RRH (Shielded)	17.9	4.8	13.2	0.59	1.64	3.77	1.36	1.26	1.20	2	4	4
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	3	3
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	1	3	3
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	1	1	1
Surge Arrestor	24.0	9.7	9.7	1.62	1.62	2.47	2.47	1.20	1.20	4	4	4

Date: 1/17/2020  
 Project Name: UNIONVILLE SBC CO  
 Project No.: CT1061  
 Designed By: ISD Checked By: MSC



**WIND LOADS**

Angle = 150 (deg)

Ice Thickness = 1.67 in.

Equivalent Angle = 330 (deg)

**WIND LOADS WITH NO ICE:**

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
P65-15-XLH-RR Antenna	51.0	12.0	6.0	4.25	2.13	4.25	8.50	1.28	1.45	201	114	179
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	480	278	429
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	357	204	319
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	661	300	571
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	470	208	404
B5/B12 4449 RRH	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	52	73	58
B5/B12 4449 RRH (Shielded)	17.9	4.8	13.2	0.59	1.64	3.77	1.36	1.26	1.20	27	73	39
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	50	61	53
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	25	61	34
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	16	20	17
Surge Arrestor	24.0	9.7	9.7	1.62	1.62	2.47	2.47	1.20	1.20	72	72	72

**WIND LOADS WITH ICE:**

P65-15-XLH-RR Antenna	54.3	15.3	9.3	5.79	3.53	3.54	5.82	1.25	1.35	43	28	39
HPA-65R-BUU-H8 Antenna	95.7	18.1	10.7	12.06	7.14	5.28	8.91	1.32	1.46	94	62	86
HPA-65R-BUU-H6 Antenna	75.3	18.1	10.7	9.49	5.62	4.15	7.01	1.27	1.40	72	47	65
DMP65R-BU8DA Antenna	99.3	24.0	11.0	16.59	7.62	4.13	8.99	1.27	1.47	125	66	110
DMP65R-BU6DA Antenna	74.5	24.0	11.0	12.45	5.72	3.10	6.75	1.23	1.39	90	47	80
B5/B12 4449 RRH	21.2	12.8	16.5	1.90	2.44	1.65	1.28	1.20	1.20	13	17	14
B5/B12 4449 RRH (Shielded)	21.2	8.1	16.5	1.19	2.44	2.62	1.28	1.21	1.20	9	17	11
B2/B66A 8843 RRH	18.2	14.2	16.5	1.80	2.10	1.28	1.10	1.20	1.20	13	15	13
B2/B66A 8843 RRH (Shielded)	18.2	8.8	16.5	1.11	2.10	2.07	1.10	1.20	1.20	8	15	10
TT19-08BP111-001 TMA	13.2	8.7	10.0	0.80	0.92	1.51	1.32	1.20	1.20	6	7	6
Surge Arrestor	27.3	13.0	13.0	2.48	2.48	2.10	2.10	1.20	1.20	18	18	18

**WIND LOADS AT 30 MPH:**

P65-15-XLH-RR Antenna	51.0	12.0	6.0	4.25	2.13	4.25	8.50	1.28	1.45	12	7	10
HPA-65R-BUU-H8 Antenna	92.4	14.8	7.4	9.50	4.75	6.24	12.49	1.37	1.58	28	16	25
HPA-65R-BUU-H6 Antenna	72.0	14.8	7.4	7.40	3.70	4.86	9.73	1.31	1.49	21	12	18
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	38	17	33
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	27	12	23
B5/B12 4449 RRH	17.9	9.5	13.2	1.18	1.64	1.88	1.36	1.20	1.20	3	4	3
B5/B12 4449 RRH (Shielded)	17.9	4.8	13.2	0.59	1.64	3.77	1.36	1.26	1.20	2	4	2
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	3	3
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	1	3	2
TT19-08BP111-001 TMA	9.9	5.4	6.7	0.37	0.46	1.83	1.48	1.20	1.20	1	1	1
Surge Arrestor	24.0	9.7	9.7	1.62	1.62	2.47	2.47	1.20	1.20	4	4	4

Date: 1/22/2020

Project Name: UNIONVILLE SBC CO

Project No.: CT1061

Designed By: ISD Checked By: MSC



HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.67 in.
Density of ice: 56 pcf

P65-15-XLH-RR Antenna

Weight of ice based on total radial SF area:
Height (in): 51.0
Width (in): 12.0
Depth (in): 6.0
Total weight of ice on object: 131 lbs
Weight of object: 30.0 lbs
Combined weight of ice and object: 161 lbs

HPA-65R-BUU-H8 Antenna

Weight of ice based on total radial SF area:
Height (in): 92.4
Width (in): 14.8
Depth (in): 7.4
Total weight of ice on object: 286 lbs
Weight of object: 68.0 lbs
Combined weight of ice and object: 354 lbs

HPA-65R-BUU-H6 Antenna

Weight of ice based on total radial SF area:
Height (in): 72.0
Width (in): 14.8
Depth (in): 7.4
Total weight of ice on object: 223 lbs
Weight of object: 51.0 lbs
Combined weight of ice and object: 274 lbs

DMP65R-BU8DA Antenna

Weight of ice based on total radial SF area:
Height (in): 96.0
Width (in): 20.7
Depth (in): 7.7
Total weight of ice on object: 388 lbs
Weight of object: 96.0 lbs
Combined weight of ice and object: 484 lbs

DMP65R-BU6DA Antenna

Weight of ice based on total radial SF area:
Height (in): 71.2
Width (in): 20.7
Depth (in): 7.7
Total weight of ice on object: 288 lbs
Weight of object: 80.0 lbs
Combined weight of ice and object: 368 lbs

B5/B12 4449 RRH

Weight of ice based on total radial SF area:
Height (in): 17.9
Width (in): 13.2
Depth (in): 9.5
Total weight of ice on object: 55 lbs
Weight of object: 71.0 lbs
Combined weight of ice and object: 126 lbs

B2/B66A 8843 RRH

Weight of ice based on total radial SF area:
Height (in): 14.9
Width (in): 13.2
Depth (in): 10.9
Total weight of ice on object: 48 lbs
Weight of object: 72.0 lbs
Combined weight of ice and object: 120 lbs

TT19-08BP111-001 TMA

Weight of ice based on total radial SF area:
Height (in): 9.9
Width (in): 5.4
Depth (in): 6.7
Total weight of ice on object: 17 lbs
Weight of object: 16.0 lbs
Combined weight of ice and object: 33 lbs

Squid Surge Arrestor

Weight of ice based on total radial SF area:
Depth (in): 24.0
Diameter(in): 9.7
Total weight of ice on object: 46 lbs
Weight of object: 33 lbs
Combined weight of ice and object: 79 lbs

3/4" Round Bar

Per foot weight of ice:
diameter (in): 0.75
Per foot weight of ice on object: 5 plf

2" pipe

Per foot weight of ice:
diameter (in): 2.38
Per foot weight of ice on object: 8 plf

5/8" Round Bar

Per foot weight of ice:
diameter (in): 0.625
Per foot weight of ice on object: 5 plf

2-1/2" pipe

Per foot weight of ice:
diameter (in): 2.88
Per foot weight of ice on object: 9 plf

PL 3-1/2X5/8

Weight of ice based on total radial SF area:
Height (in): 3.5
Width (in): 0.625
Per foot weight of ice on object: 11 plf

PL 11-1/4X5/8

Weight of ice based on total radial SF area:
Height (in): 11.25
Width (in): 0.625
Per foot weight of ice on object: 26 plf

L 2-1/2x2-1/2 Angles

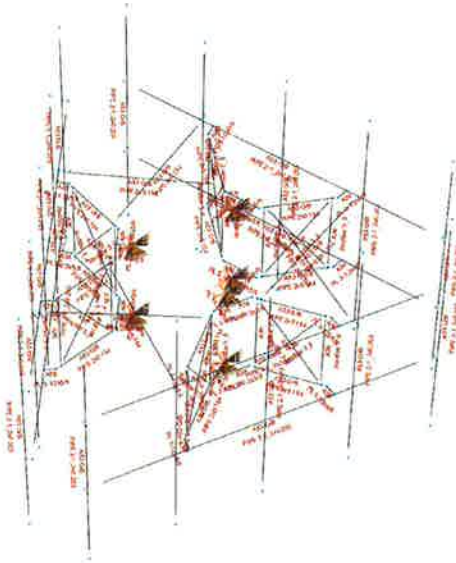
Weight of ice based on total radial SF area:
Height (in): 2.5
Width (in): 2.5
Per foot weight of ice on object: 11 plf



**HUDSON**  
Design Group LLC

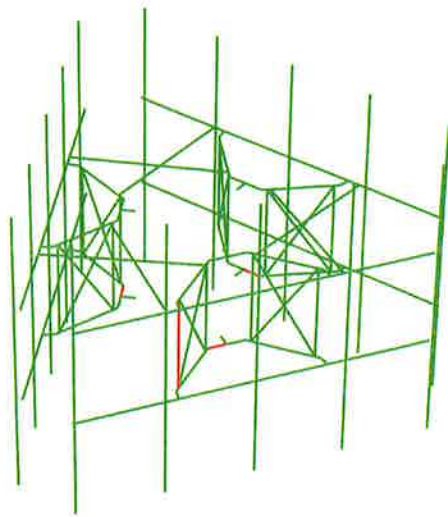
**Mount Calculations  
(Proposed Conditions)**

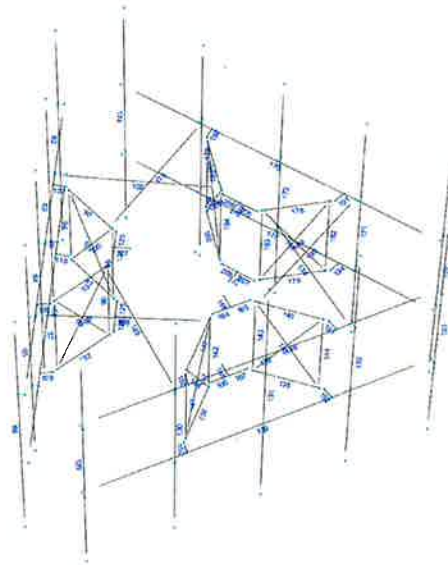




Design status

-  Not designed
-  Error on design
-  Design O.K.
-  With warnings







## Load data

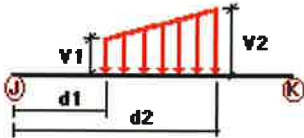
### GLOSSARY

Comb : Indicates if load condition is a load combination

### Load Conditions

Condition	Description	Comb.	Category			
DL	Dead Load	No	DL			
W0	Wind Load 0/60/120 deg	No	WIND			
W30	Wind Load 30/90/150 deg	No	WIND			
Di	Ice Load	No	LL			
Wi0	Ice Wind Load 0/60/120 deg	No	WIND			
Wi30	Ice Wind Load 30/90/150 deg	No	WIND			
WL0	WL 30 mph 0/60/120 deg	No	WIND			
WL30	WL 30 mph 30/90/150 deg	No	WIND			
LL1	250 lb Live Load Center of Mount	No	LL			
LL2	250 lb Live Load End of Mount	No	LL			
LLa1	250 lb Live Load Antenna 1	No	LL			
LLa2	250 lb Live Load Antenna 2	No	LL			
LLa3	250 lb Live Load Antenna 3	No </tr <tr> <td>LLa4</td> <td>250 lb Live Load Antenna 4</td> <td>No</td> <td>LL</td> </tr>	LLa4	250 lb Live Load Antenna 4	No	LL
LLa4	250 lb Live Load Antenna 4	No	LL			

### Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
W0	62	z	-0.018	0.00	0.00	No	0.00	No
	63	z	-0.018	0.00	0.00	No	0.00	No
	64	z	-0.018	0.00	0.00	No	0.00	No
	65	z	-0.018	0.00	0.00	No	0.00	No
	66	z	-0.018	0.00	0.00	No	0.00	No
	87	z	-0.009	0.00	0.00	No	0.00	No
	88	z	-0.018	0.00	0.00	No	0.00	No
	89	z	-0.018	0.00	0.00	No	0.00	No
	90	z	-0.009	0.00	0.00	No	0.00	No
	91	z	-0.009	0.00	0.00	No	0.00	No
	92	z	-0.009	0.00	0.00	No	0.00	No
	93	z	-0.009	0.00	0.00	No	0.00	No
	94	z	-0.002	0.00	0.00	No	0.00	No
	95	z	-0.002	0.00	0.00	No	0.00	No
	96	z	-0.002	0.00	0.00	No	0.00	No

97	z	-0.002	0.00	0.00	No	0.00	No
98	z	-0.003	0.00	0.00	No	0.00	No
99	z	-0.003	0.00	0.00	No	0.00	No
100	z	-0.003	0.00	0.00	No	0.00	No
101	z	-0.003	0.00	0.00	No	0.00	No
102	z	-0.009	0.00	0.00	No	0.00	No
107	z	-0.002	0.00	0.00	No	0.00	No
108	z	-0.002	0.00	0.00	No	0.00	No
109	z	-0.002	0.00	0.00	No	0.00	No
110	z	-0.002	0.00	0.00	No	0.00	No
123	z	-0.002	0.00	0.00	No	0.00	No
124	z	-0.002	0.00	0.00	No	0.00	No
125	z	-0.002	0.00	0.00	No	0.00	No
126	z	-0.002	0.00	0.00	No	0.00	No
127	z	-0.002	0.00	0.00	No	0.00	No
128	z	-0.002	0.00	0.00	No	0.00	No
130	z	-0.018	0.00	0.00	No	0.00	No
132	z	-0.018	0.00	0.00	No	0.00	No
135	z	-0.018	0.00	0.00	No	0.00	No
136	z	-0.018	0.00	0.00	No	0.00	No
137	z	-0.009	0.00	0.00	No	0.00	No
138	z	-0.009	0.00	0.00	No	0.00	No
139	z	-0.009	0.00	0.00	No	0.00	No
140	z	-0.009	0.00	0.00	No	0.00	No
141	z	-0.002	0.00	0.00	No	0.00	No
142	z	-0.002	0.00	0.00	No	0.00	No
143	z	-0.002	0.00	0.00	No	0.00	No
144	z	-0.002	0.00	0.00	No	0.00	No
145	z	-0.003	0.00	0.00	No	0.00	No
146	z	-0.003	0.00	0.00	No	0.00	No
147	z	-0.003	0.00	0.00	No	0.00	No
148	z	-0.003	0.00	0.00	No	0.00	No
164	z	-0.002	0.00	0.00	No	0.00	No
165	z	-0.002	0.00	0.00	No	0.00	No
166	z	-0.002	0.00	0.00	No	0.00	No
167	z	-0.002	0.00	0.00	No	0.00	No
168	z	-0.002	0.00	0.00	No	0.00	No
169	z	-0.002	0.00	0.00	No	0.00	No
170	z	-0.018	0.00	0.00	No	0.00	No
171	z	-0.018	0.00	0.00	No	0.00	No
172	z	-0.018	0.00	0.00	No	0.00	No
173	z	-0.018	0.00	0.00	No	0.00	No
174	z	-0.018	0.00	0.00	No	0.00	No
175	z	-0.009	0.00	0.00	No	0.00	No
176	z	-0.018	0.00	0.00	No	0.00	No
177	z	-0.018	0.00	0.00	No	0.00	No
178	z	-0.009	0.00	0.00	No	0.00	No
179	z	-0.009	0.00	0.00	No	0.00	No
180	z	-0.009	0.00	0.00	No	0.00	No
181	z	-0.009	0.00	0.00	No	0.00	No
182	z	-0.002	0.00	0.00	No	0.00	No
183	z	-0.002	0.00	0.00	No	0.00	No
184	z	-0.002	0.00	0.00	No	0.00	No
185	z	-0.002	0.00	0.00	No	0.00	No
186	z	-0.003	0.00	0.00	No	0.00	No
187	z	-0.003	0.00	0.00	No	0.00	No
188	z	-0.003	0.00	0.00	No	0.00	No
189	z	-0.003	0.00	0.00	No	0.00	No
190	z	-0.009	0.00	0.00	No	0.00	No
191	z	-0.002	0.00	0.00	No	0.00	No

W30

192	z	-0.002	0.00	0.00	No	0.00	No
193	z	-0.002	0.00	0.00	No	0.00	No
194	z	-0.002	0.00	0.00	No	0.00	No
205	z	-0.002	0.00	0.00	No	0.00	No
206	z	-0.002	0.00	0.00	No	0.00	No
207	z	-0.002	0.00	0.00	No	0.00	No
208	z	-0.002	0.00	0.00	No	0.00	No
209	z	-0.002	0.00	0.00	No	0.00	No
210	z	-0.002	0.00	0.00	No	0.00	No
62	x	-0.018	0.00	0.00	No	0.00	No
63	x	-0.018	0.00	0.00	No	0.00	No
64	x	-0.018	0.00	0.00	No	0.00	No
65	x	-0.018	0.00	0.00	No	0.00	No
66	x	-0.018	0.00	0.00	No	0.00	No
87	x	-0.008	0.00	0.00	No	0.00	No
88	x	-0.018	0.00	0.00	No	0.00	No
89	x	-0.018	0.00	0.00	No	0.00	No
90	x	-0.008	0.00	0.00	No	0.00	No
91	x	-0.008	0.00	0.00	No	0.00	No
92	x	-0.008	0.00	0.00	No	0.00	No
93	x	-0.008	0.00	0.00	No	0.00	No
94	x	-0.002	0.00	0.00	No	0.00	No
95	x	-0.002	0.00	0.00	No	0.00	No
96	x	-0.002	0.00	0.00	No	0.00	No
97	x	-0.002	0.00	0.00	No	0.00	No
98	x	-0.003	0.00	0.00	No	0.00	No
99	x	-0.003	0.00	0.00	No	0.00	No
100	x	-0.003	0.00	0.00	No	0.00	No
101	x	-0.003	0.00	0.00	No	0.00	No
102	x	-0.008	0.00	0.00	No	0.00	No
107	x	-0.002	0.00	0.00	No	0.00	No
108	x	-0.002	0.00	0.00	No	0.00	No
109	x	-0.002	0.00	0.00	No	0.00	No
110	x	-0.002	0.00	0.00	No	0.00	No
123	x	-0.002	0.00	0.00	No	0.00	No
124	x	-0.002	0.00	0.00	No	0.00	No
125	x	-0.002	0.00	0.00	No	0.00	No
126	x	-0.002	0.00	0.00	No	0.00	No
127	x	-0.002	0.00	0.00	No	0.00	No
128	x	-0.002	0.00	0.00	No	0.00	No
129	x	-0.018	0.00	0.00	No	0.00	No
130	x	-0.018	0.00	0.00	No	0.00	No
131	x	-0.018	0.00	0.00	No	0.00	No
132	x	-0.018	0.00	0.00	No	0.00	No
133	x	-0.018	0.00	0.00	No	0.00	No
134	x	-0.008	0.00	0.00	No	0.00	No
137	x	-0.008	0.00	0.00	No	0.00	No
138	x	-0.008	0.00	0.00	No	0.00	No
139	x	-0.008	0.00	0.00	No	0.00	No
140	x	-0.008	0.00	0.00	No	0.00	No
141	x	-0.002	0.00	0.00	No	0.00	No
142	x	-0.002	0.00	0.00	No	0.00	No
143	x	-0.002	0.00	0.00	No	0.00	No
144	x	-0.002	0.00	0.00	No	0.00	No
145	x	-0.003	0.00	0.00	No	0.00	No
146	x	-0.003	0.00	0.00	No	0.00	No
147	x	-0.003	0.00	0.00	No	0.00	No
148	x	-0.003	0.00	0.00	No	0.00	No
149	x	-0.008	0.00	0.00	No	0.00	No
150	x	-0.002	0.00	0.00	No	0.00	No

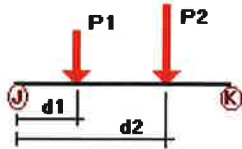
151	x	-0.002	0.00	0.00	No	0.00	No
152	x	-0.002	0.00	0.00	No	0.00	No
153	x	-0.002	0.00	0.00	No	0.00	No
164	x	-0.002	0.00	0.00	No	0.00	No
165	x	-0.002	0.00	0.00	No	0.00	No
166	x	-0.002	0.00	0.00	No	0.00	No
167	x	-0.002	0.00	0.00	No	0.00	No
168	x	-0.002	0.00	0.00	No	0.00	No
169	x	-0.002	0.00	0.00	No	0.00	No
170	x	-0.018	0.00	0.00	No	0.00	No
171	x	-0.018	0.00	0.00	No	0.00	No
172	x	-0.018	0.00	0.00	No	0.00	No
173	x	-0.018	0.00	0.00	No	0.00	No
174	x	-0.018	0.00	0.00	No	0.00	No
175	x	-0.008	0.00	0.00	No	0.00	No
176	x	-0.018	0.00	0.00	No	0.00	No
177	x	-0.018	0.00	0.00	No	0.00	No
178	x	-0.008	0.00	0.00	No	0.00	No
179	x	-0.008	0.00	0.00	No	0.00	No
180	x	-0.008	0.00	0.00	No	0.00	No
181	x	-0.008	0.00	0.00	No	0.00	No
182	x	-0.002	0.00	0.00	No	0.00	No
183	x	-0.002	0.00	0.00	No	0.00	No
184	x	-0.002	0.00	0.00	No	0.00	No
185	x	-0.002	0.00	0.00	No	0.00	No
186	x	-0.003	0.00	0.00	No	0.00	No
187	x	-0.003	0.00	0.00	No	0.00	No
188	x	-0.003	0.00	0.00	No	0.00	No
189	x	-0.003	0.00	0.00	No	0.00	No
190	x	-0.008	0.00	0.00	No	0.00	No
191	x	-0.002	0.00	0.00	No	0.00	No
192	x	-0.002	0.00	0.00	No	0.00	No
193	x	-0.002	0.00	0.00	No	0.00	No
194	x	-0.002	0.00	0.00	No	0.00	No
205	x	-0.002	0.00	0.00	No	0.00	No
206	x	-0.002	0.00	0.00	No	0.00	No
207	x	-0.002	0.00	0.00	No	0.00	No
208	x	-0.002	0.00	0.00	No	0.00	No
209	x	-0.002	0.00	0.00	No	0.00	No
210	x	-0.002	0.00	0.00	No	0.00	No
62	y	-0.09	0.00	0.00	No	0.00	No
63	y	-0.09	0.00	0.00	No	0.00	No
64	y	-0.09	0.00	0.00	No	0.00	No
65	y	-0.09	0.00	0.00	No	0.00	No
66	y	-0.09	0.00	0.00	No	0.00	No
87	y	-0.008	0.00	0.00	No	0.00	No
88	y	-0.09	0.00	0.00	No	0.00	No
89	y	-0.09	0.00	0.00	No	0.00	No
90	y	-0.008	0.00	0.00	No	0.00	No
91	y	-0.008	0.00	0.00	No	0.00	No
92	y	-0.008	0.00	0.00	No	0.00	No
93	y	-0.008	0.00	0.00	No	0.00	No
94	y	-0.005	0.00	0.00	No	0.00	No
95	y	-0.005	0.00	0.00	No	0.00	No
96	y	-0.005	0.00	0.00	No	0.00	No
97	y	-0.005	0.00	0.00	No	0.00	No
98	y	-0.005	0.00	0.00	No	0.00	No
99	y	-0.005	0.00	0.00	No	0.00	No
100	y	-0.005	0.00	0.00	No	0.00	No
101	y	-0.005	0.00	0.00	No	0.00	No

Di

102	y	-0.008	0.00	0.00	No	0.00	No
107	y	-0.011	0.00	0.00	No	0.00	No
108	y	-0.011	0.00	0.00	No	0.00	No
109	y	-0.011	0.00	0.00	No	0.00	No
110	y	-0.011	0.00	0.00	No	0.00	No
123	y	-0.011	0.00	0.00	No	0.00	No
124	y	-0.011	0.00	0.00	No	0.00	No
125	y	-0.011	0.00	0.00	No	0.00	No
126	y	-0.011	0.00	0.00	No	0.00	No
127	y	-0.026	0.00	0.00	No	0.00	No
128	y	-0.026	0.00	0.00	No	0.00	No
129	y	-0.09	0.00	0.00	No	0.00	No
130	y	-0.09	0.00	0.00	No	0.00	No
131	y	-0.09	0.00	0.00	No	0.00	No
132	y	-0.09	0.00	0.00	No	0.00	No
133	y	-0.09	0.00	0.00	No	0.00	No
134	y	-0.008	0.00	0.00	No	0.00	No
135	y	-0.09	0.00	0.00	No	0.00	No
136	y	-0.09	0.00	0.00	No	0.00	No
137	y	-0.008	0.00	0.00	No	0.00	No
138	y	-0.008	0.00	0.00	No	0.00	No
139	y	-0.008	0.00	0.00	No	0.00	No
140	y	-0.008	0.00	0.00	No	0.00	No
141	y	-0.005	0.00	0.00	No	0.00	No
142	y	-0.005	0.00	0.00	No	0.00	No
143	y	-0.005	0.00	0.00	No	0.00	No
144	y	-0.005	0.00	0.00	No	0.00	No
145	y	-0.005	0.00	0.00	No	0.00	No
146	y	-0.005	0.00	0.00	No	0.00	No
147	y	-0.005	0.00	0.00	No	0.00	No
148	y	-0.005	0.00	0.00	No	0.00	No
149	y	-0.008	0.00	0.00	No	0.00	No
150	y	-0.011	0.00	0.00	No	0.00	No
151	y	-0.011	0.00	0.00	No	0.00	No
152	y	-0.011	0.00	0.00	No	0.00	No
153	y	-0.011	0.00	0.00	No	0.00	No
164	y	-0.011	0.00	0.00	No	0.00	No
165	y	-0.011	0.00	0.00	No	0.00	No
166	y	-0.011	0.00	0.00	No	0.00	No
167	y	-0.011	0.00	0.00	No	0.00	No
168	y	-0.026	0.00	0.00	No	0.00	No
169	y	-0.026	0.00	0.00	No	0.00	No
170	y	-0.09	0.00	0.00	No	0.00	No
171	y	-0.09	0.00	0.00	No	0.00	No
172	y	-0.09	0.00	0.00	No	0.00	No
173	y	-0.09	0.00	0.00	No	0.00	No
174	y	-0.09	0.00	0.00	No	0.00	No
175	y	-0.008	0.00	0.00	No	0.00	No
176	y	-0.09	0.00	0.00	No	0.00	No
177	y	-0.09	0.00	0.00	No	0.00	No
178	y	-0.008	0.00	0.00	No	0.00	No
179	y	-0.008	0.00	0.00	No	0.00	No
180	y	-0.008	0.00	0.00	No	0.00	No
181	y	-0.008	0.00	0.00	No	0.00	No
182	y	-0.005	0.00	0.00	No	0.00	No
183	y	-0.005	0.00	0.00	No	0.00	No
184	y	-0.005	0.00	0.00	No	0.00	No
185	y	-0.005	0.00	0.00	No	0.00	No
186	y	-0.005	0.00	0.00	No	0.00	No
187	y	-0.005	0.00	0.00	No	0.00	No

188	y	-0.005	0.00	0.00	No	0.00	No
189	y	-0.005	0.00	0.00	No	0.00	No
190	y	-0.008	0.00	0.00	No	0.00	No
191	y	-0.011	0.00	0.00	No	0.00	No
192	y	-0.011	0.00	0.00	No	0.00	No
193	y	-0.011	0.00	0.00	No	0.00	No
194	y	-0.011	0.00	0.00	No	0.00	No
205	y	-0.011	0.00	0.00	No	0.00	No
206	y	-0.011	0.00	0.00	No	0.00	No
207	y	-0.011	0.00	0.00	No	0.00	No
208	y	-0.011	0.00	0.00	No	0.00	No
209	y	-0.026	0.00	0.00	No	0.00	No
210	y	-0.026	0.00	0.00	No	0.00	No

### Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	62	y	-0.048	1.50	No
		y	-0.048	8.50	No
	64	y	-0.034	2.00	No
		y	-0.034	8.00	No
	66	y	-0.143	50.00	Yes
		y	-0.015	3.00	No
		y	-0.015	7.00	No
	129	y	-0.016	50.00	Yes
		y	-0.048	1.50	No
		y	-0.048	8.50	No
	131	y	-0.034	2.00	No
		y	-0.034	8.00	No
		y	-0.143	50.00	Yes
	133	y	-0.015	3.00	No
		y	-0.015	7.00	No
		y	-0.016	50.00	Yes
	140	y	-0.033	50.00	Yes
	170	y	-0.048	1.50	No
		y	-0.048	8.50	No
	172	y	-0.034	2.00	No
y		-0.034	8.00	No	
y		-0.143	50.00	Yes	
174	y	-0.015	3.00	No	
	y	-0.015	7.00	No	
	y	-0.016	50.00	Yes	
181	y	-0.033	50.00	Yes	
W0	62	z	-0.196	1.50	No
		z	-0.196	8.50	No
	64	z	-0.165	2.00	No
		z	-0.165	8.00	No
	66	z	-0.061	50.00	Yes
66	z	-0.068	3.00	No	

		z	-0.068	7.00	No
		z	-0.019	50.00	Yes
129		z	-0.331	1.50	No
		z	-0.331	8.50	No
131		z	-0.24	2.00	No
		z	-0.24	8.00	No
		z	-0.027	50.00	Yes
		z	-0.025	50.00	Yes
133		z	-0.101	3.00	No
		z	-0.101	7.00	No
140		z	-0.072	50.00	Yes
170		z	-0.196	1.50	No
		z	-0.196	8.50	No
172		z	-0.165	2.00	No
		z	-0.165	8.00	No
		z	-0.061	50.00	Yes
174		z	-0.068	3.00	No
		z	-0.068	7.00	No
		z	-0.019	50.00	Yes
181		z	-0.072	50.00	Yes
W30	62	x	-0.286	1.50	No
		x	-0.286	8.50	No
64		x	-0.215	2.00	No
		x	-0.215	8.00	No
		x	-0.039	50.00	Yes
		x	-0.034	50.00	Yes
66		x	-0.09	3.00	No
		x	-0.09	7.00	No
		x	-0.017	50.00	Yes
129		x	-0.151	1.50	No
		x	-0.151	8.50	No
131		x	-0.139	2.00	No
		x	-0.139	8.00	No
		x	-0.073	50.00	Yes
133		x	-0.057	3.00	No
		x	-0.057	7.00	No
		x	-0.02	50.00	Yes
140		x	-0.072	50.00	Yes
170		x	-0.286	1.50	No
		x	-0.286	8.50	No
172		x	-0.215	2.00	No
		x	-0.215	8.00	No
		x	-0.039	50.00	Yes
		x	-0.034	50.00	Yes
174		x	-0.09	3.00	No
		x	-0.09	7.00	No
		x	-0.017	50.00	Yes
181		x	-0.072	50.00	Yes
Di	62	y	-0.194	1.50	No
		y	-0.194	8.50	No
64		y	-0.143	2.00	No
		y	-0.143	8.00	No
		y	-0.103	50.00	Yes
66		y	-0.066	3.00	No
		y	-0.066	7.00	No
		y	-0.017	50.00	Yes
129		y	-0.194	1.50	No
		y	-0.194	8.50	No
131		y	-0.143	2.00	No
		y	-0.143	8.00	No

		y	-0.103	50.00	Yes
	133	y	-0.066	3.00	No
		y	-0.066	7.00	No
		y	-0.017	50.00	Yes
	140	y	-0.046	50.00	Yes
	170	y	-0.194	1.50	No
		y	-0.194	8.50	No
	172	y	-0.143	2.00	No
		y	-0.143	8.00	No
		y	-0.103	50.00	Yes
	174	y	-0.066	3.00	No
		y	-0.066	7.00	No
		y	-0.017	50.00	Yes
W10	181	y	-0.046	50.00	Yes
	62	z	-0.041	1.50	No
		z	-0.041	8.50	No
	64	z	-0.036	2.00	No
		z	-0.036	8.00	No
		z	-0.015	50.00	Yes
	66	z	-0.016	3.00	No
		z	-0.016	7.00	No
		z	-0.006	50.00	Yes
	129	z	-0.064	1.50	No
		z	-0.064	8.50	No
	131	z	-0.049	2.00	No
		z	-0.049	8.00	No
		z	-0.009	50.00	Yes
		z	-0.008	50.00	Yes
	133	z	-0.022	3.00	No
		z	-0.022	7.00	No
		z	-0.006	50.00	Yes
	140	z	-0.018	50.00	Yes
	170	z	-0.041	1.50	No
		z	-0.041	8.50	No
	172	z	-0.036	2.00	No
		z	-0.036	8.00	No
		z	-0.015	50.00	Yes
	174	z	-0.016	3.00	No
		z	-0.016	7.00	No
		z	-0.006	50.00	Yes
W130	181	z	-0.018	50.00	Yes
	62	x	-0.056	1.50	No
		x	-0.056	8.50	No
	64	x	-0.044	2.00	No
		x	-0.044	8.00	No
		x	-0.011	50.00	Yes
		x	-0.01	50.00	Yes
	66	x	-0.02	3.00	No
		x	-0.02	7.00	No
		x	-0.006	50.00	Yes
	129	x	-0.034	1.50	No
		x	-0.034	8.50	No
	131	x	-0.031	2.00	No
		x	-0.031	8.00	No
		x	-0.017	50.00	Yes
	133	x	-0.015	3.00	No
		x	-0.015	7.00	No
		x	-0.007	50.00	Yes
	140	x	-0.018	50.00	Yes
	170	x	-0.056	1.50	No



		x	-0.056	8.50	No
	172	x	-0.044	2.00	No
		x	-0.044	8.00	No
		x	-0.011	50.00	Yes
		x	-0.01	50.00	Yes
	174	x	-0.02	3.00	No
		x	-0.02	7.00	No
		x	-0.006	50.00	Yes
	181	x	-0.018	50.00	Yes
WLO	62	z	-0.012	1.50	No
		z	-0.012	8.50	No
	64	z	-0.01	2.00	No
		z	-0.01	8.00	No
		z	-0.004	50.00	Yes
	66	z	-0.004	3.00	No
		z	-0.004	7.00	No
		z	-0.001	50.00	Yes
	129	z	-0.02	1.50	No
		z	-0.02	8.50	No
	131	z	-0.014	2.00	No
		z	-0.014	8.00	No
		z	-0.002	50.00	Yes
		z	-0.001	50.00	Yes
	133	z	-0.006	3.00	No
		z	-0.006	7.00	No
		z	-0.001	50.00	Yes
	140	z	-0.004	50.00	Yes
	170	z	-0.012	1.50	No
		z	-0.012	8.50	No
	172	z	-0.01	2.00	No
		z	-0.01	8.00	No
		z	-0.004	50.00	Yes
	174	z	-0.004	3.00	No
		z	-0.004	7.00	No
		z	-0.001	50.00	Yes
	181	z	-0.004	50.00	Yes
WL30	62	x	-0.017	1.50	No
		x	-0.017	8.50	No
	64	x	-0.013	2.00	No
		x	-0.013	8.00	No
		x	-0.002	50.00	Yes
		x	-0.002	50.00	Yes
	66	x	-0.006	3.00	No
		x	-0.006	7.00	No
		x	-0.001	50.00	Yes
	129	x	-0.009	1.50	No
		x	-0.009	8.50	No
	131	x	-0.009	2.00	No
		x	-0.009	8.00	No
		x	-0.004	50.00	Yes
	133	x	-0.004	3.00	No
		x	-0.004	7.00	No
		x	-0.001	50.00	Yes
	140	x	-0.004	50.00	Yes
	170	x	-0.017	1.50	No
		x	-0.017	8.50	No
	172	x	-0.013	2.00	No
		x	-0.013	8.00	No
		x	-0.002	50.00	Yes
		x	-0.002	50.00	Yes

	174	x	-0.006	3.00	No
		x	-0.006	7.00	No
		x	-0.001	50.00	Yes
	181	x	-0.004	50.00	Yes
LL1	135	y	-0.25	50.00	Yes
LL2	135	y	-0.25	100.00	Yes
LLa1	133	y	-0.25	50.00	Yes
LLa2	131	y	-0.25	50.00	Yes
LLa3	129	y	-0.25	50.00	Yes

### Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
W0	Wind Load 0/60/120 deg	No	0.00	0.00	0.00
W30	Wind Load 30/90/150 deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
Wi0	Ice Wind Load 0/60/120 deg	No	0.00	0.00	0.00
Wi30	Ice Wind Load 30/90/150 deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0/60/120 deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30/90/150 deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load End of Mount	No	0.00	0.00	0.00
LLa1	250 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	250 lb Live Load Antenna 3	No	0.00	0.00	0.00
LLa4	250 lb Live Load Antenna 4	No	0.00	0.00	0.00

### Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
W0	0.00	0.00	0.00
W30	0.00	0.00	0.00
Di	0.00	0.00	0.00
Wi0	0.00	0.00	0.00
Wi30	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00
LLa4	0.00	0.00	0.00



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## Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

- LC1=1.2DL+W0
- LC2=1.2DL+W30
- LC3=1.2DL-W0
- LC4=1.2DL-W30
- LC5=0.9DL+W0
- LC6=0.9DL+W30
- LC7=0.9DL-W0
- LC8=0.9DL-W30
- LC9=1.2DL+Di+W0
- LC10=1.2DL+Di+W30
- LC11=1.2DL+Di-W0
- LC12=1.2DL+Di-W30
- LC13=1.2DL
- LC15=1.2DL+1.5LL1
- LC16=1.2DL+1.5LL2
- LC17=1.2DL+WL0+1.5LLa1
- LC18=1.2DL+WL30+1.5LLa1
- LC19=1.2DL-WL0+1.5LLa1
- LC20=1.2DL-WL30+1.5LLa1
- LC21=1.2DL+WL0+1.5LLa2
- LC22=1.2DL+WL30+1.5LLa2
- LC23=1.2DL-WL0+1.5LLa2
- LC24=1.2DL-WL30+1.5LLa2
- LC25=1.2DL+WL0+1.5LLa3
- LC26=1.2DL+WL30+1.5LLa3
- LC27=1.2DL-WL0+1.5LLa3
- LC28=1.2DL-WL30+1.5LLa3
- LC29=1.2DL+WL0+1.5LLa4
- LC30=1.2DL+WL30+1.5LLa4
- LC31=1.2DL-WL0+1.5LLa4
- LC32=1.2DL-WL30+1.5LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	<b>PIPE 2-1_2x0.203</b>	<b>62</b>	LC9 at 33.33%	0.33	OK	Eq. H1-1b
		<b>63</b>	LC12 at 33.33%	0.26	OK	Eq. H1-1b
		<b>64</b>	LC2 at 33.33%	0.27	OK	Eq. H1-1b
		<b>65</b>	LC10 at 33.33%	0.20	OK	Eq. H1-1b
		<b>66</b>	LC10 at 33.33%	0.21	OK	Eq. H1-1b
		<b>88</b>	LC2 at 25.78%	<b>0.78</b>	<b>OK</b>	Eq. H1-1b
		<b>89</b>	LC2 at 29.17%	0.61	OK	Eq. H1-1b
		<b>129</b>	LC3 at 66.67%	0.36	OK	Eq. H1-1b
		<b>130</b>	LC9 at 33.33%	0.26	OK	Eq. H1-1b
		<b>131</b>	LC4 at 33.33%	0.27	OK	Eq. H1-1b
		<b>132</b>	LC12 at 33.33%	0.20	OK	Eq. H1-1b
		<b>133</b>	LC12 at 33.33%	0.20	OK	Eq. H1-1b
		<b>135</b>	LC3 at 25.78%	0.64	OK	Eq. H1-1b
		<b>136</b>	LC3 at 29.17%	0.59	OK	Eq. H1-1b
		<b>170</b>	LC11 at 33.33%	0.33	OK	Eq. H1-1b
		<b>171</b>	LC11 at 33.33%	0.26	OK	Eq. H1-1b
		<b>172</b>	LC1 at 33.33%	0.28	OK	Eq. H1-1b
		<b>173</b>	LC9 at 33.33%	0.21	OK	Eq. H1-1b

	174	LC9 at 33.33%	0.21	OK	Eq. H1-1b
	176	LC2 at 28.91%	0.56	OK	Eq. H1-1b
	177	LC2 at 29.17%	0.65	OK	Eq. H1-1b
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<b>PIPE 2x0.154</b>	87	LC4 at 100.00%	0.20	OK	Eq. H1-1b
	90	LC10 at 93.75%	<b>0.63</b>	<b>OK</b>	Eq. H1-1b
	91	LC11 at 93.75%	0.42	OK	Eq. H1-1b
	92	LC12 at 93.75%	0.33	OK	Eq. H1-1b
	93	LC9 at 93.75%	0.50	OK	Eq. H1-1b
	102	LC2 at 100.00%	0.31	OK	Eq. H1-1b
	134	LC2 at 100.00%	0.24	OK	Eq. H1-1b
	137	LC11 at 93.75%	0.62	OK	Eq. H1-1b
	138	LC9 at 93.75%	0.42	OK	Eq. H1-1b
	139	LC9 at 93.75%	0.35	OK	Eq. H1-1b
	140	LC9 at 93.75%	0.46	OK	Eq. H1-1b
	149	LC3 at 100.00%	0.30	OK	Eq. H1-1b
	175	LC6 at 100.00%	0.21	OK	Eq. H1-1b
	178	LC10 at 93.75%	0.59	OK	Eq. H1-1b
	179	LC10 at 93.75%	0.43	OK	Eq. H1-1b
	180	LC11 at 93.75%	0.34	OK	Eq. H1-1b
	181	LC12 at 93.75%	0.49	OK	Eq. H1-1b
	190	LC1 at 100.00%	0.15	OK	Eq. H1-1b
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<b>PL 11-1/4x5/8</b>	127	LC11 at 100.00%	<b>0.65</b>	<b>OK</b>	Eq. H1-1b
	128	LC10 at 100.00%	0.37	OK	Eq. H1-1b
	168	LC11 at 100.00%	0.64	OK	Eq. H1-1b
	169	LC11 at 100.00%	0.38	OK	Eq. H1-1b
	209	LC12 at 100.00%	0.62	OK	Eq. H1-1b
	210	LC9 at 100.00%	0.38	OK	Eq. H1-1b
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<b>PL 3-1/2x5/8</b>	107	LC11 at 100.00%	0.72	OK	Eq. H1-1b
	108	LC12 at 100.00%	0.61	OK	Eq. H1-1b
	109	LC12 at 100.00%	0.67	OK	Eq. H1-1b
	110	LC10 at 100.00%	0.87	OK	Eq. H1-1b
	123	LC10 at 100.00%	0.98	OK	Eq. H1-1b
	124	LC9 at 0.00%	0.78	OK	Eq. H1-1b
	125	LC11 at 100.00%	1.04	N.G.	Eq. H1-1b
	126	LC12 at 0.00%	0.87	OK	Eq. H1-1b
	150	LC9 at 100.00%	0.68	OK	Eq. H1-1b
	151	LC10 at 100.00%	0.61	OK	Eq. H1-1b
	152	LC10 at 100.00%	0.67	OK	Eq. H1-1b
	153	LC11 at 100.00%	0.91	OK	Eq. H1-1b
	164	LC11 at 100.00%	0.95	OK	Eq. H1-1b
	165	LC10 at 0.00%	0.83	OK	Eq. H1-1b
	166	LC12 at 100.00%	1.04	N.G.	Eq. H1-1b
	167	LC10 at 0.00%	0.90	OK	Eq. H1-1b
	191	LC10 at 100.00%	0.69	OK	Eq. H1-1b
	192	LC11 at 100.00%	0.56	OK	Eq. H1-1b
	193	LC11 at 100.00%	0.73	OK	Eq. H1-1b
	194	LC9 at 100.00%	0.93	OK	Eq. H1-1b
	205	LC12 at 100.00%	0.97	OK	Eq. H1-1b
	206	LC9 at 0.00%	0.79	OK	Eq. H1-1b
	207	LC10 at 100.00%	<b>1.04</b>	<b>N.G.</b>	Eq. H1-1b
	208	LC11 at 0.00%	0.89	OK	Eq. H1-1b
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<b>RndBar 3_4</b>	98	LC9 at 100.00%	0.46	OK	Eq. H1-1a
	99	LC12 at 0.00%	0.37	OK	Eq. H1-1b
	100	LC10 at 0.00%	0.58	OK	Eq. H1-1a
	101	LC10 at 100.00%	0.46	OK	Eq. H1-1b
	145	LC10 at 100.00%	0.48	OK	Eq. H1-1a
	146	LC10 at 0.00%	0.39	OK	Eq. H1-1b
	147	LC9 at 0.00%	0.58	OK	Eq. H1-1a
	148	LC9 at 100.00%	0.46	OK	Eq. H1-1b
	186	LC10 at 100.00%	0.48	OK	Eq. H1-1a

	<b>187</b>	LC10 at 0.00%	0.39	OK	Eq. H1-1b
	<b>188</b>	LC10 at 0.00%	<b>0.58</b>	<b>OK</b>	Eq. H1-1a
	<b>189</b>	LC10 at 100.00%	0.46	OK	Eq. H1-1b
	<hr/>				
<b>RndBar 5_8</b>	<b>94</b>	LC11 at 87.50%	<b>1.04</b>	<b>N.G.</b>	Eq. H1-1a
	<b>95</b>	LC10 at 87.50%	0.90	OK	Eq. H1-1a
	<b>96</b>	LC12 at 87.50%	0.76	OK	Eq. H1-1a
	<b>97</b>	LC12 at 87.50%	0.86	OK	Eq. H1-1a
	<b>141</b>	LC9 at 87.50%	0.99	OK	Eq. H1-1a
	<b>142</b>	LC12 at 87.50%	0.89	OK	Eq. H1-1a
	<b>143</b>	LC10 at 87.50%	0.79	OK	Eq. H1-1a
	<b>144</b>	LC9 at 87.50%	0.89	OK	Eq. H1-1a
	<b>182</b>	LC10 at 87.50%	0.98	OK	Eq. H1-1a
	<b>183</b>	LC9 at 87.50%	0.90	OK	Eq. H1-1a
	<b>184</b>	LC10 at 87.50%	0.80	OK	Eq. H1-1a
	<b>185</b>	LC10 at 87.50%	0.82	OK	Eq. H1-1a
	<hr/>				

## Geometry data

### GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member    0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

### Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
142	-1.7321	0.00	-1.00	0
143	-1.8282	0.00	-1.7901	0
144	-1.7321	-3.3333	-1.00	0
145	-1.8282	-3.3333	-1.7901	0
146	-2.4644	-3.3333	-0.6882	0
147	-2.4644	0.00	-0.6882	0
152	-1.1829	-6.6667	-7.6112	0
153	-1.1829	3.3333	-7.6112	0
154	-7.1829	-6.6667	2.7811	0
155	-7.1829	3.3333	2.7811	0
156	-5.4576	0.00	0.1929	0
157	-0.8376	0.00	2.6778	0
158	-1.0097	0.00	-7.5112	0
159	-7.0097	0.00	2.8812	0
160	-1.0097	-3.3333	-7.5112	0
161	-7.0097	-3.3333	2.8812	0
162	-2.4634	0.00	-4.2081	0
163	-2.4634	-3.3333	-4.2081	0
164	-4.876	-3.3333	-0.0293	0
165	-4.876	0.00	-0.0293	0
166	-2.4173	0.00	-4.0324	0
167	-2.4173	-3.3333	-4.0324	0

168	-1.8744	0.00	-1.9658	0
169	-1.8744	-3.3333	-1.9658	0
170	-2.6396	0.00	-0.6404	0
171	-2.6396	-3.3333	-0.6404	0
172	-4.7008	0.00	-0.0772	0
173	-4.7008	-3.3333	-0.0772	0
174	-2.5618	0.00	-4.8229	0
175	1.9002	0.00	-2.0642	0
176	-5.6829	-6.6667	0.1831	0
177	-5.6829	3.3333	0.1831	0
180	-2.6829	-6.6667	-5.0131	0
181	-2.6829	3.3333	-5.0131	0
184	-2.7701	0.00	-4.462	0
185	-5.2493	0.00	-0.168	0
186	-5.2493	-3.3333	-0.168	0
187	-2.7701	-3.3333	-4.462	0
188	-4.1829	-6.6667	-2.415	0
189	-4.1829	3.3333	-2.415	0
192	-1.1829	3.33E-06	-7.6112	0
193	-7.1829	3.33E-06	2.7812	0
194	-2.6829	3.33E-06	-5.0131	0
195	-2.5097	3.33E-06	-4.9131	0
196	-5.5097	3.33E-06	0.2831	0
197	-5.6829	3.33E-06	0.1831	0
198	-4.1829	3.33E-06	-2.415	0
199	-4.0097	3.33E-06	-2.315	0
200	-1.1829	-3.3333	-7.6112	0
201	-2.6829	-3.3333	-5.0131	0
202	-2.5097	-3.3333	-4.9131	0
203	-4.1829	-3.3333	-2.415	0
204	-4.0097	-3.3333	-2.315	0
205	-5.5097	-3.3333	0.2831	0
206	-5.6829	-3.3333	0.1831	0
207	-7.1829	-3.3333	2.7812	0
208	-2.1463	0.00	-1.2392	0
209	-2.1463	-3.3333	-1.2392	0
210	0.00	0.00	0.00	0
211	0.00	0.00	2.00	0
212	-0.6362	0.00	2.4783	0
213	0.00	-3.3333	2.00	0
214	-0.6362	-3.3333	2.4783	0
215	0.6362	-3.3333	2.4783	0
216	0.6362	0.00	2.4783	0
217	-6.00	-6.6667	4.83	0
218	-6.00	3.3333	4.83	0
219	6.00	-6.6667	4.83	0
220	6.00	3.3333	4.83	0
221	2.8958	0.00	4.63	0
222	2.7378	0.00	-0.6135	0
223	-6.00	0.00	4.63	0
224	6.00	0.00	4.63	0
225	-6.00	-3.3333	4.63	0
226	6.00	-3.3333	4.63	0
227	-2.4126	0.00	4.2374	0
228	-2.4126	-3.3333	4.2374	0
229	2.4126	-3.3333	4.2374	0
230	2.4126	0.00	4.2374	0
231	-2.2835	0.00	4.1096	0
232	-2.2835	-3.3333	4.1096	0
233	-0.7653	0.00	2.6062	0

234	-0.7653	-3.3333	2.6062	0
235	0.7653	0.00	2.6062	0
236	0.7653	-3.3333	2.6062	0
237	2.2835	0.00	4.1096	0
238	2.2835	-3.3333	4.1096	0
239	-2.8958	0.00	4.63	0
240	-2.7378	0.00	-0.6135	0
241	3.00	-6.6667	4.83	0
242	3.00	3.3333	4.83	0
243	-3.00	-6.6667	4.83	0
244	-3.00	3.3333	4.83	0
245	-2.4792	0.00	4.63	0
246	2.4792	0.00	4.63	0
247	2.4792	-3.3333	4.63	0
248	-2.4792	-3.3333	4.63	0
249	0.00	-6.6667	4.83	0
250	0.00	3.3333	4.83	0
251	-6.00	3.33E-06	4.83	0
252	6.00	3.33E-06	4.83	0
253	-3.00	3.33E-06	4.83	0
254	-3.00	3.33E-06	4.63	0
255	3.00	3.33E-06	4.63	0
256	3.00	3.33E-06	4.83	0
257	0.00	3.33E-06	4.83	0
258	0.00	3.33E-06	4.63	0
259	-6.00	-3.3333	4.83	0
260	-3.00	-3.3333	4.83	0
261	-3.00	-3.3333	4.63	0
262	0.00	-3.3333	4.83	0
263	0.00	-3.3333	4.63	0
264	3.00	-3.3333	4.63	0
265	3.00	-3.3333	4.83	0
266	6.00	-3.3333	4.83	0
267	0.00	0.00	2.4783	0
268	0.00	-3.3333	2.4783	0
270	1.7321	0.00	-1.00	0
271	2.4644	0.00	-0.6882	0
272	1.7321	-3.3333	-1.00	0
273	2.4644	-3.3333	-0.6882	0
274	1.8282	-3.3333	-1.7901	0
275	1.8282	0.00	-1.7901	0
276	7.1829	-6.6667	2.7811	0
277	7.1829	3.3333	2.7811	0
278	1.1829	-6.6667	-7.6112	0
279	1.1829	3.3333	-7.6112	0
280	2.5618	0.00	-4.8229	0
281	-1.9002	0.00	-2.0642	0
282	7.0097	0.00	2.8812	0
283	1.0097	0.00	-7.5112	0
284	7.0097	-3.3333	2.8812	0
285	1.0097	-3.3333	-7.5112	0
286	4.876	0.00	-0.0293	0
287	4.876	-3.3333	-0.0293	0
288	2.4634	-3.3333	-4.2081	0
289	2.4634	0.00	-4.2081	0
290	4.7008	0.00	-0.0772	0
291	4.7008	-3.3333	-0.0772	0
292	2.6396	0.00	-0.6404	0
293	2.6396	-3.3333	-0.6404	0
294	1.8744	0.00	-1.9658	0



295	1.8744	-3.3333	-1.9658	0
296	2.4173	0.00	-4.0324	0
297	2.4173	-3.3333	-4.0324	0
298	5.4576	0.00	0.1929	0
299	0.8376	0.00	2.6778	0
300	2.6829	-6.6667	-5.0131	0
301	2.6829	3.3333	-5.0131	0
302	5.6829	-6.6667	0.1831	0
303	5.6829	3.3333	0.1831	0
304	5.2493	0.00	-0.168	0
305	2.7701	0.00	-4.462	0
306	2.7701	-3.3333	-4.462	0
307	5.2493	-3.3333	-0.168	0
308	4.1829	-6.6667	-2.415	0
309	4.1829	3.3333	-2.415	0
310	7.1829	3.33E-06	2.7812	0
311	1.1829	3.33E-06	-7.6112	0
312	5.6829	3.33E-06	0.1831	0
313	5.5097	3.33E-06	0.2831	0
314	2.5097	3.33E-06	-4.9131	0
315	2.6829	3.33E-06	-5.0131	0
316	4.1829	3.33E-06	-2.415	0
317	4.0097	3.33E-06	-2.315	0
318	7.1829	-3.3333	2.7812	0
319	5.6829	-3.3333	0.1831	0
320	5.5097	-3.3333	0.2831	0
321	4.1829	-3.3333	-2.415	0
322	4.0097	-3.3333	-2.315	0
323	2.5097	-3.3333	-4.9131	0
324	2.6829	-3.3333	-5.0131	0
325	1.1829	-3.3333	-7.6112	0
326	2.1463	0.00	-1.2392	0
327	2.1463	-3.3333	-1.2392	0

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## Restraints

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Node	TX	TY	TZ	RX	RY	RZ
142	1	1	1	1	0	1
144	1	1	1	1	0	1
211	1	1	1	1	0	1
213	1	1	1	1	0	1
270	1	1	1	1	0	1
272	1	1	1	1	0	1

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## Members

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Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
62	153	152		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
63	181	180		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
64	189	188		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
65	177	176		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
66	155	154		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
87	156	157		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
88	158	159		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
89	160	161		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
90	162	143		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
91	163	145		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
92	164	146		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
93	165	147		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
94	166	167		RndBar 5_8	A36	0.00	0.00	0.00
95	168	169		RndBar 5_8	A36	0.00	0.00	0.00
96	170	171		RndBar 5_8	A36	0.00	0.00	0.00
97	172	173		RndBar 5_8	A36	0.00	0.00	0.00
98	170	173		RndBar 3_4	A36	0.00	0.00	0.00
99	171	172		RndBar 3_4	A36	0.00	0.00	0.00
100	167	168		RndBar 3_4	A36	0.00	0.00	0.00
101	166	169		RndBar 3_4	A36	0.00	0.00	0.00
102	174	175		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
107	162	184		PL 3-1/2x5/8	A36	0.00	0.00	0.00
108	165	185		PL 3-1/2x5/8	A36	0.00	0.00	0.00
109	164	186		PL 3-1/2x5/8	A36	0.00	0.00	0.00
110	163	187		PL 3-1/2x5/8	A36	0.00	0.00	0.00
123	143	208		PL 3-1/2x5/8	A36	0.00	0.00	0.00
124	208	147		PL 3-1/2x5/8	A36	0.00	0.00	0.00
125	145	209		PL 3-1/2x5/8	A36	0.00	0.00	0.00
126	209	146		PL 3-1/2x5/8	A36	0.00	0.00	0.00
127	208	142		PL 11-1/4x5/8	A36	11.25	9.25	0.00
128	209	144		PL 11-1/4x5/8	A36	11.25	9.25	0.00
129	218	217		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
130	244	243		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
131	250	249		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
132	242	241		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
133	220	219		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
134	221	222		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
135	223	224		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
136	225	226		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
137	227	212		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
138	228	214		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
139	229	215		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
140	230	216		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
141	231	232		RndBar 5_8	A36	0.00	0.00	0.00
142	233	234		RndBar 5_8	A36	0.00	0.00	0.00
143	235	236		RndBar 5_8	A36	0.00	0.00	0.00
144	237	238		RndBar 5_8	A36	0.00	0.00	0.00
145	235	238		RndBar 3_4	A36	0.00	0.00	0.00
146	236	237		RndBar 3_4	A36	0.00	0.00	0.00
147	232	233		RndBar 3_4	A36	0.00	0.00	0.00
148	231	234		RndBar 3_4	A36	0.00	0.00	0.00
149	239	240		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
150	227	245		PL 3-1/2x5/8	A36	0.00	0.00	0.00
151	230	246		PL 3-1/2x5/8	A36	0.00	0.00	0.00
152	229	247		PL 3-1/2x5/8	A36	0.00	0.00	0.00
153	228	248		PL 3-1/2x5/8	A36	0.00	0.00	0.00
164	212	267		PL 3-1/2x5/8	A36	0.00	0.00	0.00
165	267	216		PL 3-1/2x5/8	A36	0.00	0.00	0.00
166	214	268		PL 3-1/2x5/8	A36	0.00	0.00	0.00
167	268	215		PL 3-1/2x5/8	A36	0.00	0.00	0.00

168	267	211	PL 11-1/4x5/8	A36	11.25	9.25	0.00
169	268	213	PL 11-1/4x5/8	A36	11.25	9.25	0.00
170	277	276	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
171	303	302	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
172	309	308	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
173	301	300	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
174	279	278	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
175	280	281	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
176	282	283	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
177	284	285	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
178	286	271	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
179	287	273	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
180	288	274	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
181	289	275	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
182	290	291	RndBar 5_8	A36	0.00	0.00	0.00
183	292	293	RndBar 5_8	A36	0.00	0.00	0.00
184	294	295	RndBar 5_8	A36	0.00	0.00	0.00
185	296	297	RndBar 5_8	A36	0.00	0.00	0.00
186	294	297	RndBar 3_4	A36	0.00	0.00	0.00
187	295	296	RndBar 3_4	A36	0.00	0.00	0.00
188	291	292	RndBar 3_4	A36	0.00	0.00	0.00
189	290	293	RndBar 3_4	A36	0.00	0.00	0.00
190	298	299	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
191	286	304	PL 3-1/2x5/8	A36	0.00	0.00	0.00
192	289	305	PL 3-1/2x5/8	A36	0.00	0.00	0.00
193	288	306	PL 3-1/2x5/8	A36	0.00	0.00	0.00
194	287	307	PL 3-1/2x5/8	A36	0.00	0.00	0.00
205	271	326	PL 3-1/2x5/8	A36	0.00	0.00	0.00
206	326	275	PL 3-1/2x5/8	A36	0.00	0.00	0.00
207	273	327	PL 3-1/2x5/8	A36	0.00	0.00	0.00
208	327	274	PL 3-1/2x5/8	A36	0.00	0.00	0.00
209	326	270	PL 11-1/4x5/8	A36	11.25	9.25	0.00
210	327	272	PL 11-1/4x5/8	A36	11.25	9.25	0.00

### Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
62	0.00	2	0.2588	0.00	0.9659
63	0.00	2	0.2588	0.00	0.9659
64	0.00	2	0.2588	0.00	0.9659
65	0.00	2	0.2588	0.00	0.9659
66	0.00	2	0.2588	0.00	0.9659
94	0.00	2	-0.866	0.00	-0.50
95	0.00	2	-0.866	0.00	-0.50
96	0.00	2	-0.866	0.00	-0.50
97	0.00	2	-0.866	0.00	-0.50
107	90.00	0	0.00	0.00	0.00
108	90.00	0	0.00	0.00	0.00
109	90.00	0	0.00	0.00	0.00
110	90.00	0	0.00	0.00	0.00
123	90.00	0	0.00	0.00	0.00
124	90.00	0	0.00	0.00	0.00
125	90.00	0	0.00	0.00	0.00
126	90.00	0	0.00	0.00	0.00
127	90.00	0	0.00	0.00	0.00

128	90.00	0	0.00	0.00	0.00
129	315.00	0	0.00	0.00	0.00
130	315.00	0	0.00	0.00	0.00
131	315.00	0	0.00	0.00	0.00
132	315.00	0	0.00	0.00	0.00
133	315.00	0	0.00	0.00	0.00
141	0.00	2	0.00	0.00	1.00
142	0.00	2	0.00	0.00	1.00
143	0.00	2	0.00	0.00	1.00
144	0.00	2	0.00	0.00	1.00
150	90.00	0	0.00	0.00	0.00
151	90.00	0	0.00	0.00	0.00
152	90.00	0	0.00	0.00	0.00
153	90.00	0	0.00	0.00	0.00
164	90.00	0	0.00	0.00	0.00
165	90.00	0	0.00	0.00	0.00
166	90.00	0	0.00	0.00	0.00
167	90.00	0	0.00	0.00	0.00
168	90.00	0	0.00	0.00	0.00
169	90.00	0	0.00	0.00	0.00
170	0.00	2	-0.9659	0.00	-0.2588
171	0.00	2	-0.9659	0.00	-0.2588
172	0.00	2	-0.9659	0.00	-0.2588
173	0.00	2	-0.9659	0.00	-0.2588
174	0.00	2	-0.9659	0.00	-0.2588
182	0.00	2	0.866	0.00	-0.50
183	0.00	2	0.866	0.00	-0.50
184	0.00	2	0.866	0.00	-0.50
185	0.00	2	0.866	0.00	-0.50
191	90.00	0	0.00	0.00	0.00
192	90.00	0	0.00	0.00	0.00
193	90.00	0	0.00	0.00	0.00
194	90.00	0	0.00	0.00	0.00
205	90.00	0	0.00	0.00	0.00
206	90.00	0	0.00	0.00	0.00
207	90.00	0	0.00	0.00	0.00
208	90.00	0	0.00	0.00	0.00
209	90.00	0	0.00	0.00	0.00
210	90.00	0	0.00	0.00	0.00

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### Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
87	0.00	2.00	0.00	0.00	2.00	0.00
98	0.00	-3.50	0.00	0.00	3.50	0.00
99	0.00	3.50	0.00	0.00	-3.50	0.00
100	0.00	3.50	0.00	0.00	-3.50	0.00
101	0.00	-3.50	0.00	0.00	3.50	0.00
102	0.00	2.00	0.00	0.00	2.00	0.00
127	0.00	-0.625	0.00	0.00	-0.625	0.00
128	0.00	-0.625	0.00	0.00	-0.625	0.00
134	0.00	2.00	0.00	0.00	2.00	0.00
145	0.00	-3.50	0.00	0.00	3.50	0.00
146	0.00	3.50	0.00	0.00	-3.50	0.00
147	0.00	3.50	0.00	0.00	-3.50	0.00

148	0.00	-3.50	0.00	0.00	3.50	0.00
149	0.00	-2.00	0.00	0.00	-2.00	0.00
168	0.00	-0.625	0.00	0.00	-0.625	0.00
169	0.00	-0.625	0.00	0.00	-0.625	0.00
175	0.00	-2.00	0.00	0.00	-2.00	0.00
186	0.00	-3.50	0.00	0.00	3.50	0.00
187	0.00	3.50	0.00	0.00	-3.50	0.00
188	0.00	3.50	0.00	0.00	-3.50	0.00
189	0.00	-3.50	0.00	0.00	3.50	0.00
190	0.00	-2.00	0.00	0.00	-2.00	0.00
209	0.00	-0.625	0.00	0.00	-0.625	0.00
210	0.00	-0.625	0.00	0.00	-0.625	0.00

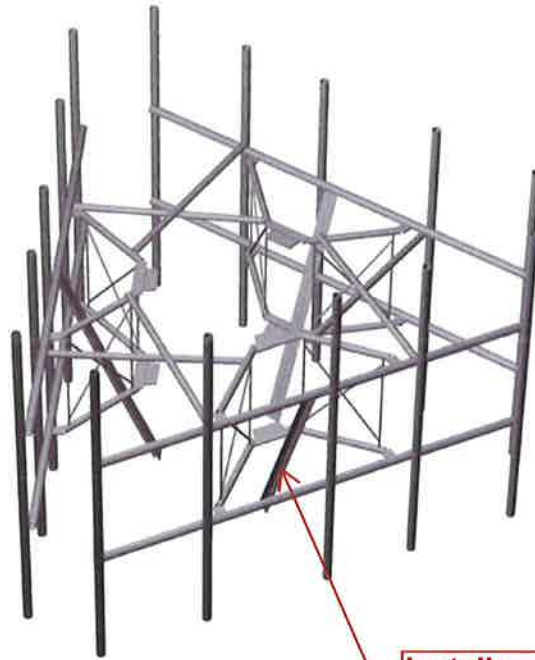
## Hinges

Member	Node-J				Node-K				TOR	AXL	Axial rigidity
	M33	M22	V3	V2	M33	M22	V3	V2			
87	1	1	0	0	0	0	0	0	0	0	Full
99	0	0	0	0	0	0	0	0	0	0	Tension only
101	0	0	0	0	0	0	0	0	0	0	Tension only
102	1	1	0	0	0	0	0	0	0	0	Full
107	1	1	0	0	0	0	0	0	0	0	Full
108	1	1	0	0	0	0	0	0	0	0	Full
109	1	1	0	0	0	0	0	0	0	0	Full
110	1	1	0	0	0	0	0	0	0	0	Full
134	1	1	0	0	0	0	0	0	0	0	Full
146	0	0	0	0	0	0	0	0	0	0	Tension only
148	0	0	0	0	0	0	0	0	0	0	Tension only
149	1	1	0	0	0	0	0	0	0	0	Full
150	1	1	0	0	0	0	0	0	0	0	Full
151	1	1	0	0	0	0	0	0	0	0	Full
152	1	1	0	0	0	0	0	0	0	0	Full
153	1	1	0	0	0	0	0	0	0	0	Full
175	1	1	0	0	0	0	0	0	0	0	Full
187	0	0	0	0	0	0	0	0	0	0	Tension only
189	0	0	0	0	0	0	0	0	0	0	Tension only
190	1	1	0	0	0	0	0	0	0	0	Full
191	1	1	0	0	0	0	0	0	0	0	Full
192	1	1	0	0	0	0	0	0	0	0	Full
193	1	1	0	0	0	0	0	0	0	0	Full
194	1	1	0	0	0	0	0	0	0	0	Full

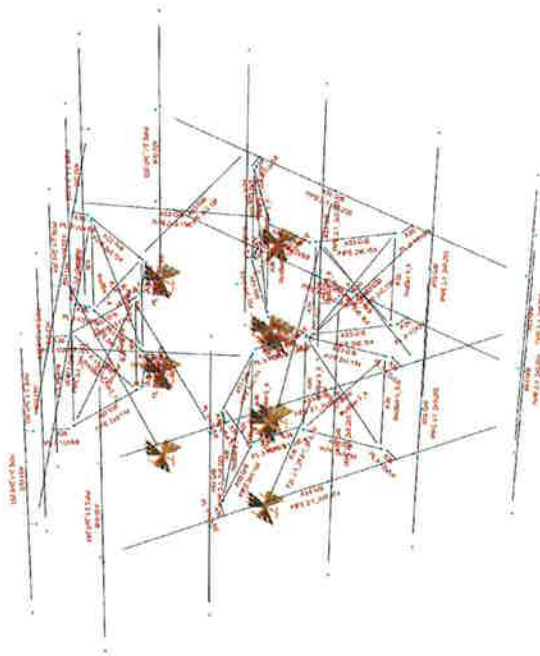


**HUDSON**  
Design Group LLC

**Mount Calculations  
(Modified Conditions)**



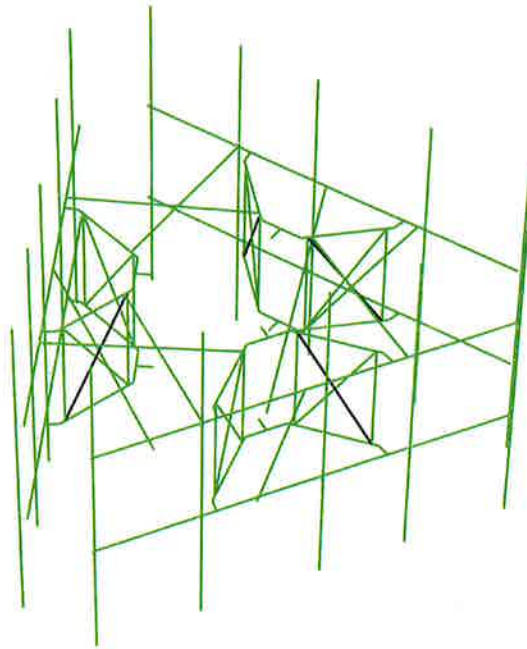
**Install new platform reinforcement kit, SitePro1 P/N PRK-1245LW (or approved equal).**

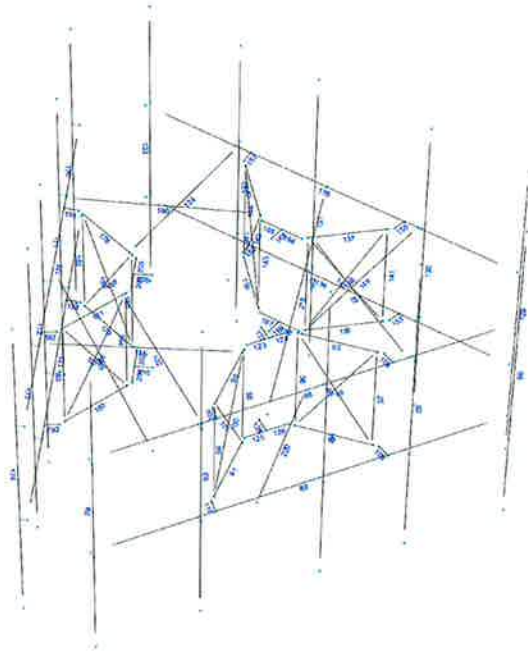




**Design status**

-  Not designed
-  Error on design
-  Design O.K.
-  With warnings





## Load data

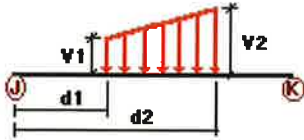
### GLOSSARY

Comb : Indicates if load condition is a load combination

### Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
W0	Wind Load 0/60/120 deg	No	WIND
W30	Wind Load 30/90/150 deg	No	WIND
Di	Ice Load	No	LL
Wi0	Ice Wind Load 0/60/120 deg	No	WIND
Wi30	Ice Wind Load 30/90/150 deg	No	WIND
WL0	WL 30 mph 0/60/120 deg	No	WIND
WL30	WL 30 mph 30/90/150 deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load End of Mount	No	LL
LLa1	250 lb Live Load Antenna 1	No	LL
LLa2	250 lb Live Load Antenna 2	No	LL
LLa3	250 lb Live Load Antenna 3	No	LL
LLa4	250 lb Live Load Antenna 4	No	LL

### Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
W0	62	z	-0.018	0.00	0.00	No	0.00	No
	63	z	-0.018	0.00	0.00	No	0.00	No
	64	z	-0.018	0.00	0.00	No	0.00	No
	65	z	-0.018	0.00	0.00	No	0.00	No
	66	z	-0.018	0.00	0.00	No	0.00	No
	87	z	-0.009	0.00	0.00	No	0.00	No
	88	z	-0.018	0.00	0.00	No	0.00	No
	89	z	-0.018	0.00	0.00	No	0.00	No
	90	z	-0.009	0.00	0.00	No	0.00	No
	91	z	-0.009	0.00	0.00	No	0.00	No
	92	z	-0.009	0.00	0.00	No	0.00	No
	93	z	-0.009	0.00	0.00	No	0.00	No
	94	z	-0.002	0.00	0.00	No	0.00	No
	95	z	-0.002	0.00	0.00	No	0.00	No
	96	z	-0.002	0.00	0.00	No	0.00	No

97	z	-0.002	0.00	0.00	No	0.00	No
98	z	-0.003	0.00	0.00	No	0.00	No
99	z	-0.003	0.00	0.00	No	0.00	No
100	z	-0.003	0.00	0.00	No	0.00	No
101	z	-0.003	0.00	0.00	No	0.00	No
102	z	-0.009	0.00	0.00	No	0.00	No
107	z	-0.002	0.00	0.00	No	0.00	No
108	z	-0.002	0.00	0.00	No	0.00	No
109	z	-0.002	0.00	0.00	No	0.00	No
110	z	-0.002	0.00	0.00	No	0.00	No
123	z	-0.002	0.00	0.00	No	0.00	No
124	z	-0.002	0.00	0.00	No	0.00	No
125	z	-0.002	0.00	0.00	No	0.00	No
126	z	-0.002	0.00	0.00	No	0.00	No
127	z	-0.002	0.00	0.00	No	0.00	No
128	z	-0.002	0.00	0.00	No	0.00	No
130	z	-0.018	0.00	0.00	No	0.00	No
132	z	-0.018	0.00	0.00	No	0.00	No
135	z	-0.018	0.00	0.00	No	0.00	No
136	z	-0.018	0.00	0.00	No	0.00	No
137	z	-0.009	0.00	0.00	No	0.00	No
138	z	-0.009	0.00	0.00	No	0.00	No
139	z	-0.009	0.00	0.00	No	0.00	No
140	z	-0.009	0.00	0.00	No	0.00	No
141	z	-0.002	0.00	0.00	No	0.00	No
142	z	-0.002	0.00	0.00	No	0.00	No
143	z	-0.002	0.00	0.00	No	0.00	No
144	z	-0.002	0.00	0.00	No	0.00	No
145	z	-0.003	0.00	0.00	No	0.00	No
146	z	-0.003	0.00	0.00	No	0.00	No
147	z	-0.003	0.00	0.00	No	0.00	No
148	z	-0.003	0.00	0.00	No	0.00	No
164	z	-0.002	0.00	0.00	No	0.00	No
165	z	-0.002	0.00	0.00	No	0.00	No
166	z	-0.002	0.00	0.00	No	0.00	No
167	z	-0.002	0.00	0.00	No	0.00	No
168	z	-0.002	0.00	0.00	No	0.00	No
169	z	-0.002	0.00	0.00	No	0.00	No
170	z	-0.018	0.00	0.00	No	0.00	No
171	z	-0.018	0.00	0.00	No	0.00	No
172	z	-0.018	0.00	0.00	No	0.00	No
173	z	-0.018	0.00	0.00	No	0.00	No
174	z	-0.018	0.00	0.00	No	0.00	No
175	z	-0.009	0.00	0.00	No	0.00	No
176	z	-0.018	0.00	0.00	No	0.00	No
177	z	-0.018	0.00	0.00	No	0.00	No
178	z	-0.009	0.00	0.00	No	0.00	No
179	z	-0.009	0.00	0.00	No	0.00	No
180	z	-0.009	0.00	0.00	No	0.00	No
181	z	-0.009	0.00	0.00	No	0.00	No
182	z	-0.002	0.00	0.00	No	0.00	No
183	z	-0.002	0.00	0.00	No	0.00	No
184	z	-0.002	0.00	0.00	No	0.00	No
185	z	-0.002	0.00	0.00	No	0.00	No
186	z	-0.003	0.00	0.00	No	0.00	No
187	z	-0.003	0.00	0.00	No	0.00	No
188	z	-0.003	0.00	0.00	No	0.00	No
189	z	-0.003	0.00	0.00	No	0.00	No
190	z	-0.009	0.00	0.00	No	0.00	No
191	z	-0.002	0.00	0.00	No	0.00	No

W30

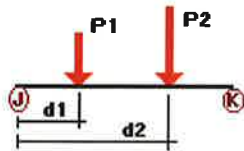
192	z	-0.002	0.00	0.00	No	0.00	No
193	z	-0.002	0.00	0.00	No	0.00	No
194	z	-0.002	0.00	0.00	No	0.00	No
205	z	-0.002	0.00	0.00	No	0.00	No
206	z	-0.002	0.00	0.00	No	0.00	No
207	z	-0.002	0.00	0.00	No	0.00	No
208	z	-0.002	0.00	0.00	No	0.00	No
209	z	-0.002	0.00	0.00	No	0.00	No
210	z	-0.002	0.00	0.00	No	0.00	No
218	z	-0.01	0.00	0.00	No	0.00	No
219	z	-0.01	0.00	0.00	No	0.00	No
220	z	-0.01	0.00	0.00	No	0.00	No
62	x	-0.018	0.00	0.00	No	0.00	No
63	x	-0.018	0.00	0.00	No	0.00	No
64	x	-0.018	0.00	0.00	No	0.00	No
65	x	-0.018	0.00	0.00	No	0.00	No
66	x	-0.018	0.00	0.00	No	0.00	No
87	x	-0.008	0.00	0.00	No	0.00	No
88	x	-0.018	0.00	0.00	No	0.00	No
89	x	-0.018	0.00	0.00	No	0.00	No
90	x	-0.008	0.00	0.00	No	0.00	No
91	x	-0.008	0.00	0.00	No	0.00	No
92	x	-0.008	0.00	0.00	No	0.00	No
93	x	-0.008	0.00	0.00	No	0.00	No
94	x	-0.002	0.00	0.00	No	0.00	No
95	x	-0.002	0.00	0.00	No	0.00	No
96	x	-0.002	0.00	0.00	No	0.00	No
97	x	-0.002	0.00	0.00	No	0.00	No
98	x	-0.003	0.00	0.00	No	0.00	No
99	x	-0.003	0.00	0.00	No	0.00	No
100	x	-0.003	0.00	0.00	No	0.00	No
101	x	-0.003	0.00	0.00	No	0.00	No
102	x	-0.008	0.00	0.00	No	0.00	No
107	x	-0.002	0.00	0.00	No	0.00	No
108	x	-0.002	0.00	0.00	No	0.00	No
109	x	-0.002	0.00	0.00	No	0.00	No
110	x	-0.002	0.00	0.00	No	0.00	No
123	x	-0.002	0.00	0.00	No	0.00	No
124	x	-0.002	0.00	0.00	No	0.00	No
125	x	-0.002	0.00	0.00	No	0.00	No
126	x	-0.002	0.00	0.00	No	0.00	No
127	x	-0.002	0.00	0.00	No	0.00	No
128	x	-0.002	0.00	0.00	No	0.00	No
129	x	-0.018	0.00	0.00	No	0.00	No
130	x	-0.018	0.00	0.00	No	0.00	No
131	x	-0.018	0.00	0.00	No	0.00	No
132	x	-0.018	0.00	0.00	No	0.00	No
133	x	-0.018	0.00	0.00	No	0.00	No
134	x	-0.008	0.00	0.00	No	0.00	No
137	x	-0.008	0.00	0.00	No	0.00	No
138	x	-0.008	0.00	0.00	No	0.00	No
139	x	-0.008	0.00	0.00	No	0.00	No
140	x	-0.008	0.00	0.00	No	0.00	No
141	x	-0.002	0.00	0.00	No	0.00	No
142	x	-0.002	0.00	0.00	No	0.00	No
143	x	-0.002	0.00	0.00	No	0.00	No
144	x	-0.002	0.00	0.00	No	0.00	No
145	x	-0.003	0.00	0.00	No	0.00	No
146	x	-0.003	0.00	0.00	No	0.00	No
147	x	-0.003	0.00	0.00	No	0.00	No

148	x	-0.003	0.00	0.00	No	0.00	No
149	x	-0.008	0.00	0.00	No	0.00	No
150	x	-0.002	0.00	0.00	No	0.00	No
151	x	-0.002	0.00	0.00	No	0.00	No
152	x	-0.002	0.00	0.00	No	0.00	No
153	x	-0.002	0.00	0.00	No	0.00	No
164	x	-0.002	0.00	0.00	No	0.00	No
165	x	-0.002	0.00	0.00	No	0.00	No
166	x	-0.002	0.00	0.00	No	0.00	No
167	x	-0.002	0.00	0.00	No	0.00	No
168	x	-0.002	0.00	0.00	No	0.00	No
169	x	-0.002	0.00	0.00	No	0.00	No
170	x	-0.018	0.00	0.00	No	0.00	No
171	x	-0.018	0.00	0.00	No	0.00	No
172	x	-0.018	0.00	0.00	No	0.00	No
173	x	-0.018	0.00	0.00	No	0.00	No
174	x	-0.018	0.00	0.00	No	0.00	No
175	x	-0.008	0.00	0.00	No	0.00	No
176	x	-0.018	0.00	0.00	No	0.00	No
177	x	-0.018	0.00	0.00	No	0.00	No
178	x	-0.008	0.00	0.00	No	0.00	No
179	x	-0.008	0.00	0.00	No	0.00	No
180	x	-0.008	0.00	0.00	No	0.00	No
181	x	-0.008	0.00	0.00	No	0.00	No
182	x	-0.002	0.00	0.00	No	0.00	No
183	x	-0.002	0.00	0.00	No	0.00	No
184	x	-0.002	0.00	0.00	No	0.00	No
185	x	-0.002	0.00	0.00	No	0.00	No
186	x	-0.003	0.00	0.00	No	0.00	No
187	x	-0.003	0.00	0.00	No	0.00	No
188	x	-0.003	0.00	0.00	No	0.00	No
189	x	-0.003	0.00	0.00	No	0.00	No
190	x	-0.008	0.00	0.00	No	0.00	No
191	x	-0.002	0.00	0.00	No	0.00	No
192	x	-0.002	0.00	0.00	No	0.00	No
193	x	-0.002	0.00	0.00	No	0.00	No
194	x	-0.002	0.00	0.00	No	0.00	No
205	x	-0.002	0.00	0.00	No	0.00	No
206	x	-0.002	0.00	0.00	No	0.00	No
207	x	-0.002	0.00	0.00	No	0.00	No
208	x	-0.002	0.00	0.00	No	0.00	No
209	x	-0.002	0.00	0.00	No	0.00	No
210	x	-0.002	0.00	0.00	No	0.00	No
218	x	-0.01	0.00	0.00	No	0.00	No
219	x	-0.01	0.00	0.00	No	0.00	No
220	x	-0.01	0.00	0.00	No	0.00	No
Di 62	y	-0.09	0.00	0.00	No	0.00	No
63	y	-0.09	0.00	0.00	No	0.00	No
64	y	-0.09	0.00	0.00	No	0.00	No
65	y	-0.09	0.00	0.00	No	0.00	No
66	y	-0.09	0.00	0.00	No	0.00	No
87	y	-0.008	0.00	0.00	No	0.00	No
88	y	-0.09	0.00	0.00	No	0.00	No
89	y	-0.09	0.00	0.00	No	0.00	No
90	y	-0.008	0.00	0.00	No	0.00	No
91	y	-0.008	0.00	0.00	No	0.00	No
92	y	-0.008	0.00	0.00	No	0.00	No
93	y	-0.008	0.00	0.00	No	0.00	No
94	y	-0.005	0.00	0.00	No	0.00	No
95	y	-0.005	0.00	0.00	No	0.00	No

96	y	-0.005	0.00	0.00	No	0.00	No
97	y	-0.005	0.00	0.00	No	0.00	No
98	y	-0.005	0.00	0.00	No	0.00	No
99	y	-0.005	0.00	0.00	No	0.00	No
100	y	-0.005	0.00	0.00	No	0.00	No
101	y	-0.005	0.00	0.00	No	0.00	No
102	y	-0.008	0.00	0.00	No	0.00	No
107	y	-0.011	0.00	0.00	No	0.00	No
108	y	-0.011	0.00	0.00	No	0.00	No
109	y	-0.011	0.00	0.00	No	0.00	No
110	y	-0.011	0.00	0.00	No	0.00	No
123	y	-0.011	0.00	0.00	No	0.00	No
124	y	-0.011	0.00	0.00	No	0.00	No
125	y	-0.011	0.00	0.00	No	0.00	No
126	y	-0.011	0.00	0.00	No	0.00	No
127	y	-0.026	0.00	0.00	No	0.00	No
128	y	-0.026	0.00	0.00	No	0.00	No
129	y	-0.09	0.00	0.00	No	0.00	No
130	y	-0.09	0.00	0.00	No	0.00	No
131	y	-0.09	0.00	0.00	No	0.00	No
132	y	-0.09	0.00	0.00	No	0.00	No
133	y	-0.09	0.00	0.00	No	0.00	No
134	y	-0.008	0.00	0.00	No	0.00	No
135	y	-0.09	0.00	0.00	No	0.00	No
136	y	-0.09	0.00	0.00	No	0.00	No
137	y	-0.008	0.00	0.00	No	0.00	No
138	y	-0.008	0.00	0.00	No	0.00	No
139	y	-0.008	0.00	0.00	No	0.00	No
140	y	-0.008	0.00	0.00	No	0.00	No
141	y	-0.005	0.00	0.00	No	0.00	No
142	y	-0.005	0.00	0.00	No	0.00	No
143	y	-0.005	0.00	0.00	No	0.00	No
144	y	-0.005	0.00	0.00	No	0.00	No
145	y	-0.005	0.00	0.00	No	0.00	No
146	y	-0.005	0.00	0.00	No	0.00	No
147	y	-0.005	0.00	0.00	No	0.00	No
148	y	-0.005	0.00	0.00	No	0.00	No
149	y	-0.008	0.00	0.00	No	0.00	No
150	y	-0.011	0.00	0.00	No	0.00	No
151	y	-0.011	0.00	0.00	No	0.00	No
152	y	-0.011	0.00	0.00	No	0.00	No
153	y	-0.011	0.00	0.00	No	0.00	No
164	y	-0.011	0.00	0.00	No	0.00	No
165	y	-0.011	0.00	0.00	No	0.00	No
166	y	-0.011	0.00	0.00	No	0.00	No
167	y	-0.011	0.00	0.00	No	0.00	No
168	y	-0.026	0.00	0.00	No	0.00	No
169	y	-0.026	0.00	0.00	No	0.00	No
170	y	-0.09	0.00	0.00	No	0.00	No
171	y	-0.09	0.00	0.00	No	0.00	No
172	y	-0.09	0.00	0.00	No	0.00	No
173	y	-0.09	0.00	0.00	No	0.00	No
174	y	-0.09	0.00	0.00	No	0.00	No
175	y	-0.008	0.00	0.00	No	0.00	No
176	y	-0.09	0.00	0.00	No	0.00	No
177	y	-0.09	0.00	0.00	No	0.00	No
178	y	-0.008	0.00	0.00	No	0.00	No
179	y	-0.008	0.00	0.00	No	0.00	No
180	y	-0.008	0.00	0.00	No	0.00	No
181	y	-0.008	0.00	0.00	No	0.00	No

182	y	-0.005	0.00	0.00	No	0.00	No
183	y	-0.005	0.00	0.00	No	0.00	No
184	y	-0.005	0.00	0.00	No	0.00	No
185	y	-0.005	0.00	0.00	No	0.00	No
186	y	-0.005	0.00	0.00	No	0.00	No
187	y	-0.005	0.00	0.00	No	0.00	No
188	y	-0.005	0.00	0.00	No	0.00	No
189	y	-0.005	0.00	0.00	No	0.00	No
190	y	-0.008	0.00	0.00	No	0.00	No
191	y	-0.011	0.00	0.00	No	0.00	No
192	y	-0.011	0.00	0.00	No	0.00	No
193	y	-0.011	0.00	0.00	No	0.00	No
194	y	-0.011	0.00	0.00	No	0.00	No
205	y	-0.011	0.00	0.00	No	0.00	No
206	y	-0.011	0.00	0.00	No	0.00	No
207	y	-0.011	0.00	0.00	No	0.00	No
208	y	-0.011	0.00	0.00	No	0.00	No
209	y	-0.026	0.00	0.00	No	0.00	No
210	y	-0.026	0.00	0.00	No	0.00	No
218	y	-0.011	0.00	0.00	No	0.00	No
219	y	-0.011	0.00	0.00	No	0.00	No
220	y	-0.011	0.00	0.00	No	0.00	No

### Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	62	y	-0.048	1.50	No
		y	-0.048	8.50	No
64	y	-0.034	2.00	No	
	y	-0.034	8.00	No	
66	y	-0.143	50.00	Yes	
	y	-0.015	3.00	No	
	y	-0.015	7.00	No	
129	y	-0.016	50.00	Yes	
	y	-0.048	1.50	No	
	y	-0.048	8.50	No	
131	y	-0.034	2.00	No	
	y	-0.034	8.00	No	
133	y	-0.143	50.00	Yes	
	y	-0.015	3.00	No	
	y	-0.015	7.00	No	
140	y	-0.016	50.00	Yes	
	y	-0.033	50.00	Yes	
	y	-0.048	1.50	No	
170	y	-0.048	8.50	No	
	y	-0.048	8.50	No	
172	y	-0.034	2.00	No	
	y	-0.034	8.00	No	
174	y	-0.143	50.00	Yes	
	y	-0.015	3.00	No	



		y	-0.015	7.00	No
		y	-0.016	50.00	Yes
W0	181	y	-0.033	50.00	Yes
	62	z	-0.196	1.50	No
		z	-0.196	8.50	No
	64	z	-0.165	2.00	No
		z	-0.165	8.00	No
		z	-0.061	50.00	Yes
	66	z	-0.068	3.00	No
		z	-0.068	7.00	No
		z	-0.019	50.00	Yes
	129	z	-0.331	1.50	No
		z	-0.331	8.50	No
	131	z	-0.24	2.00	No
		z	-0.24	8.00	No
		z	-0.027	50.00	Yes
		z	-0.025	50.00	Yes
	133	z	-0.101	3.00	No
		z	-0.101	7.00	No
	140	z	-0.072	50.00	Yes
	170	z	-0.196	1.50	No
		z	-0.196	8.50	No
172	z	-0.165	2.00	No	
	z	-0.165	8.00	No	
	z	-0.061	50.00	Yes	
174	z	-0.068	3.00	No	
	z	-0.068	7.00	No	
	z	-0.019	50.00	Yes	
W30	181	z	-0.072	50.00	Yes
	62	x	-0.286	1.50	No
		x	-0.286	8.50	No
	64	x	-0.215	2.00	No
		x	-0.215	8.00	No
		x	-0.039	50.00	Yes
		x	-0.034	50.00	Yes
	66	x	-0.09	3.00	No
		x	-0.09	7.00	No
		x	-0.017	50.00	Yes
	129	x	-0.151	1.50	No
		x	-0.151	8.50	No
	131	x	-0.139	2.00	No
		x	-0.139	8.00	No
		x	-0.073	50.00	Yes
	133	x	-0.057	3.00	No
		x	-0.057	7.00	No
		x	-0.02	50.00	Yes
	140	x	-0.072	50.00	Yes
	170	x	-0.286	1.50	No
	x	-0.286	8.50	No	
172	x	-0.215	2.00	No	
	x	-0.215	8.00	No	
	x	-0.039	50.00	Yes	
	x	-0.034	50.00	Yes	
174	x	-0.09	3.00	No	
	x	-0.09	7.00	No	
	x	-0.017	50.00	Yes	
Di	181	x	-0.072	50.00	Yes
	62	y	-0.194	1.50	No
		y	-0.194	8.50	No
	64	y	-0.143	2.00	No

		y	-0.143	8.00	No
		y	-0.103	50.00	Yes
66		y	-0.066	3.00	No
		y	-0.066	7.00	No
		y	-0.017	50.00	Yes
129		y	-0.194	1.50	No
		y	-0.194	8.50	No
131		y	-0.143	2.00	No
		y	-0.143	8.00	No
		y	-0.103	50.00	Yes
133		y	-0.066	3.00	No
		y	-0.066	7.00	No
		y	-0.017	50.00	Yes
140		y	-0.046	50.00	Yes
170		y	-0.194	1.50	No
		y	-0.194	8.50	No
172		y	-0.143	2.00	No
		y	-0.143	8.00	No
		y	-0.103	50.00	Yes
174		y	-0.066	3.00	No
		y	-0.066	7.00	No
		y	-0.017	50.00	Yes
181		y	-0.046	50.00	Yes
Wi0	62	z	-0.041	1.50	No
		z	-0.041	8.50	No
64		z	-0.036	2.00	No
		z	-0.036	8.00	No
		z	-0.015	50.00	Yes
66		z	-0.016	3.00	No
		z	-0.016	7.00	No
		z	-0.006	50.00	Yes
129		z	-0.064	1.50	No
		z	-0.064	8.50	No
131		z	-0.049	2.00	No
		z	-0.049	8.00	No
		z	-0.009	50.00	Yes
		z	-0.008	50.00	Yes
133		z	-0.022	3.00	No
		z	-0.022	7.00	No
		z	-0.006	50.00	Yes
140		z	-0.018	50.00	Yes
170		z	-0.041	1.50	No
		z	-0.041	8.50	No
172		z	-0.036	2.00	No
		z	-0.036	8.00	No
		z	-0.015	50.00	Yes
174		z	-0.016	3.00	No
		z	-0.016	7.00	No
		z	-0.006	50.00	Yes
181		z	-0.018	50.00	Yes
Wi30	62	x	-0.056	1.50	No
		x	-0.056	8.50	No
64		x	-0.044	2.00	No
		x	-0.044	8.00	No
		x	-0.011	50.00	Yes
		x	-0.01	50.00	Yes
66		x	-0.02	3.00	No
		x	-0.02	7.00	No
		x	-0.006	50.00	Yes
129		x	-0.034	1.50	No

		x	-0.034	8.50	No
	131	x	-0.031	2.00	No
		x	-0.031	8.00	No
		x	-0.017	50.00	Yes
	133	x	-0.015	3.00	No
		x	-0.015	7.00	No
		x	-0.007	50.00	Yes
	140	x	-0.018	50.00	Yes
	170	x	-0.056	1.50	No
		x	-0.056	8.50	No
	172	x	-0.044	2.00	No
		x	-0.044	8.00	No
		x	-0.011	50.00	Yes
		x	-0.01	50.00	Yes
	174	x	-0.02	3.00	No
		x	-0.02	7.00	No
		x	-0.006	50.00	Yes
	181	x	-0.018	50.00	Yes
WLO	62	z	-0.012	1.50	No
		z	-0.012	8.50	No
	64	z	-0.01	2.00	No
		z	-0.01	8.00	No
		z	-0.004	50.00	Yes
	66	z	-0.004	3.00	No
		z	-0.004	7.00	No
		z	-0.001	50.00	Yes
	129	z	-0.02	1.50	No
		z	-0.02	8.50	No
	131	z	-0.014	2.00	No
		z	-0.014	8.00	No
		z	-0.002	50.00	Yes
		z	-0.001	50.00	Yes
	133	z	-0.006	3.00	No
		z	-0.006	7.00	No
		z	-0.001	50.00	Yes
	140	z	-0.004	50.00	Yes
	170	z	-0.012	1.50	No
		z	-0.012	8.50	No
	172	z	-0.01	2.00	No
		z	-0.01	8.00	No
		z	-0.004	50.00	Yes
	174	z	-0.004	3.00	No
		z	-0.004	7.00	No
		z	-0.001	50.00	Yes
	181	z	-0.004	50.00	Yes
WL30	62	x	-0.017	1.50	No
		x	-0.017	8.50	No
	64	x	-0.013	2.00	No
		x	-0.013	8.00	No
		x	-0.002	50.00	Yes
		x	-0.002	50.00	Yes
	66	x	-0.006	3.00	No
		x	-0.006	7.00	No
		x	-0.001	50.00	Yes
	129	x	-0.009	1.50	No
		x	-0.009	8.50	No
	131	x	-0.009	2.00	No
		x	-0.009	8.00	No
		x	-0.004	50.00	Yes
	133	x	-0.004	3.00	No

		x	-0.004	7.00	No
		x	-0.001	50.00	Yes
140		x	-0.004	50.00	Yes
170		x	-0.017	1.50	No
		x	-0.017	8.50	No
172		x	-0.013	2.00	No
		x	-0.013	8.00	No
		x	-0.002	50.00	Yes
		x	-0.002	50.00	Yes
174		x	-0.006	3.00	No
		x	-0.006	7.00	No
		x	-0.001	50.00	Yes
181		x	-0.004	50.00	Yes
LL1	135	y	-0.25	50.00	Yes
LL2	135	y	-0.25	100.00	Yes
LLa1	133	y	-0.25	50.00	Yes
LLa2	131	y	-0.25	50.00	Yes
LLa3	129	y	-0.25	50.00	Yes

### Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
W0	Wind Load 0/60/120 deg	No	0.00	0.00	0.00
W30	Wind Load 30/90/150 deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
Wi0	Ice Wind Load 0/60/120 deg	No	0.00	0.00	0.00
Wi30	Ice Wind Load 30/90/150 deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0/60/120 deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30/90/150 deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load End of Mount	No	0.00	0.00	0.00
LLa1	250 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	250 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	250 lb Live Load Antenna 3	No	0.00	0.00	0.00
LLa4	250 lb Live Load Antenna 4	No	0.00	0.00	0.00

### Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
W0	0.00	0.00	0.00
W30	0.00	0.00	0.00
Di	0.00	0.00	0.00
Wi0	0.00	0.00	0.00
Wi30	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
LL1	0.00	0.00	0.00

LL2	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00
LLa3	0.00	0.00	0.00
LLa4	0.00	0.00	0.00

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Current Date: 1/17/2020 4:21 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1061\CT1061 MOD 2L.retx

## Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2DL+W0  
 LC2=1.2DL+W30  
 LC3=1.2DL-W0  
 LC4=1.2DL-W30  
 LC5=0.9DL+W0  
 LC6=0.9DL+W30  
 LC7=0.9DL-W0  
 LC8=0.9DL-W30  
 LC9=1.2DL+Di+W0  
 LC10=1.2DL+Di+W30  
 LC11=1.2DL+Di-W0  
 LC12=1.2DL+Di-W30  
 LC13=1.2DL  
 LC15=1.2DL+1.5LL1  
 LC16=1.2DL+1.5LL2  
 LC17=1.2DL+W0+1.5LLa1  
 LC18=1.2DL+W30+1.5LLa1  
 LC19=1.2DL-W0+1.5LLa1  
 LC20=1.2DL-W30+1.5LLa1  
 LC21=1.2DL+W0+1.5LLa2  
 LC22=1.2DL+W30+1.5LLa2  
 LC23=1.2DL-W0+1.5LLa2  
 LC24=1.2DL-W30+1.5LLa2  
 LC25=1.2DL+W0+1.5LLa3  
 LC26=1.2DL+W30+1.5LLa3  
 LC27=1.2DL-W0+1.5LLa3  
 LC28=1.2DL-W30+1.5LLa3  
 LC29=1.2DL+W0+1.5LLa4  
 LC30=1.2DL+W30+1.5LLa4  
 LC31=1.2DL-W0+1.5LLa4  
 LC32=1.2DL-W30+1.5LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	<b>PIPE 2-1_2x0.203</b>	<b>62</b>	LC9 at 33.33%	0.36	OK	Eq. H1-1b
		<b>63</b>	LC12 at 33.33%	0.34	OK	Eq. H1-1b
		<b>64</b>	LC2 at 33.33%	0.31	OK	Eq. H1-1b
		<b>65</b>	LC10 at 33.33%	0.27	OK	Eq. H1-1b
		<b>66</b>	LC10 at 33.33%	0.24	OK	Eq. H1-1b
		<b>88</b>	LC2 at 25.69%	<b>0.73</b>	<b>OK</b>	Eq. H1-1b
		<b>89</b>	LC2 at 29.17%	0.56	OK	Eq. H1-1b
		<b>129</b>	LC10 at 33.33%	0.36	OK	Eq. H1-1b
		<b>130</b>	LC10 at 33.33%	0.34	OK	Eq. H1-1b
		<b>131</b>	LC4 at 33.33%	0.29	OK	Eq. H1-1b
		<b>132</b>	LC11 at 33.33%	0.27	OK	Eq. H1-1b
		<b>133</b>	LC12 at 33.33%	0.24	OK	Eq. H1-1b
		<b>135</b>	LC3 at 25.69%	0.60	OK	Eq. H1-1b
		<b>136</b>	LC3 at 29.17%	0.55	OK	Eq. H1-1b
		<b>170</b>	LC11 at 33.33%	0.36	OK	Eq. H1-1b
		<b>171</b>	LC11 at 33.33%	0.34	OK	Eq. H1-1b
		<b>172</b>	LC1 at 33.33%	0.31	OK	Eq. H1-1b
		<b>173</b>	LC9 at 33.33%	0.27	OK	Eq. H1-1b

	174	LC9 at 33.33%	0.24	OK	Eq. H1-1b
	176	LC10 at 50.00%	0.58	OK	Eq. H1-1b
	177	LC2 at 29.17%	0.66	OK	Eq. H1-1b
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<b>PIPE 2x0.154</b>	87	LC9 at 100.00%	0.18	OK	Eq. H1-1b
	90	LC11 at 93.75%	<b>0.45</b>	<b>OK</b>	Eq. H1-1b
	91	LC11 at 93.75%	0.33	OK	Eq. H1-1b
	92	LC4 at 93.75%	0.27	OK	Eq. H1-1b
	93	LC9 at 93.75%	0.34	OK	Eq. H1-1b
	102	LC8 at 100.00%	0.29	OK	Eq. H1-1b
	134	LC2 at 100.00%	0.23	OK	Eq. H1-1b
	137	LC10 at 93.75%	0.44	OK	Eq. H1-1b
	138	LC9 at 93.75%	0.34	OK	Eq. H1-1b
	139	LC9 at 93.75%	0.28	OK	Eq. H1-1b
	140	LC9 at 93.75%	0.35	OK	Eq. H1-1b
	149	LC5 at 100.00%	0.27	OK	Eq. H1-1b
	175	LC2 at 100.00%	0.22	OK	Eq. H1-1b
	178	LC10 at 93.75%	0.42	OK	Eq. H1-1b
	179	LC10 at 93.75%	0.34	OK	Eq. H1-1b
	180	LC11 at 93.75%	0.27	OK	Eq. H1-1b
	181	LC4 at 89.06%	0.40	OK	Eq. H1-1b
	190	LC7 at 100.00%	0.15	OK	Eq. H1-1b
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<b>PL 11-1/4x5/8</b>	127	LC12 at 100.00%	<b>0.47</b>	<b>OK</b>	Eq. H1-1b
	128	LC12 at 100.00%	0.25	OK	Eq. H1-1b
	168	LC9 at 100.00%	0.46	OK	Eq. H1-1b
	169	LC9 at 100.00%	0.26	OK	Eq. H1-1b
	209	LC11 at 100.00%	0.44	OK	Eq. H1-1b
	210	LC10 at 100.00%	0.26	OK	Eq. H1-1b
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<b>PL 3-1/2x5/8</b>	107	LC11 at 100.00%	0.45	OK	Eq. H1-1b
	108	LC4 at 100.00%	0.38	OK	Eq. H1-1b
	109	LC12 at 100.00%	0.46	OK	Eq. H1-1b
	110	LC11 at 100.00%	0.64	OK	Eq. H1-1b
	123	LC10 at 100.00%	0.75	OK	Eq. H1-1b
	124	LC12 at 0.00%	0.59	OK	Eq. H1-1b
	125	LC11 at 100.00%	0.75	OK	Eq. H1-1b
	126	LC12 at 0.00%	0.62	OK	Eq. H1-1b
	150	LC9 at 100.00%	0.44	OK	Eq. H1-1b
	151	LC9 at 100.00%	0.37	OK	Eq. H1-1b
	152	LC9 at 100.00%	0.46	OK	Eq. H1-1b
	153	LC12 at 100.00%	0.67	OK	Eq. H1-1b
	164	LC10 at 100.00%	0.72	OK	Eq. H1-1b
	165	LC10 at 0.00%	0.63	OK	Eq. H1-1b
	166	LC9 at 100.00%	0.75	OK	Eq. H1-1b
	167	LC9 at 0.00%	0.64	OK	Eq. H1-1b
	191	LC10 at 100.00%	0.43	OK	Eq. H1-1b
	192	LC11 at 100.00%	0.35	OK	Eq. H1-1b
	193	LC11 at 100.00%	0.50	OK	Eq. H1-1b
	194	LC9 at 100.00%	0.68	OK	Eq. H1-1b
	205	LC12 at 100.00%	0.74	OK	Eq. H1-1b
	206	LC10 at 0.00%	0.61	OK	Eq. H1-1b
	207	LC10 at 100.00%	<b>0.76</b>	<b>OK</b>	Eq. H1-1b
	208	LC11 at 0.00%	0.64	OK	Eq. H1-1b
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<b>RndBar 3_4</b>	98	LC9 at 100.00%	0.29	With warnings	Eq. H1-1b
	99	LC12 at 0.00%	0.28	OK	Eq. H1-1b
	100	LC11 at 0.00%	0.45	OK	Eq. H1-1a
	101	LC11 at 100.00%	0.34	OK	Eq. H1-1b
	145	LC9 at 100.00%	0.31	With warnings	Eq. H1-1b
	146	LC9 at 0.00%	0.29	OK	Eq. H1-1b
	147	LC9 at 0.00%	<b>0.46</b>	<b>With warnings</b>	Eq. H1-1a
	148	LC9 at 100.00%	0.36	OK	Eq. H1-1b
	186	LC10 at 100.00%	0.32	With warnings	Eq. H1-1b

	<b>187</b>	LC10 at 0.00%	0.30	OK	Eq. H1-1b
	<b>188</b>	LC10 at 0.00%	0.46	OK	Eq. H1-1a
	<b>189</b>	LC10 at 100.00%	0.35	OK	Eq. H1-1b
<b>RndBar 5_8</b>	<b>94</b>	LC11 at 87.50%	<b>0.78</b>	<b>OK</b>	Eq. H1-1a
	<b>95</b>	LC10 at 87.50%	0.66	OK	Eq. H1-1a
	<b>96</b>	LC12 at 87.50%	0.56	OK	Eq. H1-1a
	<b>97</b>	LC9 at 87.50%	0.64	OK	Eq. H1-1a
	<b>141</b>	LC9 at 87.50%	0.77	OK	Eq. H1-1a
	<b>142</b>	LC9 at 87.50%	0.67	OK	Eq. H1-1a
	<b>143</b>	LC10 at 87.50%	0.58	OK	Eq. H1-1a
	<b>144</b>	LC12 at 87.50%	0.66	OK	Eq. H1-1a
	<b>182</b>	LC10 at 87.50%	0.75	OK	Eq. H1-1a
	<b>183</b>	LC10 at 87.50%	0.67	OK	Eq. H1-1a
	<b>184</b>	LC10 at 87.50%	0.59	OK	Eq. H1-1a
	<b>185</b>	LC10 at 87.50%	0.65	OK	Eq. H1-1a
<b>T2L 2-1_2X2-1_2X3_16</b>	<b>218</b>	LC9 at 0.00%	<b>0.31</b>	<b>OK</b>	Eq. H2-1
	<b>219</b>	LC4 at 100.00%	0.30	OK	Eq. H2-1
	<b>220</b>	LC12 at 0.00%	0.30	OK	Eq. H2-1



## Geometry data

**GLOSSARY**

- Cb22, Cb33 : Moment gradient coefficients
- Cm22, Cm33 : Coefficients applied to bending term in interaction formula
- d0 : Tapered member section depth at J end of member
- DJX : Rigid end offset distance measured from J node in axis X
- DJY : Rigid end offset distance measured from J node in axis Y
- DJZ : Rigid end offset distance measured from J node in axis Z
- DKX : Rigid end offset distance measured from K node in axis X
- DKY : Rigid end offset distance measured from K node in axis Y
- DKZ : Rigid end offset distance measured from K node in axis Z
- dL : Tapered member section depth at K end of member
- Ig factor : Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
- K22 : Effective length factor about axis 2
- K33 : Effective length factor about axis 3
- L22 : Member length for calculation of axial capacity
- L33 : Member length for calculation of axial capacity
- LB pos : Lateral unbraced length of the compression flange in the positive side of local axis 2
- LB neg : Lateral unbraced length of the compression flange in the negative side of local axis 2
- RX : Rotation about X
- RY : Rotation about Y
- RZ : Rotation about Z
- TO : 1 = Tension only member 0 = Normal member
- TX : Translation in X
- TY : Translation in Y
- TZ : Translation in Z

**Nodes**

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
142	-1.7321	0.00	-1.00	0
143	-1.8282	0.00	-1.7901	0
144	-1.7321	-3.3333	-1.00	0
145	-1.8282	-3.3333	-1.7901	0
146	-2.4644	-3.3333	-0.6882	0
147	-2.4644	0.00	-0.6882	0
152	-1.1829	-6.6667	-7.6112	0
153	-1.1829	3.3333	-7.6112	0
154	-7.1829	-6.6667	2.7811	0
155	-7.1829	3.3333	2.7811	0
156	-5.4576	0.00	0.1929	0
157	-0.8376	0.00	2.6778	0
158	-1.0097	0.00	-7.5112	0
159	-7.0097	0.00	2.8812	0
160	-1.0097	-3.3333	-7.5112	0
161	-7.0097	-3.3333	2.8812	0
162	-2.4634	0.00	-4.2081	0
163	-2.4634	-3.3333	-4.2081	0
164	-4.876	-3.3333	-0.0293	0
165	-4.876	0.00	-0.0293	0
166	-2.4173	0.00	-4.0324	0
167	-2.4173	-3.3333	-4.0324	0

168	-1.8744	0.00	-1.9658	0
169	-1.8744	-3.3333	-1.9658	0
170	-2.6396	0.00	-0.6404	0
171	-2.6396	-3.3333	-0.6404	0
172	-4.7008	0.00	-0.0772	0
173	-4.7008	-3.3333	-0.0772	0
174	-2.5618	0.00	-4.8229	0
175	1.9002	0.00	-2.0642	0
176	-5.6829	-6.6667	0.1831	0
177	-5.6829	3.3333	0.1831	0
180	-2.6829	-6.6667	-5.0131	0
181	-2.6829	3.3333	-5.0131	0
184	-2.7701	0.00	-4.462	0
185	-5.2493	0.00	-0.168	0
186	-5.2493	-3.3333	-0.168	0
187	-2.7701	-3.3333	-4.462	0
188	-4.4329	-6.6667	-1.982	0
189	-4.4329	3.3333	-1.982	0
192	-1.1829	3.33E-06	-7.6112	0
193	-7.1829	3.33E-06	2.7812	0
194	-2.6829	3.33E-06	-5.0131	0
195	-2.5097	3.33E-06	-4.9131	0
196	-5.5097	3.33E-06	0.2831	0
197	-5.6829	3.33E-06	0.1831	0
198	-4.4329	3.33E-06	-1.982	0
199	-4.0097	3.33E-06	-2.315	0
200	-1.1829	-3.3333	-7.6112	0
201	-2.6829	-3.3333	-5.0131	0
202	-2.5097	-3.3333	-4.9131	0
203	-4.4329	-3.3333	-1.982	0
204	-4.2597	-3.3333	-1.882	0
205	-5.5097	-3.3333	0.2831	0
206	-5.6829	-3.3333	0.1831	0
207	-7.1829	-3.3333	2.7812	0
208	-2.1463	0.00	-1.2392	0
209	-2.1463	-3.3333	-1.2392	0
210	0.00	0.00	0.00	0
211	0.00	0.00	2.00	0
212	-0.6362	0.00	2.4783	0
213	0.00	-3.3333	2.00	0
214	-0.6362	-3.3333	2.4783	0
215	0.6362	-3.3333	2.4783	0
216	0.6362	0.00	2.4783	0
217	-6.00	-6.6667	4.83	0
218	-6.00	3.3333	4.83	0
219	6.00	-6.6667	4.83	0
220	6.00	3.3333	4.83	0
221	2.8958	0.00	4.63	0
222	2.7378	0.00	-0.6135	0
223	-6.00	0.00	4.63	0
224	6.00	0.00	4.63	0
225	-6.00	-3.3333	4.63	0
226	6.00	-3.3333	4.63	0
227	-2.4126	0.00	4.2374	0
228	-2.4126	-3.3333	4.2374	0
229	2.4126	-3.3333	4.2374	0
230	2.4126	0.00	4.2374	0
231	-2.2835	0.00	4.1096	0
232	-2.2835	-3.3333	4.1096	0
233	-0.7653	0.00	2.6062	0

234	-0.7653	-3.3333	2.6062	0
235	0.7653	0.00	2.6062	0
236	0.7653	-3.3333	2.6062	0
237	2.2835	0.00	4.1096	0
238	2.2835	-3.3333	4.1096	0
239	-2.8958	0.00	4.63	0
240	-2.7378	0.00	-0.6135	0
241	3.00	-6.6667	4.83	0
242	3.00	3.3333	4.83	0
243	-3.00	-6.6667	4.83	0
244	-3.00	3.3333	4.83	0
245	-2.4792	0.00	4.63	0
246	2.4792	0.00	4.63	0
247	2.4792	-3.3333	4.63	0
248	-2.4792	-3.3333	4.63	0
249	0.50	-6.6667	4.83	0
250	0.50	3.3333	4.83	0
251	-6.00	3.33E-06	4.83	0
252	6.00	3.33E-06	4.83	0
253	-3.00	3.33E-06	4.83	0
254	-3.00	3.33E-06	4.63	0
255	3.00	3.33E-06	4.63	0
256	3.00	3.33E-06	4.83	0
257	0.50	3.33E-06	4.83	0
259	-6.00	-3.3333	4.83	0
260	-3.00	-3.3333	4.83	0
261	-3.00	-3.3333	4.63	0
262	0.50	-3.3333	4.83	0
263	0.50	-3.3333	4.63	0
264	3.00	-3.3333	4.63	0
265	3.00	-3.3333	4.83	0
266	6.00	-3.3333	4.83	0
267	0.00	0.00	2.4783	0
268	0.00	-3.3333	2.4783	0
270	1.7321	0.00	-1.00	0
271	2.4644	0.00	-0.6882	0
272	1.7321	-3.3333	-1.00	0
273	2.4644	-3.3333	-0.6882	0
274	1.8282	-3.3333	-1.7901	0
275	1.8282	0.00	-1.7901	0
276	7.1829	-6.6667	2.7811	0
277	7.1829	3.3333	2.7811	0
278	1.1829	-6.6667	-7.6112	0
279	1.1829	3.3333	-7.6112	0
280	2.5618	0.00	-4.8229	0
281	-1.9002	0.00	-2.0642	0
282	7.0097	0.00	2.8812	0
283	1.0097	0.00	-7.5112	0
284	7.0097	-3.3333	2.8812	0
285	1.0097	-3.3333	-7.5112	0
286	4.876	0.00	-0.0293	0
287	4.876	-3.3333	-0.0293	0
288	2.4634	-3.3333	-4.2081	0
289	2.4634	0.00	-4.2081	0
290	4.7008	0.00	-0.0772	0
291	4.7008	-3.3333	-0.0772	0
292	2.6396	0.00	-0.6404	0
293	2.6396	-3.3333	-0.6404	0
294	1.8744	0.00	-1.9658	0
295	1.8744	-3.3333	-1.9658	0

296	2.4173	0.00	-4.0324	0
297	2.4173	-3.3333	-4.0324	0
298	5.4576	0.00	0.1929	0
299	0.8376	0.00	2.6778	0
300	2.6829	-6.6667	-5.0131	0
301	2.6829	3.3333	-5.0131	0
302	5.6829	-6.6667	0.1831	0
303	5.6829	3.3333	0.1831	0
304	5.2493	0.00	-0.168	0
305	2.7701	0.00	-4.462	0
306	2.7701	-3.3333	-4.462	0
307	5.2493	-3.3333	-0.168	0
308	3.9329	-6.6667	-2.848	0
309	3.9329	3.3333	-2.848	0
310	7.1829	3.33E-06	2.7812	0
311	1.1829	3.33E-06	-7.6112	0
312	5.6829	3.33E-06	0.1831	0
313	5.5097	3.33E-06	0.2831	0
314	2.5097	3.33E-06	-4.9131	0
315	2.6829	3.33E-06	-5.0131	0
316	3.9329	3.33E-06	-2.848	0
317	4.0097	3.33E-06	-2.315	0
318	7.1829	-3.3333	2.7812	0
319	5.6829	-3.3333	0.1831	0
320	5.5097	-3.3333	0.2831	0
321	3.9329	-3.3333	-2.848	0
322	3.7597	-3.3333	-2.748	0
323	2.5097	-3.3333	-4.9131	0
324	2.6829	-3.3333	-5.0131	0
325	1.1829	-3.3333	-7.6112	0
326	2.1463	0.00	-1.2392	0
327	2.1463	-3.3333	-1.2392	0
334	1.7321	-6.4667	-1.00	0
341	-1.7321	-6.4667	-1.00	0
342	0.00	-6.4667	2.00	0
344	0.50	3.33E-06	4.63	0
345	0.00	3.33E-06	4.63	0
358	3.7597	3.33E-06	-2.748	0
359	-4.2597	3.33E-06	-1.882	0

## Restraints

Node	TX	TY	TZ	RX	RY	RZ
142	1	1	1	1	0	1
144	1	1	1	1	0	1
211	1	1	1	1	0	1
213	1	1	1	1	0	1
270	1	1	1	1	0	1
272	1	1	1	1	0	1
334	1	1	1	1	1	1
341	1	1	1	1	1	1
342	1	1	1	1	1	1

## Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
62	153	152		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
63	181	180		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
64	189	188		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
65	177	176		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
66	155	154		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
87	156	157		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
88	158	159		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
89	160	161		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
90	162	143		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
91	163	145		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
92	164	146		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
93	165	147		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
94	166	167		RndBar 5_8	A36	0.00	0.00	0.00
95	168	169		RndBar 5_8	A36	0.00	0.00	0.00
96	170	171		RndBar 5_8	A36	0.00	0.00	0.00
97	172	173		RndBar 5_8	A36	0.00	0.00	0.00
98	170	173		RndBar 3_4	A36	0.00	0.00	0.00
99	171	172		RndBar 3_4	A36	0.00	0.00	0.00
100	167	168		RndBar 3_4	A36	0.00	0.00	0.00
101	166	169		RndBar 3_4	A36	0.00	0.00	0.00
102	174	175		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
107	162	184		PL 3-1/2x5/8	A36	0.00	0.00	0.00
108	165	185		PL 3-1/2x5/8	A36	0.00	0.00	0.00
109	164	186		PL 3-1/2x5/8	A36	0.00	0.00	0.00
110	163	187		PL 3-1/2x5/8	A36	0.00	0.00	0.00
123	143	208		PL 3-1/2x5/8	A36	0.00	0.00	0.00
124	208	147		PL 3-1/2x5/8	A36	0.00	0.00	0.00
125	145	209		PL 3-1/2x5/8	A36	0.00	0.00	0.00
126	209	146		PL 3-1/2x5/8	A36	0.00	0.00	0.00
127	208	142		PL 11-1/4x5/8	A36	11.25	9.25	0.00
128	209	144		PL 11-1/4x5/8	A36	11.25	9.25	0.00
129	218	217		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
130	244	243		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
131	250	249		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
132	242	241		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
133	220	219		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
134	221	222		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
135	223	224		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
136	225	226		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
137	227	212		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
138	228	214		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
139	229	215		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
140	230	216		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
141	231	232		RndBar 5_8	A36	0.00	0.00	0.00
142	233	234		RndBar 5_8	A36	0.00	0.00	0.00
143	235	236		RndBar 5_8	A36	0.00	0.00	0.00
144	237	238		RndBar 5_8	A36	0.00	0.00	0.00
145	235	238		RndBar 3_4	A36	0.00	0.00	0.00
146	236	237		RndBar 3_4	A36	0.00	0.00	0.00
147	232	233		RndBar 3_4	A36	0.00	0.00	0.00
148	231	234		RndBar 3_4	A36	0.00	0.00	0.00
149	239	240		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
150	227	245		PL 3-1/2x5/8	A36	0.00	0.00	0.00
151	230	246		PL 3-1/2x5/8	A36	0.00	0.00	0.00
152	229	247		PL 3-1/2x5/8	A36	0.00	0.00	0.00
153	228	248		PL 3-1/2x5/8	A36	0.00	0.00	0.00
164	212	267		PL 3-1/2x5/8	A36	0.00	0.00	0.00
165	267	216		PL 3-1/2x5/8	A36	0.00	0.00	0.00
166	214	268		PL 3-1/2x5/8	A36	0.00	0.00	0.00
167	268	215		PL 3-1/2x5/8	A36	0.00	0.00	0.00

168	267	211	PL 11-1/4x5/8	A36	11.25	9.25	0.00
169	268	213	PL 11-1/4x5/8	A36	11.25	9.25	0.00
170	277	276	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
171	303	302	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
172	309	308	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
173	301	300	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
174	279	278	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
175	280	281	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
176	282	283	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
177	284	285	PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
178	286	271	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
179	287	273	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
180	288	274	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
181	289	275	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
182	290	291	RndBar 5_8	A36	0.00	0.00	0.00
183	292	293	RndBar 5_8	A36	0.00	0.00	0.00
184	294	295	RndBar 5_8	A36	0.00	0.00	0.00
185	296	297	RndBar 5_8	A36	0.00	0.00	0.00
186	294	297	RndBar 3_4	A36	0.00	0.00	0.00
187	295	296	RndBar 3_4	A36	0.00	0.00	0.00
188	291	292	RndBar 3_4	A36	0.00	0.00	0.00
189	290	293	RndBar 3_4	A36	0.00	0.00	0.00
190	298	299	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
191	286	304	PL 3-1/2x5/8	A36	0.00	0.00	0.00
192	289	305	PL 3-1/2x5/8	A36	0.00	0.00	0.00
193	288	306	PL 3-1/2x5/8	A36	0.00	0.00	0.00
194	287	307	PL 3-1/2x5/8	A36	0.00	0.00	0.00
205	271	326	PL 3-1/2x5/8	A36	0.00	0.00	0.00
206	326	275	PL 3-1/2x5/8	A36	0.00	0.00	0.00
207	273	327	PL 3-1/2x5/8	A36	0.00	0.00	0.00
208	327	274	PL 3-1/2x5/8	A36	0.00	0.00	0.00
209	326	270	PL 11-1/4x5/8	A36	11.25	9.25	0.00
210	327	272	PL 11-1/4x5/8	A36	11.25	9.25	0.00
218	342	345	T2L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
219	334	317	T2L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
220	341	199	T2L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00

### Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
62	0.00	2	0.2588	0.00	0.9659
63	0.00	2	0.2588	0.00	0.9659
64	0.00	2	0.2588	0.00	0.9659
65	0.00	2	0.2588	0.00	0.9659
66	0.00	2	0.2588	0.00	0.9659
94	0.00	2	-0.866	0.00	-0.50
95	0.00	2	-0.866	0.00	-0.50
96	0.00	2	-0.866	0.00	-0.50
97	0.00	2	-0.866	0.00	-0.50
107	90.00	0	0.00	0.00	0.00
108	90.00	0	0.00	0.00	0.00
109	90.00	0	0.00	0.00	0.00
110	90.00	0	0.00	0.00	0.00
123	90.00	0	0.00	0.00	0.00
124	90.00	0	0.00	0.00	0.00

125	90.00	0	0.00	0.00	0.00
126	90.00	0	0.00	0.00	0.00
127	90.00	0	0.00	0.00	0.00
128	90.00	0	0.00	0.00	0.00
129	315.00	0	0.00	0.00	0.00
130	315.00	0	0.00	0.00	0.00
131	315.00	0	0.00	0.00	0.00
132	315.00	0	0.00	0.00	0.00
133	315.00	0	0.00	0.00	0.00
141	0.00	2	0.00	0.00	1.00
142	0.00	2	0.00	0.00	1.00
143	0.00	2	0.00	0.00	1.00
144	0.00	2	0.00	0.00	1.00
150	90.00	0	0.00	0.00	0.00
151	90.00	0	0.00	0.00	0.00
152	90.00	0	0.00	0.00	0.00
153	90.00	0	0.00	0.00	0.00
164	90.00	0	0.00	0.00	0.00
165	90.00	0	0.00	0.00	0.00
166	90.00	0	0.00	0.00	0.00
167	90.00	0	0.00	0.00	0.00
168	90.00	0	0.00	0.00	0.00
169	90.00	0	0.00	0.00	0.00
170	0.00	2	-0.9659	0.00	-0.2588
171	0.00	2	-0.9659	0.00	-0.2588
172	0.00	2	-0.9659	0.00	-0.2588
173	0.00	2	-0.9659	0.00	-0.2588
174	0.00	2	-0.9659	0.00	-0.2588
182	0.00	2	0.866	0.00	-0.50
183	0.00	2	0.866	0.00	-0.50
184	0.00	2	0.866	0.00	-0.50
185	0.00	2	0.866	0.00	-0.50
191	90.00	0	0.00	0.00	0.00
192	90.00	0	0.00	0.00	0.00
193	90.00	0	0.00	0.00	0.00
194	90.00	0	0.00	0.00	0.00
205	90.00	0	0.00	0.00	0.00
206	90.00	0	0.00	0.00	0.00
207	90.00	0	0.00	0.00	0.00
208	90.00	0	0.00	0.00	0.00
209	90.00	0	0.00	0.00	0.00
210	90.00	0	0.00	0.00	0.00

### Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
87	0.00	2.00	0.00	0.00	2.00	0.00
98	0.00	-3.50	0.00	0.00	3.50	0.00
99	0.00	3.50	0.00	0.00	-3.50	0.00
100	0.00	3.50	0.00	0.00	-3.50	0.00
101	0.00	-3.50	0.00	0.00	3.50	0.00
102	0.00	2.00	0.00	0.00	2.00	0.00
127	0.00	-0.625	0.00	0.00	-0.625	0.00
128	0.00	-0.625	0.00	0.00	-0.625	0.00
134	0.00	2.00	0.00	0.00	2.00	0.00

145	0.00	-3.50	0.00	0.00	3.50	0.00
146	0.00	3.50	0.00	0.00	-3.50	0.00
147	0.00	3.50	0.00	0.00	-3.50	0.00
148	0.00	-3.50	0.00	0.00	3.50	0.00
149	0.00	-2.00	0.00	0.00	-2.00	0.00
168	0.00	-0.625	0.00	0.00	-0.625	0.00
169	0.00	-0.625	0.00	0.00	-0.625	0.00
175	0.00	-2.00	0.00	0.00	-2.00	0.00
186	0.00	-3.50	0.00	0.00	3.50	0.00
187	0.00	3.50	0.00	0.00	-3.50	0.00
188	0.00	3.50	0.00	0.00	-3.50	0.00
189	0.00	-3.50	0.00	0.00	3.50	0.00
190	0.00	-2.00	0.00	0.00	-2.00	0.00
209	0.00	-0.625	0.00	0.00	-0.625	0.00
210	0.00	-0.625	0.00	0.00	-0.625	0.00

## Hinges

Member	Node-J				Node-K				TOR	AXL	Axial rigidity
	M33	M22	V3	V2	M33	M22	V3	V2			
87	1	1	0	0	0	0	0	0	0	0	Full
99	0	0	0	0	0	0	0	0	0	0	Tension only
101	0	0	0	0	0	0	0	0	0	0	Tension only
102	1	1	0	0	0	0	0	0	0	0	Full
107	1	1	0	0	0	0	0	0	0	0	Full
108	1	1	0	0	0	0	0	0	0	0	Full
109	1	1	0	0	0	0	0	0	0	0	Full
110	1	1	0	0	0	0	0	0	0	0	Full
134	1	1	0	0	0	0	0	0	0	0	Full
146	0	0	0	0	0	0	0	0	0	0	Tension only
148	0	0	0	0	0	0	0	0	0	0	Tension only
149	1	1	0	0	0	0	0	0	0	0	Full
150	1	1	0	0	0	0	0	0	0	0	Full
151	1	1	0	0	0	0	0	0	0	0	Full
152	1	1	0	0	0	0	0	0	0	0	Full
153	1	1	0	0	0	0	0	0	0	0	Full
175	1	1	0	0	0	0	0	0	0	0	Full
187	0	0	0	0	0	0	0	0	0	0	Tension only
189	0	0	0	0	0	0	0	0	0	0	Tension only
190	1	1	0	0	0	0	0	0	0	0	Full
191	1	1	0	0	0	0	0	0	0	0	Full
192	1	1	0	0	0	0	0	0	0	0	Full
193	1	1	0	0	0	0	0	0	0	0	Full
194	1	1	0	0	0	0	0	0	0	0	Full



## EXHIBIT 3



# Town of Farmington, CT

## Property Listing Report

Map Block Lot

006 1

Building # 1

Unique Identifier

11350082

### Property Information

Property Location	<b>82 LOVELY ST</b>
Mailing Address	<b>401 MERRITT 7 - TAX DEPT NORWALK CT 06851</b>
Land Use	<b>Utility Building</b>
Zoning Code	<b>R20</b>
Neighborhood	<b>95</b>

Owner	<b>SOUTHERN NEW ENGLAND</b>
Co-Owner	
Book / Page	<b>0114/0169</b>
Land Class	<b>Commercial</b>
Census Tract	<b>4603</b>
Acreage	<b>0.67</b>

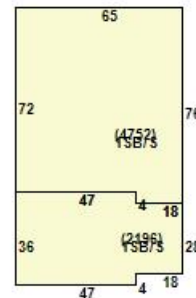
### Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	<b>359244</b>	<b>251470</b>
Outbuildings	<b>0</b>	<b>0</b>
Land	<b>243880</b>	<b>170720</b>
<b>Total</b>	<b>603124</b>	<b>422190</b>

### Utility Information

Electric	<b>No</b>
Gas	<b>No</b>
Sewer	<b>No</b>
Public Water	<b>No</b>
Well	<b>No</b>



### Primary Construction Details

Year Built	<b>1965</b>
Building Desc.	<b>Commercial</b>
Building Style	
Stories	<b>1</b>
Exterior Walls	<b>Brick</b>
Exterior Walls 2	
Interior Walls	<b>Painted Concrete</b>
Interior Walls 2	
Interior Floors 1	<b>Tile</b>
Interior Floors 2	

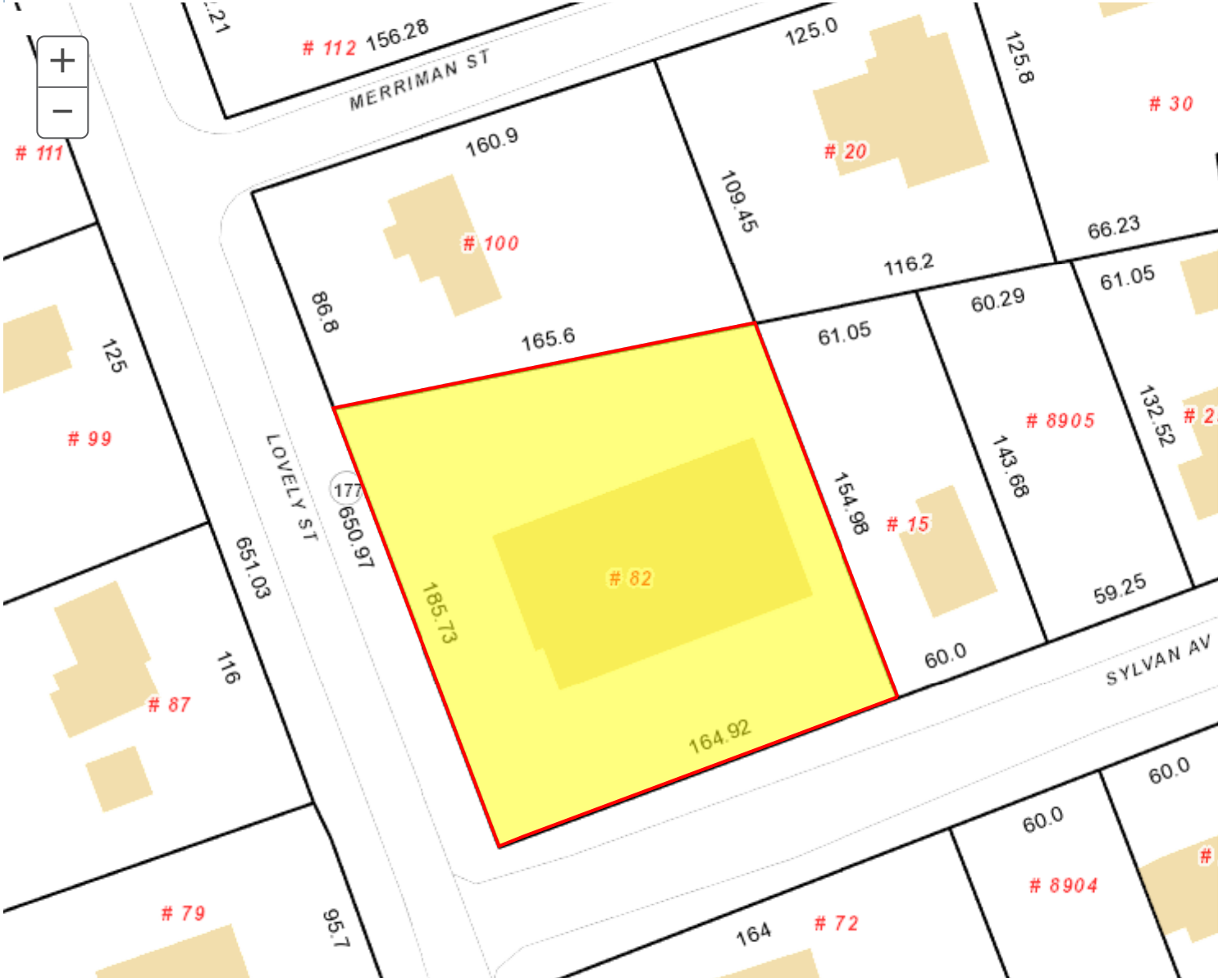
Heating Fuel	<b>Natural Gas</b>
Heating Type	<b>FHA</b>
AC Type	<b>Central</b>
Bedrooms	<b>0</b>
Full Bathrooms	<b>0</b>
Half Bathrooms	<b>0</b>
Extra Fixtures	<b>0</b>
Total Rooms	<b>0</b>
Bath Style	<b>NA</b>
Kitchen Style	
Occupancy	<b>0</b>

Building Use	<b>Light Industrial</b>
Building Condition	<b>Average</b>
Frame Type	<b>C+</b>
Fireplaces	<b>0</b>
Bsmt Gar	<b>0</b>
Fin Bsmt Area	
Fin Bsmt Quality	
Building Grade	<b>0</b>
Roof Style	
Roof Cover	<b>Arch Shingles</b>

Report Created On

4/9/2020





## EXHIBIT 4



# Radio Frequency Emissions Analysis Report

Site Name: **CT1061**

82 Lovely Street  
Unionville, Connecticut 06085

**February 5, 2020**

**Centerline Communications Project Number: 950012-334**

Site Compliance Summary	
Compliance Status:	<b>Compliant</b>
Site total MPE% of FCC general population allowable limit:	<b>21.45%</b>



February 5, 2020

AT&T Mobility – New England  
Attn: John Benedetto, RF Manager  
550 Cochituate Road  
Suite 550 – 13&14  
Framingham, MA 01701

### Emissions Analysis for Site: **CT1061**

Centerline Communications, LLC (“Centerline”) was directed to analyze the proposed AT&T facility to be located on a **monopole** at **82 Lovely Street, Unionville Connecticut 06085** for the purpose of determining whether the emissions from the proposed facility are within specified federal limits.

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

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

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

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limits for the 1900 MHz (PCS) and 5 GHz (B46) bands is  $1000 \mu\text{W}/\text{cm}^2$ .



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, as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.





## CALCULATIONS

Calculations were performed for the proposed facility using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing focused omnidirectional antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. This is a very conservative estimate since the gain reduction in actual applications is typically greater than 10 dB in the direction of ground immediately surrounding the facility. Real world emissions values from this facility are expected to be lower than values listed in this report at ground level. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Antenna	Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
ATT A1	LTE	850	1	40
ATT A2	LTE	2100	4	40
ATT A3	LTE	700	2	40
ATT A3	LTE	850	1	40
ATT A3	LTE	1900	2	40
ATT A3	LTE	1900	2	40
ATT A3	LTE	850	1	40
ATT B1	LTE	850	1	40
ATT B2	LTE	2100	4	40
ATT B3	LTE	700	2	40
ATT B3	LTE	850	1	40
ATT B3	LTE	1900	2	40
ATT B3	LTE	1900	2	40
ATT B3	LTE	850	1	40
ATT C1	LTE	850	1	40
ATT C2	LTE	2100	4	40
ATT C3	LTE	700	2	40
ATT C3	LTE	850	1	40
ATT C3	LTE	1900	2	40
ATT C3	LTE	1900	2	40

ATT C3	LTE	850	1	40
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*Table 1: Channel Data Table*



The following antennas listed in *Table 2* were used in the modeling for transmission in the 1900 MHz (PCS), 2100 MHz (AWS) and 5 GHz (Band 46) frequency bands. This is based on information from the carrier with regard to anticipated antenna selection. Maximum gain values for all antennas are listed in the AT&T Antenna Inventory & Power Levels table (Table 3) below in the Results section. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Powerwave P65-15-XLH-RR	98
A	2	CCI HPA-65R-BUU-H8	98
A	3	CCI DMP65R-BU8DA	98
B	4	Powerwave P65-15-XLH-RR	98
B	5	CCI HPA-65R-BUU-H8	98
B	6	CCI DMP65R-BU8DA	98
C	7	Powerwave P65-15-XLH-RR	98
C	8	CCI HPA-65R-BUU-H6	98
C	9	CCI DMP65R-BU6DA	98

*Table 2: Antenna Data*

All calculations were done with respect to uncontrolled / general population threshold limits.



## RESULTS

Per the calculations completed for the proposed AT&T configurations *Table 3* shows resulting emissions power levels and percentages of the FCC’s allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Antenna Height (ft)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
ATT A1	Powerwave P65-15-XLH-RR	850	12.9	98	1	40	779.94	0.5149%
ATT A2	CCI HPA-65R-BUU-H8	850	12.9	98	4	40	5359.45	2.0062%
ATT A3	CCI DMP65R-BU8DA	2100	15.25	98	2	40	1577.94	1.2648%
ATT A3	CCI DMP65R-BU8DA	700	12.95	98	1	40	970.64	0.6408%
ATT A3	CCI DMP65R-BU8DA	850	13.85	98	2	40	3221.74	1.2060%
ATT A3	CCI DMP65R-BU8DA	1900	16.05	98	2	40	3221.74	1.2060%
ATT A3	CCI DMP65R-BU8DA	1900	16.05	98	1	40	970.64	0.6408%
ATT B1	Powerwave P65-15-XLH-RR	850	13.85	98	1	40	779.94	0.5149%
ATT B2	CCI HPA-65R-BUU-H8	850	12.9	98	4	40	5359.45	2.0062%
ATT B3	CCI DMP65R-BU8DA	2100	15.25	98	2	40	1577.94	1.2648%
ATT B3	CCI DMP65R-BU8DA	700	12.95	98	1	40	970.64	0.6408%
ATT B3	CCI DMP65R-BU8DA	850	13.85	98	2	40	3221.74	1.2060%
ATT B3	CCI DMP65R-BU8DA	1900	16.05	98	2	40	3221.74	1.2060%
ATT B3	CCI DMP65R-BU8DA	1900	16.05	98	1	40	970.64	0.6408%
ATT C1	Powerwave P65-15-XLH-RR	850	13.85	98	1	40	779.94	0.5149%
ATT C2	CCI HPA-65R-BUU-H8	850	12.9	98	4	40	5118.23	1.9160%
ATT C3	CCI DMP65R-BU8DA	2100	15.05	98	2	40	1224.87	0.9818%
ATT C3	CCI DMP65R-BU8DA	700	11.85	98	1	40	703.17	0.4642%
ATT C3	CCI DMP65R-BU8DA	850	12.45	98	2	40	2871.38	1.0749%
ATT C3	CCI DMP65R-BU8DA	1900	15.55	98	2	40	2871.38	1.0749%
ATT C3	CCI DMP65R-BU8DA	1900	15.55	98	1	40	703.17	0.4642%
All Sectors Composite MPE%								<b>21.45 %</b>



FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated AT&T sector(s). Since this proposed facility is utilizing an omnidirectional antenna there is only one sector for this site (Sector A).

AT&T Frequency Band / Technology	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (PW/cm <sup>2</sup> )	Frequency (MHz)	Allowable MPE (PW/cm <sup>2</sup> )	Calculated % MPE
AT&T 850 MHz	1	779.94	98	2.9196	850 MHz	1000	0.5149%
AT&T 2100 MHz	4	5359.45	98	20.0625	2100 MHz	1000	2.0062%
AT&T 700 MHz	2	1577.94	98	5.9068	700 MHz	1000	1.2648%
AT&T 850 MHz	1	970.64	98	3.6335	850 MHz	1000	0.6408%
AT&T 1900 MHz	2	3221.74	98	12.0602	1900 MHz	1000	1.2060%
AT&T 1900 MHz	2	3221.74	98	12.0602	1900 MHz	1000	1.2060%
AT&T 850 MHz	1	970.64	98	3.6335	850 MHz	1000	0.6408%
AT&T 850 MHz	1	779.94	98	2.9196	850 MHz	1000	0.5149%
AT&T 2100 MHz	4	5359.45	98	20.0625	2100 MHz	1000	2.0062%
AT&T 700 MHz	2	1577.94	98	5.9068	700 MHz	1000	1.2648%
AT&T 850 MHz	1	970.64	98	3.6335	850 MHz	1000	0.6408%
AT&T 1900 MHz	2	3221.74	98	12.0602	1900 MHz	1000	1.2060%
AT&T 1900 MHz	2	3221.74	98	12.0602	1900 MHz	1000	1.2060%
AT&T 850 MHz	1	970.64	98	3.6335	850 MHz	1000	0.6408%
AT&T 850 MHz	1	779.94	98	2.9196	850 MHz	1000	0.5149%
AT&T 2100 MHz	4	5118.23	98	19.1595	2100 MHz	1000	1.9160%
AT&T 700 MHz	2	1224.87	98	4.5852	700 MHz	1000	0.9818%
AT&T 850 MHz	1	703.17	98	2.6322	850 MHz	1000	0.4642%
AT&T 1900 MHz	2	2871.38	98	10.7487	1900 MHz	1000	1.0749%
AT&T 1900 MHz	2	2871.38	98	10.7487	1900 MHz	1000	1.0749%
AT&T 850 MHz	1	703.17	98	2.6322	850 MHz	1000	0.4642%
All Sectors						<b>Total:</b>	<b>21.45%</b>

Table 6: AT&T Maximum Sector MPE Power Values



## Summary

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

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

AT&T Sector	Power Density Value (%)
All Sectors:	21.45%
AT&T Maximum Site Total:	21.45%
Site Total:	<b>21.45%</b>
Site Compliance Status:	<b>Compliant</b>

The anticipated composite MPE value for this site assuming all carriers present is **21.45%** of the allowable FCC established general population limit sampled at the ground level.

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

A handwritten signature in cursive script that reads 'Michelle L. Stone'.

Michelle L. Stone  
RF Compliance Consultant  
**Centerline Communications, LLC**

750 West Center St. Suite 301  
West Bridgewater, MA 02379

## EXHIBIT 5

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# Rigorous Structural Analysis Report

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**AT&T | Unionville SBC CO Site | CT1061 / FA 10035037**  
**Owner: Everest Infrastructure Partners - Unionville CO Site 701773**  
**Unionville, Connecticut**



**March 10, 2020**

**MEI PROJECT ID: CT05229M-20V0**

**MALOUF ENGINEERING INTL., INC.**



**STRUCTURAL CONSULTANTS**

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17950 PRESTON ROAD, SUITE 720 ■ DALLAS, TEXAS 75252 ■ TEL. 972-783-2578 FAX 972-783-2583  
[www.maloufengineering.com](http://www.maloufengineering.com)

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March 10, 2020

Mr. Tom Rigg  
**Everest Infrastructure Partners**  
 Email: [tom.rigg@everestinfrastructure.com](mailto:tom.rigg@everestinfrastructure.com)

**RIGOROUS STRUCTURAL ANALYSIS**

Structure/Make/Model:	100 ft <b>Monopole</b>	Engineered Endeavors Inc. / 18-Sided
Client/Site Name/#:	<b>Everest Infrastructure Partners   AT&amp;T</b>	<b>Unionville SBC CO CT1061 / FA 10035037</b>
Owner/Site Name/#:	Everest Infrastructure Partners	Unionville CO - #701773
MEI Project ID:	<b>CT05229M-20V0</b>	
Location:	82 Lovely St Unionville, Connecticut 06085	Hartford County FCC #N/A
	LAT 41-45-40.97 N	LON 72-53-15.1 W

**EXECUTIVE SUMMARY:**

Malouf Engineering Int'l (MEI), as requested, has performed a rigorous structural analysis of the above-mentioned structure to assess the impact of the changed condition as noted in Table 1.

Based on the stress analysis performed, the existing structure **is in conformance** with the Int'l Building Code (IBC) / ANSI/TIA-222-G Standard for the loading considered under the criteria listed and referenced in the report sections – tower rated at 93.2% - Base Plate.

**The installation of the proposed changed condition as noted in Table 1 is structurally acceptable.** Please refer to Appendix 1 for Schematic Lines Layout.

MEI appreciates the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or other projects, please contact us.

Respectfully submitted,

**MALOUF ENGINEERING INT'L, INC.**

Analysis performed by:

Luan Nguyen, OE  
 Sr. Project Engineer

Reviewed & Approved by:

E. Mark Malouf, PE  
 Connecticut #17715  
 972-783-2578 ext. 106  
 mmalouf@maloufengineering.com



3/10/2020

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**1. INTRODUCTION & SCOPE**

A rigorous structural analysis was performed by Malouf Engineering Int'l (MEI), as requested and authorized by Mr. Tom Rigg, Everest Infrastructure Partners, on behalf of AT&T, to determine the acceptance of the proposed changed conditions in conformance with the IBC / ANSI/TIA-222-G Standard, "Structural Standard for Antenna Supporting Structures and Antennas".

The scope of this independent analysis is to determine the overall stability and the adequacy of structural members, foundations, and member connections, as available and stated. This analysis considers the structure to have been properly installed and maintained with no structural defects. Installation procedures and related loading are not within the scope of this analysis and should be performed and evaluated by a competent person of the erection contractor.

The different report sections detail the applicable information used in this evaluation, relating to the tower data, the appurtenances configuration and the wind and ice loading considered.

**2. SOURCE OF DATA**

The following information has been used in this evaluation as source data that accurately represent the existing structure and the related appurtenances:

	Source	Information	Reference
<b>STRUCTURE</b>			
Tower	MEI Records	Previous SA MEI ID# CT05229M-17V0	Dated 08/02/2017
Foundation			
Geotech			
Material Grade	Available from supplied documents noted above-refer to Appendix		
<b>CURRENT APPURTENANCES</b>			
	MEI Records	Previous SA MEI ID# CT05229M-17V0	Dated 08/02/2017
<b>CHANGED CONDITION</b>			
	Everest Infrastructures Mr. Tom Rigg	AT&T Collocation Application	Dated 02/20/2020

**Background Information:**

Based on available information, the following is known regarding this structure:

<b>DESIGNER / FABRICATOR</b>	Engineered Endeavors Inc. / 18-Sided
<b>ORIGINAL DESIGN CRITERIA</b>	TIA 222-F- 85 Mph + 0.50" Ice
<b>PRIOR STRUCTURAL MODIFICATIONS</b>	Not Known



### 3. ANALYSIS CRITERIA

The structural analysis performed used the following criteria:

<b>CODE / STANDARD</b>	2018 CT Building Code / 2015 Int'l Building Code / ANSI/TIA-222-G-4 Standard	
<b>LOADING CASES</b>	Full Wind:	125 Mph ultimate gust (equiv. 97 Mph (3-sec gust)) w/No Radial Ice**
	Iced Case:	50 Mph + 1" Radial Ice
	Service:	60 Mph
	Seismic:	S <sub>s</sub> = 0.182 / S <sub>1</sub> = 0.064 / Site Class: Default Soil
<b>STRUCTURE CRITERIA</b>	Risk Category (Structural Class): Class II	
	Exposure Category: 'B' - Topographic Category: 1	

#### Appurtenances Configuration

The following appurtenances configuration is denoted by the summation of Tables 1 & 2:

**Table 1: Tenant with Changed Condition Appurtenances Configuration**

Elev (ft)	Tenant	Ants Qty	Appurtenance Model / Description	Mount Description	Lines Qty	Line size & Location
98	AT&T	2	DMP65R-BU8DA Panel Antennas	[Existing/New Platform Mount]	1	5/8" Fiber Cable - (I)
		1	DMP65R-BU6DA Panel Antennas		2	3/4" DC Power Cables - (I)
		3	RRUS-8843 B2/B66A RRH Boxes			
		3	RRUS-4449 B5/B12 RRH Boxes			
		1	DC6-48-60-18-8C-EV Suppressor Box			1
<b>Appurtenances To Remain</b>						
98	AT&T	3	P65-15-XLH-RR Panel Antennas	<b>New 12' Platform Mount w/ Rails (Sabre #C10855721C)</b>	12	1-1/4" - (I)
		2	HPA-65R-BUU-H8 Panel Antennas		1	5/8" Fiber Cable - (I)
		1	HPA-65R-BUU-H6 Panel Antenna		2	3/4" DC Power Cables - (I)
		3	TT19-08BP111-001 TMA's			
		1	DC6-48-60-18-8F Suppressor Box		1	2.32" FLEX Conduit - (I)
<b>Appurtenances To Be Removed</b>						
98	AT&T	3	P65-15-XLH-RR Panel Antenna			
		3	TT19-08BP111-001 TMA's			
		3	RRUS-12 w/ A2 Backpack Boxes			
		3	RRUS11 boxes			

**Notes:**

- \*\*As per 2015 IBC for ultimate 3-sec gust wind speed converted to nominal 3-sec gust wind speed as per Sect. 1609.3.1 as required to be used in ANSI/TIA-222-G Standard per exception 5 of Sect. 1609.1.1.
- All elevations are measured from tower base.
- Please note appurtenances not listed above are to be removed/not present as per data supplied.
- (I) = Internal; (E) = External; (FZ) = Within Face Zone; (OFZ) = Outside Face Zone - as per TIA-222-G.
- The above appurtenances represent MEI's understanding of the appurtenances configuration. If different than above, the analysis is invalid. Please contact MEI if any discrepancies are found.



## 4. ANALYSIS PROCEDURE

The subject structure is analyzed for feasibility of the installation of the proposed changed condition previously noted. The data records furnished were reviewed and a computer stress analysis was performed in accordance with the TIA-222 Standard provisions and with the agreed scope of work terms and the results of this analysis are reported.

### Analysis Program

The computer program used to model the structure is a rigorous Finite Element Analysis program, tnxTower (ver. 8.05), a commercially available program by Tower Numerics Inc. The latticed structures members are modeled using beam/truss and cable members and the pole members using tubular beam elements. The structural parameters and geometry of the members are included in the model. The dead loads, temperature loads and the wind loads are internally calculated by the program for the different wind directions and then applied as external loads on the structure. Any applicable exemptions, as per Section 15.6 of the TIA-222-G Standard for existing structures originally designed in accordance with a previous revision of the TIA-222 Standard, have been taken.

### Assumptions

This engineering study is based on the theoretical capacity of the members and is not a condition assessment of the structure. This analysis is based on information supplied, and therefore, its results are based on and as accurate as that supplied data. MEI has made no independent determination, nor is it required to, of its accuracy. The following assumptions were made for this structural stress analysis:

- This existing tower is assumed, for the purpose of this analysis, to have been properly maintained and to be in good condition with no structural defects and with no deterioration to its member capacities ('as-new' condition).
- The member sizes and configuration are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated.
- The appurtenances configuration is as supplied and/or as stated in the report. It is assumed to be complete and accurate. All antennas, mounts, feed lines are assumed to be properly installed and supported as per manufacturer requirements.
- Some assumptions are made regarding antennas and mounts sizes and their projected areas based on best interpretation of data supplied and of best knowledge of antenna type & industry practice.
- Mounts/Platforms are considered adequate to support the loading. No actual analysis of the platform/mount itself is performed, with the analysis being limited to analyzing the structure.
- The soil parameters are as per data supplied or as assumed and as stated. If no data is available, the foundation system is assumed to support the structure with its new reactions.
- All welds and connections are assumed to develop at least the member capacity, unless determined otherwise and explicitly stated in this report.
- All prior structural modifications, if any, are assumed to be as per data supplied/available, and to have been properly installed and to be fully effective.

If any of the above assumptions are not valid or have been made in error, this analysis results may be invalidated, MEI should be contacted to review any contradictory information to determine its effect.



## 5. ANALYSIS RESULTS

The results of the structural stress analysis based on data available and with the previous listed criteria, indicated the following:

Note: The Wind loading controls over the Seismic loading as per TIA Section 2.7.

**Table 3: Stress Analysis Results**

Component Type	Maximum Stress Ratio	Controlling Elev. (ft) / Component	Pass/Fail	Comment
POLE	64.3%	45.52 - 0	Pass	
BASE PLATE	93.2%	Bending	Pass	
ANCHOR RODS	25.2%	Tension	Pass	
FOUNDATION	20.0%	OTM	Pass	

**Table 4: Serviceability Requirements**

	Maximum Value	TIA Requirement (10dB)	Pass/Fail	Comment
TWIST/SWAY	1.6194 Deg.	4 Deg. from Vert. or Horiz. Axis	Pass	
HORIZONTAL DISPLACEMENT	18.474 In./ 1.53% of Ht.	3.0% of Height	Pass	

**Notes:**

1. The Maximum Stress Ratio is the percentage that the maximum load in the member is relative to the allowable load as determined by Code requirements.
2. Refer to the Appendix 1 for more details on the member loads.
3. A maximum stress ratio between 100% and 105% may be considered as *Acceptable* according to industry standard practice.



## 6. FINDINGS & RECOMMENDATIONS

- Based on the rigorous stress analysis results, the subject structure is **rated at 93.2%** of its support capacity (controlling component: Base Plate) with the proposed changed condition considered. Please refer to Table 3 and to Appendix 1 for more details of the analysis results.
- Based on the stress analysis performed, the existing structure **is in conformance** with the IBC / ANSI/TIA **222-G** Standard for the loading considered under the criteria listed and referenced in the report sections.
- **The installation of the proposed changed condition as noted in Table 1 is structurally acceptable.** Please refer to Appendix 1 for Schematic Lines Layout.
- This structure is near its support capacity for the appurtenances and loading criteria considered. Therefore, no changes to the configuration considered should be made without performing a new proper evaluation.

*Rigging and temporary supports required for the erection/modification shall be determined, documented, furnished and installed by the erector/contractor accounting for the loads imposed on the structure due to the proposed construction method.*

## 7. REPORT DISCLAIMER

*The engineering services rendered by Malouf Engineering International, Inc. ('MEI') in connection with this Structural Analysis are limited to a computer analysis of the tower structure, size and capacity of its members. MEI does not analyze the fabrication, including welding and connection capacities, except as included in this Report.*

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

1. Proper alignment and plumbness.
2. Correct guy tensions, as applicable.
3. Correct bolt tightness or slip jacking of sleeved connections.
4. No significant deterioration or damage to any structural component.

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

Customer has requested MALOUF ENGINEERING INTERNATIONAL, INC. to prepare and submit to Customer an engineering analysis with respect to the Subject Tower and has further requested MALOUF ENGINEERING INTERNATIONAL, INC. to make appropriate recommendations regarding suggested structural modifications and changes to the Subject Tower. In making such request of MALOUF ENGINEERING INTERNATIONAL, INC., Customer has informed MALOUF ENGINEERING INTERNATIONAL, INC. that Customer will make a determination as to whether or not to implement any of the changes or modifications which may be suggested by MALOUF ENGINEERING INTERNATIONAL, INC. and that Customer will have any such changes or modifications made by riggers, erectors and other subcontractors of Customer's choice. MALOUF ENGINEERING INTERNATIONAL, INC. shall have the right to rely upon the accuracy of the information supplied by the customer and shall not be held responsible for the Customer's misrepresentation or omission of relevant fact whether intentional or otherwise.

Customer hereby agrees and acknowledges that MALOUF ENGINEERING INTERNATIONAL, INC. shall have no liability whatsoever to Customer or to others for any work or services performed by any persons other than MALOUF ENGINEERING INTERNATIONAL, INC. in connection with the implementation of services including but not limited to any services rendered for Customer or for others by riggers, erectors or other subcontractors. Customer acknowledges and agrees that any riggers, erectors or subcontractors retained or employed by Customer shall be solely responsible to Customer and to others for the quality of work performed by them and that MALOUF ENGINEERING INTERNATIONAL, INC. shall have no liability or responsibility whatsoever as a result of any negligence or breach of contract by any such rigger, erector or subcontractor and that Customer and rigger, erector, or subcontractor will provide MALOUF ENGINEERING INTERNATIONAL, INC. with a Certificate of Insurance naming MALOUF ENGINEERING INTERNATIONAL, INC. as additional insured.





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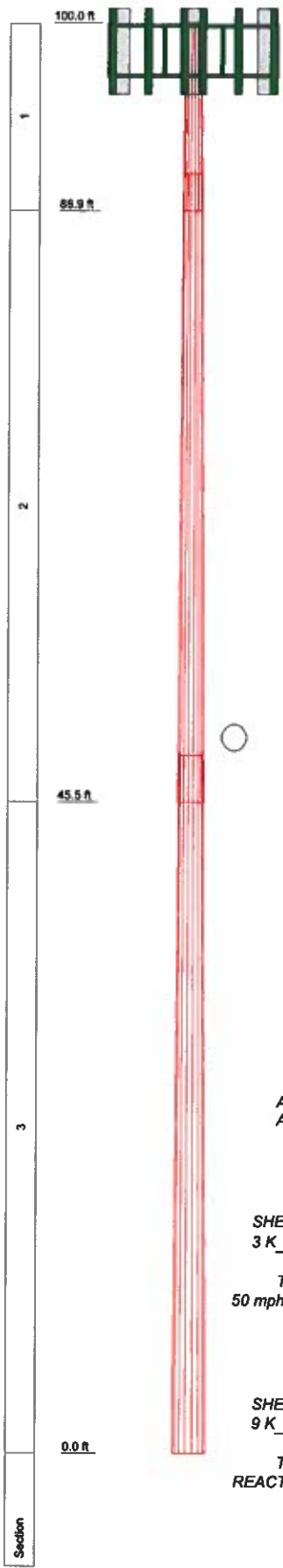
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**APPENDIX 1 - ANALYSIS PRINTOUT & GRAPHICS**

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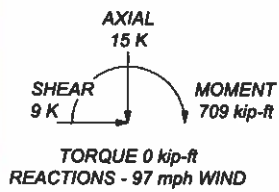
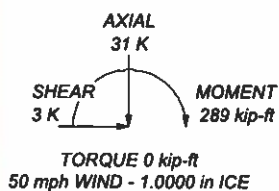
**DESIGNED APPURTENANCE LOADING**


TYPE	ELEVATION	TYPE	ELEVATION
P65-15-XLH-RR w/ Pipe Mount (ATI / E)	98	TT19-08BP111-001 (ATI / E)	98
P65-15-XLH-RR w/ Pipe Mount (ATI / E)	96	TT19-08BP111-001 (ATI / E)	98
P65-15-XLH-RR w/ Pipe Mount (ATI / E)	98	RRUS-8843 B2/B66A RRH's (ATI / P)	98
HPA-65R-BUU-H8 w/ Pipe Mounts (ATI / E)	98	RRUS-8843 B2/B66A RRH's (ATI / P)	98
HPA-65R-BUU-H8 w/ Pipe Mounts (ATI / E)	98	RRUS-4449 B5/B12 RRH's (ATI / P)	98
HPA-65R-BUU-H8 w/ Pipe Mounts (ATI / E)	98	RRUS-4449 B5/B12 RRH's (ATI / P)	98
DMP65R-BU8DA Panel Antenna w/ Pipe Mount (ATI / P)	98	Raycap DC6-48-80-18-8F Suppressor (ATI / E)	98
DMP65R-BU8DA Panel Antenna w/ Pipe Mount (ATI / P)	98	Raycap DC6-48-80-18-8C-EV Suppressor (ATI / P)	98
DMP65R-BU8DA Panel Antenna w/ Pipe Mount (ATI / P)	98	12' Platform Mount w/ Rails (Sabre #C10855721C) (ATI / New)	98
DMP65R-BU8DA Panel Antenna w/ Pipe Mount (ATI / P)	98		

**TOWER DESIGN NOTES**

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 93.2%

ALL REACTIONS ARE FACTORED



 <p><b>Malouf Engineering Intl., Inc.</b> 17950 Preston Road, Suite #720 Dallas, TX 75252 Phone: (972) 783-2578 FAX: (972) 783-2583</p>	<p>Job: <b>100 FT MNP, UNIONVILLE SBC CO SITE #CT1061</b></p>
	<p>Project: <b>CT05229M-20V0</b></p>
	<p>Client: <b>EVEREST INFRASTRUCTURE / AT&amp;T</b></p>
	<p>Code: <b>TIA-222-G</b></p>
	<p>Path: <b>E:\MEI\Projects\120 DATA\MNP\CT05229M-20V0\CT05229M-20V0.dwg</b></p>
<p>Drawn by: <b>Luan Nguyen</b></p>	<p>App'd:</p>
<p>Date: <b>03/10/20</b></p>	<p>Scale: <b>NTS</b></p>
<p>Dwg No. <b>E-1</b></p>	

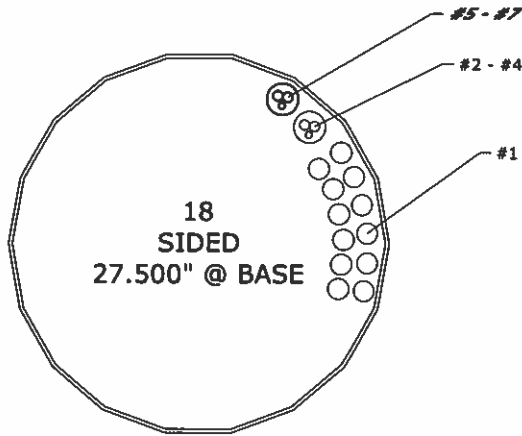
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No.	QTY.	DESCRIPTION	ELEV.	TENANT
1	12	1 1/4"	98'	AT&T / E
2	1	2.32" Flex Conduit	98'	AT&T / E
3	2	3/4" DC Power Cable (Inside Flex)	98'	AT&T / E
4	1	5/8" Fiber Cable (Inside Flex)	98'	AT&T / E
5	1	2.32" Flex Conduit	98'	AT&T / P
6	2	3/4" DC Power Cable (Inside Flex)	98'	AT&T / P
7	1	5/8" Fiber Cable (Inside Flex)	98'	AT&T / P

CONTACT MEI IF LINE LAYOUT IS DIFFERENT FROM WHAT IS SHOWN BELOW.

**LEGEND:**

- E = EXISTING #X
- P = PROPOSED #X
- F = FUTURE #X
- R = REMOVE #X
- TO RELOCATE #X



101

**PLAN: SCHEMATIC Tx-LINE LAYOUT**  
SCALE: NOT TO SCALE

**NOTES:**

1. Tx LINE LAYOUT IS SCHEMATIC ONLY, BASED UPON MEI RECORDS. NO NEW SITE PHOTOS PROVIDED.
2. NEW BRACKET SUPPORT SPECIFICATION BY OTHERS..

MAR 10, 2020

MALOUF ENGINEERING INTERNATIONAL, INC.

STRUCTURAL CONSULTANTS

17950 PRESTON ROAD SUITE 720  
DALLAS, TEXAS 75252-5635  
972-783-2578 (fax: 2583)  
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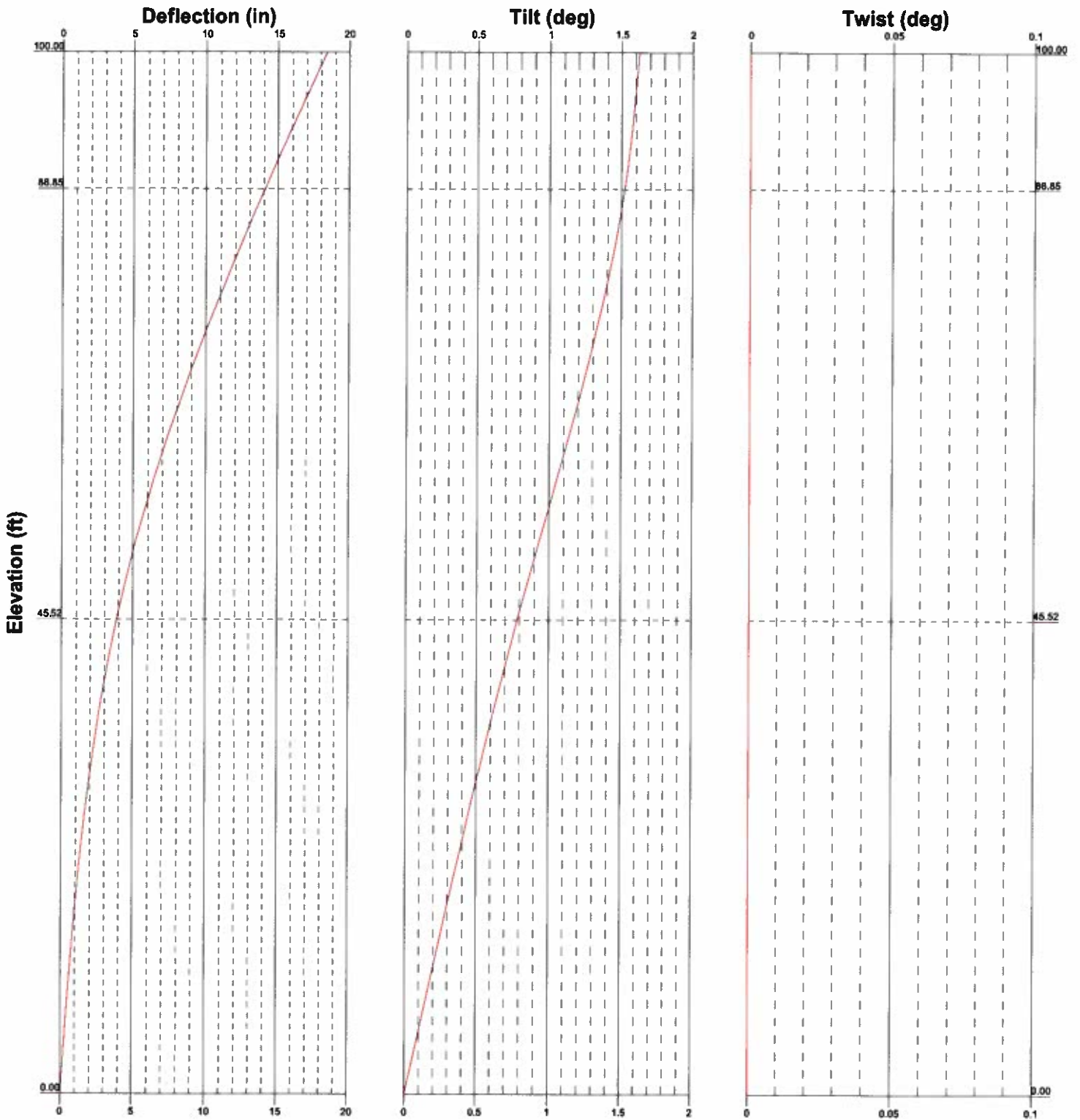
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**100 FT MNP, UNIONVILLE SBC CO SITE #CT1061**

**MONOPOLE TxLINE LAYOUT**

MEI PROJECT ID	SHEET NUMBER	REV.
CT05229M-20V0	<b>L01</b>	<b>0</b>



 Malouf Engineering Intl., Inc. 17950 Preston Road, Suite #720 Dallas, TX 75252 Phone: (972) 783-2578 FAX: (972) 783-2583 maloufengineering.com	<b>Job: 100 FT MNP, UNIONVILLE SBC CO SITE #CT1061</b>		
	Project: CT05229M-20V0		
	Client: EVEREST INFRASTRUCTURE / AT&T	Drawn by: Luan Nguyen	App'd:
	Code: TIA-222-G	Date: 03/10/20	Scale: NTS
	Path: E:\MEI\Projects\100 DATA\MNP\CT05229M-20V0\CT05229M-20V0.dwg		Dwg No: E-5

<b>tnxTower</b>  <b>Malouf Engineering Intl., Inc.</b> 17950 Preston Road, Suite #720 Dallas, TX 75252 Phone: (972) 783-2578 FAX: (972) 783-2583	<b>Job</b> 100 FT MNP, UNIONVILLE SBC CO SITE #CT1061	<b>Page</b> 1 of 4
	<b>Project</b> CT05229M-20V0	<b>Date</b> 12:17:22 03/10/20
	<b>Client</b> EVEREST INFRASTRUCTURE / AT&T	<b>Designed by</b> Luan Nguyen

## Tower Input Data

The tower is a monopole.

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in Hartford County, Connecticut.

ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).

Basic wind speed of 97 mph.

Structure Class II.

Exposure Category B.

Topographic Category 1.

Crest Height 0.00 ft.

Nominal ice thickness of 1.0000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

## Feed Line/Linear Appurtenances - Entered As Area

Description	Placement <i>ft</i>	Total Number	Description	Placement <i>ft</i>	Total Number
Step Bolts (E)	100.00 - 0.00	1	Conduit (AT&T / E)		
Safety Line 3/8 (E)	100.00 - 0.00	1	2.32" FLEX Conduit (AT&T / P)	98.00 - 0.00	1
1 1/4" (AT&T / E)	98.00 - 0.00	12	3/4" DC Power Cable (Inside Flex Conduit) (AT&T / P)	98.00 - 0.00	2
2.32" FLEX Conduit (AT&T / E)	98.00 - 0.00	1	5/8" Fiber Cable (Inside Flex Conduit) (AT&T / P)	98.00 - 0.00	1
3/4" DC Power Cable (Inside Flex Conduit) (AT&T / E)	98.00 - 0.00	2			
5/8" Fiber Cable (Inside Flex Conduit) (AT&T / E)	98.00 - 0.00	1			

## Discrete Tower Loads

Description	Placement <i>ft</i>	Weight <i>K</i>	Description	Placement <i>ft</i>	Weight <i>K</i>
P65-15-XLH-RR w/ Pipe Mount (AT&T / E)	98.00	0.07	(AT&T / E)		0.18
		0.12	P65-15-XLH-RR w/ Pipe Mount (AT&T / E)	98.00	0.07
P65-15-XLH-RR w/ Pipe Mount	98.00	0.07			0.12
		0.12	HPA-65R-BUU-H8 w/ Pipe	98.00	0.09

<b>tnxTower</b>  <b>Malouf Engineering Intl., Inc.</b> 17950 Preston Road, Suite #720 Dallas, TX 75252 Phone: (972) 783-2578 FAX: (972) 783-2583	<b>Job</b> 100 FT MNP, UNIONVILLE SBC CO SITE #CT1061	<b>Page</b> 2 of 4
	<b>Project</b> CT05229M-20V0	<b>Date</b> 12:17:22 03/10/20
	<b>Client</b> EVEREST INFRASTRUCTURE / AT&T	<b>Designed by</b> Luan Nguyen

Description	Placement	Weight	Description	Placement	Weight
	ft	K		ft	K
Mounts (AT&T / E)		0.18			0.11
HPA-65R-BUU-H8 w/ Pipe Mounts (AT&T / E)	98.00	0.28	RRUS-8843 B2/B66A RRH's (AT&T / P)	98.00	0.07
HPA-65R-BUU-H6 w/ Pipe Mounts (AT&T / E)	98.00	0.09	RRUS-8843 B2/B66A RRH's (AT&T / P)	98.00	0.09
DMP65R-BU8DA Panel Antenna w/ Pipe Mount (AT&T / P)	98.00	0.18	RRUS-4449 B5/B12 RRH's (AT&T / P)	98.00	0.11
DMP65R-BU8DA Panel Antenna w/ Pipe Mount (AT&T / P)	98.00	0.28	RRUS-4449 B5/B12 RRH's (AT&T / P)	98.00	0.07
DMP65R-BU6DA Panel Antenna w/ Pipe Mount (AT&T / P)	98.00	0.09	RRUS-4449 B5/B12 RRH's (AT&T / P)	98.00	0.09
TT19-08BP111-001 (AT&T / E)	98.00	0.17	RRUS-4449 B5/B12 RRH's (AT&T / P)	98.00	0.11
TT19-08BP111-001 (AT&T / E)	98.00	0.26	RRUS-4449 B5/B12 RRH's (AT&T / P)	98.00	0.07
TT19-08BP111-001 (AT&T / E)	98.00	0.13	RRUS-4449 B5/B12 RRH's (AT&T / P)	98.00	0.09
TT19-08BP111-001 (AT&T / E)	98.00	0.25	RRUS-4449 B5/B12 RRH's (AT&T / P)	98.00	0.11
TT19-08BP111-001 (AT&T / E)	98.00	0.38	RRUS-4449 B5/B12 RRH's (AT&T / P)	98.00	0.07
TT19-08BP111-001 (AT&T / E)	98.00	0.13	RRUS-4449 B5/B12 RRH's (AT&T / P)	98.00	0.09
TT19-08BP111-001 (AT&T / E)	98.00	0.25	RRUS-4449 B5/B12 RRH's (AT&T / P)	98.00	0.11
TT19-08BP111-001 (AT&T / E)	98.00	0.38	RRUS-4449 B5/B12 RRH's (AT&T / P)	98.00	0.07
TT19-08BP111-001 (AT&T / E)	98.00	0.93	RRUS-4449 B5/B12 RRH's (AT&T / P)	98.00	0.09
TT19-08BP111-001 (AT&T / E)	98.00	1.02	Raycap DC6-48-60-18-8F Suppressor (AT&T / E)	98.00	0.02
TT19-08BP111-001 (AT&T / E)	98.00	1.13	Raycap DC6-48-60-18-8C-EV Suppressor (AT&T / P)	98.00	0.04
TT19-08BP111-001 (AT&T / E)	98.00	0.02	12' Platform Mount w/ Rails (Sabre #C10855721C) (AT&T / New)	98.00	0.05
TT19-08BP111-001 (AT&T / E)	98.00	0.03			0.03
TT19-08BP111-001 (AT&T / E)	98.00	0.03			0.05
TT19-08BP111-001 (AT&T / E)	98.00	0.03			0.07
TT19-08BP111-001 (AT&T / E)	98.00	0.02			0.11
TT19-08BP111-001 (AT&T / E)	98.00	0.03			0.02
TT19-08BP111-001 (AT&T / E)	98.00	0.03			0.04
TT19-08BP111-001 (AT&T / E)	98.00	0.03			0.05
RRUS-8843 B2/B66A RRH's (AT&T / P)	98.00	0.07			0.03
RRUS-8843 B2/B66A RRH's (AT&T / P)	98.00	0.09			0.05
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<b>tnxTower</b>  <b>Malouf Engineering Intl., Inc.</b> 17950 Preston Road, Suite #720 Dallas, TX 75252 Phone: (972) 783-2578 FAX: (972) 783-2583	<b>Job</b> 100 FT MNP, UNIONVILLE SBC CO SITE #CT1061	<b>Page</b> 3 of 4
	<b>Project</b> CT05229M-20V0	<b>Date</b> 12:17:22 03/10/20
	<b>Client</b> EVEREST INFRASTRUCTURE / AT&T	<b>Designed by</b> Luan Nguyen

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L3	48.7344 - 0	4.404	48	0.8472	0.0001

### Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
98.00	P65-15-XLH-RR w/ Pipe Mount	47	17.798	1.6079	0.0018	10819

### Base Plate Design Data

Plate Thickness in	Number of Anchor Bolts	Anchor Bolt Size in	Actual Allowable Ratio Bolt Tension K	Actual Allowable Ratio Concrete Stress ksi	Actual Allowable Ratio Plate Stress ksi	Actual Allowable Ratio Stiffener Stress ksi	Controlling Condition	Critical Ratio
2.5000	8	2.2500	56.34 223.65 0.25	0.849 4.080 0.21	50.347 54.000 0.93		Plate	0.93 ✓

### Compression Checks

### Pole Design Data

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> K	φP <sub>n</sub> K	Ratio P <sub>u</sub> /φP <sub>n</sub>
L1	100 - 86.8542 (1)	TP16.3487x14.5x0.1875	13.15	0.00	0.0	9.4050	-5.53	698.74	0.008
L2	86.8542 - 45.5209 (2)	TP21.7155x15.6159x0.25	43.88	0.00	0.0	16.6784	-8.88	1239.12	0.007
L3	45.5209 - 0 (3)	TP27.5x20.7688x0.3125	48.73	0.00	0.0	26.9666	-15.12	2003.48	0.008

### Pole Bending Design Data

Section No.	Elevation ft	Size	M <sub>ux</sub> kip-ft	φM <sub>ux</sub> kip-ft	Ratio M <sub>ux</sub> /φM <sub>ux</sub>	M <sub>uy</sub> kip-ft	φM <sub>uy</sub> kip-ft	Ratio M <sub>uy</sub> /φM <sub>uy</sub>
L1	100 - 86.8542 (1)	TP16.3487x14.5x0.1875	50.85	226.17	0.225	0.00	226.17	0.000
L2	86.8542 - 45.5209 (2)	TP21.7155x15.6159x0.25	316.11	533.43	0.593	0.00	533.43	0.000
L3	45.5209 - 0 (3)	TP27.5x20.7688x0.3125	709.40	1116.05	0.636	0.00	1116.05	0.000

<b>inxTower</b>  <b>Malouf Engineering Intl., Inc.</b> 17950 Preston Road, Suite #720 Dallas, TX 75252 Phone: (972) 783-2578 FAX: (972) 783-2583	<b>Job</b> 100 FT MNP, UNIONVILLE SBC CO SITE #CT1061	<b>Page</b> 4 of 4
	<b>Project</b> CT05229M-20V0	<b>Date</b> 12:17:22 03/10/20
	<b>Client</b> EVEREST INFRASTRUCTURE / AT&T	<b>Designed by</b> Luan Nguyen

### Pole Shear Design Data

Section No.	Elevation ft	Size	Actual $V_u$ K	$\phi V_u$ K	Ratio $V_u$ $\phi V_u$	Actual $T_u$ kip-ft	$\phi T_u$ kip-ft	Ratio $T_u$ $\phi T_u$
L1	100 - 86.8542 (1)	TP16.3487x14.5x0.1875	5.66	349.37	0.016	0.00	453.71	0.000
L2	86.8542 - 45.5209 (2)	TP21.7155x15.6159x0.25	7.31	619.56	0.012	0.01	1070.08	0.000
L3	45.5209 - 0 (3)	TP27.5x20.7688x0.3125	8.77	1001.74	0.009	0.01	2238.70	0.000

### Pole Interaction Design Data

Section No.	Elevation ft	Ratio $P_u$ $\phi P_n$	Ratio $M_{ux}$ $\phi M_{nx}$	Ratio $M_{uy}$ $\phi M_{ny}$	Ratio $V_u$ $\phi V_u$	Ratio $T_u$ $\phi T_u$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	100 - 86.8542 (1)	0.008	0.225	0.000	0.016	0.000	0.233	1.000	4.8.2 ✓
L2	86.8542 - 45.5209 (2)	0.007	0.593	0.000	0.012	0.000	0.600	1.000	4.8.2 ✓
L3	45.5209 - 0 (3)	0.008	0.636	0.000	0.009	0.000	0.643	1.000	4.8.2 ✓

### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail	
L1	100 - 86.8542	Pole	TP16.3487x14.5x0.1875	1	-5.53	698.74	23.3	Pass	
L2	86.8542 - 45.5209	Pole	TP21.7155x15.6159x0.25	2	-8.88	1239.12	60.0	Pass	
L3	45.5209 - 0	Pole	TP27.5x20.7688x0.3125	3	-15.12	2003.48	64.3	Pass	
							Summary		
							Pole (L3)	64.3	Pass
							Base Plate	93.2	Pass
							<b>RATING =</b>	<b>93.2</b>	<b>Pass</b>



Version: FDN2-D72/AP

\*\*\*\*\*  
\* FOUNDATION ANALYSIS PROGRAM \*  
\* Spread Footing Analysis \*  
\* (c) 2006, Malouf Engineering Intl., Inc. \*  
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MEI PROJECT ID = CT05229M-20V0  
DESCRIPTION = 100 FT MONOPOLE FDN CHECK  
SITE NAME = UNIONVILLE SBC CO SITE  
CLIENT NAME = EVEREST INFRASTRUCTURE / AT&T  
CHECK CODE = TIA/EIA-222-REV. G  
TIME/DATE/FILE = 12:03:50 / 03-10-2020 / CT05229M.dat  
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INPUT DATA  
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\*LOADS\*

COMPRESSION FORCE (1 PEDESTAL) = 15.000 KIPS  
UPLIFT FORCE (1 PEDESTAL) = .000 KIPS  
SHEAR FORCE (1 PEDESTAL) = 9.000 KIPS  
MOMENT = 709.000 KIP-FT  
ECCENTRICITY OF AXIAL LOADS = .000 FT

\*FOOTING DIMENSIONS AND PROPERTIES\*

DEPTH OF FOOTING = 9.500 FT  
FOOTING DIMENSIONS (L X B) = 17.000 x 17.000 FT  
THICKNESS OF FOOTING = 4.500 FT (FOOTING HAS NO TOE)  
NUMBER OF PEDESTALS / TYPE = 1 / SQUARE  
PEDESTAL WIDTH = 6.500 FT  
EXTENSION ABOVE GRADE = .500 FT  
CONCRETE DENSITY = .150 KCF  
GROUNDWATER LEVEL BELOW BOTTOM OF FOUNDATION

\*RESISTANCE FACTORS\*

PHI BEARING GUYED = .750  
PHI BEARING SST = .750  
PHI BEARING MONOPOLE = .750  
PHI UPLIFT = .750  
PHI LATERAL/FRICTION = .750

\*SOIL PROPERTIES\*

ULTIMATE BEARING CAPACITY = 15.000 KSF  
SOIL DENSITY = .120 KCF  
INTERNAL ANGLE OF FRICTION = 34.000 DEG  
SOIL COHESION (FOR UPLIFT) = 1.000 KSF (PAD PERIMETER)  
ULTIMATE PASSIVE PRESSURE = .424 KCF (Kp= 3.54)  
DEPTH NEGLECTED FOR PASSIVE PR. = 3.000 FT  
BASE SOIL/CONCRETE FRICTION = .350

\*\*\* COMMENTS \*\*\*

FDN DATA AS PER FDN MAPPING BY WILKINSON ENGR. PROJECT NO. 2010-1010 DATED 02/  
SOIL PARAMETERS AS PER GEOTECH REPORT BY WILKINSON ENGR. PROJECT NO. 2010-1010  
DATED 02/16/10. NO REBAR INFORMATION GIVEN. STABILITY CHECK ONLY.

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RESULTS

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VOL./WT. OF SOIL ABOVE	=	1233.8 FT3 /	148.050 KIPS	
VOL./WT. OF SOIL WEDGE	=	172.0 FT3 /	20.640 KIPS	(FOR OVERTURNING)
	=	632.9 FT3 /	75.946 KIPS	(FOR UPLIFT)
VOL./WT. OF PEDESTAL(S)	=	232.4 FT3 /	34.856 KIPS	
VOL./WT. OF FOOTING	=	1300.5 FT3 /	195.075 KIPS	
TOTAL RESISTING MOMENT	=	4002.5 KIP-FT		
TOTAL OVERTURNING MOMENT	=	799.0 KIP-FT		
RATIO OF RESIST MON TO OTM	=	5.009 >	1.000	(OK)
SOIL PRESSURES (KSF)	=	1.651 GROSS /	1.211 IN-SITU /	1.651 PMIN
FRICTION DESIGN STRENGTH	=	226.120 KIPS (SKF=	.739KSF)	
DOWNLOAD DESIGN STRENGTH	=	11.250 KSF >	.440 KSF	(OK) R= .039
SOIL SHEAR DESIGN STRENGTH	=	103.50 (PASSIVE) +	85.73 (FRICTION)	
	=	167.8 KIPS >	9.0 KIPS	(OK) R= .054
UPLIFT DESIGN STRENGTH	=	544.5 KIPS >	.0 KIPS	(OK) R= .000
PUNCHING CHECK (WIDE BEAM)	=	93.1 PSI >	.8 PSI	(OK) R= .009
(2-WAY)	=	186.2 PSI >	4.0 PSI	(OK) R= .022

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**APPENDIX 2 – SOURCE / CHANGED CONDITION**

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**TOWER EQUIPMENT (LIST ALL TOWER EQUIPMENT FROM HIGHEST TO LOWEST)**

List ALL equipment components installed on the tower or ground space area, including mounting apparatus, ice bridges, etc.

Tower Equipment		Equipment Status (mark with "x")			Equipment Dimensions				Azimuths		Equip. Centerline (or ground)		Ct		
Component Type (Ant. type, RRU, mount, etc.)	Manufacturer	Model	# Units	Exist	New	To be Remo ved	Height (inches)	Width (inches)	Depth (inches)	Weight (lbs)	Degrees (a/b/c/d)	Antenna Centerline AGL (ft)	Leg or Face (e.g. NE)	Type	Size
Antenna	Powerwave	P65-15-XLH-RR	3	X		X	51.0	12.0	6.0	41.0	143/263/23	98.0		Coax	1 1/4"
Antenna	Powerwave	P65-15-XLH-RR	3	X			51.0	12.0	6.0	41.0	143/263/23	98.0		DC Power	3/4"
Antenna	CCI	HPA-65R-BUU-	2	X			92.4	14.8	7.4	68.0	50/160	98.0		Fiber	5/8"
Antenna	CCI	HPA-65R-BUU- H6	1	X			72.0	14.8	9.0	51.0	280	98.0		DC Power	3/4"
Antenna	CCI	DMP65R-BU8DA DUMP65R-	2		X		96.0	20.7	7.7	95.7	50/160	98.0		Fiber	5/8"
Antenna	CCI	BU6DA	1		X		71.2	20.7	7.7	79.4	280	98.0		Flex Conduit	2"
TMA	Powerwave	TT19-088P111-	3	X			9.9	6.7	5.4	16.0		98.0		Flex Conduit	2"
TMA	Powerwave	TT19-088P111-	3	X			9.9	6.7	5.4	16.0		98.0			
RRU	Ericsson	RRUS-11	3	X		X	17.0	17.0	6.0	50.0	50/160/280	98.0			
RRU	Ericsson	RRUS-12	3	X		X	20.4	18.5	7.5	50.0	50/160/280	98.0			
RRU	Ericsson	RRUS-A2	3	X		X	16.5	15.2	3.4	22.0	50/160/280	98.0			
RRU	Ericsson	RRUS-8843	3		X		14.9	13.2	10.9	72.0	50/16/280	98.0			
RRU	Ericsson	B2/B66 RRUS-4449	3		X		17.9	13.9	9.4	71.0	50/160/280	98.0			
RRU	Ericsson	B5/B12	3		X		24.0	9.7		20.0		98.0			
Squid	Raycap	DC6-48-60-18-8F DC6-48-60-18-	1	X			24.0	9.7		33.0		98.0			
Squid	Raycap	8C-EV	1		X		24.0	9.7				98.0			
Mount	Sabre Industries Towers and Poles	P/N C10855721C	3	X											