



**QC Development**

PO Box 916

Storrs, CT 06268

860-670-9068

Mark.Roberts@QCDevelopment.net

September 28, 2018

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

**Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) – CT1029**  
**335 South Washington Street, Plainville, CT 06062**  
**N 41.65311111**  
**W 72.87686111**

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 122-foot level of the existing 120-foot Monopole at 335 South Washington Street, Plainville, CT. The tower is owned by Crown Castle. The property is owned by the Display Properties LLC. AT&T now intends to add three new (3) Kathrein 800-10965 antennas. AT&T also intends to install (3) Ericsson 4426-B66 and (3) 4478-B5 Remote Radio Units (RRU), also at the 120-foot level.

This facility was approved by the Connecticut Siting Council in Docket # 281 on June 23, 2004. Since no further modification to the overall facility height is proposed, this modification therefore complies with the aforementioned approvals.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Katherine Pugliese, Chair of the Town Council for the Town of Plainville, and the Plainville Planning and Economic Development Department, as well as the property owner and the tower owner.

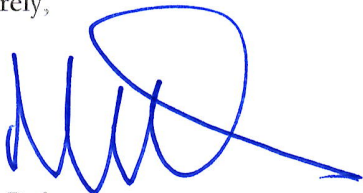
The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

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

For the foregoing reasons, 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).

Please feel free to call me at (860) 670-9068 with any questions regarding this matter. Thank you for your consideration.

Sincerely,



Mark Robertts  
QC Development  
Consultant for AT&T

#### Attachments

cc: Katherine Pugliese - as Elected Official  
Mark DeVoe – Director of Planning & Economic Development  
Display Properties LLC - as Property Owner  
Crown Castle - Tower Owner (via e-mail)

## Power Density

### Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm <sup>2</sup> )	Freq. Band (MHz <sup>**</sup> )	Limit S (mW/cm <sup>2</sup> )	%MPE
Other Carriers*							7.64%
AT&T UMTS	1	414	120	0.0109	850	0.5667	0.19%
AT&T UMTS	1	656	120	0.0172	1900	1.0000	0.17%
AT&T LTE	1	1476	120	0.0388	700	0.4893	0.79%
AT&T LTE	3	4842	120	0.3816	1900	1.0000	3.82%
AT&T LTE	1	1285	120	0.0388	2300	1.0000	0.34%
Site Total							12.95%

\*Per CSC Records (available upon request, includes calculation formulas)

\*\* If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

### Proposed Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm <sup>2</sup> )	Freq. Band (MHz <sup>**</sup> )	Limit S (mW/cm <sup>2</sup> )	%MPE
Other Carriers*							7.64%
AT&T UMTS	1	414	120	0.0115	850	0.5667	0.20%
AT&T LTE	1	656	120	0.0408	700	1.0000	0.41%
AT&T LTE	1	1476	120	0.0277	850	0.5667	0.49%
AT&T LTE	2	4842	120	0.2680	1900	1.0000	2.68%
AT&T LTE	1	4842	120	0.1403	2100	1.0000	1.40%
AT&T LTE	1	1285	120	0.0356	2300	1.0000	0.23%
Site Total							13.05%

\*Per CSC Records (available upon request, includes calculation formulas)

\*\* If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880



**PROJECT INFORMATION**

SCOPE OF WORK: ITEMS TO BE MOUNTED ON MONOPOLE:  
 • NEW HANDRAIL KIT SITEPRO1 P/N HRK12-U.  
 • NEW REINFORCEMENT KIT SITEPRO1 P/N PRK-1245.  
 • NEW AT&T ANTENNAS: (80010965) (TYP. OF 1 PER SECTOR, TOTAL OF 3) (POSITION 2 FOR BETA AND POSITION 3 FOR ALPHA AND GAMMA).  
 • NEW AT&T RRUS: RRUS B66 4426 (AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).  
 • NEW AT&T RRUS: RRUS B5 4478 (850) (TYP. OF 1 PER SECTOR, TOTAL OF 3).  
 • NEW SURGE ARRESTOR DC6-48-60-18-8C (TOTAL OF 1) WITH (2) DC POWER CABLES, & (1) FIBER RUN.

ITEMS TO BE MOUNTED IN EQUIPMENT SHELTER:  
 • PROPOSED ADD 2ND XMU IN LTE RACK.

ITEMS TO REMAIN:  
 • (9) ANTENNAS, (9) RRU'S, (2) SURGE ARRESTOR, (6) TMA'S, (6) COMBINERS, (12) 1-5/8" COAX, (2) DC POWER CABLES, & (1) FIBER RUN.

SITE ADDRESS: 335 SOUTH WASHINGTON STREET  
 PLAINVILLE, CT 06062

LATITUDE: 41.65311° N 41° 39' 11.03" N  
 LONGITUDE: 72.87692° W 72° 52' 36.90" W  
 TYPE OF SITE: MONOPOLE / INDOOR EQUIPMENT  
 TOWER HEIGHT: 121'-0"±  
 RAD CENTER: 122'-0"±  
 JURISDICTION: NATIONAL, STATE & LOCAL CODES OR ORDINANCES  
 CURRENT USE: TELECOMMUNICATIONS FACILITY  
 PROPOSED USE: TELECOMMUNICATIONS FACILITY



**SITE NUMBER: CT1029**

**SITE NAME: PLAINVILLE SOUTH WASHINGTON STREET**

**FA CODE: 10105805**

**PACE ID: MRCTB031396, MRCTB032005**

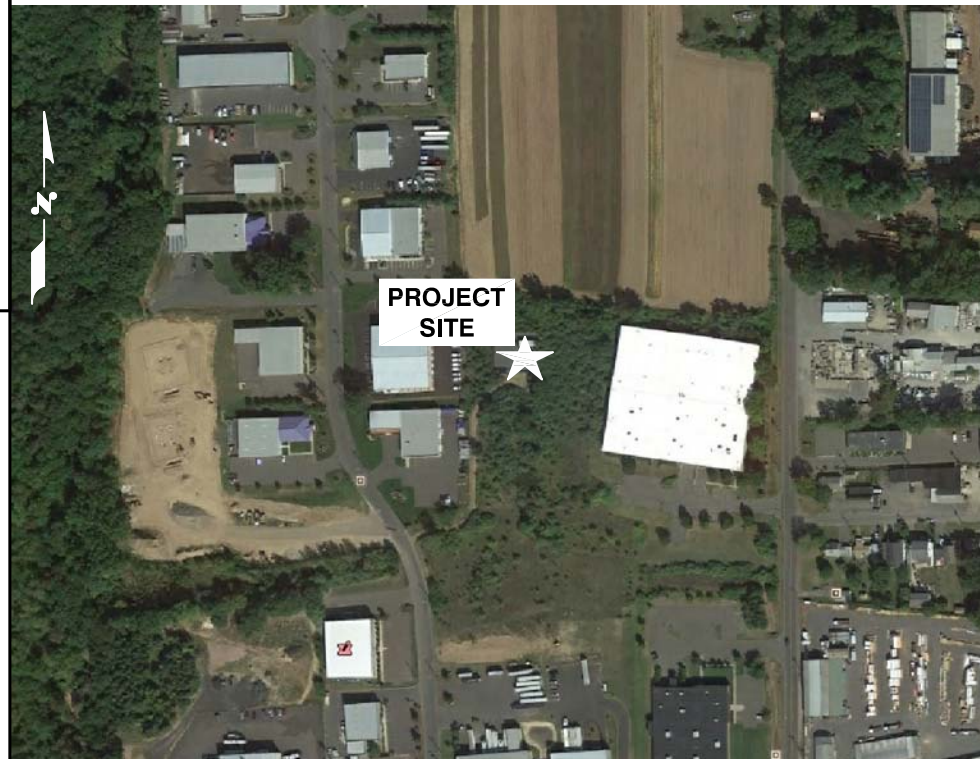
**PROJECT: LTE 4C/5C 2019 UPGRADE**

**DRAWING INDEX**

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

**VICINITY MAP**

**DIRECTIONS TO SITE:**  
 191 SOUTH TOWARD NEW HAVEN. TAKE EXIT 22 NORTH TOWARD NEW BRITAIN. MERGE ONTO CT-72 WEST VIA EXIT 28, ON THE LEFT, TOWARD BRISTOL. TAKE CT-177/NORTH WASHINGTON STREET EXIT. LEFT ONTO NORTH WASHINGTON STREET. END AT 335 SOUTH WASHINGTON.  
 SITE ACCESS IDS OFF ROBERT JACKSON WAY ACCESS RD IS RIGHT BEFORE LAWN CARE SERVICE. (SEE PICTURES FOR ACCESSING CELL SITE IN PAIR GAIN DATA BASE).



**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.

**72 HOURS**



**CALL BEFORE YOU DIG**



CALL TOLL FREE 1-800-922-4455

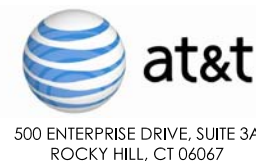
OR CALL 811

**UNDERGROUND SERVICE ALERT**

**CCI SITE #: 857012**  
**CCI SITE NAME: PLAINVILLE SOUTH WASHINGTON STREET**

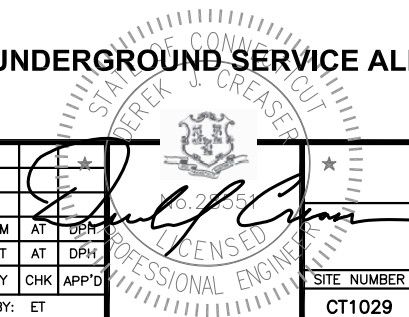


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**SITE NAME: PLAINVILLE SOUTH WASHINGTON STREET**  
**CCI SITE NUMBER: 857012**  
**335 SOUTH WASHINGTON STREET**  
**PLAINVILLE, CT 06062**  
**HARTFORD COUNTY**



NO.	DATE	REVISIONS	BY	CHK	APP'D
1	07/30/18	ISSUED FOR CONSTRUCTION	AM	AT	UPH
A	06/26/18	ISSUED FOR REVIEW	ET	AT	DPH

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



AT&T

TITLE SHEET  
 LTE 4C/5C

SITE NUMBER	DRAWING NUMBER	REV
CT1029	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) LIGHTING 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) 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 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 AWS 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 – SAI  
 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. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH LTE 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 2012 WITH 2016 CT BUILDING CODE AMENDMENTS  
 ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS  
 LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS  
  
 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-G,  
 STRUCTURAL STANDARDS FOR STEEL  
  
 EQUIPMENT AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.  
  
 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		

45 BEECHWOOD DRIVE  
NORTH ANDOVER, MA 01845  
TEL: (978) 557-5553  
FAX: (978) 336-5586

12 INDUSTRIAL WAY  
SALEM, NH 03079

SITE NUMBER: CT1029  
 SITE NAME: PLAINVILLE SOUTH WASHINGTON STREET  
 CCI SITE NUMBER: 857012  
 335 SOUTH WASHINGTON STREET  
 PLAINVILLE, CT 06062  
 HARTFORD COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	07/30/18	ISSUED FOR CONSTRUCTION	AM	AT	DPH
A	06/26/18	ISSUED FOR REVIEW	ET	AT	DPH
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: ET		

AT&T  
 GENERAL NOTES  
 LTE 4C/5C

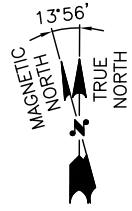
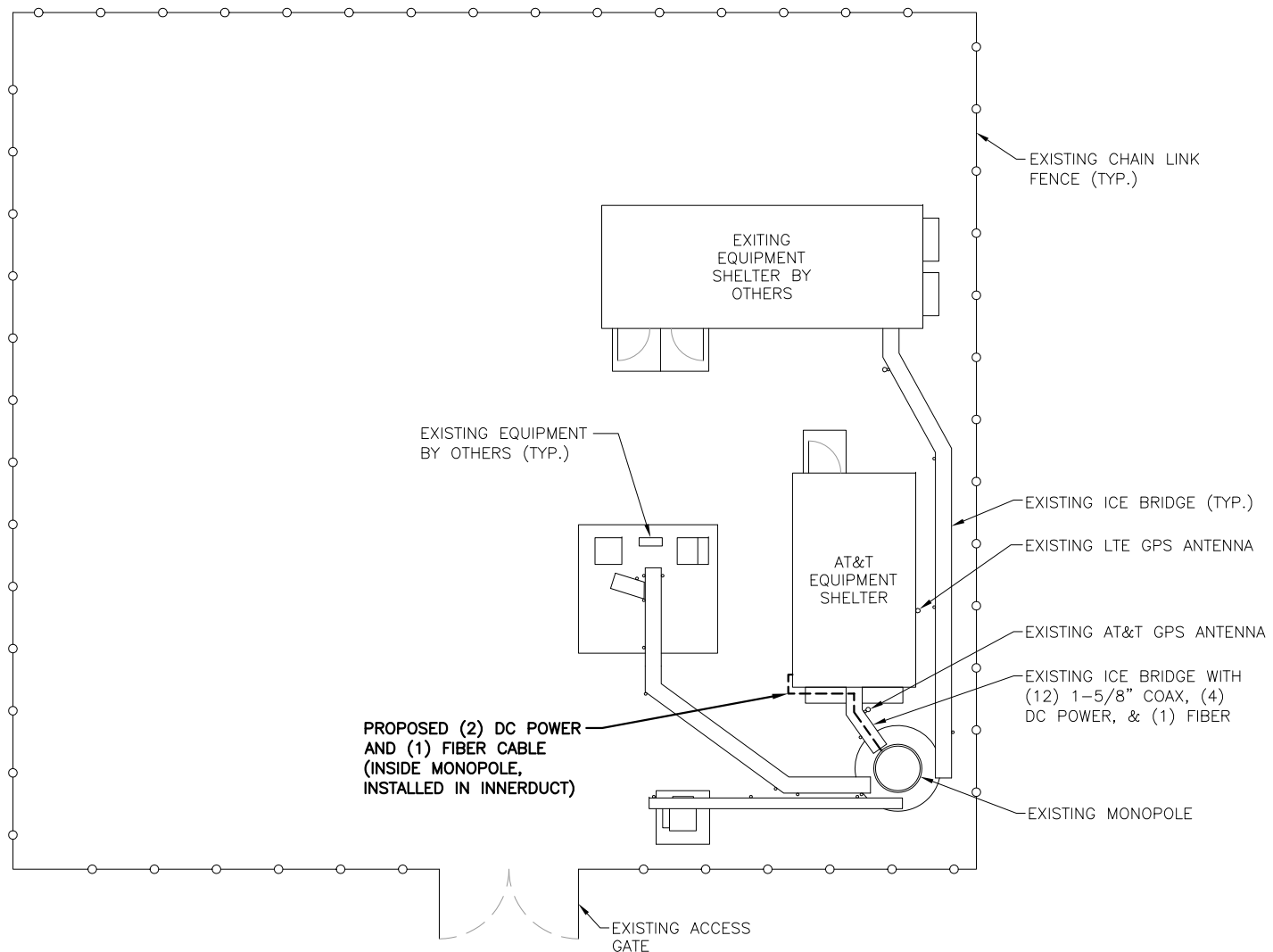
SITE NUMBER	DRAWING NUMBER	REV
CT1029	GN-1	1

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

**NOTE:**  
ALL ANTENNAS AND LINES TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND FINAL AT&T RF DATA SHEET.

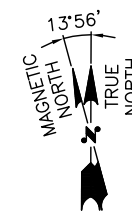
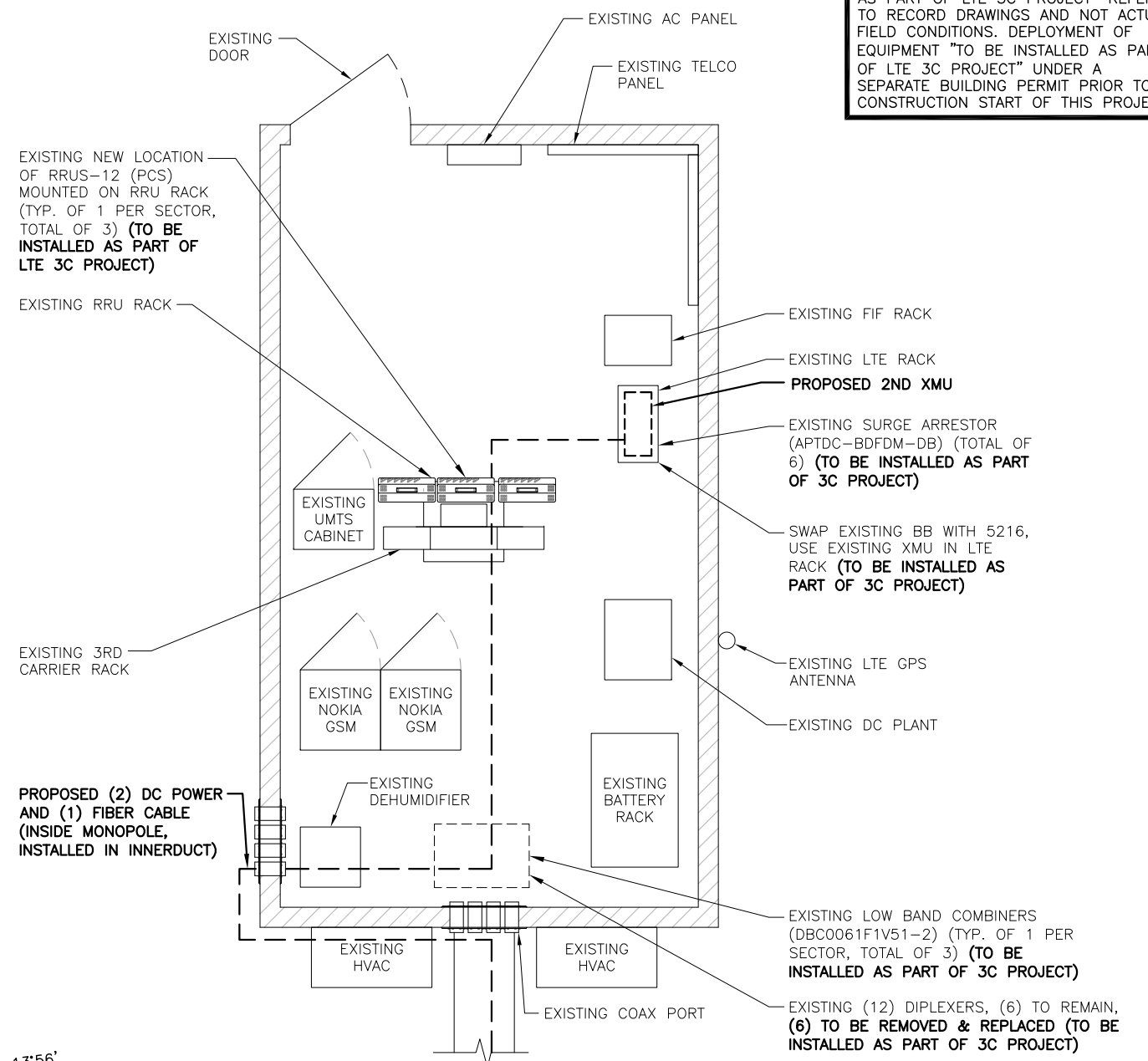
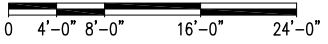
**NOTE:**  
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: JUNE 20, 2018

**SPECIAL CONSTRUCTION/PLANNING NOTE:**  
EQUIPMENT SHOWN AS "TO BE INSTALLED AS PART OF LTE 3C PROJECT" REFERS TO RECORD DRAWINGS AND NOT ACTUAL FIELD CONDITIONS. DEPLOYMENT OF EQUIPMENT "TO BE INSTALLED AS PART OF LTE 3C PROJECT" UNDER A SEPARATE BUILDING PERMIT PRIOR TO CONSTRUCTION START OF THIS PROJECT.



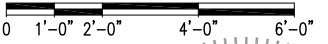
**COMPOUND PLAN**  
22x34 SCALE: 1/8"=1'-0"  
11x17 SCALE: 1/16"=1'-0"

1  
A-1



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

2  
A-1



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

**SAI**  
12 INDUSTRIAL WAY SALEM, NH 03079

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CCI SITE NUMBER: 857012  
335 SOUTH WASHINGTON STREET PLAINVILLE, CT 06062 HARTFORD COUNTY

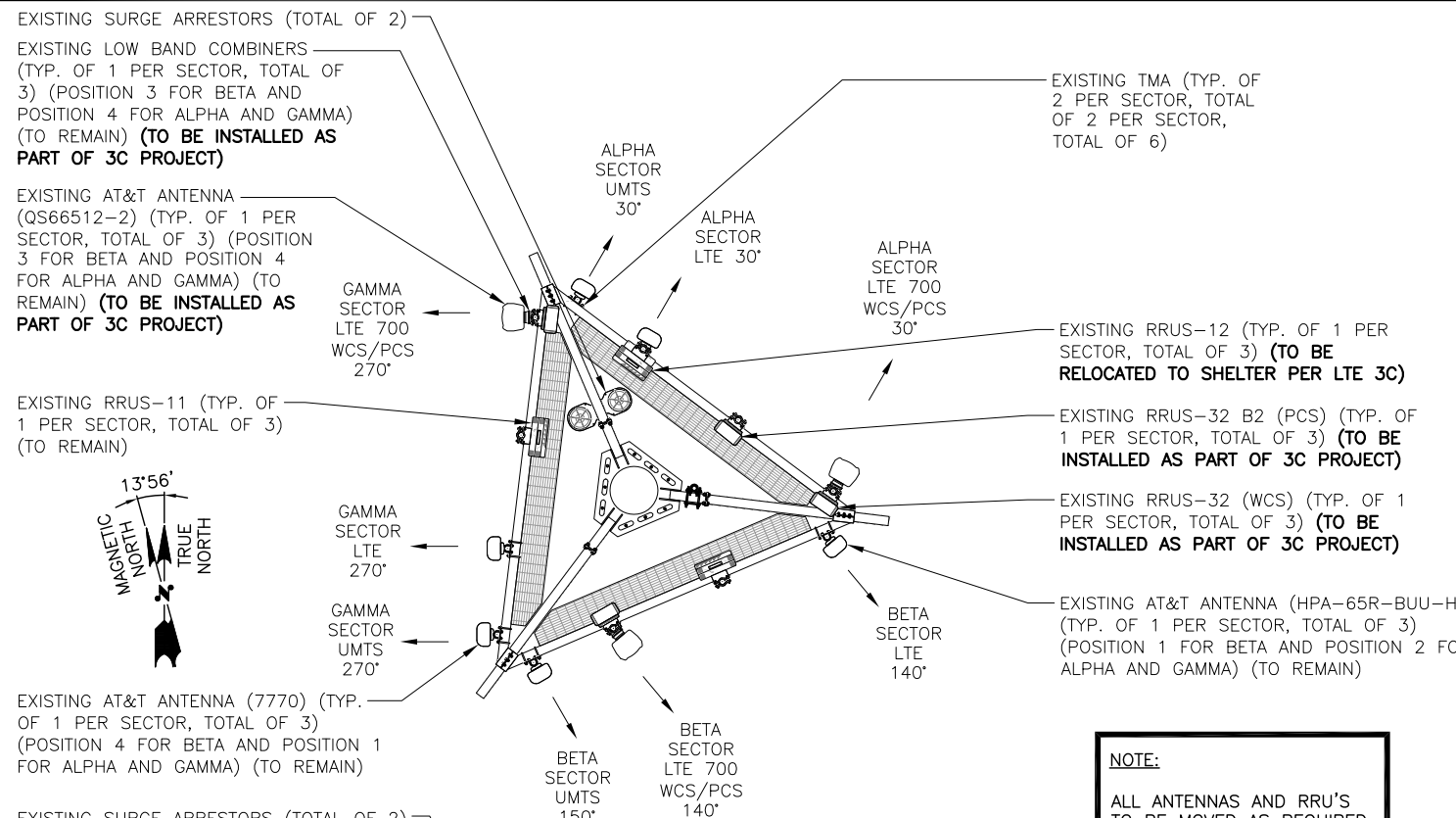
**at&t**  
500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067

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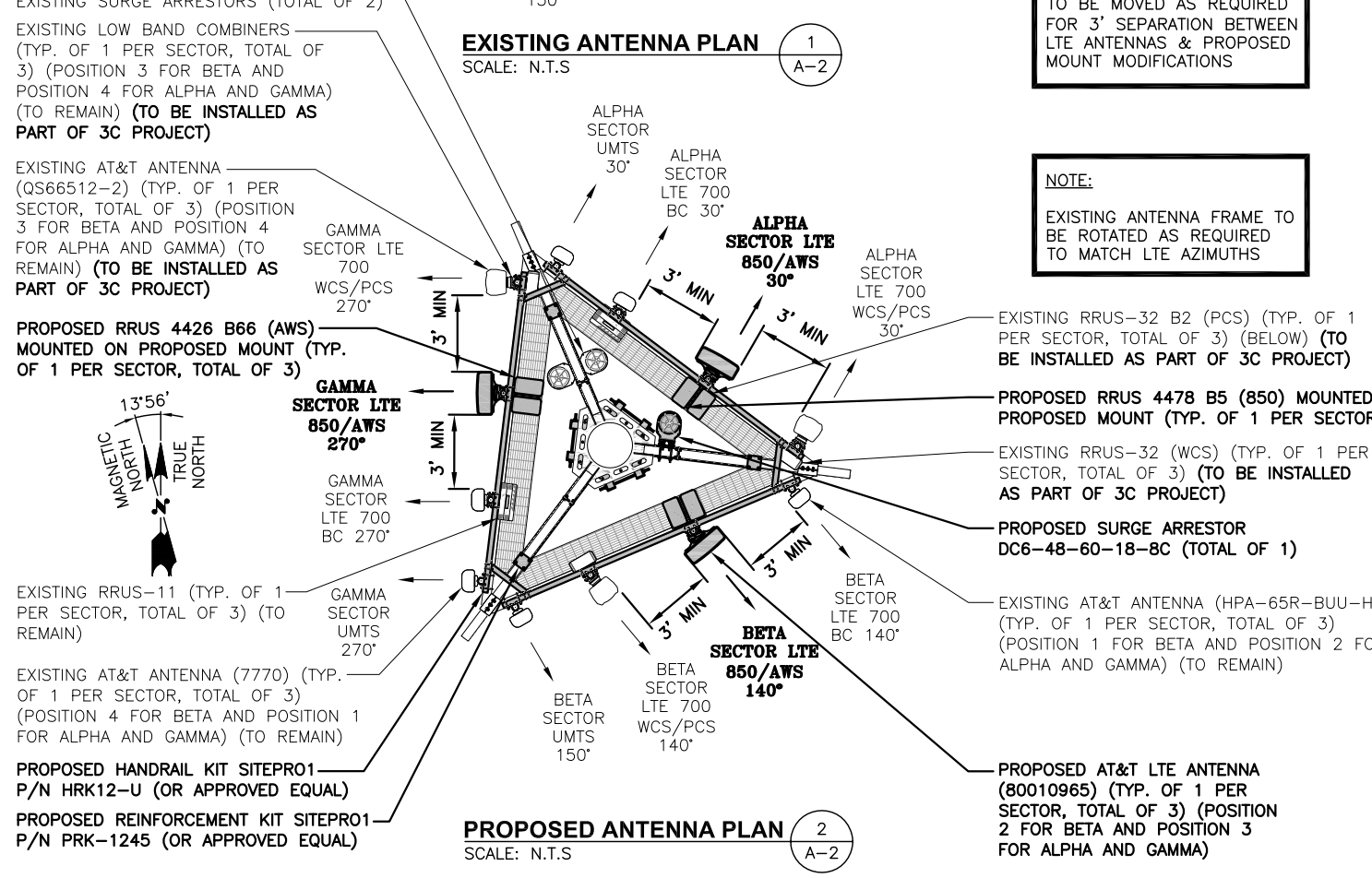
STATE OF CONNECTICUT  
Derek J. Creaser  
PROFESSIONAL ENGINEER  
16.22535

AT&T  
COMPOUND & EQUIPMENT PLAN LTE 4C/5C

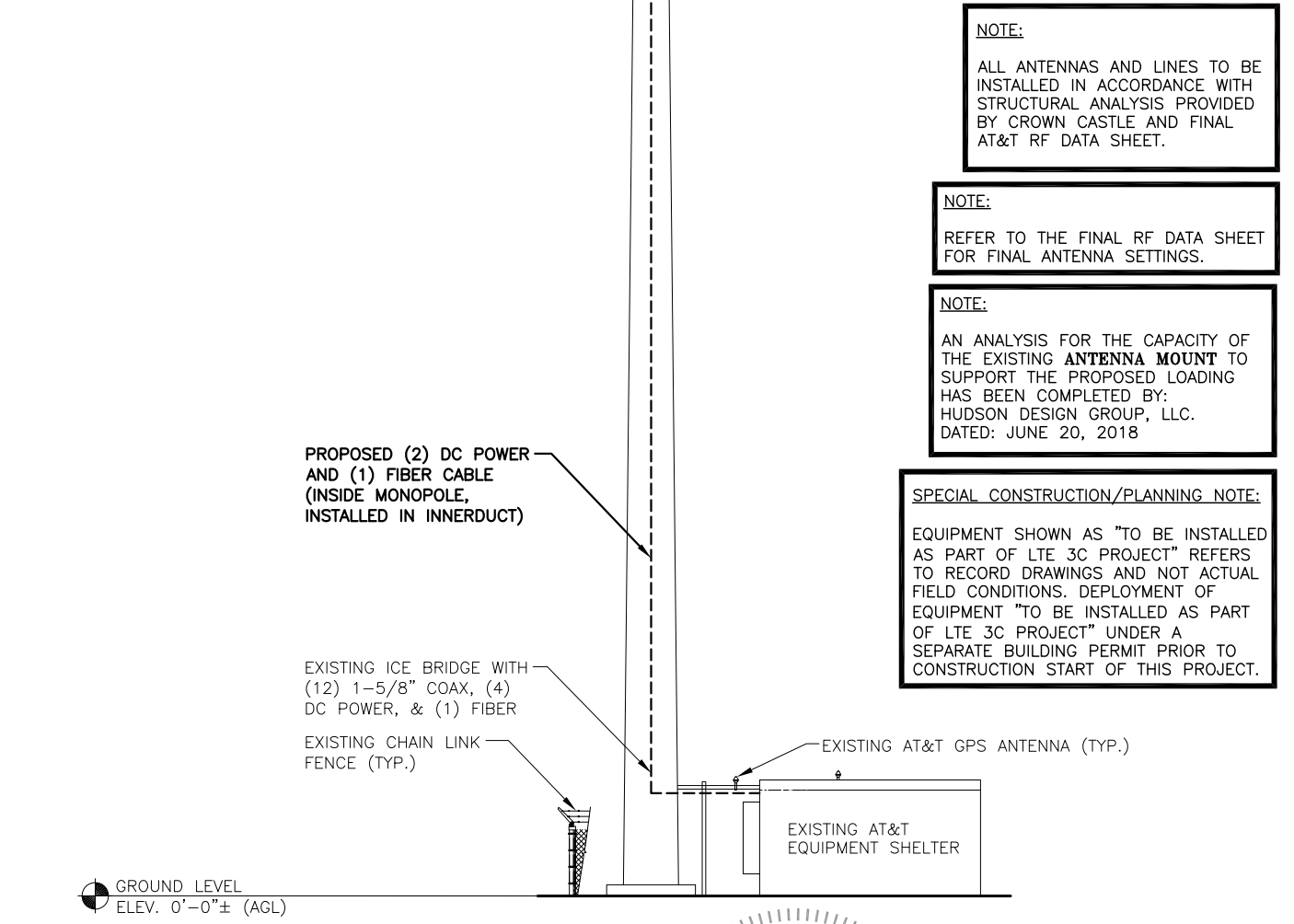
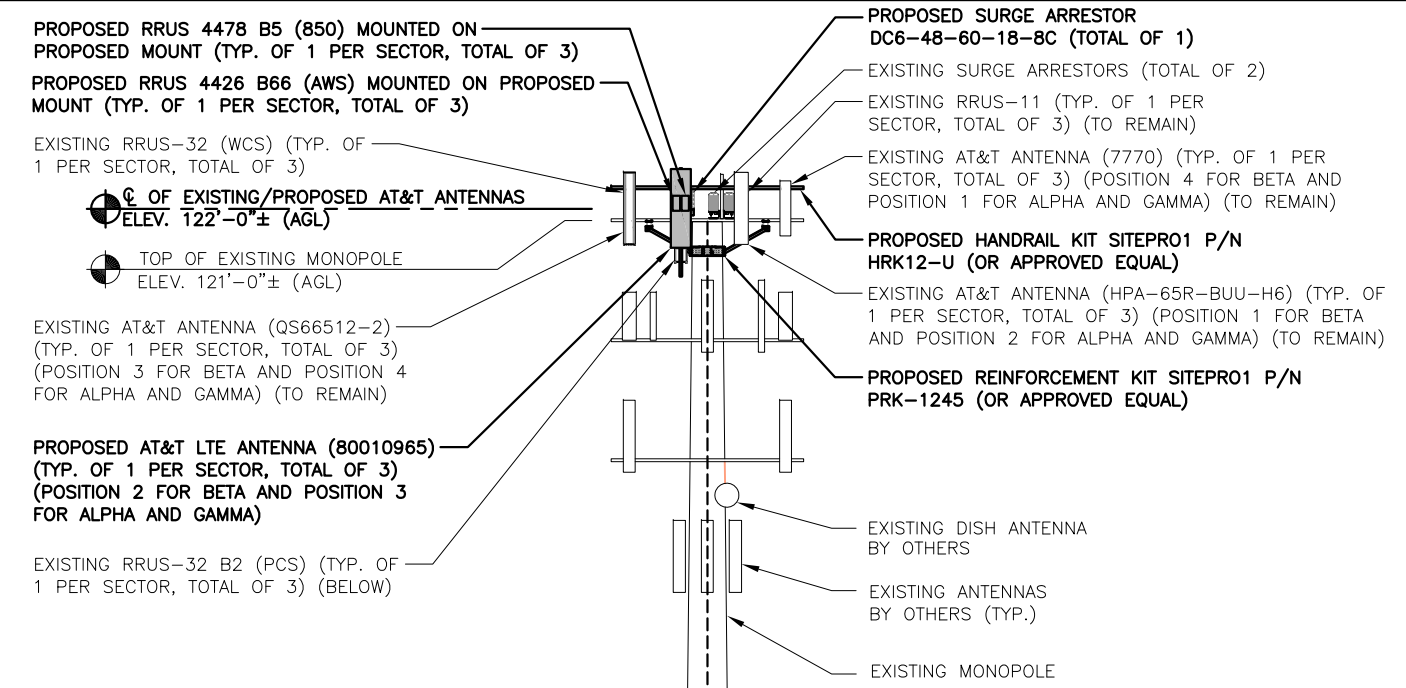
SITE NUMBER	DRAWING NUMBER	REV
CT1029	A-1	1



**EXISTING ANTENNA PLAN** (1)  
SCALE: N.T.S.



**PROPOSED ANTENNA PLAN** (2)  
SCALE: N.T.S.



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

**NOTE:**  
ALL ANTENNAS AND RRU'S TO BE MOVED AS REQUIRED FOR 3' SEPARATION BETWEEN LTE ANTENNAS & PROPOSED MOUNT MODIFICATIONS

**NOTE:**  
EXISTING ANTENNA FRAME TO BE ROTATED AS REQUIRED TO MATCH LTE AZIMUTHS

**NOTE:**  
ALL ANTENNAS AND LINES TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND FINAL AT&T RF DATA SHEET.

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

**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: JUNE 20, 2018

**SPECIAL CONSTRUCTION/PLANNING NOTE:**  
EQUIPMENT SHOWN AS "TO BE INSTALLED AS PART OF LTE 3C PROJECT" REFERS TO RECORD DRAWINGS AND NOT ACTUAL FIELD CONDITIONS. DEPLOYMENT OF EQUIPMENT "TO BE INSTALLED AS PART OF LTE 3C PROJECT" UNDER A SEPARATE BUILDING PERMIT PRIOR TO CONSTRUCTION START OF THIS PROJECT.

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

**SAI**  
12 INDUSTRIAL WAY  
SALEM, NH 03079

**SITE NUMBER: CT1029**  
**SITE NAME: PLAINVILLE SOUTH WASHINGTON STREET**  
**CCI SITE NUMBER: 857012**  
335 SOUTH WASHINGTON STREET  
PLAINVILLE, CT 06062  
HARTFORD COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	07/30/18	ISSUED FOR CONSTRUCTION	AM	AT	DPH
A	06/26/18	ISSUED FOR REVIEW	ET	AT	DPH

STATE OF CONNECTICUT  
PROFESSIONAL ENGINEER  
16.22535  
*Edmund Crum*

**AT&T**  
**ANTENNA LAYOUTS & ELEVATION**  
**LTE 4C/5C**

SITE NUMBER	DRAWING NUMBER	REV
CT1029	A-2	1



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

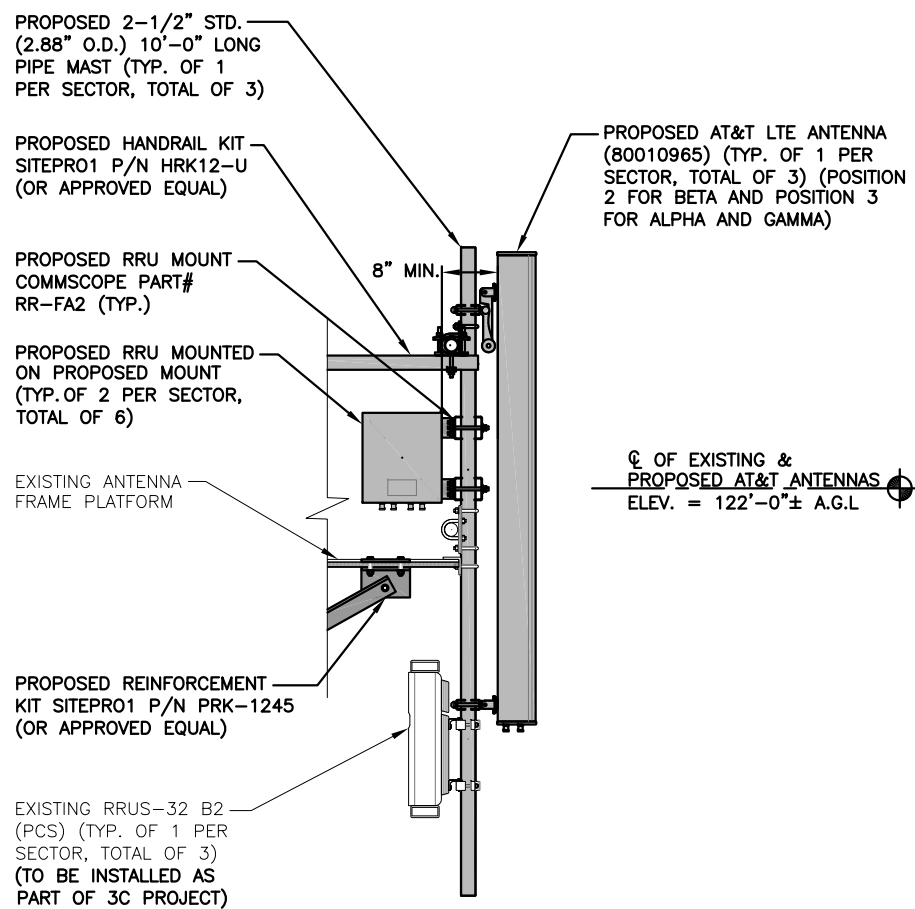
**NOTE:**  
ALL ANTENNAS AND LINES TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND FINAL AT&T RF DATA SHEET.

**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: JUNE 20, 2018

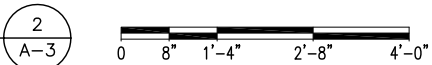
**SPECIAL CONSTRUCTION/PLANNING NOTE:**  
EQUIPMENT SHOWN AS "TO BE INSTALLED AS PART OF LTE 3C PROJECT" REFERS TO RECORD DRAWINGS AND NOT ACTUAL FIELD CONDITIONS. DEPLOYMENT OF EQUIPMENT "TO BE INSTALLED AS PART OF LTE 3C PROJECT" UNDER A SEPARATE BUILDING PERMIT PRIOR TO CONSTRUCTION START OF THIS PROJECT.

**ANTENNA SCHEDULE**

SECTOR	EXISTING/PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA Q HEIGHT	AZIMUTH	TMA/COMBINERS	RRU	SIZE ( INCHES) (L x W x D)	FEEDER	RAYCAP
A1	EXISTING	UMTS 850/LTE PCS	7770	55X11X5	122'-0"±	30°	POWERWAVE (2) LGP21401	--	--	(2) 1-5/8 COAX LENGTH = 127'±	--
A2	EXISTING	LTE 700 BC	HPA-65R-BUU-H6	72X14.8X9	122'-0"±	30°	--	RRUS-11	--	--	--
A3	PROPOSED	LTE 850/AWS	80010965	78.7X20X6.9	122'-0"±	30°	--	(P) (1) 4478 B5 (850) (P) (1) 4426 B66 (AWS)	15X13.2X7.4 15X13.2X7.4	--	(E) (1) RAYCAP DC6-48-60-18-8C
A4	EXISTING	LTE 700 WCS/PCS	QS66512-2	72X12X9.6	122'-0"±	30°	KAELUS (2) DBC0061F1V51-2	RRUS-32 B2 (PCS) RRUS-32 (WCS)	--	(2) 1-5/8 COAX LENGTH = 127'±	--
B1	EXISTING	LTE 700 BC	HPA-65R-BUU-H6	72X14.8X9	122'-0"±	140°	--	RRUS-11	--	--	--
B2	PROPOSED	LTE 850/AWS	80010965	78.7X20X6.9	122'-0"±	140°	--	(P) (1) 4478 B5 (850) (P) (1) 4426 B66 (AWS)	15X13.2X7.4 15X13.2X7.4	--	--
B3	EXISTING	LTE WCS/PCS	QS66512-2	72X12X9.6	122'-0"±	140°	KAELUS (2) DBC0061F1V51-2	RRUS-32 B2 (PCS) RRUS-32 (WCS)	15X13.2X7.4 15X13.2X7.4	(2) 1-5/8 COAX LENGTH = 127'±	(E) (1) RAYCAP DC6-48-60-0-8C
B4	EXISTING	UMTS 850/ LTE PCS	7770	55X11X5	122'-0"±	150°	POWERWAVE (2) LGP21401	--	--	(2) 1-5/8 COAX LENGTH = 127'±	(E) (1) RAYCAP DC6-48-60-0-8C
C1	EXISTING	UMTS 850 / LTE PCS	7770	55X11X5	122'-0"±	270°	POWERWAVE (2) LGP21401	--	--	(2) 1-5/8 COAX LENGTH = 127'±	--
C2	EXISTING	LTE 700 BC	HPA-65R-BUU-H6	72X14.8X9	122'-0"±	270°	--	RRUS-11	--	--	--
C3	PROPOSED	LTE 850/AWS	80010965	78.7X20X6.9	122'-0"±	270°	--	(P) (1) 4478 B5 (850) (P) (1) 4426 B66 (AWS)	15X13.2X7.4 15X13.2X7.4	--	(P) (1) RAYCAP DC6-48-60-0-8C
C4	EXISTING	LTE 700 WCS/PCS	QS66512-2	72X12X9.6	122'-0"±	270°	KAELUS (2) DBC0061F1V51-2	RRUS-32 B2 (PCS) RRUS-32 (WCS)	--	(2) 1-5/8 COAX LENGTH = 127'±	--



**PROPOSED ANTENNA & RRU MOUNTING DETAIL**  
22x34 SCALE: 3/4"=1'-0"  
11x17 SCALE: 3/8"=1'-0"



**RRU CHART**

QUANTITY	MODEL	L	W	D
3(E)	RRUS-11	19.7"	17.0"	7.2"
3(E)(G)	RRUS-12	20.4"	18.5"	7.5"
6(E)	RRUS-32	27.2"	12.1"	7.0"
3(P)	B5.4478	15.0"	13.2"	7.4"
3(P)	B66.4426	15.0"	13.2"	7.4"

**NOTE:**  
MOUNT PER MANUFACTURER'S SPECIFICATIONS

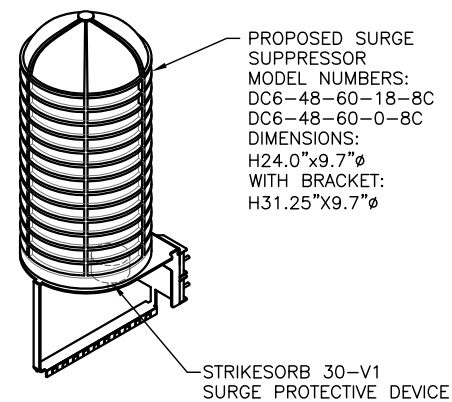
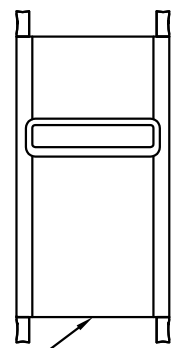
**NOTE:**  
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER

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

**NOTE:**  
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

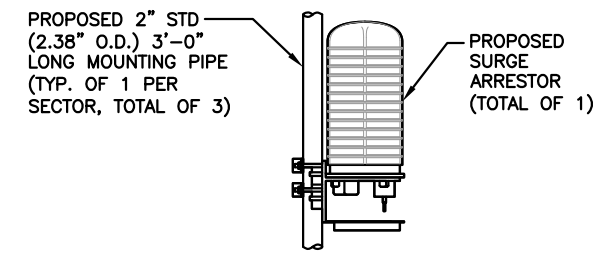
**RRUS DETAIL**  
SCALE: N.T.S

**FINAL ANTENNA CONFIGURATION**  
SCALE: N.T.S



**NOTE:**  
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

**DC SURGE SUPPRESSOR DETAIL**  
SCALE: N.T.S



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

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

1	07/30/18	ISSUED FOR CONSTRUCTION	AM	AT	UPH
A	06/26/18	ISSUED FOR REVIEW	ET	AT	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: ET		

STATE OF CONNECTICUT  
Derek J. Creaser  
PROFESSIONAL ENGINEER  
16,225,355

**AT&T**  
DETAILS LTE 4C/5C

SITE NUMBER	DRAWING NUMBER	REV
CT1029	A-3	1

**STRUCTURAL NOTES:**

- DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
- DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
- STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
- STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
- STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
- ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
- ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
- FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
- CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
- INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
- UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
- EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-70 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
- EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
- WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
- ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
- NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
- SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

**SPECIAL INSPECTION CHECKLIST**

**BEFORE CONSTRUCTION**

CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS <sup>1</sup>
N/A	MATERIAL SPECIFICATIONS REPORT <sup>2</sup>
N/A	FABRICATOR NDE INSPECTION
N/A	PACKING SLIPS <sup>3</sup>

ADDITIONAL TESTING AND INSPECTIONS:

**DURING CONSTRUCTION**

CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
<b>REQUIRED</b>	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS <sup>4</sup>
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION <sup>5</sup>
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT

ADDITIONAL TESTING AND INSPECTIONS:

**AFTER CONSTRUCTION**

CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS <sup>6</sup>
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
<b>REQUIRED</b>	PHOTOGRAPHS

ADDITIONAL TESTING AND INSPECTIONS:

**NOTES:**

- REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
- PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
- PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
- HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
- ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.8.2.4.
- AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

**SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):**

**GENERAL:** WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

**NOTES:**

- ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"Ø A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
- SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
- SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
- VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
- CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
- EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

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FAX: (978) 336-5586

12 INDUSTRIAL WAY  
SALEM, NH 03079

SITE NUMBER: CT1029  
SITE NAME: PLAINVILLE SOUTH WASHINGTON STREET  
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335 SOUTH WASHINGTON STREET  
PLAINVILLE, CT 06062  
HARTFORD COUNTY

500 ENTERPRISE DRIVE, SUITE 3A  
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NO.	DATE	REVISIONS	BY	CHK	APP'D
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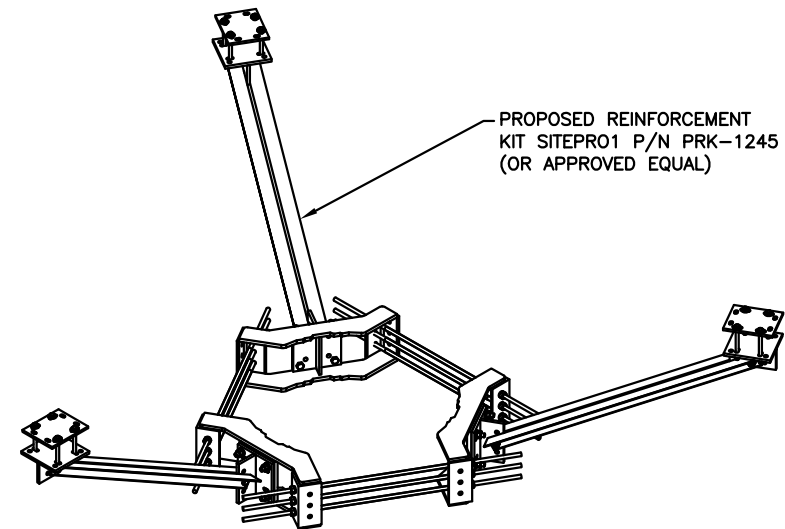
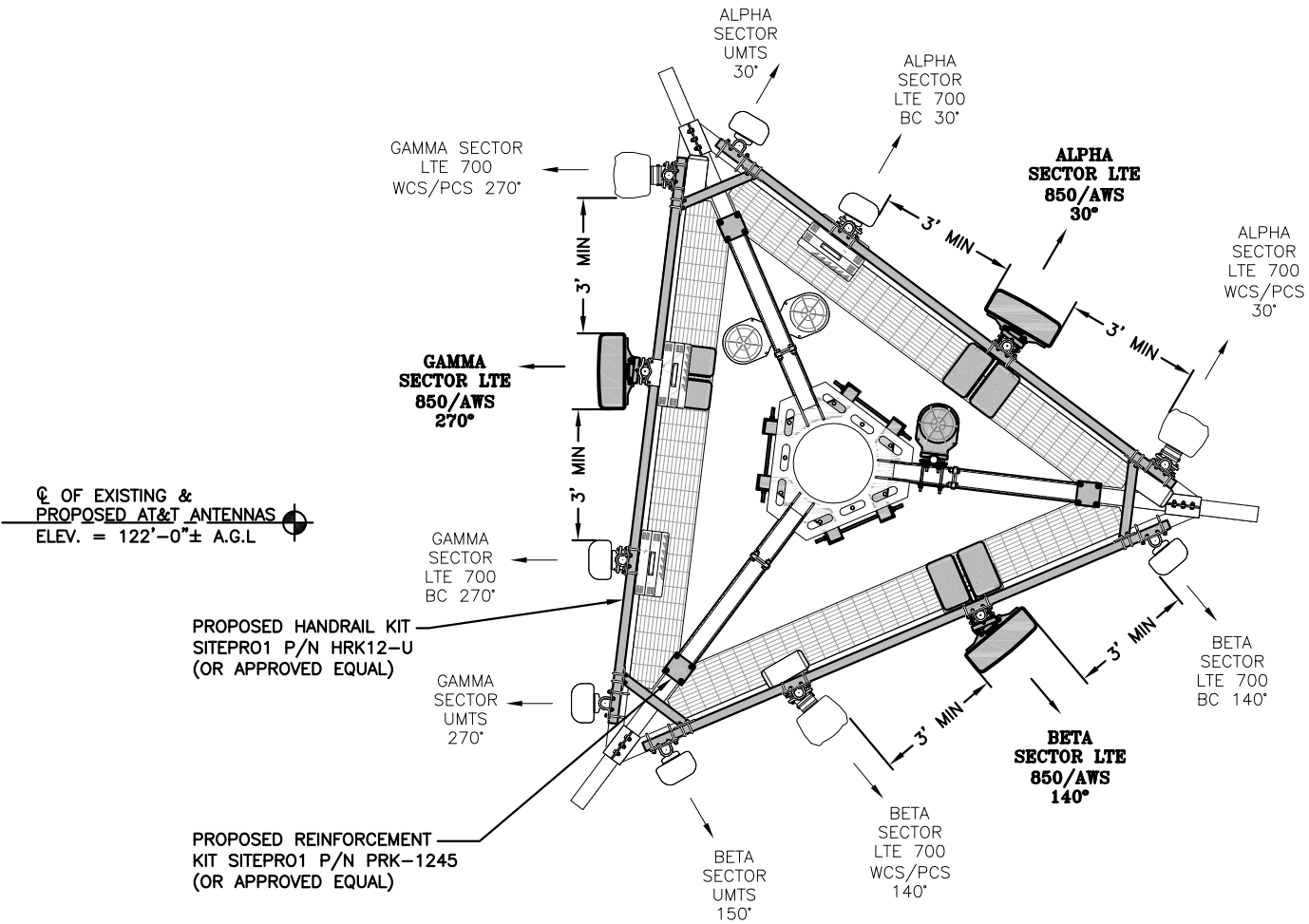
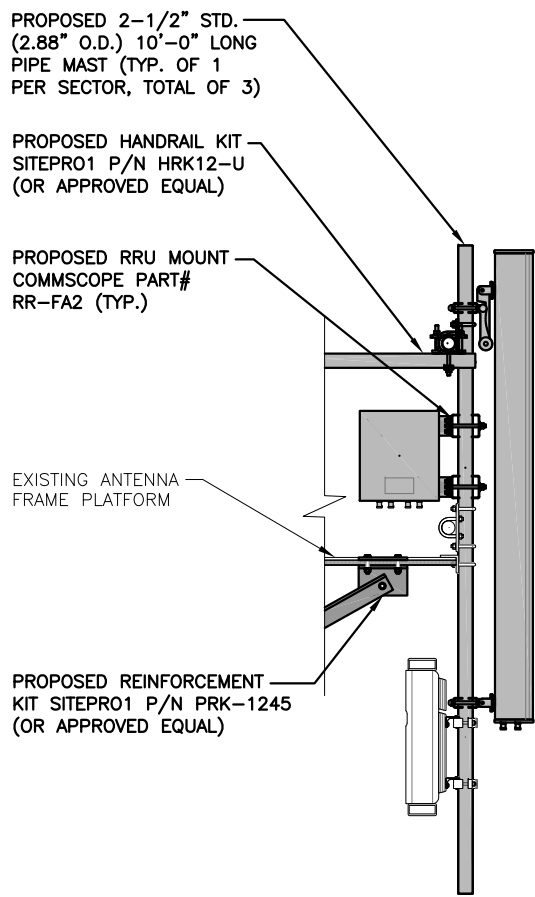
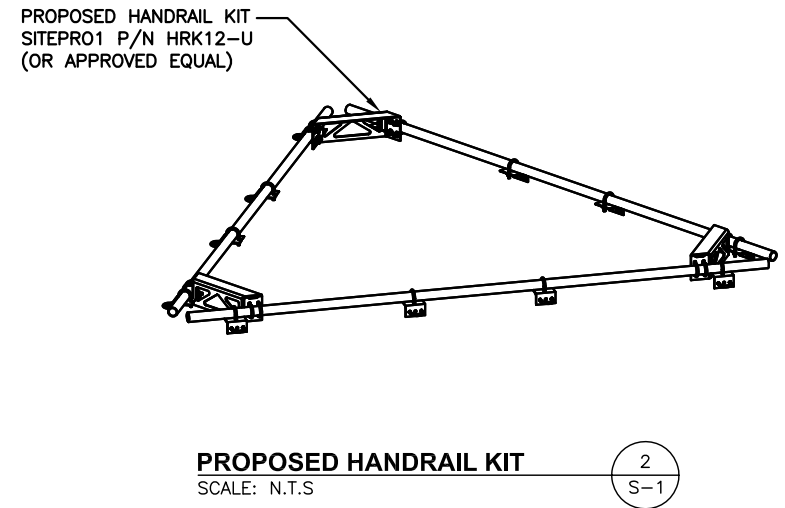
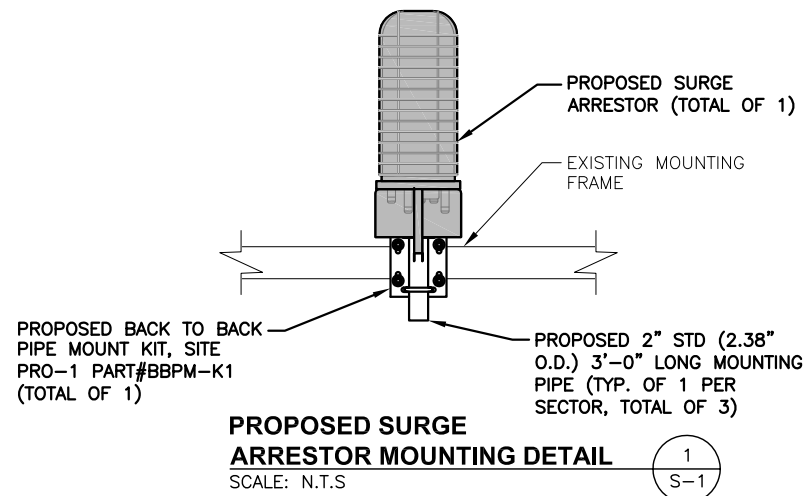
SCALE: AS SHOWN    DESIGNED BY: AT    DRAWN BY: ET

AT&T		
STRUCTURAL NOTES LTE 4C/5C		
SITE NUMBER	DRAWING NUMBER	REV
CT1029	SN-1	1

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

**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: JUNE 20, 2018

**NOTE:**  
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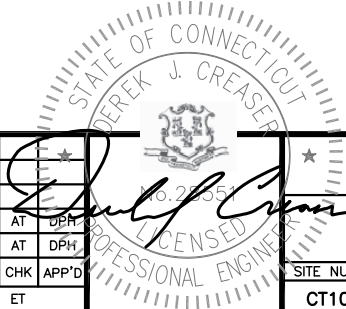


**PROPOSED MOUNT MODIFICATION DETAIL** 3  
22x34 SCALE: 3/4"=1'-0"  
11x17 SCALE: 3/8"=1'-0"

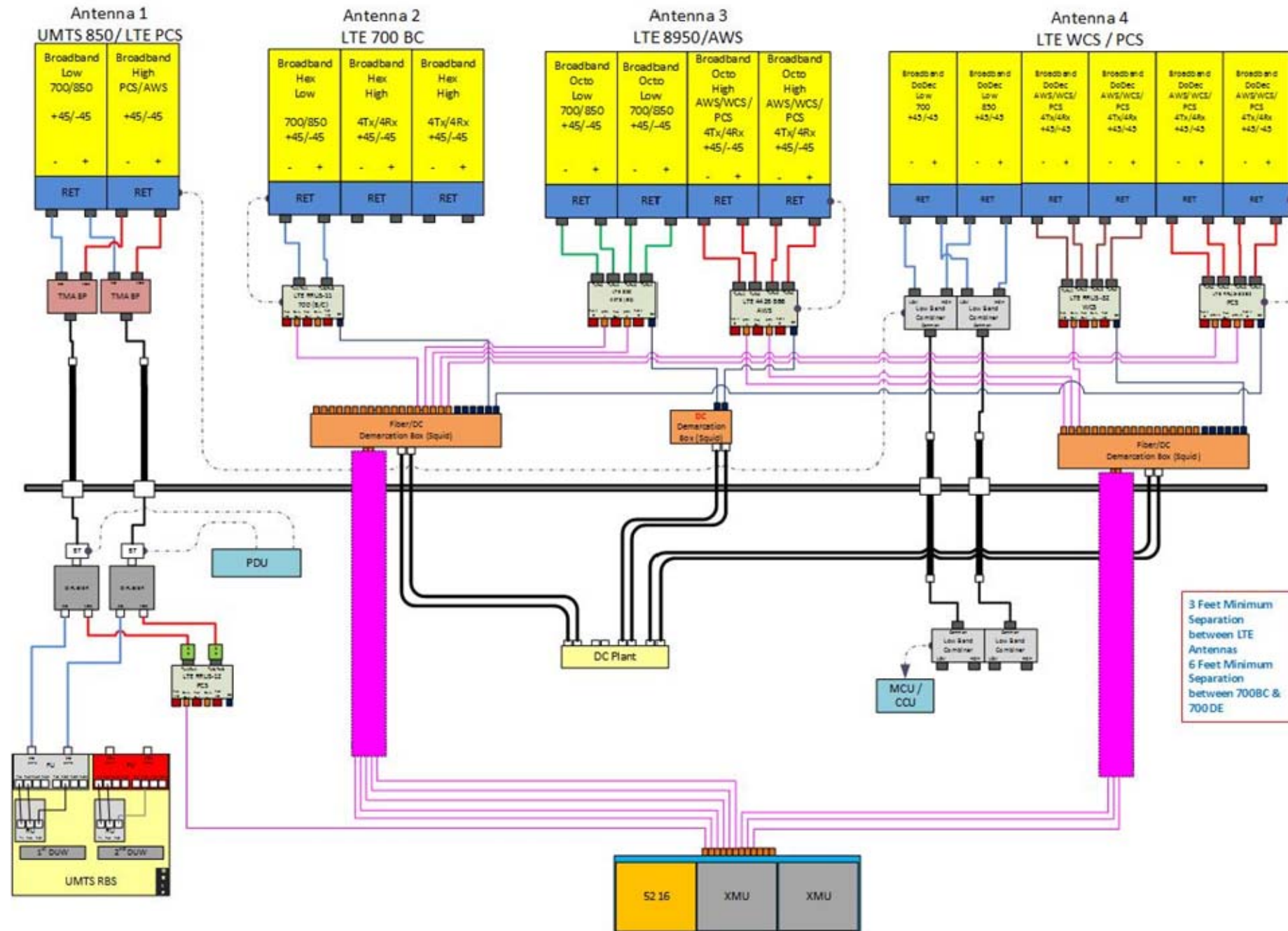
**PROPOSED REINFORCEMENT PLAN** 4  
22x34 SCALE: 1/2"=1'-0"  
11x17 SCALE: 1/4"=1'-0"

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

1	07/30/18	ISSUED FOR CONSTRUCTION	AM	AT	DPH
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NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: ET		







3 Feet Minimum Separation between LTE Antennas  
6 Feet Minimum Separation between 700BC & 700 DE

ALPHA & GAMMA SECTOR  
RF PLUMBING DIAGRAM  
SCALE: N.T.S

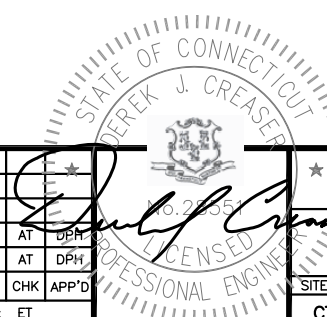
1  
RF-1

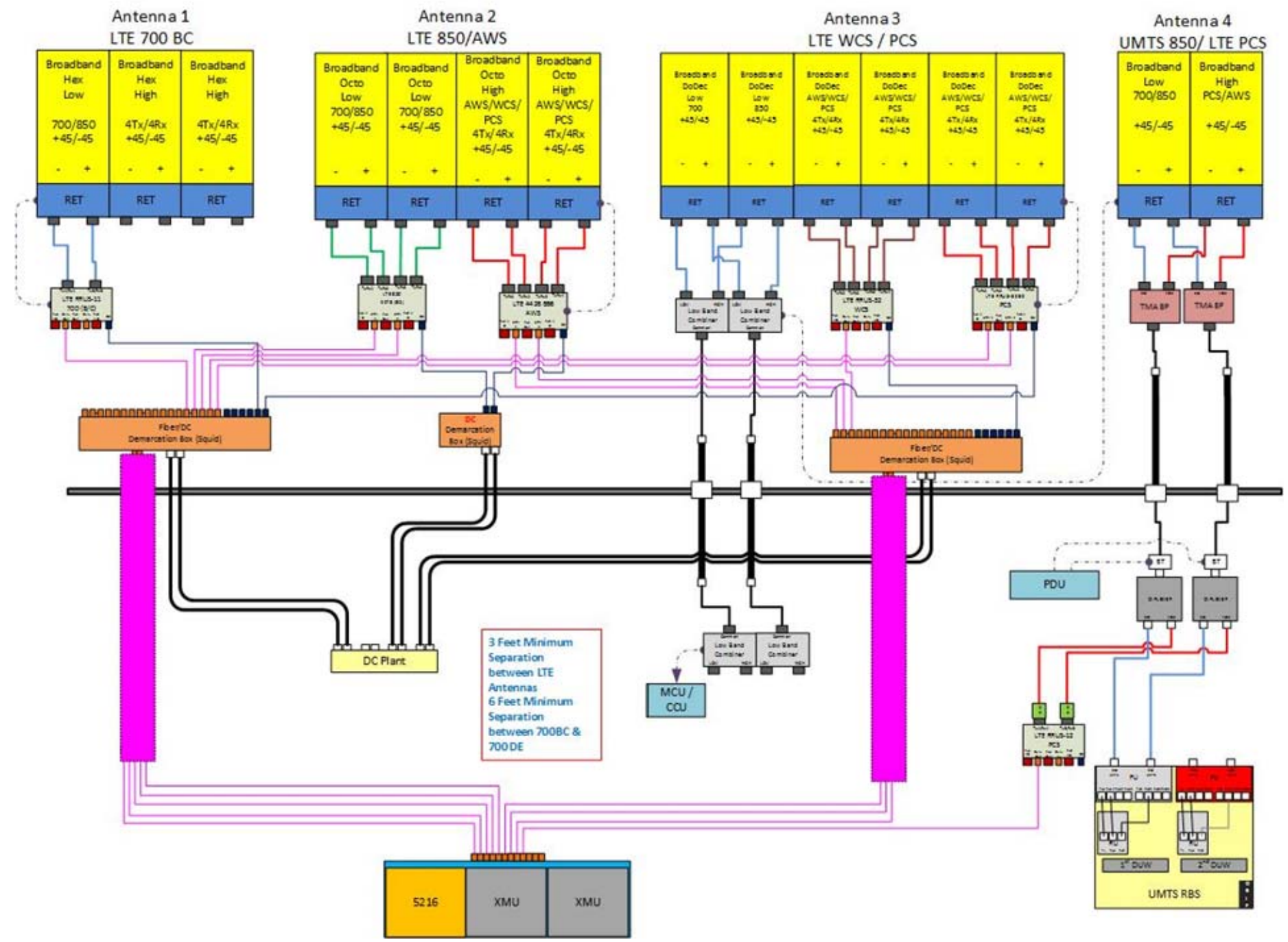
**NOTE:**  
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	07/30/18	ISSUED FOR CONSTRUCTION	AM	AT	UPH
A	06/26/18	ISSUED FOR REVIEW	ET	AT	DPH

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





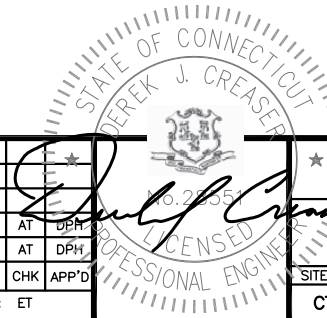
**BETA SECTOR**  
**RF PLUMBING DIAGRAM**  
 SCALE: N.T.S

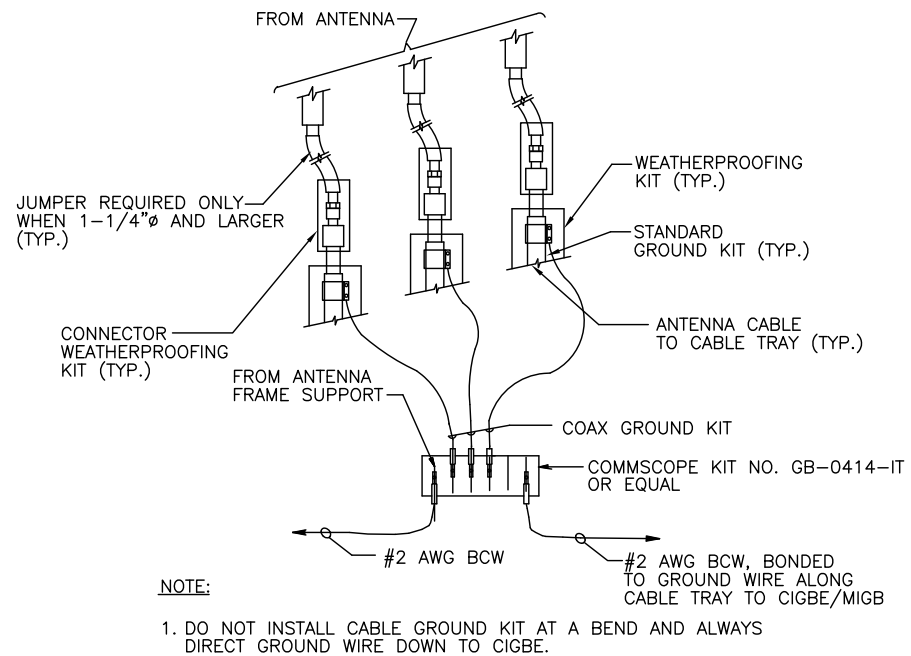
1  
RF-2

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

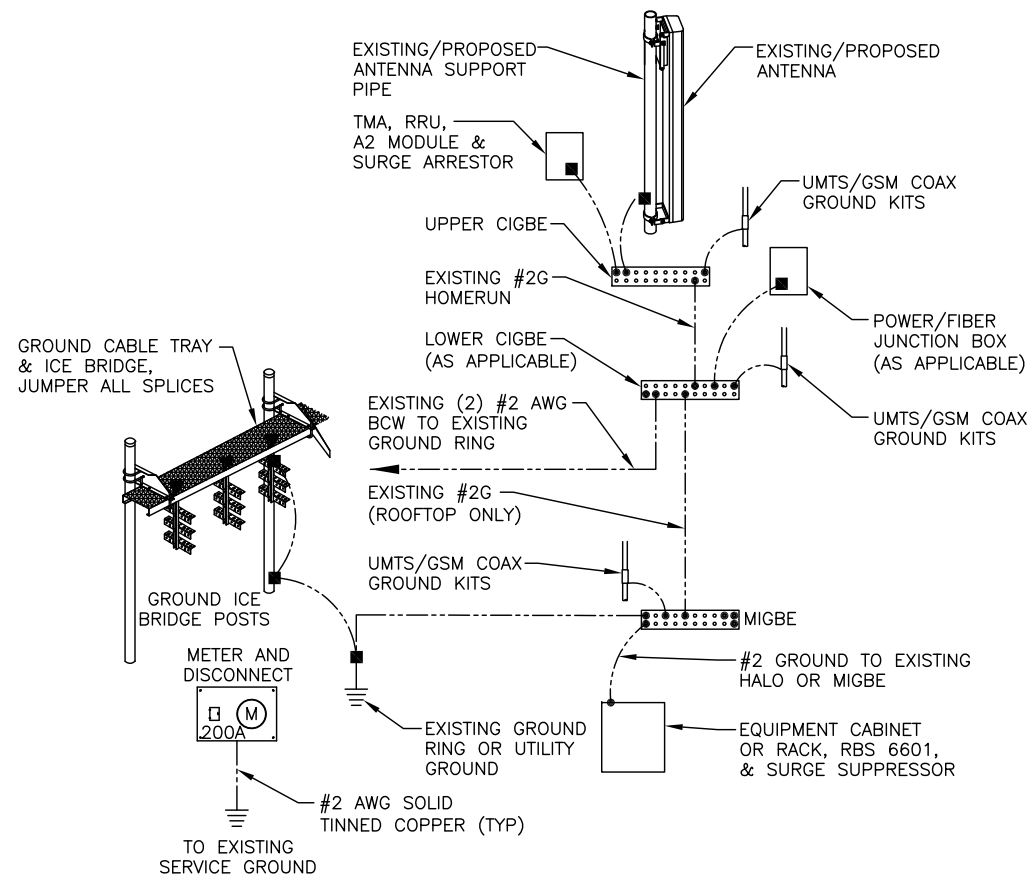
**NOTE:**  
 1. CONTRACTOR TO CONFIRM ALL PARTS.  
 2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

1	07/30/18	ISSUED FOR CONSTRUCTION	AM	AT	UPH
A	06/26/18	ISSUED FOR REVIEW	ET	AT	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: ET		

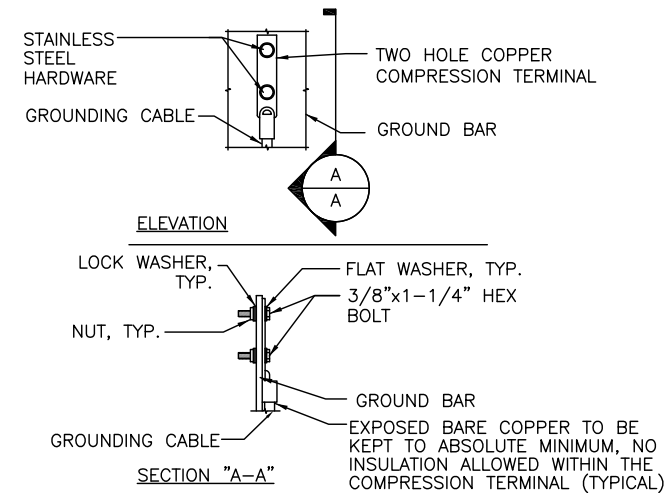




**GROUND WIRE TO GROUND BAR CONNECTION DETAIL** 1  
SCALE: N.T.S. G-1



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



NOTE:  
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

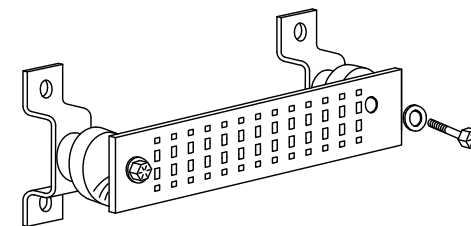
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

**SECTION "P" - SURGE PRODUCERS**

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

**SECTION "A" - SURGE ABSORBERS**

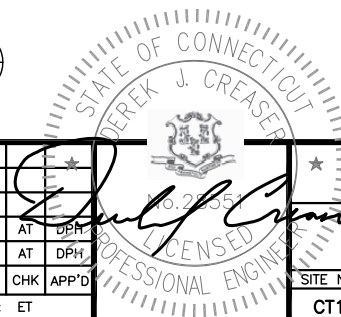
- INTERIOR GROUND RING (#2)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- BUILDING STEEL (IF AVAILABLE) (#2)



**GROUND BAR - DETAIL** 4  
SCALE: N.T.S. G-1

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	07/30/18	ISSUED FOR CONSTRUCTION	AM	AT	UPH
A	06/26/18	ISSUED FOR REVIEW	ET	AT	DPH

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



AT&T		
GROUNDING DETAILS LTE 4C/5C		
SITE NUMBER	DRAWING NUMBER	REV
CT1029	G-1	1



Date: **September 05, 2018**

Denice Nicholson  
Crown Castle  
3 Corporate Park Drive  
Clifton Park, NY 12065



Crown Castle  
2000 Corporate Drive  
Canonsburg, PA 15317  
(724) 416-2000

**Subject:** **Structural Analysis Report**

**Carrier Designation:** **AT&T Mobility Co-Locate**  
**Carrier Site Number:** CT1029  
**Carrier Site Name:** PLAINVILLE SOUTH WASHINGTON STREET

**Crown Castle Designation:** **Crown Castle BU Number:** 857012  
**Crown Castle Site Name:** PLAINVILLE SOUTH WASHINGTON ST  
**Crown Castle JDE Job Number:** 517793  
**Crown Castle Work Order Number:** 1622259  
**Crown Castle Order Number:** 449205 Rev. 1

**Engineering Firm Designation:** **Crown Castle Project Number:** 1622259

**Site Data:** **335 SOUTH WASHINGTON STREET, PLAINVILLE, Hartford County, CT**  
**Latitude 41° 39' 11.03", Longitude -72° 52' 36.9"**  
**119 Foot - Monopole Tower**

Dear Denice Nicholson,

Crown Castle is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the above mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC5: Proposed Equipment Configuration

**Sufficient Capacity**

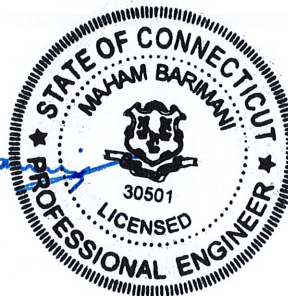
The analysis has been performed in accordance with the TIA-222-G Standard. This analysis utilizes an ultimate 3-second gust wind speed of 125 mph (converted an equivalent 97 mph nominal 3-second gust wind speed) as required by the 2016 CT Building Code. Exposure Category C with a maximum topographic factor and Risk Category II was used in this analysis.

Structural analysis prepared by: Daniel Chen / Shan

Respectfully submitted by:

Maham Barimani, P. E.  
Senior Project Engineer

A handwritten signature in blue ink that reads 'Barimani'.



09-07-2018

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- Base Level Drawing

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## 1) INTRODUCTION

This tower is a 119 ft. Monopole tower designed by EEI.

## 2) ANALYSIS CRITERIA

<b>Building Code:</b>	2016 Connecticut State Building Code
<b>TIA-222 Revision:</b>	TIA-222-G
<b>Risk Category:</b>	II
<b>Wind Speed:</b>	125 / 97 mph
<b>Exposure Category:</b>	C
<b>Topographic Factor:</b>	1
<b>Ice Thickness:</b>	1 in
<b>Wind Speed with Ice:</b>	50 mph
<b>Seismic Ss:</b>	0.184
<b>Seismic S1:</b>	0.064
<b>Service Wind Speed:</b>	60 mph

**Table 1 - Proposed Equipment Configuration**

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
121.0	122.0	3	ericsson	RRUS 11	3 1 6 12 1	3/8 1/2 7/8 1-5/8 conduit
		6	powerwave tech	LGP21401		
		1	raycap	DC6-48-60-18-8F		
	121.0	3	ericsson	RRUS 32 B2		
		3	ericsson	RRUS 32 B30		
		3	ericsson	RRUS 4426 B66		
		3	ericsson	RRUS 4478 B5		
		3	kaelus	DBC0061F1V51-2		
		3	kathrein	80010965 w/ Mount Pipe		
		6	powerwave tech	7020.00		
		3	quintel tech	QS66512-2 w/ Mount Pipe		
		2	raycap	DC6-48-60-18-8C		
		3	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe		
		3	powerwave tech	RA21.7770.00 w/ Mount Pipe		
		1	tower mounts	Platform Mount [LP 601-1]		
		1	sitepro 1	P/N PRK-1245		
		1	sitepro 1	P/N HRK12		



**Table 2 - Other Considered Equipment**

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
110.0	112.0	3	alcatel lucent	B13 RRH 4X30	20	1-5/8
		3	alcatel lucent	B4 RRH2X60-4R		
		6	andrew	SBNHH-1D65B w/ Mount Pipe		
		2	antel	BXA-171063-8BF-2 w/ Mount Pipe		
		6	antel	LPA-80063-4CF-EDIN-5 w/ Mount Pipe		
		1	kathrein	800 10735V01 w/ Mount Pipe		
	1	rfc celwave	DB-T1-6Z-8AB-0Z			
	110.0	1	tower mounts	Platform Mount [LP 1201-1]		
98.0	100.0	3	andrew	ONEBASE TWIN DUAL DUPLEX TMA	12	1-1/4 1-5/8
		6	ericsson	AIR 21 w/ Mount Pipe		
	98.0	1	tower mounts	Platform Mount [LP 601-1]		
86.0	88.0	1	dragonwave	A-ANT-18G-2-C	5 2 2	5/16 1/2 conduit
		3	argus tech	LLPX310R-V1 w/ Mount Pipe		
		1	dragonwave	A-ANT-11G-3-C		
		2	dragonwave	HORIZON DUO		
		3	raycap	DC6-48-60-18-8F		
	3	samsung telecom	URAS-FLEXIBLE			
	86.0	1	tower mounts	Side Arm Mount [SO 103-3]		

### 3) ANALYSIS PROCEDURE

**Table 3 - Documents Provided**

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Tectonic	4566990	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	EEI	4566996	CCISITES
4-TOWER MANUFACTURER DRAWINGS	EEI	7769700	CCISITES

#### 3.1) Analysis Method

tnxTower (version 8.0.2.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

### 3.2) Assumptions

- 1) Tower and structures were built and maintained in accordance with the manufacturer's specifications.
- 2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle should be notified to determine the effect on the structural integrity of the tower.

## 4) ANALYSIS RESULTS

**Table 4 - Section Capacity (Summary)**

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	119 - 95	Pole	TP27.38x21x0.188	1	-8.656	1041.460	55.0	Pass
L2	95 - 47.25	Pole	TP39.57x25.942x0.25	2	-20.037	1944.740	95.2	Pass
L3	47.25 - 0	Pole	TP51.5x37.622x0.313	3	-34.850	3169.190	89.3	Pass
							Summary	
						Pole (L2)	95.2	Pass
						Rating =	95.2	Pass

**Table 5 - Tower Component Stresses vs. Capacity – LC5**

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	58.9	Pass
1	Base Plate	0	70.9	Pass
1	Base Foundation Structure	0	68.8	Pass
1	Base Foundation Soil Interaction	0	36.8	Pass

<b>Structure Rating (max from all components) =</b>	<b>95.2%</b>
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Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

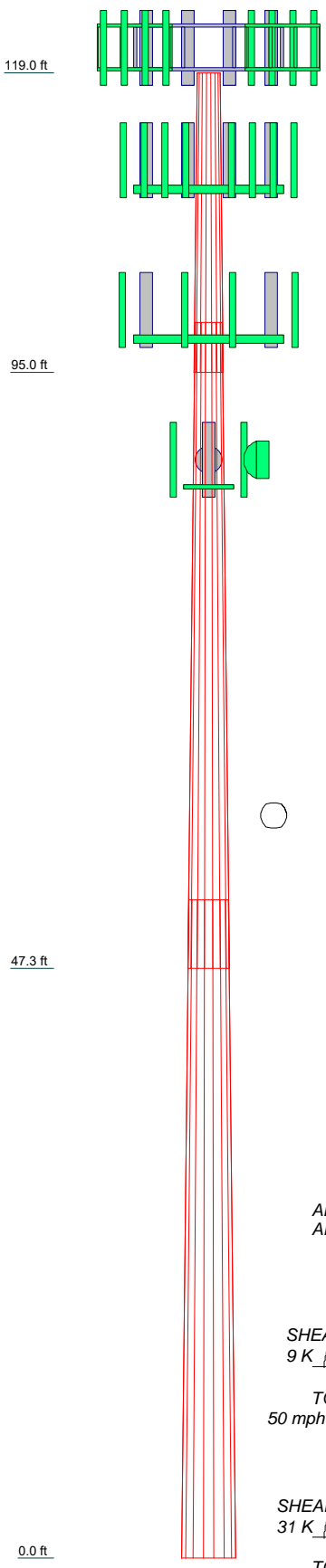
### 4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

**APPENDIX A**  
**TNXTOWER OUTPUT**



Section	1	2	3
Length (ft)	24,000	51,750	52,750
Number of Sides	18	18	18
Thickness (in)	0.188	0.250	0.313
Socket Length (ft)	4,000	5,500	37,622
Top Dia (in)	21,000	25,942	51,500
Bot Dia (in)	27,380	39,570	
Grade		A572-65	
Weight (K)	1.2	4.5	7.9



### DESIGNED APPURTENANCE LOADING

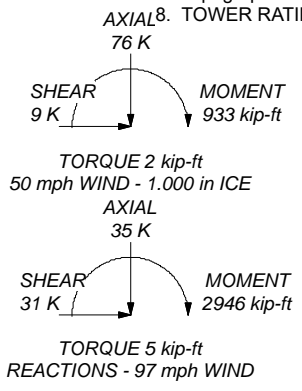
TYPE	ELEVATION	TYPE	ELEVATION
(2) RA21.7770.00 w/ Mount Pipe	121	(2) SBNHH-1D65B w/ Mount Pipe	110
RA21.7770.00 w/ Mount Pipe	121	(2) SBNHH-1D65B w/ Mount Pipe	110
HPA-65R-BUU-H6 w/ Mount Pipe	121	(2) SBNHH-1D65B w/ Mount Pipe	110
HPA-65R-BUU-H6 w/ Mount Pipe	121	800 10735V01 w/ Mount Pipe	110
HPA-65R-BUU-H6 w/ Mount Pipe	121	BXA-171063-8BF-2 w/ Mount Pipe	110
(2) LGP21401	121	BXA-171063-8BF-2 w/ Mount Pipe	110
(2) LGP21401	121	B4 RRH2X60-4R	110
(2) LGP21401	121	B4 RRH2X60-4R	110
RRUS 11	121	B4 RRH2X60-4R	110
RRUS 11	121	B13 RRH 4X30	110
RRUS 11	121	B13 RRH 4X30	110
DC6-48-60-18-8F	121	B13 RRH 4X30	110
QS66512-2 w/ Mount Pipe	121	DB-T1-6Z-8AB-OZ	110
QS66512-2 w/ Mount Pipe	121	Platform Mount [LP 1201-1]	110
QS66512-2 w/ Mount Pipe	121	(2) AIR 21 w/ Mount Pipe	98
80010965 w/ Mount Pipe	121	(2) AIR 21 w/ Mount Pipe	98
80010965 w/ Mount Pipe	121	(2) AIR 21 w/ Mount Pipe	98
80010965 w/ Mount Pipe	121	ONEBASE TWIN DUAL DUPLEX TMA	98
(2) DC6-48-60-18-8C	121	ONEBASE TWIN DUAL DUPLEX TMA	98
(3) RRUS 32 B2	121	ONEBASE TWIN DUAL DUPLEX TMA	98
(2) 7020.00	121	(2) 6' x 2" Mount Pipe	98
7020.00	121	(2) 6' x 2" Mount Pipe	98
(3) 7020.00	121	(2) 6' x 2" Mount Pipe	98
RRUS 32 B30	121	Platform Mount [LP 601-1]	98
(2) RRUS 32 B30	121	LLPX310R-V1 w/ Mount Pipe	86
(3) RRUS 4426 B66	121	LLPX310R-V1 w/ Mount Pipe	86
(2) RRUS 4478 B5	121	LLPX310R-V1 w/ Mount Pipe	86
RRUS 4478 B5	121	HORIZON DUO	86
(3) DBC0061F1V51-2	121	HORIZON DUO	86
6' x 2" Mount Pipe	121	DC6-48-60-18-8F	86
6' x 2" Mount Pipe	121	DC6-48-60-18-8F	86
6' x 2" Mount Pipe	121	DC6-48-60-18-8F	86
Platform Mount [LP 601-1]	121	URAS-FLEXIBLE	86
Miscellaneous [NA 509-3]	121	URAS-FLEXIBLE	86
Miscellaneous [NA 507-1]	121	URAS-FLEXIBLE	86
(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	110	6' x 2" Mount Pipe	86
(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	110	6' x 2" Mount Pipe	86
(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	110	6' x 2" Mount Pipe	86
(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	110	Side Arm Mount [SO 103-3]	86
		A-ANT-18G-2-C	86
		A-ANT-11G-3-C	86

### MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

### TOWER DESIGN NOTES

- Tower is located in Hartford County, Connecticut.
- Tower designed for Exposure C to the TIA-222-G Standard.
- Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
- Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
- Deflections are based upon a 60 mph wind.
- Tower Structure Class II.
- Topographic Category 1 with Crest Height of 0.000 ft
- TOWER RATING: 95.2%



**Crown Castle**  
 2000 Corporate Drive  
 Canonsburg, PA 15317  
 Phone: (724) 416-2000  
 FAX:

Job: **BU# 857012**  
 Project:  
 Client: Crown Castle      Drawn by: Daniel Chen      App'd:  
 Code: TIA-222-G      Date: 09/05/18      Scale: NTS  
 Path: R:\SA Models - Letters\Work Area\DChen\WIP\857012 WO 1622259\New Production\857012.dwg  
 Dwg No. E-1

## Tower Input Data

The tower is a monopole.  
 This tower is designed using the TIA-222-G standard.  
 The following design criteria apply:

- 1) Tower is located in Hartford County, Connecticut.
- 2) Basic wind speed of 97 mph.
- 3) Structure Class II.
- 4) Exposure Category C.
- 5) Topographic Category 1.
- 6) Crest Height 0.000 ft.
- 7) Nominal ice thickness of 1.000 in.
- 8) Ice thickness is considered to increase with height.
- 9) Ice density of 56.000 pcf.
- 10) A wind speed of 50 mph is used in combination with ice.
- 11) Temperature drop of 50.000 °F.
- 12) Deflections calculated using a wind speed of 60 mph.
- 13) A non-linear (P-delta) analysis was used.
- 14) Pressures are calculated at each section.
- 15) Stress ratio used in pole design is 1.
- 16) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

## Options

Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification ✓ Use Code Stress Ratios ✓ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile  Include Bolts In Member Capacity  Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric	Distribute Leg Loads As Uniform Assume Legs Pinned ✓ Assume Rigid Index Plate ✓ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension ✓ Bypass Mast Stability Checks ✓ Use Azimuth Dish Coefficients ✓ Project Wind Area of Appurt.  Autocalc Torque Arm Areas  Add IBC .6D+W Combination ✓ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder	Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation ✓ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-G Bracing Resist. Exemption Use TIA-222-G Tension Splice Exemption  <div style="text-align: center; background-color: #e0e0e0; padding: 2px;"><b>Poles</b></div> ✓ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known
--	--	---

## Tapered Pole Section Geometry

Section	Elevation <small>ft</small>	Section Length <small>ft</small>	Splice Length <small>ft</small>	Number of Sides	Top Diameter <small>in</small>	Bottom Diameter <small>in</small>	Wall Thickness <small>in</small>	Bend Radius <small>in</small>	Pole Grade
L1	119.000- 95.000	24.000	4.000	18	21.000	27.380	0.188	0.750	A572-65 (65 ksi)
L2	95.000-47.250	51.750	5.500	18	25.942	39.570	0.250	1.000	A572-65 (65 ksi)
L3	47.250-0.000	52.750		18	37.622	51.500	0.313	1.250	A572-65 (65 ksi)

### Tapered Pole Properties

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	It/Q in <sup>2</sup>	w in	w/t
L1	21.295	12.386	677.826	7.388	10.668	63.538	1356.544	6.194	3.366	17.952
	27.773	16.183	1511.796	9.653	13.909	108.692	3025.580	8.093	4.489	23.941
L2	27.373	20.386	1700.048	9.121	13.178	129.003	3402.333	10.195	4.126	16.503
	40.142	31.200	6094.315	13.959	20.102	303.176	12196.649	15.603	6.524	26.097
L3	39.623	37.006	6507.856	13.245	19.112	340.516	13024.276	18.506	6.071	19.428
	52.246	50.772	16806.843	18.172	26.162	642.414	33635.802	25.391	8.514	27.245

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A <sub>r</sub>	Adjust. Factor A <sub>r</sub>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft <sup>2</sup>	in					in	in	in
L1 119.000-95.000				1	1	1			
L2 95.000-47.250				1	1	1			
L3 47.250-0.000				1	1	1			

### Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement	Total Number	Number Per Row	Start/End Position	Width or Diameter	Perimeter	Weight
			ft				in	in	plf
LDF7-50A(1-5/8)	B	Surface Ar (CaAa)	110.000 - 0.000	7	6	-0.200 0.000	1.980		0.820
****									

### Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number		C <sub>A</sub> A <sub>A</sub>	Weight
				ft			ft <sup>2</sup> /ft	plf
**Level 121** 2" Rigid Conduit	A	No	Inside Pole	119.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	2.800 2.800 2.800
LDF7-50A(1-5/8)	A	No	Inside Pole	119.000 - 0.000	12	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.820 0.820 0.820
760002253(1/2)	A	No	Inside Pole	119.000 - 0.000	1	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.103 0.103 0.103
WR-VG86ST-BRDA(7/8)	A	No	Inside Pole	119.000 - 0.000	2	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.680 0.680 0.680
FB-L98B-034-XXX(3/8)	A	No	Inside Pole	119.000 - 0.000	3	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.057 0.057 0.057
WR-VG86ST-BRDA(7/8)	A	No	Inside Pole	119.000 - 0.000	4	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.680 0.680 0.680
**Level 110** LDF7-50A(1-5/8)	B	No	Inside Pole	110.000 - 0.000	11	No Ice 1/2" Ice	0.000 0.000	0.820 0.820

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C <sub>AA</sub>		Weight
						ft <sup>2</sup> /ft	plf	
MLE HYBRID 9POWER/18FIBER RL 2(1-5/8)	B	No	Inside Pole	110.000 - 0.000	1	1" Ice	0.000	0.820
						No Ice	0.000	1.070
						1/2" Ice	0.000	1.070
HB158-1-08U8- S8J18(1-5/8)	B	No	Inside Pole	110.000 - 0.000	1	1" Ice	0.000	1.070
						No Ice	0.000	1.300
						1/2" Ice	0.000	1.300
**Level 98** LDF6-50A(1-1/4)	A	No	Inside Pole	98.000 - 0.000	1	1" Ice	0.000	1.300
						No Ice	0.000	0.600
						1/2" Ice	0.000	0.600
LDF7-50A(1-5/8)	A	No	Inside Pole	98.000 - 0.000	12	1" Ice	0.000	0.600
						No Ice	0.000	0.820
						1/2" Ice	0.000	0.820
**Level 86** 2" Rigid Conduit	C	No	Inside Pole	86.000 - 0.000	2	1" Ice	0.000	0.820
						No Ice	0.000	2.800
						1/2" Ice	0.000	2.800
LDF4-50A(1/2)	C	No	Inside Pole	86.000 - 0.000	2	1" Ice	0.000	2.800
						No Ice	0.000	0.150
						1/2" Ice	0.000	0.150
9207(5/16)	C	No	Inside Pole	86.000 - 0.000	5	1" Ice	0.000	0.150
						No Ice	0.000	0.600
						1/2" Ice	0.000	0.600
****						1" Ice	0.000	0.600

### Feed Line/Linear Appurtenances Section Areas

Tower Sectio n	Tower Elevation ft	Face	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
L1	119.000-95.000	A	0.000	0.000	0.000	0.000	0.439
		B	0.000	0.000	17.820	0.000	0.257
		C	0.000	0.000	0.000	0.000	0.000
L2	95.000-47.250	A	0.000	0.000	0.000	0.000	1.310
		B	0.000	0.000	56.727	0.000	0.818
		C	0.000	0.000	0.000	0.000	0.345
L3	47.250-0.000	A	0.000	0.000	0.000	0.000	1.296
		B	0.000	0.000	56.133	0.000	0.809
		C	0.000	0.000	0.000	0.000	0.421

### Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Sectio n	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>R</sub> ft <sup>2</sup>	A <sub>F</sub> ft <sup>2</sup>	C <sub>AA</sub> In Face ft <sup>2</sup>	C <sub>AA</sub> Out Face ft <sup>2</sup>	Weight K
L1	119.000-95.000	A	2.249	0.000	0.000	0.000	0.000	0.439
		B		0.000	0.000	30.707	0.000	0.760
		C		0.000	0.000	0.000	0.000	0.000
L2	95.000-47.250	A	2.156	0.000	0.000	0.000	0.000	1.310
		B		0.000	0.000	97.751	0.000	2.419
		C		0.000	0.000	0.000	0.000	0.345
L3	47.250-0.000	A	1.934	0.000	0.000	0.000	0.000	1.296
		B		0.000	0.000	95.638	0.000	2.321
		C		0.000	0.000	0.000	0.000	0.421

### Feed Line Center of Pressure



Section	Elevation	CP <sub>x</sub>	CP <sub>z</sub>	CP <sub>x</sub> Ice	CP <sub>z</sub> Ice
	ft	in	in	in	in
L1	119.000-95.000	3.909	-3.519	2.976	-2.679
L2	95.000-47.250	5.450	-4.907	4.239	-3.817
L3	47.250-0.000	5.913	-5.324	4.727	-4.256

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

### Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
L1	12	LDF7-50A(1-5/8)	95.00 - 110.00	1.0000	1.0000
L2	12	LDF7-50A(1-5/8)	47.25 - 95.00	1.0000	1.0000

### Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment t °	Placement ft	CA <sub>AA</sub> Front ft <sup>2</sup>	CA <sub>AA</sub> Side ft <sup>2</sup>	Weight K	
<b>**Level 121**</b>									
(2) RA21.7770.00 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	121.000	No Ice 6.766 1/2" 7.261 Ice 7.735 1" Ice 7.735	5.002 5.960 6.747	0.060 0.114 0.175	
RA21.7770.00 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	121.000	No Ice 6.766 1/2" 7.261 Ice 7.735 1" Ice 7.735	5.002 5.960 6.747	0.060 0.114 0.175	
HPA-65R-BUU-H6 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	121.000	No Ice 9.895 1/2" 10.470 Ice 11.010 1" Ice 11.010	8.113 9.304 10.209	0.077 0.158 0.248	
HPA-65R-BUU-H6 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	121.000	No Ice 9.895 1/2" 10.470 Ice 11.010 1" Ice 11.010	8.113 9.304 10.209	0.077 0.158 0.248	
HPA-65R-BUU-H6 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	121.000	No Ice 9.895 1/2" 10.470 Ice 11.010 1" Ice 11.010	8.113 9.304 10.209	0.077 0.158 0.248	
(2) LGP21401	A	From Leg	4.000 0.000 1.000	0.000	121.000	No Ice 1.104 1/2" 1.239 Ice 1.381 1" Ice 1.381	0.207 0.274 0.348	0.014 0.021 0.030	
(2) LGP21401	B	From Leg	4.000 0.000 1.000	0.000	121.000	No Ice 1.104 1/2" 1.239 Ice 1.381 1" Ice 1.381	0.207 0.274 0.348	0.014 0.021 0.030	
(2) LGP21401	C	From Leg	4.000	0.000	121.000	No Ice 1.104	0.207	0.014	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	CAAA	CAAA	Weight K
			Horz	Lateral			Front	Side	
			ft	ft					
			ft	ft					
			0.000			1/2"	1.239	0.274	0.021
			1.000			Ice	1.381	0.348	0.030
RRUS 11	A	From Leg	4.000	0.000	121.000	1" Ice	2.784	1.187	0.048
			0.000			No Ice	2.992	1.334	0.068
			1.000			1/2"	2.992	1.334	0.068
						Ice	3.207	1.490	0.092
RRUS 11	B	From Leg	4.000	0.000	121.000	1" Ice	2.784	1.187	0.048
			0.000			No Ice	2.992	1.334	0.068
			1.000			1/2"	2.992	1.334	0.068
						Ice	3.207	1.490	0.092
RRUS 11	C	From Leg	4.000	0.000	121.000	1" Ice	2.784	1.187	0.048
			0.000			No Ice	2.992	1.334	0.068
			1.000			1/2"	2.992	1.334	0.068
						Ice	3.207	1.490	0.092
DC6-48-60-18-8F	A	From Leg	4.000	0.000	121.000	1" Ice	0.791	0.791	0.020
			0.000			No Ice	1.274	1.274	0.035
			1.000			1/2"	1.274	1.274	0.035
						Ice	1.450	1.450	0.053
QS66512-2 w/ Mount Pipe	A	From Leg	4.000	0.000	121.000	1" Ice	2.600	5.000	0.111
			0.000			No Ice	9.290	9.657	0.212
			0.000			1/2"	9.290	9.657	0.212
						Ice	9.910	10.620	0.296
QS66512-2 w/ Mount Pipe	B	From Leg	4.000	0.000	121.000	1" Ice	2.600	5.000	0.111
			0.000			No Ice	9.290	9.657	0.212
			0.000			1/2"	9.290	9.657	0.212
						Ice	9.910	10.620	0.296
QS66512-2 w/ Mount Pipe	C	From Leg	4.000	0.000	121.000	1" Ice	2.600	5.000	0.111
			0.000			No Ice	9.290	9.657	0.212
			0.000			1/2"	9.290	9.657	0.212
						Ice	9.910	10.620	0.296
80010965 w/ Mount Pipe	A	From Leg	4.000	0.000	121.000	1" Ice	14.051	7.628	0.125
			0.000			No Ice	14.688	8.903	0.222
			0.000			1/2"	14.688	8.903	0.222
						Ice	15.303	9.963	0.327
80010965 w/ Mount Pipe	B	From Leg	4.000	0.000	121.000	1" Ice	14.051	7.628	0.125
			0.000			No Ice	14.688	8.903	0.222
			0.000			1/2"	14.688	8.903	0.222
						Ice	15.303	9.963	0.327
80010965 w/ Mount Pipe	C	From Leg	4.000	0.000	121.000	1" Ice	14.051	7.628	0.125
			0.000			No Ice	14.688	8.903	0.222
			0.000			1/2"	14.688	8.903	0.222
						Ice	15.303	9.963	0.327
(2) DC6-48-60-18-8C	A	From Leg	4.000	0.000	121.000	1" Ice	2.737	2.737	0.026
			0.000			No Ice	2.963	2.963	0.052
			0.000			1/2"	2.963	2.963	0.052
						Ice	3.196	3.196	0.082
(3) RRUS 32 B2	A	From Leg	4.000	0.000	121.000	1" Ice	2.731	1.668	0.053
			0.000			No Ice	2.953	1.855	0.074
			0.000			1/2"	2.953	1.855	0.074
						Ice	3.182	2.049	0.098
(2) 7020.00	A	From Leg	4.000	0.000	121.000	1" Ice	0.102	0.175	0.002
			0.000			No Ice	0.147	0.239	0.005
			0.000			1/2"	0.147	0.239	0.005
						Ice	0.199	0.311	0.009
7020.00	B	From Leg	4.000	0.000	121.000	1" Ice	0.102	0.175	0.002
			0.000			No Ice	0.147	0.239	0.005
			0.000			1/2"	0.147	0.239	0.005
						Ice	0.199	0.311	0.009
(3) 7020.00	C	From Leg	4.000	0.000	121.000	1" Ice	0.102	0.175	0.002
			0.000			No Ice	0.147	0.239	0.005
			0.000			1/2"	0.147	0.239	0.005
						Ice	0.199	0.311	0.009
RRUS 32 B30	A	From Leg	4.000	0.000	121.000	1" Ice	2.692	1.573	0.060
			0.000			No Ice	2.912	1.756	0.080
						1/2"	2.912	1.756	0.080

Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C <sub>AA</sub>		Weight
			Horz	Lateral	Vert			Front	Side	
			ft	ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
			0.000				Ice	3.138	1.945	0.104
(2) RRUS 32 B30	B	From Leg	4.000	0.000	121.000		1" Ice			
			0.000				No Ice	2.692	1.573	0.060
			0.000				1/2"	2.912	1.756	0.080
							Ice	3.138	1.945	0.104
(3) RRUS 4426 B66	B	From Leg	4.000	0.000	121.000		1" Ice			
			0.000				No Ice	1.644	0.725	0.048
			0.000				1/2"	1.804	0.842	0.061
			0.000				Ice	1.972	0.969	0.076
(2) RRUS 4478 B5	B	From Leg	4.000	0.000	121.000		1" Ice			
			0.000				No Ice	1.843	1.059	0.060
			0.000				1/2"	2.012	1.197	0.076
			0.000				Ice	2.190	1.342	0.094
RRUS 4478 B5	C	From Leg	4.000	0.000	121.000		1" Ice			
			0.000				No Ice	1.843	1.059	0.060
			0.000				1/2"	2.012	1.197	0.076
			0.000				Ice	2.190	1.342	0.094
(3) DBC0061F1V51-2	C	From Leg	4.000	0.000	121.000		1" Ice			
			0.000				No Ice	0.413	0.433	0.025
			0.000				1/2"	0.496	0.518	0.031
			0.000				Ice	0.586	0.609	0.038
6' x 2" Mount Pipe	A	From Leg	4.000	0.000	121.000		1" Ice			
			0.000				No Ice	1.425	1.425	0.022
			0.000				1/2"	1.925	1.925	0.033
			0.000				Ice	2.294	2.294	0.048
6' x 2" Mount Pipe	B	From Leg	4.000	0.000	121.000		1" Ice			
			0.000				No Ice	1.425	1.425	0.022
			0.000				1/2"	1.925	1.925	0.033
			0.000				Ice	2.294	2.294	0.048
6' x 2" Mount Pipe	C	From Leg	4.000	0.000	121.000		1" Ice			
			0.000				No Ice	1.425	1.425	0.022
			0.000				1/2"	1.925	1.925	0.033
			0.000				Ice	2.294	2.294	0.048
Platform Mount [LP 601-1]	C	None		0.000	121.000		1" Ice			
							No Ice	28.470	28.470	1.122
							1/2"	33.590	33.590	1.514
							Ice	38.710	38.710	1.905
Miscellaneous [NA 509-3]	C	None		0.000	121.000		1" Ice			
							No Ice	11.840	11.840	0.275
							1/2"	16.960	16.960	0.296
							Ice	22.080	22.080	0.317
Miscellaneous [NA 507-1]	C	None		0.000	121.000		1" Ice			
							No Ice	4.800	4.800	0.245
							1/2"	6.700	6.700	0.294
							Ice	8.600	8.600	0.343
**Level 110**							1" Ice			
(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	A	From Leg	4.000	0.000	110.000		No Ice	6.379	6.564	0.038
			0.000				1/2"	6.778	7.192	0.104
			2.000				Ice	7.186	7.836	0.176
(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	B	From Leg	4.000	0.000	110.000		1" Ice			
			0.000				No Ice	6.379	6.564	0.038
			0.000				1/2"	6.778	7.192	0.104
			2.000				Ice	7.186	7.836	0.176
(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	C	From Leg	4.000	0.000	110.000		1" Ice			
			0.000				No Ice	6.379	6.564	0.038
			0.000				1/2"	6.778	7.192	0.104
			2.000				Ice	7.186	7.836	0.176
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.000	0.000	110.000		1" Ice			
			0.000				No Ice	8.386	7.084	0.076
			2.000				1/2"	8.950	8.275	0.146
							Ice	9.480	9.188	0.223
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.000	0.000	110.000		1" Ice			
			0.000				No Ice	8.386	7.084	0.076
							1/2"	8.950	8.275	0.146

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CAAA Front ft <sup>2</sup>	CAAA Side ft <sup>2</sup>	Weight K
			2.000			Ice 9.480	9.188	0.223
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	110.000	1" Ice No Ice 8.386 1/2" 8.950 Ice 9.480	7.084 8.275 9.188	0.076 0.146 0.223
800 10735V01 w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	110.000	1" Ice No Ice 8.873 1/2" 9.455 Ice 10.010	5.489 6.710 7.688	0.058 0.121 0.192
BXA-171063-8BF-2 w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	110.000	1" Ice No Ice 3.179 1/2" 3.555 Ice 3.930	3.353 3.971 4.595	0.029 0.061 0.099
BXA-171063-8BF-2 w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	110.000	1" Ice No Ice 3.179 1/2" 3.555 Ice 3.930	3.353 3.971 4.595	0.029 0.061 0.099
B4 RRH2X60-4R	A	From Leg	4.000 0.000 2.000	0.000	110.000	1" Ice No Ice 3.355 1/2" 3.612 Ice 3.876	2.005 2.237 2.476	0.055 0.078 0.105
B4 RRH2X60-4R	B	From Leg	4.000 0.000 2.000	0.000	110.000	1" Ice No Ice 3.355 1/2" 3.612 Ice 3.876	2.005 2.237 2.476	0.055 0.078 0.105
B4 RRH2X60-4R	C	From Leg	4.000 0.000 2.000	0.000	110.000	1" Ice No Ice 3.355 1/2" 3.612 Ice 3.876	2.005 2.237 2.476	0.055 0.078 0.105
B13 RRH 4X30	A	From Leg	4.000 0.000 2.000	0.000	110.000	1" Ice No Ice 2.055 1/2" 2.241 Ice 2.433	1.320 1.475 1.638	0.056 0.073 0.093
B13 RRH 4X30	B	From Leg	4.000 0.000 2.000	0.000	110.000	1" Ice No Ice 2.055 1/2" 2.241 Ice 2.433	1.320 1.475 1.638	0.056 0.073 0.093
B13 RRH 4X30	C	From Leg	4.000 0.000 2.000	0.000	110.000	1" Ice No Ice 2.055 1/2" 2.241 Ice 2.433	1.320 1.475 1.638	0.056 0.073 0.093
DB-T1-6Z-8AB-0Z	A	From Leg	4.000 0.000 2.000	0.000	110.000	1" Ice No Ice 4.800 1/2" 5.070 Ice 5.348	2.000 2.193 2.393	0.044 0.080 0.120
Platform Mount [LP 1201-1]	C	None		0.000	110.000	1" Ice No Ice 23.100 1/2" 26.800 Ice 30.500	23.100 26.800 30.500	2.100 2.500 2.900
**Level 98**								
(2) AIR 21 w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	98.000	1" Ice No Ice 6.287 1/2" 6.732 Ice 7.170	5.701 6.482 7.188	0.112 0.169 0.232
(2) AIR 21 w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	98.000	1" Ice No Ice 6.287 1/2" 6.732 Ice 7.170	5.701 6.482 7.188	0.112 0.169 0.232
(2) AIR 21 w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	98.000	1" Ice No Ice 6.287 1/2" 6.732 Ice 7.170	5.701 6.482 7.188	0.112 0.169 0.232
ONEBASE TWIN DUAL DUPLEX TMA	A	From Leg	4.000 0.000	0.000	98.000	1" Ice No Ice 0.578 1/2" 0.674	0.263 0.336	0.011 0.016



Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C <sub>AA</sub> Front	C <sub>AA</sub> Side	Weight
			Horz	Lateral	Vert					
			ft	ft	ft	°	ft	ft <sup>2</sup>	ft <sup>2</sup>	K
			2.000				Ice	0.778	0.416	0.022
ONEBASE TWIN DUAL	B	From Leg	4.000	0.000	98.000		1" Ice			
DUPLEX TMA			0.000				No Ice	0.578	0.263	0.011
			2.000				1/2"	0.674	0.336	0.016
							Ice	0.778	0.416	0.022
ONEBASE TWIN DUAL	C	From Leg	4.000	0.000	98.000		1" Ice			
DUPLEX TMA			0.000				No Ice	0.578	0.263	0.011
			2.000				1/2"	0.674	0.336	0.016
							Ice	0.778	0.416	0.022
(2) 6' x 2" Mount Pipe	A	From Leg	4.000	0.000	98.000		1" Ice			
			0.000				No Ice	1.425	1.425	0.022
			0.000				1/2"	1.925	1.925	0.033
							Ice	2.294	2.294	0.048
(2) 6' x 2" Mount Pipe	B	From Leg	4.000	0.000	98.000		1" Ice			
			0.000				No Ice	1.425	1.425	0.022
			0.000				1/2"	1.925	1.925	0.033
							Ice	2.294	2.294	0.048
(2) 6' x 2" Mount Pipe	C	From Leg	4.000	0.000	98.000		1" Ice			
			0.000				No Ice	1.425	1.425	0.022
			0.000				1/2"	1.925	1.925	0.033
							Ice	2.294	2.294	0.048
Platform Mount [LP 601-1]	C	None		0.000	98.000		1" Ice			
							No Ice	28.470	28.470	1.122
							1/2"	33.590	33.590	1.514
							Ice	38.710	38.710	1.905
							1" Ice			
**Level 86**										
LLPX310R-V1 w/ Mount	A	From Leg	2.000	0.000	86.000		No Ice	4.538	2.983	0.045
Pipe			0.000				1/2"	4.891	3.526	0.083
			2.000				Ice	5.254	4.086	0.126
LLPX310R-V1 w/ Mount	B	From Leg	2.000	0.000	86.000		1" Ice			
Pipe			0.000				No Ice	4.538	2.983	0.045
			2.000				1/2"	4.891	3.526	0.083
							Ice	5.254	4.086	0.126
LLPX310R-V1 w/ Mount	C	From Leg	2.000	0.000	86.000		1" Ice			
Pipe			0.000				No Ice	4.538	2.983	0.045
			2.000				1/2"	4.891	3.526	0.083
							Ice	5.254	4.086	0.126
HORIZON DUO	A	From Leg	2.000	0.000	86.000		1" Ice			
			0.000				No Ice	0.469	0.294	0.007
			2.000				1/2"	0.556	0.365	0.012
							Ice	0.650	0.444	0.018
HORIZON DUO	B	From Leg	2.000	0.000	86.000		1" Ice			
			0.000				No Ice	0.469	0.294	0.007
			2.000				1/2"	0.556	0.365	0.012
							Ice	0.650	0.444	0.018
DC6-48-60-18-8F	A	From Leg	2.000	0.000	86.000		1" Ice			
			0.000				No Ice	0.791	0.791	0.020
			2.000				1/2"	1.274	1.274	0.035
							Ice	1.450	1.450	0.053
DC6-48-60-18-8F	B	From Leg	2.000	0.000	86.000		1" Ice			
			0.000				No Ice	0.791	0.791	0.020
			2.000				1/2"	1.274	1.274	0.035
							Ice	1.450	1.450	0.053
DC6-48-60-18-8F	C	From Leg	2.000	0.000	86.000		1" Ice			
			0.000				No Ice	0.791	0.791	0.020
			2.000				1/2"	1.274	1.274	0.035
							Ice	1.450	1.450	0.053
URAS-FLEXIBLE	A	From Leg	2.000	0.000	86.000		1" Ice			
			0.000				No Ice	1.547	0.684	0.033
			2.000				1/2"	1.704	0.800	0.045
							Ice	1.868	0.923	0.058
URAS-FLEXIBLE	B	From Leg	2.000	0.000	86.000		1" Ice			
			0.000				No Ice	1.547	0.684	0.033
							1/2"	1.704	0.800	0.045

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	Ice	C <sub>AA</sub> <sub>Front</sub> ft <sup>2</sup>	C <sub>AA</sub> <sub>Side</sub> ft <sup>2</sup>	Weight K
			2.000			Ice	1.868	0.923	0.058
URAS-FLEXIBLE	C	From Leg	2.000	0.000	86.000	1" Ice	1.547	0.684	0.033
			0.000			No Ice	1.704	0.800	0.045
			2.000			1/2" Ice	1.868	0.923	0.058
6' x 2" Mount Pipe	A	From Leg	2.000	0.000	86.000	1" Ice	1.425	1.425	0.022
			0.000			No Ice	1.925	1.925	0.033
			2.000			1/2" Ice	2.294	2.294	0.048
6' x 2" Mount Pipe	B	From Leg	2.000	0.000	86.000	1" Ice	1.425	1.425	0.022
			0.000			No Ice	1.925	1.925	0.033
			2.000			1/2" Ice	2.294	2.294	0.048
6' x 2" Mount Pipe	C	From Leg	2.000	0.000	86.000	1" Ice	1.425	1.425	0.022
			0.000			No Ice	1.925	1.925	0.033
			2.000			1/2" Ice	2.294	2.294	0.048
Side Arm Mount [SO 103-3]	C	None		0.000	86.000	1" Ice	9.500	9.500	0.224
						No Ice	11.800	11.800	0.317
						1/2" Ice	14.100	14.100	0.410
						1" Ice			

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### Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft <sup>2</sup>	Weight K
A-ANT-18G-2-C	A	Paraboloid w/Shroud (HP)	From Leg	2.000	0.000		86.000	2.175	No Ice	3.715
				0.000					1/2" Ice	4.006
				2.000					1" Ice	4.296
A-ANT-11G-3-C	B	Paraboloid w/Shroud (HP)	From Leg	2.000	0.000		86.000	3.021	No Ice	7.170
				0.000					1/2" Ice	7.570
				2.000					1" Ice	7.970

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### Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice

Comb. No.	Description
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

**Maximum Member Forces**

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	119 - 95	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-30.690	-5.589	8.515
			Max. Mx	8	-8.750	-295.268	-2.751
			Max. My	2	-8.671	2.203	302.021
			Max. Vy	8	16.886	-295.268	-2.751
			Max. Vx	2	-17.325	2.203	302.021
			Max. Torque	10			4.965
L2	95 - 47.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-54.200	-9.455	11.785
			Max. Mx	8	-20.113	-1388.105	-13.613
			Max. My	2	-20.066	17.746	1416.305
			Max. Vy	20	-26.004	1386.815	19.263
			Max. Vx	14	26.413	-19.122	-1413.977
			Max. Torque	22			-5.289
L3	47.25 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-75.875	-12.878	14.973
			Max. Mx	20	-34.852	2866.570	37.437
			Max. My	2	-34.851	38.158	2916.961
			Max. Vy	20	-29.936	2866.570	37.437
			Max. Vx	14	30.328	-36.160	-2914.966
			Max. Torque	22			-5.259

### Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	75.875	0.073	9.098
	Max. H <sub>x</sub>	20	34.884	29.899	0.327
	Max. H <sub>z</sub>	2	34.884	0.389	30.265
	Max. M <sub>x</sub>	2	2916.961	0.389	30.265
	Max. M <sub>z</sub>	8	2864.251	-29.811	-0.259
	Max. Torsion	10	5.162	-26.042	-15.479
	Min. Vert	7	26.163	-25.730	14.896
	Min. H <sub>x</sub>	8	34.884	-29.811	-0.259
	Min. H <sub>z</sub>	14	34.884	-0.304	-30.290
	Min. M <sub>x</sub>	14	-2914.966	-0.304	-30.290
	Min. M <sub>z</sub>	20	-2866.570	29.899	0.327
	Min. Torsion	22	-5.248	26.131	15.479

### Tower Mast Reaction Summary

Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
Dead Only	29.070	0.000	0.000	-1.754	-2.328	0.000
1.2 Dead+1.6 Wind 0 deg - No Ice	34.884	-0.389	-30.265	-2916.961	38.159	2.535
0.9 Dead+1.6 Wind 0 deg - No Ice	26.163	-0.389	-30.265	-2887.862	38.506	2.487
1.2 Dead+1.6 Wind 30 deg - No Ice	34.884	14.720	-26.072	-2511.238	-1411.839	0.300
0.9 Dead+1.6 Wind 30 deg - No Ice	26.163	14.720	-26.072	-2486.114	-1397.331	0.265
1.2 Dead+1.6 Wind 60 deg - No Ice	34.884	25.730	-14.896	-1433.309	-2470.272	-2.479
0.9 Dead+1.6 Wind 60 deg - No Ice	26.163	25.730	-14.896	-1418.748	-2445.404	-2.492
1.2 Dead+1.6 Wind 90 deg - No Ice	34.884	29.811	0.259	27.092	-2864.251	-4.598
0.9 Dead+1.6 Wind 90 deg - No Ice	26.163	29.811	0.259	27.343	-2835.523	-4.585
1.2 Dead+1.6 Wind 120 deg - No Ice	34.884	26.042	15.479	1490.062	-2501.283	-5.162
0.9 Dead+1.6 Wind 120 deg - No Ice	26.163	26.042	15.479	1476.014	-2476.131	-5.127
1.2 Dead+1.6 Wind 150 deg - No Ice	34.884	15.242	26.522	2549.862	-1466.856	-4.496
0.9 Dead+1.6 Wind 150 deg - No Ice	26.163	15.242	26.522	2525.465	-1451.815	-4.449
1.2 Dead+1.6 Wind 180 deg - No Ice	34.884	0.304	30.290	2914.966	-36.159	-2.770
0.9 Dead+1.6 Wind 180 deg - No Ice	26.163	0.304	30.290	2886.969	-35.081	-2.722
1.2 Dead+1.6 Wind 210 deg - No Ice	34.884	-14.664	26.158	2514.731	1400.968	-0.314
0.9 Dead+1.6 Wind 210 deg - No Ice	26.163	-14.664	26.158	2490.659	1388.000	-0.279
1.2 Dead+1.6 Wind 240 deg - No Ice	34.884	-25.777	14.876	1427.230	2468.774	2.629
0.9 Dead+1.6 Wind 240 deg - No Ice	26.163	-25.777	14.876	1413.792	2445.372	2.641
1.2 Dead+1.6 Wind 270 deg - No Ice	34.884	-29.899	-0.327	-37.435	2866.570	4.692
0.9 Dead+1.6 Wind 270 deg - No Ice	26.163	-29.899	-0.327	-36.534	2839.269	4.679
1.2 Dead+1.6 Wind 300 deg - No Ice	34.884	-26.131	-15.479	-1494.334	2503.654	5.248
0.9 Dead+1.6 Wind 300 deg - No Ice	26.163	-26.131	-15.479	-1479.182	2479.919	5.213



Load Combination	Vertical K	Shear <sub>x</sub> K	Shear <sub>z</sub> K	Overturning Moment, M <sub>x</sub> kip-ft	Overturning Moment, M <sub>z</sub> kip-ft	Torque kip-ft
- No Ice						
1.2 Dead+1.6 Wind 330 deg	34.884	-15.299	-26.539	-2555.608	1466.360	4.414
- No Ice						
0.9 Dead+1.6 Wind 330 deg	26.163	-15.299	-26.539	-2530.086	1452.757	4.367
- No Ice						
1.2 Dead+1.0 Ice+1.0 Temp	75.875	0.000	-0.000	-14.973	-12.878	0.003
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	75.875	-0.073	-9.098	-932.779	-4.850	0.815
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	75.875	4.490	-7.855	-806.977	-464.436	0.098
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	75.875	7.817	-4.507	-469.002	-799.970	-0.743
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	75.875	9.043	0.046	-9.571	-923.885	-1.383
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	75.875	7.844	4.598	449.510	-803.549	-1.579
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	75.875	4.562	7.902	782.546	-473.174	-1.386
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	75.875	0.055	9.104	903.353	-19.269	-0.852
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	75.875	-4.478	7.873	778.759	437.509	-0.095
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	75.875	-7.827	4.504	438.667	775.069	0.773
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	75.875	-9.061	-0.060	-21.836	899.845	1.402
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	75.875	-7.862	-4.597	-479.454	779.534	1.603
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	75.875	-4.573	-7.905	-812.804	448.486	1.380
Dead+Wind 0 deg - Service	29.070	-0.083	-6.476	-622.536	6.361	0.547
Dead+Wind 30 deg - Service	29.070	3.150	-5.578	-536.104	-302.420	0.060
Dead+Wind 60 deg - Service	29.070	5.505	-3.187	-306.549	-527.795	-0.544
Dead+Wind 90 deg - Service	29.070	6.378	0.055	4.432	-611.700	-1.000
Dead+Wind 120 deg - Service	29.070	5.572	3.312	315.990	-534.444	-1.116
Dead+Wind 150 deg - Service	29.070	3.261	5.675	541.714	-314.166	-0.967
Dead+Wind 180 deg - Service	29.070	0.065	6.481	619.453	-9.465	-0.591
Dead+Wind 210 deg - Service	29.070	-3.138	5.597	534.190	296.580	-0.062
Dead+Wind 240 deg - Service	29.070	-5.515	3.183	302.588	523.954	0.570
Dead+Wind 270 deg - Service	29.070	-6.397	-0.070	-9.307	608.671	1.014
Dead+Wind 300 deg - Service	29.070	-5.591	-3.312	-319.571	531.420	1.135
Dead+Wind 330 deg - Service	29.070	-3.273	-5.678	-545.602	310.526	0.956

## Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.000	-29.070	0.000	0.000	29.070	0.000	0.000%
2	-0.389	-34.884	-30.265	0.389	34.884	30.265	0.000%
3	-0.389	-26.163	-30.265	0.389	26.163	30.265	0.000%
4	14.720	-34.884	-26.072	-14.720	34.884	26.072	0.000%
5	14.720	-26.163	-26.072	-14.720	26.163	26.072	0.000%
6	25.730	-34.884	-14.896	-25.730	34.884	14.896	0.000%
7	25.730	-26.163	-14.896	-25.730	26.163	14.896	0.000%
8	29.811	-34.884	0.259	-29.811	34.884	-0.259	0.000%
9	29.811	-26.163	0.259	-29.811	26.163	-0.259	0.000%
10	26.042	-34.884	15.479	-26.042	34.884	-15.479	0.000%

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
11	26.042	-26.163	15.479	-26.042	26.163	-15.479	0.000%
12	15.242	-34.884	26.522	-15.242	34.884	-26.522	0.000%
13	15.242	-26.163	26.522	-15.242	26.163	-26.522	0.000%
14	0.304	-34.884	30.290	-0.304	34.884	-30.290	0.000%
15	0.304	-26.163	30.290	-0.304	26.163	-30.290	0.000%
16	-14.664	-34.884	26.158	14.664	34.884	-26.158	0.000%
17	-14.664	-26.163	26.158	14.664	26.163	-26.158	0.000%
18	-25.777	-34.884	14.876	25.777	34.884	-14.876	0.000%
19	-25.777	-26.163	14.876	25.777	26.163	-14.876	0.000%
20	-29.899	-34.884	-0.327	29.899	34.884	0.327	0.000%
21	-29.899	-26.163	-0.327	29.899	26.163	0.327	0.000%
22	-26.131	-34.884	-15.479	26.131	34.884	15.479	0.000%
23	-26.131	-26.163	-15.479	26.131	26.163	15.479	0.000%
24	-15.299	-34.884	-26.539	15.299	34.884	26.539	0.000%
25	-15.299	-26.163	-26.539	15.299	26.163	26.539	0.000%
26	0.000	-75.875	0.000	-0.000	75.875	0.000	0.000%
27	-0.073	-75.875	-9.098	0.073	75.875	9.098	0.000%
28	4.490	-75.875	-7.855	-4.490	75.875	7.855	0.000%
29	7.817	-75.875	-4.507	-7.817	75.875	4.507	0.000%
30	9.043	-75.875	0.046	-9.043	75.875	-0.046	0.000%
31	7.844	-75.875	4.598	-7.844	75.875	-4.598	0.000%
32	4.562	-75.875	7.902	-4.562	75.875	-7.902	0.000%
33	0.055	-75.875	9.104	-0.055	75.875	-9.104	0.000%
34	-4.478	-75.875	7.873	4.478	75.875	-7.873	0.000%
35	-7.827	-75.875	4.504	7.827	75.875	-4.504	0.000%
36	-9.061	-75.875	-0.060	9.061	75.875	0.060	0.000%
37	-7.862	-75.875	-4.597	7.862	75.875	4.597	0.000%
38	-4.573	-75.875	-7.905	4.573	75.875	7.905	0.000%
39	-0.083	-29.070	-6.476	0.083	29.070	6.476	0.000%
40	3.150	-29.070	-5.578	-3.150	29.070	5.578	0.000%
41	5.505	-29.070	-3.187	-5.505	29.070	3.187	0.000%
42	6.378	-29.070	0.055	-6.378	29.070	-0.055	0.000%
43	5.572	-29.070	3.312	-5.572	29.070	-3.312	0.000%
44	3.261	-29.070	5.675	-3.261	29.070	-5.675	0.000%
45	0.065	-29.070	6.481	-0.065	29.070	-6.481	0.000%
46	-3.138	-29.070	5.597	3.138	29.070	-5.597	0.000%
47	-5.515	-29.070	3.183	5.515	29.070	-3.183	0.000%
48	-6.397	-29.070	-0.070	6.397	29.070	0.070	0.000%
49	-5.591	-29.070	-3.312	5.591	29.070	3.312	0.000%
50	-3.273	-29.070	-5.678	3.273	29.070	5.678	0.000%

### Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00010964
3	Yes	5	0.00000001	0.00004526
4	Yes	6	0.00000001	0.00007783
5	Yes	5	0.00000001	0.00073426
6	Yes	6	0.00000001	0.00008329
7	Yes	5	0.00000001	0.00079034
8	Yes	5	0.00000001	0.00028590
9	Yes	5	0.00000001	0.00012268
10	Yes	6	0.00000001	0.00007117
11	Yes	5	0.00000001	0.00066894
12	Yes	6	0.00000001	0.00008954
13	Yes	5	0.00000001	0.00084901
14	Yes	5	0.00000001	0.00025168
15	Yes	5	0.00000001	0.00010453
16	Yes	6	0.00000001	0.00007695
17	Yes	5	0.00000001	0.00072907
18	Yes	6	0.00000001	0.00007166
19	Yes	5	0.00000001	0.00067655
20	Yes	5	0.00000001	0.00040521

21	Yes	5	0.00000001	0.00017274
22	Yes	6	0.00000001	0.00009066
23	Yes	5	0.00000001	0.00086187
24	Yes	6	0.00000001	0.00007185
25	Yes	5	0.00000001	0.00067514
26	Yes	4	0.00000001	0.00021572
27	Yes	5	0.00000001	0.00089685
28	Yes	6	0.00000001	0.00027770
29	Yes	6	0.00000001	0.00029058
30	Yes	5	0.00000001	0.00098945
31	Yes	6	0.00000001	0.00023898
32	Yes	6	0.00000001	0.00028256
33	Yes	5	0.00000001	0.00086618
34	Yes	6	0.00000001	0.00022996
35	Yes	6	0.00000001	0.00022095
36	Yes	5	0.00000001	0.00096934
37	Yes	6	0.00000001	0.00029341
38	Yes	6	0.00000001	0.00024593
39	Yes	4	0.00000001	0.00024932
40	Yes	4	0.00000001	0.00071463
41	Yes	4	0.00000001	0.00087861
42	Yes	4	0.00000001	0.00048393
43	Yes	4	0.00000001	0.00068917
44	Yes	5	0.00000001	0.00004428
45	Yes	4	0.00000001	0.00029997
46	Yes	4	0.00000001	0.00067217
47	Yes	4	0.00000001	0.00058880
48	Yes	4	0.00000001	0.00051711
49	Yes	5	0.00000001	0.00004609
50	Yes	4	0.00000001	0.00065366

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	119 - 95	18.409	50	1.431	0.015
L2	99 - 47.25	12.668	50	1.269	0.008
L3	52.75 - 0	3.354	50	0.601	0.002

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

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
121.000	(2) RA21.7770.00 w/ Mount Pipe	50	18.409	1.431	0.015	18047
110.000	(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	50	15.762	1.366	0.012	10026
98.000	(2) AIR 21 w/ Mount Pipe	50	12.400	1.258	0.008	4562
88.000	A-ANT-18G-2-C	50	9.868	1.136	0.005	4183
86.000	LLPX310R-V1 w/ Mount Pipe	50	9.395	1.108	0.005	4128

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	119 - 95	86.264	24	6.716	0.071
L2	99 - 47.25	59.408	24	5.958	0.036
L3	52.75 - 0	15.744	24	2.824	0.009

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
-------------	-----------------	------------------------	-----------------	-----------	------------

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

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
121.000	(2) RA21.7770.00 w/ Mount Pipe	24	86.264	6.716	0.071	3987
110.000	(2) LPA-80063-4CF-EDIN-5 w/ Mount Pipe	24	73.887	6.414	0.054	2214
98.000	(2) AIR 21 w/ Mount Pipe	24	58.153	5.909	0.035	1004
88.000	A-ANT-18G-2-C	24	46.295	5.334	0.024	914
86.000	LLPX310R-V1 w/ Mount Pipe	24	44.079	5.205	0.022	901

### Compression Checks

### Pole Design Data

Section No.	Elevation ft	Size	L ft	$L_u$ ft	$KI/r$	A $in^2$	$P_u$ K	$\phi P_n$ K	Ratio $\frac{P_u}{\phi P_n}$
L1	119 - 95 (1)	TP27.38x21x0.188	24.000	0.000	0.0	15.550	-8.656	1041.460	0.008
L2	95 - 47.25 (2)	TP39.57x25.942x0.25	51.750	0.000	0.0	30.051	-20.037	1944.740	0.010
L3	47.25 - 0 (3)	TP51.5x37.622x0.313	52.750	0.000	0.0	50.772	-34.850	3169.190	0.011

### Pole Bending Design Data

Section No.	Elevation ft	Size	$M_{ux}$ kip-ft	$\phi M_{nx}$ kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	$M_{uy}$ kip-ft	$\phi M_{ny}$ kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	119 - 95 (1)	TP27.38x21x0.188	302.498	559.959	0.540	0.000	559.959	0.000
L2	95 - 47.25 (2)	TP39.57x25.942x0.25	1426.467	1516.392	0.941	0.000	1516.392	0.000
L3	47.25 - 0 (3)	TP51.5x37.622x0.313	2946.408	3341.650	0.882	0.000	3341.650	0.000

### Pole Shear Design Data

Section No.	Elevation ft	Size	Actual $V_u$ K	$\phi V_n$ K	Ratio $\frac{V_u}{\phi V_n}$	Actual $T_u$ kip-ft	$\phi T_n$ kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	119 - 95 (1)	TP27.38x21x0.188	17.368	520.731	0.033	4.067	1122.500	0.004
L2	95 - 47.25 (2)	TP39.57x25.942x0.25	26.737	972.372	0.027	4.427	3039.517	0.001
L3	47.25 - 0 (3)	TP51.5x37.622x0.313	30.671	1584.590	0.019	4.414	6697.650	0.001

### Pole Interaction Design Data

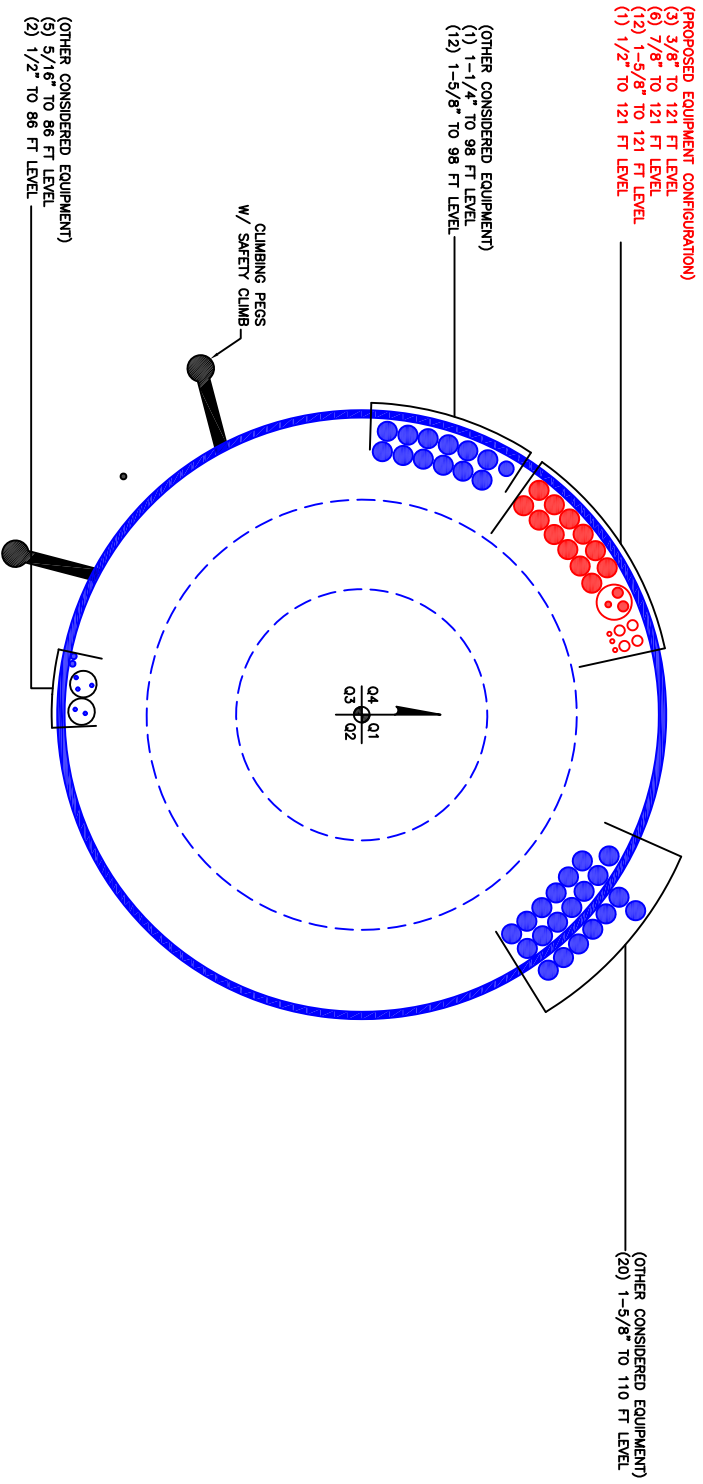
Section No.	Elevation ft	Ratio	Ratio	Ratio	Ratio	Ratio	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
		$P_u$	$M_{ux}$	$M_{uy}$	$V_u$	$T_u$			
L1	119 - 95 (1)	0.008	0.540	0.000	0.033	0.004	0.550	1.000	4.8.2
L2	95 - 47.25 (2)	0.010	0.941	0.000	0.027	0.001	0.952	1.000	4.8.2
L3	47.25 - 0 (3)	0.011	0.882	0.000	0.019	0.001	0.893	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	119 - 95	Pole	TP27.38x21x0.188	1	-8.656	1041.460	55.0	Pass
L2	95 - 47.25	Pole	TP39.57x25.942x0.25	2	-20.037	1944.740	95.2	Pass
L3	47.25 - 0	Pole	TP51.5x37.622x0.313	3	-34.850	3169.190	89.3	Pass
Summary								
Pole (L2)							95.2	Pass
<b>RATING =</b>							<b>95.2</b>	<b>Pass</b>



**APPENDIX B**  
**BASE LEVEL DRAWING**



**APPENDIX C**  
**ADDITIONAL CALCULATIONS**

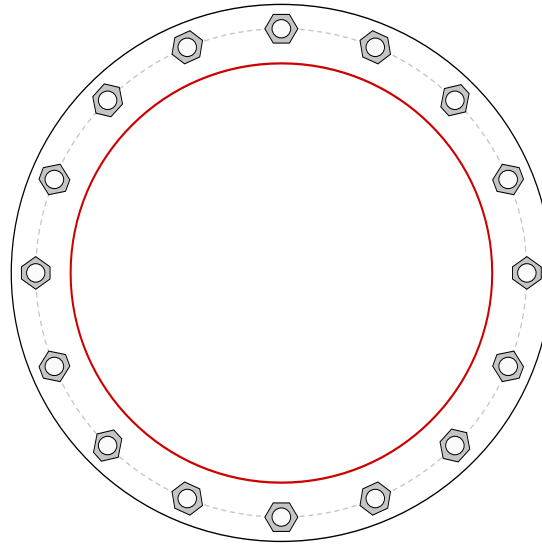
# Monopole Base Plate Connection



Site Info	
BU #	857012
Site Name	nville South Washingto
Order #	443486 - Rev. 0

Analysis Considerations	
TIA-222 Revision	G
Grout Considered:	No
$l_{ar}$ (in)	0
Eta Factor, $\eta$	0.5

Applied Loads	
Moment (kip-ft)	2946.41
Axial Force (kips)	34.85
Shear Force (kips)	30.67



Connection Properties	Analysis Results
-----------------------	------------------

Anchor Rod Data
(16) 2-1/4" $\phi$ bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 60" BC
Base Plate Data
66" OD x 2" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)
Stiffener Data
N/A
Pole Data
51.5" x 0.3125" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Anchor Rod Summary	<i>(units of kips, kip-in)</i>	
$P_u = 149.41$	$\phi P_n = 260$	<b>Stress Rating</b>
$V_u = 1.92$	$\phi V_n = n/a$	<b>58.9%</b>
$M_u = n/a$	$\phi M_n = n/a$	<b>Pass</b>
Base Plate Summary		
Max Stress (ksi):	38.28	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	<b>70.9%</b>	<b>Pass</b>

## Drilled Pier Foundation

BU #: 857012  
 Site Name: Plainville South Washin  
 Order Number: 449205 R 1

TIA-222 Revison: G  
 Tower Type: Monopole



Applied Loads		
	Comp.	Uplift
Moment (kip-ft)	2946	
Axial Force (kips)	35	
Shear Force (kips)	31	

Material Properties		
Concrete Strength, f'c:	4	ksi
Rebar Strength, Fy:	60	ksi

Pier Design Data		
Depth	37	ft
Ext. Above Grade	1	ft
Pier Section 1		
<i>From 1' above grade to 37' below grade</i>		
Pier Diameter	7	ft
Rebar Quantity	18	
Rebar Size	11	
Clear Cover to Ties	4	in
Tie Size	5	

Analysis Results		
Soil Lateral Capacity		
	Compression	Uplift
D <sub>v=0</sub> (ft from TOC)	9.79	-
Soil Safety Factor	4.11	-
Max Moment (kip-ft)	3201.18	-
Rating	32.3%	-
Soil Vertical Capacity		
	Compression	Uplift
Skin Friction (kips)	314.36	-
End Bearing (kips)	237.05	-
Weight of Concrete (kips)	168.14	-
Total Capacity (kips)	551.42	-
Axial (kips)	203.14	-
Rating	36.8%	-
Reinforced Concrete Capacity		
	Compression	Uplift
Critical Depth (ft from TOC)	9.58	-
Critical Moment (kip-ft)	3201.00	-
Critical Moment Capacity	4651.94	-
Rating	68.8%	-
<b>Soil Interaction Rating</b>		<b>36.8%</b>
<b>Structural Foundation Rating</b>		<b>68.8%</b>

Check Limitation	
N/A	<input checked="" type="checkbox"/>

Soil Profile		
Groundwater Depth	4	ft
# of Layers	7	

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ <sub>soil</sub> (pcf)	γ <sub>concrete</sub> (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	3.5	3.5	55	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	3.5	4	0.5	55	150	0	33	0.000	0.000	0.32	0.32			Cohesionless
3	4	13	9	55	87.6	0	33	0.000	0.000	0.32	0.32			Cohesionless
4	13	15	2	45	87.6	0	28	0.000	0.000	0.50	0.50			Cohesionless
5	15	19	4	45	87.6	0	28	0.000	0.000	0.56	0.56			Cohesionless
6	19	23	4	55	87.6	0	33	0.000	0.000	0.64	0.64			Cohesionless
7	23	37	14	40	87.6	0	28	0.00	0.00	0.73	0.73	8.213		Cohesionless





June 20, 2018



SAI Communications  
12 Industrial Way  
Salem NH, 03079

RE: Site Number: CT1029 (LTE 4C/5C)  
FA Number: 10105805  
PACE Number: MRCTB032005  
PTN Number: 2051A0GGZC  
Site Name: Plainville South Washington Street  
Site Address: 335 South Washington Street  
Plainville, CT 06062

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by SAI Communications to perform a mount analysis on the existing AT&T antenna mount to determine its capability of supporting the following equipment loading:

- (3) 7770 Antennas (55.0"x11.0"x5.0" – Wt. = 35 lbs. /each)
- (3) HPA-65R-BUU-H6 Antennas (72.0"x14.8"x9.0" – Wt. = 51 lbs. /each)
- (3) QS66512-2 Antennas (72"x12.0"x9.6" – Wt. = 111 lbs. /each)
- (3) RRUS-11 RRH's (19.7"x17.0"x7.2" – Wt. = 51 lbs. /each)
- (3) RRUS-12 RRH's (20.4"x18.5"x7.5" – Wt. = 58 lbs. /each)
- (3) A2 Modules (16.4"x15.2"x3.4" – Wt. = 22 lbs. /each)
- (3) RRUS-32 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (3) RRUS-32 B2 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (6) LGP21401 TMA's (14.4"x9"x2.7" – Wt. = 19 lbs. /each)
- (2) Squid Surge Arrestors (24.0"x9.7"Ø – Wt. = 33 lbs. /each)
- **(3) 800-10965 Antennas (78.7"x20.0"x6.9" – Wt. = 109 lbs. /each)**
- **(3) 4478 B5 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)**
- **(3) 4426 B66 RRH's (15"x13.2"x7.4" – Wt. = 49 lbs. /each)**
- **(1) Squid Surge Arrestor (24.0"x9.7"Ø – Wt. = 33 lbs. /each)**

*\*Proposed Loading Shown in Bold.*

No original structural design documents or fabrication drawings were available for the existing mount. HDG's sub-consultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mount on January 28, 2018.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-G, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and the International Building Code 2012 with 2005 Connecticut Supplement with 2016 Amendments, and AT&T Mount Technical Directive – R5.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-G, the max basic wind speed for this site is equal to 105 mph with a max basic wind speed with ice of 50 mph. Per the AT&T Mount Technical Directive and Appendix N of the Connecticut State Building Code, an ultimate wind speed of 125 mph converted to a nominal wind speed of 97 mph was used for this analysis.
- HDG considers this site to be exposure category C; tower is located in large, flat, open, terrain/grasslands.

- HDG considers this site to be topographic category 1; tower is located in flat terrain.
- The mount has been analyzed with load combinations consisting of 500 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 analysis, we have determined that the existing antenna mount **IS NOT CAPABLE** of supporting the proposed antenna installation. HDG recommends the following modifications:

- **Install new platform reinforcement kit, SitePro1 P/N PRK-1245 (or approved equal).**
- **Install new handrail kit, SitePro1 P/N HRK12-U (or approved equal).**

	Member(s)	Controlling Load Case	Stress Ratio	Pass/Fail
<b>Existing 4C/5C Mount Rating</b>	43	LC2	114%	<b>FAIL</b>
<b>Proposed 4C/5C Mount Rating</b>	81	LC10	66%	<b>PASS</b>

**Reference Documents:**

Mount Mapping Report prepared by ProVertic LLC dated March 23, 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  
Structural Dept. Head

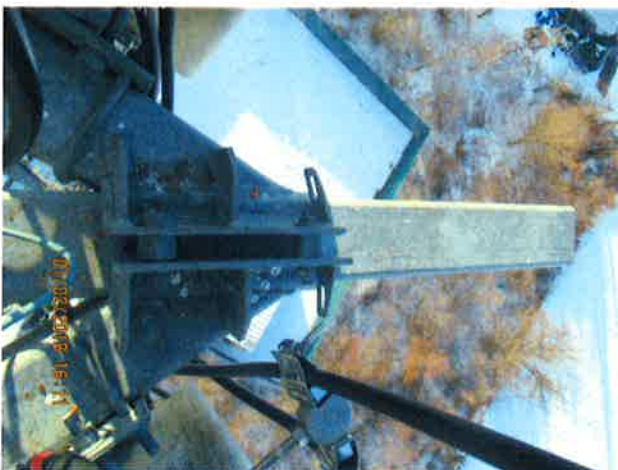


Daniel P. Hamm, PE  
Principal

**FIELD PHOTOS:**









**HUDSON**  
Design Group LLC

**Wind & Ice  
Calculations**



Date: 6/20/2018  
 Project Name: Plainville South Washington Street  
 Project Number: CT1029  
 Designed By: LN Checked By: MSC



**HUDSON**  
 Design Group LLC

**2.6.5.2 Velocity Pressure Coeff:**

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

$K_z =$  **1.320**       $z =$  122 (ft)  
 $z_g =$  900 (ft)  
 $\alpha =$  9.5

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

**Table 2-4**

Exposure	$Z_g$	$\alpha$	$K_{zmin}$	$K_e$
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

**2.6.6.4 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

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

$$K_h = e^{(fz/H)}$$

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

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

$K_e =$  0 (from Table 2-4)

$K_t =$  0 (from Table 2-5)

$f =$  0 (from Table 2-5)

$z =$  122

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

$K_{zt} =$  1.00

$K_{iz} =$  1.14 (from Sec. 2.6.8)

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

**Category = 1**

**2.6.8 Design Ice Thickness**

Max Ice Thickness =

$t_i =$  **1.00 in**

$$t_{iz} = 2.0 * t_i * K_{iz} * (K_{zt})^{0.35}$$

$t_{iz} =$  **2.28 in**

Date: 6/20/2018  
 Project Name: Plainville South Washington Street  
 Project Number: CT1029  
 Designed By: LN Checked By: MSC



**2.6.7 Gust Effect Factor**

2.6.7.1 Self Supporting Lattice Structures

Gh = 1.0 Latticed Structures > 600 ft

Gh = 0.85 Latticed Structures 450 ft or less

Gh = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h= 121 Gh= 0.85

2.6.7.2 Guyed Masts Gh= 0.85

2.6.7.3 Pole Structures Gh= 1.1

2.6.9 Appurtenances Gh= 1.0

2.6.7.4 Structures Supported on Other Structures

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

Gh= 1.35 Gh= 1.00

2.6.9.2 Design Wind Force on Appurtenances

State Code Ultimate Design Wind Speed:  $V_{ult} = 125$  mph

Nomial Design Wind Speed,  $V_{asd} = V_{ult} \sqrt{0.6}$   $V_{asd} = 97$  mph

$V_{asd}$  per the AT&T Mount Technical Directive and Connecticut State Building Code, Latest Edition.

Per TIA-222-G,  $V_{min} = 90$  mph  $V_{max} = 105$  mph

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

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

$q_z = 30.09$   
 $q_z (ice) = 8.02$   
 $q_z (30) = 2.89$

$K_z = 1.320$   
 $K_{zt} = 1.0$   
 $K_d = 0.95$   
 $V_{asd} = 97$  mph  
 $V_{max (ice)} = 50$  mph  
 $V_{30} = 30$  mph  
 $I = 1.0$

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95

Date: 6/20/2018  
 Project Name: Plainville South Washington Street  
 Project Number: CT1029  
 Designed By: LN Checked By: MSC



**Determine Ca:**

**Table 2-8**

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
Round	C < 32 (Subcritical)	0.7	0.8	1.2
	32 ≤ C ≤ 64 (Transitional)	$3.76/(C^{0.485})$	$3.37/(C^{0.415})$	$38.4/(C^{1.0})$
	C > 64 (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 = **2.28 in**      **Angle = 0 (deg)**      **Equivalent Angle = 180 (deg)**

<u>Appurtenances</u>	<u>Height</u>	<u>Width</u>	<u>Depth</u>	<u>Flat Area</u>	<u>Aspect Ratio</u>	<u>Ca</u>	<u>Force (lbs)</u>	<u>Force (lbs) (w/ Ice)</u>	<u>Force (lbs) (30 mph)</u>
7770 Antenna	55.0	11.0	5.0	4.20	5.00	1.31	166	68	16
HPA-65R-BUU-H6 Antenna	72.0	14.8	9.0	7.40	4.86	1.31	291	108	28
QS66512-2 Antenna	72.0	12.0	9.6	6.00	6.00	1.36	245	96	23
800-10965 Antenna	78.7	20.0	6.9	10.93	3.94	1.26	416	144	40
RRUS-11 RRH	19.7	17.0	7.2	2.33	1.16	1.20	84	35	8
RRUS-11 RRH (Shielded)	19.7	6.0	7.2	0.82	3.28	1.23	30	18	3
RRUS-12 + A2 RRH	20.4	18.5	10.9	2.62	1.10	1.20	95	38	9
RRUS-12 + A2 RRH (Shielded)	20.4	7.5	10.9	1.06	2.72	1.21	39	20	4
RRUS-32 RRH	27.2	12.1	7.0	2.29	2.25	1.20	83	35	8
RRUS-32 RRH (Shielded)	27.2	1.1	7.0	0.21	24.73	1.99	12	20	1
4478 B5 RRH	18.1	13.4	8.3	1.68	1.35	1.20	61	27	6
4478 B5 RRH (Shielded)	18.1	2.4	8.3	0.30	7.54	1.42	13	12	1
4426 B66 RRH	15.0	13.2	7.4	1.38	1.14	1.20	50	23	5
4426 B66 RRH (Shielded)	15.0	2.2	7.4	0.23	6.82	1.39	10	10	1
LGP21401 TMA	14.4	9.0	2.7	0.90	1.60	1.20	32	17	3
Squid Surge Arrestor	24.0	9.7		1.62	2.47	0.70	34	16	3

Date: 6/20/2018

Project Name: Plainville South Washington Street

Project Number: CT1029

Designed By: IN Checked By: MSC



WIND LOADS

Angle = 30 (deg)

Ice Thickness = 2.28 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)	Force (lbs)	Force (lbs)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	166	88	146
HPA-65R-BUU-H6 Antenna	72.0	14.8	9.0	7.40	4.50	4.86	8.00	1.31	1.43	291	194	266
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	245	205	235
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	416	176	356
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	84	36	72
RRUS-11 RRH (Shielded)	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	42	36	40
RRUS-12 + A2 RRH	20.4	18.5	10.9	2.62	1.54	1.10	1.87	1.20	1.20	95	56	85
RRUS-12 + A2 RRH (Shielded)	20.4	9.3	10.9	1.31	1.54	2.21	1.87	1.20	1.20	47	56	49
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	83	50	74
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	44	50	46
4478 B5 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.19	1.20	1.20	61	37	55
4478 B5 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.19	1.21	1.20	31	37	32
4426 B66 RRH	15.0	13.2	7.4	1.38	0.77	1.14	2.03	1.20	1.20	50	28	44
4426 B66 RRH (Shielded)	15.0	2.2	7.4	0.23	0.77	6.82	2.03	1.39	1.20	10	28	14
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	32	11	27

WIND LOADS WITH ICE:

7770 Antenna	59.6	15.6	9.6	6.44	3.95	3.83	6.23	1.26	1.37	65	43	60
HPA-65R-BUU-H6 Antenna	76.6	19.4	13.6	10.29	7.21	3.95	5.65	1.26	1.34	104	77	98
QS66512-2 Antenna	76.6	16.6	14.2	8.80	7.53	4.62	5.41	1.29	1.33	91	80	89
800-10965 Antenna	83.3	24.6	11.5	14.20	6.63	3.39	7.27	1.24	1.41	141	75	125
RRUS-11 RRH	24.3	21.6	11.8	3.63	1.98	1.13	2.06	1.20	1.20	35	19	31
RRUS-11 RRH (Shielded)	24.3	10.8	11.8	1.82	1.98	2.25	2.06	1.20	1.20	17	19	18
RRUS-12 + A2 RRH	25.0	23.1	15.5	4.00	2.68	1.08	1.61	1.20	1.20	38	26	35
RRUS-12 + A2 RRH (Shielded)	25.0	11.5	15.5	2.00	2.68	2.16	1.61	1.20	1.20	19	26	21
RRUS-32 RRH	31.8	16.7	11.6	3.67	2.55	1.91	2.75	1.20	1.21	35	25	33
RRUS-32 RRH (Shielded)	31.8	8.3	11.6	1.84	2.55	3.81	2.75	1.26	1.21	19	25	20
4478 B5 RRH	22.7	18.0	12.8	2.83	2.02	1.26	1.77	1.20	1.20	27	19	25
4478 B5 RRH (Shielded)	22.7	9.0	12.8	1.41	2.02	2.52	1.77	1.20	1.20	14	19	15
4426 B66 RRH	19.6	17.8	12.0	2.41	1.62	1.10	1.64	1.20	1.20	23	16	21
4426 B66 RRH (Shielded)	19.6	6.8	12.0	0.92	1.62	2.89	1.64	1.22	1.20	9	16	11
LGP21401 TMA	19.0	13.6	7.3	1.79	0.96	1.40	2.61	1.20	1.20	17	9	15

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	16	8	14
HPA-65R-BUU-H6 Antenna	72.0	14.8	9.0	7.40	4.50	4.86	8.00	1.31	1.43	28	19	26
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	23	20	23
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	40	17	34
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	8	3	7
RRUS-11 RRH (Shielded)	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	4	3	4
RRUS-12 + A2 RRH	20.4	18.5	10.9	2.62	1.54	1.10	1.87	1.20	1.20	9	5	8
RRUS-12 + A2 RRH (Shielded)	20.4	9.3	10.9	1.31	1.54	2.21	1.87	1.20	1.20	5	5	5
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	7
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	4	5	4
4478 B5 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.19	1.20	1.20	6	4	5
4478 B5 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.19	1.21	1.20	3	4	3
4426 B66 RRH	15.0	13.2	7.4	1.38	0.77	1.14	2.03	1.20	1.20	5	3	4
4426 B66 RRH (Shielded)	15.0	2.2	7.4	0.23	0.77	6.82	2.03	1.39	1.20	1	3	1
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	3

Dale: 6/20/2018  
 Project Name: Plainville South Washington Street  
 Project Number: CT1029  
 Designed by: LN Checked by: MSC



WIND LOADS

Angle = 60 (deg) Ice Thickness = 2.28 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)	Force (lbs)	Force (lbs)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	166	88	108
HPA-65R-BUU-H6 Antenna	72.0	14.8	9.0	7.40	4.50	4.86	8.00	1.31	1.43	291	194	218
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	245	205	215
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	416	176	236
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	84	36	48
RRUS-11 RRH (Shielded)	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	63	36	43
RRUS-12 + A2 RRH	20.4	18.5	10.9	2.62	1.54	1.10	1.87	1.20	1.20	95	56	65
RRUS-12 + A2 RRH (Shielded)	20.4	13.9	10.9	1.97	1.54	1.47	1.87	1.20	1.20	71	56	60
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	83	50	58
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	63	50	53
4478 B5 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.19	1.20	1.20	61	37	43
4478 B5 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.19	1.20	1.20	46	37	40
4426 B66 RRH	15.0	13.2	7.4	1.38	0.77	1.14	2.03	1.20	1.20	50	28	33
4426 B66 RRH (Shielded)	15.0	2.2	7.4	0.23	0.77	6.82	2.03	1.39	1.20	10	28	23
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	32	11	16

WIND LOADS WITH ICE:

7770 Antenna	59.6	15.6	9.6	6.44	3.95	3.83	6.23	1.26	1.37	65	43	49
HPA-65R-BUU-H6 Antenna	76.6	19.4	13.6	10.29	7.21	3.95	5.65	1.26	1.34	104	77	84
QS66512-2 Antenna	76.6	16.6	14.2	8.80	7.53	4.62	5.41	1.29	1.33	91	80	83
800-10965 Antenna	83.3	24.6	11.5	14.20	6.63	3.39	7.27	1.24	1.41	141	75	91
RRUS-11 RRH	24.3	21.6	11.8	3.63	1.98	1.13	2.06	1.20	1.20	35	19	23
RRUS-11 RRH (Shielded)	24.3	16.2	11.8	2.72	1.98	1.50	2.06	1.20	1.20	26	19	21
RRUS-12 + A2 RRH	25.0	23.1	15.5	4.00	2.68	1.08	1.61	1.20	1.20	98	26	29
RRUS-12 + A2 RRH (Shielded)	25.0	17.3	15.5	3.00	2.68	1.44	1.61	1.20	1.20	29	26	27
RRUS-32 RRH	31.8	16.7	11.6	3.67	2.55	1.91	2.75	1.20	1.21	35	25	27
RRUS-32 RRH (Shielded)	31.8	12.5	11.6	2.76	2.55	2.54	2.75	1.20	1.21	27	25	25
4478 B5 RRH	22.7	18.0	12.8	2.83	2.02	1.26	1.77	1.20	1.20	27	19	21
4478 B5 RRH (Shielded)	22.7	13.5	12.8	2.12	2.02	1.68	1.77	1.20	1.20	20	19	20
4426 B66 RRH	19.6	17.8	12.0	2.41	1.62	1.10	1.64	1.20	1.20	23	16	18
4426 B66 RRH (Shielded)	19.6	6.8	12.0	0.92	1.62	2.89	1.64	1.22	1.20	9	16	14
LGP21401 TMA	19.0	13.6	7.3	1.79	0.96	1.40	2.61	1.20	1.20	17	9	11

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	16	8	10
HPA-65R-BUU-H6 Antenna	72.0	14.8	9.0	7.40	4.50	4.86	8.00	1.31	1.43	28	19	21
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	23	20	21
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	40	17	23
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	8	3	5
RRUS-11 RRH (Shielded)	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	6	3	4
RRUS-12 + A2 RRH	20.4	18.5	10.9	2.62	1.54	1.10	1.87	1.20	1.20	9	5	6
RRUS-12 + A2 RRH (Shielded)	20.4	13.9	10.9	1.97	1.54	1.47	1.87	1.20	1.20	7	5	6
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	6
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	6	5	5
4478 B5 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.19	1.20	1.20	6	4	4
4478 B5 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.19	1.20	1.20	4	4	4
4426 B66 RRH	15.0	13.2	7.4	1.38	0.77	1.14	2.03	1.20	1.20	5	3	3
4426 B66 RRH (Shielded)	15.0	2.2	7.4	0.23	0.77	6.82	2.03	1.39	1.20	1	3	2
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	2

Date: 6/20/2018  
 Project Name: Plainville South Washington Street  
 Project Number: CT1029  
 Designed By: LN Checked By: MSC



**WIND LOADS**

Angle = 90 (deg) Ice Thickness = 2.28 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)	Force (lbs)	Force (lbs)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	166	88	88
HPA-65R-BUU-H6 Antenna	72.0	14.8	9.0	7.40	4.50	4.86	8.00	1.31	1.43	291	194	194
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	245	205	205
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	416	176	176
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	84	96	36
RRUS-11 RRH (Shielded)	19.7	6.0	7.2	0.82	0.99	3.28	2.74	1.23	1.21	30	36	36
RRUS-12 + A2 RRH	20.4	18.5	10.9	2.62	1.54	1.10	1.87	1.20	1.20	95	56	56
RRUS-12 + A2 RRH (Shielded)	20.4	7.5	10.9	1.06	1.54	2.72	1.87	1.21	1.20	39	56	56
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	83	50	50
RRUS-32 RRH (Shielded)	27.2	1.1	7.0	0.21	1.32	24.73	3.89	1.99	1.26	12	50	50
4478 B5 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.19	1.20	1.20	61	37	37
4478 B5 RRH (Shielded)	18.1	2.4	8.3	0.30	1.04	7.54	2.19	1.42	1.20	13	37	37
4426 B66 RRH	15.0	13.2	7.4	1.38	0.77	1.14	2.03	1.20	1.20	50	28	28
4426 B66 RRH (Shielded)	15.0	2.2	7.4	0.23	0.77	6.82	2.03	1.39	1.20	10	28	28
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	32	11	11

**WIND LOADS WITH ICE:**

7770 Antenna	59.6	15.6	9.6	6.44	3.95	3.83	6.23	1.26	1.37	65	43	43
HPA-65R-BUU-H6 Antenna	76.6	19.4	13.6	10.29	7.21	3.95	5.65	1.26	1.34	104	77	77
QS66512-2 Antenna	76.6	16.6	14.2	8.80	7.53	4.62	5.41	1.29	1.33	91	80	80
800-10965 Antenna	83.3	24.6	11.5	14.20	6.63	3.39	7.27	1.24	1.41	141	75	75
RRUS-11 RRH	24.3	21.6	11.8	3.63	1.98	1.13	2.06	1.20	1.20	35	19	19
RRUS-11 RRH (Shielded)	24.3	10.6	11.8	1.78	1.98	2.30	2.06	1.20	1.20	17	19	19
RRUS-12 + A2 RRH	25.0	23.1	15.5	4.00	2.68	1.08	1.61	1.20	1.20	38	26	26
RRUS-12 + A2 RRH (Shielded)	25.0	12.1	15.5	2.09	2.68	2.07	1.61	1.20	1.20	20	26	26
RRUS-32 RRH	31.8	16.7	11.6	3.67	2.55	1.91	2.75	1.20	1.21	35	25	25
RRUS-32 RRH (Shielded)	31.8	5.7	11.6	1.25	2.55	5.61	2.75	1.34	1.21	13	25	25
4478 B5 RRH	22.7	18.0	12.8	2.83	2.02	1.26	1.77	1.20	1.20	27	19	19
4478 B5 RRH (Shielded)	22.7	7.0	12.8	1.09	2.02	3.26	1.77	1.23	1.20	11	19	19
4426 B66 RRH	19.6	17.8	12.0	2.41	1.62	1.10	1.64	1.20	1.20	23	16	16
4426 B66 RRH (Shielded)	19.6	6.8	12.0	0.92	1.62	2.89	1.64	1.22	1.20	9	16	16
LGP21401 TMA	19.0	13.6	7.3	1.79	0.96	1.40	2.61	1.20	1.20	17	9	9

**WIND LOADS AT 30 MPH:**

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	16	8	8
HPA-65R-BUU-H6 Antenna	72.0	14.8	9.0	7.40	4.50	4.86	8.00	1.31	1.43	28	19	19
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	23	20	20
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	40	17	17
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	8	3	3
RRUS-11 RRH (Shielded)	19.7	6.0	7.2	0.82	0.99	3.28	2.74	1.23	1.21	3	3	3
RRUS-12 + A2 RRH	20.4	18.5	10.9	2.62	1.54	1.10	1.87	1.20	1.20	9	5	5
RRUS-12 + A2 RRH (Shielded)	20.4	7.5	10.9	1.06	1.54	2.72	1.87	1.21	1.20	4	5	5
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	5
RRUS-32 RRH (Shielded)	27.2	1.1	7.0	0.21	1.32	24.73	3.89	1.99	1.26	1	5	5
4478 B5 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.19	1.20	1.20	6	4	4
4478 B5 RRH (Shielded)	18.1	2.4	8.3	0.30	1.04	7.54	2.19	1.42	1.20	1	4	4
4426 B66 RRH	15.0	13.2	7.4	1.38	0.77	1.14	2.03	1.20	1.20	5	3	3
4426 B66 RRH (Shielded)	15.0	2.2	7.4	0.23	0.77	6.82	2.03	1.39	1.20	1	3	3
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	1



Date: 6/20/2018

Project Name: Plainville South Washington Street

Project Number: CT102P

Designed By: LN Checked By: MSC



**WIND LOADS**

Angle = 120 (deg)

Ice Thickness = 2.28 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)	Force (lbs)	Force (lbs)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	166	88	108
HPA-65R-BUU-H6 Antenna	72.0	14.8	9.0	7.40	4.50	4.86	8.00	1.31	1.43	291	194	218
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	245	205	215
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	416	176	236
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	84	36	48
RRUS-11 RRH (Shielded)	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	63	36	43
RRUS-12 + A2 RRH	20.4	18.5	10.9	2.62	1.54	1.10	1.87	1.20	1.20	95	56	65
RRUS-12 + A2 RRH (Shielded)	20.4	13.9	10.9	1.97	1.54	1.47	1.87	1.20	1.20	71	56	60
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	83	50	58
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	63	50	53
4478 B5 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.19	1.20	1.20	61	37	43
4478 B5 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.19	1.20	1.20	46	37	40
4426 B66 RRH	15.0	13.2	7.4	1.38	0.77	1.14	2.03	1.20	1.20	50	28	33
4426 B66 RRH (Shielded)	15.0	2.2	7.4	0.23	0.77	6.82	2.03	1.39	1.20	10	28	23
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	32	11	16

**WIND LOADS WITH ICE:**

7770 Antenna	59.6	15.6	9.6	6.44	3.95	3.83	6.23	1.26	1.37	65	43	49
HPA-65R-BUU-H6 Antenna	76.6	19.4	13.6	10.29	7.21	3.95	5.65	1.26	1.34	104	77	84
QS66512-2 Antenna	76.6	16.6	14.2	8.80	7.53	4.62	5.41	1.29	1.33	91	80	83
800-10965 Antenna	83.3	24.6	11.5	14.20	6.63	3.39	7.27	1.24	1.41	141	75	91
RRUS-11 RRH	24.3	21.6	11.8	3.63	1.98	1.13	2.06	1.20	1.20	35	19	23
RRUS-11 RRH (Shielded)	24.3	16.2	11.8	2.72	1.98	1.50	2.06	1.20	1.20	26	19	21
RRUS-12 + A2 RRH	25.0	23.1	15.5	4.00	2.68	1.08	1.61	1.20	1.20	38	26	29
RRUS-12 + A2 RRH (Shielded)	25.0	17.3	15.5	3.00	2.68	1.44	1.61	1.20	1.20	29	26	27
RRUS-32 RRH	31.8	16.7	11.6	3.67	2.55	1.91	2.75	1.20	1.21	35	25	27
RRUS-32 RRH (Shielded)	31.8	12.5	11.6	2.76	2.55	2.54	2.75	1.20	1.21	27	25	25
4478 B5 RRH	22.7	18.0	12.8	2.83	2.02	1.26	1.77	1.20	1.20	27	19	21
4478 B5 RRH (Shielded)	22.7	13.5	12.8	2.12	2.02	1.68	1.77	1.20	1.20	20	19	20
4426 B66 RRH	19.6	17.8	12.0	2.41	1.62	1.10	1.64	1.20	1.20	23	16	18
4426 B66 RRH (Shielded)	19.6	6.8	12.0	0.92	1.62	2.89	1.64	1.22	1.20	9	16	14
LGP21401 TMA	19.0	13.6	7.3	1.79	0.96	1.40	2.61	1.20	1.20	17	9	11

**WIND LOADS AT 30 MPH:**

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	16	8	10
HPA-65R-BUU-H6 Antenna	72.0	14.8	9.0	7.40	4.50	4.86	8.00	1.31	1.43	28	19	21
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	23	20	21
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	40	17	23
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	8	3	5
RRUS-11 RRH (Shielded)	19.7	12.8	7.2	1.74	0.99	1.55	2.74	1.20	1.21	6	3	4
RRUS-12 + A2 RRH	20.4	18.5	10.9	2.62	1.54	1.10	1.87	1.20	1.20	9	5	6
RRUS-12 + A2 RRH (Shielded)	20.4	13.9	10.9	1.97	1.54	1.47	1.87	1.20	1.20	7	5	6
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	6
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	6	5	5
4478 B5 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.19	1.20	1.20	6	4	4
4478 B5 RRH (Shielded)	18.1	10.1	8.3	1.26	1.04	1.80	2.19	1.20	1.20	4	4	4
4426 B66 RRH	15.0	13.2	7.4	1.38	0.77	1.14	2.03	1.20	1.20	5	3	3
4426 B66 RRH (Shielded)	15.0	2.2	7.4	0.23	0.77	6.82	2.03	1.39	1.20	1	3	2
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	2

Date: 6/20/2018

Project Name: Plainville South Washington Street

Project Number: CT1029

Designed By: LN Checked By: MSC



**WIND LOADS**

Angle = 150 (deg)

Ice Thickness = 2.28 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)	Force (lbs)	Force (lbs)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	166	88	146
HPA-65R-BUU-H6 Antenna	72.0	14.8	9.0	7.40	4.50	4.86	8.00	1.31	1.43	291	194	266
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	245	205	235
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	416	176	356
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	84	36	72
RRUS-11 RRH (Shielded)	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	42	36	40
RRUS-12 + A2 RRH	20.4	18.5	10.9	2.62	1.54	1.10	1.87	1.20	1.20	95	56	85
RRUS-12 + A2 RRH (Shielded)	20.4	9.3	10.9	1.31	1.54	2.21	1.87	1.20	1.20	47	56	49
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	83	50	74
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.20	1.26	44	50	46
4478 B5 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.19	1.20	1.20	61	37	55
4478 B5 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.19	1.21	1.20	31	37	32
4426 B66 RRH	15.0	13.2	7.4	1.38	0.77	1.14	2.03	1.20	1.20	50	28	44
4426 B66 RRH (Shielded)	15.0	2.2	7.4	0.23	0.77	6.82	2.03	1.39	1.20	10	28	14
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	32	11	27

**WIND LOADS WITH ICE:**

7770 Antenna	59.6	15.6	9.6	6.44	3.95	3.83	6.23	1.26	1.37	65	43	60
HPA-65R-BUU-H6 Antenna	76.6	19.4	13.6	10.29	7.21	3.95	5.65	1.26	1.34	104	77	98
QS66512-2 Antenna	76.6	16.6	14.2	8.80	7.53	4.62	5.41	1.29	1.33	91	80	89
800-10965 Antenna	83.3	24.6	11.5	14.20	6.63	3.39	7.27	1.24	1.41	141	75	125
RRUS-11 RRH	24.3	21.6	11.8	3.63	1.98	1.13	2.06	1.20	1.20	35	19	31
RRUS-11 RRH (Shielded)	24.3	10.8	11.8	1.82	1.98	2.25	2.06	1.20	1.20	17	19	18
RRUS-12 + A2 RRH	25.0	23.1	15.5	4.00	2.68	1.08	1.61	1.20	1.20	38	26	35
RRUS-12 + A2 RRH (Shielded)	25.0	11.5	15.5	2.00	2.68	2.16	1.61	1.20	1.20	19	26	21
RRUS-32 RRH	31.8	16.7	11.6	3.67	2.55	1.91	2.75	1.20	1.21	35	25	33
RRUS-32 RRH (Shielded)	31.8	8.3	11.6	1.84	2.55	3.81	2.75	1.26	1.21	19	25	20
4478 B5 RRH	22.7	18.0	12.8	2.83	2.02	1.26	1.77	1.20	1.20	27	19	25
4478 B5 RRH (Shielded)	22.7	9.0	12.8	1.41	2.02	2.52	1.77	1.20	1.20	14	19	15
4426 B66 RRH	19.6	17.8	12.0	2.41	1.62	1.10	1.64	1.20	1.20	23	16	21
4426 B66 RRH (Shielded)	19.6	6.8	12.0	0.92	1.62	2.89	1.64	1.22	1.20	9	16	11
LGP21401 TMA	19.0	13.6	7.3	1.79	0.96	1.40	2.61	1.20	1.20	17	9	15

**WIND LOADS AT 30 MPH:**

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	16	8	14
HPA-65R-BUU-H6 Antenna	72.0	14.8	9.0	7.40	4.50	4.86	8.00	1.31	1.43	28	19	26
QS66512-2 Antenna	72.0	12.0	9.6	6.00	4.80	6.00	7.50	1.36	1.42	23	20	23
800-10965 Antenna	78.7	20.0	6.9	10.93	3.77	3.94	11.41	1.26	1.55	40	17	34
RRUS-11 RRH	19.7	17.0	7.2	2.33	0.99	1.16	2.74	1.20	1.21	8	3	7
RRUS-11 RRH (Shielded)	19.7	8.5	7.2	1.16	0.99	2.32	2.74	1.20	1.21	4	3	4
RRUS-12 + A2 RRH	20.4	18.5	10.9	2.62	1.54	1.10	1.87	1.20	1.20	9	5	8
RRUS-12 + A2 RRH (Shielded)	20.4	9.3	10.9	1.31	1.54	2.21	1.87	1.20	1.20	5	5	5
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	7
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	4	5	4
4478 B5 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.19	1.20	1.20	6	4	5
4478 B5 RRH (Shielded)	18.1	6.7	8.3	0.84	1.04	2.70	2.19	1.21	1.20	3	4	3
4426 B66 RRH	15.0	13.2	7.4	1.38	0.77	1.14	2.03	1.20	1.20	5	3	4
4426 B66 RRH (Shielded)	15.0	2.2	7.4	0.23	0.77	6.82	2.03	1.39	1.20	1	3	1
LGP21401 TMA	14.4	9.0	2.7	0.90	0.27	1.60	5.33	1.20	1.33	3	1	3

Date: 6/20/2018

Project Name: Plainville South Washington Street

Project Number: CT1029

Designed By: LN Checked By: MSC



HUDSON  
Design Group LLC

### ICE WEIGHT CALCULATIONS

Thickness of ice (in): 1.00

\* Density of ice used = 56 PCF

#### 7770 Antenna

Weight of ice based on total radial SF area:

Height (in): 55.0

Width (in): 11.0

Depth (in): 5.0

Total weight of ice on object: 61 lbs

Weight of object: 35 lbs

Combined weight of ice and object: 96 lbs

#### QS66512-2 Antenna

Weight of ice based on total radial SF area:

Height (in): 72.0

Width (in): 12.0

Depth (in): 9.6

Total weight of ice on object: 108 lbs

Weight of object: 111 lbs

Combined weight of ice and object: 219 lbs

#### RUUS-12 + A2 RRH

Weight of ice based on total radial SF area:

Height (in): 20.4

Width (in): 18.5

Depth (in): 10.9

Total weight of ice on object: 52 lbs

Weight of object: 80 lbs

Combined weight of ice and object: 132 lbs

#### RRUS-11 RRH

Weight of ice based on total radial SF area:

Height (in): 19.7

Width (in): 17.0

Depth (in): 7.2

Total weight of ice on object: 39 lbs

Weight of object: 51 lbs

Combined weight of ice and object: 90 lbs

#### 4426 B66

Weight of ice based on total radial SF area:

Height (in): 15.0

Width (in): 13.2

Depth (in): 7.4

Total weight of ice on object: 26 lbs

Weight of object: 49 lbs

Combined weight of ice and object: 75 lbs

#### Squid Surge Arrestor

Weight of ice based on total radial SF area:

Height (in): 24.0

Width (in): 9.7

Depth (in): 9.7

Total weight of ice on object: 36 lbs

Weight of object: 33 lbs

Combined weight of ice and object: 69 lbs

#### 2" pipe

Per foot weight of ice:

diameter (in): 2.4

Per foot weight of ice on object: 3 lbs/ft

#### HPA-65R-BUU-H6 Antenna

Weight of ice based on total radial SF area:

Height (in): 72.0

Width (in): 14.8

Depth (in): 9.0

Total weight of ice on object: 120 lbs

Weight of object: 51 lbs

Combined weight of ice and object: 171 lbs

#### 800-10965 Antenna

Weight of ice based on total radial SF area:

Height (in): 78.7

Width (in): 20.0

Depth (in): 6.9

Total weight of ice on object: 146 lbs

Weight of object: 109 lbs

Combined weight of ice and object: 255 lbs

#### RRUS-32 RRH

Weight of ice based on total radial SF area:

Height (in): 27.2

Width (in): 12.1

Depth (in): 7.0

Total weight of ice on object: 39 lbs

Weight of object: 60 lbs

Combined weight of ice and object: 99 lbs

#### 4478 B5 RRH's

Weight of ice based on total radial SF area:

Height (in): 18.1

Width (in): 13.4

Depth (in): 8.3

Total weight of ice on object: 33 lbs

Weight of object: 60 lbs

Combined weight of ice and object: 93 lbs

#### LGP21401 TMA

Weight of ice based on total radial SF area:

Height (in): 14.4

Width (in): 9.0

Depth (in): 2.7

Total weight of ice on object: 13 lbs

Weight of object: 19 lbs

Combined weight of ice and object: 32 lbs

#### 4x4x1/4 HSS

Weight of ice based on total radial SF area:

Depth (in): 4

height (in): 12

Width (in): 4

Per foot weight of ice on object: 6 lbs/ft

#### L3x3x3/8

Weight of ice based on total radial SF area:

Depth (in): 3

height (in): 12

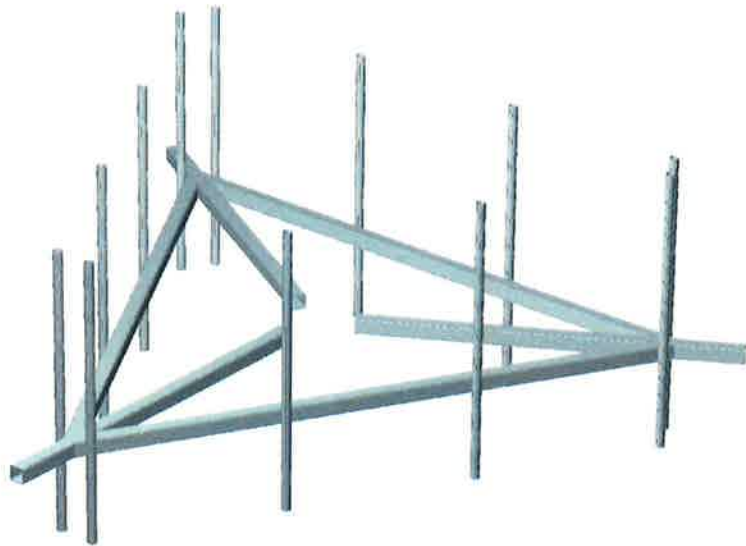
Width (in): 3

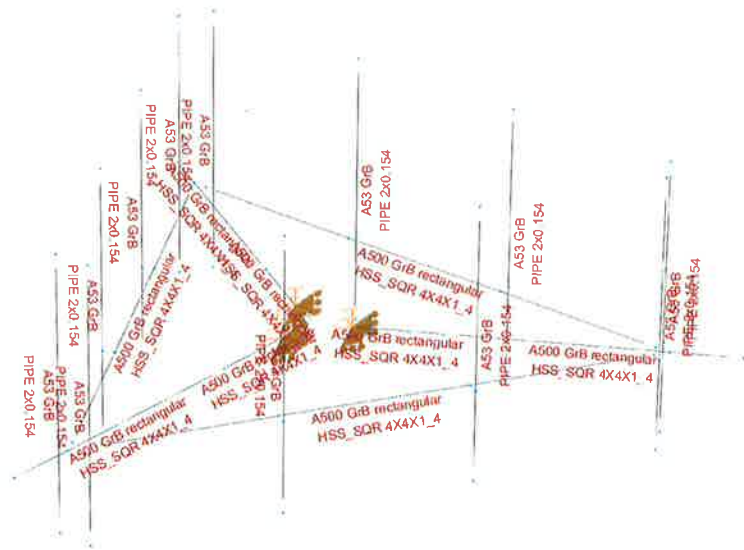
Per foot weight of ice on object: 5 lbs/ft







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Design Group LLC

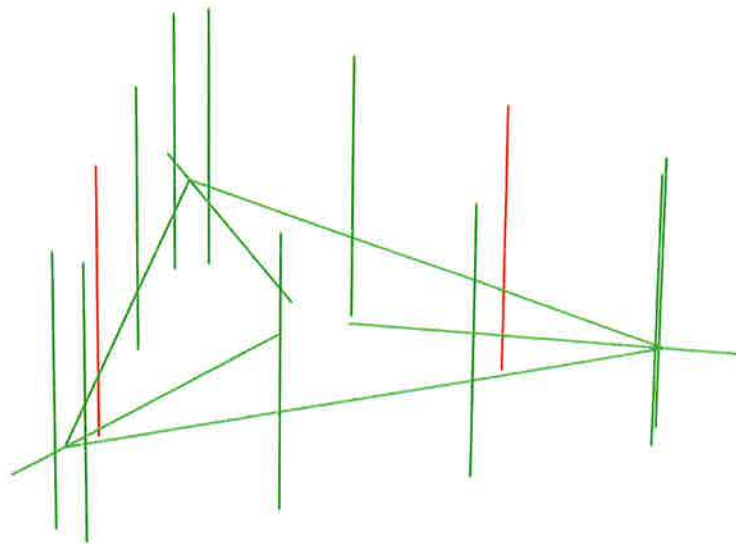
**Mount Calculations  
(Existing Conditions)**



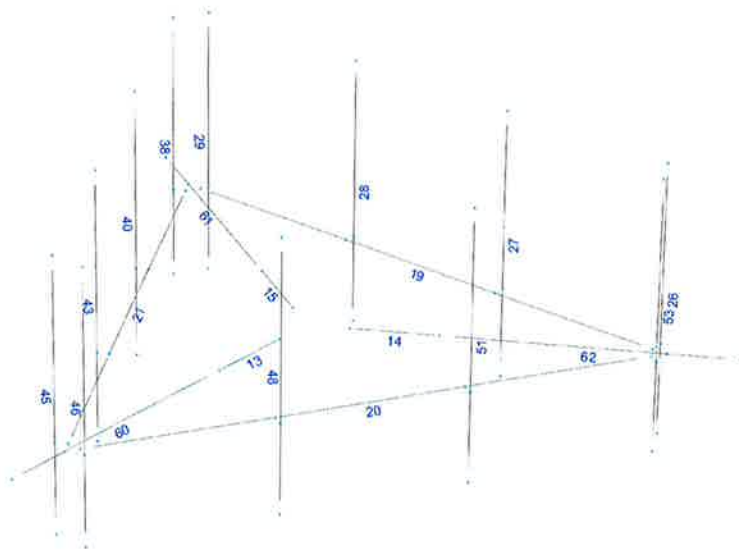


## Design status

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







Current Date: 6/20/2018 3:27 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1029\LTE 4C-5C\CT1029 (LTE 4C-5C).etx\

## Load data

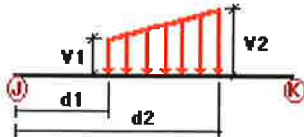
### GLOSSARY

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	500 lb Live Load on Antenna 1	No	LL
LLa2	500 lb Live Load on Antenna 2	No	LL
LLa3	500 lb Live Load on Antenna 3	No	LL
LLa4	500 lb Live Load on Antenna 4	No	LL
W180	-W0	Yes	
W210	-W30	Yes	
Wi180	-Wi0	Yes	
Wi210	-Wi30	Yes	
WL180	-WL0	Yes	
WL210	-WL30	Yes	

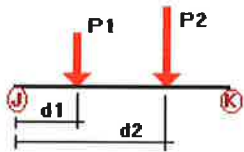
### Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	19	y	-0.01	0.00	0.00	No	0.00	No
	20	y	-0.01	0.00	0.00	No	0.00	No
	21	y	-0.01	0.00	0.00	No	0.00	No
W0	13	z	-0.012	0.00	0.00	No	0.00	No
	14	z	-0.012	0.00	0.00	No	0.00	No
	19	z	-0.012	0.00	0.00	No	0.00	No
	20	z	-0.012	0.00	0.00	No	0.00	No
	21	z	-0.012	0.00	0.00	No	0.00	No

	60	z	-0.012	0.00	0.00	No	0.00	No
	62	z	-0.012	0.00	0.00	No	0.00	No
W30	13	x	-0.012	0.00	0.00	No	0.00	No
	14	x	-0.012	0.00	0.00	No	0.00	No
	15	x	-0.012	0.00	0.00	No	0.00	No
	19	x	-0.012	0.00	0.00	No	0.00	No
	21	x	-0.012	0.00	0.00	No	0.00	No
	46	x	-0.004	0.00	0.00	No	0.00	No
	48	x	-0.004	0.00	0.00	No	0.00	No
	51	x	-0.004	0.00	0.00	No	0.00	No
	60	x	-0.012	0.00	0.00	No	0.00	No
	61	x	-0.012	0.00	0.00	No	0.00	No
	62	x	-0.012	0.00	0.00	No	0.00	No
Di	53	x	-0.004	0.00	0.00	No	0.00	No
	43	y	-0.003	0.00	0.00	No	0.00	No
	27	y	-0.003	0.00	0.00	No	0.00	No
	13	y	-0.006	0.00	0.00	No	0.00	No
	14	y	-0.006	0.00	0.00	No	0.00	No
	15	y	-0.006	0.00	0.00	No	0.00	No
	19	y	-0.006	0.00	0.00	No	0.00	No
	20	y	-0.006	0.00	0.00	No	0.00	No
	21	y	-0.006	0.00	0.00	No	0.00	No
	26	y	-0.003	0.00	0.00	No	0.00	No
	29	y	-0.003	0.00	0.00	No	0.00	No
	38	y	-0.003	0.00	0.00	No	0.00	No
	40	y	-0.003	0.00	0.00	No	0.00	No
	45	y	-0.003	0.00	0.00	No	0.00	No
	28	y	-0.003	0.00	0.00	No	0.00	No
	46	y	-0.003	0.00	0.00	No	0.00	No
	48	y	-0.003	0.00	0.00	No	0.00	No
	51	y	-0.003	0.00	0.00	No	0.00	No
	60	y	-0.006	0.00	0.00	No	0.00	No
	61	y	-0.006	0.00	0.00	No	0.00	No
	62	y	-0.006	0.00	0.00	No	0.00	No
	53	y	-0.003	0.00	0.00	No	0.00	No

### Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	43	y	-0.055	5.53	No
		y	-0.055	0.47	No
		y	-0.06	3.00	No
		y	-0.049	5.80	No
	27	y	-0.055	5.53	No
		y	-0.055	0.47	No
		y	-0.06	3.00	No
		y	-0.049	5.80	No
	13	y	-0.033	1.00	No
	14	y	-0.033	1.00	No

15	y	-0.033	1.00	No	
26	y	-0.056	5.25	No	
	y	-0.056	0.75	No	
	y	-0.06	3.00	No	
	y	-0.06	5.80	No	
29	y	-0.018	4.54	No	
	y	-0.018	1.46	No	
	y	-0.038	3.00	No	
38	y	-0.018	4.54	No	
	y	-0.018	1.46	No	
	y	-0.038	3.00	No	
40	y	-0.056	5.25	No	
	y	-0.056	0.75	No	
	y	-0.06	3.00	No	
	y	-0.06	5.80	No	
45	y	-0.026	5.25	No	
	y	-0.026	0.75	No	
	y	-0.08	3.00	No	
	y	-0.051	5.80	No	
28	y	-0.026	5.25	No	
	y	-0.026	0.75	No	
	y	-0.08	3.00	No	
	y	-0.051	5.80	No	
46	y	-0.056	5.25	No	
	y	-0.056	0.75	No	
	y	-0.06	3.00	No	
	y	-0.06	5.80	No	
48	y	-0.055	5.53	No	
	y	-0.055	0.47	No	
	y	-0.06	3.00	No	
	y	-0.049	5.80	No	
51	y	-0.026	5.25	No	
	y	-0.026	0.75	No	
	y	-0.08	3.00	No	
	y	-0.051	5.80	No	
53	y	-0.018	4.54	No	
	y	-0.018	1.46	No	
	y	-0.038	3.00	No	
W0	43	z	-0.118	5.53	No
		z	-0.118	0.47	No
		z	-0.04	3.00	No
		z	-0.033	5.80	No
27		z	-0.118	5.53	No
		z	-0.118	0.47	No
		z	-0.04	3.00	No
		z	-0.033	5.80	No
13		z	-0.034	1.00	No
14		z	-0.034	1.00	No
15		z	-0.034	1.00	No
26		z	-0.108	5.25	No
		z	-0.108	0.75	No
		z	-0.053	3.00	No
		z	-0.058	5.80	No
29		z	-0.054	4.54	No
		z	-0.054	1.46	No
38		z	-0.054	4.54	No
		z	-0.054	1.46	No
40		z	-0.108	5.25	No
		z	-0.108	0.75	No
		z	-0.053	3.00	No

		z	-0.058	5.80	No
45		z	-0.11	5.25	No
		z	-0.11	0.75	No
		z	-0.048	5.80	No
		z	-0.06	3.00	No
28		z	-0.11	5.25	No
		z	-0.11	0.75	No
		z	-0.048	5.80	No
		z	-0.06	3.00	No
46		z	-0.123	5.25	No
		z	-0.123	0.75	No
		z	-0.012	3.00	No
		z	-0.083	5.80	No
48		z	-0.208	5.53	No
		z	-0.208	0.47	No
		z	-0.013	3.00	No
		z	-0.05	5.80	No
51		z	-0.146	5.25	No
		z	-0.146	0.75	No
		z	-0.039	3.00	No
		z	-0.084	5.80	No
53		z	-0.083	4.54	No
		z	-0.083	1.46	No
W30	43	x	-0.178	5.53	No
		x	-0.178	0.47	No
		x	-0.032	3.00	No
		x	-0.044	5.80	No
27		x	-0.178	5.53	No
		x	-0.178	0.47	No
		x	-0.032	3.00	No
		x	-0.044	5.80	No
13		x	-0.034	1.00	No
		x	0.00	0.00	No
		x	0.00	0.00	No
		x	0.00	0.00	No
14		x	-0.034	1.00	No
		x	0.00	0.00	No
		x	0.00	0.00	No
		x	0.00	0.00	No
15		x	-0.034	1.00	No
		x	0.00	0.00	No
		x	0.00	0.00	No
		x	0.00	0.00	No
19		x	0.00	0.00	No
		x	0.00	0.00	No
		x	0.00	0.00	No
		x	0.00	0.00	No
20		x	0.00	0.00	No
		x	0.00	0.00	No
		x	0.00	0.00	No
		x	0.00	0.00	No
21		x	0.00	0.00	No
		x	0.00	0.00	No
		x	0.00	0.00	No
		x	0.00	0.00	No
26		x	-0.118	5.25	No
		x	-0.118	0.75	No
		x	-0.074	5.80	No
		x	-0.046	3.00	No
29		x	-0.074	4.54	No

	x	-0.074	1.46	No	
	x	0.00	0.00	No	
	x	0.00	0.00	No	
38	x	-0.074	4.54	No	
	x	-0.074	1.46	No	
	x	0.00	0.00	No	
	x	0.00	0.00	No	
40	x	-0.118	5.25	No	
	x	-0.118	0.75	No	
	x	-0.074	5.80	No	
	x	-0.046	3.00	No	
45	x	-0.134	5.25	No	
	x	-0.134	0.75	No	
	x	-0.049	3.00	No	
	x	-0.072	5.80	No	
28	x	-0.134	5.25	No	
	x	-0.134	0.75	No	
	x	-0.049	3.00	No	
	x	-0.072	5.80	No	
46	x	-0.103	5.25	No	
	x	-0.103	0.75	No	
	x	-0.05	5.80	No	
	x	-0.05	3.00	No	
48	x	-0.088	5.53	No	
	x	-0.088	0.47	No	
	x	-0.037	3.00	No	
	x	-0.028	5.80	No	
51	x	-0.098	5.25	No	
	x	-0.098	0.75	No	
	x	-0.056	3.00	No	
	x	-0.036	5.80	No	
60	x	0.00	0.00	No	
	x	0.00	0.00	No	
	x	0.00	0.00	No	
	x	0.00	0.00	No	
61	x	0.00	0.00	No	
	x	0.00	0.00	No	
	x	0.00	0.00	No	
	x	0.00	0.00	No	
	x	0.00	0.00	No	
	x	0.00	0.00	No	
53	x	-0.045	4.54	No	
	x	-0.045	1.46	No	
	x	-0.022	3.00	No	
	x	0.00	0.00	No	
Di	43	y	-0.073	5.53	No
		y	-0.073	0.47	No
		y	-0.033	3.00	No
		y	-0.026	5.80	No
27		y	-0.073	5.53	No
		y	-0.073	0.47	No
		y	-0.033	3.00	No
		y	-0.026	5.80	No
13		y	-0.036	1.00	No
14		y	-0.036	1.00	No
15		y	-0.036	1.00	No
26		y	-0.054	5.25	No
		y	-0.054	0.75	No

	y	-0.039	3.00	No			
	y	-0.039	5.80	No			
29	y	-0.031	4.54	No			
	y	-0.031	1.46	No			
	y	-0.026	3.00	No			
38	y	-0.031	4.54	No			
	y	-0.031	1.46	No			
	y	-0.026	3.00	No			
40	y	-0.054	5.25	No			
	y	-0.054	0.75	No			
	y	-0.039	3.00	No			
	y	-0.039	5.80	No			
45	y	-0.06	5.25	No			
	y	-0.06	0.75	No			
	y	-0.052	3.00	No			
	y	-0.039	5.80	No			
28	y	-0.06	5.25	No			
	y	-0.06	0.75	No			
	y	-0.052	3.00	No			
	y	-0.039	5.80	No			
46	y	-0.054	5.25	No			
	y	-0.054	0.75	No			
	y	-0.039	3.00	No			
	y	-0.039	5.80	No			
48	y	-0.073	5.53	No			
	y	-0.073	0.47	No			
	y	-0.033	3.00	No			
	y	-0.026	5.80	No			
51	y	-0.06	5.25	No			
	y	-0.06	0.75	No			
	y	-0.052	3.00	No			
	y	-0.039	5.80	No			
53	y	-0.031	4.54	No			
	y	-0.031	1.46	No			
	y	-0.026	3.00	No			
WiO 43	z	-0.046	5.53	No			
	z	-0.046	0.47	No			
	z	-0.02	3.00	No			
	z	-0.014	5.80	No			
27	z	-0.046	5.53	No			
	z	-0.046	0.47	No			
	z	-0.02	3.00	No			
	z	-0.014	5.80	No			
13	z	-0.016	1.00	No			
	z	0	-0.078	FALSE	0.00	0.00	No
14	z	-0.016	1.00	No			
15	z	-0.016	1.00	No			
26	z	-0.042	5.25	No			
	z	-0.042	0.75	No			
	z	-0.025	3.00	No			
	z	-0.027	5.80	No			
29	z	-0.025	4.54	No			
	z	-0.025	1.46	No			
38	z	-0.025	4.54	No			
	z	-0.025	1.46	No			
40	z	-0.042	5.25	No			
	z	-0.042	0.75	No			
	z	-0.025	3.00	No			
	z	-0.027	5.80	No			
45	z	-0.043	5.25	No			



		z	-0.043	0.75	No
		z	-0.027	3.00	No
		z	-0.023	5.80	No
28		z	-0.043	5.25	No
		z	-0.043	0.75	No
		z	-0.027	3.00	No
		z	-0.023	5.80	No
46		z	-0.048	5.25	No
		z	-0.048	0.75	No
		z	-0.012	3.00	No
		z	-0.083	5.80	No
48		z	-0.072	5.53	No
		z	-0.072	0.47	No
		z	-0.012	3.00	No
		z	-0.023	5.80	No
51		z	-0.054	5.25	No
		z	-0.054	0.75	No
		z	-0.02	3.00	No
		z	-0.035	5.80	No
53		z	-0.034	4.54	No
		z	-0.034	1.46	No
Wi30	43	x	-0.063	5.53	No
		x	-0.063	0.47	No
		x	-0.015	3.00	No
		x	-0.021	5.80	No
27		x	-0.063	5.53	No
		x	-0.063	0.47	No
		x	-0.015	3.00	No
		x	-0.021	5.80	No
13		x	-0.016	1.00	No
		x	0.00	0.00	No
		x	0.00	0.00	No
14		x	-0.016	1.00	No
		x	0.00	0.00	No
		x	0.00	0.00	No
15		x	-0.016	1.00	No
		x	0.00	0.00	No
		x	0.00	0.00	No
19		x	0.00	0.00	No
		x	0.00	0.00	No
		x	0.00	0.00	No
20		x	0.00	0.00	No
		x	0.00	0.00	No
		x	0.00	0.00	No
21		x	0.00	0.00	No
		x	0.00	0.00	No
		x	0.00	0.00	No
26		x	-0.045	5.25	No
		x	-0.045	0.75	No
		x	-0.02	3.00	No
		x	-0.033	5.80	No
29		x	-0.03	4.54	No
		x	-0.03	1.46	No
		x	-0.015	3.00	No
38		x	-0.03	4.54	No
		x	-0.03	1.46	No
		x	-0.015	3.00	No
40		x	-0.045	5.25	No
		x	-0.045	0.75	No
		x	-0.02	3.00	No

	x	-0.033	5.80	No
45	x	-0.049	5.25	No
	x	-0.049	0.75	No
	x	-0.021	3.00	No
	x	-0.031	5.80	No
28	x	-0.049	5.25	No
	x	-0.049	0.75	No
	x	-0.021	3.00	No
	x	-0.031	5.80	No
46	x	-0.041	5.25	No
	x	-0.041	0.75	No
	x	-0.025	3.00	No
	x	-0.025	5.80	No
48	x	-0.038	5.53	No
	x	-0.038	0.47	No
	x	-0.019	3.00	No
	x	-0.016	5.80	No
51	x	-0.039	5.25	No
	x	-0.039	0.75	No
	x	-0.019	5.80	No
	x	-0.026	3.00	No
60	x	0.00	0.00	No
	x	0.00	0.00	No
	x	0.00	0.00	No
61	x	0.00	0.00	No
	x	0.00	0.00	No
	x	0.00	0.00	No
62	x	0.00	0.00	No
	x	0.00	0.00	No
	x	0.00	0.00	No
53	x	-0.022	4.54	No
	x	-0.022	1.46	No
	x	-0.018	3.00	No
WLO 43	z	-0.012	5.53	No
	z	-0.012	0.47	No
	z	-0.004	3.00	No
	z	-0.004	5.80	No
27	z	-0.012	5.53	No
	z	-0.012	0.47	No
	z	-0.004	3.00	No
	z	-0.004	5.80	No
13	z	-0.003	1.00	No
14	z	-0.003	1.00	No
15	z	-0.003	1.00	No
26	z	-0.011	5.25	No
	z	-0.011	0.75	No
	z	-0.006	5.80	No
	z	-0.006	3.00	No
	z	0.00	0.00	No
29	z	-0.006	4.54	No
	z	-0.006	1.46	No
38	z	-0.006	4.54	No
	z	-0.006	1.46	No
40	z	-0.011	5.25	No
	z	-0.011	0.75	No
	z	-0.006	5.80	No
	z	-0.006	3.00	No
	z	0.00	0.00	No
45	z	-0.011	5.25	No
	z	-0.011	0.75	No

		z	-0.005	5.80	No
		z	-0.007	3.00	No
28		z	-0.011	5.25	No
		z	-0.011	0.75	No
		z	-0.005	5.80	No
		z	-0.007	3.00	No
46		z	-0.012	5.25	No
		z	-0.012	0.75	No
		z	-0.002	3.00	No
		z	-0.008	5.80	No
48		z	-0.02	5.53	No
		z	-0.02	0.47	No
		z	-0.002	3.00	No
		z	-0.001	5.80	No
51		z	-0.014	5.25	No
		z	-0.014	0.75	No
		z	-0.008	5.80	No
		z	-0.004	3.00	No
53		z	-0.008	4.54	No
		z	-0.008	1.46	No
WL30	43	x	-0.018	5.53	No
		x	-0.018	0.47	No
		x	-0.004	3.00	No
		x	-0.005	5.80	No
27		x	-0.018	5.53	No
		x	-0.018	0.47	No
		x	-0.004	3.00	No
		x	-0.005	5.80	No
13		x	-0.003	1.00	No
14		x	-0.003	1.00	No
15		x	-0.003	1.00	No
26		x	-0.012	5.25	No
		x	-0.012	0.75	No
		x	-0.005	3.00	No
		x	-0.008	5.80	No
29		x	-0.008	4.54	No
		x	-0.008	1.46	No
38		x	-0.008	4.54	No
		x	-0.008	1.46	No
40		x	-0.012	5.25	No
		x	-0.012	0.75	No
		x	-0.005	3.00	No
		x	-0.008	5.80	No
45		x	-0.013	5.25	No
		x	-0.013	0.75	No
		x	-0.007	5.80	No
		x	-0.005	3.00	No
28		x	-0.013	5.25	No
		x	-0.013	0.75	No
		x	-0.007	5.80	No
		x	-0.005	3.00	No
46		x	-0.01	5.25	No
		x	-0.01	0.75	No
		x	-0.005	3.00	No
		x	-0.005	5.80	No
48		x	-0.009	5.53	No
		x	-0.009	0.47	No
		x	-0.004	3.00	No
		x	-0.003	5.80	No
51		x	-0.01	5.25	No

		x	-0.01	0.75	No
		x	-0.006	3.00	No
		x	-0.004	5.80	No
	53	x	-0.005	4.54	No
		x	-0.005	1.46	No
		x	-0.004	3.00	No
LL1	20	y	-0.25	6.33	No
LL2	20	y	-0.25	12.66	No
LLa1	53	y	-0.50	0.00	No
LLa2	51	y	-0.50	0.00	No
LLa3	48	y	-0.50	0.00	No
LLa4	46	y	-0.50	0.00	No

### 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	500 lb Live Load on Antenna 1	No	0.00	0.00	0.00
LLa2	500 lb Live Load on Antenna 2	No	0.00	0.00	0.00
LLa3	500 lb Live Load on Antenna 3	No	0.00	0.00	0.00
LLa4	500 lb Live Load on Antenna 4	No	0.00	0.00	0.00
W180	-W0	Yes	0.00	0.00	0.00
W210	-W30	Yes	0.00	0.00	0.00
Wi180	-Wi0	Yes	0.00	0.00	0.00
Wi210	-Wi30	Yes	0.00	0.00	0.00
WL180	-WL0	Yes	0.00	0.00	0.00
WL210	-WL30	Yes	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
W180	0.00	0.00	0.00
W210	0.00	0.00	0.00
Wi180	0.00	0.00	0.00
Wi210	0.00	0.00	0.00
WL180	0.00	0.00	0.00
WL210	0.00	0.00	0.00

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Current Date: 6/20/2018 3:28 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1029\LTE 4C-5C\CT1029 (LTE 4C-5C).etx

## Steel Code Check

Report: Summary - For all selected load conditions

**Load conditions to be included in design :**

- W180=-W0
- W210=-W30
- Wi180=-Wi0
- Wi210=-Wi30
- WL180=-WL0
- WL210=-WL30
- LC1=1.2DL+1.6W0
- LC2=1.2DL+1.6W30
- LC3=1.2DL-1.6W0
- LC4=1.2DL-1.6W30
- LC5=0.9DL+1.6W0
- LC6=0.9DL+1.6W30
- LC7=0.9DL-1.6W0
- LC8=0.9DL-1.6W30
- LC9=1.2DL+Di+Wi0
- LC10=1.2DL+Di+Wi30
- LC11=1.2DL+Di-Wi0
- LC12=1.2DL+Di-Wi30
- LC13=1.2DL
- LC14=0.9DL
- LC15=1.2DL+1.6LL1
- LC16=1.2DL+1.6LL2
- LC17=1.2DL+WL0+LLa1
- LC18=1.2DL+WL30+LLa1
- LC19=1.2DL-WL0+LLa1
- LC20=1.2DL-WL30+LLa1
- LC21=1.2DL+WL0+LLa2
- LC22=1.2DL+WL30+LLa2
- LC23=1.2DL-WL0+LLa2
- LC24=1.2DL-WL30+LLa2
- LC25=1.2DL+WL0+LLa3
- LC26=1.2DL+WL30+LLa3
- LC27=1.2DL-WL0+LLa3
- LC28=1.2DL-WL30+LLa3
- LC29=1.2DL+WL0+LLa4
- LC30=1.2DL+WL30+LLa4
- LC31=1.2DL-WL0+LLa4
- LC32=1.2DL-WL30+LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	<i>HSS_SQR 4X4X1_4</i>	13	LC1 at 0.00%	0.67	OK	
			LC10 at 0.00%	0.99	OK	
			LC11 at 0.00%	<b>0.99</b>	<b>OK</b>	Eq. H1-1b
			LC12 at 0.00%	0.92	OK	
			LC13 at 0.00%	0.58	OK	
			LC14 at 0.00%	0.44	OK	
			LC15 at 0.00%	0.65	OK	
			LC16 at 0.00%	0.56	OK	
			LC17 at 0.00%	0.57	OK	
			LC18 at 0.00%	0.58	OK	

LC19 at 0.00%	0.58	OK
LC2 at 0.00%	0.82	OK
LC20 at 0.00%	0.56	OK
LC21 at 0.00%	0.63	OK
LC22 at 0.00%	0.65	OK
LC23 at 0.00%	0.65	OK
LC24 at 0.00%	0.63	OK
LC25 at 0.00%	0.72	OK
LC26 at 0.00%	0.73	OK
LC27 at 0.00%	0.73	OK
LC28 at 0.00%	0.72	OK
LC29 at 0.00%	0.83	OK
LC3 at 0.00%	0.81	OK
LC30 at 0.00%	0.84	OK
LC31 at 0.00%	0.84	OK
LC32 at 0.00%	0.82	OK
LC4 at 0.00%	0.55	OK
LC5 at 0.00%	0.52	OK
LC6 at 0.00%	0.68	OK
LC7 at 0.00%	0.67	OK
LC8 at 0.00%	0.40	OK
LC9 at 0.00%	0.96	OK
W180 at 0.00%	0.15	OK
W210 at 0.00%	0.15	OK
Wi180 at 0.00%	0.06	OK
Wi210 at 0.00%	0.05	OK
WL180 at 0.00%	0.01	OK
WL210 at 0.00%	0.01	OK

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LC1 at 0.00%	0.47	OK
LC10 at 0.00%	0.78	OK
LC11 at 0.00%	0.81	OK
LC12 at 0.00%	<b>0.85</b>	<b>OK</b>
LC13 at 0.00%	0.50	OK
LC14 at 0.00%	0.37	OK
LC15 at 0.00%	0.57	OK
LC16 at 0.00%	0.70	OK
LC17 at 0.00%	0.74	OK
LC18 at 0.00%	0.74	OK
LC19 at 0.00%	0.75	OK
LC2 at 0.00%	0.47	OK
LC20 at 0.00%	0.76	OK
LC21 at 0.00%	0.63	OK
LC22 at 0.00%	0.63	OK
LC23 at 0.00%	0.64	OK
LC24 at 0.00%	0.65	OK
LC25 at 0.00%	0.55	OK
LC26 at 0.00%	0.55	OK
LC27 at 0.00%	0.56	OK
LC28 at 0.00%	0.56	OK
LC29 at 0.00%	0.48	OK
LC3 at 0.00%	0.63	OK
LC30 at 0.00%	0.48	OK
LC31 at 0.00%	0.49	OK
LC32 at 0.00%	0.50	OK
LC4 at 0.00%	0.74	OK
LC5 at 0.00%	0.35	OK
LC6 at 0.00%	0.35	OK
LC7 at 0.00%	0.51	OK
LC8 at 0.00%	0.61	OK
LC9 at 0.00%	0.78	OK
W180 at 0.00%	0.08	OK
W210 at 0.00%	0.15	OK
Wi180 at 100.00%	0.02	OK

Eq. H1-1b

Eq. H1-1b



	Wi210 at 0.00%	0.06	OK	
	WL180 at 0.00%	0.01	OK	
	WL210 at 0.00%	0.01	OK	
<b>15</b>	LC1 at 0.00%	0.61	OK	
	LC10 at 0.00%	0.66	OK	
	LC11 at 0.00%	0.63	OK	
	LC12 at 0.00%	0.66	OK	
	LC13 at 0.00%	0.41	OK	
	LC14 at 0.00%	0.31	OK	
	LC15 at 0.00%	0.39	OK	
	LC16 at 0.00%	0.39	OK	
	LC17 at 0.00%	0.40	OK	
	LC18 at 0.00%	0.39	OK	
	LC19 at 0.00%	0.38	OK	
	LC2 at 0.00%	0.49	OK	
	LC20 at 0.00%	0.39	OK	
	LC21 at 0.00%	0.40	OK	
	LC22 at 0.00%	0.39	OK	
	LC23 at 0.00%	0.38	OK	
	LC24 at 0.00%	0.39	OK	
	LC25 at 0.00%	0.40	OK	
	LC26 at 0.00%	0.39	OK	
	LC27 at 0.00%	0.38	OK	
	LC28 at 0.00%	0.39	OK	
	LC29 at 0.00%	0.40	OK	
	LC3 at 0.00%	0.32	OK	
	LC30 at 0.00%	0.39	OK	
	LC31 at 0.00%	0.38	OK	
	LC32 at 0.00%	0.39	OK	
	LC4 at 0.00%	0.49	OK	
	LC5 at 0.00%	0.51	OK	
	LC6 at 0.00%	0.39	OK	
	LC7 at 0.00%	0.22	OK	
	LC8 at 0.00%	0.39	OK	
	LC9 at 0.00%	<b>0.70</b>	<b>OK</b>	Eq. H1-1b
	W180 at 0.00%	0.12	OK	
	W210 at 0.00%	0.05	OK	
	Wi180 at 0.00%	0.05	OK	
	Wi210 at 0.00%	0.01	OK	
	WL180 at 0.00%	0.01	OK	
	WL210 at 0.00%	0.00	OK	
<b>19</b>	LC1 at 0.00%	0.36	OK	Eq. H1-1b
	LC10 at 100.00%	0.33	OK	
	LC11 at 100.00%	0.31	OK	
	LC12 at 100.00%	0.34	OK	
	LC13 at 100.00%	0.18	OK	
	LC14 at 100.00%	0.14	OK	
	LC15 at 100.00%	0.20	OK	
	LC16 at 100.00%	0.22	OK	
	LC17 at 100.00%	0.23	OK	
	LC18 at 100.00%	0.24	OK	
	LC19 at 100.00%	0.24	OK	
	LC2 at 100.00%	0.37	OK	
	LC20 at 100.00%	0.25	OK	
	LC21 at 100.00%	0.21	OK	
	LC22 at 100.00%	0.22	OK	
	LC23 at 100.00%	0.22	OK	
	LC24 at 100.00%	0.23	OK	
	LC25 at 100.00%	0.20	OK	
	LC26 at 100.00%	0.21	OK	
	LC27 at 100.00%	0.20	OK	
	LC28 at 100.00%	0.21	OK	

	LC29 at 100.00%	0.18	OK	
	LC3 at 0.00%	0.27	OK	
	LC30 at 100.00%	0.20	OK	
	LC31 at 100.00%	0.19	OK	
	LC32 at 100.00%	0.20	OK	
	LC4 at 100.00%	<b>0.42</b>	<b>OK</b>	Eq. H1-1b
	LC5 at 0.00%	0.32	OK	
	LC6 at 100.00%	0.32	OK	
	LC7 at 0.00%	0.22	OK	
	LC8 at 100.00%	0.37	OK	
	LC9 at 0.00%	0.31	OK	
	W180 at 0.00%	0.11	OK	
	W210 at 100.00%	0.15	OK	
	Wi180 at 0.00%	0.04	OK	
	Wi210 at 100.00%	0.05	OK	
	WL180 at 0.00%	0.01	OK	
	WL210 at 100.00%	0.01	OK	
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<b>20</b>	LC1 at 0.00%	<b>0.42</b>	<b>OK</b>	Eq. H1-1b
	LC10 at 0.00%	0.35	OK	
	LC11 at 0.00%	0.37	OK	
	LC12 at 100.00%	0.33	OK	
	LC13 at 0.00%	0.20	OK	
	LC14 at 0.00%	0.15	OK	
	LC15 at 0.00%	0.25	OK	
	LC16 at 100.00%	0.22	OK	
	LC17 at 100.00%	0.25	OK	
	LC18 at 100.00%	0.24	OK	
	LC19 at 100.00%	0.24	OK	
	LC2 at 0.00%	0.35	OK	
	LC20 at 100.00%	0.24	OK	
	LC21 at 100.00%	0.27	OK	
	LC22 at 100.00%	0.26	OK	
	LC23 at 100.00%	0.27	OK	
	LC24 at 100.00%	0.27	OK	
	LC25 at 0.00%	0.29	OK	
	LC26 at 0.00%	0.29	OK	
	LC27 at 0.00%	0.29	OK	
	LC28 at 0.00%	0.28	OK	
	LC29 at 0.00%	0.26	OK	
	LC3 at 0.00%	0.41	OK	Eq. H1-1b
	LC30 at 0.00%	0.26	OK	
	LC31 at 0.00%	0.26	OK	
	LC32 at 0.00%	0.25	OK	
	LC4 at 100.00%	0.33	OK	
	LC5 at 0.00%	0.37	OK	
	LC6 at 0.00%	0.30	OK	
	LC7 at 0.00%	0.36	OK	
	LC8 at 100.00%	0.28	OK	
	LC9 at 0.00%	0.37	OK	
	W180 at 0.00%	0.14	OK	
	W210 at 100.00%	0.09	OK	
	Wi180 at 0.00%	0.05	OK	
	Wi210 at 0.00%	0.03	OK	
	WL180 at 0.00%	0.01	OK	
	WL210 at 0.00%	0.01	OK	
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<b>21</b>	LC1 at 100.00%	0.35	OK	Eq. H1-1b
	LC10 at 0.00%	0.37	OK	
	LC11 at 0.00%	0.33	OK	
	LC12 at 0.00%	0.36	OK	
	LC13 at 0.00%	0.20	OK	
	LC14 at 0.00%	0.15	OK	
	LC15 at 0.00%	0.22	OK	

LC16 at 0.00%	0.20	OK
LC17 at 0.00%	0.20	OK
LC18 at 0.00%	0.22	OK
LC19 at 0.00%	0.21	OK
LC2 at 0.00%	<b>0.43</b>	<b>OK</b>
LC20 at 0.00%	0.22	OK
LC21 at 0.00%	0.22	OK
LC22 at 0.00%	0.23	OK
LC23 at 0.00%	0.22	OK
LC24 at 0.00%	0.23	OK
LC25 at 0.00%	0.23	OK
LC26 at 0.00%	0.24	OK
LC27 at 0.00%	0.24	OK
LC28 at 0.00%	0.24	OK
LC29 at 0.00%	0.25	OK
LC3 at 0.00%	0.26	OK
LC30 at 0.00%	0.26	OK
LC31 at 0.00%	0.26	OK
LC32 at 0.00%	0.26	OK
LC4 at 0.00%	0.39	OK
LC5 at 100.00%	0.31	OK
LC6 at 0.00%	0.38	OK
LC7 at 3.75%	0.21	OK
LC8 at 0.00%	0.34	OK
LC9 at 0.00%	0.32	OK
W180 at 100.00%	0.10	OK
W210 at 0.00%	0.14	OK
Wi180 at 100.00%	0.04	OK
Wi210 at 0.00%	0.05	OK
WL180 at 100.00%	0.01	OK
WL210 at 0.00%	0.01	OK

Eq. H1-1b

60

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LC1 at 75.00%	0.52	OK
LC10 at 75.00%	0.57	OK
LC11 at 75.00%	<b>0.59</b>	<b>OK</b>
LC12 at 75.00%	0.55	OK
LC13 at 75.00%	0.34	OK
LC14 at 75.00%	0.25	OK
LC15 at 75.00%	0.39	OK
LC16 at 75.00%	0.34	OK
LC17 at 75.00%	0.35	OK
LC18 at 75.00%	0.35	OK
LC19 at 75.00%	0.35	OK
LC2 at 75.00%	0.50	OK
LC20 at 75.00%	0.35	OK
LC21 at 75.00%	0.39	OK
LC22 at 75.00%	0.39	OK
LC23 at 75.00%	0.40	OK
LC24 at 75.00%	0.39	OK
LC25 at 75.00%	0.43	OK
LC26 at 75.00%	0.43	OK
LC27 at 75.00%	0.43	OK
LC28 at 75.00%	0.43	OK
LC29 at 0.00%	0.46	OK
LC3 at 75.00%	0.55	OK
LC30 at 0.00%	0.47	OK
LC31 at 0.00%	0.47	OK
LC32 at 0.00%	0.46	OK
LC4 at 75.00%	0.44	OK
LC5 at 75.00%	0.44	OK
LC6 at 75.00%	0.41	OK
LC7 at 75.00%	0.47	OK
LC8 at 75.00%	0.35	OK
LC9 at 75.00%	0.58	OK

Eq. H1-1b

	W180 at 75.00%	0.14	OK	
	W210 at 75.00%	0.10	OK	
	Wi180 at 75.00%	0.05	OK	
	Wi210 at 75.00%	0.04	OK	
	WL180 at 75.00%	0.01	OK	
	WL210 at 75.00%	0.01	OK	
<hr/>				
61	LC1 at 75.00%	0.36	OK	
	LC10 at 75.00%	<b>0.48</b>	<b>OK</b>	Eq. H1-1b
	LC11 at 75.00%	0.44	OK	
	LC12 at 75.00%	0.48	OK	
	LC13 at 75.00%	0.28	OK	
	LC14 at 75.00%	0.21	OK	
	LC15 at 75.00%	0.28	OK	
	LC16 at 75.00%	0.28	OK	
	LC17 at 75.00%	0.29	OK	
	LC18 at 75.00%	0.29	OK	
	LC19 at 75.00%	0.28	OK	
	LC2 at 75.00%	0.46	OK	
	LC20 at 75.00%	0.29	OK	
	LC21 at 75.00%	0.28	OK	
	LC22 at 75.00%	0.29	OK	
	LC23 at 75.00%	0.28	OK	
	LC24 at 75.00%	0.29	OK	
	LC25 at 75.00%	0.28	OK	
	LC26 at 75.00%	0.29	OK	
	LC27 at 75.00%	0.28	OK	
	LC28 at 75.00%	0.29	OK	
	LC29 at 75.00%	0.29	OK	
	LC3 at 75.00%	0.26	OK	
	LC30 at 75.00%	0.29	OK	
	LC31 at 75.00%	0.28	OK	
	LC32 at 75.00%	0.29	OK	
	LC4 at 75.00%	0.46	OK	
	LC5 at 75.00%	0.29	OK	
	LC6 at 75.00%	0.39	OK	
	LC7 at 75.00%	0.19	OK	
	LC8 at 75.00%	0.39	OK	
	LC9 at 75.00%	0.47	OK	
	W180 at 0.00%	0.07	OK	
	W210 at 75.00%	0.11	OK	
	Wi180 at 0.00%	0.03	OK	
	Wi210 at 75.00%	0.04	OK	
	WL180 at 0.00%	0.01	OK	
	WL210 at 75.00%	0.01	OK	
<hr/>				
62	LC1 at 25.00%	0.45	OK	
	LC10 at 25.00%	0.51	OK	
	LC11 at 25.00%	0.52	OK	
	LC12 at 25.00%	<b>0.53</b>	<b>OK</b>	Eq. H1-1b
	LC13 at 25.00%	0.31	OK	
	LC14 at 25.00%	0.23	OK	
	LC15 at 25.00%	0.36	OK	
	LC16 at 100.00%	0.38	OK	
	LC17 at 100.00%	0.41	OK	
	LC18 at 100.00%	0.41	OK	
	LC19 at 100.00%	0.41	OK	
	LC2 at 25.00%	0.41	OK	
	LC20 at 100.00%	0.42	OK	
	LC21 at 25.00%	0.40	OK	
	LC22 at 25.00%	0.40	OK	
	LC23 at 25.00%	0.40	OK	
	LC24 at 25.00%	0.40	OK	
	LC25 at 25.00%	0.36	OK	

LC26 at 25.00%	0.36	OK
LC27 at 25.00%	0.36	OK
LC28 at 25.00%	0.36	OK
LC29 at 25.00%	0.32	OK
LC3 at 25.00%	0.48	OK
LC30 at 25.00%	0.32	OK
LC31 at 25.00%	0.32	OK
LC32 at 25.00%	0.32	OK
LC4 at 25.00%	0.48	OK
LC5 at 25.00%	0.37	OK
LC6 at 25.00%	0.33	OK
LC7 at 25.00%	0.40	OK
LC8 at 25.00%	0.40	OK
LC9 at 25.00%	0.51	OK
W180 at 25.00%	0.11	OK
W210 at 25.00%	0.11	OK
Wi180 at 25.00%	0.04	OK
Wi210 at 25.00%	0.04	OK
WL180 at 25.00%	0.01	OK
WL210 at 25.00%	0.01	OK

**PIPE 2x0.154**

**26**

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LC1 at 65.63%	0.70	OK
LC10 at 65.63%	0.19	OK
LC11 at 65.63%	0.18	OK
LC12 at 65.63%	0.19	OK
LC13 at 65.63%	0.01	OK
LC14 at 65.63%	0.01	OK
LC15 at 65.63%	0.01	OK
LC16 at 65.63%	0.01	OK
LC17 at 65.63%	0.04	OK
LC18 at 65.63%	0.05	OK
LC19 at 65.63%	0.04	OK
LC2 at 65.63%	0.74	OK
LC20 at 65.63%	0.05	OK
LC21 at 65.63%	0.04	OK
LC22 at 65.63%	0.05	OK
LC23 at 65.63%	0.04	OK
LC24 at 65.63%	0.05	OK
LC25 at 65.63%	0.04	OK
LC26 at 65.63%	0.05	OK
LC27 at 65.63%	0.04	OK
LC28 at 65.63%	0.05	OK
LC29 at 65.63%	0.04	OK
LC3 at 65.63%	0.70	OK
LC30 at 65.63%	0.05	OK
LC31 at 65.63%	0.04	OK
LC32 at 65.63%	0.05	OK
LC4 at 65.63%	<b>0.74</b>	<b>OK</b>
LC5 at 65.63%	0.70	OK
LC6 at 65.63%	0.74	OK
LC7 at 65.63%	0.70	OK
LC8 at 65.63%	0.74	OK
LC9 at 65.63%	0.18	OK
W180 at 65.63%	0.43	OK
W210 at 65.63%	0.46	OK
Wi180 at 65.63%	0.17	OK
Wi210 at 65.63%	0.18	OK
WL180 at 65.63%	0.04	OK
WL210 at 65.63%	0.05	OK

Eq. H1-1b

**29**

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LC1 at 65.63%	0.24	OK
LC10 at 65.63%	0.10	OK
LC11 at 65.63%	0.07	OK
LC12 at 65.63%	0.10	OK

LC13 at 65.63%	0.01	OK
LC14 at 65.63%	0.00	OK
LC15 at 65.63%	0.01	OK
LC16 at 65.63%	0.01	OK
LC17 at 65.63%	0.02	OK
LC18 at 65.63%	0.02	OK
LC19 at 65.63%	0.02	OK
LC2 at 65.63%	<b>0.32</b>	<b>OK</b>
LC20 at 65.63%	0.02	OK
LC21 at 65.63%	0.02	OK
LC22 at 65.63%	0.02	OK
LC23 at 65.63%	0.02	OK
LC24 at 65.63%	0.02	OK
LC25 at 65.63%	0.02	OK
LC26 at 65.63%	0.02	OK
LC27 at 65.63%	0.02	OK
LC28 at 65.63%	0.02	OK
LC29 at 65.63%	0.02	OK
LC3 at 65.63%	0.24	OK
LC30 at 65.63%	0.02	OK
LC31 at 65.63%	0.02	OK
LC32 at 65.63%	0.02	OK
LC4 at 65.63%	0.32	OK
LC5 at 65.63%	0.24	OK
LC6 at 65.63%	0.32	OK
LC7 at 65.63%	0.24	OK
LC8 at 65.63%	0.32	OK
LC9 at 65.63%	0.07	OK
W180 at 65.63%	0.15	OK
W210 at 65.63%	0.20	OK
Wi180 at 65.63%	0.07	OK
Wi210 at 65.63%	0.10	OK
WL180 at 65.63%	0.02	OK
WL210 at 65.63%	0.02	OK

Eq. H1-1b

38

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LC1 at 65.63%	0.24	OK
LC10 at 65.63%	0.10	OK
LC11 at 65.63%	0.07	OK
LC12 at 65.63%	0.10	OK
LC13 at 65.63%	0.01	OK
LC14 at 65.63%	0.00	OK
LC15 at 65.63%	0.01	OK
LC16 at 65.63%	0.01	OK
LC17 at 65.63%	0.02	OK
LC18 at 65.63%	0.02	OK
LC19 at 65.63%	0.02	OK
LC2 at 65.63%	<b>0.32</b>	<b>OK</b>
LC20 at 65.63%	0.02	OK
LC21 at 65.63%	0.02	OK
LC22 at 65.63%	0.02	OK
LC23 at 65.63%	0.02	OK
LC24 at 65.63%	0.02	OK
LC25 at 65.63%	0.02	OK
LC26 at 65.63%	0.02	OK
LC27 at 65.63%	0.02	OK
LC28 at 65.63%	0.02	OK
LC29 at 65.63%	0.02	OK
LC3 at 65.63%	0.24	OK
LC30 at 65.63%	0.02	OK
LC31 at 65.63%	0.02	OK
LC32 at 65.63%	0.02	OK
LC4 at 65.63%	0.32	OK
LC5 at 65.63%	0.24	OK
LC6 at 65.63%	0.32	OK

Eq. H1-1b

	LC7 at 65.63%	0.24	OK	
	LC8 at 65.63%	0.32	OK	
	LC9 at 65.63%	0.07	OK	
	W180 at 65.63%	0.15	OK	
	W210 at 65.63%	0.20	OK	
	Wi180 at 65.63%	0.07	OK	
	Wi210 at 65.63%	0.10	OK	
	WL180 at 65.63%	0.02	OK	
	WL210 at 65.63%	0.02	OK	
<hr/>				
40	LC1 at 65.63%	0.70	OK	
	LC10 at 65.63%	0.19	OK	
	LC11 at 65.63%	0.18	OK	
	LC12 at 65.63%	0.19	OK	
	LC13 at 65.63%	0.01	OK	
	LC14 at 65.63%	0.01	OK	
	LC15 at 65.63%	0.01	OK	
	LC16 at 65.63%	0.01	OK	
	LC17 at 65.63%	0.04	OK	
	LC18 at 65.63%	0.05	OK	
	LC19 at 65.63%	0.04	OK	
	LC2 at 65.63%	<b>0.74</b>	<b>OK</b>	Eq. H1-1b
	LC20 at 65.63%	0.05	OK	
	LC21 at 65.63%	0.04	OK	
	LC22 at 65.63%	0.05	OK	
	LC23 at 65.63%	0.04	OK	
	LC24 at 65.63%	0.05	OK	
	LC25 at 65.63%	0.04	OK	
	LC26 at 65.63%	0.05	OK	
	LC27 at 65.63%	0.04	OK	
	LC28 at 65.63%	0.05	OK	
	LC29 at 65.63%	0.04	OK	
	LC3 at 65.63%	0.70	OK	
	LC30 at 65.63%	0.05	OK	
	LC31 at 65.63%	0.04	OK	
	LC32 at 65.63%	0.05	OK	
	LC4 at 65.63%	0.74	OK	
	LC5 at 65.63%	0.70	OK	
	LC6 at 65.63%	0.74	OK	
	LC7 at 65.63%	0.70	OK	
	LC8 at 65.63%	0.74	OK	
	LC9 at 65.63%	0.18	OK	
	W180 at 65.63%	0.43	OK	
	W210 at 65.63%	0.46	OK	
	Wi180 at 65.63%	0.17	OK	
	Wi210 at 65.63%	0.18	OK	
	WL180 at 65.63%	0.04	OK	
	WL210 at 65.63%	0.05	OK	
<hr/>				
43	LC1 at 65.63%	0.79	OK	
	LC10 at 65.63%	0.26	OK	
	LC11 at 65.63%	0.21	OK	
	LC12 at 65.63%	0.26	OK	
	LC13 at 65.63%	0.01	OK	
	LC14 at 65.63%	0.01	OK	
	LC15 at 65.63%	0.01	OK	
	LC16 at 65.63%	0.01	OK	
	LC17 at 65.63%	0.05	OK	
	LC18 at 65.63%	0.08	OK	
	LC19 at 65.63%	0.05	OK	
	LC2 at 65.63%	<b>1.14</b>	<b>N.G.</b>	Eq. H1-1b
	LC20 at 65.63%	0.08	OK	
	LC21 at 65.63%	0.05	OK	
	LC22 at 65.63%	0.08	OK	

LC23 at 65.63%	0.05	OK
LC24 at 65.63%	0.08	OK
LC25 at 65.63%	0.05	OK
LC26 at 65.63%	0.08	OK
LC27 at 65.63%	0.05	OK
LC28 at 65.63%	0.08	OK
LC29 at 65.63%	0.05	OK
LC3 at 65.63%	0.79	OK
LC30 at 65.63%	0.08	OK
LC31 at 65.63%	0.05	OK
LC32 at 65.63%	0.08	OK
LC4 at 65.63%	1.14	N.G.
LC5 at 65.63%	0.79	OK
LC6 at 65.63%	1.14	N.G.
LC7 at 65.63%	0.79	OK
LC8 at 65.63%	1.14	N.G.
LC9 at 65.63%	0.21	OK
W180 at 65.63%	0.49	OK
W210 at 65.63%	0.71	OK
Wi180 at 65.63%	0.20	OK
Wi210 at 65.63%	0.26	OK
WL180 at 65.63%	0.05	OK
WL210 at 65.63%	0.07	OK

27

LC1 at 65.63%	0.79	OK
LC10 at 65.63%	0.26	OK
LC11 at 65.63%	0.21	OK
LC12 at 65.63%	0.26	OK
LC13 at 65.63%	0.01	OK
LC14 at 65.63%	0.01	OK
LC15 at 65.63%	0.01	OK
LC16 at 65.63%	0.01	OK
LC17 at 65.63%	0.05	OK
LC18 at 65.63%	0.08	OK
LC19 at 65.63%	0.05	OK
LC2 at 65.63%	1.14	N.G.
LC20 at 65.63%	0.08	OK
LC21 at 65.63%	0.05	OK
LC22 at 65.63%	0.08	OK
LC23 at 65.63%	0.05	OK
LC24 at 65.63%	0.08	OK
LC25 at 65.63%	0.05	OK
LC26 at 65.63%	0.08	OK
LC27 at 65.63%	0.05	OK
LC28 at 65.63%	0.08	OK
LC29 at 65.63%	0.05	OK
LC3 at 65.63%	0.79	OK
LC30 at 65.63%	0.08	OK
LC31 at 65.63%	0.05	OK
LC32 at 65.63%	0.08	OK
LC4 at 65.63%	1.14	N.G.
LC5 at 65.63%	0.79	OK
LC6 at 65.63%	1.14	N.G.
LC7 at 65.63%	0.79	OK
LC8 at 65.63%	1.14	N.G.
LC9 at 65.63%	0.21	OK
W180 at 65.63%	0.49	OK
W210 at 65.63%	0.71	OK
Wi180 at 65.63%	0.20	OK
Wi210 at 65.63%	0.26	OK
WL180 at 65.63%	0.05	OK
WL210 at 65.63%	0.07	OK

Eq. H1-1b

45

LC1 at 65.63%	0.72	OK
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LC10 at 65.63%	0.20	OK	
LC11 at 65.63%	0.19	OK	
LC12 at 65.63%	0.20	OK	
LC13 at 65.63%	0.01	OK	
LC14 at 65.63%	0.01	OK	
LC15 at 65.63%	0.01	OK	
LC16 at 65.63%	0.01	OK	
LC17 at 65.63%	0.05	OK	
LC18 at 65.63%	0.06	OK	
LC19 at 65.63%	0.05	OK	
LC2 at 65.63%	<b>0.84</b>	<b>OK</b>	Eq. H1-1b
LC20 at 65.63%	0.06	OK	
LC21 at 65.63%	0.05	OK	
LC22 at 65.63%	0.06	OK	
LC23 at 65.63%	0.05	OK	
LC24 at 65.63%	0.06	OK	
LC25 at 65.63%	0.05	OK	
LC26 at 65.63%	0.06	OK	
LC27 at 65.63%	0.05	OK	
LC28 at 65.63%	0.06	OK	
LC29 at 65.63%	0.05	OK	
LC3 at 65.63%	0.72	OK	
LC30 at 65.63%	0.06	OK	
LC31 at 65.63%	0.05	OK	
LC32 at 65.63%	0.06	OK	
LC4 at 65.63%	0.84	OK	
LC5 at 65.63%	0.72	OK	
LC6 at 65.63%	0.83	OK	
LC7 at 65.63%	0.72	OK	
LC8 at 65.63%	0.83	OK	
LC9 at 65.63%	0.19	OK	
W180 at 65.63%	0.45	OK	
W210 at 65.63%	0.52	OK	
Wi180 at 65.63%	0.18	OK	
Wi210 at 65.63%	0.19	OK	
WL180 at 65.63%	0.05	OK	
WL210 at 65.63%	0.05	OK	

28

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LC1 at 65.63%	0.72	OK	
LC10 at 65.63%	0.20	OK	
LC11 at 65.63%	0.19	OK	
LC12 at 65.63%	0.20	OK	
LC13 at 65.63%	0.01	OK	
LC14 at 65.63%	0.01	OK	
LC15 at 65.63%	0.01	OK	
LC16 at 65.63%	0.01	OK	
LC17 at 65.63%	0.05	OK	
LC18 at 65.63%	0.06	OK	
LC19 at 65.63%	0.05	OK	
LC2 at 65.63%	<b>0.84</b>	<b>OK</b>	Eq. H1-1b
LC20 at 65.63%	0.06	OK	
LC21 at 65.63%	0.05	OK	
LC22 at 65.63%	0.06	OK	
LC23 at 65.63%	0.05	OK	
LC24 at 65.63%	0.06	OK	
LC25 at 65.63%	0.05	OK	
LC26 at 65.63%	0.06	OK	
LC27 at 65.63%	0.05	OK	
LC28 at 65.63%	0.06	OK	
LC29 at 65.63%	0.05	OK	
LC3 at 65.63%	0.72	OK	
LC30 at 65.63%	0.06	OK	
LC31 at 65.63%	0.05	OK	
LC32 at 65.63%	0.06	OK	

LC4 at 65.63%	0.84	OK
LC5 at 65.63%	0.72	OK
LC6 at 65.63%	0.83	OK
LC7 at 65.63%	0.72	OK
LC8 at 65.63%	0.83	OK
LC9 at 65.63%	0.19	OK
W180 at 65.63%	0.45	OK
W210 at 65.63%	0.52	OK
Wi180 at 65.63%	0.18	OK
Wi210 at 65.63%	0.19	OK
WL180 at 65.63%	0.05	OK
WL210 at 65.63%	0.05	OK

46

LC1 at 65.63%	0.52	OK
LC10 at 65.63%	0.13	OK
LC11 at 68.75%	0.16	OK
LC12 at 65.63%	0.13	OK
LC13 at 65.63%	0.01	OK
LC14 at 65.63%	0.01	OK
LC15 at 65.63%	0.01	OK
LC16 at 65.63%	0.01	OK
LC17 at 65.63%	0.04	OK
LC18 at 65.63%	0.04	OK
LC19 at 65.63%	0.04	OK
LC2 at 65.63%	<b>0.53</b>	<b>OK</b>
LC20 at 65.63%	0.04	OK
LC21 at 65.63%	0.04	OK
LC22 at 65.63%	0.04	OK
LC23 at 65.63%	0.04	OK
LC24 at 65.63%	0.04	OK
LC25 at 65.63%	0.04	OK
LC26 at 65.63%	0.04	OK
LC27 at 65.63%	0.04	OK
LC28 at 65.63%	0.04	OK
LC29 at 65.63%	0.06	OK
LC3 at 65.63%	0.52	OK
LC30 at 65.63%	0.05	OK
LC31 at 65.63%	0.06	OK
LC32 at 65.63%	0.05	OK
LC4 at 65.63%	0.53	OK
LC5 at 65.63%	0.52	OK
LC6 at 65.63%	0.53	OK
LC7 at 65.63%	0.52	OK
LC8 at 65.63%	0.53	OK
LC9 at 68.75%	0.16	OK
W180 at 65.63%	0.32	OK
W210 at 65.63%	0.33	OK
Wi180 at 68.75%	0.16	OK
Wi210 at 65.63%	0.12	OK
WL180 at 65.63%	0.03	OK
WL210 at 65.63%	0.03	OK

Eq. H1-1b

48

LC1 at 65.63%	<b>0.95</b>	<b>OK</b>
LC10 at 65.63%	0.13	OK
LC11 at 65.63%	0.22	OK
LC12 at 65.63%	0.13	OK
LC13 at 65.63%	0.01	OK
LC14 at 65.63%	0.01	OK
LC15 at 65.63%	0.01	OK
LC16 at 65.63%	0.01	OK
LC17 at 65.63%	0.06	OK
LC18 at 65.63%	0.03	OK
LC19 at 65.63%	0.06	OK
LC2 at 65.63%	0.48	OK

Eq. H1-1b

LC20 at 65.63%	0.03	OK
LC21 at 65.63%	0.06	OK
LC22 at 65.63%	0.03	OK
LC23 at 65.63%	0.06	OK
LC24 at 65.63%	0.03	OK
LC25 at 65.63%	0.08	OK
LC26 at 65.63%	0.05	OK
LC27 at 65.63%	0.08	OK
LC28 at 65.63%	0.05	OK
LC29 at 65.63%	0.06	OK
LC3 at 65.63%	0.95	OK
LC30 at 65.63%	0.03	OK
LC31 at 65.63%	0.06	OK
LC32 at 65.63%	0.03	OK
LC4 at 65.63%	0.48	OK
LC5 at 65.63%	0.95	OK
LC6 at 65.63%	0.48	OK
LC7 at 65.63%	0.95	OK
LC8 at 65.63%	0.48	OK
LC9 at 65.63%	0.22	OK
W180 at 65.63%	0.59	OK
W210 at 65.63%	0.30	OK
Wi180 at 65.63%	0.21	OK
Wi210 at 65.63%	0.12	OK
WL180 at 65.63%	0.06	OK
WL210 at 65.63%	0.03	OK

51

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LC1 at 65.63%	0.65	OK
LC10 at 65.63%	0.13	OK
LC11 at 65.63%	0.16	OK
LC12 at 65.63%	0.13	OK
LC13 at 65.63%	0.01	OK
LC14 at 65.63%	0.01	OK
LC15 at 65.63%	0.01	OK
LC16 at 65.63%	0.01	OK
LC17 at 65.63%	0.04	OK
LC18 at 65.63%	0.04	OK
LC19 at 65.63%	0.04	OK
LC2 at 65.63%	0.51	OK
LC20 at 65.63%	0.04	OK
LC21 at 65.63%	0.06	OK
LC22 at 65.63%	0.05	OK
LC23 at 65.63%	0.06	OK
LC24 at 65.63%	0.05	OK
LC25 at 65.63%	0.04	OK
LC26 at 65.63%	0.04	OK
LC27 at 65.63%	0.04	OK
LC28 at 65.63%	0.04	OK
LC29 at 65.63%	0.04	OK
LC3 at 65.63%	<b>0.65</b>	<b>OK</b>
LC30 at 65.63%	0.04	OK
LC31 at 65.63%	0.04	OK
LC32 at 65.63%	0.04	OK
LC4 at 65.63%	0.51	OK
LC5 at 65.63%	0.65	OK
LC6 at 65.63%	0.51	OK
LC7 at 65.63%	0.65	OK
LC8 at 65.63%	0.51	OK
LC9 at 65.63%	0.16	OK
W180 at 65.63%	0.40	OK
W210 at 65.63%	0.32	OK
Wi180 at 65.63%	0.15	OK
Wi210 at 65.63%	0.12	OK
WL180 at 65.63%	0.04	OK

Eq. H1-1b

	WL210 at 65.63%	0.03	OK	
53	LC1 at 65.63%	0.27	OK	
	LC10 at 65.63%	0.06	OK	
	LC11 at 65.63%	0.07	OK	
	LC12 at 65.63%	0.06	OK	
	LC13 at 65.63%	0.01	OK	
	LC14 at 65.63%	0.00	OK	
	LC15 at 65.63%	0.01	OK	
	LC16 at 65.63%	0.01	OK	
	LC17 at 65.63%	0.04	OK	Sec. E1
	LC18 at 65.63%	0.04	OK	
	LC19 at 65.63%	0.04	OK	
	LC2 at 65.63%	0.21	OK	
	LC20 at 65.63%	0.04	OK	
	LC21 at 65.63%	0.02	OK	
	LC22 at 65.63%	0.02	OK	
	LC23 at 65.63%	0.02	OK	
	LC24 at 65.63%	0.02	OK	
	LC25 at 65.63%	0.02	OK	
	LC26 at 65.63%	0.02	OK	
	LC27 at 65.63%	0.02	OK	
	LC28 at 65.63%	0.02	OK	
	LC29 at 65.63%	0.02	OK	
	LC3 at 65.63%	0.27	OK	Eq. H1-1b
	LC30 at 65.63%	0.02	OK	
	LC31 at 65.63%	0.02	OK	
	LC32 at 65.63%	0.02	OK	
	LC4 at 65.63%	0.21	OK	
	LC5 at 65.63%	0.27	OK	
	LC6 at 65.63%	0.21	OK	
	LC7 at 65.63%	0.27	OK	
	LC8 at 65.63%	0.21	OK	
	LC9 at 65.63%	0.07	OK	
W180 at 65.63%	0.17	OK		
W210 at 65.63%	0.13	OK		
Wi180 at 65.63%	0.07	OK		
Wi210 at 65.63%	0.06	OK		
WL180 at 65.63%	0.02	OK		
WL210 at 65.63%	0.01	OK		

## 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
18	-0.0012	0.00	-7.312	0
19	0.0036	0.00	-0.8677	0
24	-0.7533	0.00	0.4307	0
26	-6.3318	0.00	3.657	0
28	0.7497	0.00	0.437	0
30	6.333	0.00	3.655	0
32	2.3449	0.00	1.3564	0
41	-2.3472	0.00	1.3525	0
47	0.0022	0.00	-2.709	0
48	6.1665	0.00	3.3666	0
49	4.1665	0.00	-0.0975	0
50	2.1665	0.00	-3.5616	0
51	0.1665	0.00	-7.0257	0
52	6.3942	0.00	3.2351	0
53	4.3942	0.00	-0.229	0
54	2.3942	0.00	-3.6931	0
55	0.3942	0.00	-7.1572	0
56	0.3942	4.00	-7.1572	0
57	2.3942	4.00	-3.6931	0
58	4.3942	4.00	-0.229	0
59	6.3942	4.00	3.2351	0

60	6.3942	-2.00	3.2351	0
62	4.3942	-2.00	-0.229	0
63	2.3942	-2.00	-3.6931	0
64	0.3942	-2.00	-7.1572	0
81	-0.1677	0.00	-7.0237	0
82	-2.3954	0.00	-3.691	0
83	-4.3954	0.00	-0.2269	0
84	-0.3954	4.00	-7.1551	0
85	-0.3954	-2.00	-7.1551	0
86	-0.3954	0.00	-7.1551	0
87	-2.3954	4.00	-3.691	0
88	-2.3954	-2.00	-3.691	0
89	-2.1677	0.00	-3.5596	0
90	-4.1677	0.00	-0.0954	0
91	-4.3954	4.00	-0.2269	0
92	-4.3954	-2.00	-0.2269	0
93	-6.1677	0.00	3.3687	0
94	-6.3954	0.00	3.2372	0
95	-6.3954	4.00	3.2372	0
96	-6.3954	-2.00	3.2372	0
102	-5.9988	0.00	3.657	0
103	-1.9988	0.00	3.92	0
104	2.0012	0.00	3.92	0
105	-5.9988	4.00	3.92	0
106	-5.9988	-2.00	3.92	0
107	-5.9988	0.00	3.92	0
108	-1.9988	4.00	3.92	0
109	-1.9988	-2.00	3.92	0
110	-1.9988	0.00	3.657	0
111	2.0012	0.00	3.657	0
112	2.0012	4.00	3.92	0
113	2.0012	-2.00	3.92	0
114	6.0012	0.00	3.657	0
115	6.0012	0.00	3.92	0
116	6.0012	4.00	3.92	0
117	6.0012	-2.00	3.92	0
118	-7.6309	0.00	4.407	0
121	7.632	0.00	4.405	0
122	-0.0012	0.00	-8.812	0

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## Restraints

Node	TX	TY	TZ	RX	RY	RZ
19	1	1	1	1	1	1
24	1	1	1	1	1	1
28	1	1	1	1	1	1

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## Members

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Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
43	91	92		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
27	58	62		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
13	24	41		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
14	28	32		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
15	19	47		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
19	18	30		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
20	26	30		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
21	26	18		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
26	59	60		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
29	56	64		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
38	84	85		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
40	87	88		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
45	95	96		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
28	57	63		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
46	105	106		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
48	108	109		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
51	112	113		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
60	41	118		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
61	47	122		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
62	121	32		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
53	116	117		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

### Orientation of local axes

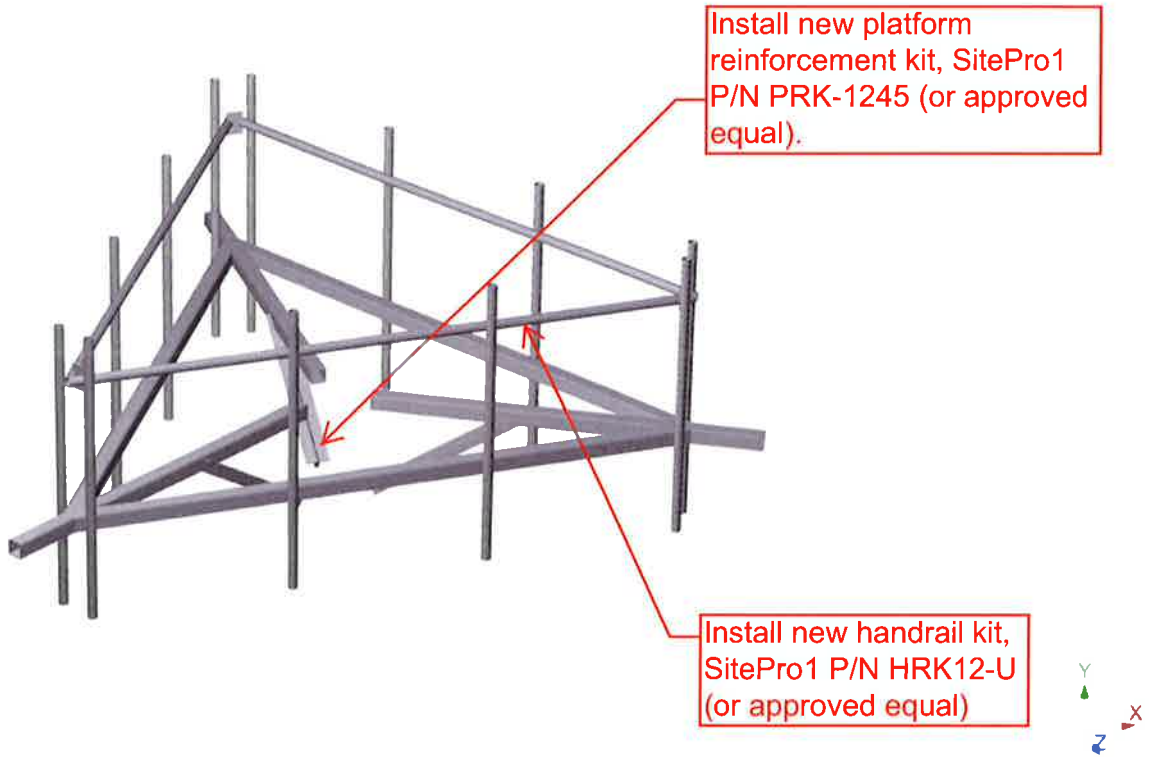
Member	Rotation [Deg]	Axes23	NX	NY	NZ
43	0.00	2	-0.50	0.00	0.866
27	0.00	2	-0.50	0.00	-0.866
26	0.00	2	-0.50	0.00	-0.866
29	0.00	2	-0.50	0.00	-0.866
38	0.00	2	-0.50	0.00	0.866
40	0.00	2	-0.50	0.00	0.866
45	0.00	2	-0.50	0.00	0.866
28	0.00	2	-0.50	0.00	-0.866

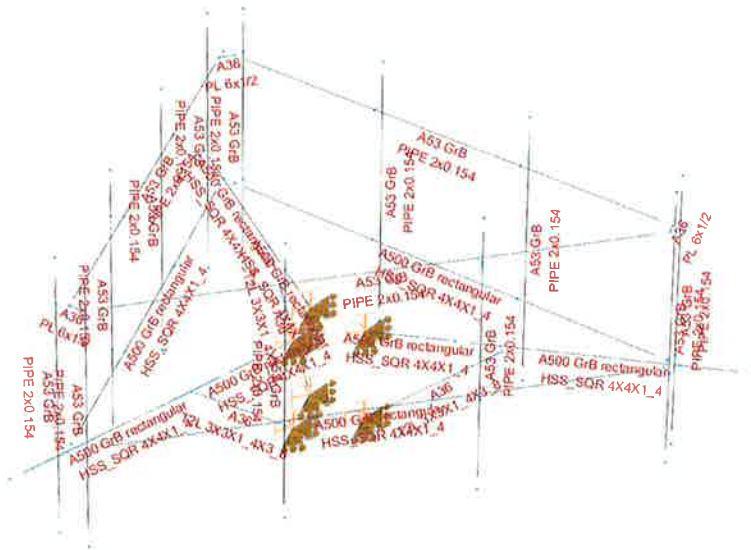


**HUDSON**  
Design Group LLC





**Mount Calculations  
(Proposed Conditions)**

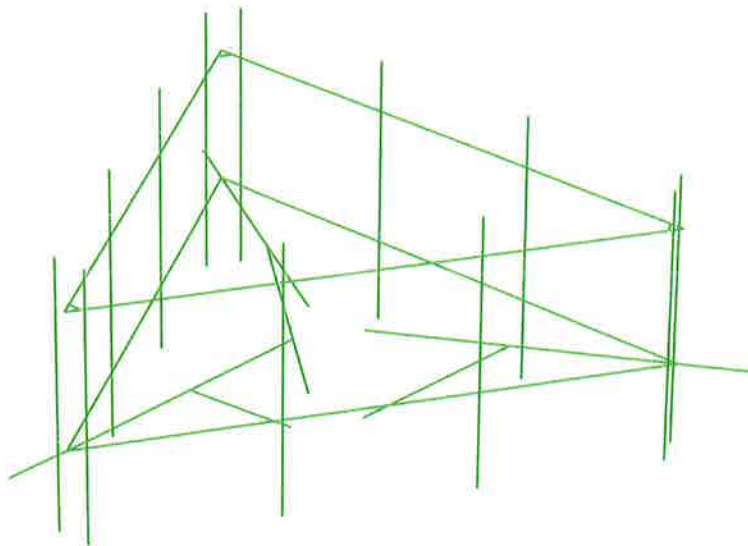


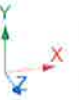
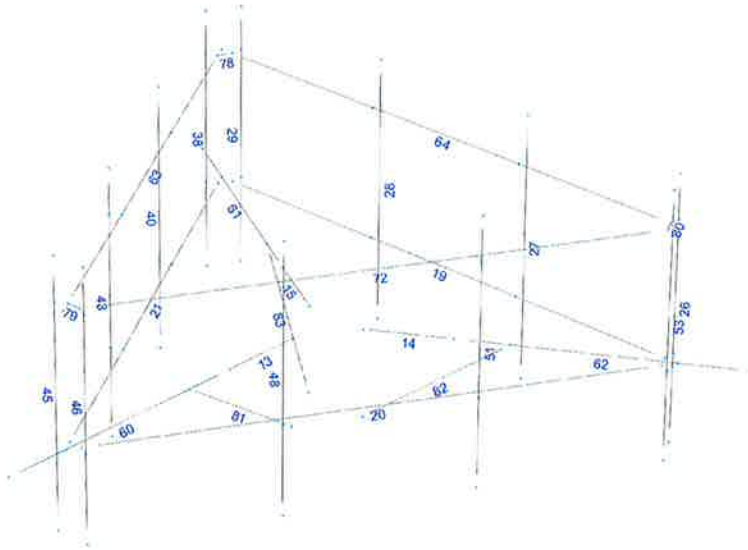




Design status

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







Current Date: 6/20/2018 3:19 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1029\LTE 4C-5C\CT1029 (LTE 4C-5C (Mod.)) .etx\

## Steel Code Check

Report: Summary - For all selected load conditions

**Load conditions to be included in design :**

- W180=-W0
- W210=-W30
- Wi180=-Wi0
- Wi210=-Wi30
- WL180=-WL0
- WL210=-WL30
- LC1=1.2DL+1.6W0
- LC2=1.2DL+1.6W30
- LC3=1.2DL-1.6W0
- LC4=1.2DL-1.6W30
- LC5=0.9DL+1.6W0
- LC6=0.9DL+1.6W30
- LC7=0.9DL-1.6W0
- LC8=0.9DL-1.6W30
- LC9=1.2DL+Di+Wi0
- LC10=1.2DL+Di+Wi30
- LC11=1.2DL+Di-Wi0
- LC12=1.2DL+Di-Wi30
- LC13=1.2DL
- LC14=0.9DL
- LC15=1.2DL+1.6LL1
- LC16=1.2DL+1.6LL2
- LC17=1.2DL+WL0+LLa1
- LC18=1.2DL+WL30+LLa1
- LC19=1.2DL-WL0+LLa1
- LC20=1.2DL-WL30+LLa1
- LC21=1.2DL+WL0+LLa2
- LC22=1.2DL+WL30+LLa2
- LC23=1.2DL-WL0+LLa2
- LC24=1.2DL-WL30+LLa2
- LC25=1.2DL+WL0+LLa3
- LC26=1.2DL+WL30+LLa3
- LC27=1.2DL-WL0+LLa3
- LC28=1.2DL-WL30+LLa3
- LC29=1.2DL+WL0+LLa4
- LC30=1.2DL+WL30+LLa4
- LC31=1.2DL-WL0+LLa4
- LC32=1.2DL-WL30+LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	<b>HSS_SQR 4X4X1_4</b>	<b>13</b>	LC1 at 0.00%	0.19	OK	
			LC10 at 100.00%	0.20	OK	
			LC11 at 100.00%	0.20	OK	Eq. H1-1b
			LC12 at 100.00%	0.17	OK	
			LC13 at 100.00%	0.11	OK	
			LC14 at 100.00%	0.08	OK	
			LC15 at 100.00%	0.14	OK	
			LC16 at 100.00%	0.11	OK	
			LC17 at 100.00%	0.11	OK	
			LC18 at 100.00%	0.11	OK	

LC19 at 100.00%	0.11	OK
LC2 at 0.00%	0.18	OK
LC20 at 100.00%	0.11	OK
LC21 at 100.00%	0.12	OK
LC22 at 100.00%	0.13	OK
LC23 at 100.00%	0.12	OK
LC24 at 100.00%	0.12	OK
LC25 at 100.00%	0.14	OK
LC26 at 100.00%	0.14	OK
LC27 at 100.00%	0.14	OK
LC28 at 100.00%	0.13	OK
LC29 at 100.00%	0.16	OK
LC3 at 0.00%	<b>0.23</b>	<b>OK</b>
LC30 at 100.00%	0.17	OK
LC31 at 100.00%	0.16	OK
LC32 at 100.00%	0.16	OK
LC4 at 0.00%	0.13	OK
LC5 at 0.00%	0.17	OK
LC6 at 0.00%	0.16	OK
LC7 at 0.00%	0.21	OK
LC8 at 0.00%	0.12	OK
LC9 at 100.00%	0.18	OK
W180 at 0.00%	0.09	OK
W210 at 0.00%	0.07	OK
Wi180 at 0.00%	0.04	OK
Wi210 at 0.00%	0.03	OK
WL180 at 0.00%	0.01	OK
WL210 at 0.00%	0.01	OK

Eq. H1-1b

14

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LC1 at 0.00%	0.11	OK
LC10 at 100.00%	0.14	OK
LC11 at 100.00%	0.16	OK
LC12 at 100.00%	0.17	OK
LC13 at 100.00%	0.09	OK
LC14 at 100.00%	0.07	OK
LC15 at 100.00%	0.12	OK
LC16 at 100.00%	<b>0.18</b>	<b>OK</b>
LC17 at 100.00%	0.14	OK
LC18 at 100.00%	0.14	OK
LC19 at 100.00%	0.15	OK
LC2 at 0.00%	0.12	OK
LC20 at 100.00%	0.15	OK
LC21 at 100.00%	0.12	OK
LC22 at 100.00%	0.12	OK
LC23 at 100.00%	0.13	OK
LC24 at 100.00%	0.13	OK
LC25 at 100.00%	0.10	OK
LC26 at 100.00%	0.10	OK
LC27 at 100.00%	0.11	OK
LC28 at 100.00%	0.11	OK
LC29 at 100.00%	0.09	OK
LC3 at 0.00%	0.15	OK
LC30 at 100.00%	0.09	OK
LC31 at 100.00%	0.10	OK
LC32 at 100.00%	0.10	OK
LC4 at 0.00%	0.17	OK
LC5 at 0.00%	0.10	OK
LC6 at 0.00%	0.11	OK
LC7 at 0.00%	0.13	OK
LC8 at 0.00%	0.16	OK
LC9 at 100.00%	0.15	OK
W180 at 0.00%	0.05	OK
W210 at 0.00%	0.07	OK
Wi180 at 100.00%	0.01	OK

Eq. H1-1b

Eq. H1-1b

	Wi210 at 0.00%	0.03	OK	
	WL180 at 0.00%	0.00	OK	
	WL210 at 0.00%	0.01	OK	
<b>15</b>	LC1 at 100.00%	<b>0.16</b>	<b>OK</b>	Eq. H1-1b
	LC10 at 100.00%	0.12	OK	
	LC11 at 100.00%	0.12	OK	
	LC12 at 100.00%	0.12	OK	
	LC13 at 100.00%	0.08	OK	
	LC14 at 100.00%	0.06	OK	
	LC15 at 100.00%	0.07	OK	
	LC16 at 100.00%	0.07	OK	
	LC17 at 100.00%	0.08	OK	
	LC18 at 100.00%	0.07	OK	
	LC19 at 100.00%	0.07	OK	
	LC2 at 0.00%	0.15	OK	Eq. H1-1b
	LC20 at 100.00%	0.07	OK	
	LC21 at 100.00%	0.08	OK	
	LC22 at 100.00%	0.07	OK	
	LC23 at 100.00%	0.07	OK	
	LC24 at 100.00%	0.07	OK	
	LC25 at 100.00%	0.08	OK	
	LC26 at 100.00%	0.07	OK	
	LC27 at 100.00%	0.07	OK	
	LC28 at 100.00%	0.07	OK	
	LC29 at 100.00%	0.08	OK	
	LC3 at 0.00%	0.08	OK	
	LC30 at 100.00%	0.07	OK	
	LC31 at 100.00%	0.07	OK	
	LC32 at 100.00%	0.07	OK	
	LC4 at 0.00%	0.15	OK	
	LC5 at 100.00%	0.14	OK	
	LC6 at 0.00%	0.14	OK	
	LC7 at 0.00%	0.07	OK	
	LC8 at 0.00%	0.14	OK	
	LC9 at 100.00%	0.14	OK	
	W180 at 100.00%	0.04	OK	Eq. H1-1b
	W210 at 0.00%	0.06	OK	
	Wi180 at 0.00%	0.02	OK	
	Wi210 at 0.00%	0.02	OK	
	WL180 at 100.00%	0.00	OK	
	WL210 at 0.00%	0.00	OK	
<b>19</b>	LC1 at 0.00%	0.28	OK	Eq. H1-1b
	LC10 at 100.00%	0.26	OK	
	LC11 at 100.00%	0.23	OK	
	LC12 at 100.00%	0.26	OK	
	LC13 at 100.00%	0.14	OK	
	LC14 at 100.00%	0.11	OK	
	LC15 at 100.00%	0.16	OK	
	LC16 at 100.00%	0.20	OK	
	LC17 at 100.00%	0.18	OK	
	LC18 at 100.00%	0.19	OK	
	LC19 at 100.00%	0.18	OK	
	LC2 at 100.00%	0.30	OK	
	LC20 at 100.00%	0.18	OK	
	LC21 at 100.00%	0.16	OK	
	LC22 at 100.00%	0.17	OK	
	LC23 at 100.00%	0.16	OK	
	LC24 at 100.00%	0.17	OK	
	LC25 at 100.00%	0.15	OK	
	LC26 at 100.00%	0.16	OK	
	LC27 at 100.00%	0.15	OK	
	LC28 at 100.00%	0.16	OK	

	LC29 at 100.00%	0.14	OK	
	LC3 at 0.00%	0.23	OK	
	LC30 at 100.00%	0.15	OK	
	LC31 at 100.00%	0.15	OK	
	LC32 at 100.00%	0.15	OK	
	LC4 at 100.00%	<b>0.35</b>	<b>OK</b>	Eq. H1-1b
	LC5 at 0.00%	0.26	OK	
	LC6 at 100.00%	0.27	OK	
	LC7 at 0.00%	0.20	OK	
	LC8 at 100.00%	0.32	OK	
	LC9 at 0.00%	0.23	OK	
	W180 at 0.00%	0.10	OK	
	W210 at 100.00%	0.14	OK	
	Wi180 at 0.00%	0.04	OK	
	Wi210 at 100.00%	0.05	OK	
	WL180 at 0.00%	0.01	OK	
	WL210 at 100.00%	0.01	OK	
<b>20</b>	LC1 at 0.00%	0.34	OK	Eq. H1-1b
	LC10 at 0.00%	0.25	OK	
	LC11 at 0.00%	0.28	OK	
	LC12 at 0.00%	0.25	OK	
	LC13 at 0.00%	0.15	OK	
	LC14 at 0.00%	0.11	OK	
	LC15 at 0.00%	0.24	OK	
	LC16 at 100.00%	0.20	OK	
	LC17 at 100.00%	0.19	OK	
	LC18 at 100.00%	0.18	OK	
	LC19 at 100.00%	0.18	OK	
	LC2 at 0.00%	0.25	OK	
	LC20 at 100.00%	0.18	OK	
	LC21 at 100.00%	0.21	OK	
	LC22 at 100.00%	0.20	OK	
	LC23 at 100.00%	0.20	OK	
	LC24 at 100.00%	0.20	OK	
	LC25 at 0.00%	0.22	OK	
	LC26 at 0.00%	0.21	OK	
	LC27 at 0.00%	0.22	OK	
	LC28 at 0.00%	0.22	OK	
	LC29 at 0.00%	0.20	OK	
	LC3 at 0.00%	<b>0.35</b>	<b>OK</b>	Eq. H1-1b
	LC30 at 0.00%	0.19	OK	
	LC31 at 0.00%	0.19	OK	
	LC32 at 0.00%	0.19	OK	
	LC4 at 100.00%	0.23	OK	
	LC5 at 0.00%	0.30	OK	
	LC6 at 0.00%	0.21	OK	
	LC7 at 0.00%	0.31	OK	
	LC8 at 100.00%	0.19	OK	
	LC9 at 0.00%	0.29	OK	
	W180 at 0.00%	0.13	OK	
	W210 at 96.25%	0.07	OK	
	Wi180 at 0.00%	0.05	OK	
	Wi210 at 96.25%	0.02	OK	
	WL180 at 0.00%	0.01	OK	
	WL210 at 96.25%	0.01	OK	
<b>21</b>	LC1 at 100.00%	0.27	OK	Eq. H1-1b
	LC10 at 0.00%	0.28	OK	
	LC11 at 0.00%	0.25	OK	
	LC12 at 0.00%	0.28	OK	
	LC13 at 0.00%	0.16	OK	
	LC14 at 0.00%	0.12	OK	
	LC15 at 0.00%	0.17	OK	



LC16 at 0.00%	0.16	OK
LC17 at 0.00%	0.16	OK
LC18 at 0.00%	0.16	OK
LC19 at 0.00%	0.16	OK
LC2 at 0.00%	<b>0.37</b>	<b>OK</b>
LC20 at 0.00%	0.17	OK
LC21 at 0.00%	0.16	OK
LC22 at 0.00%	0.17	OK
LC23 at 0.00%	0.17	OK
LC24 at 0.00%	0.18	OK
LC25 at 0.00%	0.17	OK
LC26 at 0.00%	0.18	OK
LC27 at 0.00%	0.18	OK
LC28 at 0.00%	0.19	OK
LC29 at 0.00%	0.19	OK
LC3 at 100.00%	0.22	OK
LC30 at 0.00%	0.20	OK
LC31 at 0.00%	0.20	OK
LC32 at 0.00%	0.20	OK
LC4 at 0.00%	0.32	OK
LC5 at 100.00%	0.24	OK
LC6 at 0.00%	0.33	OK
LC7 at 100.00%	0.18	OK
LC8 at 0.00%	0.28	OK
LC9 at 0.00%	0.25	OK
W180 at 100.00%	0.09	OK
W210 at 0.00%	0.13	OK
Wi180 at 100.00%	0.03	OK
Wi210 at 0.00%	0.05	OK
WL180 at 100.00%	0.01	OK
WL210 at 0.00%	0.01	OK

Eq. H1-1b

60

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LC1 at 75.00%	0.43	OK
LC10 at 75.00%	0.43	OK
LC11 at 75.00%	0.44	OK
LC12 at 75.00%	0.41	OK
LC13 at 75.00%	0.25	OK
LC14 at 75.00%	0.19	OK
LC15 at 75.00%	0.34	OK
LC16 at 75.00%	0.25	OK
LC17 at 75.00%	0.26	OK
LC18 at 75.00%	0.26	OK
LC19 at 75.00%	0.26	OK
LC2 at 75.00%	0.40	OK
LC20 at 75.00%	0.25	OK
LC21 at 75.00%	0.29	OK
LC22 at 75.00%	0.29	OK
LC23 at 75.00%	0.29	OK
LC24 at 75.00%	0.29	OK
LC25 at 75.00%	0.32	OK
LC26 at 75.00%	0.32	OK
LC27 at 75.00%	0.32	OK
LC28 at 75.00%	0.32	OK
LC29 at 20.83%	0.35	OK
LC3 at 75.00%	<b>0.46</b>	<b>OK</b>
LC30 at 20.83%	0.35	OK
LC31 at 20.83%	0.35	OK
LC32 at 20.83%	0.34	OK
LC4 at 75.00%	0.34	OK
LC5 at 75.00%	0.36	OK
LC6 at 75.00%	0.34	OK
LC7 at 75.00%	0.40	OK
LC8 at 75.00%	0.28	OK
LC9 at 75.00%	0.43	OK

Eq. H1-1b

	W180 at 75.00%	0.14	OK	
	W210 at 75.00%	0.10	OK	
	Wi180 at 75.00%	0.05	OK	
	Wi210 at 75.00%	0.04	OK	
	WL180 at 75.00%	0.01	OK	
	WL210 at 75.00%	0.01	OK	
<hr/>				
<b>61</b>	LC1 at 20.83%	0.28	OK	
	LC10 at 75.00%	0.36	OK	
	LC11 at 75.00%	0.33	OK	
	LC12 at 75.00%	0.36	OK	
	LC13 at 75.00%	0.21	OK	
	LC14 at 75.00%	0.16	OK	
	LC15 at 75.00%	0.21	OK	
	LC16 at 75.00%	0.21	OK	
	LC17 at 75.00%	0.21	OK	
	LC18 at 75.00%	0.21	OK	
	LC19 at 75.00%	0.21	OK	
	LC2 at 75.00%	0.39	OK	
	LC20 at 75.00%	0.21	OK	
	LC21 at 75.00%	0.21	OK	
	LC22 at 75.00%	0.21	OK	
	LC23 at 75.00%	0.21	OK	
	LC24 at 75.00%	0.21	OK	
	LC25 at 75.00%	0.21	OK	
	LC26 at 75.00%	0.21	OK	
	LC27 at 75.00%	0.21	OK	
	LC28 at 75.00%	0.21	OK	
	LC29 at 75.00%	0.21	OK	
	LC3 at 75.00%	0.20	OK	
	LC30 at 75.00%	0.21	OK	
	LC31 at 75.00%	0.21	OK	
	LC32 at 75.00%	0.21	OK	
	LC4 at 75.00%	<b>0.39</b>	<b>OK</b>	Eq. H1-1b
	LC5 at 20.83%	0.24	OK	
	LC6 at 75.00%	0.34	OK	
	LC7 at 75.00%	0.15	OK	
	LC8 at 75.00%	0.34	OK	
	LC9 at 75.00%	0.34	OK	
	W180 at 20.83%	0.07	OK	
	W210 at 75.00%	0.11	OK	
	Wi180 at 20.83%	0.02	OK	
	Wi210 at 75.00%	0.04	OK	
	WL180 at 20.83%	0.01	OK	
	WL210 at 75.00%	0.01	OK	
<hr/>				
<b>62</b>	LC1 at 25.00%	0.37	OK	
	LC10 at 25.00%	0.38	OK	
	LC11 at 25.00%	0.39	OK	
	LC12 at 25.00%	0.39	OK	
	LC13 at 25.00%	0.23	OK	
	LC14 at 25.00%	0.17	OK	
	LC15 at 25.00%	0.31	OK	
	LC16 at 79.17%	0.38	OK	Eq. H1-1b
	LC17 at 79.17%	0.31	OK	
	LC18 at 79.17%	0.31	OK	
	LC19 at 79.17%	0.31	OK	
	LC2 at 25.00%	0.33	OK	
	LC20 at 79.17%	0.32	OK	
	LC21 at 25.00%	0.30	OK	
	LC22 at 25.00%	0.30	OK	
	LC23 at 25.00%	0.30	OK	
	LC24 at 25.00%	0.30	OK	
	LC25 at 25.00%	0.26	OK	

**PIPE 2x0.154**

**26**

LC26 at 25.00%	0.26	OK
LC27 at 25.00%	0.27	OK
LC28 at 25.00%	0.27	OK
LC29 at 25.00%	0.23	OK
LC3 at 25.00%	<b>0.39</b>	<b>OK</b>
LC30 at 25.00%	0.23	OK
LC31 at 25.00%	0.23	OK
LC32 at 25.00%	0.23	OK
LC4 at 25.00%	0.38	OK
LC5 at 25.00%	0.31	OK
LC6 at 25.00%	0.27	OK
LC7 at 25.00%	0.34	OK
LC8 at 25.00%	0.32	OK
LC9 at 25.00%	0.38	OK
W180 at 25.00%	0.11	OK
W210 at 25.00%	0.10	OK
Wi180 at 25.00%	0.03	OK
Wi210 at 25.00%	0.04	OK
WL180 at 25.00%	0.01	OK
WL210 at 25.00%	0.01	OK

Eq. H1-1b

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LC1 at 66.67%	0.42	OK
LC10 at 64.58%	0.24	OK
LC11 at 64.58%	0.14	OK
LC12 at 66.67%	0.13	OK
LC13 at 64.58%	0.08	OK
LC14 at 64.58%	0.06	OK
LC15 at 16.67%	0.06	OK
LC16 at 64.58%	0.18	OK
LC17 at 64.58%	0.14	OK
LC18 at 64.58%	0.16	OK
LC19 at 64.58%	0.12	OK
LC2 at 64.58%	<b>0.57</b>	<b>OK</b>
LC20 at 64.58%	0.10	OK
LC21 at 64.58%	0.07	OK
LC22 at 64.58%	0.09	OK
LC23 at 64.58%	0.06	OK
LC24 at 16.67%	0.06	OK
LC25 at 64.58%	0.06	OK
LC26 at 64.58%	0.09	OK
LC27 at 64.58%	0.05	OK
LC28 at 16.67%	0.05	OK
LC29 at 64.58%	0.09	OK
LC3 at 66.67%	0.42	OK
LC30 at 64.58%	0.11	OK
LC31 at 64.58%	0.08	OK
LC32 at 64.58%	0.06	OK
LC4 at 66.67%	0.50	OK
LC5 at 66.67%	0.42	OK
LC6 at 64.58%	0.55	OK
LC7 at 66.67%	0.42	OK
LC8 at 66.67%	0.50	OK
LC9 at 64.58%	0.15	OK
W180 at 66.67%	0.26	OK
W210 at 64.58%	0.32	OK
Wi180 at 66.67%	0.11	OK
Wi210 at 66.67%	0.13	OK
WL180 at 66.67%	0.03	OK
WL210 at 66.67%	0.03	OK

Eq. H1-1b

Eq. H1-1b

**29**

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LC1 at 64.58%	0.23	OK
LC10 at 64.58%	0.09	OK
LC11 at 64.58%	0.14	OK
LC12 at 64.58%	0.06	OK

LC13 at 64.58%	0.05	OK
LC14 at 64.58%	0.04	OK
LC15 at 64.58%	0.07	OK
LC16 at 64.58%	0.06	OK
LC17 at 64.58%	0.04	OK
LC18 at 64.58%	0.07	OK
LC19 at 64.58%	0.08	OK
LC2 at 64.58%	0.24	OK
LC20 at 64.58%	0.06	OK
LC21 at 64.58%	0.05	OK
LC22 at 64.58%	0.07	OK
LC23 at 64.58%	0.08	OK
LC24 at 64.58%	0.06	OK
LC25 at 64.58%	0.05	OK
LC26 at 64.58%	0.07	OK
LC27 at 64.58%	0.08	OK
LC28 at 64.58%	0.06	OK
LC29 at 64.58%	0.05	OK
LC3 at 64.58%	<b>0.32</b>	<b>OK</b>
LC30 at 64.58%	0.07	OK
LC31 at 64.58%	0.08	OK
LC32 at 64.58%	0.06	OK
LC4 at 64.58%	0.23	OK
LC5 at 64.58%	0.24	OK
LC6 at 64.58%	0.24	OK
LC7 at 64.58%	0.30	OK
LC8 at 64.58%	0.24	OK
LC9 at 22.92%	0.07	OK
W180 at 64.58%	0.17	OK
W210 at 64.58%	0.15	OK
Wi180 at 64.58%	0.06	OK
Wi210 at 64.58%	0.06	OK
WL180 at 64.58%	0.02	OK
WL210 at 64.58%	0.01	OK

Eq. H1-1b

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LC1 at 64.58%	0.23	OK
LC10 at 64.58%	0.06	OK
LC11 at 64.58%	0.14	OK
LC12 at 64.58%	0.09	OK
LC13 at 64.58%	0.05	OK
LC14 at 64.58%	0.04	OK
LC15 at 64.58%	0.07	OK
LC16 at 64.58%	0.07	OK
LC17 at 64.58%	0.05	OK
LC18 at 64.58%	0.06	OK
LC19 at 64.58%	0.08	OK
LC2 at 64.58%	0.24	OK
LC20 at 64.58%	0.07	OK
LC21 at 64.58%	0.05	OK
LC22 at 64.58%	0.06	OK
LC23 at 64.58%	0.08	OK
LC24 at 64.58%	0.07	OK
LC25 at 64.58%	0.05	OK
LC26 at 64.58%	0.06	OK
LC27 at 64.58%	0.08	OK
LC28 at 64.58%	0.07	OK
LC29 at 64.58%	0.04	OK
LC3 at 64.58%	<b>0.31</b>	<b>OK</b>
LC30 at 64.58%	0.05	OK
LC31 at 64.58%	0.07	OK
LC32 at 64.58%	0.07	OK
LC4 at 64.58%	0.24	OK
LC5 at 64.58%	0.24	OK
LC6 at 64.58%	0.24	OK

Eq. H1-1b

Eq. H1-1b

	LC7 at 64.58%	0.30	OK	
	LC8 at 64.58%	0.24	OK	
	LC9 at 22.92%	0.07	OK	
	W180 at 64.58%	0.17	OK	
	W210 at 64.58%	0.15	OK	
	Wi180 at 64.58%	0.06	OK	
	Wi210 at 64.58%	0.06	OK	
	WL180 at 64.58%	0.02	OK	
	WL210 at 64.58%	0.01	OK	
<hr/>				
40	LC1 at 64.58%	0.53	OK	
	LC10 at 66.67%	0.13	OK	
	LC11 at 64.58%	0.13	OK	
	LC12 at 64.58%	0.23	OK	
	LC13 at 64.58%	0.06	OK	
	LC14 at 64.58%	0.05	OK	
	LC15 at 64.58%	0.04	OK	
	LC16 at 64.58%	0.07	OK	
	LC17 at 64.58%	0.07	OK	
	LC18 at 66.67%	0.04	OK	
	LC19 at 64.58%	0.06	OK	
	LC2 at 64.58%	0.51	OK	
	LC20 at 64.58%	0.10	OK	
	LC21 at 64.58%	0.06	OK	
	LC22 at 66.67%	0.04	OK	
	LC23 at 64.58%	0.05	OK	
	LC24 at 64.58%	0.09	OK	
	LC25 at 64.58%	0.05	OK	
	LC26 at 66.67%	0.04	OK	
	LC27 at 64.58%	0.06	OK	
	LC28 at 64.58%	0.08	OK	
	LC29 at 64.58%	0.05	OK	
	LC3 at 64.58%	0.52	OK	
	LC30 at 66.67%	0.04	OK	
	LC31 at 64.58%	0.06	OK	
	LC32 at 64.58%	0.08	OK	
	LC4 at 64.58%	<b>0.63</b>	<b>OK</b>	Eq. H1-1b
	LC5 at 64.58%	0.52	OK	
	LC6 at 64.58%	0.53	OK	
	LC7 at 64.58%	0.52	OK	
	LC8 at 64.58%	0.62	OK	
	LC9 at 64.58%	0.13	OK	Eq. H1-1b
	W180 at 64.58%	0.32	OK	
	W210 at 64.58%	0.36	OK	
	Wi180 at 64.58%	0.12	OK	
	Wi210 at 64.58%	0.13	OK	
	WL180 at 64.58%	0.03	OK	
	WL210 at 64.58%	0.03	OK	
<hr/>				
43	LC1 at 64.58%	0.46	OK	
	LC10 at 66.67%	0.15	OK	
	LC11 at 64.58%	0.23	OK	
	LC12 at 64.58%	0.16	OK	
	LC13 at 64.58%	0.07	OK	
	LC14 at 64.58%	0.05	OK	
	LC15 at 64.58%	0.07	OK	
	LC16 at 64.58%	0.08	OK	
	LC17 at 64.58%	0.05	OK	
	LC18 at 64.58%	0.06	OK	
	LC19 at 64.58%	0.10	OK	
	LC2 at 64.58%	0.64	OK	
	LC20 at 64.58%	0.09	OK	
	LC21 at 64.58%	0.04	OK	
	LC22 at 64.58%	0.07	OK	

	LC23 at 64.58%	0.11	OK	
	LC24 at 64.58%	0.09	OK	
	LC25 at 64.58%	0.05	OK	
	LC26 at 64.58%	0.07	OK	
	LC27 at 64.58%	0.11	OK	
	LC28 at 64.58%	0.09	OK	
	LC29 at 64.58%	0.05	OK	
	LC3 at 64.58%	0.59	OK	
	LC30 at 64.58%	0.07	OK	
	LC31 at 64.58%	0.12	OK	
	LC32 at 64.58%	0.10	OK	
	LC4 at 64.58%	<b>0.64</b>	<b>OK</b>	Eq. H1-1b
	LC5 at 64.58%	0.47	OK	
	LC6 at 64.58%	0.64	OK	
	LC7 at 64.58%	0.57	OK	
	LC8 at 64.58%	0.64	OK	
	LC9 at 66.67%	0.11	OK	
	W180 at 64.58%	0.32	OK	
	W210 at 64.58%	0.40	OK	
	Wi180 at 64.58%	0.11	OK	
	Wi210 at 66.67%	0.15	OK	
	WL180 at 64.58%	0.03	OK	
	WL210 at 66.67%	0.04	OK	
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<b>27</b>	LC1 at 64.58%	0.45	OK	
	LC10 at 64.58%	0.16	OK	
	LC11 at 64.58%	0.22	OK	
	LC12 at 66.67%	0.15	OK	
	LC13 at 64.58%	0.06	OK	
	LC14 at 64.58%	0.05	OK	
	LC15 at 64.58%	0.06	OK	
	LC16 at 64.58%	0.07	OK	
	LC17 at 64.58%	0.05	OK	
	LC18 at 64.58%	0.09	OK	
	LC19 at 64.58%	0.11	OK	
	LC2 at 64.58%	<b>0.65</b>	<b>OK</b>	Eq. H1-1b
	LC20 at 64.58%	0.06	OK	
	LC21 at 64.58%	0.04	OK	
	LC22 at 64.58%	0.08	OK	
	LC23 at 64.58%	0.10	OK	
	LC24 at 64.58%	0.06	OK	
	LC25 at 64.58%	0.04	OK	
	LC26 at 64.58%	0.08	OK	
	LC27 at 64.58%	0.10	OK	
	LC28 at 64.58%	0.06	OK	
	LC29 at 64.58%	0.04	OK	
	LC3 at 64.58%	0.57	OK	
	LC30 at 64.58%	0.08	OK	
	LC31 at 64.58%	0.09	OK	
	LC32 at 64.58%	0.05	OK	
	LC4 at 64.58%	0.64	OK	
	LC5 at 64.58%	0.47	OK	
	LC6 at 64.58%	0.65	OK	
	LC7 at 64.58%	0.55	OK	
	LC8 at 64.58%	0.64	OK	
	LC9 at 66.67%	0.11	OK	
	W180 at 64.58%	0.32	OK	
	W210 at 64.58%	0.40	OK	
	Wi180 at 64.58%	0.12	OK	
	Wi210 at 66.67%	0.15	OK	
	WL180 at 64.58%	0.03	OK	
	WL210 at 66.67%	0.04	OK	
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<b>45</b>	LC1 at 66.67%	0.40	OK	

LC10 at 66.67%	0.13	OK	
LC11 at 64.58%	0.12	OK	
LC12 at 64.58%	0.26	OK	
LC13 at 64.58%	0.09	OK	
LC14 at 64.58%	0.06	OK	
LC15 at 16.67%	0.06	OK	
LC16 at 64.58%	0.11	OK	
LC17 at 64.58%	0.10	OK	
LC18 at 64.58%	0.06	OK	
LC19 at 64.58%	0.08	OK	
LC2 at 66.67%	0.52	OK	Eq. H1-1b
LC20 at 64.58%	0.12	OK	
LC21 at 64.58%	0.07	OK	
LC22 at 16.67%	0.05	OK	
LC23 at 64.58%	0.06	OK	
LC24 at 64.58%	0.09	OK	
LC25 at 64.58%	0.07	OK	
LC26 at 16.67%	0.06	OK	
LC27 at 64.58%	0.06	OK	
LC28 at 64.58%	0.09	OK	
LC29 at 64.58%	0.15	OK	
LC3 at 64.58%	0.41	OK	
LC30 at 64.58%	0.11	OK	
LC31 at 64.58%	0.13	OK	
LC32 at 64.58%	0.17	OK	
LC4 at 64.58%	<b>0.59</b>	<b>OK</b>	Eq. H1-1b
LC5 at 66.67%	0.39	OK	
LC6 at 66.67%	0.52	OK	
LC7 at 64.58%	0.41	OK	
LC8 at 64.58%	0.57	OK	
LC9 at 64.58%	0.18	OK	
W180 at 64.58%	0.25	OK	
W210 at 66.67%	0.33	OK	
Wi180 at 66.67%	0.10	OK	
Wi210 at 66.67%	0.13	OK	
WL180 at 66.67%	0.02	OK	
WL210 at 66.67%	0.03	OK	

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LC1 at 64.58%	0.50	OK	
LC10 at 64.58%	0.24	OK	
LC11 at 64.58%	0.12	OK	
LC12 at 66.67%	0.13	OK	
LC13 at 64.58%	0.06	OK	
LC14 at 64.58%	0.04	OK	
LC15 at 64.58%	0.04	OK	
LC16 at 64.58%	0.05	OK	
LC17 at 64.58%	0.05	OK	
LC18 at 64.58%	0.08	OK	
LC19 at 64.58%	0.05	OK	
LC2 at 64.58%	<b>0.64</b>	<b>OK</b>	Eq. H1-1b
LC20 at 66.67%	0.03	OK	
LC21 at 64.58%	0.05	OK	
LC22 at 64.58%	0.08	OK	
LC23 at 64.58%	0.05	OK	
LC24 at 66.67%	0.03	OK	
LC25 at 64.58%	0.06	OK	
LC26 at 64.58%	0.09	OK	
LC27 at 64.58%	0.05	OK	
LC28 at 66.67%	0.03	OK	
LC29 at 64.58%	0.07	OK	
LC3 at 64.58%	0.49	OK	
LC30 at 64.58%	0.10	OK	
LC31 at 64.58%	0.06	OK	
LC32 at 66.67%	0.03	OK	

	LC4 at 64.58%	0.53	OK	
	LC5 at 64.58%	0.50	OK	
	LC6 at 64.58%	0.63	OK	
	LC7 at 64.58%	0.49	OK	
	LC8 at 64.58%	0.54	OK	
	LC9 at 64.58%	0.14	OK	Eq. H1-1b
	W180 at 64.58%	0.31	OK	
	W210 at 64.58%	0.36	OK	
	Wi180 at 64.58%	0.12	OK	
	Wi210 at 64.58%	0.13	OK	
	WL180 at 64.58%	0.03	OK	
	WL210 at 64.58%	0.03	OK	
<hr/>				
<b>46</b>	LC1 at 64.58%	0.44	OK	Eq. H1-1b
	LC10 at 64.58%	0.09	OK	
	LC11 at 66.67%	0.17	OK	
	LC12 at 64.58%	0.23	OK	
	LC13 at 64.58%	0.09	OK	
	LC14 at 64.58%	0.06	OK	
	LC15 at 64.58%	0.07	OK	
	LC16 at 64.58%	0.10	OK	
	LC17 at 64.58%	0.11	OK	
	LC18 at 64.58%	0.07	OK	
	LC19 at 64.58%	0.06	OK	
	LC2 at 64.58%	0.31	OK	
	LC20 at 64.58%	0.10	OK	
	LC21 at 64.58%	0.09	OK	
	LC22 at 64.58%	0.06	OK	
	LC23 at 64.58%	0.05	OK	
	LC24 at 64.58%	0.09	OK	
	LC25 at 64.58%	0.09	OK	
	LC26 at 64.58%	0.07	OK	
	LC27 at 64.58%	0.06	OK	
	LC28 at 64.58%	0.10	OK	
	LC29 at 64.58%	0.19	OK	
	LC3 at 66.67%	0.39	OK	
	LC30 at 64.58%	0.15	OK	
	LC31 at 64.58%	0.16	OK	
	LC32 at 64.58%	0.20	OK	
	LC4 at 64.58%	<b>0.45</b>	<b>OK</b>	Eq. H1-1b
	LC5 at 64.58%	0.42	OK	
	LC6 at 64.58%	0.31	OK	
	LC7 at 66.67%	0.39	OK	
	LC8 at 64.58%	0.42	OK	
	LC9 at 64.58%	0.25	OK	
	W180 at 66.67%	0.24	OK	
	W210 at 64.58%	0.22	OK	
	Wi180 at 66.67%	0.17	OK	
	Wi210 at 64.58%	0.08	OK	
	WL180 at 66.67%	0.02	OK	
	WL210 at 64.58%	0.02	OK	
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<b>48</b>	LC1 at 64.58%	<b>0.56</b>	<b>OK</b>	Eq. H1-1b
	LC10 at 64.58%	0.19	OK	
	LC11 at 66.67%	0.13	OK	
	LC12 at 64.58%	0.11	OK	
	LC13 at 64.58%	0.06	OK	
	LC14 at 64.58%	0.05	OK	
	LC15 at 64.58%	0.16	OK	
	LC16 at 64.58%	0.04	OK	
	LC17 at 64.58%	0.09	OK	
	LC18 at 64.58%	0.07	OK	
	LC19 at 64.58%	0.03	OK	
	LC2 at 64.58%	0.44	OK	



LC20 at 64.58%	0.04	OK
LC21 at 64.58%	0.13	OK
LC22 at 64.58%	0.12	OK
LC23 at 64.58%	0.07	OK
LC24 at 64.58%	0.07	OK
LC25 at 64.58%	0.15	OK
LC26 at 64.58%	0.14	OK
LC27 at 64.58%	0.07	OK
LC28 at 64.58%	0.10	OK
LC29 at 64.58%	0.09	OK
LC3 at 66.67%	0.53	OK
LC30 at 64.58%	0.08	OK
LC31 at 64.58%	0.03	OK
LC32 at 64.58%	0.05	OK
LC4 at 64.58%	0.37	OK
LC5 at 64.58%	0.55	OK
LC6 at 64.58%	0.42	OK
LC7 at 66.67%	0.53	OK
LC8 at 64.58%	0.36	OK
LC9 at 64.58%	0.21	OK
W180 at 64.58%	0.33	OK
W210 at 64.58%	0.24	OK
Wi180 at 66.67%	0.12	OK
Wi210 at 64.58%	0.09	OK
WL180 at 64.58%	0.03	OK
WL210 at 64.58%	0.02	OK

Eq. H1-1b

51

LC1 at 64.58%	0.50	OK
LC10 at 64.58%	0.09	OK
LC11 at 66.67%	0.11	OK
LC12 at 64.58%	0.19	OK
LC13 at 64.58%	0.06	OK
LC14 at 64.58%	0.04	OK
LC15 at 64.58%	0.16	OK
LC16 at 64.58%	0.07	OK
LC17 at 64.58%	0.09	OK
LC18 at 64.58%	0.05	OK
LC19 at 64.58%	0.03	OK
LC2 at 64.58%	0.36	OK
LC20 at 64.58%	0.08	OK
LC21 at 64.58%	0.15	OK
LC22 at 64.58%	0.10	OK
LC23 at 64.58%	0.07	OK
LC24 at 64.58%	0.14	OK
LC25 at 64.58%	0.13	OK
LC26 at 64.58%	0.07	OK
LC27 at 64.58%	0.07	OK
LC28 at 64.58%	0.12	OK
LC29 at 64.58%	0.08	OK
LC3 at 64.58%	0.47	OK
LC30 at 64.58%	0.04	OK
LC31 at 64.58%	0.03	OK
LC32 at 64.58%	0.07	OK
LC4 at 64.58%	0.44	OK
LC5 at 64.58%	0.49	OK
LC6 at 64.58%	0.36	OK
LC7 at 64.58%	0.47	OK
LC8 at 64.58%	0.43	OK
LC9 at 64.58%	0.20	OK
W180 at 64.58%	0.29	OK
W210 at 64.58%	0.24	OK
Wi180 at 66.67%	0.10	OK
Wi210 at 64.58%	0.09	OK
WL180 at 64.58%	0.03	OK

Eq. H1-1b

	WL210 at 64.58%	0.02	OK	
<b>53</b>	LC1 at 64.58%	0.28	OK	
	LC10 at 64.58%	0.16	OK	
	LC11 at 25.00%	0.08	OK	
	LC12 at 50.00%	0.06	OK	
	LC13 at 64.58%	0.06	OK	
	LC14 at 64.58%	0.05	OK	
	LC15 at 16.67%	0.06	OK	
	LC16 at 64.58%	0.17	OK	
	LC17 at 64.58%	0.17	OK	
	LC18 at 64.58%	0.17	OK	
	LC19 at 64.58%	0.15	OK	
	LC2 at 64.58%	<b>0.31</b>	<b>OK</b>	Eq. H1-1b
	LC20 at 64.58%	0.14	OK	
	LC21 at 64.58%	0.07	OK	
	LC22 at 64.58%	0.07	OK	
	LC23 at 25.00%	0.04	OK	
	LC24 at 64.58%	0.06	OK	
	LC25 at 64.58%	0.06	OK	
	LC26 at 64.58%	0.06	OK	
	LC27 at 25.00%	0.04	OK	
	LC28 at 64.58%	0.04	OK	
	LC29 at 64.58%	0.08	OK	
	LC3 at 16.67%	0.20	OK	Eq. H1-1b
	LC30 at 64.58%	0.08	OK	
	LC31 at 64.58%	0.05	OK	
	LC32 at 64.58%	0.05	OK	
	LC4 at 64.58%	0.18	OK	
	LC5 at 64.58%	0.27	OK	
	LC6 at 64.58%	0.27	OK	
	LC7 at 16.67%	0.19	OK	
	LC8 at 64.58%	0.19	OK	
	LC9 at 64.58%	0.15	OK	
	W180 at 64.58%	0.14	OK	
W210 at 64.58%	0.15	OK		
Wi180 at 64.58%	0.05	OK		
Wi210 at 64.58%	0.05	OK		
WL180 at 64.58%	0.01	OK		
WL210 at 64.58%	0.01	OK		
<b>63</b>	LC1 at 96.25%	0.31	OK	Eq. H1-1b
	LC10 at 3.75%	0.10	OK	
	LC11 at 3.75%	0.10	OK	
	LC12 at 96.25%	0.07	OK	
	LC13 at 66.25%	0.04	OK	
	LC14 at 66.25%	0.03	OK	
	LC15 at 3.75%	0.03	OK	
	LC16 at 66.25%	0.04	OK	
	LC17 at 96.25%	0.05	OK	
	LC18 at 3.75%	0.05	OK	
	LC19 at 3.75%	0.05	OK	
	LC2 at 3.75%	<b>0.32</b>	<b>OK</b>	Eq. H1-1b
	LC20 at 96.25%	0.04	OK	
	LC21 at 66.25%	0.04	OK	
	LC22 at 3.75%	0.06	OK	
	LC23 at 3.75%	0.05	OK	
	LC24 at 66.25%	0.03	OK	
	LC25 at 66.25%	0.03	OK	
	LC26 at 3.75%	0.05	OK	
	LC27 at 3.75%	0.05	OK	
LC28 at 2.50%	0.03	OK		
LC29 at 96.25%	0.04	OK		
LC3 at 3.75%	0.31	OK		

LC30 at 2.50%	0.05	OK
LC31 at 2.50%	0.05	OK
LC32 at 2.50%	0.03	OK
LC4 at 3.75%	0.26	OK
LC5 at 96.25%	0.30	OK
LC6 at 3.75%	0.31	OK
LC7 at 3.75%	0.30	OK
LC8 at 3.75%	0.27	OK
LC9 at 96.25%	0.11	OK
W180 at 3.75%	0.17	OK
W210 at 3.75%	0.18	OK
Wi180 at 96.25%	0.06	OK
Wi210 at 3.75%	0.06	OK
WL180 at 3.75%	0.02	OK
WL210 at 3.75%	0.02	OK

**64**

LC1 at 3.75%	<b>0.31</b>	<b>OK</b>
LC10 at 3.75%	0.07	OK
LC11 at 96.25%	0.09	OK
LC12 at 96.25%	0.10	OK
LC13 at 3.75%	0.03	OK
LC14 at 3.75%	0.03	OK
LC15 at 96.25%	0.03	OK
LC16 at 97.50%	0.07	OK
LC17 at 3.75%	0.04	OK
LC18 at 97.50%	0.03	OK
LC19 at 97.50%	0.04	OK
LC2 at 96.25%	0.26	OK
LC20 at 97.50%	0.04	OK
LC21 at 97.50%	0.04	OK
LC22 at 97.50%	0.03	OK
LC23 at 96.25%	0.04	OK
LC24 at 97.50%	0.05	OK
LC25 at 3.75%	0.04	OK
LC26 at 3.75%	0.02	OK
LC27 at 96.25%	0.05	OK
LC28 at 96.25%	0.05	OK
LC29 at 3.75%	0.05	OK
LC3 at 96.25%	0.27	OK
LC30 at 3.75%	0.04	OK
LC31 at 96.25%	0.04	OK
LC32 at 66.25%	0.05	OK
LC4 at 96.25%	0.31	OK
LC5 at 3.75%	0.30	OK
LC6 at 96.25%	0.26	OK
LC7 at 96.25%	0.26	OK
LC8 at 96.25%	0.30	OK
LC9 at 3.75%	0.12	OK
W180 at 3.75%	0.17	OK
W210 at 96.25%	0.18	OK
Wi180 at 3.75%	0.06	OK
Wi210 at 96.25%	0.06	OK
WL180 at 3.75%	0.02	OK
WL210 at 96.25%	0.02	OK

Eq. H1-1b

Eq. H1-1b

**72**

LC1 at 33.75%	0.21	OK
LC10 at 3.75%	0.11	OK
LC11 at 33.75%	0.08	OK
LC12 at 96.25%	0.11	OK
LC13 at 96.25%	0.03	OK
LC14 at 96.25%	0.02	OK
LC15 at 50.00%	0.25	OK
LC16 at 97.50%	0.08	OK
LC17 at 96.25%	0.04	OK

Eq. H1-1b

LC18 at 96.25%	0.05	OK	
LC19 at 96.25%	0.05	OK	
LC2 at 3.75%	<b>0.37</b>	<b>OK</b>	Eq. H1-1b
LC20 at 97.50%	0.04	OK	
LC21 at 66.25%	0.09	OK	
LC22 at 66.25%	0.09	OK	
LC23 at 66.25%	0.10	OK	
LC24 at 66.25%	0.10	OK	
LC25 at 33.75%	0.08	OK	
LC26 at 33.75%	0.10	OK	
LC27 at 33.75%	0.11	OK	
LC28 at 33.75%	0.09	OK	
LC29 at 3.75%	0.04	OK	
LC3 at 33.75%	0.23	OK	Eq. H1-1b
LC30 at 2.50%	0.05	OK	
LC31 at 3.75%	0.05	OK	
LC32 at 3.75%	0.05	OK	
LC4 at 96.25%	0.36	OK	Eq. H1-1b
LC5 at 33.75%	0.21	OK	
LC6 at 3.75%	0.37	OK	
LC7 at 33.75%	0.23	OK	
LC8 at 96.25%	0.35	OK	
LC9 at 26.25%	0.03	OK	
W180 at 33.75%	0.14	OK	
W210 at 3.75%	0.23	OK	
Wi180 at 33.75%	0.05	OK	
Wi210 at 3.75%	0.07	OK	
WL180 at 33.75%	0.01	OK	
WL210 at 3.75%	0.02	OK	

PL 6x1/2

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LC1 at 100.00%	<b>0.05</b>	<b>OK</b>	Eq. H1-1b
LC10 at 0.00%	0.01	OK	
LC11 at 0.00%	0.00	OK	
LC12 at 0.00%	0.01	OK	
LC13 at 0.00%	0.01	OK	
LC14 at 0.00%	0.00	OK	
LC15 at 0.00%	0.00	OK	
LC16 at 100.00%	0.01	OK	
LC17 at 100.00%	0.01	OK	
LC18 at 100.00%	0.01	OK	
LC19 at 100.00%	0.01	OK	
LC2 at 0.00%	0.04	OK	
LC20 at 100.00%	0.01	OK	
LC21 at 100.00%	0.01	OK	
LC22 at 100.00%	0.01	OK	
LC23 at 100.00%	0.00	OK	
LC24 at 100.00%	0.01	OK	
LC25 at 0.00%	0.01	OK	
LC26 at 0.00%	0.01	OK	
LC27 at 0.00%	0.00	OK	
LC28 at 0.00%	0.01	OK	
LC29 at 0.00%	0.01	OK	
LC3 at 100.00%	0.03	OK	
LC30 at 0.00%	0.01	OK	
LC31 at 0.00%	0.01	OK	
LC32 at 0.00%	0.01	OK	
LC4 at 0.00%	0.04	OK	Eq. H3-1
LC5 at 100.00%	0.04	OK	
LC6 at 0.00%	0.04	OK	
LC7 at 100.00%	0.03	OK	
LC8 at 0.00%	0.04	OK	
LC9 at 0.00%	0.02	OK	
W180 at 100.00%	0.02	OK	
W210 at 0.00%	0.03	OK	

	Wi180 at 0.00%	0.01	OK	
	Wi210 at 0.00%	0.01	OK	
	WL180 at 100.00%	0.00	OK	
	WL210 at 0.00%	0.00	OK	
<hr/>				
<b>79</b>	LC1 at 100.00%	0.05	OK	
	LC10 at 0.00%	0.02	OK	
	LC11 at 100.00%	0.02	OK	
	LC12 at 0.00%	0.01	OK	
	LC13 at 100.00%	0.01	OK	
	LC14 at 100.00%	0.00	OK	
	LC15 at 0.00%	0.01	OK	
	LC16 at 100.00%	0.01	OK	
	LC17 at 100.00%	0.01	OK	
	LC18 at 100.00%	0.01	OK	
	LC19 at 100.00%	0.01	OK	
	LC2 at 0.00%	<b>0.06</b>	<b>OK</b>	Eq. H1-1b
	LC20 at 0.00%	0.01	OK	
	LC21 at 0.00%	0.01	OK	
	LC22 at 0.00%	0.01	OK	
	LC23 at 0.00%	0.01	OK	
	LC24 at 0.00%	0.01	OK	
	LC25 at 0.00%	0.01	OK	
	LC26 at 0.00%	0.01	OK	
	LC27 at 0.00%	0.01	OK	
	LC28 at 0.00%	0.01	OK	
	LC29 at 100.00%	0.01	OK	
	LC3 at 100.00%	0.06	OK	Eq. H1-1b
	LC30 at 100.00%	0.01	OK	
	LC31 at 0.00%	0.01	OK	
	LC32 at 0.00%	0.01	OK	
	LC4 at 0.00%	0.05	OK	
	LC5 at 100.00%	0.05	OK	
	LC6 at 0.00%	0.06	OK	
	LC7 at 100.00%	0.06	OK	
	LC8 at 0.00%	0.05	OK	
	LC9 at 100.00%	0.01	OK	
	W180 at 100.00%	0.03	OK	
	W210 at 0.00%	0.03	OK	
	Wi180 at 100.00%	0.01	OK	
	Wi210 at 0.00%	0.01	OK	
	WL180 at 100.00%	0.00	OK	
	WL210 at 0.00%	0.00	OK	
<hr/>				
<b>80</b>	LC1 at 100.00%	0.03	OK	
	LC10 at 100.00%	0.01	OK	
	LC11 at 0.00%	0.02	OK	
	LC12 at 0.00%	0.02	OK	
	LC13 at 0.00%	0.01	OK	
	LC14 at 0.00%	0.00	OK	
	LC15 at 100.00%	0.01	OK	
	LC16 at 0.00%	0.02	OK	
	LC17 at 0.00%	0.01	OK	
	LC18 at 100.00%	0.01	OK	
	LC19 at 100.00%	0.01	OK	
	LC2 at 100.00%	0.05	OK	
	LC20 at 0.00%	0.01	OK	
	LC21 at 100.00%	0.01	OK	
	LC22 at 100.00%	0.01	OK	
	LC23 at 100.00%	0.01	OK	
	LC24 at 100.00%	0.01	OK	
	LC25 at 100.00%	0.01	OK	
	LC26 at 100.00%	0.00	OK	
	LC27 at 100.00%	0.01	OK	

		LC28 at 100.00%	0.01	OK	
		LC29 at 0.00%	0.01	OK	
		LC3 at 0.00%	0.04	OK	
		LC30 at 0.00%	0.01	OK	
		LC31 at 0.00%	0.01	OK	
		LC32 at 0.00%	0.01	OK	
		LC4 at 100.00%	<b>0.06</b>	<b>OK</b>	Eq. H1-1b
		LC5 at 0.00%	0.03	OK	
		LC6 at 100.00%	0.05	OK	
		LC7 at 0.00%	0.04	OK	
		LC8 at 100.00%	0.06	OK	
		LC9 at 0.00%	0.01	OK	
		W180 at 0.00%	0.02	OK	
		W210 at 100.00%	0.04	OK	
		Wi180 at 0.00%	0.01	OK	
		Wi210 at 100.00%	0.01	OK	
		WL180 at 0.00%	0.00	OK	
		WL210 at 100.00%	0.00	OK	
<hr/>					
<b>T2L 3X3X1_4X3_8</b>	<b>81</b>	LC1 at 100.00%	0.38	OK	
		LC10 at 100.00%	<b>0.66</b>	<b>OK</b>	Eq. H2-1
		LC11 at 100.00%	0.66	OK	
		LC12 at 100.00%	0.63	OK	
		LC13 at 100.00%	0.40	OK	
		LC14 at 100.00%	0.30	OK	
		LC15 at 100.00%	0.52	OK	
		LC16 at 100.00%	0.40	OK	
		LC17 at 100.00%	0.40	OK	
		LC18 at 100.00%	0.41	OK	
		LC19 at 100.00%	0.41	OK	
		LC2 at 100.00%	0.53	OK	
		LC20 at 100.00%	0.40	OK	
		LC21 at 100.00%	0.44	OK	
		LC22 at 100.00%	0.45	OK	
		LC23 at 100.00%	0.46	OK	
		LC24 at 100.00%	0.45	OK	
		LC25 at 100.00%	0.50	OK	
		LC26 at 100.00%	0.51	OK	
		LC27 at 100.00%	0.52	OK	
		LC28 at 100.00%	0.51	OK	
		LC29 at 100.00%	0.57	OK	
		LC3 at 100.00%	0.50	OK	
		LC30 at 100.00%	0.58	OK	
		LC31 at 100.00%	0.58	OK	
		LC32 at 100.00%	0.57	OK	
		LC4 at 100.00%	0.32	OK	
		LC5 at 100.00%	0.28	OK	
		LC6 at 100.00%	0.43	OK	
		LC7 at 100.00%	0.40	OK	
		LC8 at 100.00%	0.22	OK	
		LC9 at 100.00%	0.64	OK	
		W180 at 0.00%	0.08	OK	
		W210 at 0.00%	0.06	OK	
		Wi180 at 0.00%	0.03	OK	
		Wi210 at 0.00%	0.02	OK	
		WL180 at 0.00%	0.01	OK	
		WL210 at 0.00%	0.01	OK	
<hr/>					
	<b>82</b>	LC1 at 100.00%	0.31	OK	
		LC10 at 100.00%	0.53	OK	
		LC11 at 100.00%	0.56	OK	
		LC12 at 100.00%	0.57	OK	
		LC13 at 100.00%	0.35	OK	
		LC14 at 100.00%	0.26	OK	

LC15 at 100.00%	0.46	OK
LC16 at 100.00%	<b>0.62</b>	<b>OK</b>
LC17 at 100.00%	0.51	OK
LC18 at 100.00%	0.52	OK
LC19 at 100.00%	0.52	OK
LC2 at 100.00%	0.26	OK
LC20 at 100.00%	0.52	OK
LC21 at 100.00%	0.45	OK
LC22 at 100.00%	0.45	OK
LC23 at 100.00%	0.46	OK
LC24 at 100.00%	0.46	OK
LC25 at 100.00%	0.39	OK
LC26 at 100.00%	0.39	OK
LC27 at 100.00%	0.40	OK
LC28 at 100.00%	0.40	OK
LC29 at 100.00%	0.34	OK
LC3 at 100.00%	0.43	OK
LC30 at 100.00%	0.34	OK
LC31 at 100.00%	0.35	OK
LC32 at 100.00%	0.35	OK
LC4 at 100.00%	0.48	OK
LC5 at 100.00%	0.22	OK
LC6 at 100.00%	0.17	OK
LC7 at 100.00%	0.34	OK
LC8 at 100.00%	0.39	OK
LC9 at 100.00%	0.54	OK
W180 at 100.00%	0.05	OK
W210 at 100.00%	0.09	OK
Wi180 at 100.00%	0.01	OK
Wi210 at 100.00%	0.03	OK
WL180 at 100.00%	0.00	OK
WL210 at 100.00%	0.01	OK

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LC1 at 100.00%	0.41	OK
LC10 at 100.00%	0.46	OK
LC11 at 100.00%	0.43	OK
LC12 at 100.00%	0.45	OK
LC13 at 100.00%	0.29	OK
LC14 at 100.00%	0.22	OK
LC15 at 100.00%	0.27	OK
LC16 at 100.00%	0.28	OK
LC17 at 100.00%	0.28	OK
LC18 at 100.00%	0.27	OK
LC19 at 100.00%	0.26	OK
LC2 at 100.00%	0.33	OK
LC20 at 100.00%	0.27	OK
LC21 at 100.00%	0.28	OK
LC22 at 100.00%	0.27	OK
LC23 at 100.00%	0.26	OK
LC24 at 100.00%	0.27	OK
LC25 at 100.00%	0.28	OK
LC26 at 100.00%	0.28	OK
LC27 at 100.00%	0.27	OK
LC28 at 100.00%	0.27	OK
LC29 at 100.00%	0.29	OK
LC3 at 100.00%	0.17	OK
LC30 at 100.00%	0.28	OK
LC31 at 100.00%	0.28	OK
LC32 at 100.00%	0.28	OK
LC4 at 100.00%	0.32	OK
LC5 at 100.00%	0.34	OK
LC6 at 100.00%	0.26	OK
LC7 at 100.00%	0.10	OK
LC8 at 100.00%	0.25	OK

LC9 at 100.00%	<b>0.48</b>	<b>OK</b>	Eq. H2-1
W180 at 0.00%	0.06	OK	
W210 at 0.00%	0.04	OK	
Wi180 at 0.00%	0.02	OK	
Wi210 at 100.00%	0.01	OK	
WL180 at 0.00%	0.01	OK	
WL210 at 100.00%	0.00	OK	

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## 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
18	-0.0012	0.00	-7.312	0
19	0.0036	0.00	-0.8677	0
24	-0.7533	0.00	0.4307	0
26	-6.3318	0.00	3.657	0
28	0.7497	0.00	0.437	0
30	6.333	0.00	3.655	0
32	2.3449	0.00	1.3564	0
41	-2.3472	0.00	1.3525	0
47	0.0022	0.00	-2.709	0
48	6.1665	0.00	3.3666	0
49	4.1665	0.00	-0.0975	0
50	2.1665	0.00	-3.5616	0
51	0.1665	0.00	-7.0257	0
52	6.3942	0.00	3.2351	0
53	4.3942	0.00	-0.229	0
54	2.3942	0.00	-3.6931	0
55	0.3942	0.00	-7.1572	0
56	0.3942	4.00	-7.1572	0
57	2.3942	4.00	-3.6931	0
58	4.3942	4.00	-0.229	0
59	6.3942	4.00	3.2351	0

60	6.3942	-2.00	3.2351	0
62	4.3942	-2.00	-0.229	0
63	2.3942	-2.00	-3.6931	0
64	0.3942	-2.00	-7.1572	0
81	-0.1677	0.00	-7.0237	0
82	-2.3954	0.00	-3.691	0
83	-4.3954	0.00	-0.2269	0
84	-0.3954	4.00	-7.1551	0
85	-0.3954	-2.00	-7.1551	0
86	-0.3954	0.00	-7.1551	0
87	-2.3954	4.00	-3.691	0
88	-2.3954	-2.00	-3.691	0
89	-2.1677	0.00	-3.5596	0
90	-4.1677	0.00	-0.0954	0
91	-4.3954	4.00	-0.2269	0
92	-4.3954	-2.00	-0.2269	0
93	-6.1677	0.00	3.3687	0
94	-6.3954	0.00	3.2372	0
95	-6.3954	4.00	3.2372	0
96	-6.3954	-2.00	3.2372	0
102	-5.9988	0.00	3.657	0
103	-1.9988	0.00	3.92	0
104	2.0012	0.00	3.92	0
105	-5.9988	4.00	3.92	0
106	-5.9988	-2.00	3.92	0
107	-5.9988	0.00	3.92	0
108	-1.9988	4.00	3.92	0
109	-1.9988	-2.00	3.92	0
110	-1.9988	0.00	3.657	0
111	2.0012	0.00	3.657	0
112	2.0012	4.00	3.92	0
113	2.0012	-2.00	3.92	0
114	6.0012	0.00	3.657	0
115	6.0012	0.00	3.92	0
116	6.0012	4.00	3.92	0
117	6.0012	-2.00	3.92	0
118	-7.6309	0.00	4.407	0
121	7.632	0.00	4.405	0
122	-0.0012	0.00	-8.812	0
123	0.1665	3.00	-7.0257	0
124	0.3942	3.00	-7.1572	0
125	2.1665	3.00	-3.5616	0
126	2.3942	3.00	-3.6931	0
127	-0.1677	3.00	-7.0237	0
128	-0.3954	3.00	-7.1551	0
129	-2.3954	3.00	-3.691	0
130	-2.1677	3.00	-3.5596	0
131	-4.3954	3.00	-0.2269	0
132	-4.1677	3.00	-0.0954	0
133	-6.1677	3.00	3.3687	0
134	-6.3954	3.00	3.2372	0
135	-5.9988	3.00	3.657	0
136	-5.9988	3.00	3.92	0
137	-1.9988	3.00	3.92	0
138	-1.9988	3.00	3.657	0
139	2.0012	3.00	3.92	0
140	2.0012	3.00	3.657	0
141	6.333	3.00	3.655	0
142	6.0012	3.00	3.657	0
143	6.0012	3.00	3.92	0

144	6.1665	3.00	3.3666	0
145	6.3942	3.00	3.2351	0
146	4.1665	3.00	-0.0975	0
147	4.3942	3.00	-0.229	0
148	-6.3318	3.00	3.657	0
149	-0.0012	3.00	-7.312	0
150	-3.3433	0.00	1.9287	0
151	0.0014	0.00	-3.8597	0
152	3.3419	0.00	1.9311	0
153	-0.7533	-2.00	0.4307	0
154	0.7497	-2.00	0.437	0
155	0.0036	-2.00	-0.8677	0

## Restraints

Node	TX	TY	TZ	RX	RY	RZ
19	1	1	1	1	1	1
24	1	1	1	1	1	1
28	1	1	1	1	1	1
153	1	1	1	1	1	1
154	1	1	1	1	1	1
155	1	1	1	1	1	1

## Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
13	24	41		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
14	28	32		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
15	19	47		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
19	18	30		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
20	26	30		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
21	26	18		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
26	59	60		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
29	56	64		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
38	84	85		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
40	87	88		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
43	91	92		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
27	58	62		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
45	95	96		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
28	57	63		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
46	105	106		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
48	108	109		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
51	112	113		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
53	116	117		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
60	41	118		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
61	47	122		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
62	121	32		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
63	148	149		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
64	149	141		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
72	148	141		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

78	127	123	PL 6x1/2	A36	0.00	0.00	0.00
79	133	135	PL 6x1/2	A36	0.00	0.00	0.00
80	142	144	PL 6x1/2	A36	0.00	0.00	0.00
81	153	150	T2L 3X3X1_4X3_8	A36	0.00	0.00	0.00
82	154	152	T2L 3X3X1_4X3_8	A36	0.00	0.00	0.00
83	155	151	T2L 3X3X1_4X3_8	A36	0.00	0.00	0.00

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### Orientation of local axes

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Member	Rotation [Deg]	Axes23	NX	NY	NZ
26	0.00	2	-0.50	0.00	-0.866
29	0.00	2	-0.50	0.00	-0.866
38	0.00	2	-0.50	0.00	0.866
40	0.00	2	-0.50	0.00	0.866
43	0.00	2	-0.50	0.00	0.866
27	0.00	2	-0.50	0.00	-0.866
45	0.00	2	-0.50	0.00	0.866
28	0.00	2	-0.50	0.00	-0.866

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# Plainville, CT : Assessor Database

## Property Search:

Parcel ID:	Alternate ID:	Owner 1 Name:	Street Number:	Street Name:
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="button" value="Search"/>	<input type="button" value="Reset"/>			

## Property Detail:

Parcel ID:	Alternate ID/Map Block Lot:	Card:	Card:	Street Name:	Street Number:	Zoning:	LUC:	Acres:
42-A-03	R05380	1	1	S WASHINGTON ST	335	RI	Manufacturing Warehouse Facilities	8.00

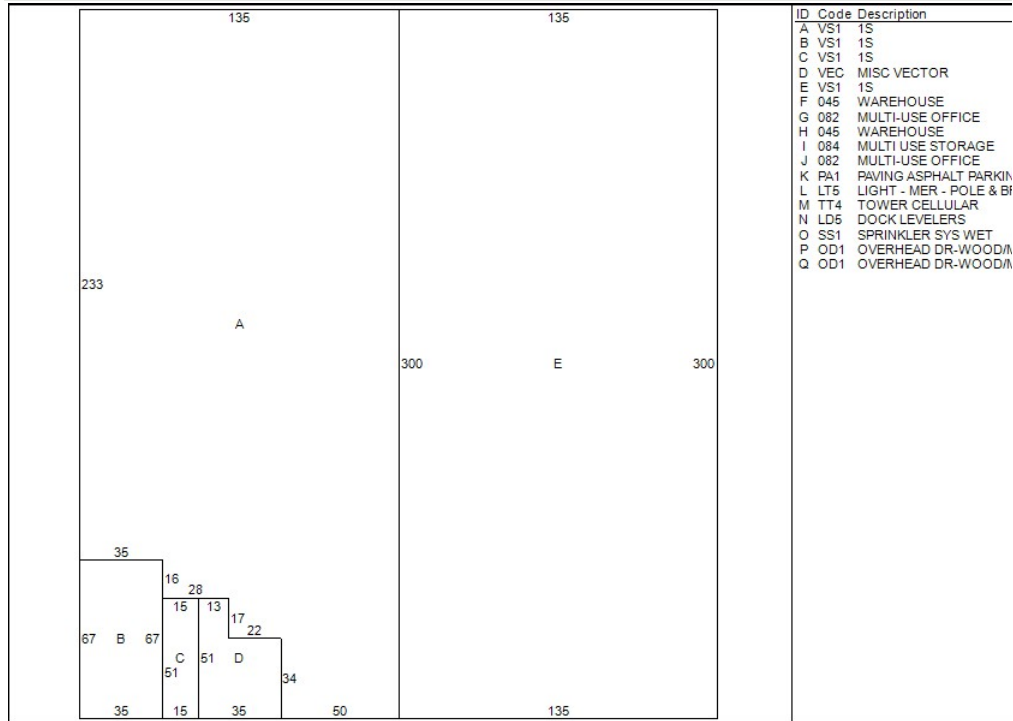
## Owner Information:

Owner 1 Name:	DISPLAY PROPERTIES LLC
Owner 2 Name:	
Street 1:	335 S WASHINGTON ST
Street 2:	
City:	PLAINVILLE
State:	CT
Zip:	06062
Volume:	374
Page:	357
Deed Date:	0000-00-00

## Property Images:

Picture:  
There is no picture available.

## Sketch:



## Sales History:

Book:	Page:	Sale Date:	Price:	Validity:	Sale Type:
374	357	03/27/2001	1,953,261	B	2
130	418	05/07/1963			
261	271	09/14/1988			
261	313	09/14/1988			
374	357	03/27/2001			

## Out-Buildings:

Code:	Description:	Units:	Year Built:	Size1:	Size2:	Area:	Grade:	Condition:
PA1	PAVING ASPHALT PARKING	1	1989	1	9200	9200	C	NORMAL (Comm)
LT5	LIGHT - MER - POLE & BRK	4	2006	0	0	1	C	NORMAL (Comm)
TT4	TOWER CELLULAR	1	2000	1	120	120	C	NORMAL (Comm)

## Building Interior/Exterior Information:

Floor From:	Floor To:	Area:	Use Type:	Exterior Walls:	Construction Type:	Heating:	A/C:	Plumbing:	Functional Util
01	01	34279	WAREHOUSE	METAL, SANDWICH	FIRE RESISTANT	UNIT HEATERS	NONE	NORMAL	3
01	01	7584	MULTI-USE OFFICE	METAL, SANDWICH	FIRE RESISTANT	HOT AIR	CENTRAL	NORMAL	2
M1	M1	2179	MULTI USE STORAGE	METAL, SANDWICH	FIRE RESISTANT	HOT AIR	NONE	NONE	3
M2	M2	429	MULTI-USE OFFICE	METAL, SANDWICH	FIRE RESISTANT	HOT AIR	CENTRAL	NORMAL	3
01	01	39140	WAREHOUSE	METAL, SANDWICH	FIRE RESISTANT	UNIT HEATERS	NONE	NORMAL	3

The information delivered through this on-line database is provided in the spirit of open access to government information and is intended as an enhanced service and convenience for citizens of Plainville, CT. The providers of this database: Tyler CLT, Big Room Studios, and Plainville, CT assume no liability for any error or omission in the information provided here.

Comments regarding this service should be directed to: [heering@plainville-ct.gov](mailto:heering@plainville-ct.gov)

Tue. March 13, 2018 : 07:44 AM : 0.16s : 10mb

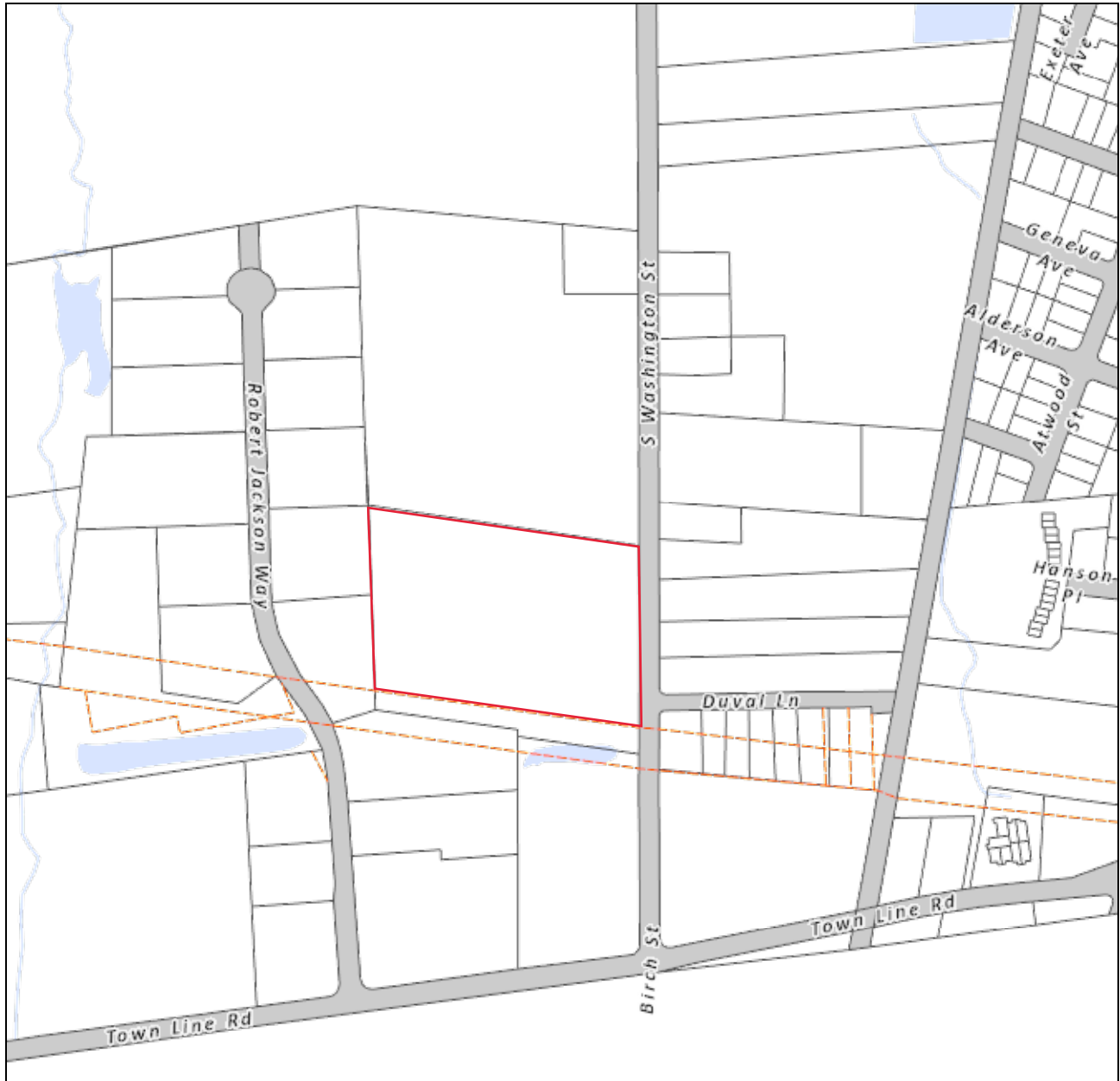
1

# Town of Plainville

Geographic Information System (GIS)



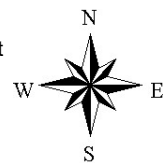
Date Printed: 3/7/2018




**MAP DISCLAIMER - NOTICE OF LIABILITY**

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The Town of Plainville and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 400 feet






**UNITED STATES  
POSTAL SERVICE®**

**Click-N-Ship®**

**P**

usps.com 9405 8036 9930 0699 8066 17 0067 0000 0010 6062  
**US POSTAGE**  
 Flat Rate Enviv



09/29/2018 Mailed from 06268 062S0000000311

**PRIORITY MAIL 1-DAY™**

Expected Delivery Date: 10/01/18

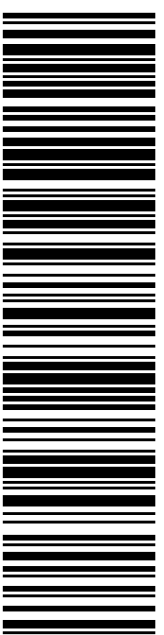
MARK J ROBERTS  
 QC DEVELOPMENT  
 PO BOX 916  
 STORRS CT 06268-0916

**0024**

SHIP TO:

DISPLAY PROPERTIES,LLC  
 335 S WASHINGTON ST  
 PLAINVILLE CT 06062-2729

**USPS TRACKING #**



**9405 8036 9930 0699 8066 17**

Electronic Rate Approved #038555749



Cut on dotted line.

### Instructions

1. Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.
2. Place your label so it does not wrap around the edge of the package.
3. Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.
4. To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.
5. Mail your package on the "Ship Date" you selected when creating this label.

### Click-N-Ship® Label Record

**USPS TRACKING # / Insurance Number:  
 9405 8036 9930 0699 8066 17**

Trans. #:	445153041	Priority Mail® Postage:	<b>\$6.70</b>
Print Date:	09/28/2018	Insurance Fee	<b>\$0.00</b>
Ship Date:	09/29/2018	Total	<b>\$6.70</b>
Expected Delivery Date:	10/01/2018		
Insured Value:	\$50.00		

**From:** MARK J ROBERTS  
 QC DEVELOPMENT  
 PO BOX 916  
 STORRS CT 06268-0916


**To:** DISPLAY PROPERTIES LLC  
 335 S WASHINGTON ST  
 PLAINVILLE CT 06062-2729

\* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.



Thank you for shipping with the United States Postal Service!  
 Check the status of your shipment on the USPS Tracking® page at usps.com





**UNITED STATES  
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**P**

usps.com 9405 8036 9930 0699 8066 48 0067 0000 0010 6062  
**US POSTAGE**  
 Flat Rate Env  
 09/29/2018 Mailed from 06268 062S0000000313

**PRIORITY MAIL 1-DAY™**

Expected Delivery Date: 10/01/18


MARK J ROBERTS  
 QC DEVELOPMENT  
 PO BOX 916  
 STORRS CT 06268-0916

**0024**

SHIP TO: MS. KATHERINE M PUGLIESE  
 TOWN OF PLAINVILLE  
 1 CENTRAL SQ  
 PLAINVILLE CT 06062-1900

**C011**

**USPS TRACKING #**



**9405 8036 9930 0699 8066 48**

Electronic Rate Approved #038555749



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### Instructions

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5. Mail your package on the "Ship Date" you selected when creating this label.

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 9405 8036 9930 0699 8066 48**

Trans. #:	445153041	Priority Mail® Postage:	<b>\$6.70</b>
Print Date:	09/28/2018	Insurance Fee	<b>\$0.00</b>
Ship Date:	09/29/2018	Total	<b>\$6.70</b>
Expected Delivery Date:	10/01/2018		
Insured Value:	\$50.00		

**From:** MARK J ROBERTS  
 QC DEVELOPMENT  
 PO BOX 916  
 STORRS CT 06268-0916

**To:** MS. KATHERINE M PUGLIESE  
 TOWN OF PLAINVILLE  
 1 CENTRAL SQ  
 PLAINVILLE CT 06062-1900

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