QC Development
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Storrs, CT 06268
860-670-9068
Mark.Roberts@QCDevelopment.net

April 10, 2020

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) – CT5089
124 Quarry Road, Trumbull, CT 06611
N 41.23247500
W 73.18592222

Dear Ms. Bachman:

AT&T currently maintains three (3) antennas at the 160-foot level of the existing 150-foot Utility Pole at 124 Quarry Road, Trumbull, CT. The tower is owned by Eversource and the property is owned by CMB Trumbull LLC. AT&T now intends to replace all three (3) antennas with new Kathrien 800-101991 antennas and all six (6) TMAs with new CommScope TMAs. These new antennas and TMAs will also be installed at the 160-foot level on the antenna mast.

This facility was approved by the Siting Council on June 6, 2001 in Petition # 513 (documented under Petition #516). The approval included no further conditions. Since no changes are proposed to the overall tower height, this modification 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 Vicki Tesoro, First Selectman of the Town of Trumbull, and the Trumbull Planning & Zoning Office, 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 Roberts
QC Development
Consultant for AT&T

Attachments

cc: Vicki Teroso - Elected Official
Rob Librandi – Town Planner
CMB Trumbull LLC – Property Owner
Eversource - 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^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							0.84%
AT&T UMTS	2	409	160	0.0124	850	0.5667	0.22%
AT&T LTE	2	730	160	0.0221	700	0.4667	0.47%
AT&T LTE	2	1456	160	0.0442	1900	1.0000	0.44%
AT&T LTE	2	1833	160	0.0556	2300	1.0000	0.56%
Site Total							2.53%

*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

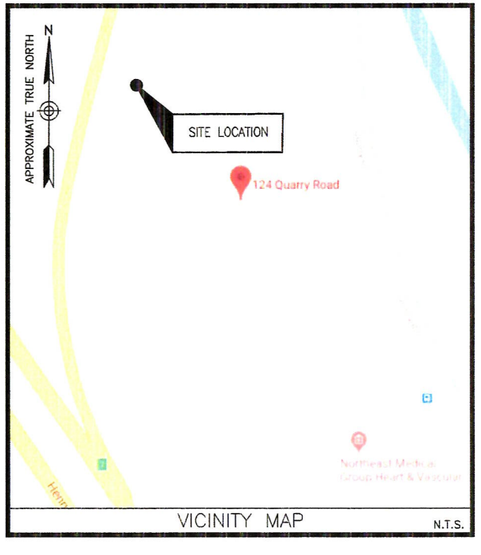
Proposed Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							0.84%
AT&T UMTS	1	818	160	0.0124	850	0.5667	0.22%
AT&T LTE	1	1476	160	0.0224	700	0.4667	0.48%
AT&T LTE	1	1000	160	0.0152	850	0.5667	0.27%
AT&T 5G	1	1000	160	0.0152	850	0.5667	0.27%
AT&T LTE	2	3664	160	0.1111	1900	1.0000	1.11%
AT&T LTE	1	3837	160	0.0582	2100	1.0000	0.58%
AT&T LTE	1	1285	160	0.0195	2300	1.0000	0.19%
Site Total							3.97%

*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

SITE NAME: TRUMBULL SOUTH
SITE NUMBER: CT5089
124 QUARRY ROAD
TRUMBULL, CT 06611
EVERSOURCE TRANSMISSION STRUCTURE NO.: 844
FA CODE: 10071285
PACE ID: MRCTB038084, MRCTB038096
PROJECT: LTE 5C, CELL SITE RF MODIFICATIONS



VICINITY MAP N.T.S.

SITE COORDINATES:
LATITUDE: 41°-13'-56.91" N
LONGITUDE: 73°-11'-09.32" W
(PER EXISTING DRAWINGS PROVIDED)

ELEVATION DATA:
GRADE ELEVATION AT TOWER = 100'± A.M.S.L.
(PER EXISTING DRAWINGS PROVIDED)

SITE INFORMATION

- SWAP (3) EXISTING LTE ANTENNAS FOR (3) 6' 800-10991 12 PORT ANTENNAS
- SWAP (6) EXISTING TMA'S FOR (6) TMAT21X23E68-31-43 TMA'S ON TOWER
- SWAP (3) EXISTING RRUS-11'S FOR (3) 700/850 B5/B12-4449 AT GROUND
- SWAP (6) EXISTING RRUS-12'S FOR (3) 1900/AWS B2/B66-8843 AT GROUND
- ADD (6) LOW BAND COMBINERS AT GROUND
- ADD 5G RBS 6630 IN EXISTING PURCELL CABINET

PROJECT DESCRIPTION

SITE NAME:
TRUMBULL SOUTH

SITE NUMBER:
CT5089

SITE ADDRESS:
124 QUARRY ROAD
TRUMBULL, CT 06611

APPLICANT/LESSEE:
AT&T MOBILITY
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

PROJECT INFORMATION

THIS DOCUMENT WAS DEVELOPED TO REFLECT A SPECIFIC SITE AND ITS SITE CONDITIONS AND IS NOT TO BE USED FOR ANOTHER SITE OR WHEN OTHER CONDITIONS PERTAIN. REUSE OF THIS DOCUMENT IS AT THE SOLE RISK OF THE USER.

A.D.A. COMPLIANCE:
FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.

SHEET NUMBER	DESCRIPTION
T-1	TITLE SHEET
G-1	GENERAL NOTES
C-1	COMPOUND PLAN
C-2	EXISTING & PROPOSED EQUIPMENT LAYOUTS
C-3	EXISTING & PROPOSED ELEVATIONS
C-4	EXISTING & PROPOSED ANTENNA LAYOUTS
C-5	CONSTRUCTION DETAILS
C-6	PLUMBING DIAGRAM
E-1	GROUNDING NOTES & DETAILS

SHEET INDEX

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

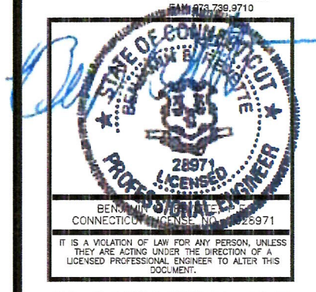
SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

CT5089
TRUMBULL SOUTH

CONSTRUCTION DRAWINGS

0	09/26/19	ISSUED AS FINAL
C	07/22/19	REVISED PER COMMENTS
B	05/10/19	REVISED PER COMMENTS
A	03/29/19	ISSUED FOR REVIEW

Dewberry®
Dewberry Engineers Inc.
600 PARSIPPANY ROAD
SUITE 301
PARSIPPANY, NJ 07054
PHONE: 973.739.9400
FAX: 973.739.9710



BENJAMIN H. KNOTTS
CONNECTICUT LICENSE NO. 28971

DRAWN BY:	KE
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50055106
JOB NUMBER:	50093845
SITE ADDRESS:	

124 QUARRY ROAD
TRUMBULL, CT 06611

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   PROJECT MANAGEMENT – SAI COMMUNICATIONS, INC.
   CONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   TRANSMISSION STRUCTURE OWNER – EVERSOURCE
   APPLICANT/LESSEE – AT&T MOBILITY
   OEM – ORIGINAL EQUIPMENT MANUFACTURER
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR 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 PROJECT MANAGEMENT.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. CONTRACTOR 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.
4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
5. DRAWINGS PROVIDED HERE ARE NOT TO SCALE UNLESS OTHERWISE NOTED AND ARE INTENDED TO SHOW OUTLINE ONLY.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. THE CONTRACTOR 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 CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY PROJECT MANAGEMENT.
9. CONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. CONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. CONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH PROJECT MANAGEMENT.
10. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
11. CONTRACTOR 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. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
14. CONTRACTOR SHALL NOTIFY DEWBERRY 48 HOURS IN ADVANCE OF POURING CONCRETE, OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS & POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEER REVIEW.
15. CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. CONTRACTOR SHALL NOTIFY PROJECT MANAGEMENT OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
16. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY CONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH LAND LORD. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
17. 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.
18. THERE SHALL NOT BE ANY DRILLING, WELDING OR TAPING TO THE EXISTING EVERSOURCE TRANSMISSION STRUCTURE.

SITE WORK GENERAL NOTES:

1. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO:
   A) FALL PROTECTION
   B) CONFINED SPACE
   C) ELECTRICAL SAFETY
   D) TRENCHING & EXCAVATION.
3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES, TOP SOIL AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
5. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, OWNER AND/OR LOCAL UTILITIES.
6. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION.
7. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE AT&T SPECIFICATION FOR SITE SIGNAGE.
8. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE TRANSMISSION EQUIPMENT AND TOWER AREAS.
9. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
10. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION, SEE SOIL COMPACTION NOTES.
11. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION.
12. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL JURISDICTION'S GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS UNLESS NOTED OTHERWISE. STRUCTURAL STEEL SHALL BE ASTM-A-36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE PERFORMED IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".
2. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION". PAINTED SURFACES SHALL BE TOUCHED UP.
3. BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE (3/4"Ø) CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
4. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIA. ASTM A 307 BOLTS UNLESS NOTED OTHERWISE.
5. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY RAMSET/REDHEAD OR APPROVED EQUAL.
6. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL.
7. ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.
8. THERE SHALL NOT BE ANY DRILLING, WELDING OR TAPING TO THE EXISTING EVERSOURCE TRANSMISSION STRUCTURE.

SOIL COMPACTION NOTES FOR SLAB ON GRADE:

1. EXCAVATE AS REQUIRED TO REMOVE VEGETATION & TOPSOIL EXPOSE UNDISTURBED NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.
2. COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.
3. AS AN ALTERNATIVE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.
4. COMPACTED SUBBASE SHALL BE UNIFORM & LEVELED. PROVIDE 6" MINIMUM CRUSHED STONE OR GRAVEL COMPACTED IN 3" LIFTS ABOVE COMPACTED SOIL. GRAVEL SHALL BE NATURAL OR CRUSHED WITH 100% PASSING 1" SIEVE.
5. AS AN ALTERNATIVE TO ITEMS 2 AND 3 PROOFROLL THE SUBGRADE SOILS WITH 5 PASSES OF A MEDIUM SIZED VIBRATORY PLATE COMPACTOR (SUCH AS BOMAG BPR 30/38) OR HAND-OPERATED SINGLE DRUM VIBRATORY ROLLER (SUCH AS BOMAG BW 55E). ANY SOFT AREAS THAT ARE ENCOUNTERED SHOULD BE REMOVED AND REPLACED WITH A WELL-GRADED GRANULAR FILL, AND COMPACTED AS STATED ABOVE.

COMPACTION EQUIPMENT:

1. HAND OPERATED DOUBLE DRUM, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR.

CONSTRUCTION NOTES:

1. FIELD VERIFICATION:
   CONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, AT&T ANTENNA PLATFORM LOCATION AND ANTENNAS TO BE REPLACED.
2. COORDINATION OF WORK:
   CONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH PROJECT MANAGEMENT.
3. CABLE LADDER RACK:
   CONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BTS LOCATION.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
2. CONTRACTOR SHALL MODIFY EXISTING CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLING TO THE NEW BTS EQUIPMENT. CONTRACTOR SHALL SUBMIT MODIFICATIONS TO PROJECT MANAGEMENT FOR APPROVAL.
3. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
4. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
5. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
6. CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
7. EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC & OSHA, AND MATCH EXISTING INSTALLATION REQUIREMENTS.
8. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).
9. PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.
10. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
11. POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (SIZE 14 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
12. POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL.) PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC & OSHA AND MATCH EXISTING INSTALLATION REQUIREMENTS.
13. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (SIZE 6 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90°C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
14. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.
15. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (SIZE 14 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90°C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.
16. ALL POWER AND POWER GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).
17. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.
18. NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
19. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40, OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
20. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
21. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
22. RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.
23. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
24. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.
25. CABINETS, BOXES, AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.
26. CABINETS, BOXES, AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
27. WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
28. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
29. METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED, OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
30. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
31. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM PROJECT MANAGEMENT BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
32. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.

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CONSTRUCTION DRAWINGS		
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STATE OF CONNECTICUT
BENJAMIN S. HOLTE
28971
LICENSED
PROFESSIONAL ENGINEER

BENJAMIN S. HOLTE
CONNECTICUT LICENSE NO. 28971

DRAWN BY:	KE
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50055105
JOB NUMBER:	50093845
SITE ADDRESS:	

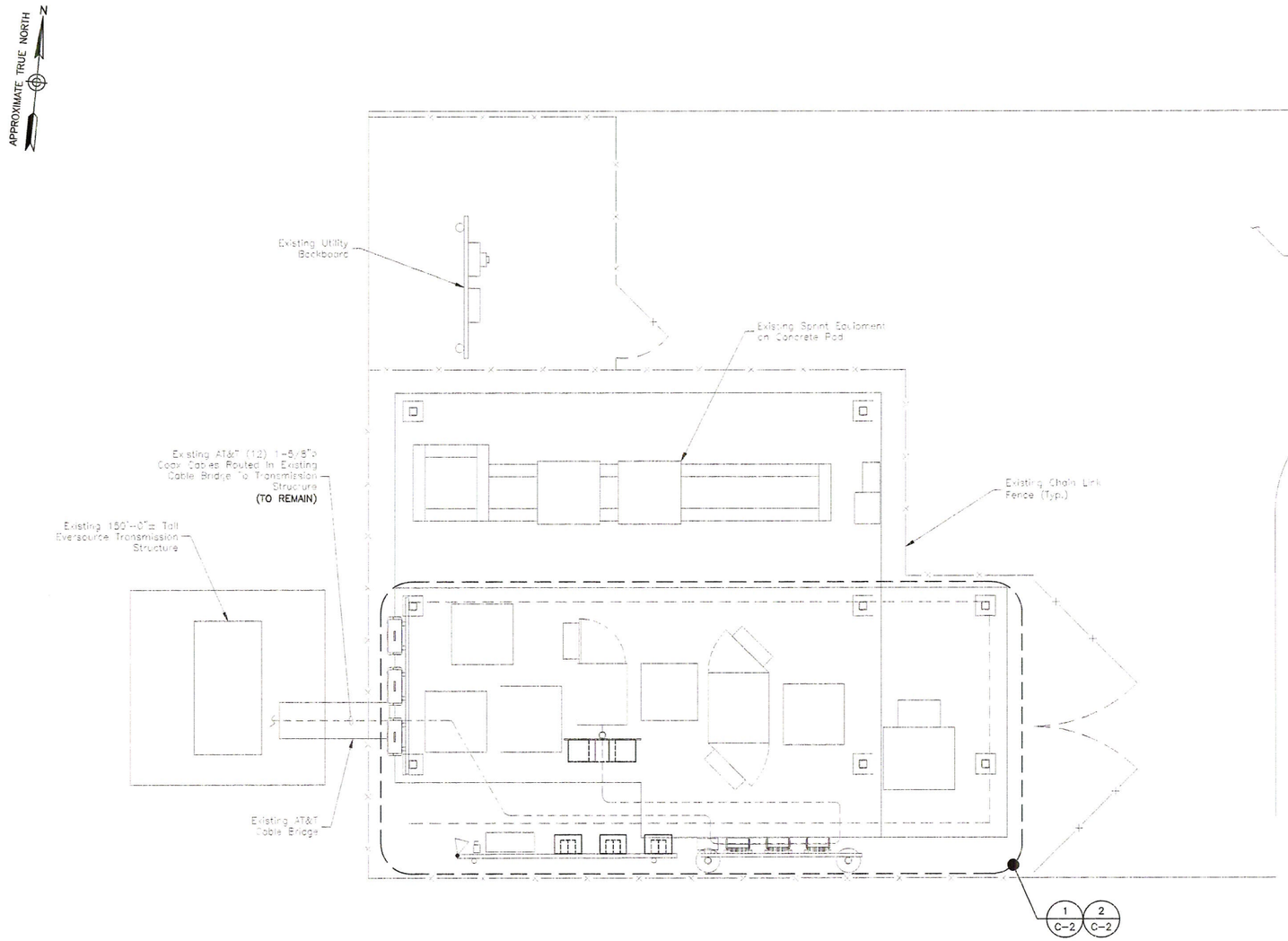
124 QUARRY ROAD
TRUMBULL, CT 06611

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

G-1



1
C-3

COMPOUND PLAN 1

SCALE: 3/16"=1' FOR 11"x17"
3/8"=1' FOR 22"x34"

0' 2' 4' 6'

NOTES:

1. NORTH SHOWN AS APPROXIMATE.
2. NOT ALL INFORMATION IS SHOWN FOR CLARITY.
3. COMPOUND PLAN IS BASED ON DRAWINGS BY CENTEK ENGINEERING, REV. 1 DATED 12/13/16.
4. ALL PROPOSED EQUIPMENT, INCLUDING ANTENNAS, COAX, SURGE ARRESTORS, TMA'S, RRU'S, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS BY CENTEK ENGINEERING, DATED 03/05/19.

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JOB NUMBER:	50093845
SITE ADDRESS:	

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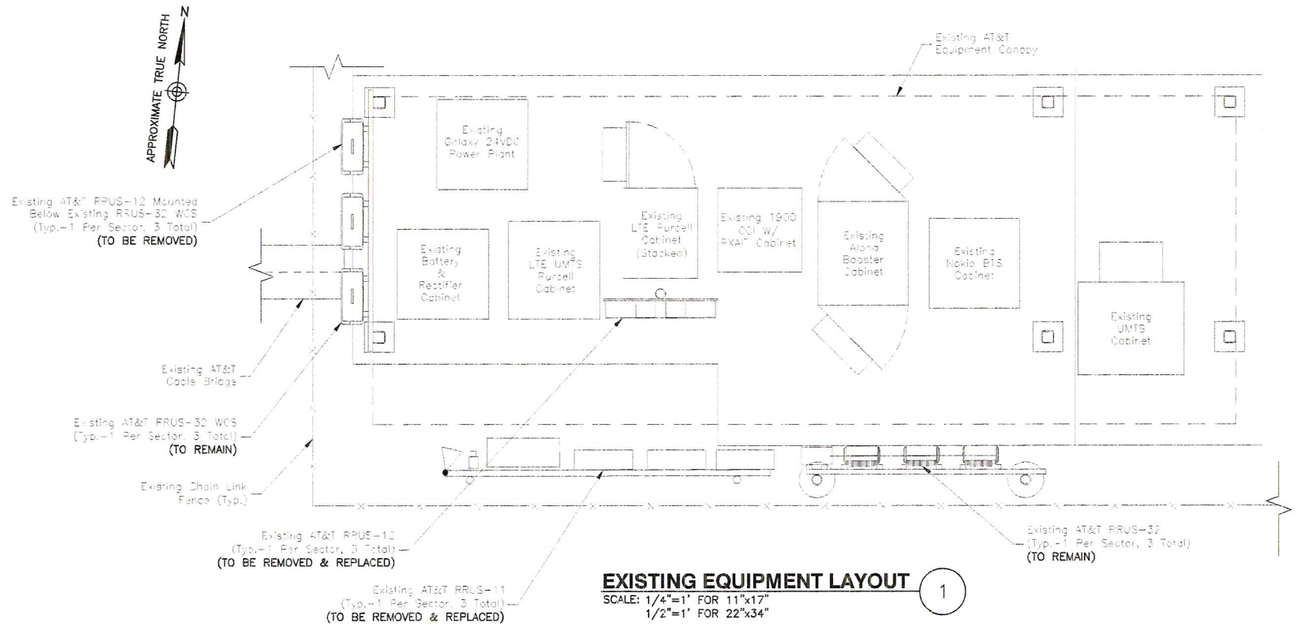
SHEET TITLE

COMPOUND PLAN

SHEET NUMBER

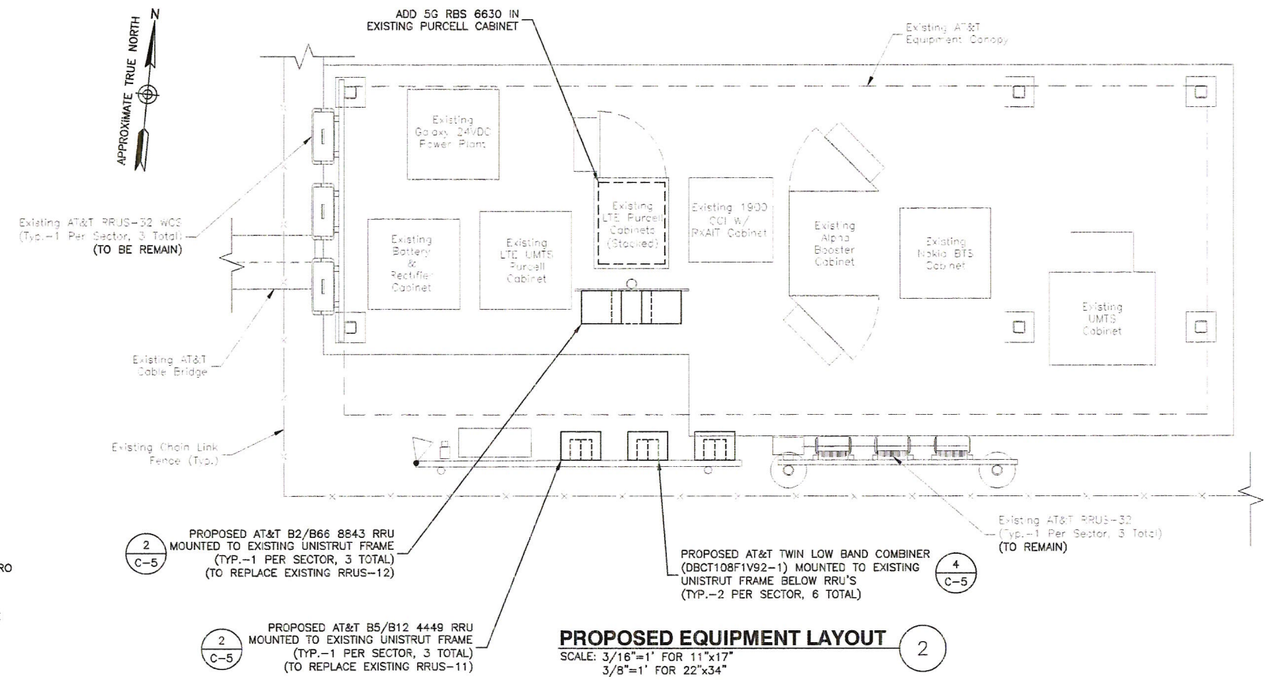
C-1



EXISTING EQUIPMENT LAYOUT 1

SCALE: 1/4"=1' FOR 11"x17"
1/2"=1' FOR 22"x34"

0' 1' 2' 4'



PROPOSED EQUIPMENT LAYOUT 2

SCALE: 3/16"=1' FOR 11"x17"
3/8"=1' FOR 22"x34"

0' 2' 4' 6'

NOTES:

1. ACCESS TO COMPOUND WAS NOT AVAILABLE. CONTRACTOR TO FIELD VERIFY DIMENSIONS AND EXISTING CONDITIONS AND REPORT ANY DISCREPANCIES TO AT&T AND ENGINEER PRIOR RO START OF WORK.
2. CONTRACTOR TO FIELD VERIFY LOCATION OF EXISTING RRH UNITS AND REMOVE AND REPLACE ACCORDINGLY.
3. CONTRACTOR TO VERIFY NEW RRH'S HAVE ADEQUATE CLEARANCES PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO ADJUST SPACING OF EXISTING EQUIPMENT ON EXISTING UNISTRUT TO ACCOMMODATE.

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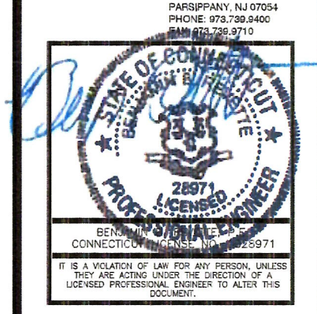

BENJAMIN S. HOLDEN
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PROJECT NUMBER:	50055106
JOB NUMBER:	50093845
SITE ADDRESS:	

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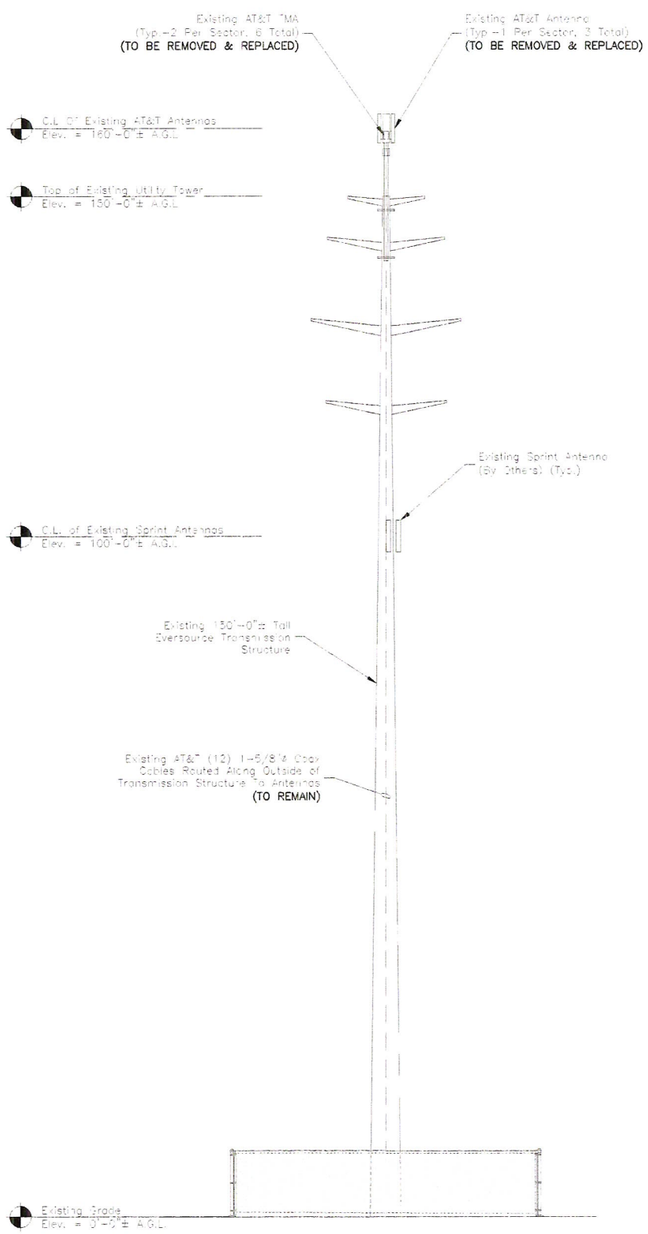
TRUMBULL, CT 06611

SHEET TITLE

EXISTING & PROPOSED EQUIPMENT LAYOUTS

SHEET NUMBER

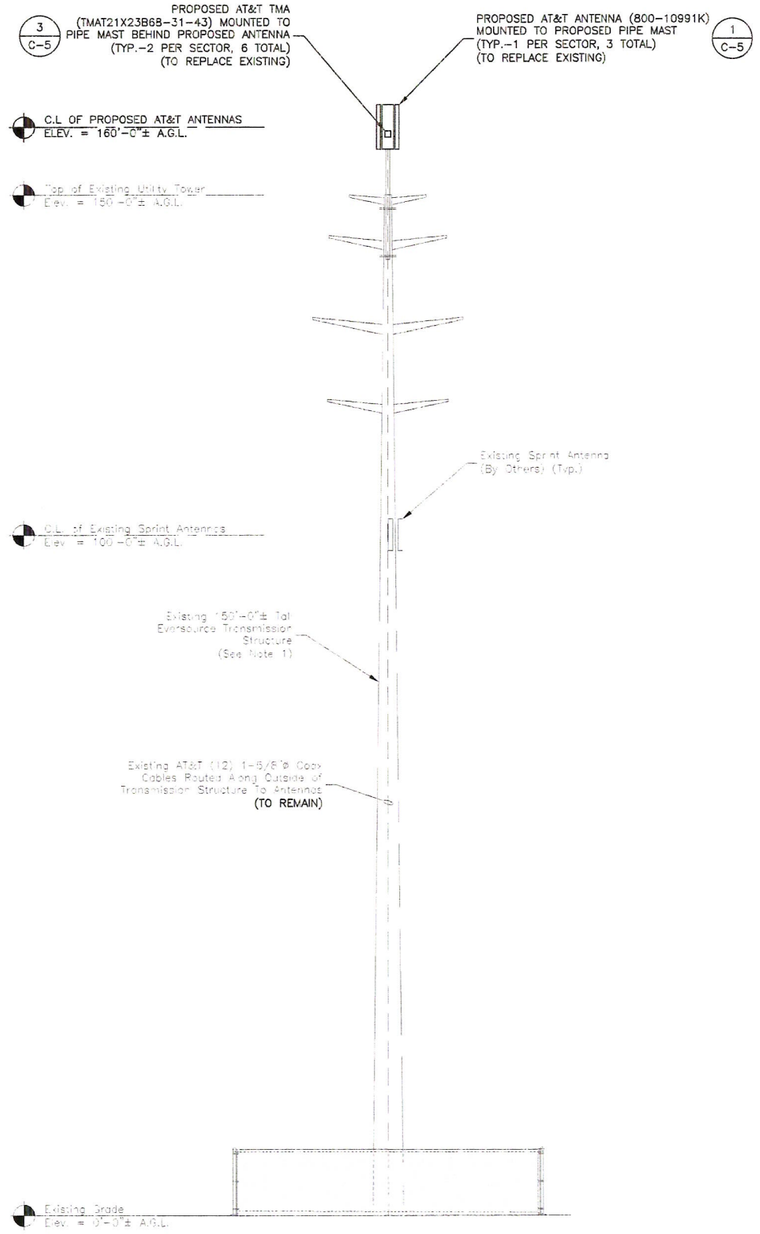
C-2



EXISTING ELEVATION 1

SCALE: 3/64"=1' FOR 11"x17"
3/32"=1' FOR 22"x34"

0' 8' 16' 24'



PROPOSED ELEVATION 2

SCALE: 3/64"=1' FOR 11"x17"
3/32"=1' FOR 22"x34"

0' 8' 16' 24'

NOTES:

1. ALL PROPOSED EQUIPMENT, INCLUDING ANTENNAS, COAX, SURGE ARRESTORS, TMA'S, RRU'S, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS BY CENTEK ENGINEERING, DATED 03/05/19.
2. GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

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BENJAMIN S. HOLMES
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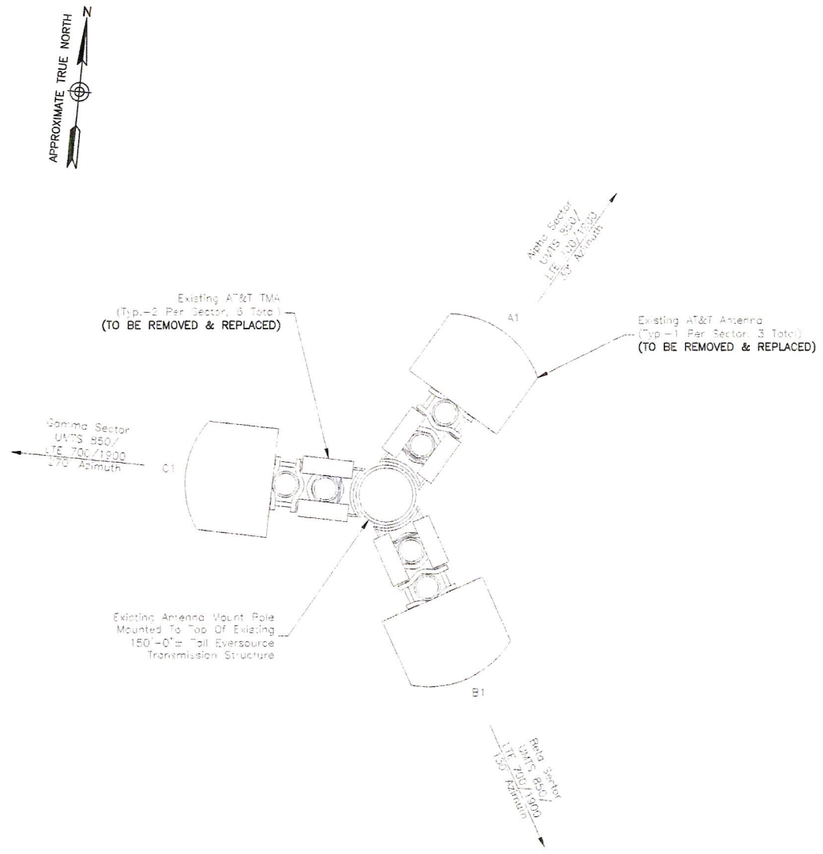
SHEET TITLE

EXISTING & PROPOSED ELEVATIONS

SHEET NUMBER

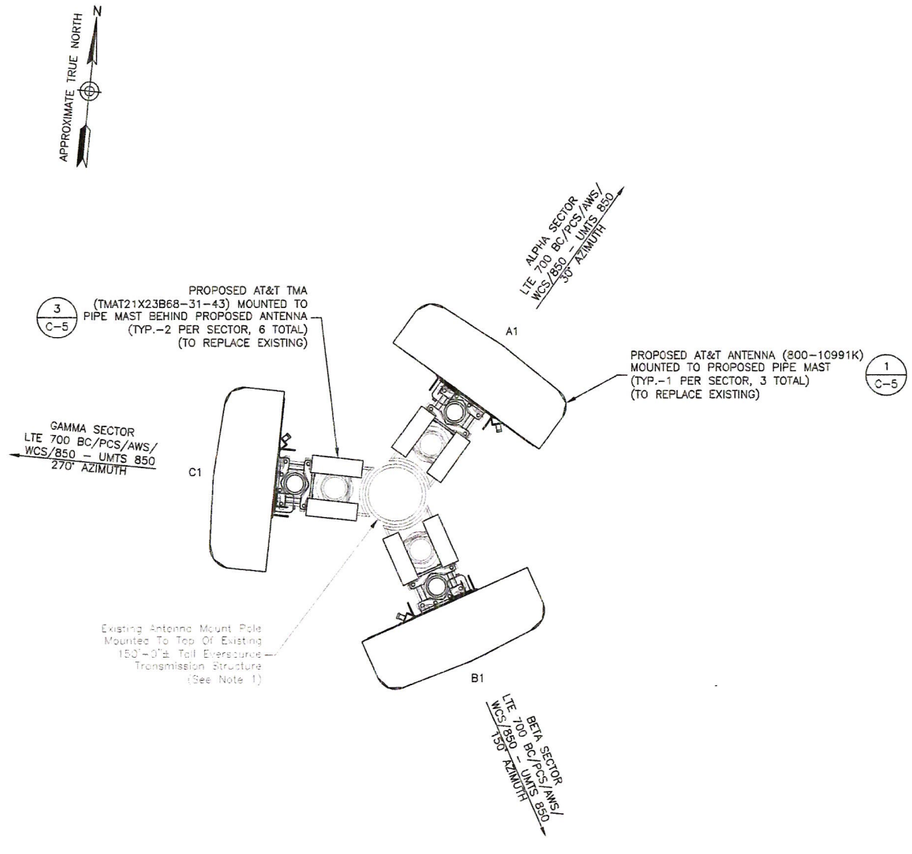
C-3



EXISTING ANTENNA LAYOUT 1

SCALE: 3/4"=1' FOR 11"x17"
1 1/2"=1' FOR 22"x34"

0' 1/2' 1' 1 1/2'



PROPOSED ANTENNA LAYOUT 2

SCALE: 3/4"=1' FOR 11"x17"
1 1/2"=1' FOR 22"x34"

0' 1/2' 1' 1 1/2'

NOTE:

1. ALL PROPOSED EQUIPMENT, INCLUDING ANTENNAS, COAX, SURGE ARRESTORS, TMA'S, RRU'S, ETC., SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS BY CENTEK ENGINEERING, DATED 03/05/19.

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JOB NUMBER:	50093845
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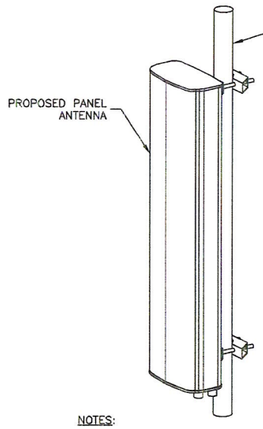
TRUMBULL, CT 06611

SHEET TITLE

EXISTING & PROPOSED ANTENNA LAYOUTS

SHEET NUMBER

C-4



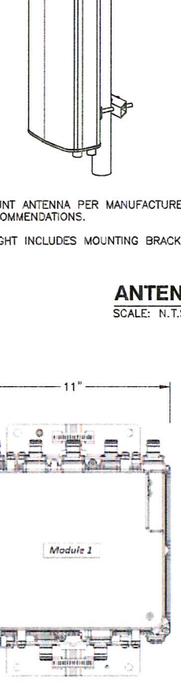
ANTENNA SPECIFICATIONS	
MANUFACTURER	KATHREIN
MODEL NUMBER	800-10991K
DIMENSIONS (HxWxD)	78.7" x 20.0" x 6.9"
WEIGHT	111.9 LBS (CLAMPS INCL.)

NOTES:

1. MOUNT ANTENNA PER MANUFACTURER'S RECOMMENDATIONS.
2. WEIGHT INCLUDES MOUNTING BRACKETS.

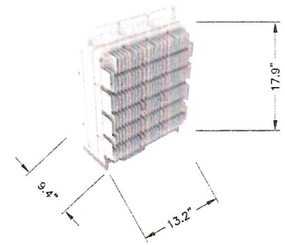
ANTENNA DETAIL 1

SCALE: N.T.S.



ERICSSON RRUS B2/B66 8843

SPECIFICATIONS:
HEIGHT: 14.9"
WIDTH: 13.2"
DEPTH: 10.9"
WEIGHT: 72.0 LBS



ERICSSON RRUS B5/B12 4449

SPECIFICATIONS:
HEIGHT: 17.9"
WIDTH: 13.2"
DEPTH: 9.4"
WEIGHT: 70.4 LBS

RRU NOTES:

1. MOUNT EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS.
2. GROUND EQUIPMENT AND MOUNTS PER MANUFACTURER'S RECOMMENDATIONS AND AT&T STANDARDS.
3. CONFIRM REQUIRED EQUIPMENT WITH THE LATEST RFDS.

REMOTE RADIO UNIT DETAILS 2

SCALE: N.T.S.

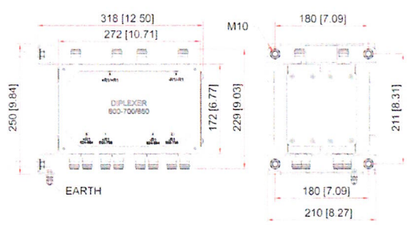
TMA	
MANUFACTURER:	COMMSCOPE
MODEL NUMBER:	TMAT21X23B68-31-43
DIMENSIONS:	9.7"Hx11.0"Wx3.9"D
WEIGHT:	21.2 LBS

NOTES:

1. GROUND EQUIPMENT AND MOUNTS PER MANUFACTURER'S RECOMMENDATIONS AND AT&T STANDARDS.
2. MOUNT EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS.
3. CONFIRM REQUIRED EQUIPMENT WITH LATEST RFDS.

TMA DETAIL 3

SCALE: N.T.S.



TWIN LOW BAND COMBINER	
MANUFACTURER:	KAELUS
MODEL NUMBER:	DBCT108F1V92-1
DIMENSIONS:	10.71"Hx7.14"Wx6.77"D
WEIGHT:	28.66 LBS

TWIN LOW BAND COMBINER DETAIL 4

SCALE: N.T.S.

ANTENNA SCHEDULE

SECTOR	EXISTING/PROPOSED	BAND	ANTENNA	ANTENNA CENTERLINE	AZIMUTH	TMA/DIPLEXER	RRU'S AT GRADE	FEEDER
A1	PROPOSED	LTE 700 BC/PCS/AWS/ WCS/850 - UMTS 850	KATHREIN 800-10991K	160'-0"±	30°	(2) TMAT21X23B68-31-43 (2) DBCT108F1V92-1 (GROUND)	(E) RRUS-32 (P) ERICSSON RRUS B5/B12 4449 (P) ERICSSON RRUS B2/B66 8843	(4) 1-5/8"ø COAX
B1	PROPOSED	LTE 700 BC/PCS/AWS/ WCS/850 - UMTS 850	KATHREIN 800-10991K	160'-0"±	150°	(2) TMAT21X23B68-31-43 (2) DBCT108F1V92-1 (GROUND)	(E) RRUS-32 (P) ERICSSON RRUS B5/B12 4449 (P) ERICSSON RRUS B2/B66 8843	(4) 1-5/8"ø COAX
C1	PROPOSED	LTE 700 BC/PCS/AWS/ WCS/850 - UMTS 850	KATHREIN 800-10991K	160'-0"±	270°	(2) TMAT21X23B68-31-43 (2) DBCT108F1V92-1 (GROUND)	(E) RRUS-32 (P) ERICSSON RRUS B5/B12 4449 (P) ERICSSON RRUS B2/B66 8843	(4) 1-5/8"ø COAX

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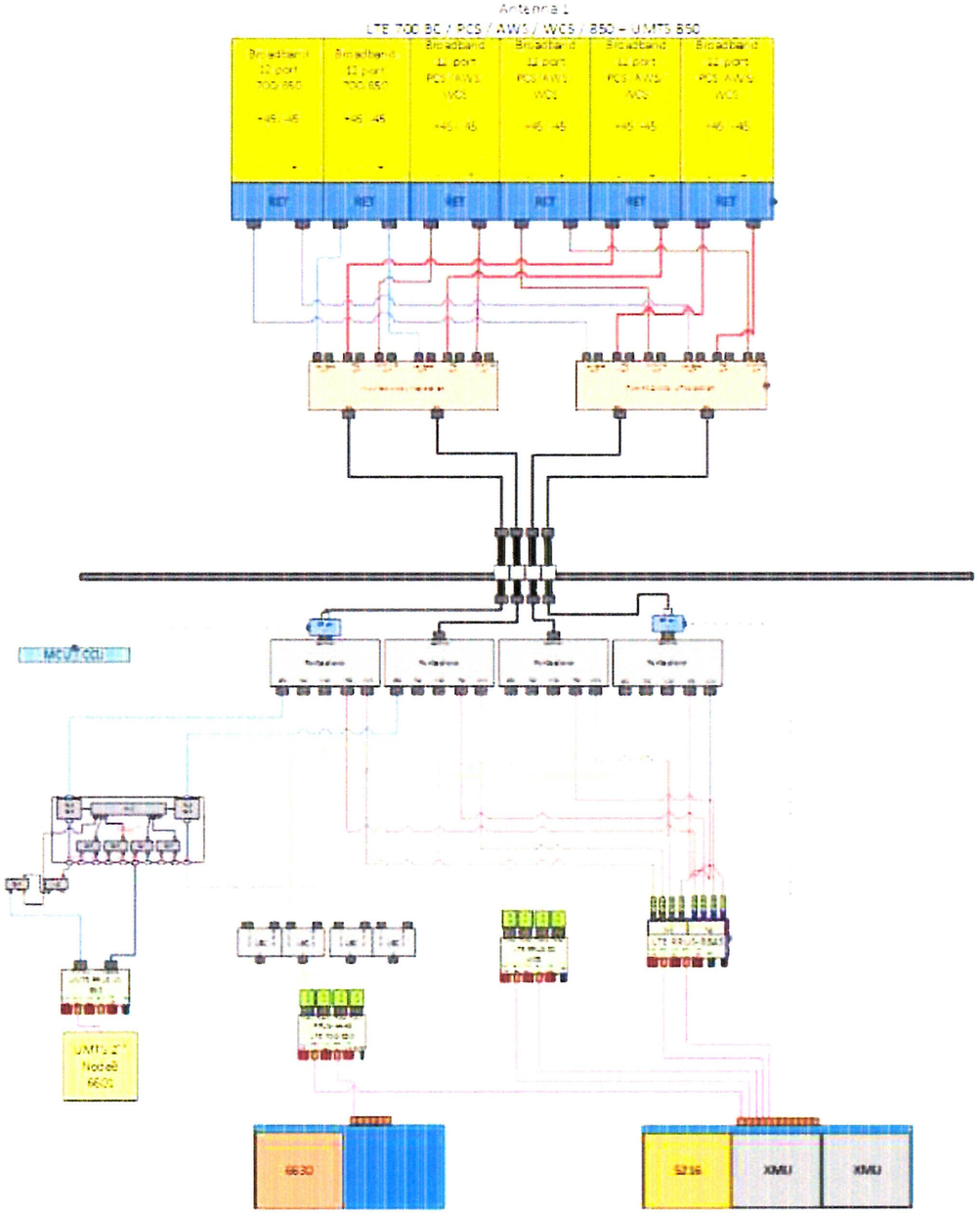
CONSTRUCTION DETAILS

SHEET NUMBER

C-5



PLUMBING DIAGRAM
SCALE: N.T.S.

1

NOTE:

1. PLUMBING DIAGRAM BASED ON RFDS V4.00 DATED 05/10/2019. CONFIRM FINAL PLUMBING DIAGRAM WITH THE LATEST RFDS.

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TRUMBULL, CT 06611

SHEET TITLE

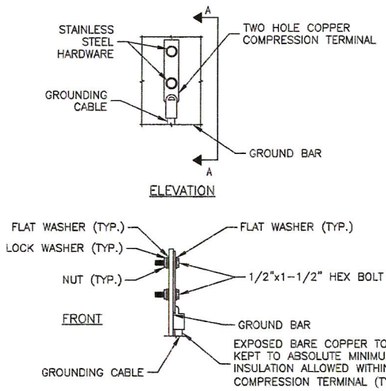
PLUMBING DIAGRAM

SHEET NUMBER

C-6

GROUNDING NOTES:

1. THE CONTRACTOR 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 CONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE ENGINEER 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. ALL AVAILABLE GROUNDING ELECTRODES SHALL BE CONNECTED TOGETHER IN ACCORDANCE WITH THE NEC.
3. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. USE OF OTHER METHODS MUST BE PRE-APPROVED BY THE ENGINEER IN WRITING.
4. THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS ON TOWER SITES AND 10 OHMS OR LESS ON ROOFTOP SITES. WHEN ADDING ELECTRODES, CONTRACTOR SHALL MAINTAIN A MINIMUM DISTANCE BETWEEN THE ADDED ELECTRODE AND ANY OTHER EXISTING ELECTRODE EQUAL TO THE BURIED LENGTH OF THE ROD. IDEALLY, CONTRACTOR SHALL STRIVE TO KEEP THE SEPARATION DISTANCE EQUAL TO TWICE THE BURIED LENGTH OF THE RODS.
5. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
6. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG COPPER WIRE AND UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
7. 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 TRANSMISSION EQUIPMENT.
8. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK-TO-BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED. IN ALL CASES, BENDS SHALL BE MADE WITH A MINIMUM BEND RADIUS OF 8 INCHES.
11. EACH INTERIOR TRANSMISSION CABINET FRAME/PLINTH SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH 6 AWG STRANDED, GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRE UNLESS NOTED OTHERWISE IN THE DETAILS. EACH OUTDOOR CABINET FRAME/PLINTH SHALL BE DIRECTLY CONNECTED TO THE BURIED GROUND RING WITH 2 AWG SOLID TIN-PLATED COPPER WIRE UNLESS NOTED OTHERWISE IN THE DETAILS.
12. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE 2 AWG SOLID TIN-PLATED COPPER UNLESS OTHERWISE INDICATED.
13. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE. CONNECTIONS TO ABOVE GRADE UNITS SHALL BE MADE WITH EXOTHERMIC WELDS WHERE PRACTICAL OR WITH 2 HOLE MECHANICAL TYPE BRASS CONNECTORS WITH STAINLESS STEEL HARDWARE, INCLUDING SET SCREWS. HIGH PRESSURE CRIMP CONNECTORS MAY ONLY BE USED WITH WRITTEN PERMISSION FROM SAI MARKET REPRESENTATIVE.
14. EXOTHERMIC WELDS SHALL BE PERMITTED ON TOWERS ONLY WITH THE EXPRESS APPROVAL OF THE TOWER MANUFACTURER OR THE CONTRACTORS STRUCTURAL ENGINEER.
15. ALL WIRE TO WIRE GROUND CONNECTIONS TO THE INTERIOR GROUND RING SHALL BE FORMED USING HIGH PRESS CRIMPS OR SPLIT BOLT CONNECTORS WHERE INDICATED IN THE DETAILS.
16. ON ROOFTOP SITES WHERE EXOTHERMIC WELDS ARE A FIRE HAZARD COPPER COMPRESSION CAP CONNECTORS MAY BE USED FOR WIRE TO WIRE CONNECTORS. 2 HOLE MECHANICAL TYPE BRASS CONNECTORS WITH STAINLESS STEEL HARDWARE, INCLUDING SET SCREWS SHALL BE USED FOR CONNECTION TO ALL ROOFTOP TRANSMISSION EQUIPMENT AND STRUCTURAL STEEL.
17. COAX BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR USING TWO-HOLE MECHANICAL TYPE BRASS CONNECTORS AND STAINLESS STEEL HARDWARE.
18. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
19. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
20. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
21. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF THE BURIED GROUND RING WITH 2 AWG SOLID TIN-PLATED COPPER GROUND CONDUCTOR. DURING EXCAVATION FOR NEW GROUND CONDUCTORS, IF EXISTING GROUND CONDUCTORS ARE ENCOUNTERED, BOND EXISTING GROUND CONDUCTORS TO NEW CONDUCTORS.
22. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT WITH LISTED BONDING FITTINGS.

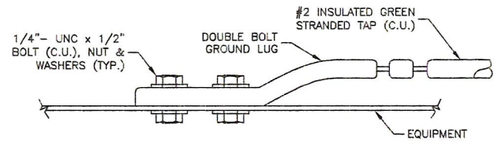


NOTES:

1. DOUBLING UP OR STACKING OF CONNECTIONS IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

TYPICAL GROUND BAR MECHANICAL CONNECTION DETAIL 1

SCALE: N.T.S.

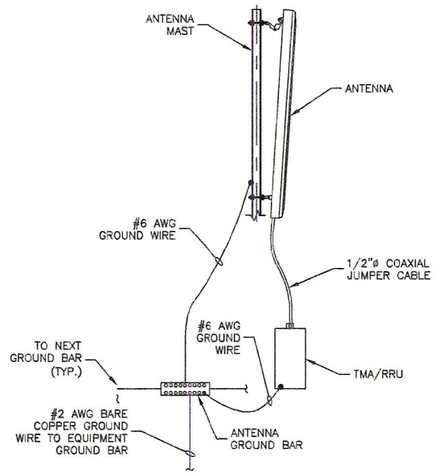


CONNECTION TO EQUIPMENT DETAIL 2

SCALE: N.T.S.

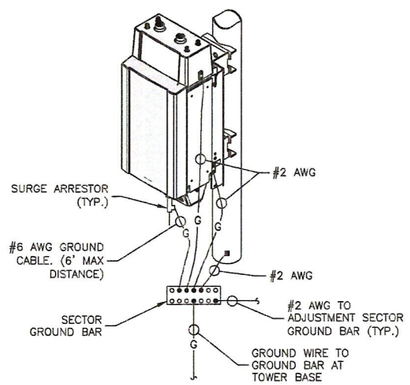
NOTE:

1. GROUND INSTALLATION PER AT&T & EVERSOURCE REQUIREMENTS.



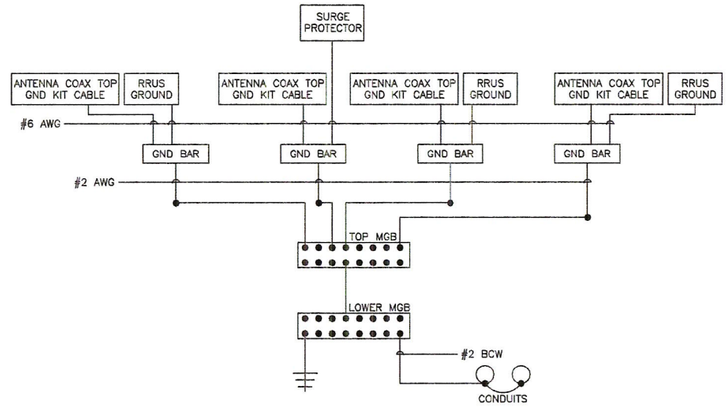
TYPICAL ANTENNA GROUNDING DETAIL 3

SCALE: N.T.S



TYPICAL RRU GROUNDING DETAIL 4

SCALE: N.T.S.



NOTES:

1. BOND ANTENNA GROUNDING KIT CABLE TO TOP CIGBE
2. BOND ANTENNA GROUNDING KIT CABLE TO BOTTOM CIGBE.
3. SCHEMATIC GROUNDING DIAGRAM IS TYPICAL FOR EACH SECTOR.
4. GROUND ALL EQUIPMENT PER MANUFACTURER RECOMMENDATIONS.

SCHEMATIC GROUNDING DIAGRAM 5

SCALE: N.T.S.

at&t

500 ENTERPRISE DRIVE SUITE 3A
ROCKY HILL, CT 06067

SAI

12 INDUSTRIAL WAY
SALEM, NH 03079

CT5089
TRUMBULL SOUTH

CONSTRUCTION DRAWINGS

0	09/26/19	ISSUED AS FINAL
C	07/22/19	REVISED PER COMMENTS
B	05/10/19	REVISED PER COMMENTS
A	03/29/19	ISSUED FOR REVIEW

Dewberry®
Dewberry Engineers Inc.
600 PARSIPPANY ROAD
SUITE 301
PARSIPPANY, NJ 07054
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STATE OF CONNECTICUT
BENJAMIN S. HALEY
28971
LICENSED
PROFESSIONAL ENGINEER

BENJAMIN S. HALEY
CONNECTICUT LICENSE NO. 28971

DRAWN BY:	KE
REVIEWED BY:	BSH
CHECKED BY:	GHN
PROJECT NUMBER:	50055106
JOB NUMBER:	50093845
SITE ADDRESS:	

124 QUARRY ROAD
TRUMBULL, CT 06611

SHEET TITLE

GROUNDING NOTES & DETAILS

SHEET NUMBER

E-1

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

Antenna Mount Analysis

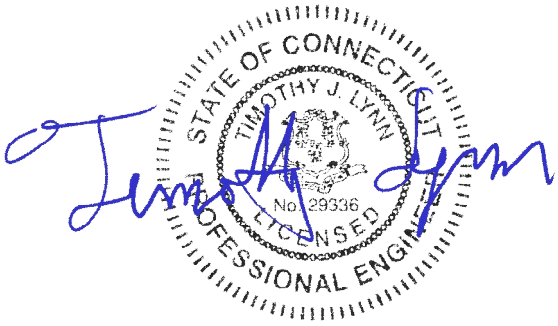
AT&T Site #: CT5090

2891 Nichols Ave
Trumbull, CT

Centek Project No. 19047.00

Date: August 6, 2019

Max Stress Ratio = 53.2%



Prepared for:
AT&T Mobility
500 Enterprise Drive, Suite 3A
Rocky Hill, CT 06067

Table of Contents

CENTEK engineering

Centered on Solutions℠

August 6, 2019

Mr. David Ford
Centerline Communications
95 Ryan Drive, Suite #1
Raynham, MA 02767

Re: Structural Letter ~ Antenna Mount
AT&T– Site Ref: CT5090
2891 Nichols Ave
Trumbull, CT 06611

Centek Project No. 19047.00

Dear Mr. Ford,

Centek Engineering, Inc. has reviewed the AT&T antenna installation at the above referenced site. The purpose of the review is to determine the structural adequacy of the existing mount, consisting one (1)13-ft platform to support the proposed/existing equipment configuration. The review considered the effects of wind load, dead load and ice load in accordance with the 2015 International Building Code as modified by the 2018 Connecticut State Building Code (CTBC) including ASCE 7-10 and ANSI/TIA-222-G *Structural Standards for Steel Antenna Towers and Supporting Structures*.

The loads considered in this analysis consist of the following:

- AT&T:
  Platform: Three (3) Powerwave 7770 panel antennas, three (3) KMW EPBQ-654L8H6L2 panel antennas, six (6) Powerwave LGP17201 TMAs and six (6) Kaelus TMA2117F00V1-1 TMAs mounted on the platform with a RAD center elevation of 101-ft +/- AGL.

The antenna mount was analyzed per the requirements of the 2015 International Building Code as modified by the 2018 Connecticut State Building Code considering a nominal design wind speed of 97 mph for Trumbull as required in Appendix N of the 2018 Connecticut State Building Code.

Based on our review of the installation, it is our opinion that the subject antenna mount with modifications below has sufficient capacity to support the aforementioned antenna configuration.

- Installation of one (1) SitePro handrail kit (P/N HRK14) 2'-0" above existing platform

If there are any questions regarding this matter, please feel free to call.

Respectfully Submitted by:

Timothy J. Lynn, PE
Structural Engineer

STATE OF CONNECTICUT · TIMOTHY J. LYNN · No. 29336 · LICENSED PROFESSIONAL ENGINEER

63-2 North Branford Road, Branford, CT 06405 203.488.0580 Fax 203.488.8587 www.CentekEng.com

Section 2 - Calculations

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject: TIA-222-G Loads

Location: Trumbull, CT

Rev. 0: 8/6/19

Prepared by: T.J.L. Checked by: C.A.G.
Job No. 19047.00

Development of Design Heights, Exposure Coefficients, and Velocity Pressures Per TIA-222-G

Wind Speeds

Basic Wind Speed: $V := 97$ mph (User Input - 2018 CSBC Appendix N)

Basic Wind Speed with Ice: $V_i := 50$ mph (User Input per Annex B of TIA-222-G)

Input

Structure Type = Structure_Type := Pole (User Input)

Structure Category = SC := III (User Input)

Exposure Category = Exp := C (User Input)

Structure Height = $h := 91$ ft (User Input)

Height to Center of Antennas = $z_{Ant} := 101$ ft (User Input)

Radial Ice Thickness = $t_i := 0.75$ in (User Input per Annex B of TIA-222-G)

Radial Ice Density = Id := 56.00 pcf (User Input)

Topograpic Factor = $K_{zt} := 1.0$ (User Input)

$K_a := 1.0$ (User Input)

Gust Response Factor = $G_H = 1.1$ (User Input)

Output

Wind Direction Probability Factor =

$$K_d := \begin{cases} 0.95 & \text{if Structure\_Type = Pole} \\ 0.85 & \text{if Structure\_Type = Lattice} \end{cases} = 0.95$$

(Per Table 2-2 of TIA-222-G)

Importance Factors =

$$I_{Wind} := \begin{cases} 0.87 & \text{if SC = 1} \\ 1.00 & \text{if SC = 2} \\ 1.15 & \text{if SC = 3} \end{cases} = 1.15$$

(Per Table 2-3 of TIA-222-G)

$$I_{Wind\_w\_Ice} := \begin{cases} 0 & \text{if SC = 1} \\ 1.00 & \text{if SC = 2} \\ 1.00 & \text{if SC = 3} \end{cases} = 1$$

$$I_{ice} := \begin{cases} 0 & \text{if SC = 1} \\ 1.00 & \text{if SC = 2} \\ 1.25 & \text{if SC = 3} \end{cases} = 1.25$$

$$K_{iz} := \left(\frac{z_{Ant}}{33}\right)^{0.1} = 1.118$$

$$t_{iz} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 2.097$$

Velocity Pressure Coefficient Antennas =

$$Kz_{Ant} := 2.01\left(\left(\frac{z_{Ant}}{zg}\right)\right)^{\frac{2}{\alpha}} = 1.268$$

Velocity Pressure w/o Ice Antennas =

$$qz_{Ant} := 0.00256 \cdot K_d \cdot Kz_{Ant} \cdot V^2 \cdot I_{Wind} = 33.375$$

Velocity Pressure with Ice Antennas =

$$qz_{ice.Ant} := 0.00256 \cdot K_d \cdot Kz_{Ant} \cdot V_i^2 \cdot I_{Wind} = 8.868$$

CENTEK engineering
Centered on Solutions™ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject:	TIA-222-G Loads
Location:	Trumbull, CT
Rev. 0: 8/6/19	Prepared by: T.J.L. Checked by: C.A.G. Job No. 19047.00

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Powerwave 7770		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 55$	in	(User Input)
Antenna Width =	$W_{ant} := 11$	in	(User Input)
Antenna Thickness =	$T_{ant} := 5$	in	(User Input)
Antenna Weight =	$WT_{ant} := 39$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 5.0$		
Antenna Force Coefficient =	$Ca_{ant} = 1.31$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 4.2$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 202$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 1.9$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 92$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 6.2$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 80$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 3.8$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 48$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 39$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 3025$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 5244$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 170$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 170$	lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	KMW EPBQ-654L8H6L2		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 73$	in	(User Input)
Antenna Width =	$W_{ant} := 21$	in	(User Input)
Antenna Thickness =	$T_{ant} := 6.3$	in	(User Input)
Antenna Weight =	$WT_{ant} := 73$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 3.5$		
Antenna Force Coefficient =	$Ca_{ant} = 1.24$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 10.6$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 486$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 3.2$	sf
Total Antenna Wind Force =	$F_{ant} := qz_{Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 146$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 13.5$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 164$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 5.6$	sf
Total Antenna Wind Force w/ Ice =	$Fi_{ant} := qz_{ice.Ant} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 68$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 73$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 9658$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz})(W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 1 \times 10^4$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 348$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 348$	lbs

Development of Wind & Ice Load on TMAs

TMA Data:

TMA Model =	Powerwave LGP17201		
TMA Shape =	Flat		(User Input)
TMA Height =	$L_{TMA} := 13.9$	in	(User Input)
TMA Width =	$W_{TMA} := 14.4$	in	(User Input)
TMA Thickness =	$T_{TMA} := 3.7$	in	(User Input)
TMA Weight =	$WT_{TMA} := 31$	lbs	(User Input)
Number of TMAs =	$N_{TMA} := 1$		(User Input)
TMA Aspect Ratio =	$Ar_{TMA} := \frac{L_{TMA}}{W_{TMA}} = 1.0$		
TMA Force Coefficient =	$Ca_{TMA} = 1.2$		

Wind Load (without ice)

Surface Area for One TMA =	$SA_{TMAF} := \frac{L_{TMA} \cdot W_{TMA}}{144} = 1.4$	sf
Total TMA Wind Force =	$F_{TMA} := qz_{Ant} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{TMAF} = 61$	lbs
Surface Area for One TMA =	$SA_{TMAS} := \frac{L_{TMA} \cdot T_{TMA}}{144} = 0.4$	sf
Total TMA Wind Force =	$F_{TMA} := qz_{Ant} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{TMAS} = 16$	lbs

Wind Load (with ice)

Surface Area for One TMA w/ Ice =	$SA_{ICETMAF} := \frac{(L_{TMA} + 2 \cdot t_{iz}) \cdot (W_{TMA} + 2 \cdot t_{iz})}{144} = 2.3$	sf
Total TMA Wind Force w/ Ice =	$Fi_{TMA} := qz_{ice.Ant} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{ICETMAF} = 27$	lbs
Surface Area for One TMA w/ Ice =	$SA_{ICETMAS} := \frac{(L_{TMA} + 2 \cdot t_{iz}) \cdot (T_{TMA} + 2 \cdot t_{iz})}{144} = 1$	sf
Total TMA Wind Force w/ Ice =	$Fi_{TMA} := qz_{ice.Ant} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{ICETMAS} = 12$	lbs

Gravity Load (without ice)

Weight of All TMAs =	$WT_{TMA} \cdot N_{TMA} = 31$	lbs

Gravity Loads (ice only)

Volume of Each TMA =	$V_{TMA} := L_{TMA} \cdot W_{TMA} \cdot T_{TMA} = 741$	cu in
Volume of Ice on Each TMA =	$V_{ice} := (L_{TMA} + 2 \cdot t_{iz})(W_{TMA} + 2 \cdot t_{iz}) \cdot (T_{TMA} + 2 \cdot t_{iz}) - V_{TMA} = 1915$	cu in
Weight of Ice on Each TMA =	$W_{ICETMA} := \frac{V_{ice}}{1728} \cdot Id = 62$	lbs
Weight of Ice on All TMAs =	$W_{ICETMA} \cdot N_{TMA} = 62$	lbs

Development of Wind & Ice Load on TMAs

TMA Data:

TMA Model =	Kaelus TMA2117F00/v1-1		
TMA Shape =	Flat		(User Input)
TMA Height =	$L_{TMA} := 8.46$	in	(User Input)
TMA Width =	$W_{TMA} := 11.81$	in	(User Input)
TMA Thickness =	$T_{TMA} := 4.21$	in	(User Input)
TMA Weight =	$WT_{TMA} := 20$	lbs	(User Input)
Number of TMAs =	$N_{TMA} := 1$		(User Input)
TMA Aspect Ratio =	$Ar_{TMA} := \frac{L_{TMA}}{W_{TMA}} = 0.7$		
TMA Force Coefficient =	$Ca_{TMA} = 1.2$		

Wind Load (without ice)

Surface Area for One TMA=	$SA_{TMAF} := \frac{L_{TMA} \cdot W_{TMA}}{144} = 0.7$	sf
Total TMA Wind Force =	$F_{TMA} := qz_{Ant} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{TMAF} = 31$	lbs
Surface Area for One TMA=	$SA_{TMAS} := \frac{L_{TMA} \cdot T_{TMA}}{144} = 0.2$	sf
Total TMA Wind Force =	$F_{TMA} := qz_{Ant} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{TMAS} = 11$	lbs

Wind Load (with ice)

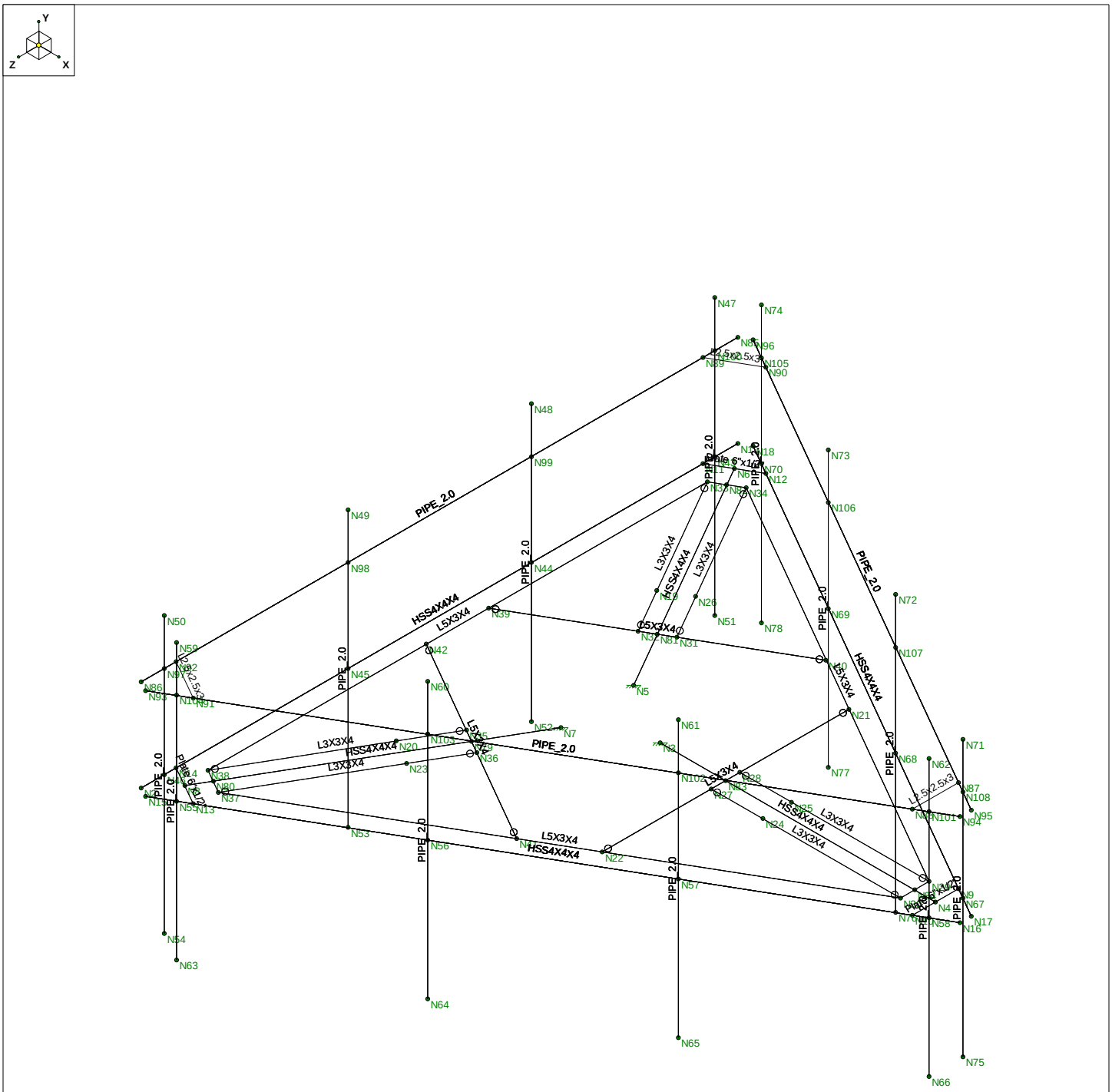
Surface Area for One TMA w/ Ice =	$SA_{ICETMAF} := \frac{(L_{TMA} + 2 \cdot t_{iz}) \cdot (W_{TMA} + 2 \cdot t_{iz})}{144} = 1.4$	sf
Total TMA Wind Force w/ Ice =	$Fi_{TMA} := qz_{ice.Ant} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{ICETMAF} = 16$	lbs
Surface Area for One TMA w/ Ice =	$SA_{ICETMAS} := \frac{(L_{TMA} + 2 \cdot t_{iz}) \cdot (T_{TMA} + 2 \cdot t_{iz})}{144} = 0.7$	sf
Total TMA Wind Force w/ Ice =	$Fi_{TMA} := qz_{ice.Ant} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{ICETMAS} = 9$	lbs

Gravity Load (without ice)

Weight of All TMAs =	$WT_{TMA} \cdot N_{TMA} = 20$	lbs

Gravity Loads (ice only)

Volume of Each TMA=	$V_{TMA} := L_{TMA} \cdot W_{TMA} \cdot T_{TMA} = 421$	cu in
Volume of Ice on Each TMA=	$V_{ice} := (L_{TMA} + 2 \cdot t_{iz})(W_{TMA} + 2 \cdot t_{iz}) \cdot (T_{TMA} + 2 \cdot t_{iz}) - V_{TMA} = 1281$	cu in
Weight of Ice on Each TMA =	$W_{ICETMA} := \frac{V_{ice}}{1728} \cdot Id = 42$	lbs
Weight of Ice on All TMAs =	$W_{ICETMA} \cdot N_{TMA} = 42$	lbs



Envelope Only Solution

Centek		
TJL	CT5090 - Mount	Aug 6, 2019 at 9:34 AM
19047.00	Member Framing	Mount.R3D

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI S100-12: ASD
Wood Code	AWC NDS-15: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-14
Masonry Code	ACI 530-13: ASD
Aluminum Code	AA ADM1-15: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	Yes
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1
Footing Overturning Safety Factor	1
Optimize for OTM/Sliding	No
Check Concrete Bearing	No
Footing Concrete Weight (k/ft^3)	.145
Footing Concrete f'c (ksi)	4
Footing Concrete Ec (ksi)	3644
Lambda	1
Footing Steel fy (ksi)	60
Minimum Steel	0.0018
Maximum Steel	0.0075
Footing Top Bar	#6
Footing Top Bar Cover (in)	1.5
Footing Bottom Bar	#6
Footing Bottom Bar Cover (in)	3
Pedestal Bar	#6
Pedestal Bar Cover (in)	1.5
Pedestal Ties	#4

Hot Rolled Steel Properties

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

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Horz	HSS4X4X4	Beam	None	A500 Gr.B ...	Typical	3.37	7.8	7.8	12.8
2	Outrigger	HSS4X4X4	Beam	None	A500 Gr.B ...	Typical	3.37	7.8	7.8	12.8
3	Plate	Plate 6"x1/2"	Beam	None	A36 Gr.36	Typical	3	.063	9	.237
4	Antenna Mast	PIPE_2.0	Column	Wide Flange	A53 Gr.B	Typical	1.02	.627	.627	1.25
5	Handrail	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
6	Handrail Corner	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical	.901	.535	.535	.011
7	Grating Support 1	L5X3X4	Beam	Single Angle	A36 Gr.36	Typical	1.94	1.41	5.09	.044
8	Grating Support 2	L3X3X4	Beam	Single Angle	A36 Gr.36	Typical	1.44	1.23	1.23	.031

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	Horz	13			Lbyy						Lateral
2	M2	Horz	13			Lbyy						Lateral
3	M3	Horz	13			Lbyy						Lateral
4	M4	Plate	1			Lbyy						Lateral
5	M5	Plate	1			Lbyy						Lateral
6	M6	Plate	1			Lbyy						Lateral
7	M7	Outrigger	6			Lbyy						Lateral
8	M8	Outrigger	6			Lbyy						Lateral
9	M9	Outrigger	6			Lbyy						Lateral
10	M10	Grating Sup...	10.882			Lbyy						Lateral
11	M11	Grating Sup...	10.882			Lbyy						Lateral
12	M12	Grating Sup...	10.882			Lbyy						Lateral
13	M13	Grating Sup...	5.381			Lbyy						Lateral
14	M14	Grating Sup...	5.381			Lbyy						Lateral
15	M15	Grating Sup...	5.381			Lbyy						Lateral
16	M16	Grating Sup...	4.124			Lbyy						Lateral
17	M17	Grating Sup...	4.124			Lbyy						Lateral
18	M18	Grating Sup...	4.124			Lbyy						Lateral
19	M19	Grating Sup...	4.124			Lbyy						Lateral
20	M20	Grating Sup...	4.124			Lbyy						Lateral
21	M21	Grating Sup...	4.124			Lbyy						Lateral
22	M25	Antenna Mast	6									Lateral
23	M26	Antenna Mast	6									Lateral
24	M27	Antenna Mast	6									Lateral
25	M28	Antenna Mast	6									Lateral
26	M29	Antenna Mast	6									Lateral
27	M30	Antenna Mast	6									Lateral
28	M31	Antenna Mast	6									Lateral
29	M32	Antenna Mast	6									Lateral
30	M33	Antenna Mast	6									Lateral
31	M34	Antenna Mast	6									Lateral
32	M35	Antenna Mast	6									Lateral
33	M36	Antenna Mast	6									Lateral
34	M37	Handrail	13			Lbyy						Lateral
35	M38	Handrail	13			Lbyy						Lateral
36	M39	Handrail	13			Lbyy						Lateral
37	M40	Handrail Co...	1			Lbyy						Lateral
38	M41	Handrail Co...	1			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
39	M42	Handrail Co...	1			Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rul...
1	M1	N15	N16			Horz	Beam	None	A500 Gr....	Typical
2	M2	N2	N1			Horz	Beam	None	A500 Gr....	Typical
3	M3	N18	N17			Horz	Beam	None	A500 Gr....	Typical
4	M4	N13	N14			Plate	Beam	None	A36 Gr.36	Typical
5	M5	N11	N12			Plate	Beam	None	A36 Gr.36	Typical
6	M6	N10	N9			Plate	Beam	None	A36 Gr.36	Typical
7	M7	N8	N7			Outrigger	Beam	None	A500 Gr....	Typical
8	M8	N6	N5			Outrigger	Beam	None	A500 Gr....	Typical
9	M9	N4	N3			Outrigger	Beam	None	A500 Gr....	Typical
10	M10	N38	N33			Grating Support 1	Beam	Single Angle	A36 Gr.36	Typical
11	M11	N34	N29			Grating Support 1	Beam	Single Angle	A36 Gr.36	Typical
12	M12	N30	N37			Grating Support 1	Beam	Single Angle	A36 Gr.36	Typical
13	M13	N42	N41		90	Grating Support 1	Beam	Single Angle	A36 Gr.36	Typical
14	M14	N40	N39		90	Grating Support 1	Beam	Single Angle	A36 Gr.36	Typical
15	M15	N22	N21		90	Grating Support 1	Beam	Single Angle	A36 Gr.36	Typical
16	M16	N38	N35		270	Grating Support 2	Beam	Single Angle	A36 Gr.36	Typical
17	M17	N37	N36			Grating Support 2	Beam	Single Angle	A36 Gr.36	Typical
18	M18	N27	N30			Grating Support 2	Beam	Single Angle	A36 Gr.36	Typical
19	M19	N28	N29		270	Grating Support 2	Beam	Single Angle	A36 Gr.36	Typical
20	M20	N31	N34			Grating Support 2	Beam	Single Angle	A36 Gr.36	Typical
21	M21	N32	N33		270	Grating Support 2	Beam	Single Angle	A36 Gr.36	Typical
22	M22	N30	N29			RIGID	None	None	RIGID	Typical
23	M23	N37	N38			RIGID	None	None	RIGID	Typical
24	M24	N34	N33			RIGID	None	None	RIGID	Typical
25	M25	N54	N50			Antenna Mast	Column	Wide Flange	A53 Gr.B	Typical
26	M26	N53	N49			Antenna Mast	Column	Wide Flange	A53 Gr.B	Typical
27	M27	N52	N48			Antenna Mast	Column	Wide Flange	A53 Gr.B	Typical
28	M28	N51	N47			Antenna Mast	Column	Wide Flange	A53 Gr.B	Typical
29	M29	N66	N62			Antenna Mast	Column	Wide Flange	A53 Gr.B	Typical
30	M30	N65	N61			Antenna Mast	Column	Wide Flange	A53 Gr.B	Typical
31	M31	N64	N60			Antenna Mast	Column	Wide Flange	A53 Gr.B	Typical
32	M32	N63	N59			Antenna Mast	Column	Wide Flange	A53 Gr.B	Typical
33	M33	N78	N74			Antenna Mast	Column	Wide Flange	A53 Gr.B	Typical
34	M34	N77	N73			Antenna Mast	Column	Wide Flange	A53 Gr.B	Typical
35	M35	N76	N72			Antenna Mast	Column	Wide Flange	A53 Gr.B	Typical
36	M36	N75	N71			Antenna Mast	Column	Wide Flange	A53 Gr.B	Typical
37	M37	N93	N94			Handrail	Beam	None	A53 Gr.B	Typical
38	M38	N86	N85			Handrail	Beam	None	A53 Gr.B	Typical
39	M39	N96	N95			Handrail	Beam	None	A53 Gr.B	Typical
40	M40	N91	N92			Handrail Corner	Beam	None	A36 Gr.36	Typical
41	M41	N89	N90			Handrail Corner	Beam	None	A36 Gr.36	Typical
42	M42	N88	N87			Handrail Corner	Beam	None	A36 Gr.36	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
1	N1	-3.891346	0	-6.5	0	
2	N2	-3.891346	0	6.5	0	
3	N3	0.916667	0	0	0	
4	N4	6.916667	0	0	0	
5	N5	-0.458333	0	-0.793857	0	
6	N6	-3.458333	0	-5.990009	0	
7	N7	-0.458333	0	0.793857	0	
8	N8	-3.458333	0	5.990009	0	
9	N9	6.916667	0	-0.5	0	
10	N10	6.916667	0	0.5	0	
11	N11	-3.891346	0	-5.740009	0	
12	N12	-3.02532	0	-6.240009	0	
13	N13	-3.02532	0	6.240009	0	
14	N14	-3.891346	0	5.740009	0	
15	N15	-3.683492	0	6.620005	0	
16	N16	7.574838	0	0.120005	0	
17	N17	7.574838	0	-0.120005	0	
18	N18	-3.683492	0	-6.620005	0	
19	N19	-1.999101	0	-2.842895	0	
20	N20	-1.999101	0	2.842895	0	
21	N21	2.337844	0	-2.690659	0	
22	N22	2.337844	0	2.690659	0	
23	N23	-1.462469	0	3.152719	0	
24	N24	3.461569	0	0.309825	0	
25	N25	3.461569	0	-0.309825	0	
26	N26	-1.462469	0	-3.152719	0	
27	N27	2.337844	0	0.309825	0	
28	N28	2.337844	0	-0.309825	0	
29	N29	6.461569	0	-0.309825	0	
30	N30	6.461569	0	0.309825	0	
31	N31	-0.900606	0	-2.179545	0	
32	N32	-1.437238	0	-1.86972	0	
33	N33	-3.499101	0	-5.440971	0	
34	N34	-2.962469	0	-5.750796	0	
35	N35	-1.437238	0	1.86972	0	
36	N36	-0.900606	0	2.179545	0	
37	N37	-2.962469	0	5.750796	0	
38	N38	-3.499101	0	5.440971	0	
39	N39	-3.499101	0	-0.679303	0	
40	N40	1.161256	0	-3.369962	0	
41	N41	1.161256	0	3.369962	0	
42	N42	-3.499101	0	0.679303	0	
43	N43	-3.891346	0	-6	0	
44	N44	-3.891346	0	-2	0	
45	N45	-3.891346	0	2	0	
46	N46	-3.891346	0	6	0	
47	N47	-3.891346	3	-6	0	
48	N48	-3.891346	3	-2	0	
49	N49	-3.891346	3	2	0	
50	N50	-3.891346	3	6	0	
51	N51	-3.891346	-3	-6	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
52	N52	-3.891346	-3	-2	0	
53	N53	-3.891346	-3	2	0	
54	N54	-3.891346	-3	6	0	
55	N55	-3.250479	0	6.370004	0	
56	N56	0.213622	0	4.370004	0	
57	N57	3.677724	0	2.370004	0	
58	N58	7.141825	0	0.370004	0	
59	N59	-3.250479	3	6.370004	0	
60	N60	0.213622	3	4.370004	0	
61	N61	3.677724	3	2.370004	0	
62	N62	7.141825	3	0.370004	0	
63	N63	-3.250479	-3	6.370004	0	
64	N64	0.213622	-3	4.370004	0	
65	N65	3.677724	-3	2.370004	0	
66	N66	7.141825	-3	0.370004	0	
67	N67	7.141825	0	-0.370004	0	
68	N68	3.677724	0	-2.370004	0	
69	N69	0.213622	0	-4.370004	0	
70	N70	-3.250479	0	-6.370004	0	
71	N71	7.141825	3	-0.370004	0	
72	N72	3.677724	3	-2.370004	0	
73	N73	0.213622	3	-4.370004	0	
74	N74	-3.250479	3	-6.370004	0	
75	N75	7.141825	-3	-0.370004	0	
76	N76	3.677724	-3	-2.370004	0	
77	N77	0.213622	-3	-4.370004	0	
78	N78	-3.250479	-3	-6.370004	0	
79	N79	-1.168922	0	2.024633	0	
80	N80	-3.230785	0	5.595884	0	
81	N81	-1.168922	0	-2.024633	0	
82	N82	-3.230785	0	-5.595884	0	
83	N83	2.337844	0	0	0	
84	N84	6.461569	0	0	0	
85	N85	-3.891346	2	-6.5	0	
86	N86	-3.891346	2	6.5	0	
87	N87	6.916667	2	-0.5	0	
88	N88	6.916667	2	0.5	0	
89	N89	-3.891346	2	-5.740009	0	
90	N90	-3.02532	2	-6.240009	0	
91	N91	-3.02532	2	6.240009	0	
92	N92	-3.891346	2	5.740009	0	
93	N93	-3.683492	2	6.620005	0	
94	N94	7.574838	2	0.120005	0	
95	N95	7.574838	2	-0.120005	0	
96	N96	-3.683492	2	-6.620005	0	
97	N97	-3.891346	2	6	0	
98	N98	-3.891346	2	2	0	
99	N99	-3.891346	2	-2	0	
100	N100	-3.891346	2	-6	0	
101	N101	7.141825	2	0.370004	0	
102	N102	3.677724	2	2.370004	0	
103	N103	0.213622	2	4.370004	0	

Joint Coordinates and Temperatures (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Dia...
104	N104	-3.250479	2	6.370004	0	
105	N105	-3.250479	2	-6.370004	0	
106	N106	0.213622	2	-4.370004	0	
107	N107	3.677724	2	-2.370004	0	
108	N108	7.141825	2	-0.370004	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N3	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N5	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N7	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Point Loads (BLC 2 : Dead Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M25	Y	-.02	.5
2	M29	Y	-.02	.5
3	M33	Y	-.02	.5
4	M25	Y	-.02	5.5
5	M29	Y	-.02	5.5
6	M33	Y	-.02	5.5
7	M28	Y	-.037	.5
8	M32	Y	-.037	.5
9	M36	Y	-.037	.5
10	M28	Y	-.037	5.5
11	M32	Y	-.037	5.5
12	M36	Y	-.037	5.5
13	M25	Y	-.031	4.5
14	M29	Y	-.031	4.5
15	M33	Y	-.031	4.5
16	M28	Y	-.04	4.5
17	M32	Y	-.04	4.5
18	M36	Y	-.04	4.5

Member Point Loads (BLC 3 : Ice Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M25	Y	-.085	.5
2	M29	Y	-.085	.5
3	M33	Y	-.085	.5
4	M25	Y	-.085	5.5
5	M29	Y	-.085	5.5
6	M33	Y	-.085	5.5
7	M28	Y	-.174	.5
8	M32	Y	-.174	.5
9	M36	Y	-.174	.5
10	M28	Y	-.174	5.5
11	M32	Y	-.174	5.5
12	M36	Y	-.174	5.5
13	M25	Y	-.062	4.5

Member Point Loads (BLC 3 : Ice Load) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
14	M29	Y	-.062	4.5
15	M33	Y	-.062	4.5
16	M28	Y	-.084	4.5
17	M32	Y	-.084	4.5
18	M36	Y	-.084	4.5

Member Point Loads (BLC 4 : Wind with Ice X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M25	X	.04	.5
2	M25	X	.04	5.5
3	M29	X	.024	.5
4	M33	X	.024	.5
5	M29	X	.024	5.5
6	M33	X	.024	5.5
7	M28	X	.082	.5
8	M28	X	.082	5.5
9	M32	X	.034	.5
10	M36	X	.034	.5
11	M32	X	.034	5.5
12	M36	X	.034	5.5
13	M29	X	.012	4.5
14	M33	X	.012	4.5
15	M32	X	.009	4.5
16	M36	X	.009	4.5

Member Point Loads (BLC 5 : Wind X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M25	X	.101	.5
2	M25	X	.101	5.5
3	M29	X	.046	0
4	M33	X	.046	0
5	M29	X	.046	5
6	M33	X	.046	5
7	M28	X	.243	.5
8	M28	X	.243	5.5
9	M32	X	.073	.5
10	M36	X	.073	.5
11	M32	X	.073	5.5
12	M36	X	.073	5.5
13	M29	X	.016	4.5
14	M33	X	.016	4.5
15	M32	X	.011	4.5
16	M36	X	.011	4.5

Member Point Loads (BLC 6 : Wind with Ice Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M25	Z	.024	.5
2	M25	Z	.024	5.5
3	M29	Z	.04	.5
4	M33	Z	.04	.5

Member Point Loads (BLC 6 : Wind with Ice Z) (Continued)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
5	M29	Z	.04	5.5
6	M33	Z	.04	5.5
7	M28	Z	.034	.5
8	M28	Z	.034	5.5
9	M32	Z	.082	.5
10	M36	Z	.082	.5
11	M32	Z	.082	5.5
12	M36	Z	.082	5.5
13	M25	Z	.012	4.5
14	M28	Z	.009	4.5

Member Point Loads (BLC 7 : Wind Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M25	Z	.046	.5
2	M25	Z	.046	5.5
3	M29	Z	.101	.5
4	M33	Z	.101	.5
5	M29	Z	.101	5.5
6	M33	Z	.101	5.5
7	M28	Z	.073	.5
8	M28	Z	.073	5.5
9	M32	Z	.243	.5
10	M36	Z	.243	.5
11	M32	Z	.243	5.5
12	M36	Z	.243	5.5
13	M25	Z	.016	4.5
14	M28	Z	.011	4.5

Member Distributed Loads (BLC 4 : Wind with Ice X)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M38	X	.002	.002	0	0
2	M26	X	.002	.002	0	0
3	M27	X	.002	.002	0	0
4	M32	X	.002	.002	0	0
5	M31	X	.002	.002	0	0
6	M30	X	.002	.002	0	0
7	M29	X	.002	.002	0	0
8	M36	X	.002	.002	0	0
9	M35	X	.002	.002	0	0
10	M34	X	.002	.002	0	0
11	M33	X	.002	.002	0	0
12	M39	X	.002	.002	0	0
13	M37	X	.002	.002	0	0
14	M2	X	.004	.004	0	0

Member Distributed Loads (BLC 5 : Wind X)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M38	X	.007	.007	0	0
2	M26	X	.007	.007	0	0

Member Distributed Loads (BLC 5 : Wind X) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
3	M27	X	.007	.007	0	0
4	M32	X	.007	.007	0	0
5	M31	X	.007	.007	0	0
6	M30	X	.007	.007	0	0
7	M29	X	.007	.007	0	0
8	M36	X	.007	.007	0	0
9	M35	X	.007	.007	0	0
10	M34	X	.007	.007	0	0
11	M33	X	.007	.007	0	0
12	M39	X	.007	.007	0	0
13	M37	X	.007	.007	0	0
14	M2	X	.011	.011	0	0

Member Distributed Loads (BLC 6 : Wind with Ice Z)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M27	Z	.002	.002	0	0
2	M26	Z	.002	.002	0	0
3	M39	Z	.002	.002	0	0
4	M37	Z	.002	.002	0	0
5	M31	Z	.002	.002	0	0
6	M30	Z	.002	.002	0	0
7	M35	Z	.002	.002	0	0
8	M34	Z	.002	.002	0	0
9	M28	Z	.002	.002	0	0
10	M25	Z	.002	.002	0	0
11	M3	Z	.004	.004	0	0

Member Distributed Loads (BLC 7 : Wind Z)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M27	Z	.007	.007	0	0
2	M26	Z	.007	.007	0	0
3	M39	Z	.007	.007	0	0
4	M37	Z	.007	.007	0	0
5	M31	Z	.007	.007	0	0
6	M30	Z	.007	.007	0	0
7	M35	Z	.007	.007	0	0
8	M34	Z	.007	.007	0	0
9	M28	Z	.007	.007	0	0
10	M25	Z	.007	.007	0	0
11	M3	Z	.011	.011	0	0

Member Distributed Loads (BLC 8 : BLC 2 Transient Area Loads)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
1	M10	Y	-.002	-.003	0	2.176
2	M10	Y	-.003	-.003	2.176	4.353
3	M10	Y	-.003	-.003	4.353	6.529
4	M10	Y	-.003	-.003	6.529	8.706
5	M10	Y	-.003	-.002	8.706	10.882
6	M13	Y	-.012	-.008	0	1.076
7	M13	Y	-.008	-.005	1.076	2.153

Member Distributed Loads (BLC 8 : BLC 2 Transient Area Loads) (Continued)

	Member Label	Direction	Start Magnitude[k/ft,...	End Magnitude[k/ft,F...	Start Location[ft,%]	End Location[ft,%]
8	M14	Y	-.006	-.01	3.229	4.305
9	M14	Y	-.01	-.014	4.305	5.381
10	M16	Y	-.001	-.004	.412	2.268
11	M16	Y	-.004	-.006	2.268	4.124
12	M21	Y	-.006	-.004	0	1.856
13	M21	Y	-.004	-.001	1.856	3.711
14	M12	Y	-.002	-.003	0	2.176
15	M12	Y	-.003	-.003	2.176	4.353
16	M12	Y	-.003	-.003	4.353	6.529
17	M12	Y	-.003	-.003	6.529	8.706
18	M12	Y	-.003	-.002	8.706	10.882
19	M13	Y	-.006	-.01	3.229	4.305
20	M13	Y	-.01	-.014	4.305	5.381
21	M15	Y	-.012	-.008	0	1.076
22	M15	Y	-.008	-.005	1.076	2.153
23	M17	Y	-.001	-.004	.412	2.268
24	M17	Y	-.004	-.006	2.268	4.124
25	M18	Y	-.006	-.004	0	1.856
26	M18	Y	-.004	-.001	1.856	3.711
27	M11	Y	-.002	-.003	0	2.176
28	M11	Y	-.003	-.003	2.176	4.353
29	M11	Y	-.003	-.003	4.353	6.529
30	M11	Y	-.003	-.003	6.529	8.706
31	M11	Y	-.003	-.002	8.706	10.882
32	M14	Y	-.014	-.01	0	1.076
33	M14	Y	-.01	-.006	1.076	2.153
34	M15	Y	-.005	-.008	3.229	4.305
35	M15	Y	-.008	-.012	4.305	5.381
36	M19	Y	-.006	-.004	0	1.856
37	M19	Y	-.004	-.001	1.856	3.711
38	M20	Y	-.006	-.004	0	1.856
39	M20	Y	-.004	-.001	1.856	3.711

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribu...	Area(M...	Surface...
1	Self Weight	None		-1						
2	Dead Load	None					18		3	
3	Ice Load	None					18			
4	Wind with Ice X	None					16	14		
5	Wind X	None					16	14		
6	Wind with Ice Z	None					14	11		
7	Wind Z	None					14	11		
8	BLC 2 Transient Area Loads	None						39		

Load Combinations

	Description	Solve	PDe...	S...	B...	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.2D + 1.6W (X-dire...	Yes	Y		1	1.2	2	1.2	5	1.6														
2	0.9D + 1.6W (X-dire...	Yes	Y		1	.9	2	.9	5	1.6														
3	1.2D + 1.0Di + 1.0...	Yes	Y		1	1.2	2	1.2	3	1	4	1												

Load Combinations (Continued)

	Description	Solve	PDe...	S...	B...	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
4	1.2D + 1.6W (Z-dire...	Yes	Y		1	1.2	2	1.2	7	1.6														
5	0.9D + 1.6W (Z-dire...	Yes	Y		1	.9	2	.9	7	1.6														
6	1.2D + 1.0Di + 1.0...	Yes	Y		1	1.2	2	1.2	3	1	6	1												

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N3	max	.437	6	1.656	3	-.048	3	.009	6	.812	5	5.373	3
2		min	-1.971	2	.727	5	-.454	5	-.03	5	.088	3	2.198	5
3	N5	max	-.395	3	1.624	3	-.562	3	4.536	3	.63	4	-.981	2
4		min	-1.453	4	.664	5	-1.801	4	1.627	5	.104	6	-2.63	6
5	N7	max	1.257	5	1.647	6	1.225	1	-1.741	2	.619	4	-.917	2
6		min	-.442	1	.678	2	-1.485	5	-4.617	6	.067	3	-2.656	6
7	Totals:	max	0	6	4.902	3	0	2						
8		min	-3.286	1	2.182	5	-3.683	4						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotatio...	LC	Z Rotatio...	LC
1	N1	max	.03	4	-.154	5	-.001	6	7.639e-05	5	1.054e-03	2	4.761e-04	3
2		min	.004	3	-.462	3	-.013	1	-4.145e-04	3	-2.917e-04	4	1.97e-04	5
3	N2	max	-.005	3	-.158	2	-.001	6	3.452e-04	6	-5.392e-05	6	1.986e-04	6
4		min	-.03	4	-.468	6	-.013	2	-3.681e-05	1	-1.692e-03	2	-3.125e-04	2
5	N3	max	0	6	0	6	0	6	0	6	0	6	0	6
6		min	0	1	0	1	0	1	0	1	0	1	0	1
7	N4	max	.001	2	-.184	5	.042	4	1.654e-04	5	-7.133e-05	3	-3.122e-03	5
8		min	0	6	-.47	3	.004	3	-8.e-05	3	-7.979e-04	5	-8.228e-03	3
9	N5	max	0	6	0	6	0	6	0	6	0	6	0	6
10		min	0	1	0	1	0	1	0	1	0	1	0	1
11	N6	max	.027	1	-.154	5	-.002	6	-2.148e-03	5	-7.221e-05	6	4.092e-03	6
12		min	.004	6	-.457	3	-.015	2	-6.893e-03	3	-5.718e-04	2	1.353e-03	2
13	N7	max	0	6	0	6	0	6	0	6	0	6	0	6
14		min	0	1	0	1	0	1	0	1	0	1	0	1
15	N8	max	-.002	3	-.16	2	-.002	3	7.081e-03	6	-3.137e-05	3	4.005e-03	6
16		min	-.026	4	-.465	6	-.013	4	2.524e-03	2	-4.672e-04	4	1.032e-03	2
17	N9	max	.01	2	-.183	5	.042	4	1.02e-05	5	6.138e-04	5	2.382e-04	5
18		min	0	6	-.471	3	.004	3	-1.833e-04	6	-8.669e-04	1	-5.652e-04	3
19	N10	max	.006	1	-.185	5	.042	4	2.546e-04	4	2.839e-04	5	-1.877e-04	4
20		min	-.004	5	-.47	3	.004	3	7.869e-06	3	3.641e-05	3	-4.932e-04	3
21	N11	max	.028	1	-.155	5	-.001	6	1.135e-04	5	1.072e-03	2	4.578e-04	3
22		min	.005	6	-.458	3	-.013	1	-4.153e-04	3	-2.874e-04	4	1.959e-04	5
23	N12	max	.031	4	-.153	5	0	6	2.548e-04	5	9.114e-05	1	2.068e-04	6
24		min	.005	6	-.457	3	-.01	1	-3.524e-04	3	-1.708e-03	5	-1.462e-04	1
25	N13	max	-.002	3	-.163	2	0	6	5.975e-04	3	-9.529e-05	3	7.862e-05	6
26		min	-.031	4	-.466	6	-.01	1	-6.91e-04	5	-1.254e-03	4	-3.295e-04	1
27	N14	max	-.002	3	-.158	2	-.001	6	3.503e-04	6	-5.364e-05	6	2.111e-04	6
28		min	-.027	4	-.465	6	-.013	2	-3.535e-05	1	-1.703e-03	2	-3.579e-04	2
29	N15	max	-.003	3	-.162	2	-.002	6	5.874e-04	3	-9.576e-05	3	9.529e-05	6
30		min	-.037	4	-.468	6	-.015	1	-8.4e-04	5	-1.242e-03	4	-2.91e-04	1
31	N16	max	.005	1	-.186	5	.04	4	2.342e-04	4	2.756e-04	5	-2.139e-04	4
32		min	-.006	5	-.474	3	.004	3	-1.194e-06	3	3.517e-05	3	-4.833e-04	3

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotatio...	LC	Z Rotatio...	LC
33	N17	max	.006	2	-.18	5	.037	4	2.172e-06	2	5.951e-04	5	2.417e-04	5
34		min	0	6	-.475	3	.006	3	-2.002e-04	6	-8.606e-04	1	-5.518e-04	3
35	N18	max	.039	5	-.152	5	-.002	3	2.037e-04	5	8.963e-05	1	2.097e-04	6
36		min	.006	3	-.46	3	-.019	4	-3.486e-04	3	-1.7e-03	5	-1.374e-04	1
37	N19	max	.01	4	-.053	5	-.002	6	-2.037e-03	5	-1.602e-04	6	4.449e-03	6
38		min	.003	6	-.149	3	-.007	1	-6.149e-03	3	-5.498e-04	1	1.606e-03	2
39	N20	max	0	3	-.054	2	0	3	6.27e-03	6	4.101e-05	3	4.464e-03	6
40		min	-.008	5	-.152	6	-.006	5	2.264e-03	2	-3.794e-04	5	1.432e-03	2
41	N21	max	.018	4	-.059	5	.006	5	-1.083e-03	5	3.14e-04	4	-1.617e-03	5
42		min	.003	3	-.147	3	0	3	-3.639e-03	3	7.333e-05	6	-3.769e-03	3
43	N22	max	-.001	3	-.063	5	.006	4	3.731e-03	6	2.772e-04	5	-1.268e-03	5
44		min	-.018	5	-.147	3	0	3	1.529e-03	2	-6.889e-06	3	-3.689e-03	3
45	N23	max	-.002	3	-.055	2	-.001	6	7.035e-03	6	-1.312e-04	3	3.153e-03	6
46		min	-.012	4	-.152	6	-.004	4	2.598e-03	2	-5.29e-04	4	9.105e-04	2
47	N24	max	0	3	-.062	5	.013	5	7.352e-04	3	2.114e-05	3	-3.08e-03	5
48		min	-.002	4	-.153	3	0	3	3.826e-04	2	-5.635e-04	5	-7.74e-03	3
49	N25	max	.002	2	-.061	5	.016	4	-2.598e-04	5	-1.507e-04	3	-3.064e-03	5
50		min	0	6	-.153	3	.003	3	-7.879e-04	3	-7.143e-04	4	-7.749e-03	3
51	N26	max	.01	5	-.052	5	0	6	-2.322e-03	5	1.216e-05	6	3.151e-03	6
52		min	0	6	-.149	3	-.003	2	-6.888e-03	3	-3.986e-04	2	1.081e-03	2
53	N27	max	0	3	-.02	5	.006	5	1.035e-03	3	-3.259e-05	3	-1.832e-03	5
54		min	-.002	4	-.048	3	0	3	4.866e-04	5	-5.49e-04	5	-4.628e-03	3
55	N28	max	.002	5	-.019	5	.006	5	-4.079e-04	5	-9.513e-05	3	-1.872e-03	5
56		min	0	6	-.048	3	0	3	-1.058e-03	3	-5.773e-04	4	-4.637e-03	3
57	N29	max	.003	2	-.166	5	.037	4	1.354e-04	5	-7.281e-05	3	-3.168e-03	5
58		min	0	6	-.424	3	.004	3	-6.597e-05	3	-6.321e-04	4	-8.328e-03	3
59	N30	max	0	3	-.167	5	.037	4	1.354e-04	5	-7.281e-05	3	-3.168e-03	5
60		min	-.002	4	-.424	3	.004	3	-6.597e-05	3	-6.321e-04	4	-8.328e-03	3
61	N31	max	.005	4	-.016	5	0	6	-1.488e-03	5	-6.094e-05	3	1.381e-03	6
62		min	0	6	-.047	3	0	2	-4.409e-03	3	-4.81e-04	5	4.207e-04	2
63	N32	max	.004	4	-.017	5	0	6	-1.114e-03	5	-8.887e-05	6	3.162e-03	6
64		min	0	6	-.047	3	-.003	2	-3.394e-03	3	-4.265e-04	4	1.162e-03	2
65	N33	max	.023	1	-.14	5	-.002	6	-2.188e-03	5	-8.685e-05	3	4.125e-03	6
66		min	.004	6	-.413	3	-.015	2	-6.984e-03	3	-5.082e-04	4	1.378e-03	2
67	N34	max	.025	4	-.139	5	-.002	6	-2.188e-03	5	-8.685e-05	3	4.125e-03	6
68		min	.004	6	-.412	3	-.012	2	-6.984e-03	3	-5.082e-04	4	1.378e-03	2
69	N35	max	0	3	-.017	2	0	3	3.455e-03	6	-3.511e-05	3	3.181e-03	6
70		min	-.004	5	-.048	6	-.003	4	1.258e-03	2	-3.962e-04	5	1.039e-03	2
71	N36	max	0	3	-.018	2	0	6	4.506e-03	6	-6.78e-05	3	1.379e-03	6
72		min	-.005	5	-.048	6	0	1	1.71e-03	2	-5.087e-04	4	3.182e-04	2
73	N37	max	-.002	3	-.146	2	-.001	3	7.163e-03	6	-5.873e-05	3	4.066e-03	6
74		min	-.025	4	-.42	6	-.011	4	2.537e-03	2	-5.133e-04	4	1.089e-03	2
75	N38	max	-.002	3	-.144	2	-.002	3	7.163e-03	6	-5.873e-05	3	4.066e-03	6
76		min	-.023	4	-.42	6	-.014	4	2.537e-03	2	-5.133e-04	4	1.089e-03	2
77	N39	max	0	3	-.055	2	-.002	6	-3.13e-04	5	1.898e-04	4	5.007e-03	6
78		min	-.002	4	-.146	6	-.014	4	-1.355e-03	3	4.566e-05	6	1.663e-03	2
79	N40	max	.013	4	-.052	5	.013	5	-1.551e-03	5	3.316e-04	5	-8.2e-04	5
80		min	.002	3	-.145	3	.002	3	-4.936e-03	3	2.747e-05	3	-1.49e-03	3
81	N41	max	-.001	3	-.066	2	.013	4	5.047e-03	6	3.692e-04	4	-3.362e-04	5
82		min	-.013	4	-.147	6	.001	3	1.999e-03	2	4.176e-05	3	-1.424e-03	3
83	N42	max	.003	2	-.051	2	-.002	3	1.313e-03	6	2.063e-04	2	5.007e-03	6
84		min	0	6	-.146	6	-.014	5	2.443e-04	2	3.501e-06	6	1.662e-03	2

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotatio...	LC	Z Rotatio...	LC
85	N43	max	.028	4	-.155	5	-.001	6	7.658e-05	5	1.054e-03	2	4.761e-04	3
86		min	.005	3	-.459	3	-.013	1	-4.143e-04	3	-2.917e-04	4	1.97e-04	5
87	N44	max	.072	2	-.166	2	-.001	6	6.038e-04	4	5.27e-04	2	3.332e-04	6
88		min	.003	6	-.457	6	-.013	2	5.626e-05	3	-4.12e-04	4	-2.662e-04	2
89	N45	max	.058	2	-.164	2	-.001	6	3.508e-04	5	-8.53e-05	6	2.379e-04	6
90		min	-.009	4	-.461	6	-.013	2	-1.675e-04	1	-1.112e-03	2	-4.527e-04	2
91	N46	max	-.003	3	-.158	2	-.001	6	3.449e-04	6	-5.392e-05	6	1.986e-04	6
92		min	-.028	4	-.466	6	-.013	2	-3.705e-05	1	-1.693e-03	2	-3.125e-04	2
93	N47	max	.104	2	-.155	5	.036	4	1.629e-03	4	9.678e-04	2	-5.302e-05	6
94		min	.003	6	-.46	3	-.013	2	4.773e-05	2	-7.807e-04	4	-3.06e-03	2
95	N48	max	.123	2	-.166	2	.026	5	7.889e-04	5	3.469e-04	2	1.912e-04	4
96		min	-.005	6	-.457	6	-.015	2	-8.149e-05	3	-3.049e-04	5	-1.742e-03	2
97	N49	max	.109	2	-.164	2	.026	5	7.721e-04	5	4.204e-05	6	7.31e-05	5
98		min	-.011	4	-.461	6	-.014	1	-3.195e-05	1	-9.692e-04	2	-1.686e-03	2
99	N50	max	.05	1	-.158	2	.034	5	1.406e-03	5	-1.723e-04	6	4.318e-04	5
100		min	-.035	5	-.466	6	-.015	1	-9.296e-05	3	-1.578e-03	2	-2.287e-03	1
101	N51	max	.356	1	-.155	5	.094	4	-2.018e-04	1	1.054e-03	2	1.247e-02	1
102		min	.021	6	-.46	3	-.005	1	-4.035e-03	4	-2.917e-04	4	1.968e-04	5
103	N52	max	.077	1	-.166	2	-.004	3	1.048e-04	4	5.27e-04	2	3.331e-04	6
104		min	.015	6	-.457	6	-.019	4	5.624e-05	3	-4.12e-04	4	1.94e-04	5
105	N53	max	.056	1	-.164	2	0	3	-6.965e-05	6	-8.53e-05	6	2.378e-04	6
106		min	-.005	5	-.461	6	-.01	5	-1.963e-04	4	-1.112e-03	2	4.628e-05	2
107	N54	max	.102	1	-.158	2	.059	4	3.364e-04	3	-5.392e-05	6	4.695e-03	1
108		min	-.023	5	-.466	6	-.014	3	-2.686e-03	4	-1.693e-03	2	1.46e-04	5
109	N55	max	-.002	3	-.162	2	0	6	5.873e-04	3	-9.576e-05	3	9.507e-05	6
110		min	-.033	4	-.467	6	-.012	1	-8.401e-04	5	-1.242e-03	4	-2.912e-04	1
111	N56	max	0	1	-.183	2	.04	4	2.55e-04	6	-9.698e-05	3	5.078e-05	5
112		min	-.006	5	-.464	6	.002	3	1.27e-04	1	-8.202e-04	4	-7.939e-04	1
113	N57	max	.008	1	-.198	5	.054	5	5.854e-04	4	1.029e-04	5	1.97e-04	4
114		min	0	6	-.464	3	.005	3	1.486e-04	2	-5.878e-05	1	-5.493e-04	2
115	N58	max	.005	1	-.185	5	.041	4	2.343e-04	4	2.756e-04	5	-2.136e-04	4
116		min	-.005	5	-.471	3	.004	3	-1.071e-06	3	3.517e-05	3	-4.831e-04	3
117	N59	max	.04	1	-.163	2	.056	5	2.652e-03	5	-1.767e-04	3	-1.643e-05	5
118		min	-.035	5	-.467	6	-.005	1	-7.195e-05	3	-1.323e-03	4	-1.77e-03	1
119	N60	max	.049	2	-.183	2	.086	5	1.416e-03	5	-9.108e-05	3	-9.093e-05	6
120		min	-.004	5	-.464	6	.009	3	2.399e-04	3	-7.692e-04	5	-1.178e-03	2
121	N61	max	.052	2	-.198	5	.111	5	1.735e-03	5	8.183e-05	3	-1.69e-04	6
122		min	.004	6	-.464	3	.008	3	7.627e-05	3	-2.867e-04	5	-1.091e-03	2
123	N62	max	.053	2	-.186	5	.124	5	2.585e-03	5	4.677e-04	5	1.297e-04	6
124		min	0	6	-.471	3	.003	3	-5.537e-05	3	-1.714e-04	1	-1.311e-03	2
125	N63	max	.083	2	-.162	2	.338	5	5.843e-04	3	-9.576e-05	3	3.824e-03	2
126		min	-.04	4	-.467	6	-.024	3	-1.286e-02	5	-1.242e-03	4	-1.732e-04	4
127	N64	max	-.004	5	-.183	2	.049	4	2.51e-04	3	-9.698e-05	3	5.076e-05	5
128		min	-.014	1	-.464	6	-.007	3	-3.631e-04	4	-8.202e-04	4	-2.949e-04	1
129	N65	max	.01	4	-.198	5	.047	5	2.398e-04	3	1.029e-04	5	1.969e-04	4
130		min	-.003	3	-.464	3	-.004	3	6.881e-05	5	-5.878e-05	1	-1.083e-04	3
131	N66	max	.084	1	-.185	5	.164	5	7.008e-05	1	2.756e-04	5	3.396e-03	1
132		min	-.016	6	-.471	3	.004	3	-4.763e-03	5	3.517e-05	3	-4.285e-04	6
133	N67	max	.009	2	-.182	5	.04	4	2.08e-06	2	5.953e-04	5	2.419e-04	5
134		min	0	6	-.472	3	.005	3	-2.003e-04	6	-8.606e-04	1	-5.516e-04	3
135	N68	max	.027	2	-.185	5	.067	4	4.631e-04	5	3.368e-04	5	1.012e-04	4
136		min	-.011	4	-.465	3	-.005	2	-2.67e-04	3	-5.334e-04	1	-4.852e-04	2

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotatio...	LC	Z Rotatio...	LC
137	N69	max	.033	2	-.17	5	.053	5	6.048e-04	4	1.804e-05	2	-1.862e-04	5
138		min	-.003	4	-.459	3	-.015	1	-1.43e-04	3	-1.046e-03	4	-7.025e-04	1
139	N70	max	.034	5	-.152	5	-.001	6	2.038e-04	5	8.963e-05	1	2.095e-04	6
140		min	.006	3	-.458	3	-.01	1	-3.485e-04	3	-1.7e-03	5	-1.376e-04	1
141	N71	max	.061	2	-.182	5	.133	5	3.345e-03	5	3.379e-04	4	4.614e-04	4
142		min	-.012	4	-.473	3	.003	3	-7.703e-05	1	-5.85e-04	2	-1.688e-03	2
143	N72	max	.071	2	-.185	5	.123	5	1.692e-03	5	7.068e-05	5	5.197e-04	4
144		min	-.018	4	-.465	3	-.006	1	-2.679e-04	1	-6.167e-04	1	-1.059e-03	2
145	N73	max	.081	2	-.17	5	.102	5	1.527e-03	5	3.617e-05	3	2.989e-04	5
146		min	-.005	5	-.459	3	-.024	1	-4.413e-04	2	-1.039e-03	5	-1.18e-03	2
147	N74	max	.085	2	-.152	5	.05	4	2.158e-03	4	5.709e-04	1	8.408e-05	5
148		min	.004	6	-.459	3	-.017	2	6.488e-05	2	-1.558e-03	5	-1.515e-03	1
149	N75	max	.108	1	-.182	5	.361	4	2.078e-06	2	5.953e-04	5	3.871e-03	1
150		min	-.016	6	-.472	3	.01	3	-1.218e-02	4	-8.606e-04	1	-4.702e-04	6
151	N76	max	.024	1	-.185	5	.065	4	-3.584e-05	5	3.368e-04	5	1.012e-04	4
152		min	-.008	5	-.465	3	-.004	2	-2.882e-04	6	-5.334e-04	1	-1.277e-04	3
153	N77	max	.022	2	-.17	5	.045	5	1.058e-04	4	1.804e-05	2	-1.742e-04	2
154		min	-.011	4	-.459	3	-.016	1	-1.435e-04	6	-1.046e-03	4	-2.223e-04	4
155	N78	max	.117	2	-.152	5	.114	4	-1.433e-04	2	8.963e-05	1	3.639e-03	2
156		min	.013	6	-.458	3	-.005	2	-4.801e-03	4	-1.7e-03	5	-3.916e-05	4
157	N79	max	0	3	-.017	2	0	3	4.081e-03	6	-4.619e-05	3	2.342e-03	6
158		min	-.004	5	-.045	6	-.002	4	1.512e-03	2	-4.22e-04	4	7.462e-04	2
159	N80	max	-.002	3	-.145	2	-.002	3	7.163e-03	6	-5.873e-05	3	4.066e-03	6
160		min	-.024	4	-.42	6	-.012	4	2.537e-03	2	-5.133e-04	4	1.089e-03	2
161	N81	max	.004	4	-.016	5	0	6	-1.374e-03	5	-7.165e-05	6	2.329e-03	6
162		min	0	6	-.045	3	-.002	2	-4.002e-03	3	-4.249e-04	4	8.304e-04	2
163	N82	max	.024	1	-.139	5	-.002	6	-2.188e-03	5	-8.685e-05	3	4.125e-03	6
164		min	.004	6	-.413	3	-.013	2	-6.984e-03	3	-5.082e-04	4	1.378e-03	2
165	N83	max	0	2	-.019	5	.006	5	4.306e-05	5	-6.132e-05	3	-1.906e-03	5
166		min	0	6	-.046	3	0	3	-1.31e-05	6	-5.534e-04	5	-4.75e-03	3
167	N84	max	.001	2	-.166	5	.037	4	1.354e-04	5	-7.281e-05	3	-3.168e-03	5
168		min	0	6	-.424	3	.004	3	-6.597e-05	3	-6.321e-04	4	-8.328e-03	3
169	N85	max	.062	2	-.146	5	.017	5	1.465e-03	4	9.655e-04	2	-5.3e-05	6
170		min	.003	6	-.459	3	-.014	2	4.708e-05	2	-7.807e-04	4	-2.579e-03	2
171	N86	max	.013	2	-.157	2	.017	5	1.297e-03	5	-1.723e-04	6	4.318e-04	5
172		min	-.035	5	-.468	6	-.014	1	-9.207e-05	3	-1.576e-03	2	-2.087e-03	1
173	N87	max	.042	2	-.179	5	.095	5	2.009e-03	5	3.46e-04	4	5.426e-04	4
174		min	-.007	4	-.472	3	.003	3	-1.157e-04	1	-5.622e-04	2	-1.232e-03	2
175	N88	max	.037	2	-.189	5	.094	5	1.713e-03	5	4.633e-04	5	1.039e-04	6
176		min	0	6	-.471	3	.003	3	-5.992e-05	3	-2.18e-04	1	-1.078e-03	2
177	N89	max	.071	2	-.159	5	.017	5	1.161e-03	4	1.024e-03	2	-4.68e-05	6
178		min	.002	6	-.46	3	-.014	2	1.111e-04	3	-8.336e-04	4	-1.911e-03	2
179	N90	max	.068	2	-.155	5	.029	5	1.734e-03	4	5.953e-04	1	5.043e-05	6
180		min	.004	6	-.46	3	-.019	2	2.234e-04	3	-1.561e-03	5	-1.013e-03	1
181	N91	max	.021	2	-.167	2	.029	5	1.611e-03	5	-1.98e-04	3	1.113e-05	5
182		min	-.033	5	-.467	6	-.002	2	-6.399e-05	1	-1.402e-03	4	-1.193e-03	1
183	N92	max	.028	2	-.158	2	.017	5	9.163e-04	5	-1.757e-04	6	6.507e-04	5
184		min	-.027	5	-.466	6	-.014	1	-2.111e-04	1	-1.576e-03	2	-1.732e-03	1
185	N93	max	.016	2	-.155	2	.018	5	2.171e-03	5	-1.765e-04	3	-1.588e-05	5
186		min	-.039	5	-.468	6	-.01	1	-7.148e-05	3	-1.321e-03	4	-1.606e-03	1
187	N94	max	.037	2	-.18	5	.091	5	2.384e-03	5	4.657e-04	5	1.289e-04	6
188		min	0	6	-.473	3	.004	3	-5.578e-05	3	-1.726e-04	1	-1.293e-03	2

Envelope Joint Displacements (Continued)

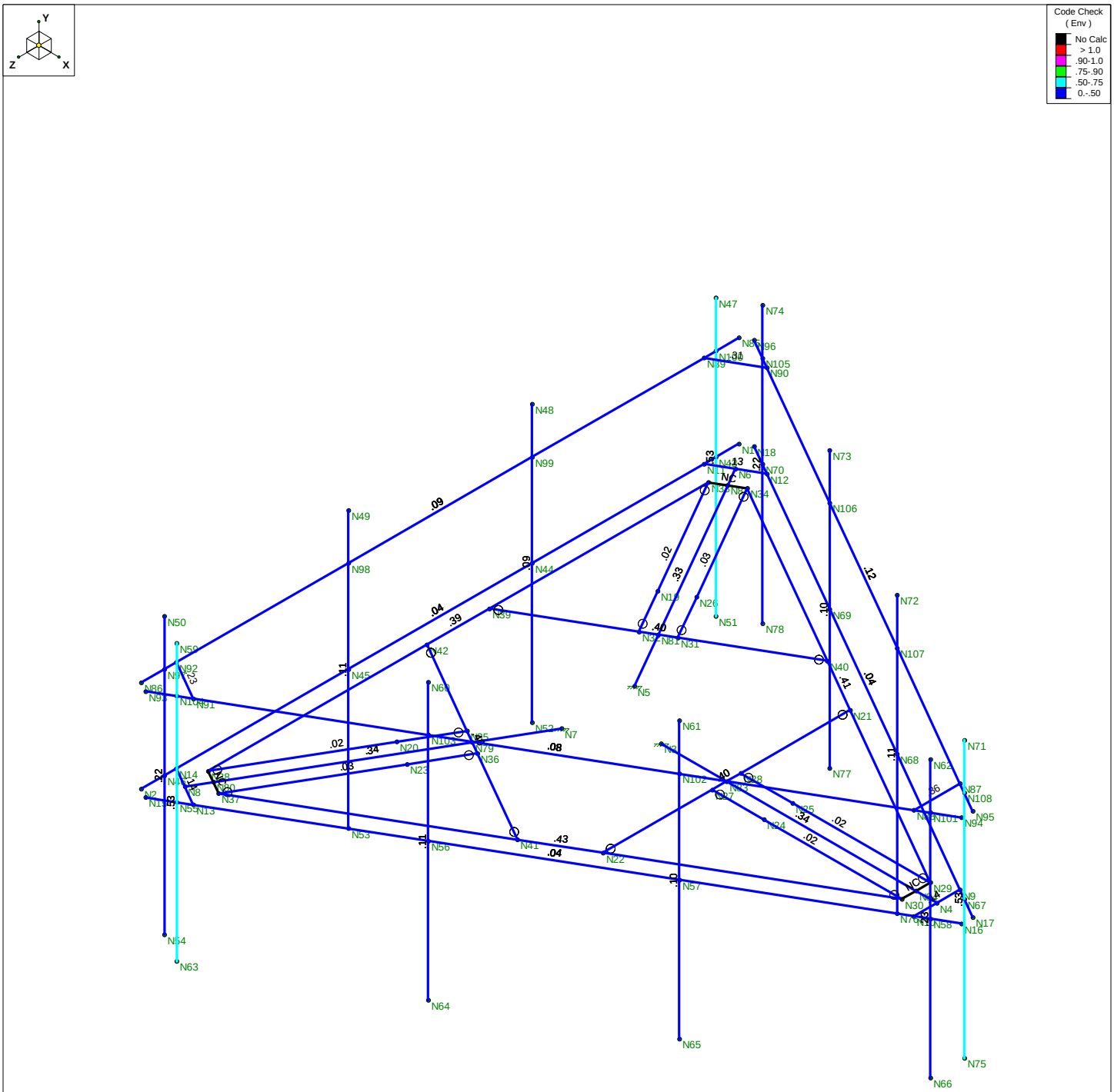
	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [rad]	LC	Y Rotatio...	LC	Z Rotatio...	LC
189	N95	max	.039	2	-.188	5	.092	5	2.864e-03	5	3.359e-04	4	4.606e-04	4
190		min	-.006	4	-.474	3	.004	3	-7.659e-05	1	-5.839e-04	2	-1.526e-03	2
191	N96	max	.065	2	-.147	5	.017	5	1.958e-03	4	5.698e-04	1	8.463e-05	5
192		min	.005	6	-.456	3	-.015	2	6.455e-05	2	-1.556e-03	5	-1.496e-03	1
193	N97	max	.023	2	-.158	2	.017	5	1.296e-03	5	-1.723e-04	6	4.318e-04	5
194		min	-.029	5	-.466	6	-.014	1	-9.293e-05	3	-1.578e-03	2	-2.087e-03	1
195	N98	max	.088	2	-.164	2	.017	5	7.536e-04	5	4.204e-05	6	7.31e-05	5
196		min	-.01	4	-.461	6	-.014	2	-3.195e-05	1	-9.692e-04	2	-1.667e-03	2
197	N99	max	.102	2	-.166	2	.017	5	7.704e-04	5	3.469e-04	2	1.912e-04	4
198		min	-.003	6	-.457	6	-.014	2	-8.149e-05	3	-3.049e-04	5	-1.723e-03	2
199	N100	max	.068	2	-.155	5	.017	5	1.466e-03	4	9.678e-04	2	-5.3e-05	6
200		min	.003	6	-.46	3	-.014	2	4.773e-05	2	-7.807e-04	4	-2.579e-03	2
201	N101	max	.037	2	-.186	5	.093	5	2.385e-03	5	4.677e-04	5	1.296e-04	6
202		min	0	6	-.471	3	.003	3	-5.535e-05	3	-1.714e-04	1	-1.292e-03	2
203	N102	max	.039	2	-.198	5	.09	5	1.717e-03	5	8.183e-05	3	-1.69e-04	6
204		min	.002	6	-.464	3	.007	3	7.627e-05	3	-2.867e-04	5	-1.072e-03	2
205	N103	max	.034	2	-.183	2	.069	5	1.397e-03	5	-9.108e-05	3	-9.093e-05	6
206		min	-.01	5	-.464	6	.007	3	2.399e-04	3	-7.692e-04	5	-1.16e-03	2
207	N104	max	.019	2	-.163	2	.025	5	2.17e-03	5	-1.767e-04	3	-1.643e-05	5
208		min	-.035	5	-.467	6	-.005	2	-7.191e-05	3	-1.323e-03	4	-1.607e-03	1
209	N105	max	.067	2	-.152	5	.025	5	1.958e-03	4	5.709e-04	1	8.407e-05	5
210		min	.004	6	-.459	3	-.018	2	6.487e-05	2	-1.558e-03	5	-1.496e-03	1
211	N106	max	.067	2	-.17	5	.084	5	1.508e-03	5	3.617e-05	3	2.989e-04	5
212		min	-.001	4	-.459	3	-.019	1	-4.413e-04	2	-1.039e-03	5	-1.161e-03	2
213	N107	max	.058	2	-.185	5	.102	5	1.673e-03	5	7.068e-05	5	5.197e-04	4
214		min	-.012	5	-.465	3	-.004	3	-2.679e-04	1	-6.167e-04	1	-1.04e-03	2
215	N108	max	.041	2	-.182	5	.094	5	2.864e-03	5	3.379e-04	4	4.613e-04	4
216		min	-.007	4	-.472	3	.003	3	-7.702e-05	1	-5.85e-04	2	-1.525e-03	2

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

	Member	Shape	Code Check	Lo...	LC	She...	Lo...	...	...	phi*P...	phi*P...	phi*...	phi*...	...	Eqn
1	M32	PIPE 2.0	.532	3	4	.043	5		4	20.867	32.13	1.872	1.872	...	H1-...
2	M36	PIPE 2.0	.526	3	5	.048	5		5	20.867	32.13	1.872	1.872	...	H1-...
3	M28	PIPE 2.0	.525	3	2	.043	5		1	20.867	32.13	1.872	1.872	...	H1-...
4	M12	L5X3X4	.426	4.7...	6	.013	6.1...	y	3	10.926	62.856	1.939	4.967	...	H2-1
5	M11	L5X3X4	.412	4.7...	3	.013	4.7...	y	3	10.926	62.856	1.939	4.967	...	H2-1
6	M13	L5X3X4	.403	2.6...	6	.027	2.6...	z	6	34.997	62.856	1.939	6.505	...	H2-1
7	M15	L5X3X4	.402	2.6...	3	.027	2.6...	z	3	34.997	62.856	1.939	6.503	...	H2-1
8	M14	L5X3X4	.401	2.6...	6	.031	2.41	y	4	34.997	62.856	1.939	6.521	...	H2-1
9	M10	L5X3X4	.389	4.8...	3	.013	6.1...	y	6	10.926	62.856	1.939	4.963	...	H2-1
10	M42	L2.5x2.5x3	.355	1	5	.065	0	y	4	27.703	29.192	.873	1.972	...	H2-1
11	M9	HSS4X4X4	.338	6	3	.050	0	z	5	120....	139....	16.181	16.181	...	H1-...
12	M7	HSS4X4X4	.336	6	6	.044	6	y	3	120....	139....	16.181	16.181	...	H1-...
13	M8	HSS4X4X4	.334	6	3	.044	6	y	6	120....	139....	16.181	16.181	...	H1-...
14	M41	L2.5x2.5x3	.313	0	2	.055	1	y	1	27.703	29.192	.873	1.972	...	H2-1
15	M29	PIPE 2.0	.232	3	4	.032	3		5	20.867	32.13	1.872	1.872	...	H1-...
16	M40	L2.5x2.5x3	.227	0	4	.038	0	y	5	27.703	29.192	.873	1.972	...	H2-1
17	M25	PIPE 2.0	.219	3	2	.034	3		4	20.867	32.13	1.872	1.872	...	H1-...
18	M33	PIPE 2.0	.218	3	5	.039	3		2	20.867	32.13	1.872	1.872	...	H1-...
19	M4	Plate 6"x1/2"	.141	.5	5	.392	.5	y	6	67.552	97.2	1.012	12.15	...	H1-...

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

	Member	Shape	Code Check	Lo...	LC	She...	Lo...	...	...	phi*P...	phi*P...	phi*...	phi*...	...	Eqn
20	M6	Plate 6"x1/2"	.135	1	4	.389	.5	y	3	67.552	97.2	1.012	12.15	...	H1-...
21	M5	Plate 6"x1/2"	.127	.5	4	.383	.5	y	6	67.552	97.2	1.012	12.15	...	H1-...
22	M39	PIPE_2.0	.118	12....	4	.210	12....		5	5.82	32.13	1.872	1.872	...	H1-...
23	M26	PIPE_2.0	.114	3	4	.026	3		4	20.867	32.13	1.872	1.872	...	H1-...
24	M31	PIPE_2.0	.113	3	4	.020	3		4	20.867	32.13	1.872	1.872	...	H1-...
25	M35	PIPE_2.0	.108	3	1	.023	3		4	20.867	32.13	1.872	1.872	...	H1-...
26	M34	PIPE_2.0	.096	3	2	.024	3		2	20.867	32.13	1.872	1.872	...	H1-...
27	M30	PIPE_2.0	.096	3	1	.024	3		5	20.867	32.13	1.872	1.872	...	H1-...
28	M38	PIPE_2.0	.090	.677	4	.202	12....		2	5.82	32.13	1.872	1.872	...	H1-...
29	M27	PIPE_2.0	.086	3	5	.019	3		5	20.867	32.13	1.872	1.872	...	H1-...
30	M37	PIPE_2.0	.083	.812	4	.188	12....		4	5.82	32.13	1.872	1.872	...	H1-...
31	M2	HSS4X4X4	.041	6.3...	1	.061	12....	z	2	68.78	139....	16.181	16.181	...	H1-...
32	M3	HSS4X4X4	.040	8.5...	4	.050	12....	z	5	68.78	139....	16.181	16.181	...	H1-...
33	M1	HSS4X4X4	.037	12....	4	.057	.677	y	4	68.78	139....	16.181	16.181	...	H1-...
34	M20	L3X3X4	.029	1.9...	4	.004	0	y	6	32.012	46.656	1.688	3.461	...	H2-1
35	M17	L3X3X4	.025	2.1...	4	.004	4.1...	y	6	32.012	46.656	1.688	3.461	...	H2-1
36	M19	L3X3X4	.024	1.9...	1	.004	0	z	3	32.012	46.656	1.688	3.461	...	H2-1
37	M16	L3X3X4	.021	2.1...	1	.004	4.1...	z	3	32.012	46.656	1.688	3.461	...	H2-1
38	M18	L3X3X4	.020	1.9...	1	.004	0	y	3	32.012	46.656	1.688	3.461	...	H2-1
39	M21	L3X3X4	.020	1.9...	4	.004	0	z	3	32.012	46.656	1.688	3.461	...	H2-1



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek		
TJL	CT5090 - Mount	Aug 6, 2019 at 9:34 AM
19047.00	Unity Check	Mount.R3D

Petition No. 516
Sprint Spectrum. L.P.
Trumbull, Connecticut
Staff Report
July 11, 2001

On July 9, 2001, Connecticut Siting Council (Council) member Gerald Heffernan and Christina Lepage, Fred Cunliffe and Gwenn Gregory of the Council staff met with Sprint PCS representatives Julie Donaldson, Laura Thoman, Kim Filomia, and John Lusi off of Quarry Road, Trumbull, Connecticut for inspection of an electric transmission line structure. Sprint has an agreement with CL&P for installation of antennas for telecommunications use and an agreement with AT&T for installation of associated equipment within AT&T's leased area. Sprint PCS is petitioning the Council for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need (Certificate) is required for the modification.

On June 6, 2001, the Council approved use of this structure by AT&T which would install six panel antennas on a pipe extension approximately 12-feet above the existing 150-foot transmission line monopole structure (#844). Three antennas will be mounted at a centerline height of 160-feet agl and three antennas will be mounted at a centerline height of 153-feet agl. AT&T's equipment will be placed in a 12-foot by 20-foot equipment shelter near the base of the existing monopole. An 8-foot high chain link fence will surround the compound. A gravel access driveway will be installed from Quarry Road for direct access to the equipment shelter. An underground conduit from an adjacent utility pole will provide power and telephone service to the site.

Sprint PCS proposes to install three panel antennas on stand-off arm supports at the 100-foot level of the structure. Equipment that was initially proposed to be installed on a 10-foot by 20-foot pier-mounted platform up slope of the structure will now be installed a 10-foot by 20-foot concrete pad adjacent to the AT&T equipment building which would need to be reoriented to accommodate Sprint's equipment within the fenced compound. Sprint would use the proposed access road and on-site utility connections both to be installed by AT&T to the site.

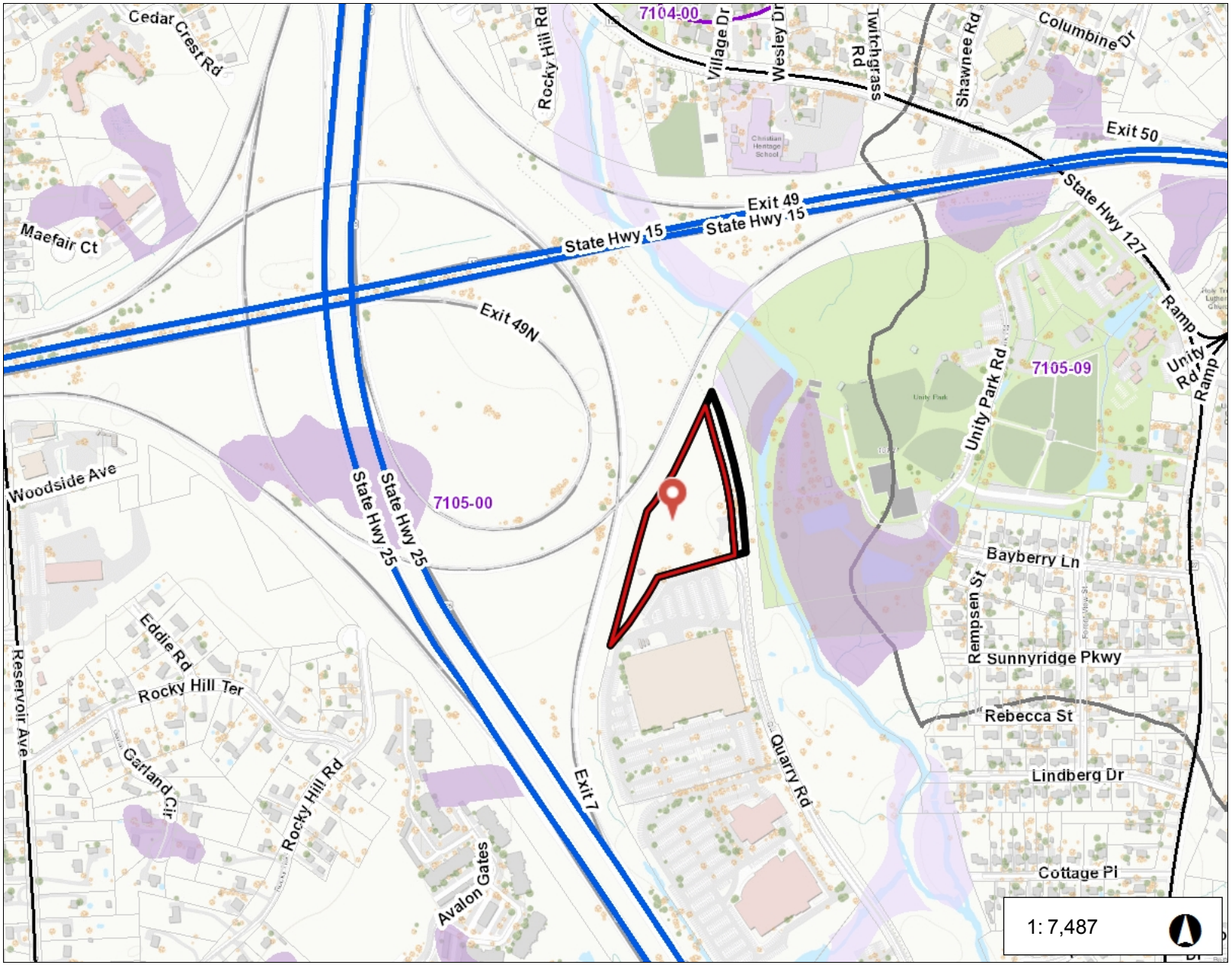
Surrounding land uses consist of transmission towers, a movie theater, a town park, undeveloped property and highways. The nearest residence is about 700 feet to the west. There will be some clearing of vegetation for the proposed project.

The total worst-case power density for telecommunications operations at the site has been calculated to be 19.81% of the applicable standard for uncontrolled environments.

Sprint contends that the use of this monopole structure will not result in a substantial environmental effect and the proposed project will be consistent with the existing surrounding landscape. Sprint also states that they will not need to construct a telecommunications tower in this area.

Town of Trumbull

124 QUARRY ROAD



Legend

- Streetname
- Roadways
  - Local
  - Collector
  - Minor Collector
  - Minor Arterial
  - Major Collector
  - PA Other
  - PA Other Expwy
  - PA Interstate
- Inland Wetland Soils
  - Poorly Drained and Very Poorly Dra
  - Alluvial and Floodplain Soils
- Local Basin Boundary
  - Major
  - Regional
  - Subregional
  - Local
- Local Basin Area
- Citations

1,247.9 0 623.94 1,247.9 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere
Created by Greater Bridgeport Regional Council

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.
THIS MAP IS NOT TO BE USED FOR NAVIGATION

METROCOG
Connecticut Metropolitan Council of Governments

QUARRY ROAD

Location	QUARRY ROAD	**Mblu**	H/10 / 00018/ 000/
Acct#	01361000	**Owner**	CMB TRUMBULL LLC
Assessment	$8,120	**Appraisal**	$11,600
PID	101269	**Building Count**	1
Fire District			

Current Value

Appraisal	
Valuation Year	**Total**
2015	$11,600

Assessment	
Valuation Year	**Total**
2015	$8,120

Owner of Record

Owner CMB TRUMBULL LLC
Co-Owner C/O DECO LLC
Address 25 NEW CANAAN AVE
NORWALK, CT 06851

Sale Price $76,950
Book & Page 1763/ 328
Sale Date 04/18/2018
Instrument 25

Ownership History

Ownership History				
Owner	**Sale Price**	**Book & Page**	**Instrument**	**Sale Date**
CMB TRUMBULL LLC	$76,950	1763/ 328	25	04/18/2018
QUARRY ROAD DEVELOPMENT ASSOCIATES LLC	$50,000	1592/ 241		03/19/2012
KINDEL MICHAEL E JR & GEORGE D	$0	110/ 333	04	08/20/1956

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0

Building Attributes	
Field	**Description**

Building Photo

Style	Vacant Land
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Floor Covering	
Alt. Floor Cover	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Total Kitchens	
Total Elec Meters	

(http://images.vgsi.com/photos2/TrumbullCTPhotos//\00\02\51/98.JPG)

Building Layout

(http://images.vgsi.com/photos2/TrumbullCTPhotos//Sketches/101269_

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

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	100
Description	Res Vacant Lnd
Zone	
Neighborhood	600
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0.68
Frontage	
Depth	

Outbuildings

Outbuildings	Legend
No Data for Outbuildings	

Valuation History

Appraisal	
Valuation Year	**Total**
2017	$11,600
2016	$11,600
2015	$11,600

Assessment	
Valuation Year	**Total**
2017	$8,120
2016	$8,120
2015	$8,120

EVERSOURCE ENERGY

56 Prospect Street,
Hartford, CT 06103

P.O. Box 270
Hartford, CT 06141-0270
(860) 665-5000

April 3, 2020

Mr. Tim Burks
Senior Program Manager
SAI Communications
193 Shadow Pond Lane
Suffield, CT 06078

RE: AT&T Site CT-5089, Quarry Road, Trumbull CT, Eversource Structure 844

Dear Mr. Burks:

Based on our reviews of the site drawings provided by Dewberry, the structural analysis and foundation review provided by Centek Engineering, along with a third party review performed by Paul J. Ford and Company, we accept the proposed modification.

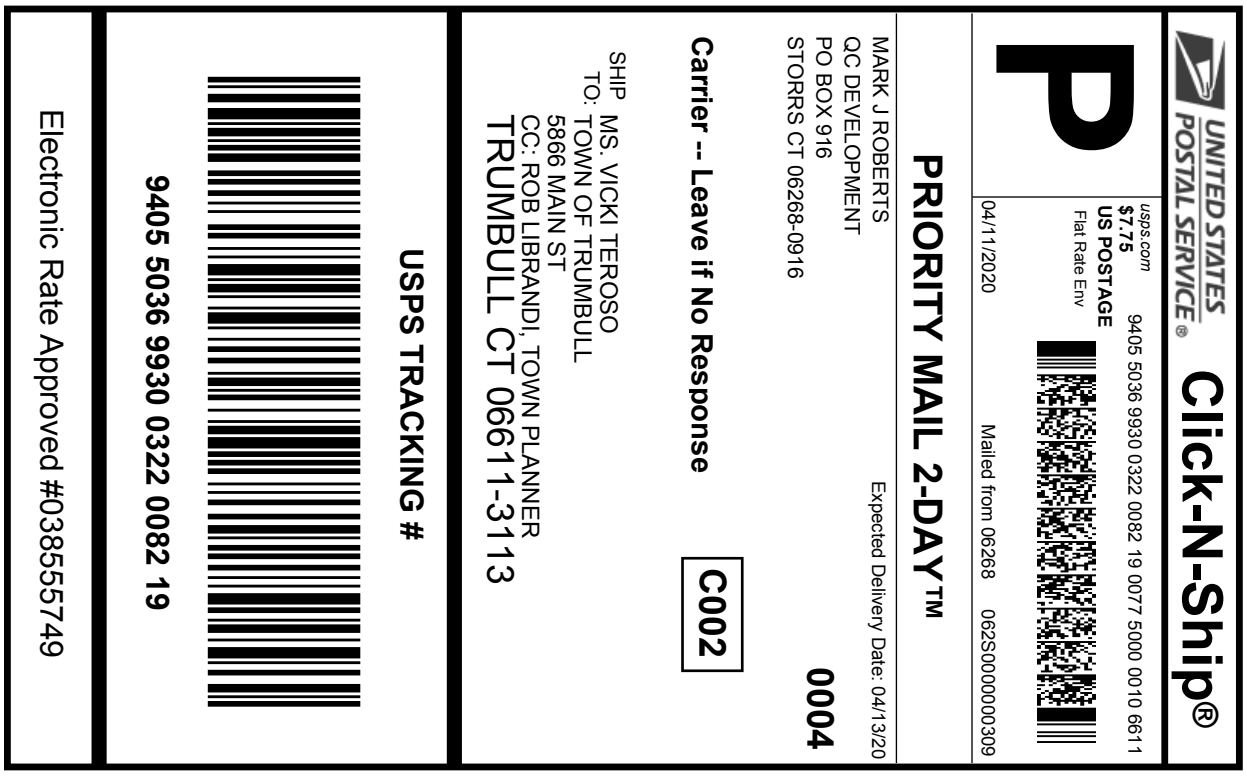
Please work with Christopher Gelinas of Eversource Real Estate to process the site lease amendment if needed. Please do not hesitate to contact us with questions or concerns. Christopher can be contacted at 860-665-2008, and I can be contacted at 860-728-4503.

Sincerely,

Joel Szarkowicz

Joel Szarkowicz
Transmission Line Engineering

Ref: 19031.00 - CT5089 Structural Analysis Rev0 19.03.05
CT5089_TRUMBULL SOUTH_CDS_REV 0_09-26-19_S&S



Cut on dotted line.

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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 # :
9405 5036 9930 0322 0082 19

Trans. #:	489415728
Print Date:	04/10/2020
Ship Date:	04/11/2020
Expected Delivery Date:	04/13/2020

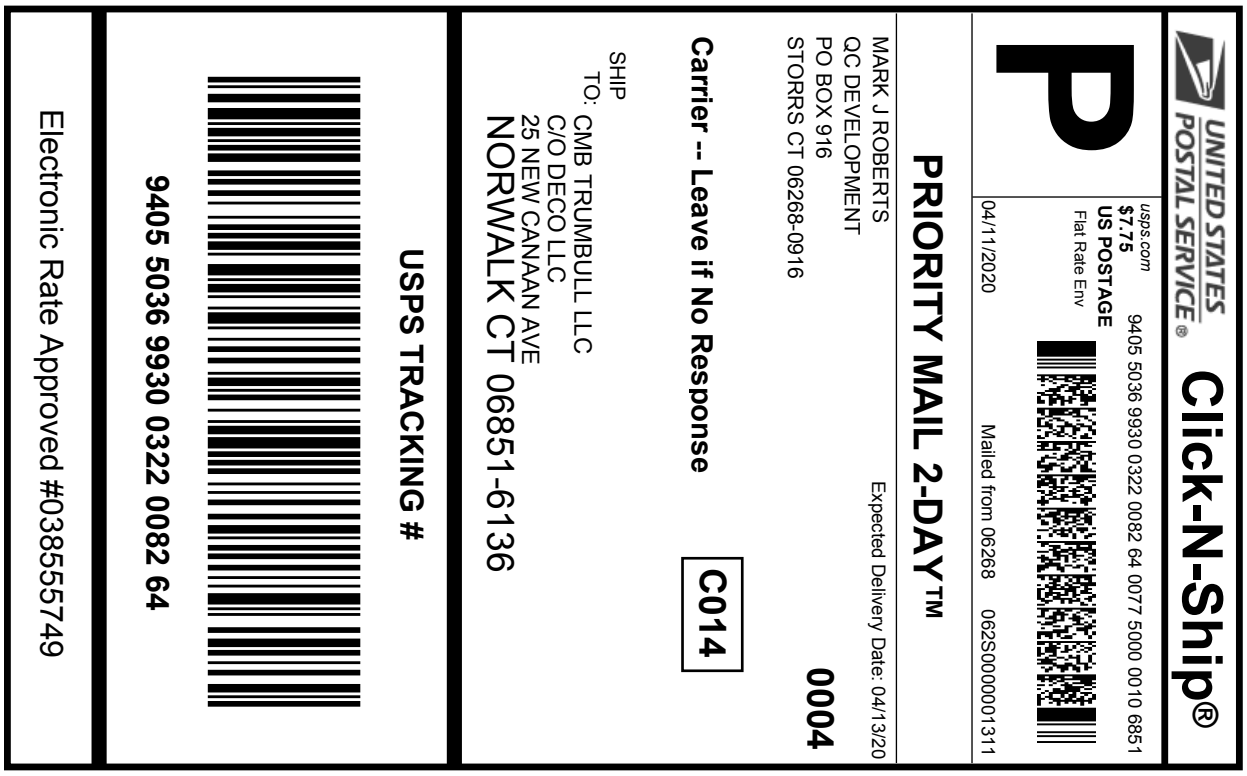
Priority Mail® Postage:	**$7.75**
Total:	**$7.75**

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

To: MS. VICKI TEROSO
TOWN OF TRUMBULL
5866 MAIN ST
CC: ROB LIBRANDI, TOWN PLANNER
TRUMBULL CT 06611-3113

* 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



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Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0322 0082 64

Trans. #:	489415728
Print Date:	04/10/2020
Ship Date:	04/11/2020
Expected Delivery Date:	04/13/2020

Priority Mail® Postage:	**$7.75**
Total:	**$7.75**

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

To: CMB TRUMBULL LLC
C/O DECO LLC
25 NEW CANAAN AVE
NORWALK CT 06851-6136

* 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.

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Check the status of your shipment on the USPS Tracking® page at usps.com