UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

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

   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
   Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
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450 E CENTER ST
WEST BRIDGEWATER ,MA 02379

FOLD HERE

December 12, 2019

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

Regarding: Notice of Exempt Modification – AT&T Site CT3461
Address: 383 Middle Street, Bristol, CT 06010

Dear Ms. Bachman:

New Cingular Wireless, PCS, LLC ("AT&T") currently maintains a wireless telecommunications facility at a 127' Smokestack at the above-referenced address (the "Facility"). Said Smokestack is owned by Bristol Sports Center DST.

AT&T desires to modify its Facility by adding six (6) antennas, swapping six (6) remote radio units, adding three (3) remote radio units and adding one (1) surge arrestor with one (1) fiber cable and two (2) DC power lines as more particularly detailed and described on the enclosed Construction Drawings prepared by Centerline Communications, dated October 4, 2019 and last revised October 15, 2019. The centerline height of the existing and proposed antennas is and will remain at 120 feet.

The Facility was approved by the Connecticut Siting Council in the attached Decision regarding TS-CING-017-170613 issued on September 1, 2017.

Please accept this letter as notification pursuant to R.C.S.A §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to the following individuals: The Honorable Ellen Zoppo-Sassu, Mayor, City of Bristol; Thomas Lozier, Building Official, City of Bristol; William Cunningham, Chairman of the Zoning Commission, City of Bristol; William J. Veits, Chairman of the Planning Commission, City of Bristol; and Bristol Sports Center DST c/o The Inland Real Estate Group, LLC, as the property owner at the above referenced address. Enclosed please find a property card and map for the above-referenced address.

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

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

2. The proposed modifications will not require an extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the modified facility will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. *Please see the RF Emissions Analysis Report for AT&T's modified facility enclosed herewith.*

5. The proposed modifications will not cause an ineligible change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading. *Please see the revised structural analysis dated October 10, 2019 and prepared Centerline Communications.*

For the foregoing reasons, AT&T respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

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

Enclosures:
Exhibit 1 – Construction Drawings
Exhibit 2 – CSC Decision
Exhibit 3 – Property Card and Map
Exhibit 4 – RF Emissions Analysis Report
Exhibit 5 – Structural Analysis

cc: The Honorable Ellen Zoppo-Sassu, Mayor, City of Bristol
Thomas Lozier, Building Official, City of Bristol
William Cunningham, Chairman of the Zoning Commission, City of Bristol
William J. Veits, Chairman of the Planning Commission, City of Bristol
Bristol Sports Center DST c/o The Inland Real Estate Group, LLC

EXHIBIT 1

PROJECT INFORMATION

SITE NAME:	BRISTOL MIDDLE STREET (CT3461)
SITE ADDRESS:	383 MIDDLE STREET BRISTOL, CT 06010
LATITUDE:	41° 39' 36.50"
LONGITUDE:	-72° 54' 36.00"
TOWER HEIGHT:	127'-0"± AGL
RAD CENTER:	120'-0"± AGL
ZONING JURISDICTION:	TOWN OF BRISTOL
COUNTY:	HARTFORD

DESCRIPTION OF WORK:

TELECOMMUNICATIONS FACILITY UPGRADE (LTE BWE, 5C, 5G, 6C & RETRO);

TOWER:

INSTALL:
- (6) DMP65R-BU8DA ANTENNAS (TWO PER SECTOR)
- (3) 4449 B5/B12 RRUS (ONE PER SECTOR)
- (3) 8843 B2/B66A RRUS (ONE PER SECTOR)
- (3) RRUS-E2 B29 (ONE PER SECTOR)
- (1) DC6-48-60-18-8F SURGE ARRESTOR
- (2) DC POWER LINES
- (1) FIBER LINE
- (1) RCM67 ROUND CHIMNEY MOUNT KIT
- (6) RC-PM23 FLUSH MOUNT ADAPTER KITS
- (18) MOUNTING PIPES

EXISTING TO REMAIN:
- (6) HPA-65R-BUU-H8 ANTENNAS (TWO PER SECTOR)
- (6) RRUS-12 B2 (TWO PER SECTOR)
- (3) RRUS-32 B30 (ONE PER SECTOR)
- (3) DC6-48-60-18-8F SURGE ARRESTOR
- (1) 18 PAIR FIBER
- (6) 8 AWG DC LINES

EQUIPMENT AREA/GROUND:

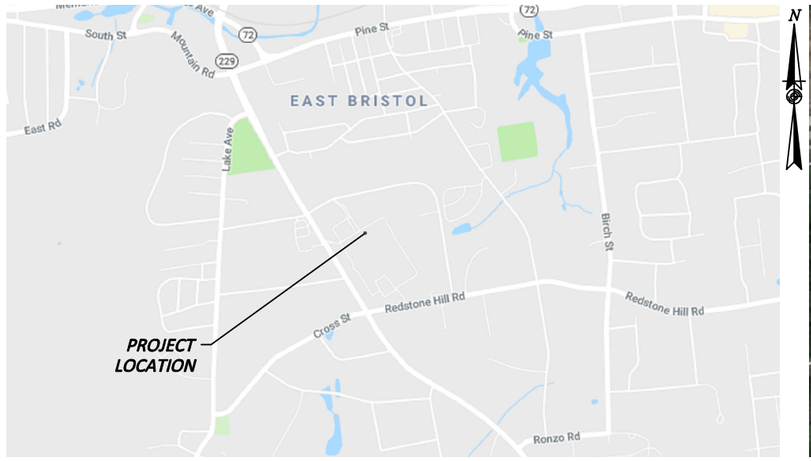
INSTALL:
- (1) 6630
- (1) IDLE

PROJECT DIRECTORY

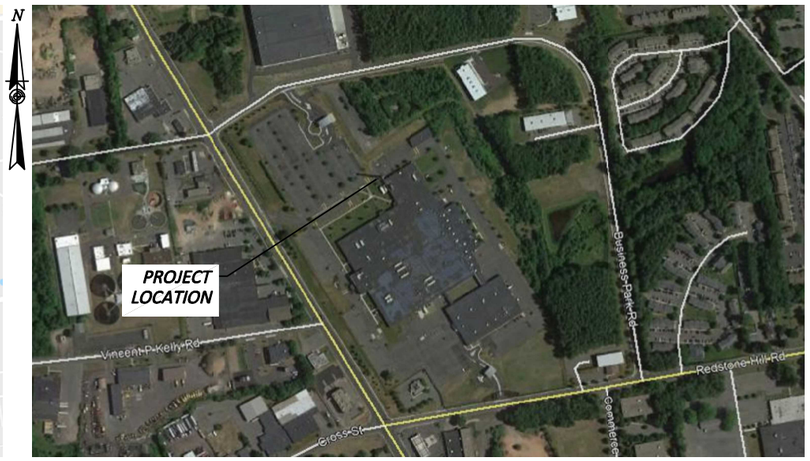
A&E / PROJECT MANAGER:
CENTERLINE COMMUNICATIONS
750 WEST CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
CONTACT: DAVID FORD
PHONE 844.748.8878

APPLICANT:
at&t MOBILITY CORP.
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

SITE NUMBER: CT3461
SITE NAME: BRISTOL MIDDLE STREET (CT3461)
PACE ID: BWE-MRCTB040756, 5C-MRCTB040465, 5G-MRCTB040824, 6C-MRCTB040628, RETRO-MRCTB040798
PROJECT: LTE BWE, 5C, 5G, 6C & RETRO
A_B_C_LTE700BC_850_PCS_AWS_700DE_Rev1.vsd



VICINITY MAP
NOT TO SCALE



LOCATION MAP
NOT TO SCALE

DIRECTIONS:

MERGE ONTO I-90 W/MASS PIKE W 38.5 MI. // MERGE ONTO I-84 W/WILBUR CROSS HWY S VIA EXIT 9 TOWARD US-20/HARTFORD/NYC 41.7 MI. // KEEP RIGHT TO TAKE I-84 W TOWARD I-91 N/HARTFORD 14.9 MI. // MERGE ONTO CT-72 W VIA EXIT 33 TOWARD BRISTOL 4.6 MI. // STAY STRAIGHT TO GO ONTO PINE STREET .10 MI. // TAKE FIRST LEFT ONTO MIDDLE ST/CT-299 .6 MI. SITE ON LEFT

GENERAL NOTES:

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSE OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.

2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.

3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

DRAWING INDEX

NO.	DESCRIPTION	REV.	DATE
T-1	TITLE SHEET	1	10/15/19
GN-1	GENERAL NOTES	1	10/15/19
A-1	COMPOUND & EQUIPMENT PLANS	1	10/15/19
A-2	ANTENNA LAYOUT & ELEVATIONS	1	10/15/19
A-3	DETAILS	1	10/15/19
A-4	DETAILS	1	10/15/19
SN-1	STRUCTURAL NOTES	1	10/15/19
S-1	MOUNT DETAILS	1	10/15/19
RF-1	RF PLUMBING DIAGRAM	1	10/15/19
G-1	GROUNDING DETAILS	1	10/15/19

at&t MOBILITY CORP.
500 ENTERPRISE DRIVE
ROCKY HILL, CT 06067

CENTERLINE COMMUNICATIONS
750 W CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725

REVISIONS		
1.	10/15/19	ISSUED FOR CONSTRUCTION
0.	10/04/19	ISSUED FOR REVIEW
NO.	DATE	DESCRIPTION

DESIGNED BY:	APPROVED BY:
KT	DC

CBYD.COM 811
Call Before You Dig, Inc.

SITE NAME:	BRISTOL MIDDLE STREET (CT3461)
SITE NUMBER:	CT3461
SITE ADDRESS:	383 MIDDLE STREET BRISTOL, CT 06010
PROJECT TYPE:	LTE BWE, 5C, 5G, 6C & RETRO
SHEET TITLE:	TITLE SHEET
DRAWING #:	T-1
REVISION:	1

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR – CENTERLINE COMMUNICATIONS
SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
OWNER – AT&T MOBILITY

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR–ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."

17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. APPLICABLE BUILDING CODES:
SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

BUILDING CODE: IBC 2015 (2018 CT STATE BUILDING CODE)
ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE
LIGHTENING CODE: NFPA 70–2017

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

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

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222–G, STRUCTURAL STANDARDS FOR STEEL

ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

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

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	G.C.	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
AWG	AMERICAN WIRE GAUGE	MGB	MASTER GROUND BUS		
BCW	BARE COPPER WIRE	MIN	MINIMUM	TBD	TO BE DETERMINED
BTS	BASE TRANSCEIVER STATION	PROPOSED	NEW	TBR	TO BE REMOVED
EXISTING	EXISTING	N.T.S.	NOT TO SCALE	TBRR	TO BE REMOVED AND REPLACED
EG	EQUIPMENT GROUND	REF	REFERENCE	TYP	TYPICAL
EGR	EQUIPMENT GROUND RING	REQ	REQUIRED		

RF NOTES

1. ACTUAL LENGTHS SHALL BE DETERMINED PER SITE CONDITION BY SUBCONTRACTOR
2. THE DESIGN IS BASED ON RF DATA SHEETS, SIGNED AND APPROVED.
3. RADIO SIGNAL CABLE AND RACEWAY SHALL COMPLY WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC, NFPA 70), CHAPTER 8.
4. ALL SPECIFIED MATERIAL FOR EACH LOCATION (E.G. OUT DOORS–OCCUPIED, INDOORS–UNOCCUPIED, PLENUMS, RISER SHAFTS, ETC.) SHALL BE APPROVED, LISTED, OR LABELED AS REQUIRED BY THE NEC.
5. RADIO SIGNAL CABLE SHALL BE SUPPORTED AT MINIMUM OF EVERY THREE (3) FEET EXCEPT INSIDE MONOPOLES OR MONOPOLES WHERE CABLE AND CONNECTOR MANUFACTURERS SUPPORT RECOMMENDATIONS SHALL BE FOLLOWED. MANUFACTURER RECOMMENDATION CABLES SUPPORT ACCESSORIES SHALL BE USED.
6. THE OUTDOOR CABLE SUPPORT SYSTEM SHALL BE PROVIDED WITH AN ICE SHIELD TO SUPPORT AND PROTECT ANTENNA CABLE RUNS.
7. DRIP LOOPS SHALL BE REQUIRED ON ALL OUTSIDE CABLES. CABLES SHALL BE SLOPED AWAY FROM BUILDING OR OUTDOOR BTS CABINETS TO PREVENT WATER FROM ENTERING THROUGH THE COAXIAL CABLE PORT.
8. ALL FEEDER LINE AND JUMPER CONNECTORS SHALL BE 7/16 DIN CABLE CONNECTORS THAT MEET IP68 STANDARDS.
9. 7/16 DIN CONNECTORS REQUIRE NO ADDITIONAL WEATHER PROOFING IN INDOOR APPLICATIONS IF INSTALLED AND TORQUED PROPERLY. IN OUTDOOR APPLICATIONS WEATHER PROOFING IS REQUIRED AND THE FOLLOWING PROCEDURE SHOULD BE FOLLOWED.
10. USING WEATHERPROOFING KIT APPROVED BY CABLE MANUFACTURER AND CONTRACTOR START TAPE APPROXIMATELY 5 INCHES FROM THE CONNECTOR, AND WRAP 2 INCHES TOWARD THE CONNECTOR, THEN REVERSE THE TAPE SO THAT THE STICKY SIDE IS UP. TAPE OVER THE CONNECTOR OR SURGE ARRESTOR UNTIL THREE (3) TO FOUR (4) INCHES BEYOND THE CONNECTOR AND REVERSE AGAIN WITH THE STICKY SIDE DOWN FOR ANOTHER INCH OR TWO. PASS THE BUTYL RUBBER AND FINISH WITH A FINAL LAYER OF TAPE.
11. ANTENNAS SHALL BE PAINTED,WHEN REQUIRED, BY THE LANDLORD OR AUTHORITY OF HAVING JURISDICTION IN ACCORDANCE WITH ANTENNA MANUFACTURERS' SURFACES PREPARATION AND PAINTING REQUIREMENTS.
12. CABLE SHIELDS AND TOWER CONDUITS SHALL BE GROUNDED AT THE TOP OF THE TOWER WITHIN 10 FEET OF THEIR CONNECTORS, AND AT THE BOTTOM OF THE TOWER ABOUT 6 INCHES BEFORE THEY TURN TOWARD THE FACILITY. THEY SHALL BE GROUNDED AT THE MIDPOINT OF THE TOWERS THAT ARE BETWEEN 60 FEET AND 200 FEET HIGH, AND AT INTERVALS OF 60 FEET OR LESS ON TOWERS THAT ARE HIGHER THAN 200 FEET.

ANTENNA CABLE AND SCHEDULING NOTES

1. SUBCONTRACTOR SHALL VERIFY THE ACTUAL LENGTH IN THE FIELD BEFORE INSTALLATION.
2. TAG AND COLOR CODE ALL MAIN CABLES AT LOCATIONS PER AT&T ANTENNA CABLE MARKING STANDARD:
   - TOP OF TOWER END OF MAIN COAX
   - BOTTOM OF TOWER END OF MAIN COAX
   - DIRECTLY BEFORE AND AFTER RF EQUIPMENT
   - END OF JUMPERS AT BTS EQUIPMENT
3. ANTENNAS SHALL BE PROCURED AND INSTALLED WITH DOWN TILT MOUNTING BRACKETS SUPPLIED BY ANTENNA MANUFACTURER.
4. PRIOR APPROVAL IS REQUIRED BEFORE PERFORMING ANY WORK ON EXISTING CELL SITE EQUIPMENT.

at&t MOBILITY CORP.
550 COCHITUATE ROAD
FRAMINGHAM, MA 01720

CENTERLINE COMMUNICATIONS
750 WEST CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725

REVISIONS		
1.	10/15/19	ISSUED FOR CONSTRUCTION
0.	10/15/19	ISSUED FOR REVIEW
NO.	DATE	DESCRIPTION

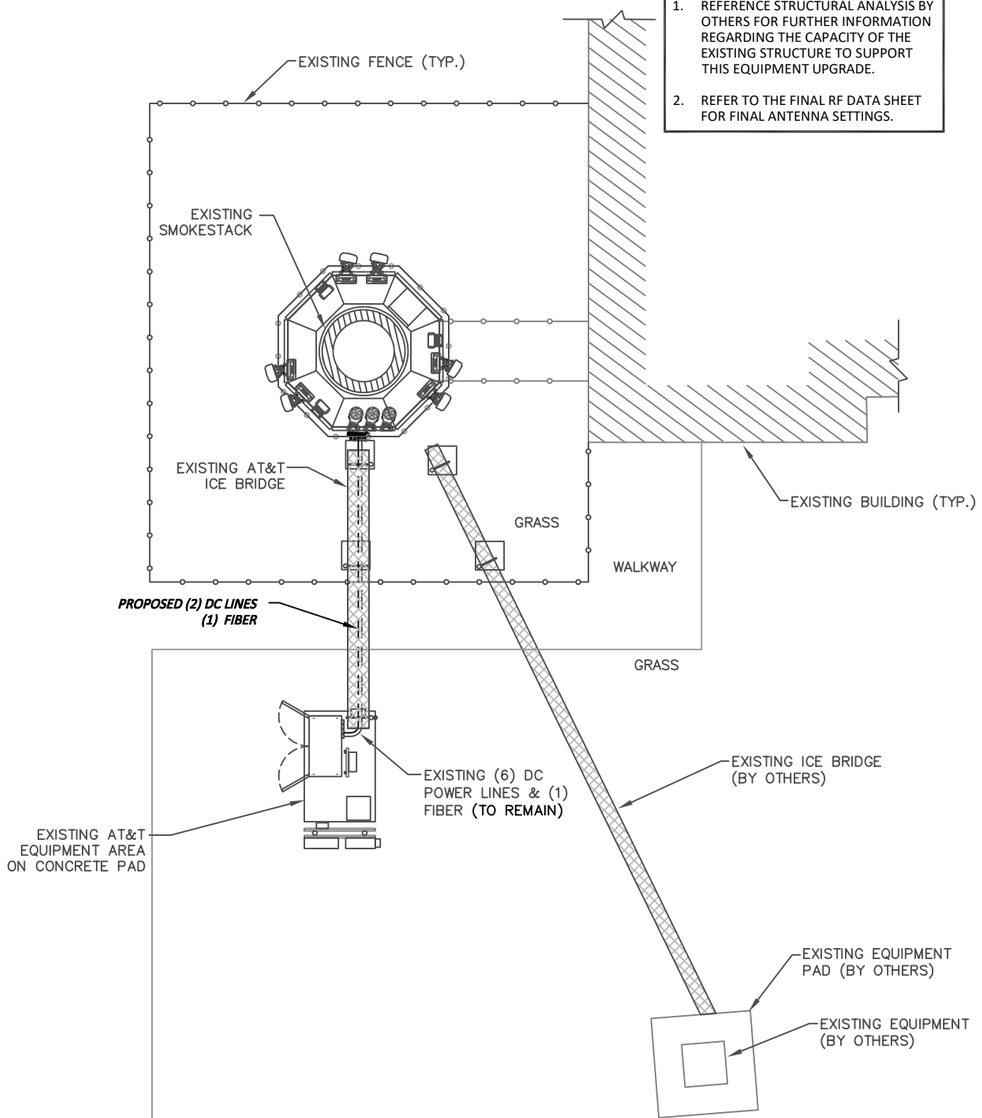
DESIGNED BY:	APPROVED BY:
KT	DC

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

SITE NAME:	BRISTOL MIDDLE STREET (CT3461)
SITE NUMBER:	CT3461
SITE ADDRESS:	383 MIDDLE STREET BRISTOL, CT 06010
PROJECT TYPE:	LTE BWE, 5C, 5G, 6C & RETRO
SHEET TITLE:	GENERAL NOTES
DRAWING #:	GN–1
REVISION:	1

NOTES:

1. REFERENCE STRUCTURAL ANALYSIS BY OTHERS FOR FURTHER INFORMATION REGARDING THE CAPACITY OF THE EXISTING STRUCTURE TO SUPPORT THIS EQUIPMENT UPGRADE.
2. REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

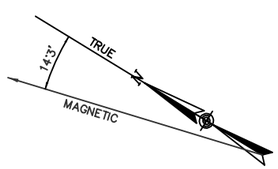


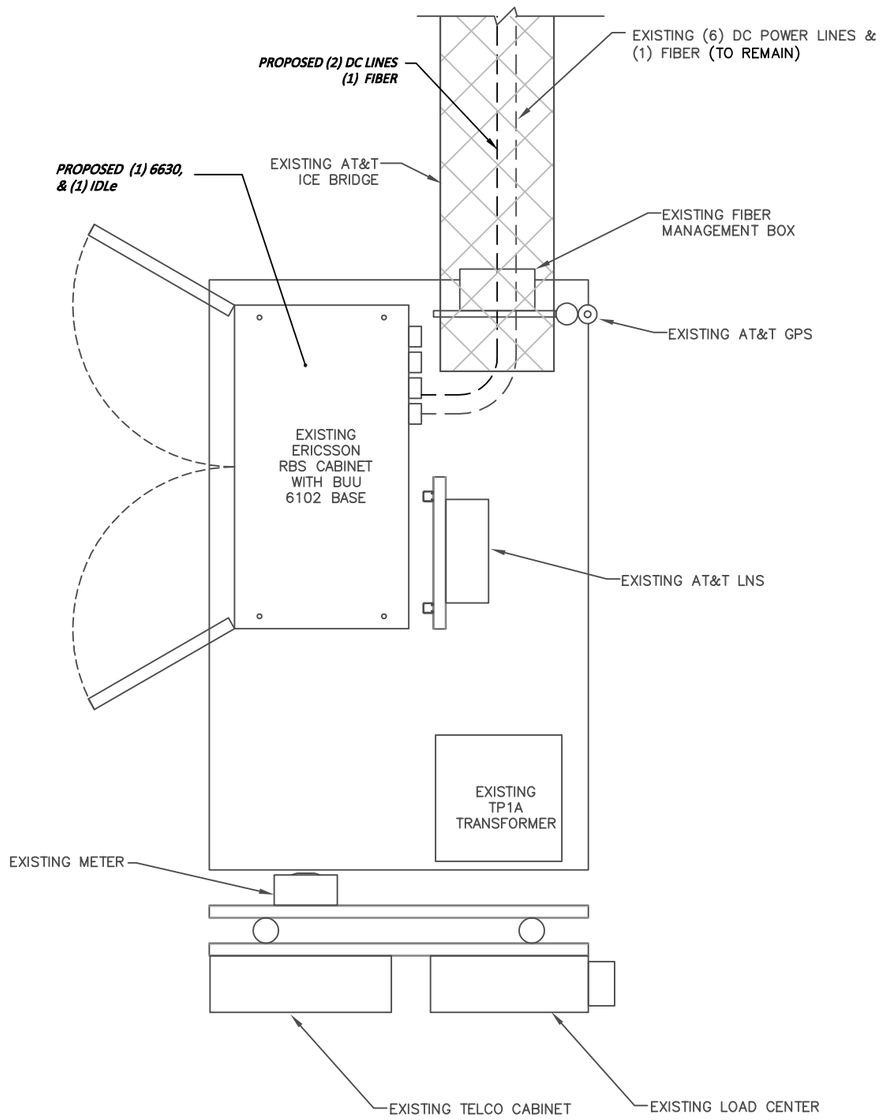
COMPOUND PLAN

SCALE: 1/8"=1'-0" (22"X34")
3/16" = 1'-0" (11"X17")

GRAPHIC SCALE

4 0 2 4 8 16
(IN FEET)



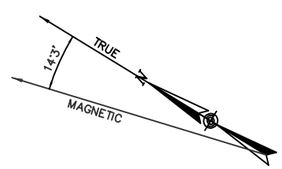


EQUIPMENT PLAN

SCALE: 1/2"=1'-0" (22"X34")
1"=1'-0" (11"X17")

GRAPHIC SCALE

1 0 6" 1 2 4
(IN FEET)



at&t MOBILITY CORP.
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

CENTERLINE COMMUNICATIONS

REVISIONS		
1.	10/15/19	ISSUED FOR CONSTRUCTION
0.	10/15/19	ISSUED FOR REVIEW
NO.	DATE	DESCRIPTION

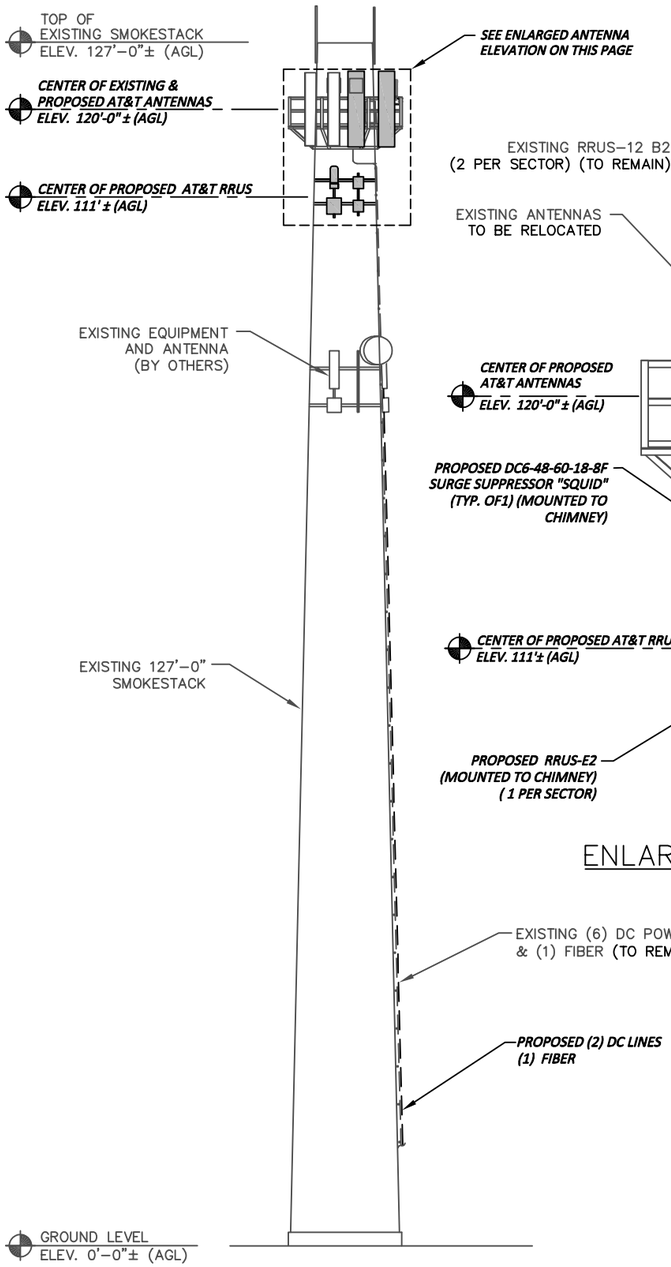
DESIGNED BY:	APPROVED BY:
AA	DC

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

SITE NAME:	BRISTOL MIDDLE STREET (CT3461)
SITE NUMBER:	CT3461
SITE ADDRESS:	383 MIDDLE STREET BRISTOL, CT 06010
PROJECT TYPE:	LTE BWE, 5C, 5G, 6C & RETRO
SHEET TITLE:	COMPOUND & EQUIPMENT PLANS
DRAWING #: A-1	REVISION: 1

NOTES:

1. REFERENCE STRUCTURAL ANALYSIS BY OTHERS FOR FURTHER INFORMATION REGARDING THE CAPACITY OF THE EXISTING STRUCTURE TO SUPPORT THIS EQUIPMENT UPGRADE.
2. REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

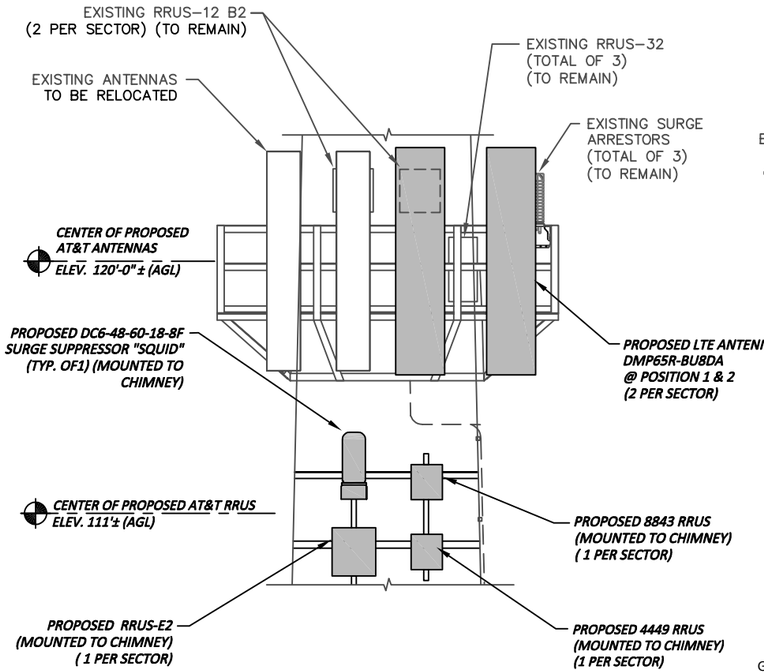


TOWER ELEVATION

SCALE: 1/4"=1'-0" (22"X34")
1/8" = 1'-0" (11"X17")

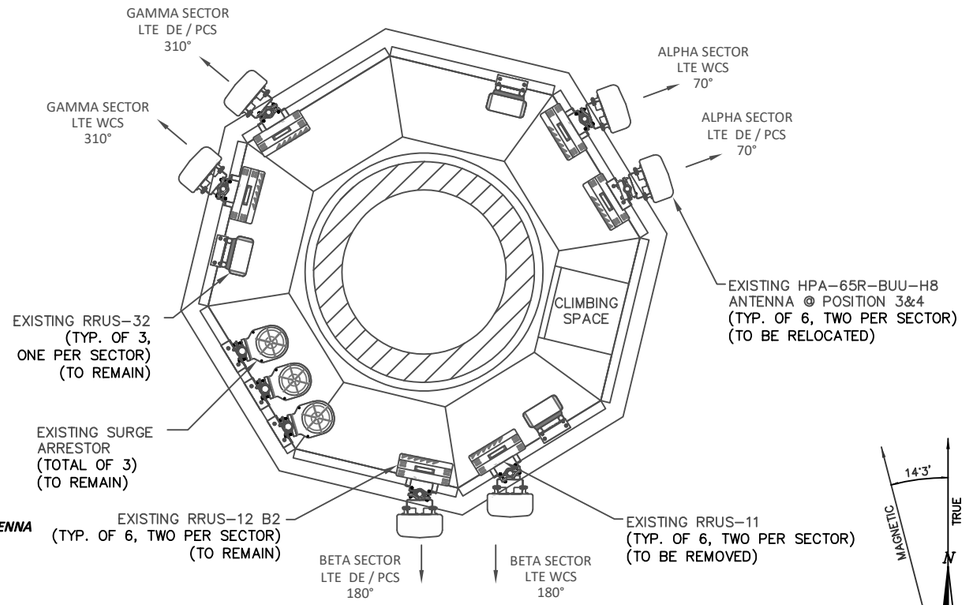
GRAPHIC SCALE

8 0 4 8 16 32
(IN FEET)



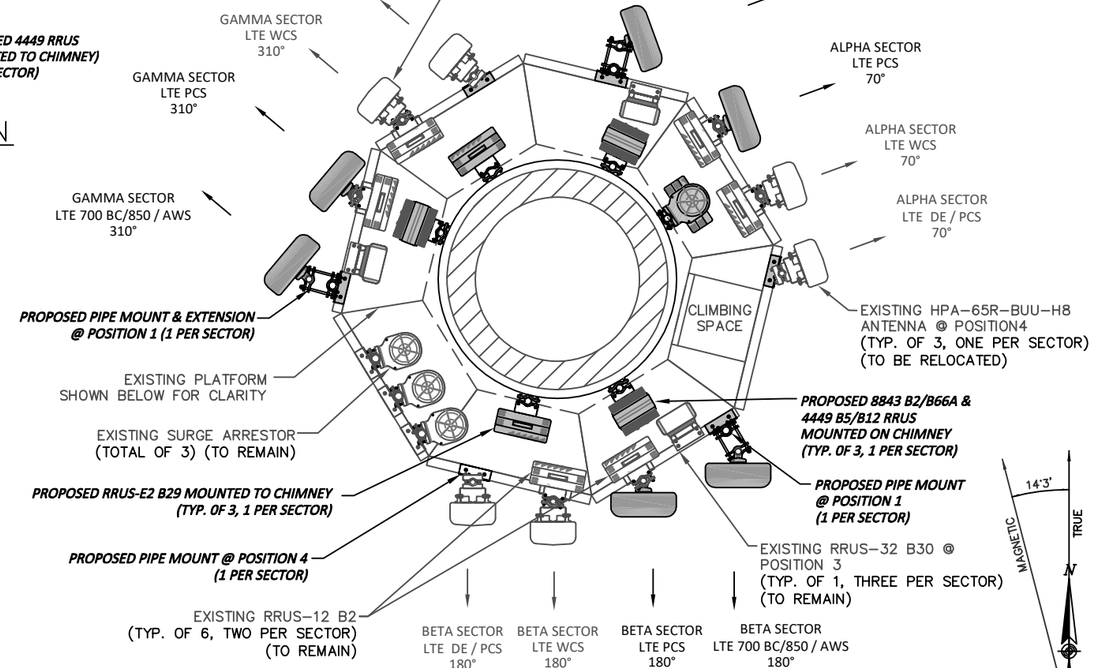
ENLARGED ANTENNA ELEVATION

SCALE: N.T.S



EXISTING ANTENNA CONFIGURATION

SCALE: N.T.S



PROPOSED ANTENNA CONFIGURATION

SCALE: N.T.S

at&t MOBILITY CORP.
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

CENTERLINE COMMUNICATIONS
750 WEST CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725

REVISIONS		
1.	10/15/19	ISSUED FOR CONSTRUCTION
0.	10/15/19	ISSUED FOR REVIEW
NO.	DATE	DESCRIPTION

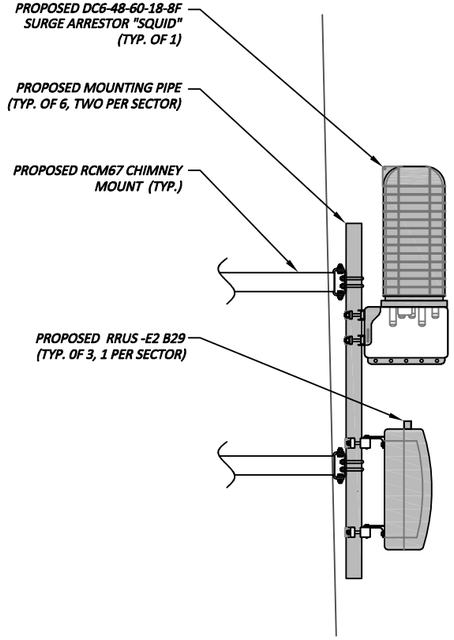
DESIGNED BY:	APPROVED BY:
AA	DC

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

SITE NAME:	BRISTOL MIDDLE STREET (CT3461)
SITE NUMBER:	CT3461
SITE ADDRESS:	383 MIDDLE STREET BRISTOL, CT 06010
PROJECT TYPE:	LTE BWE, 5C, 5G, 6C & RETRO
SHEET TITLE:	ANTENNA LAYOUT & ELEVATIONS
DRAWING #: A-2	REVISION: 1

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	**PROPOSED**	**LTE 700 BC/840 /AWS**	**DMP65R-BU8DA**	**96.0X20.7X7.7**	**±120'**	**70°**	–	**(P) (1) 4449 B5/B12 RRUS**	**15x13.2x10.4**	**(P) (2) DC POWER & (1) FIBER**	**(E) (1) RAYCAP DC6-48-60-18-8F**
A2	**PROPOSED**	**LTE PCS**	**DMP65R-BU8DA**	**96.0X20.7X7.7**	**±120'**	**70°**	–	**(P) (1) 8843 B2/B66A RRUS**	**14.9x13.2x10.9**	(E) (2) DC POWER & (1) FIBER	(E) (1) RAYCAP DC6-48-60-18-8F
A3	EXISTING	LTE WCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±120'	70°	–	(E) (1) RRUS-32 B30	27.2x12.1x7.0	–	
A4	EXISITNG	LTE 700 DE / PCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±120'	70°	–	**(P) (1) RRUS-E2 B29** (E) (2) RRUS-12 B2	**20.5x18.5x7.5** 20.5x18.5x7.5	–	
B1	**PROPOSED**	**LTE 700 BC/840 /AWS**	**DMP65R-BU8DA**	**96.0X20.7X7.7**	**±120'**	**180°**	–	**(P) (1) 4449 B5/B12 RRUS**	**15x13.2x10.4**	–	--
B2	**PROPOSED**	**LTE PCS**	**DMP65R-BU8DA**	**96.0X20.7X7.7**	**±120'**	**180°**	–	**(P) (1) 8843 B2/B66A RRUS**	**14.9x13.2x10.9**	(E) (2) DC POWER & (1) FIBER	(E) (1) RAYCAP DC6-48-60-18-8F
B3	EXISTING	LTE WCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±120'	180°	–	(E) (1) RRUS-32 B30	27.2x12.1x7.0	–	
B4	EXISITNG	LTE 700 DE / PCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±120'	180°	–	**(P) (1) RRUS-E2 B29** (E) (2) RRUS-12 B2	**20.5x18.5x7.5** 20.5x18.5x7.5	–	
C1	**PROPOSED**	**LTE 700 BC/840 /AWS**	**DMP65R-BU8DA**	**96.0X20.7X7.7**	**±120'**	**310°**	–	**(P) (1) 4449 B5/B12 RRUS**	**15x13.2x10.4**	–	--
C2	**PROPOSED**	**LTE PCS**	**DMP65R-BU8DA**	**96.0X20.7X7.7**	**±120'**	**310°**	–	**(P) (1) 8843 B2/B66A RRUS**	**14.9x13.2x10.9**	(E) (2) DC POWER & (1) FIBER	(E) (1) RAYCAP DC6-48-60-18-8F
C3	EXISTING	LTE WCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±120'	310°	–	(E) (1) RRUS-32 B30	27.2x12.1x7.0	–	
C4	EXISITNG	LTE 700 DE / PCS	HPA-65R-BUU-H8	92.4X14.8X7.4	±120'	310°	–	**(P) (1) RRUS-E2 B29** (E) (2) RRUS-12 B2	**20.5x18.5x7.5** 20.5x18.5x7.5	–	



RRU MOUNTING DETAIL

N.T.S.

NOTES:

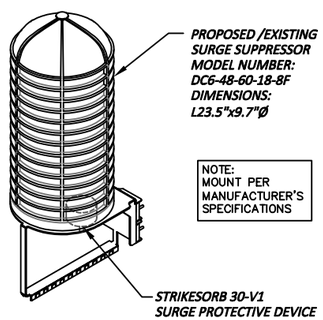
1. REFERENCE STRUCTURAL ANALYSIS BY OTHERS FOR FURTHER INFORMATION REGARDING THE CAPACITY OF THE EXISTING STRUCTURE TO SUPPORT THIS EQUIPMENT UPGRADE.
2. REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

RRU CHART				
QUANTITY	MODEL	L	W	D
3(P)	4449 B5/B12	15.0"	13.2"	10.4"
3(P)	8843 B2/B66A	14.9"	13.2"	10.9"
3(P)	RRUS-E2 B29	20.4"	18.5"	7.5"
3(E)	RRUS-32 B30	27.2"	12.1"	7.0"
6(E)	RRUS-12 B2	20.4"	18.5"	7.5"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

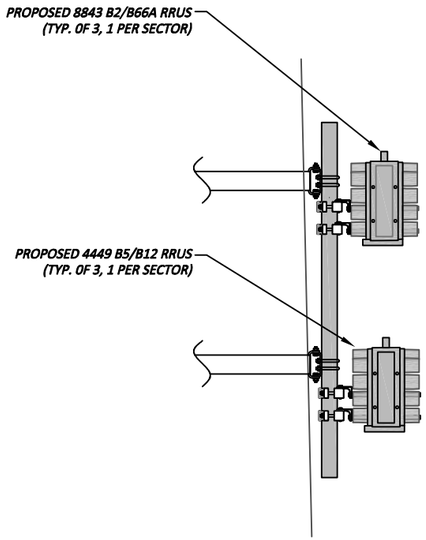
RRUS DETAIL

N.T.S.



DC SURGE SUPPRESSOR DETAIL

N.T.S.



RRU MOUNTING DETAIL

N.T.S.

at&t MOBILITY CORP.
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

CENTERLINE COMMUNICATIONS
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WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725

REVISIONS		
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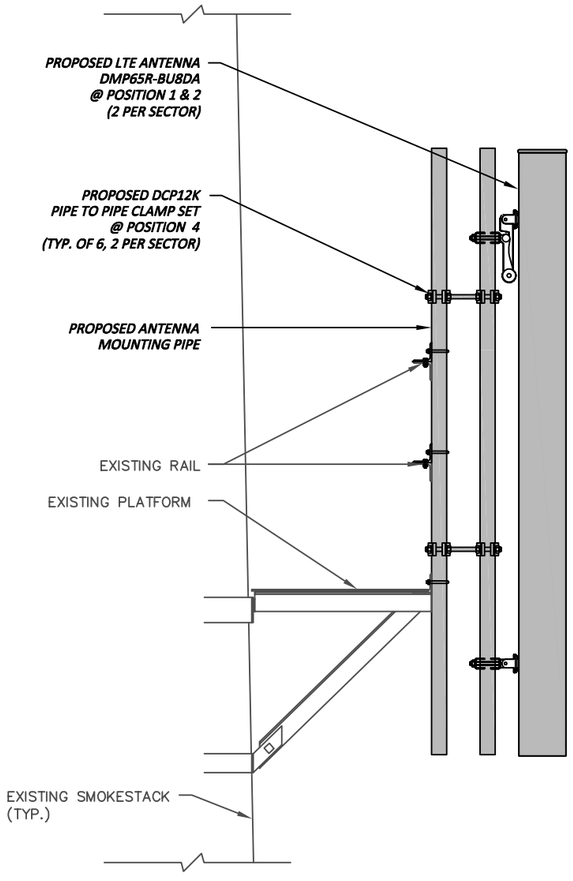
0.	10/15/19	ISSUED FOR REVIEW
NO.	DATE	DESCRIPTION

DESIGNED BY:	APPROVED BY:
AA	DC

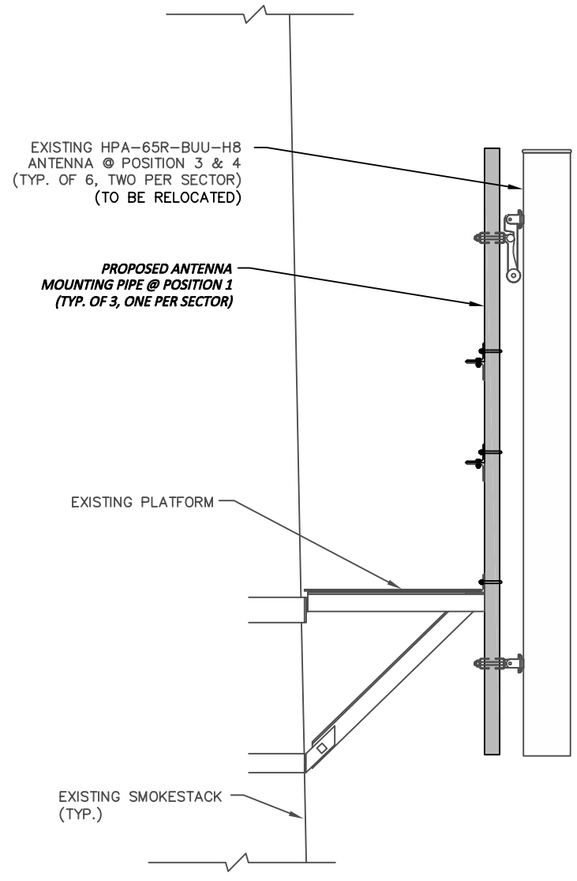
STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

SITE NAME:	BRISTOL MIDDLE STREET (CT3461)
SITE NUMBER:	CT3461
SITE ADDRESS:	383 MIDDLE STREET BRISTOL, CT 06010
PROJECT TYPE:	LTE BWE, 5C, 5G, 6C & RETRO
SHEET TITLE:	DETAILS
DRAWING #: A-3	REVISION: 1



ANTENNA MOUNTING DETAIL (POSITION 1)

N.T.S.



ANTENNA MOUNTING DETAIL (POSITION 4)

N.T.S.

at&t MOBILITY CORP.
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

CENTERLINE COMMUNICATIONS
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WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725

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0.	10/15/19	ISSUED FOR REVIEW
NO.	DATE	DESCRIPTION

DESIGNED BY:	APPROVED BY:
AA	DC

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

SITE NAME:
BRISTOL MIDDLE STREET (CT3461)

SITE NUMBER:
CT3461

SITE ADDRESS:
383 MIDDLE STREET
BRISTOL, CT 06010

PROJECT TYPE:
LTE BWE, 5C, 5G, 6C & RETRO

SHEET TITLE:
DETAILS

DRAWING #:	REVISION:
A-4	1

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
5. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
7. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
8. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
9. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND DI.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
11. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
12. UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
13. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-270 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
16. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
17. ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

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

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

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

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

SPECIAL INSPECTION CHECKLIST

BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS [1]
N/A	MATERIAL SPECIFICATIONS REPORT [2]
N/A	FABRICATOR NDE INSPECTION
N/A	PACKING SLIPS [3]
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS [4]
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION [5]
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS [6]
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTES:

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

NOTES:

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

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REVISIONS		
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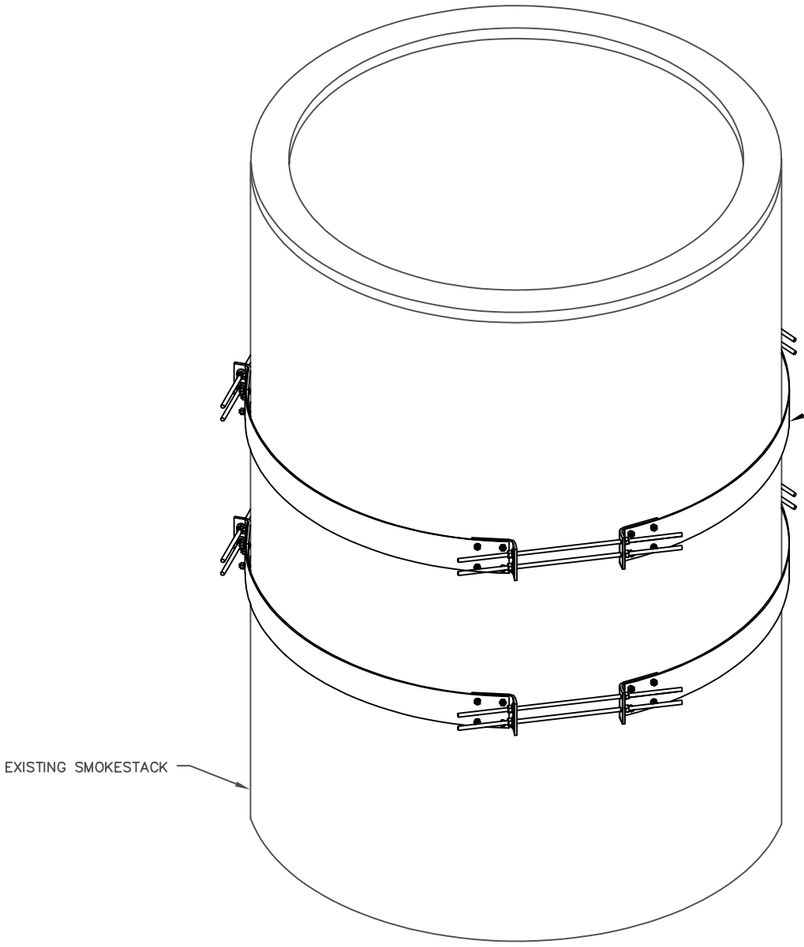
DESIGNED BY:	APPROVED BY:
KT	DC

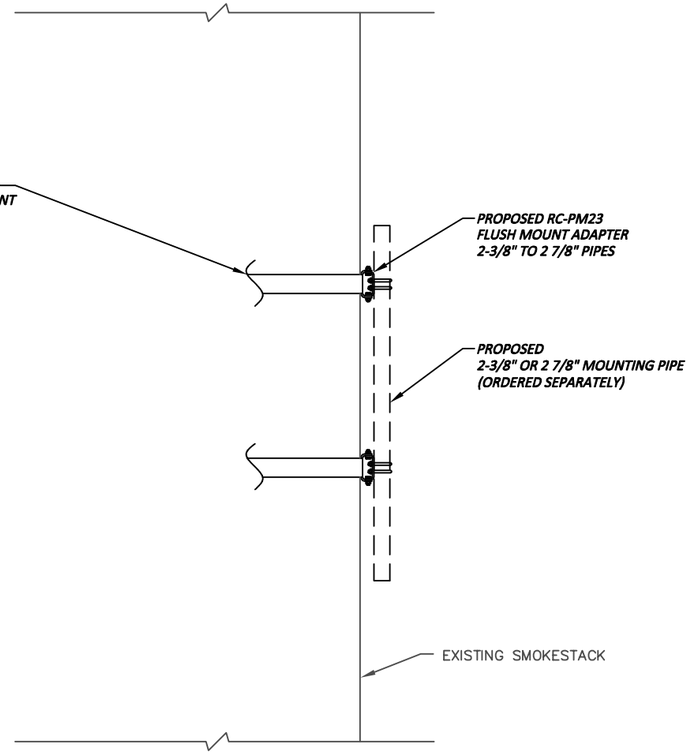
STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

SITE NAME:	BRISTOL MIDDLE STREET (CT3461)
SITE NUMBER:	CT3461
SITE ADDRESS:	383 MIDDLE STREET BRISTOL, CT 06010
PROJECT TYPE:	LTE BWE, 5C, 5G, 6C & RETRO
SHEET TITLE:	STRUCTURAL NOTES
DRAWING #:	SN-1
REVISION:	1



RCM67 ROUND CHIMNEY MOUNT DETAILS

N.T.S.



RC–PM23 FLUSH MOUNT ADAPTER DETAILS

N.T.S.

at&t MOBILITY CORP.
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AA	DC

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28554
LICENSED
PROFESSIONAL ENGINEER

SITE NAME:	BRISTOL MIDDLE STREET (CT3461)
SITE NUMBER:	CT3461
SITE ADDRESS:	383 MIDDLE STREET BRISTOL, CT 06010
PROJECT TYPE:	LTE BWE, 5C, 5G, 6C & RETRO
SHEET TITLE:	MOUNT DETAILS
DRAWING #: S–1	REVISION: 1

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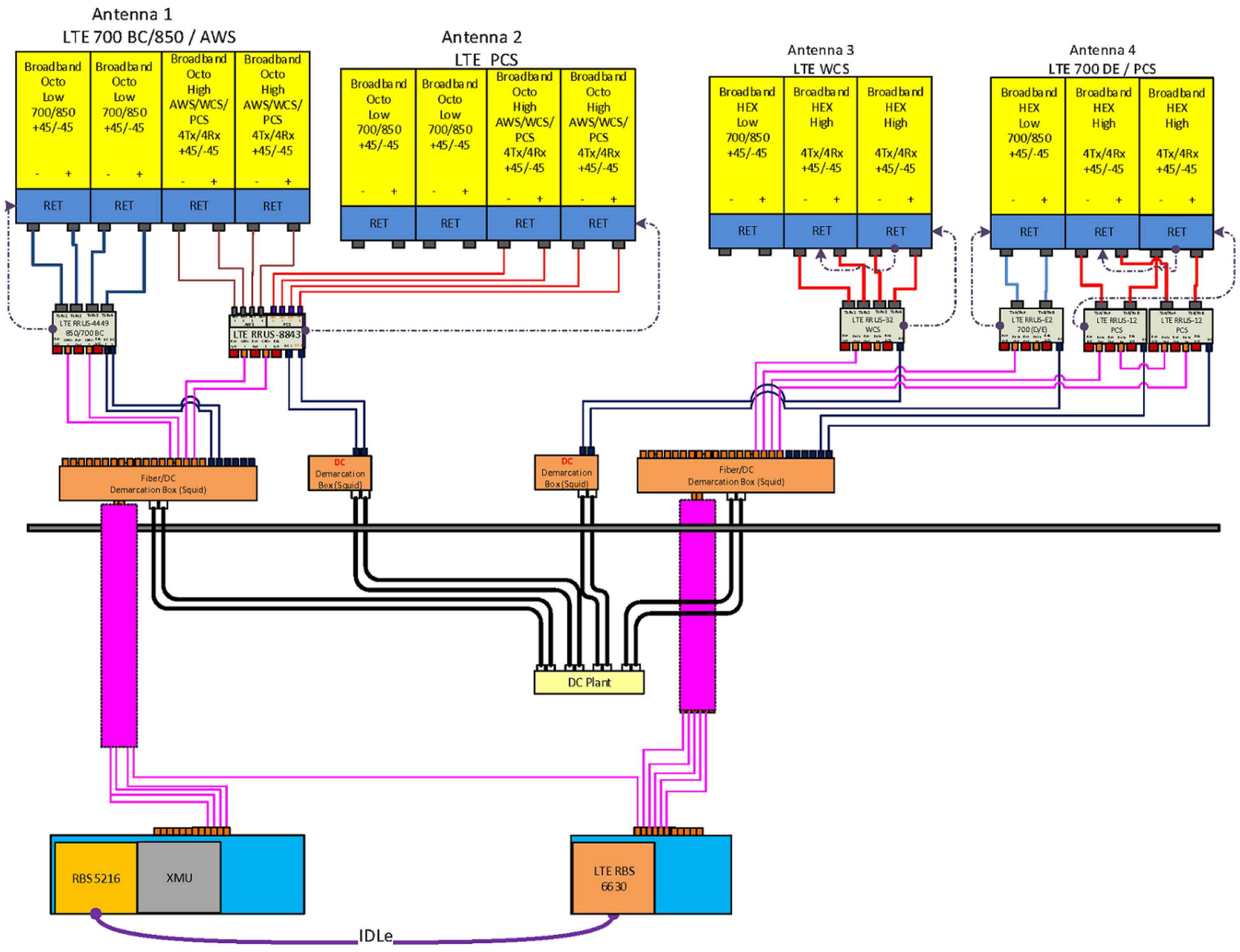

PLUMBING DIAGRAM

N.T.S.

at&t MOBILITY CORP.
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

CENTERLINE COMMUNICATIONS
750 WEST CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
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NO.	DATE	DESCRIPTION

DESIGNED BY:	APPROVED BY:
KT	DC

SITE NAME:
BRISTOL MIDDLE STREET (CT3461)

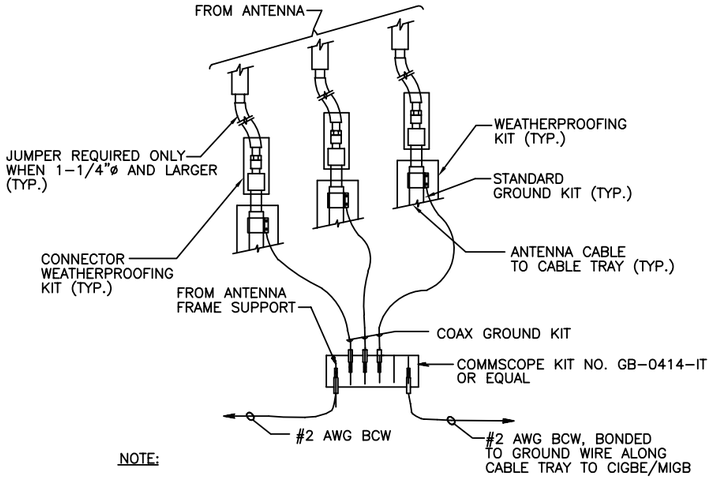
SITE NUMBER:
CT3461

SITE ADDRESS:
383 MIDDLE STREET
BRISTOL, CT 06010

PROJECT TYPE:
LTE BWE, 5C, 5G, 6C & RETRO

SHEET TITLE:
RF PLUMBING DIAGRAM

DRAWING #:	REVISION:
RF–1	1



NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

GROUNDING RISER DIAGRAM

N.T.S.

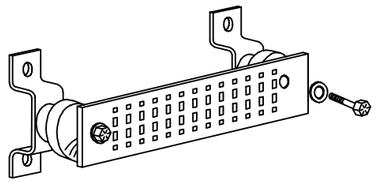
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

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

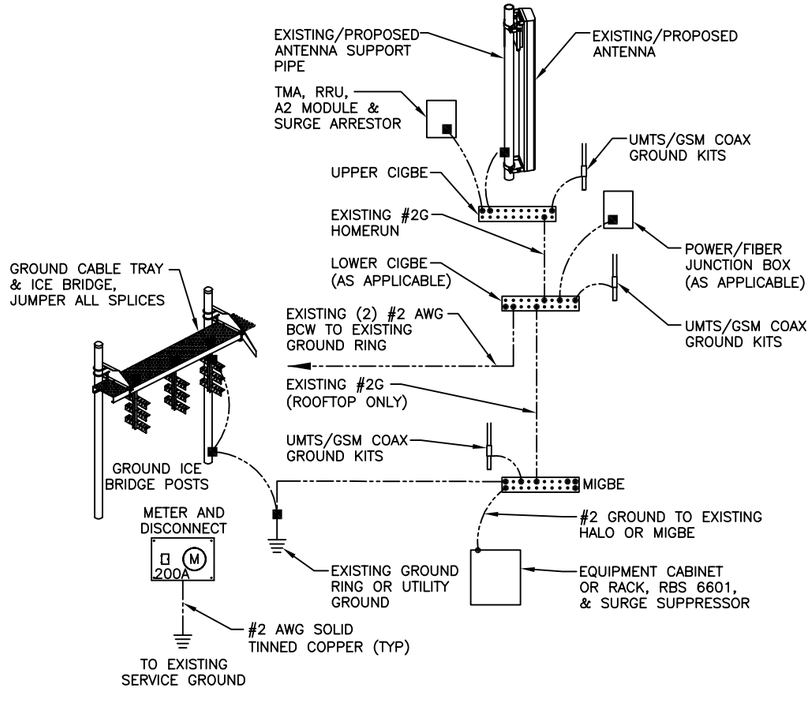
SECTION "A" – SURGE ABSORBERS

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



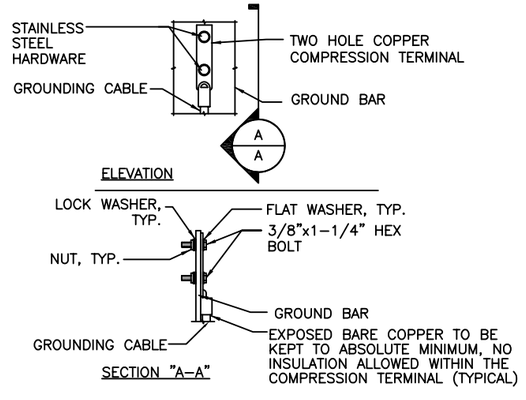
GROUND BAR DETAIL

N.T.S.



GROUNDING RISER DIAGRAM

N.T.S.



NOTE:

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

GROUND BAR CONNECTION DETAIL

N.T.S.

at&t MOBILITY CORP.
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

CENTERLINE COMMUNICATIONS
750 WEST CENTER ST, SUITE 301
WEST BRIDGEWATER, MA 02379
PHONE: 781.713.4725

REVISIONS		
1.	10/15/19	ISSUED FOR CONSTRUCTION
0.	10/15/19	ISSUED FOR REVIEW
NO.	DATE	DESCRIPTION

DESIGNED BY:	APPROVED BY:
KT	DC

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

SITE NAME:	BRISTOL MIDDLE STREET (CT3461)
SITE NUMBER:	CT3461
SITE ADDRESS:	383 MIDDLE STREET BRISTOL, CT 06010
PROJECT TYPE:	LTE BWE, 5C, 5G, 6C & RETRO
SHEET TITLE:	GROUNDING DETAILS
DRAWING #:	G–1
REVISION:	1

EXHIBIT 2

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

September 1, 2017

Tim Whalen
Real Estate Consultant
New Cingular Wireless PCS, LLC
95 Ryan Drive, Suite #1
Raynham, MA 02767

RE: **TS-CING-017-170613** - AT&T Wireless PCS, LLC request for an order to approve tower sharing at an existing telecommunications facility located at 383 Middle Street, Bristol, Connecticut.

Dear Mr. Whalen:

At a public meeting held on August 31, 2017, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures with the following conditions:

1. Any deviation from the proposed installation as specified in the original tower share request and supporting materials with the Council shall render this decision invalid;

2. Any material changes to the proposed installation as specified in the original tower share request and supporting materials filed with the Council shall require an explicit request for modification to the Council pursuant to Connecticut General Statutes § 16-50aa, including all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65;

3. Not less than 45 days after completion of the proposed installation, the Council shall be notified in writing that the installation has been completed;

4. Any nonfunctioning antenna and associated antenna mounting equipment on this facility owned and operated by AT&T Wireless PCS, LLC shall be removed within 60 days of the date the antenna ceased to function;

5. The validity of this action shall expire one year from the date of this letter; and

6. The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration.

This decision is under the exclusive jurisdiction of the Council and applies only to this request for tower sharing dated June 9, 2017, and additional information submitted on July 11, 2017 and July 21, 2017. This facility has been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower. Any deviation from the approved tower sharing request is enforceable under the provisions of Connecticut General Statutes § 16-50u.

The proposed shared use is to be implemented as specified in your letter dated June 9, 2017, and additional information submitted on July 11, 2017 and July 21, 2017, including the placement of all necessary equipment and shelters within the tower compound.

Please be advised that the validity of this action shall expire one year from the date of this letter.

Thank you for your attention and cooperation.

Very truly yours,

Robert Stein MAB

Robert Stein
Chairman

RS/MAB/CMW/bm

c: The Honorable Ken Cockayne, Mayor, City of Bristol
William J. Veits, Planning Commission Chairman, City of Bristol
Bristol Sports Center LeaseCo, LLC, c/o Inland Private Capital Corporation, Property Owners

EXHIBIT 3

383 MIDDLE ST

Location	383 MIDDLE ST	**Mblu**	03/ / 35/ /
Acct#	0172553	**Owner**	BRISTOL SPORTS CENTER DST
Assessment	$25,297,930	**Appraisal**	$36,139,900
PID	2398	**Building Count**	6

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$29,863,200	$6,276,700	$36,139,900
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$20,904,240	$4,393,690	$25,297,930

Owner of Record

Owner	BRISTOL SPORTS CENTER DST	**Sale Price**	$42,175,000
Co-Owner	C/O INLAND PRIVATE CAPITAL CORPORATION	**Certificate**	
Address	PO BOX 3666 ATTN: PROPERTY TAX DEPT OAK BROOK, IL 60522	**Book & Page**	1956/0246
		Sale Date	12/13/2013
		Instrument	UNKQ

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
BRISTOL SPORTS CENTER DST	$42,175,000		1956/0246	UNKQ	12/13/2013
WE 383 MIDDLE STREET LLC	$6,750,000	1	1443/0496	00	10/01/2002
PACSCI MOTION CONTROL INC	$0		1330/0834		07/14/2000
WARNER ELECTRIC INC	$0		1320/0883		04/06/2000
WARNER ELECTRIC INC	$0		1318/0268		03/07/2000

Building Information

Building 1 : Section 1

Year Built:	1961
Living Area:	330,400
Replacement Cost:	$29,498,731

Building Percent Good: 82

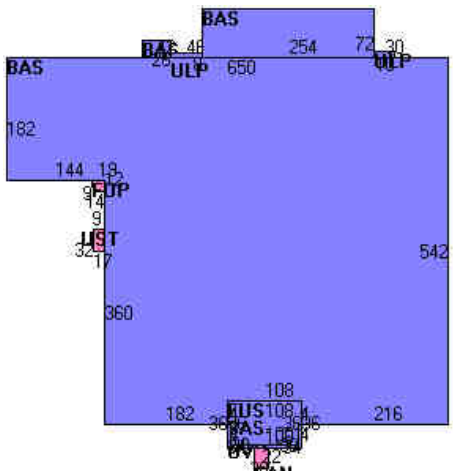
Replacement Cost Less Depreciation: $24,189,000

Building Attributes	
Field	**Description**
STYLE	Office Bldg
MODEL	Comm/Ind
Stories:	1
Occupancy	3.00
Exterior Wall 1	Brick/Masonry
Exterior Wall 2	Concr/Cinder
Roof Structure	Flat
Roof Cover	T+G/Rubber
Interior Wall 1	Drywall/Sheetr
Interior Wall 2	Minim/Masonry
Interior Floor 1	Carpet
Interior Floor 2	Concr-Finished
Heating Fuel	Electric
Heating Type	Forced Air-Duc
AC Type	Central
Struct Class	
Bldg Use	Off Bldg
Bedrooms	
Full Baths	
Half Baths	
Usrfld 218	
Usrfld 219	
1st Floor Use:	
Heat/AC	Heat/AC Pkgs
Frame Type	Masonry
Baths/Plumbing	Average
Ceiling/Wall	Sus-Ceil & WL
Rooms/Prtns	Average
Wall Height	10.00
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos2/BristolCTPhotos//\00\02\69\70

Building Layout



(http://images.vgsi.com/photos2/BristolCTPhotos//Sketches/239

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	322,840	322,840
FUS	Upper Story, Finished	6,888	6,888
OVH	Overhang	672	672
CAN	Canopy	616	0
FOP	Porch, Open	249	0
ULP	Loading Platform, Uncovered	668	0
UST	Utility, Storage, Unfinished	544	0
		332,477	330,400

Building 2 : Section 1

Year Built: 1974

Living Area: 71,712

Replacement Cost: $4,263,529

Building Percent Good: 77

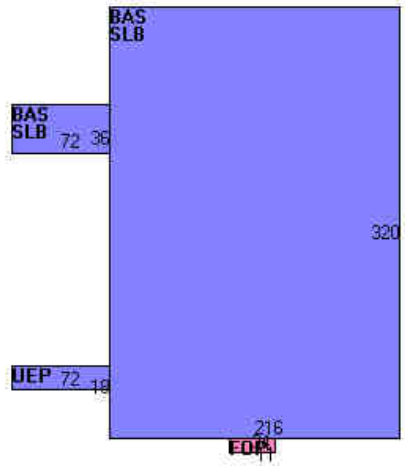
Replacement Cost Less Depreciation: $3,282,900

Building Attributes : Bldg 2 of 6	
Field	**Description**
STYLE	Office/Warehs
MODEL	Comm/Ind
Stories:	1
Occupancy	1.00
Exterior Wall 1	Brick/Masonry
Exterior Wall 2	Concr/Cinder
Roof Structure	Flat
Roof Cover	T+G/Rubber
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Inlaid Sht Gds
Interior Floor 2	Carpet
Heating Fuel	Propane Gas
Heating Type	Forced Air-Duc
AC Type	Central
Struct Class	
Bldg Use	Comm Whse
Bedrooms	
Full Baths	
Half Baths	
Usrfld 218	
Usrfld 219	
1st Floor Use:	
Heat/AC	Heat/AC Pkgs
Frame Type	Masonry
Baths/Plumbing	Average
Ceiling/Wall	None
Rooms/Prtns	Average
Wall Height	16.00
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos2/BristolCTPhotos//default.jpg)

Building Layout



(http://images.vgsi.com/photos2/BristolCTPhotos//Sketches/239

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	71,712	71,712
FOP	Porch, Open	374	0
SLB	Slab	71,712	0
UEP	Porch, Enclosed, Unfinished	1,296	0
		145,094	71,712

Building 3 : Section 1

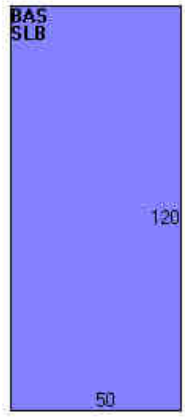
Year Built: 1961
Living Area: 6,000
Replacement Cost: $283,500
Building Percent Good: 65
Replacement Cost Less Depreciation: $184,300

Building Attributes : Bldg 3 of 6	
Field	**Description**
STYLE	Light Indust
MODEL	Comm/Ind
Stories:	1
Occupancy	1.00
Exterior Wall 1	Brick/Masonry
Exterior Wall 2	Concr/Cinder
Roof Structure	Flat
Roof Cover	T+G/Rubber
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Oil
Heating Type	Hot Air-no Duc
AC Type	None
Struct Class	
Bldg Use	Industrial
Bedrooms	
Full Baths	
Half Baths	
Usrfld 218	
Usrfld 219	
1st Floor Use:	
Heat/AC	None
Frame Type	Masonry
Baths/Plumbing	Average
Ceiling/Wall	None
Rooms/Prtns	Average
Wall Height	16.00
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos2/BristolCTPhotos//default.jpg)

Building Layout



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Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	6,000	6,000
SLB	Slab	6,000	0
		12,000	6,000

Building 4 : Section 1

Year Built: 2004
Living Area: 2,587
Replacement Cost: $647,907
Building Percent Good: 96
Replacement Cost Less Depreciation: $622,000

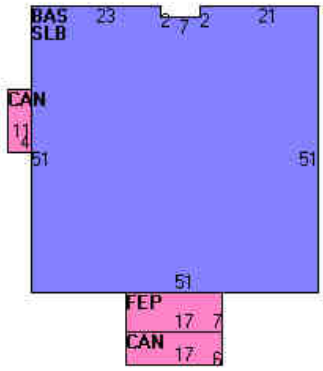
Building Attributes : Bldg 4 of 6	
Field	**Description**

STYLE	Branch Bank
MODEL	Comm/Ind
Stories:	1
Occupancy	1.00
Exterior Wall 1	Brick Veneer
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Asphalt Shingl
Interior Wall 1	Drywall/Sheetr
Interior Wall 2	
Interior Floor 1	Carpet
Interior Floor 2	Ceram Clay Til
Heating Fuel	Propane Gas
Heating Type	Forced Air-Duc
AC Type	Central
Struct Class	
Bldg Use	Bank Bldg
Bedrooms	
Full Baths	
Half Baths	
Usrfld 218	
Usrfld 219	
1st Floor Use:	
Heat/AC	Heat/AC Pkgs
Frame Type	Steel
Baths/Plumbing	Average
Ceiling/Wall	Sus-Ceil & WL
Rooms/Prtns	Average
Wall Height	10.00
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos2/BristolCTPhotos//default.jpg)

Building Layout



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Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	2,587	2,587
CAN	Canopy	146	0
FEP	Porch, Enclosed	119	0
SLB	Slab	2,587	0
		5,439	2,587

Building 5 : Section 1

Year Built: 2018
Living Area: 208
Replacement Cost: $45,401
Building Percent Good: 100
Replacement Cost Less Depreciation: $45,400

Building Attributes : Bldg 5 of 6	
Field	**Description**

STYLE	Ind Office
MODEL	Comm/Ind
Stories:	1
Occupancy	1.00
Exterior Wall 1	Pre-finsh Metl
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Metal/Tin
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Carpet
Interior Floor 2	
Heating Fuel	Electric
Heating Type	Hot Air-no Duc
AC Type	Unit/AC
Struct Class	
Bldg Use	Othr Outdr
Bedrooms	
Full Baths	0
Half Baths	0
Usrfld 218	
Usrfld 219	
1st Floor Use:	
Heat/AC	Heat/AC Pkgs
Frame Type	Steel
Baths/Plumbing	None
Ceiling/Wall	Susp-Ceil Only
Rooms/Prtns	Light
Wall Height	8.00
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos2/BristolCTPhotos//default.jpg)

Building Layout


Building Layout
(http://images.vgsi.com/photos2/BristolCTPhotos//Sketches/239

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	208	208
CAN	Canopy	2,400	0
SLB	Slab	208	0
		2,816	208

Building 6 : Section 1

Year Built: 2018
Living Area: 104
Replacement Cost: $29,959
Building Percent Good: 100
Replacement Cost Less Depreciation: $30,000

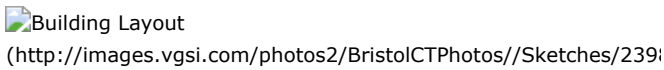
Building Attributes : Bldg 6 of 6	
Field	**Description**
STYLE	Ind Office
MODEL	Comm/Ind

Stories:	1
Occupancy	1.00
Exterior Wall 1	Pre-finsh Metl
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Metal/Tin
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Carpet
Interior Floor 2	
Heating Fuel	Electric
Heating Type	Hot Air-no Duc
AC Type	Unit/AC
Struct Class	
Bldg Use	Othr Outdr
Bedrooms	
Full Baths	0
Half Baths	0
Usrfld 218	
Usrfld 219	
1st Floor Use:	
Heat/AC	Heat/AC Pkgs
Frame Type	Steel
Baths/Plumbing	None
Ceiling/Wall	Susp-Ceil Only
Rooms/Prtns	Light
Wall Height	8.00
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos2/BristolCTPhotos//default.jpg)

Building Layout



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Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	104	104
CAN	Canopy	1,750	0
SLB	Slab	104	0
		1,958	104

Extra Features

Extra Features				Legend
Code	**Description**	**Size**	**Value**	**Bldg #**
LDL2	Load Lvr Man.	2.00 Units	$600	1
OHD	Overhead Door	2.00 Units	$0	1
SPR	Sprinklers	330400.00 S.F.	$277,500	1
LDL1	Load Leveler	6.00 Units	$11,000	2
ELEV	Elevator	1.00 Units	$34,400	1
CLR2	Freezer	80.00 S.F.	$6,800	1
OHD	Overhead Door	3.00 Units	$0	2
CLR1	Cooler	750.00 S.F.	$60,500	1

OHD	Overhead Door	4.00 Units	$0	2
SPR	Sprinklers	71712.00 S.F.	$110,000	2
OHD	Overhead Door	2.00 Units	$0	3
OHD	Overhead Door	1.00 Units	$0	3
OHD	Overhead Door	1.00 Units	$0	3
SPR	Sprinklers	1293.00 S.F.	$2,800	4
ATM1	ATM	1.00 Units	$25,000	4
NDP	Night Dep Box	1.00 Units	$15,400	4

Land

Land Use

Use Code 343
Description Prof Bldg
Zone IP-1
Neighborhood 110
Alt Land Appr No
Category

Land Line Valuation

Size (Acres) 36.9
Frontage
Depth
Assessed Value $4,393,690
Appraised Value $6,276,700

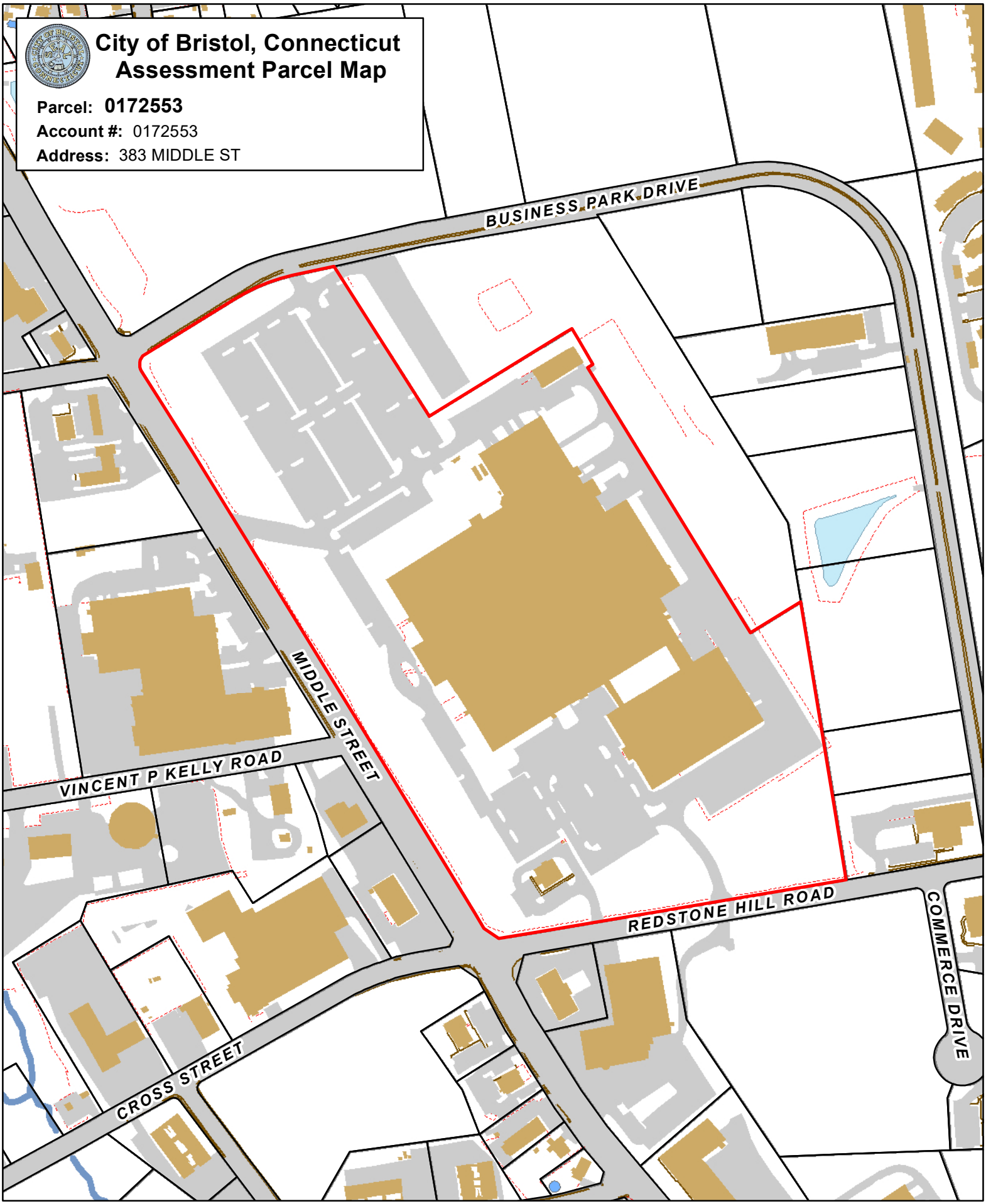
Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FN3	Fence 6'			5500.00 L.F.	$42,600	1
PAV1	Paving Asph.			520300.00 S.F.	$819,500	1
CB3	PreCastConcCel			200.00 S.F.	$36,000	1
LT1	Light (1fixt)			38.00 UNITS	$35,200	1
LT2	Light (2 fixt)			20.00 UNITS	$27,500	1
LT3	Light (3 fixt)			1.00 UNITS	$1,800	1
CELL	Cell Tower/Site			1.00 UNITS	$0	1
PAV1	Paving Asph.			2850.00 S.F.	$3,000	4

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
19	$29,863,200	$6,276,700	$36,139,900
2018	$29,863,200	$6,276,700	$36,139,900
2017	$29,787,800	$6,276,700	$36,064,500

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
19	$20,904,240	$4,393,690	$25,297,930
2018	$20,904,240	$4,393,690	$25,297,930
2017	$20,851,460	$4,393,690	$25,245,150



Approximate Scale: 1 inch = 300 feet

Map Produced March 2018

EXHIBIT 4

Radio Frequency Emissions Analysis Report

AT&T

Site Name: **Bristol Middle Street**

383 Middle Street
Bristol, CT 06010

November 20, 2019

Centerline Communications Project Number: 950012-323

Site Compliance Summary	
Compliance Status:	**Compliant**
Site total MPE% of FCC general population allowable limit:	**22.5%**

Centerline Communications, LLC 95 Ryan Drive, Suite 1 Raynham MA 02767

November 20, 2019

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

Emissions Analysis for Site: **Bristol Middle Street**

Centerline Communications, LLC ("Centerline") was directed to analyze the proposed AT&T facility to be located on **a smokestack** at **383 Middle Street, Bristol CT 06010** for the purpose of determining whether the emissions from the proposed facility are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (∝W/cm2). The number of ∝W/cm^2 calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

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

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

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

RRH #	Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
1	LTE	700 MHz	2	40
1	LTE	2100 MHz (AWS Band)	4	40
1	LTE	850 MHz	2	40
2	LTE	1900 MHz (PCS Band)	4	40
3	LTE	2300 MHz (WCS Band)	4	25
4	LTE	700 MHz	2	40
4	LTE	1900 MHz (PCS Band)	2	60
5	LTE	700 MHz	2	40
5	LTE	2100 MHz (AWS Band)	4	40
5	LTE	850 MHz	2	40
6	LTE	1900 MHz (PCS Band)	4	40
7	LTE	2300 MHz (WCS Band)	4	25
8	LTE	700 MHz	2	40
8	LTE	1900 MHz (PCS Band)	2	60
9	LTE	700 MHz	2	40
9	LTE	2100 MHz (AWS Band)	4	40
9	LTE	850 MHz	2	40
10	LTE	1900 MHz (PCS Band)	4	40
11	LTE	2300 MHz (WCS Band)	4	25
12	LTE	700 MHz	2	40
12	LTE	1900 MHz (PCS Band)	2	60

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

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	CCI DMP65R-BU8DA	120
A	1	CCI DMP65R-BU8DA	120
A	1	CCI DMP65R-BU8DA	120
A	2	CCI DMP65R-BU8DA	120
A	3	CCI HPA-65R-BUU-H8	120
A	4	CCI HPA-65R-BUU-H8	120
A	4	CCI HPA-65R-BUU-H8	120
B	5	CCI DMP65R-BU8DA	120
B	5	CCI DMP65R-BU8DA	120
B	5	CCI DMP65R-BU8DA	120
B	6	CCI DMP65R-BU8DA	120
B	7	CCI HPA-65R-BUU-H8	120
B	8	CCI HPA-65R-BUU-H8	120
B	8	CCI HPA-65R-BUU-H8	120
C	9	CCI DMP65R-BU8DA	120
C	9	CCI DMP65R-BU8DA	120
C	9	CCI DMP65R-BU8DA	120
C	10	CCI DMP65R-BU8DA	120
C	11	CCI HPA-65R-BUU-H8	120
C	12	CCI HPA-65R-BUU-H8	120
C	12	CCI HPA-65R-BUU-H8	120

Table 2: Antenna Data

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

RESULTS

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

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Antenna Height (ft)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	CCI DMP65R-BU8DA	700 MHz	12.95 dBd	120	2	40	1577.94	0.8436%
Antenna A1	CCI DMP65R-BU8DA	2100 MHz (AWS Band)	16.05 dBd	120	4	40	6443.47	1.6087%
Antenna A1	CCI DMP65R-BU8DA	850 MHz	13.85 dBd	120	2	40	1941.29	0.8548%
Antenna A2	CCI DMP65R-BU8DA	1900 MHz (PCS Band)	15.65 dBd	120	4	40	5876.52	1.4671%
Antenna A3	CCI HPA-65R-BUU-H8	2300 MHz (WCS Band)	15.55 dBd	120	4	25	3589.22	0.8961%
Antenna A4	CCI HPA-65R-BUU-H8	700 MHz	13.15 dBd	120	2	40	1652.30	0.8833%
Antenna A4	CCI HPA-65R-BUU-H8	1900 MHz (PCS Band)	14.95 dBd	120	2	60	3751.30	0.9366%
Antenna B1	CCI DMP65R-BU8DA	700 MHz	12.95 dBd	120	2	40	1577.94	0.8436%
Antenna B1	CCI DMP65R-BU8DA	2100 MHz (AWS Band)	16.05 dBd	120	4	40	6443.47	1.6087%
Antenna B1	CCI DMP65R-BU8DA	850 MHz	13.85 dBd	120	2	40	1941.29	0.8548%
Antenna B2	CCI DMP65R-BU8DA	1900 MHz (PCS Band)	15.65 dBd	120	4	40	5876.52	1.4671%
Antenna B3	CCI HPA-65R-BUU-H8	2300 MHz (WCS Band)	15.55 dBd	120	4	25	3589.22	0.8961%
Antenna B4	CCI HPA-65R-BUU-H8	700 MHz	13.15 dBd	120	2	40	1652.30	0.8833%
Antenna B4	CCI HPA-65R-BUU-H8	1900 MHz (PCS Band)	14.95 dBd	120	2	60	3751.30	0.9366%
Antenna C1	CCI DMP65R-BU8DA	700 MHz	12.95 dBd	120	2	40	1577.94	0.8436%
Antenna C1	CCI DMP65R-BU8DA	2100 MHz (AWS Band)	16.05 dBd	120	4	40	6443.47	1.6087%
Antenna C1	CCI DMP65R-BU8DA	850 MHz	13.85 dBd	120	2	40	1941.29	0.8548%
Antenna C2	CCI DMP65R-BU8DA	1900 MHz (PCS Band)	15.65 dBd	120	4	40	5876.52	1.4671%
Antenna C3	CCI HPA-65R-BUU-H8	2300 MHz (WCS Band)	15.55 dBd	120	4	25	3589.22	0.8961%
Antenna C4	CCI HPA-65R-BUU-H8	700 MHz	13.15 dBd	120	2	40	1652.30	0.8833%
Antenna C4	CCI HPA-65R-BUU-H8	1900 MHz (PCS Band)	14.95 dBd	120	2	60	3751.30	0.9366%
							Sector A Composite MPE%	22.4706%

Table 3: AT&T Antenna Inventory & Power Levels

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

AT&T _ Frequency Band / Technology Max Power Levels	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (□W/cm^2)	Frequency (MHz)	Allowable MPE (□W/cm^2)	Calculated % MPE
AT&T 700 MHz LTE	2	1577.94	120	3.9395%	700 MHz LTE	1000	0.8436%
AT&T 2100 MHz LTE	4	6443.47	120	16.0870%	2100 MHz LTE	1000	1.6087%
AT&T 850 MHz LTE	2	1941.29	120	4.8467%	850 MHz LTE	1000	0.8548%
AT&T 1900 MHz LTE	4	5876.52	120	14.6715%	1900 MHz LTE	1000	1.4671%
AT&T 2300 MHz LTE	4	3589.22	120	8.9609%	2300 MHz LTE	1000	0.8961%
AT&T 700 MHz LTE	2	1652.30	120	4.1252%	700 MHz LTE	1000	0.8833%
AT&T 1900 MHz LTE	2	3751.30	120	9.3656%	1900 MHz LTE	1000	0.9366%
AT&T 700 MHz LTE	2	1577.94	120	3.9395%	700 MHz LTE	1000	0.8436%
AT&T 2100 MHz LTE	4	6443.47	120	16.0870%	2100 MHz LTE	1000	1.6087%
AT&T 850 MHz LTE	2	1941.29	120	4.8467%	850 MHz LTE	1000	0.8548%
AT&T 1900 MHz LTE	4	5876.52	120	14.6715%	1900 MHz LTE	1000	1.4671%
AT&T 2300 MHz LTE	4	3589.22	120	8.9609%	2300 MHz LTE	1000	0.8961%
AT&T 700 MHz LTE	2	1652.30	120	4.1252%	700 MHz LTE	1000	0.8833%
AT&T 1900 MHz LTE	2	3751.30	120	9.3656%	1900 MHz LTE	1000	0.9366%
AT&T 700 MHz LTE	2	1577.94	120	3.9395%	700 MHz LTE	1000	0.8436%
AT&T 2100 MHz LTE	4	6443.47	120	16.0870%	2100 MHz LTE	1000	1.6087%
AT&T 850 MHz LTE	2	1941.29	120	4.8467%	850 MHz LTE	1000	0.8548%
AT&T 1900 MHz LTE	4	5876.52	120	14.6715%	1900 MHz LTE	1000	1.4671%
AT&T 2300 MHz LTE	4	3589.22	120	8.9609%	2300 MHz LTE	1000	0.8961%
AT&T 700 MHz LTE	2	1652.30	120	4.1252%	700 MHz LTE	1000	0.8833%
AT&T 1900 MHz LTE	2	3751.30	120	9.3656%	1900 MHz LTE	1000	0.9366%
						Sector A Total:	**22.5%**

Table 6: AT&T Maximum Sector MPE Power Values

Summary

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

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

AT&T Sector	Power Density Value (%)
Sector A:	7.5%
Sector B:	7.5%
Sector C:	7.5%
AT&T Maximum Site Total:	22.5%
Site Total:	**22.5%**
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **22.5%** of the allowable FCC established general population limit sampled at the ground level.

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

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EXHIBIT 5

CENTERLINE COMMUNICATIONS
750 West Center Street, Suite 301
West Bridgewater, MA 02379
781.713.4725

Revised Structural Analysis

Site Number: CT3461
Site Name: Bristol Middle Street
Address: 383 Middle Street
Bristol, CT 06010
Pace ID: BWE-MRCTB040756, 5G-MRCTB040824, 5C-MRCTB040465, 6C-MRCTBO40628, RETRO-MRCTB40798
Project: BWE Tower Top RRH add, 5G NR Upgrade, LTE 5C, 6C & RETRO
Scope: ST02

Client:

at&t Mobility Corp.
550 Cochituate Road
Framingham, MA 01701

at&t

Date: 10/10/2019 (Rev.1)
10/4/2019

STATE OF CONNECTICUT
DEREK J. CREASEY
No. 23551
LICENSED PROFESSIONAL ENGINEER

Scope of Work:

Centerline Communications was authorized by AT&T to perform a structural analysis of the existing brick chimney and the existing catwalk assembly supporting the AT&T antennas. This structural analysis is for the proposed and existing AT&T appurtenances listed below.

Proposed Appurtenances:

(6) DMP65R-BU8DA Antenna (96.0" H, 20.7" W, 7.7" D) (Weight= 95.7 lbs.)
(3) 4449 B5/B12 RRUS (14.96" H, 13.19" W, 10.43" D) (Weight= 73 lbs.)
(3) 8843 B2/B66A RRUS (14.9" H, 13.2" W, 10.9" D) (Weight= 72 lbs.)
(3) RRUS-E2 B29 (20.4" H, 18.5" W, 7.5" D) (Weight= 60 lbs.)
(1) DC6-48-60-18-8F Surge Arrestor (24.0" H, 9.7" ø) (Weight= 33.0 lbs.)

Existing Appurtenances:

(6) HPA-6R-BUU-H8 Antenna (92.4" H, 14.8" W, 7.4" D) (Weight= 68 lbs.)
(3) RRUS 32 B30 (26.7" H, 12.1" W, 6.7" D) (Weight= 60.0 lbs.)
(6) RRUS 12 B2 (20.4" H, 18.5" W, 7.5" D) (Weight= 50.0 lbs.)
(3) DC6-48-60-18-8F Surge Arrestor (24.0" H, 9.7" ø) (Weight= 33.0 lbs.)

Design Criteria:

Design Codes:

International Building Code 2015
Connecticut State Building Code 2018
ASCE 7-10

Design Loads:

Risk Category: II
Exposure Category: B (ASCE 7-10)
Ultimate Design Wind Speed (V_{ult}) = 120 mph (CSBC-Appendix N)

Design Codes:

TIA-222-H Structural Standard for Antenna Supporting Structures and Antennas

Design Loads:

Basic Wind Speed (V) = 120 mph (Annex B, Figure B-2)
Ice thickness= 1 in. (Annex B, Figure B-9)

****See calculations for additional design criteria.***

Assumptions and Exclusions:

- The existing catwalk assembly is assumed to have been correctly designed and installed.
- The calculations performed by Centerline Communications are limited to the structural members in these calculations only.
- The structural calculations in this report do not check the connections of the catwalk assembly to the brick chimney.
- Centerline Communications did not perform a condition assessment of the existing brick chimney. It is assumed that the brick chimney is structurally sound.
- Reference the latest Centerline Communications construction drawings for the location of the existing and proposed AT&T appurtenances.

Reference Documents:

- Structural Design Calculations by Advanced Engineering Group dated July 18, 2017.

Conclusion:

- The results of the analysis concluded that the existing brick chimney is capable of supporting the existing and proposed AT&T appurtenance loads.

- The results of the analysis concluded that the existing catwalk assembly is capable of supporting the existing and proposed AT&T appurtenance loads with the following recommendations:

    - Install (1) new surge arrestor and (9) new RRH's below the existing catwalk assembly to minimize the loading on the catwalk.
    - Install the above mentioned equipment on new steel bands secured to the existing brick chimney.
    - Contractor to verify the conditions of the brick and grout prior to any equipment installation. Repoint/repair brick as required.

Site Photos:

Existing AT&T appurtenances

Existing AT&T appurtenances

Calculations

SITE NUMBER: CT3461
SITE NAME: Bristol Middle Street
DATE: 10/10/2019
BY: AA **CHECKED BY:** DC

ANSI/TIA-222-H WIND CALCULATIONS:

Design Criteria:

Height above ground level at the base of the structure, z=	120 ft	
Mean elevation of base of structure above sea level, z_s=	258 ft	
Height of structure, h=	127 ft	
Basic Wind Speed, V (mph) =	120	(CSBC-Appendix N)
Basic Wind Speed with ice, V_i (mph) =	50	(Annex B, Figure B-9)
Max. Design Ice Thickness, t_i (in.)=	1	(Annex B, Figure B-9)
Exposure Category =	B	(2.6.5.1)
Topographic Category =	1	(2.6.6.2.1)
Wind Direction Prob. Factor, K_d =	0.95	(Table 2-2)
Importance Factor, I =	1	(Table 2-3)
Velocity Pressure Coefficient, K_z =	1.04	(2.6.5.2)
Topographic Factor, K_{zt} =	1	(2.6.6.2.1)
Rooftop Wind Speed-Up Factor, K_s =	1	(2.6.7)
Ground Elevation Factor, K_e =	0.99	(2.6.8)
Gust Effect Factor G_h =	1	(2.6.9)
Factored thickness of radial glazed ice at z, tiz =	1.14 in	(2.6.10)

Calculate Velocity Pressure:

$q_z = 0.00256\ K_z\ K_{zt}\ K_s\ K_e\ K_d\ V^2$ (lb/ft^2) (2.6.11.6)

q_z= **36.12**

Calculate Velocity Pressure with Ice:

$q_{zi} = 0.00256\ K_z\ K_{zt}\ K_d\ V_i^2\ I$ (lb/ft^2) (2.6.11.6)

q_{zi}= **6.33**

SITE NUMBER: CT3461
SITE NAME: Bristol Middle Street
DATE: 10/10/2019
BY: AA **CHECKED BY:** DC

ANSI/TIA-222-G WIND CALCULATIONS (Cont.):

Calculate Design Wind Force on Appurtenance:

$F = q_z G_h (EPA)_A$ (2.6.9.2)

Appurtenances/Equip.	Height (in)	Width (in)	Depth (in)	Area (ft^2)	Aspect Ratio	Force Coef., C_a	F (lbs.)
DMP65R-BU8DA Antenna	96.00	20.70	7.70	13.80	4.64	1.30	648
DMP65R-BU8DA Antenna-Side	96.00	7.70	20.70	5.13	12.47	1.58	293
HPA-65R-BU-H8 Antenna	92.40	14.80	7.40	9.50	6.24	1.37	470
HPA-65R-BU-H8 Antenna-Side	92.40	7.40	14.80	4.75	12.49	1.58	271
4449 B5/B12 RRH	14.96	13.19	10.43	1.37	1.13	1.20	59
4449 B5/B12 RRH-Side	14.96	10.43	13.19	1.08	1.43	1.20	47
8843 B2/B66A RRH	14.90	13.20	10.90	1.37	1.13	1.20	59
8843 B2/B66A RRH-Side	14.90	10.90	13.20	1.13	1.37	1.20	49
RRUS 32 B30 RRH	26.70	12.10	6.70	2.24	2.21	1.20	97
RRUS 32 B30 RRH-Side	26.70	6.70	12.10	1.24	3.99	1.27	57
RRUS-E2 B29	20.40	18.50	7.50	2.62	1.10	1.20	114
RRUS-E2 B29-Side	20.40	7.50	18.50	1.06	2.72	1.21	46
RRUS-12 B2	20.40	18.50	7.50	2.62	1.10	1.20	114
RRUS-12 B2-Side	20.40	7.50	18.50	1.06	2.72	1.21	46
DC-48-60-18-8F Squid	24.00	9.70	9.70	1.62	2.47	0.70	41

SITE NUMBER: CT3461
SITE NAME: Bristol Middle Street
DATE: 10/10/2019
BY: AA **CHECKED BY:** DC

Calculate Design Wind Force on Appurtenance With Ice: t_{iz} (in) = **1.14**

$F_{ice} = q_{zi} G_h (EPA)_{Ai}$ (2.6.9.2)

Appurtenances/Equip.	Height w/ice (in)	Width w/ice (in)	Depth w/ice (in)	Area (ft^2)	Aspect Ratio	Force Coef., C_a	F_{ice} (lbs.)
DMP65R-BU8DA Antenna	98.28	22.98	9.98	15.68	4.28	1.28	127
DMP65R-BU8DA Antenna-Side	98.28	9.98	22.98	6.81	9.85	1.50	65
HPA-65R-BU-H8 Antenna	94.68	17.08	9.68	11.23	5.54	1.34	95
HPA-65R-BU-H8 Antenna-Side	94.68	9.68	17.08	6.36	9.78	1.49	60
4449 B5/B12 RRH	17.24	15.47	12.71	1.85	1.11	1.20	14
4449 B5/B12 RRH-Side	17.24	12.71	15.47	1.52	1.36	1.20	12
8843 B2/B66A RRH	17.18	15.48	13.18	1.85	1.11	1.20	14
8843 B2/B66A RRH-Side	17.18	13.18	15.48	1.57	1.30	1.20	12
RRUS 32 B30 RRH	28.98	14.38	8.98	2.89	2.02	1.20	22
RRUS 32 B30 RRH-Side	28.98	8.98	14.38	1.81	3.23	1.20	14
RRUS-E2 B29	22.68	20.78	9.78	3.27	1.09	1.20	25
RRUS-E2 B29-Side	22.68	9.78	20.78	1.54	2.32	1.20	12
RRUS-12 B2	22.68	20.78	9.78	3.27	1.09	1.20	25
RRUS-12 B2-Side	22.68	9.78	20.78	1.54	2.32	1.20	12
DC-48-60-18-8F Squid	26.28	11.98	11.98	2.19	2.19	0.70	10

SITE NUMBER: CT3461
SITE NAME: Bristol Middle Street
DATE: 10/10/2019
BY: AA **CHECKED BY:** DC

ICE LOAD CALCULATIONS:

Unit Weight of Glaze Ice (lb/ft^3)= 56

Factored thickness of radial glazed ice at z, tiz (in) = 1.14

Appurtenances/Equip.	Height w/ice (in)	Width w/ice (in)	Depth w/ice (in)	Weight (lbs.)	Weight of Ice (lbs.)	Total Weight (lbs.)
DMP65R-BU8DA Antenna	98.28	22.98	9.98	95.70	234.08	329.78
HPA-65R-BU-H8 Antenna	94.68	17.08	9.68	68.00	178.97	246.97
4449 B5/B12 RRH	17.24	15.47	12.71	73.00	43.06	116.06
8843 B2/B66A RRH	17.18	15.48	13.18	72.00	44.02	116.02
RRUS 32 B30 RRH	28.98	14.38	8.98	60.00	51.01	111.01
RRUS-E2 B29	22.68	20.78	9.78	60.00	57.52	117.52
RRUS-12 B2	22.68	20.78	9.78	50.00	57.52	107.52
DC-48-60-18-8F Squid	26.28	11.98	11.98	33.00	48.94	81.94

SITE NUMBER: CT3461
SITE NAME: Bristol Middle Street
DATE: 10/10/2019
BY: AA **CHECKED BY:** DC

ICE LOAD CALCULATIONS (Cont.):

Member Properties for: **L3x3x1/4**

Leg Depth, d =	3.00	in.
Leg Width, b =	3.00	in.
Leg Thickness, t=	3.00	in.

Design Parameters:

Ice Height Factor, k_{iz} =	1.14		$K_{iz} = (z/33)^{0.10}$
Design Ice Thickness, t_{iz} =	1.14	in.	$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$
Density of Ice, I_d =	56	pcf	I_d = (assumed = 56 pcf)
Weight of Ice (for t_{iz}) W_i =	5.31	psf	$W_i = (t_{iz}/12)\ I_d$

Ice Load on Circumscribing Diameter of Member per Code:

Circumscribing Dia., D_c =	4.24	in.	Dc = SQRT (d^2+b^2)
Area of Ice (for t_{iz}), A_i =	19.23	in^2	$A_i = \prod * t_{iz} * (D_c + t_{iz})$
Unif. Distributed Ice Load, w_i =	7.48	plf	$w_i = (A_i/144) * I_d$

SITE NUMBER: CT3461
SITE NAME: Bristol Middle Street
DATE: 10/10/2019
BY: AA **CHECKED BY:** DC

ICE LOAD CALCULATIONS (Cont.):

Member Properties for: **Pipe2STD**

Outside Diameter, OD =	2.375	in.
Inside Diameter, ID =	2.067	in.
Nominal Wall Thickness, t =	0.154	in.

Design Parameters:

Ice Height Factor, k_{iz} =	1.14		$K_{iz} = (z/33)^{0.10}$
Design Ice Thickness, t_{iz} =	1.14	in.	$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$
Density of Ice, I_d =	56	pcf	I_d = (assumed = 56 pcf)
Weight of Ice (for t_{iz}) W_i =	5.31	psf	$W_i = (t_{iz}/12)\ I_d$

Ice Load on Circumscribing Diameter of Member per Code:

Circumscribing Dia., D_c =	2.38	in.	Dc = OD
Area of Ice (for t_{iz}), A_i =	12.56	in^2	$A_i = \prod * t_{iz} * (D_c + t_{iz})$
Unif. Distributed Ice Load, w_i =	4.88	plf	$w_i = (A_i/144) * I_d$

SITE NUMBER: CT3461
SITE NAME: Bristol Middle Street
DATE: 10/4/2019
BY: AA **CHECKED BY:** DC

ASCE 7-10 WIND CALCULATIONS:

Design Criteria:

Exposure Category	B	
Structure Classification	II	
Height of structure, h (ft)	127	
Basic Wind Speed, V (mph)	120	(CSBC-Appendix N)
Velocity Pressure Exposure Coefficient, K_z	1.06	(ASCE 7-10 Table 29.3-1)
Topographic Factor, K_{zt}	1	(ASCE 7-10 Section 26.8.2)
Wind Directionality Factor, K_d	1	(ASCE 7-10 Table 26.6-1)

Calculate Velocity Pressure:

$q_z = 0.00256\ K_z\ K_{zt}\ K_d\ V^2$ (lb./ft^2) (ASCE 7-10 Equation 29.3-1)

$q_z =$ **38.98**

Gust Factor, G	0.85	(ASCE 7-10 Section 26.9)
Net Force Coefficient, C_f	0.68	(ASCE 7-10 Figure 29.5-1)
Bottom Outside Diameter of Chimney, D_{o1} (ft)	11.50	
Top Outside Diameter of Chimney, D_{o2} (ft)	5.83	
Average Outside Diameter of Chimney, D_{ave} (ft)	8.67	
Gross Area Normal to Wind, A_s (ft^2)	1100.65	

Calculate Wind Force on Chimney:

$F = q_h\ G\ C_f\ A_s$ (lbs.)

$q_{zi} =$ **24875.88** (ASCE 7-10 Equation 29.4-1)

SITE NUMBER: CT3461
SITE NAME: Bristol Middle Street
DATE: 10/4/2019
BY: AA **CHECKED BY:** DC

CALCULATE OVERTURNING OF CHIMNEY:

Calculate Weight of Chimney:

Height of structure, h (ft)	127.00
Bottom Outside Diameter of Chimney, D_{o1} (ft)	11.50
Bottom Inside Diameter of Chimney, D_{i1} (ft)	7.75
Top Outside Diameter of Chimney, D_{o2} (ft)	5.83
Top Inside Diameter of Chimney, D_{i2} (ft)	4.33
Unit Weight of Brick, ɣ (pcf)	125.00

Approximate Weight of Chimney, W_s (kip)

$$= \frac{(D_{o1}^2 - D_{i1}^2) + (D_{o2}^2 - D_{i2}^2)}{2}$$

$$= 694.03$$

Calculate Approximate Weight of Existing & Proposed AT&T Equipment:

Appurtenances/Equip.	Qty.	W (lbs.)	Total (lbs.)
DMP65R-BU8DA Antenna	6.00	95.70	574.20
HPA-65R-BU-H8 Antenna	6.00	68.00	408.00
4449 B5/B12 RRH	3.00	73.00	219.00
8843 B2/B66A RRH	3.00	72.00	216.00
RRUS 32 B30 RRH	3.00	60.00	180.00
RRUS-E2 B29	3.00	60.00	180.00
RRUS-12 B2	6.00	50.00	300.00
DC-48-60-18-8F Squid	4.00	33.00	132.00
Mount/Catwalk	1.00	2000.00	2000.00
Cable ladders/Cables/etc.	1.00	3500.00	3500.00

∑ = 7709.20 lbs.

SITE NUMBER: CT3461
SITE NAME: Bristol Middle Street
DATE: 10/4/2019
BY: AA **CHECKED BY:** DC

CALCULATE OVERTURNING OF CHIMNEY (Cont.):

Calculate Approximate Weight of Existing Equipment By Others:

Appurtenances/Equip.	Qty.	W (lbs.)	Total (lbs.)
Antenna	50.00	3.00	150.00
RRH	60.00	3.00	180.00
Miscellaneous	100.00	1.00	100.00

∑ = **430.00** lbs.

Approximate Total Weight of Existing Chimney & Equipment, W_T:

W_T= **702.17** kip

Wind Load of Existing/Proposed AT&T Equip. @ 120 ft (exposed wind, assume RRH's shielded by the antennas):

Appurtenances/Equip.	Qty.	W_L (lbs.)	Total (lbs.)
DMP65R-BU8DA Antenna	2.00	648.00	1296.00
DMP65R-BU8DA Antenna-Side	2.00	293.00	586.00
HPA-65R-BU-H8 Antenna	4.00	470.00	1880.00
HPA-65R-BU-H8 Antenna-Side	4.00	271.00	1084.00

∑ = **4846.00** lbs.

Wind Load of Proposed AT&T Equipment @ 115 ft:

Appurtenances/Equip.	Qty.	W_L (lbs.)	Total (lbs.)
4449 B5/B12 RRH	1.00	59.00	59.00
8843 B2/B66A RRH	1.00	49.00	49.00
RRUS-E2 B29	1.00	114.00	114.00

∑ = **222.00** lbs.

Approximate Wind Load of Existing Antennas By Others @ 96 ft:

Appurtenances/Equip.	Qty.	W_L (lbs.)	Total (lbs.)
Antennas	3.00	300.00	900.00

∑ = **900.00** lbs.

SITE NUMBER: CT3461
SITE NAME: Bristol Middle Street
DATE: 10/4/2019
BY: AA **CHECKED BY:** DC

CALCULATE OVERTURNING OF CHIMNEY (Cont.):

Approximate Moment at Chimney Base due to Wind

M_{WB} = **2186.00** ft-kip

Approximate Moment at Chimney Base due to Self-Weight of Chimney and Equipment:

M_R = **4037.46** ft-kip

Factor of Safety:

$\frac{M_R}{M_{WB}}$ = **1.85** > **1.5, therefore O.K!**

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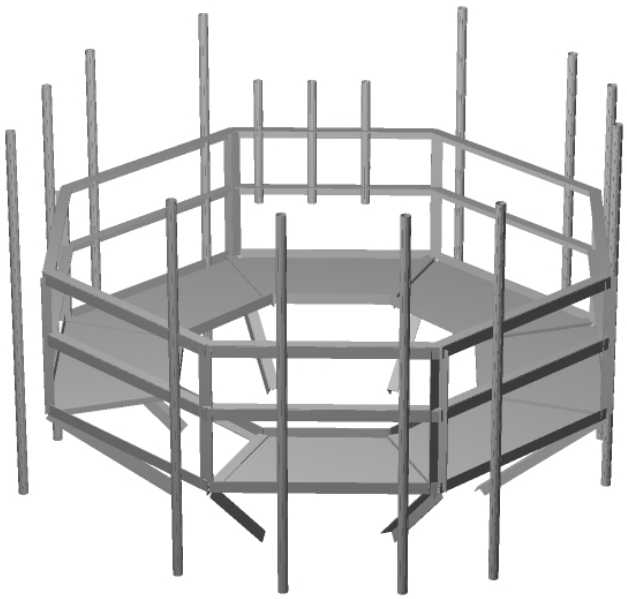

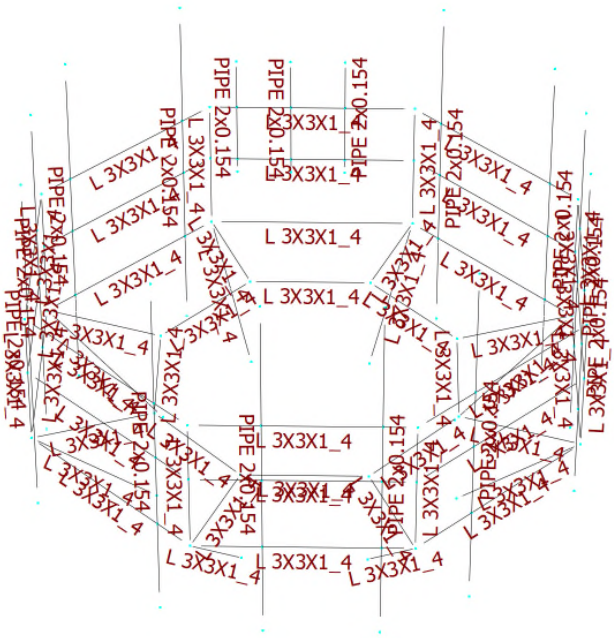
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PIPE 2x0.154


Y
X

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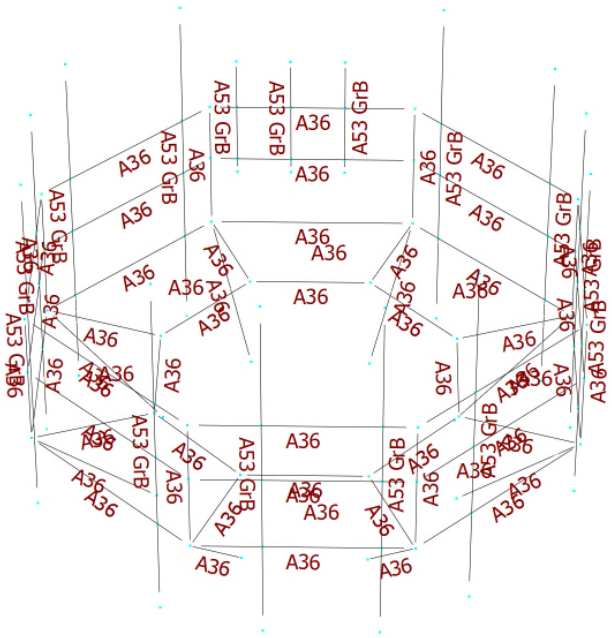

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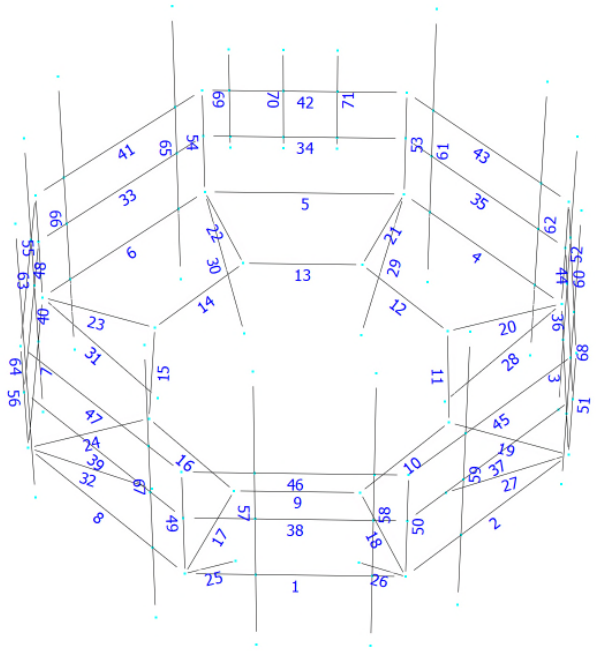

Bentley Centerline Communications

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Load data

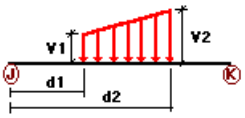
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
Di	Ice Load	No	LL
Wo	Wind Load (No Ice)	No	WIND
Wi	Wind Load (With Ice)	No	WIND
CL1	1.2DL+Wo	Yes	
CL2	0.9DL+Wo	Yes	
CL3	1.2DL+Di+Wi	Yes	
CL4	1.2DL	Yes	
CL5	0.9DL	Yes	

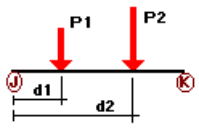
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [in]	%	Dist2 [in]	%
Di	25	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	26	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	27	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	28	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	29	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	30	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	31	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	32	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	33	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	34	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	35	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	36	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	37	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	38	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	39	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	40	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	41	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	42	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	43	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	44	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	45	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	46	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	47	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	48	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	49	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
	50	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes

51	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
52	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
53	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
54	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
55	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
56	Y	-0.0075	-0.0075	0.00	Yes	100.00	Yes
57	Y	-0.0049	-0.0049	0.00	Yes	100.00	Yes
58	Y	-0.0049	-0.0049	0.00	Yes	100.00	Yes
59	Y	-0.0049	-0.0049	0.00	Yes	100.00	Yes
60	Y	-0.0049	-0.0049	0.00	Yes	100.00	Yes
61	Y	-0.0049	-0.0049	0.00	Yes	100.00	Yes
62	Y	-0.0049	-0.0049	0.00	Yes	100.00	Yes
63	Y	-0.0049	-0.0049	0.00	Yes	100.00	Yes
64	Y	-0.0049	-0.0049	0.00	Yes	100.00	Yes
65	Y	-0.0049	-0.0049	0.00	Yes	100.00	Yes
66	Y	-0.0049	-0.0049	0.00	Yes	100.00	Yes
67	Y	-0.0049	-0.0049	0.00	Yes	100.00	Yes
68	Y	-0.0049	-0.0049	0.00	Yes	100.00	Yes
69	Y	-0.0049	-0.0049	0.00	Yes	100.00	Yes
70	Y	-0.0049	-0.0049	0.00	Yes	100.00	Yes
71	Y	-0.0049	-0.0049	0.00	Yes	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [in]	%
DL	57	Y	-0.068	48.00	No
		Y	-0.05	24.00	No
	58	Y	-0.068	48.00	No
		Y	-0.05	24.00	No
	59	Y	-0.0957	48.00	No
		Y	-0.06	24.00	No
	60	Y	-0.068	48.00	No
		Y	-0.05	24.00	No
	61	Y	-0.0957	48.00	No
		Y	-0.06	24.00	No
	62	Y	-0.0957	48.00	No
		Y	-0.05	24.00	No
	63	Y	-0.0957	48.00	No
		Y	-0.05	24.00	No
	64	Y	-0.0957	48.00	No
		Y	-0.06	24.00	No
	65	Y	-0.068	48.00	No
	66	Y	-0.068	48.00	No
		Y	-0.05	24.00	No
	67	Y	-0.068	48.00	No
	68	Y	-0.068	48.00	No
	69	Y	-0.033	22.00	No
	70	Y	-0.033	22.00	No
	71	Y	-0.033	22.00	No
Di	57	Y	-0.179	48.00	No
		Y	-0.058	24.00	No
	58	Y	-0.179	48.00	No
		Y	-0.058	24.00	No
	59	Y	-0.234	48.00	No
		Y	-0.051	24.00	No
	60	Y	-0.179	48.00	No

		Y	-0.058	24.00	No
	61	Y	-0.234	48.00	No
		Y	-0.051	24.00	No
	62	Y	-0.234	48.00	No
		Y	-0.058	24.00	No
	63	Y	-0.234	48.00	No
		Y	-0.058	24.00	No
	64	Y	-0.234	48.00	No
		Y	-0.051	24.00	No
	65	Y	-0.179	48.00	No
	66	Y	-0.179	48.00	No
		Y	-0.058	24.00	No
	67	Y	-0.179	48.00	No
	68	Y	-0.179	48.00	No
	69	Y	-0.049	22.00	No
	70	Y	-0.049	22.00	No
	71	Y	-0.049	22.00	No
Wo	57	Z	-0.47	48.00	No
		Z	-0.046	24.00	No
	58	Z	-0.648	48.00	No
		Z	-0.046	24.00	No
	59	Z	-0.648	48.00	No
		Z	-0.057	24.00	No
	60	Z	-0.164	48.00	No
		Z	-0.046	24.00	No
	61	Z	-0.293	48.00	No
		Z	-0.057	24.00	No
	62	Z	-0.293	48.00	No
		Z	-0.046	24.00	No
	63	Z	-0.293	48.00	No
		Z	-0.046	24.00	No
	64	Z	-0.293	48.00	No
		Z	-0.057	24.00	No
	65	Z	-0.164	48.00	No
	66	Z	-0.164	48.00	No
		Z	-0.046	24.00	No
	67	Z	-0.47	48.00	No
	68	Z	-0.164	48.00	No
	69	Z	-0.041	22.00	No
	70	Z	-0.041	22.00	No
	71	Z	-0.041	22.00	No
Wi	57	Z	-0.095	48.00	No
		Z	-0.012	24.00	No
	58	Z	-0.127	48.00	No
		Z	-0.012	24.00	No
	59	Z	-0.127	48.00	No
		Z	-0.014	24.00	No
	60	Z	-0.06	48.00	No
		Z	-0.012	24.00	No
	61	Z	-0.065	48.00	No
		Z	-0.014	24.00	No
	62	Z	-0.065	48.00	No
		Z	-0.012	24.00	No
	63	Z	-0.065	48.00	No
		Z	-0.012	24.00	No
	64	Z	-0.065	48.00	No
		Z	-0.014	24.00	No
	65	Z	-0.06	48.00	No
	66	Z	-0.06	48.00	No
		Z	-0.012	24.00	No
	67	Z	-0.095	48.00	No
	68	Z	-0.06	48.00	No
	69	Z	-0.01	22.00	No
	70	Z	-0.01	22.00	No
	71	Z	-0.01	22.00	No

Load on shells

Condition	Shell	Pressure [Kip/ft2]	Temp. [F]
Di	1	0.0053	0.00
	2	0.0053	0.00
	3	0.0053	0.00
	4	0.0053	0.00
	5	0.0053	0.00
	7	0.0053	0.00
	8	0.0053	0.00

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
Wo	Wind Load (No Ice)	No	0.00	0.00	0.00
Wi	Wind Load (With Ice)	No	0.00	0.00	0.00
CL1	1.2DL+Wo	Yes	0.00	0.00	0.00
CL2	0.9DL+Wo	Yes	0.00	0.00	0.00
CL3	1.2DL+Di+Wi	Yes	0.00	0.00	0.00
CL4	1.2DL	Yes	0.00	0.00	0.00
CL5	0.9DL	Yes	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
Di	0.00	0.00	0.00
Wo	0.00	0.00	0.00
Wi	0.00	0.00	0.00
CL1	0.00	0.00	0.00
CL2	0.00	0.00	0.00
CL3	0.00	0.00	0.00
CL4	0.00	0.00	0.00
CL5	0.00	0.00	0.00

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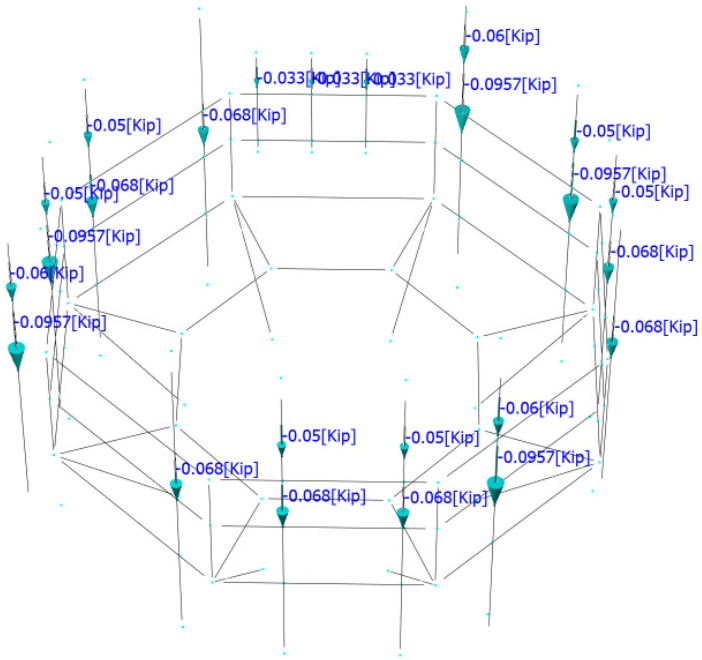
Load condition: DL=Dead Load

Concentrated user loads - Members



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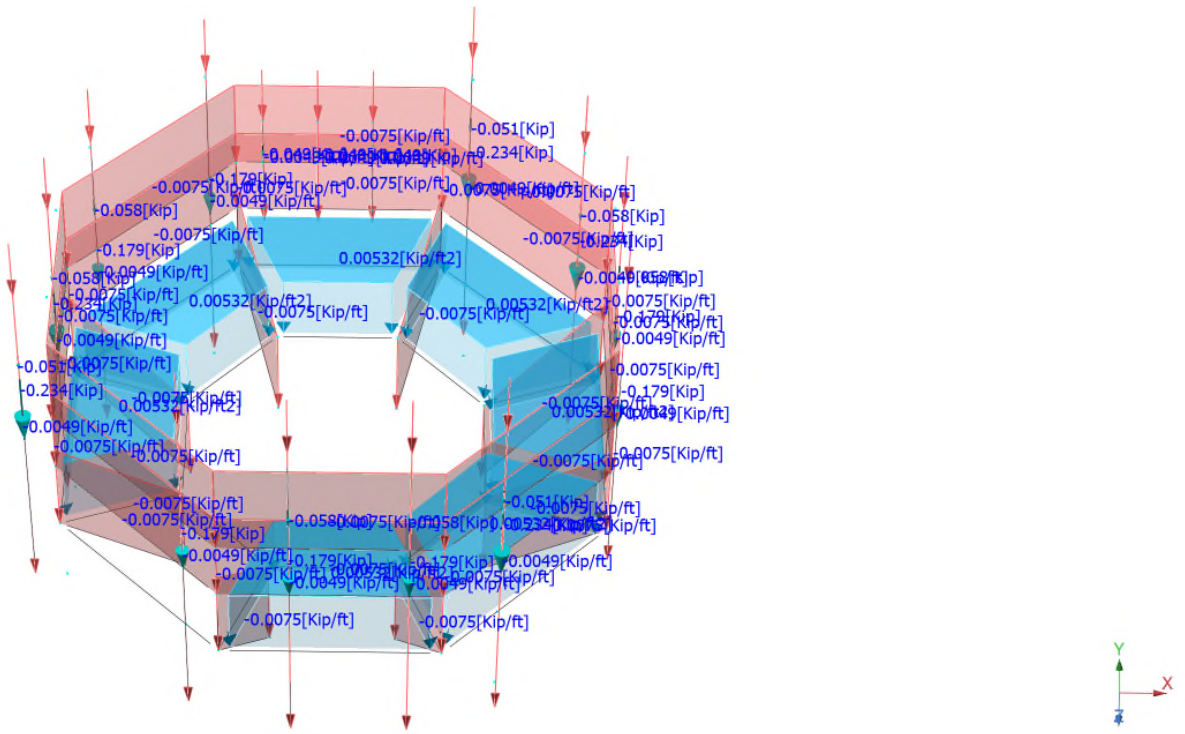
Load condition: Di=Ice Load



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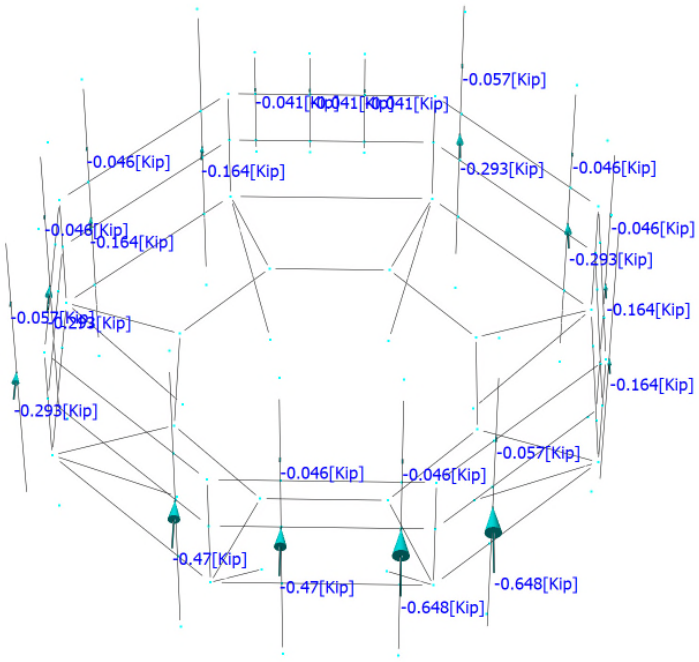
Load condition: Wo=Wind Load (No Ice)



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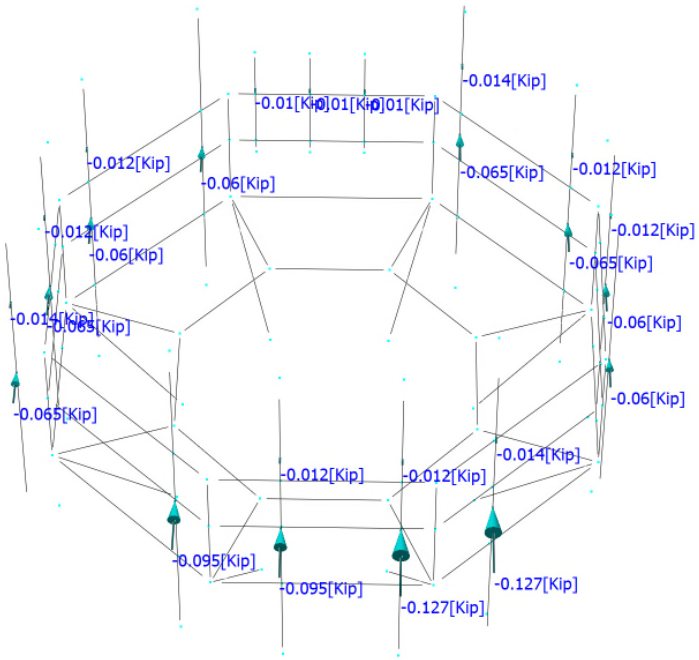
Load condition: Wi=Wind Load (With Ice)



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Units system: English
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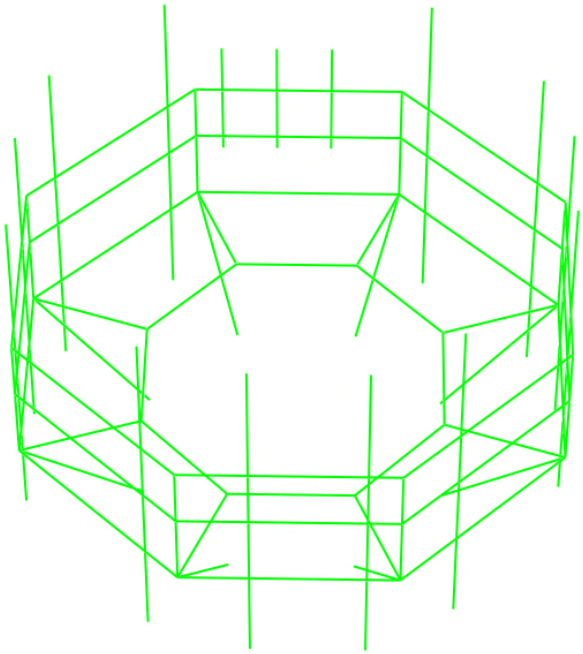
Not designed
Error on design
Design O.K.
With warnings



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Steel Code Check

Report: Summary - For all selected load conditions

Load conditions to be included in design :

CL1=1.2DL+Wo
CL2=0.9DL+Wo
CL3=1.2DL+Di+Wi
CL4=1.2DL
CL5=0.9DL

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
antenna pipe	*PIPE 2x0.154*	**57**	CL1 at 50.00%	0.09	OK	
			CL2 at 50.00%	**0.09**	**OK**	Eq. H1-1b
			CL3 at 71.88%	0.07	OK	Eq. H1-1b
			CL4 at 71.88%	0.03	OK	
			CL5 at 71.88%	0.02	OK	
		58	CL1 at 50.00%	0.08	OK	
			CL2 at 50.00%	0.08	OK	Eq. H1-1b
			CL3 at 71.88%	**0.09**	**OK**	Eq. H1-1b
			CL4 at 71.88%	0.03	OK	
			CL5 at 71.88%	0.03	OK	
		59	CL1 at 71.88%	**0.21**	**OK**	Eq. H1-1b
			CL2 at 71.88%	0.20	OK	
			CL3 at 71.88%	0.20	OK	
			CL4 at 71.88%	0.07	OK	
			CL5 at 71.88%	0.06	OK	
		60	CL1 at 71.88%	**0.12**	**OK**	Eq. H1-1b
			CL2 at 71.88%	0.12	OK	
			CL3 at 71.88%	0.10	OK	
			CL4 at 71.88%	0.03	OK	
			CL5 at 71.88%	0.02	OK	
		61	CL1 at 71.88%	**0.22**	**OK**	Eq. H1-1b
			CL2 at 71.88%	0.21	OK	
			CL3 at 53.13%	0.19	OK	
			CL4 at 53.13%	0.07	OK	
			CL5 at 53.13%	0.05	OK	
		62	CL1 at 71.88%	**0.17**	**OK**	Eq. H1-1b
			CL2 at 71.88%	0.16	OK	
			CL3 at 53.13%	0.15	OK	
			CL4 at 53.13%	0.05	OK	
			CL5 at 53.13%	0.04	OK	
		63	CL1 at 71.88%	**0.15**	**OK**	Eq. H1-1b
			CL2 at 71.88%	0.14	OK	
			CL3 at 71.88%	0.10	OK	
			CL4 at 71.88%	0.03	OK	
			CL5 at 71.88%	0.02	OK	
		64	CL1 at 71.88%	0.12	OK	
			CL2 at 71.88%	0.12	OK	
			CL3 at 71.88%	**0.15**	**OK**	Eq. H1-1b
			CL4 at 71.88%	0.07	OK	
			CL5 at 71.88%	0.06	OK	
		65	CL1 at 71.88%	0.12	OK	Eq. H1-1b

				CL2 at 71.88%	0.11	OK	
				CL3 at 53.13%	**0.12**	**OK**	Eq. H1-1b
				CL4 at 53.13%	0.05	OK	
				CL5 at 53.13%	0.04	OK	
			66	CL1 at 71.88%	**0.13**	**OK**	Eq. H1-1b
				CL2 at 71.88%	0.12	OK	
				CL3 at 71.88%	0.10	OK	
				CL4 at 35.94%	0.03	OK	
				CL5 at 35.94%	0.02	OK	
			67	CL1 at 28.13%	0.12	OK	
				CL2 at 28.13%	0.13	OK	
				CL3 at 28.13%	**0.14**	**OK**	Eq. H1-1b
				CL4 at 28.13%	0.08	OK	
				CL5 at 28.13%	0.06	OK	
			68	CL1 at 71.88%	**0.11**	**OK**	Eq. H1-1b
				CL2 at 71.88%	0.11	OK	
				CL3 at 71.88%	0.05	OK	
				CL4 at 71.88%	0.03	OK	
				CL5 at 71.88%	0.02	OK	
bot back		***L 3X3X1_4***	**9**	CL1 at 0.00%	0.02	OK	
				CL2 at 100.00%	0.03	OK	
				CL3 at 100.00%	**0.25**	**OK**	Sec. F1
				CL4 at 100.00%	0.12	OK	
				CL5 at 100.00%	0.09	OK	
			10	CL1 at 100.00%	0.30	OK	
				CL2 at 100.00%	0.22	OK	
				CL3 at 100.00%	**0.71**	**OK**	Sec. F1
				CL4 at 100.00%	0.30	OK	
				CL5 at 100.00%	0.22	OK	
			11	CL1 at 100.00%	0.51	OK	
				CL2 at 100.00%	0.43	OK	
				CL3 at 100.00%	**0.82**	**OK**	Sec. F1
				CL4 at 100.00%	0.33	OK	
				CL5 at 100.00%	0.25	OK	
			12	CL1 at 0.00%	0.52	OK	
				CL2 at 0.00%	0.44	OK	
				CL3 at 0.00%	**0.84**	**OK**	Sec. F1
				CL4 at 0.00%	0.34	OK	
				CL5 at 0.00%	0.25	OK	
			13	CL1 at 0.00%	0.33	OK	
				CL2 at 0.00%	0.28	OK	
				CL3 at 0.00%	**0.48**	**OK**	Sec. F1
				CL4 at 0.00%	0.19	OK	
				CL5 at 0.00%	0.14	OK	
			14	CL1 at 100.00%	0.41	OK	
				CL2 at 100.00%	0.34	OK	
				CL3 at 100.00%	**0.67**	**OK**	Sec. F1
				CL4 at 100.00%	0.27	OK	
				CL5 at 100.00%	0.20	OK	
			15	CL1 at 0.00%	0.40	OK	
				CL2 at 0.00%	0.33	OK	
				CL3 at 0.00%	**0.66**	**OK**	Sec. F1
				CL4 at 0.00%	0.26	OK	
				CL5 at 0.00%	0.20	OK	
			16	CL1 at 0.00%	0.25	OK	
				CL2 at 0.00%	0.21	OK	
				CL3 at 0.00%	**0.43**	**OK**	Sec. F1
				CL4 at 0.00%	0.18	OK	
				CL5 at 0.00%	0.13	OK	

bot diagonal	**17**	CL1 at 0.00%	0.24	OK	
		CL2 at 0.00%	0.20	OK	
		CL3 at 0.00%	**0.35**	**OK**	Sec. F1
		CL4 at 0.00%	0.14	OK	
		CL5 at 0.00%	0.10	OK	
	18	CL1 at 0.00%	0.33	OK	
		CL2 at 0.00%	0.29	OK	
		CL3 at 0.00%	**0.41**	**OK**	Sec. F1
		CL4 at 0.00%	0.16	OK	
		CL5 at 0.00%	0.12	OK	
	19	CL1 at 100.00%	0.21	OK	
		CL2 at 100.00%	0.16	OK	
		CL3 at 100.00%	**0.50**	**OK**	Sec. F1
		CL4 at 100.00%	0.21	OK	
		CL5 at 100.00%	0.16	OK	
	20	CL1 at 100.00%	0.37	OK	
		CL2 at 100.00%	0.31	OK	
		CL3 at 100.00%	**0.60**	**OK**	Sec. F1
		CL4 at 100.00%	0.24	OK	
		CL5 at 100.00%	0.18	OK	
	21	CL1 at 0.00%	0.34	OK	
		CL2 at 0.00%	0.28	OK	
		CL3 at 0.00%	**0.58**	**OK**	Sec. F1
		CL4 at 0.00%	0.23	OK	
		CL5 at 0.00%	0.18	OK	
	22	CL1 at 0.00%	0.25	OK	
		CL2 at 0.00%	0.21	OK	
		CL3 at 0.00%	**0.41**	**OK**	Sec. F1
		CL4 at 0.00%	0.17	OK	
		CL5 at 0.00%	0.13	OK	
	23	CL1 at 100.00%	0.29	OK	
		CL2 at 100.00%	0.24	OK	
		CL3 at 100.00%	**0.48**	**OK**	Sec. F1
		CL4 at 100.00%	0.19	OK	
		CL5 at 100.00%	0.14	OK	
	24	CL1 at 100.00%	0.18	OK	
		CL2 at 100.00%	0.15	OK	
		CL3 at 100.00%	**0.30**	**OK**	Sec. F1
		CL4 at 100.00%	0.12	OK	
		CL5 at 100.00%	0.09	OK	
brace	**25**	CL1 at 100.00%	0.26	OK	
		CL2 at 100.00%	0.23	OK	
		CL3 at 100.00%	**0.31**	**OK**	Sec. F1
		CL4 at 100.00%	0.12	OK	
		CL5 at 100.00%	0.09	OK	
	26	CL1 at 100.00%	0.17	OK	
		CL2 at 100.00%	0.20	OK	
		CL3 at 100.00%	**0.33**	**OK**	Sec. F1
		CL4 at 100.00%	0.15	OK	
		CL5 at 100.00%	0.11	OK	
	27	CL1 at 100.00%	0.06	OK	
		CL2 at 100.00%	0.07	OK	
		CL3 at 100.00%	**0.15**	**OK**	Sec. F1
		CL4 at 100.00%	0.07	OK	
		CL5 at 100.00%	0.05	OK	
	28	CL1 at 100.00%	**0.13**	**OK**	Sec. F1
		CL2 at 100.00%	0.13	OK	
		CL3 at 100.00%	0.12	OK	
		CL4 at 100.00%	0.05	OK	
		CL5 at 100.00%	0.04	OK	

	29	CL1 at 100.00%	0.31	OK	
		CL2 at 100.00%	0.28	OK	
		CL3 at 100.00%	**0.37**	**OK**	Eq. H2-1
		CL4 at 100.00%	0.14	OK	
		CL5 at 100.00%	0.11	OK	
	30	CL1 at 100.00%	0.29	OK	
		CL2 at 100.00%	0.24	OK	
		CL3 at 100.00%	**0.47**	**OK**	Sec. F1
		CL4 at 100.00%	0.19	OK	
		CL5 at 100.00%	0.14	OK	
	31	CL1 at 100.00%	0.15	OK	
		CL2 at 100.00%	0.13	OK	
		CL3 at 100.00%	**0.23**	**OK**	Sec. F1
		CL4 at 100.00%	0.09	OK	
		CL5 at 100.00%	0.07	OK	
	32	CL1 at 100.00%	0.05	OK	
		CL2 at 100.00%	0.04	OK	
		CL3 at 100.00%	**0.11**	**OK**	Sec. F1
		CL4 at 100.00%	0.05	OK	
		CL5 at 100.00%	0.03	OK	
mid rail	**33**	CL1 at 100.00%	0.14	OK	
		CL2 at 100.00%	0.12	OK	
		CL3 at 100.00%	**0.16**	**OK**	Sec. F1
		CL4 at 100.00%	0.06	OK	
		CL5 at 100.00%	0.05	OK	
	34	CL1 at 60.94%	0.11	OK	
		CL2 at 60.94%	0.10	OK	
		CL3 at 60.94%	**0.14**	**OK**	Eq. H2-1
		CL4 at 60.94%	0.05	OK	
		CL5 at 60.94%	0.04	OK	
	35	CL1 at 16.67%	0.15	OK	Sec. F1
		CL2 at 16.67%	0.14	OK	
		CL3 at 0.00%	**0.17**	**OK**	Eq. H2-1
		CL4 at 0.00%	0.06	OK	
		CL5 at 0.00%	0.05	OK	
	36	CL1 at 0.00%	**0.13**	**OK**	Sec. F1
		CL2 at 0.00%	0.13	OK	
		CL3 at 77.08%	0.12	OK	Sec. F1
		CL4 at 77.08%	0.05	OK	
		CL5 at 77.08%	0.03	OK	
	37	CL1 at 100.00%	0.19	OK	
		CL2 at 100.00%	**0.19**	**OK**	Eq. H2-1
		CL3 at 0.00%	0.11	OK	
		CL4 at 0.00%	0.04	OK	
		CL5 at 0.00%	0.03	OK	
	38	CL1 at 85.42%	0.20	OK	
		CL2 at 85.42%	**0.20**	**OK**	Eq. H3-8
		CL3 at 0.00%	0.13	OK	Eq. H2-1
		CL4 at 0.00%	0.07	OK	
		CL5 at 0.00%	0.05	OK	
	39	CL1 at 100.00%	0.17	OK	
		CL2 at 100.00%	**0.18**	**OK**	Sec. F1
		CL3 at 0.00%	0.15	OK	Sec. F1
		CL4 at 0.00%	0.08	OK	
		CL5 at 0.00%	0.06	OK	
	40	CL1 at 85.42%	0.14	OK	Sec. F1
		CL2 at 85.42%	0.13	OK	
		CL3 at 87.50%	**0.17**	**OK**	Sec. F1
		CL4 at 87.50%	0.07	OK	

			CL5 at 87.50%	0.05	OK	
Squid pipe	***PIPE 2x0.154***	**69**	CL1 at 12.50%	0.03	OK	
			CL2 at 12.50%	0.02	OK	
			CL3 at 12.50%	**0.07**	**OK**	Eq. H1-1b
			CL4 at 12.50%	0.03	OK	
			CL5 at 12.50%	0.02	OK	
		70	CL1 at 58.33%	0.02	OK	
			CL2 at 12.50%	0.01	OK	
			CL3 at 58.33%	**0.06**	**OK**	Eq. H1-1b
			CL4 at 58.33%	0.03	OK	
			CL5 at 58.33%	0.02	OK	
		71	CL1 at 12.50%	0.02	OK	
			CL2 at 12.50%	0.02	OK	
			CL3 at 12.50%	**0.03**	**OK**	Eq. H3-1
			CL4 at 12.50%	0.01	OK	
			CL5 at 12.50%	0.01	OK	
toe	***L 3X3X1_4***	**1**	CL1 at 100.00%	0.26	OK	
			CL2 at 0.00%	0.21	OK	
			CL3 at 100.00%	**0.51**	**OK**	Eq. H3-8
			CL4 at 100.00%	0.21	OK	
			CL5 at 100.00%	0.16	OK	
		2	CL1 at 100.00%	0.21	OK	Sec. F1
			CL2 at 100.00%	0.19	OK	
			CL3 at 0.00%	**0.29**	**OK**	Sec. F1
			CL4 at 0.00%	0.12	OK	
			CL5 at 0.00%	0.09	OK	
		3	CL1 at 100.00%	0.16	OK	
			CL2 at 100.00%	0.14	OK	
			CL3 at 100.00%	**0.28**	**OK**	Eq. H3-8
			CL4 at 0.00%	0.12	OK	
			CL5 at 0.00%	0.09	OK	
		4	CL1 at 100.00%	0.16	OK	
			CL2 at 82.29%	0.13	OK	
			CL3 at 0.00%	**0.41**	**OK**	Eq. H3-8
			CL4 at 0.00%	0.18	OK	
			CL5 at 0.00%	0.13	OK	
		5	CL1 at 100.00%	0.12	OK	
			CL2 at 100.00%	0.11	OK	
			CL3 at 100.00%	**0.18**	**OK**	Sec. F1
			CL4 at 100.00%	0.08	OK	
			CL5 at 100.00%	0.06	OK	
		6	CL1 at 0.00%	0.33	OK	
			CL2 at 0.00%	0.28	OK	
			CL3 at 0.00%	**0.53**	**OK**	Eq. H3-8
			CL4 at 0.00%	0.21	OK	
			CL5 at 0.00%	0.16	OK	
		7	CL1 at 0.00%	0.24	OK	
			CL2 at 0.00%	0.21	OK	
			CL3 at 0.00%	**0.31**	**OK**	Sec. F1
			CL4 at 0.00%	0.12	OK	
			CL5 at 0.00%	0.09	OK	
		8	CL1 at 100.00%	0.20	OK	
			CL2 at 0.00%	0.19	OK	
			CL3 at 100.00%	**0.45**	**OK**	Eq. H3-8
			CL4 at 100.00%	0.19	OK	
			CL5 at 100.00%	0.14	OK	
top rail		**41**	CL1 at 0.00%	0.20	OK	
			CL2 at 0.00%	0.18	OK	
			CL3 at 0.00%	**0.23**	**OK**	Sec. F1

		CL4 at 0.00%	0.09	OK	
		CL5 at 0.00%	0.07	OK	
	42	CL1 at 100.00%	0.20	OK	
		CL2 at 100.00%	0.18	OK	
		CL3 at 100.00%	**0.23**	**OK**	Sec. F1
		CL4 at 100.00%	0.09	OK	
		CL5 at 100.00%	0.06	OK	
	43	CL1 at 16.67%	0.15	OK	
		CL2 at 16.67%	0.14	OK	
		CL3 at 0.00%	**0.18**	**OK**	Eq. H2-1
		CL4 at 0.00%	0.07	OK	
		CL5 at 0.00%	0.05	OK	
	44	CL1 at 0.00%	0.15	OK	Sec. F1
		CL2 at 0.00%	0.14	OK	
		CL3 at 100.00%	**0.18**	**OK**	Sec. F1
		CL4 at 100.00%	0.07	OK	
		CL5 at 100.00%	0.05	OK	
	45	CL1 at 100.00%	**0.19**	**OK**	Eq. H2-1
		CL2 at 100.00%	0.18	OK	
		CL3 at 100.00%	0.15	OK	
		CL4 at 100.00%	0.05	OK	
		CL5 at 100.00%	0.04	OK	
	46	CL1 at 83.33%	0.17	OK	Eq. H2-1
		CL2 at 83.33%	0.17	OK	
		CL3 at 0.00%	**0.21**	**OK**	Sec. F1
		CL4 at 0.00%	0.10	OK	
		CL5 at 0.00%	0.07	OK	
	47	CL1 at 0.00%	0.18	OK	
		CL2 at 0.00%	0.17	OK	
		CL3 at 0.00%	**0.21**	**OK**	Sec. F1
		CL4 at 100.00%	0.10	OK	
		CL5 at 100.00%	0.08	OK	
	48	CL1 at 100.00%	0.15	OK	
		CL2 at 100.00%	0.13	OK	
		CL3 at 87.50%	**0.23**	**OK**	Sec. F1
		CL4 at 87.50%	0.09	OK	
		CL5 at 87.50%	0.07	OK	
vertical	**49**	CL1 at 0.00%	0.44	OK	Sec. F1
		CL2 at 0.00%	0.40	OK	
		CL3 at 0.00%	**0.45**	**OK**	Eq. H2-1
		CL4 at 0.00%	0.16	OK	
		CL5 at 0.00%	0.12	OK	
	50	CL1 at 0.00%	0.36	OK	
		CL2 at 0.00%	0.31	OK	
		CL3 at 0.00%	**0.56**	**OK**	Eq. H2-1
		CL4 at 0.00%	0.22	OK	
		CL5 at 0.00%	0.17	OK	
	51	CL1 at 0.00%	0.19	OK	
		CL2 at 0.00%	0.20	OK	Sec. F1
		CL3 at 0.00%	**0.43**	**OK**	Eq. H2-1
		CL4 at 0.00%	0.19	OK	
		CL5 at 0.00%	0.14	OK	
	52	CL1 at 0.00%	0.19	OK	
		CL2 at 0.00%	0.17	OK	
		CL3 at 0.00%	**0.44**	**OK**	Eq. H2-1
		CL4 at 0.00%	0.19	OK	
		CL5 at 0.00%	0.14	OK	
	53	CL1 at 0.00%	0.32	OK	
		CL2 at 0.00%	0.27	OK	

	CL3 at 0.00%	**0.55**	**OK**	Eq. H2-1
	CL4 at 0.00%	0.23	OK	
	CL5 at 0.00%	0.17	OK	
54	CL1 at 0.00%	0.45	OK	
	CL2 at 0.00%	0.37	OK	
	CL3 at 0.00%	**0.74**	**OK**	Sec. F1
	CL4 at 0.00%	0.30	OK	
	CL5 at 0.00%	0.22	OK	
55	CL1 at 0.00%	0.29	OK	
	CL2 at 0.00%	0.25	OK	
	CL3 at 0.00%	**0.46**	**OK**	Sec. F1
	CL4 at 0.00%	0.18	OK	
	CL5 at 0.00%	0.14	OK	
56	CL1 at 0.00%	0.18	OK	
	CL2 at 0.00%	0.16	OK	Sec. F1
	CL3 at 0.00%	**0.39**	**OK**	Eq. H2-1
	CL4 at 0.00%	0.17	OK	
	CL5 at 0.00%	0.12	OK	

UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

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

   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
   Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
   Hand the package to any UPS driver in your area.

UPS Access Point™
CVS STORE # 972
555 WASHINGTON ST
SOUTH EASTON ,MA 02375

UPS Access Point™
CVS STORE # 7232
689 DEPOT ST
NORTH EASTON ,MA 02356

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

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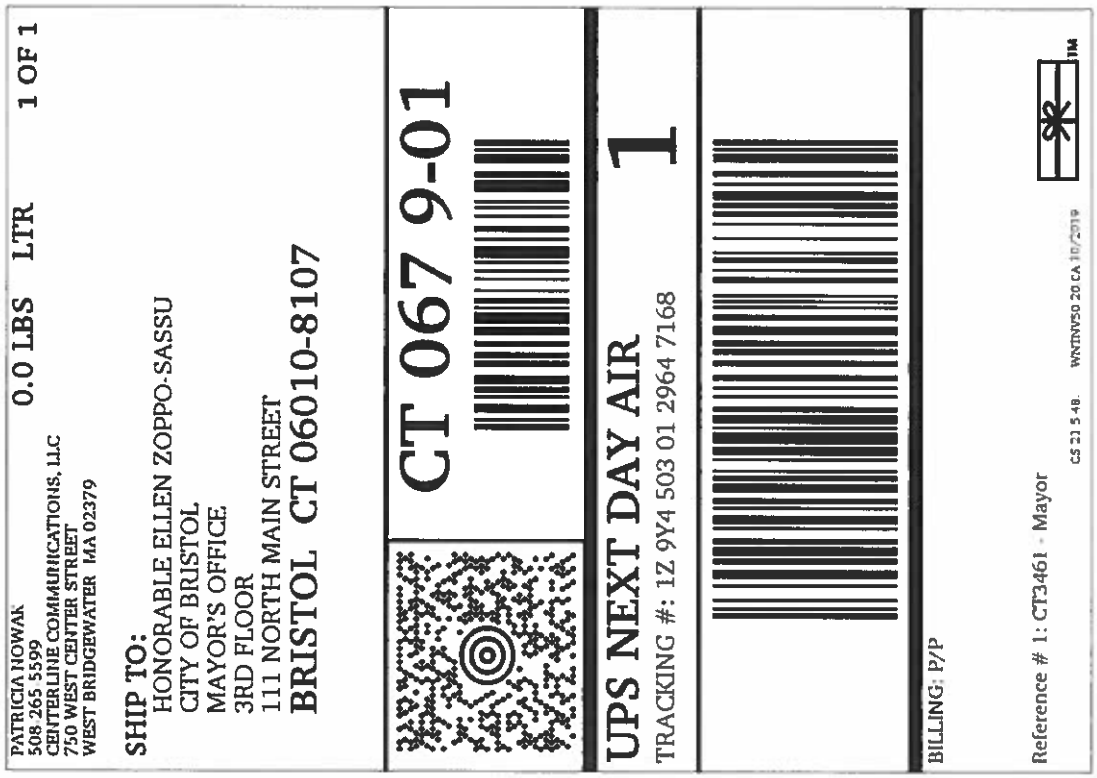

UPS CampusShip: View/Print Label

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

   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
   Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
   Hand the package to any UPS driver in your area.

UPS Access Point™
CVS STORE # 972
555 WASHINGTON ST
SOUTH EASTON ,MA 02375

UPS Access Point™
CVS STORE # 7232
689 DEPOT ST
NORTH EASTON ,MA 02356

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TOWN LINE GENERAL STORE
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WEST BRIDGEWATER ,MA 02379

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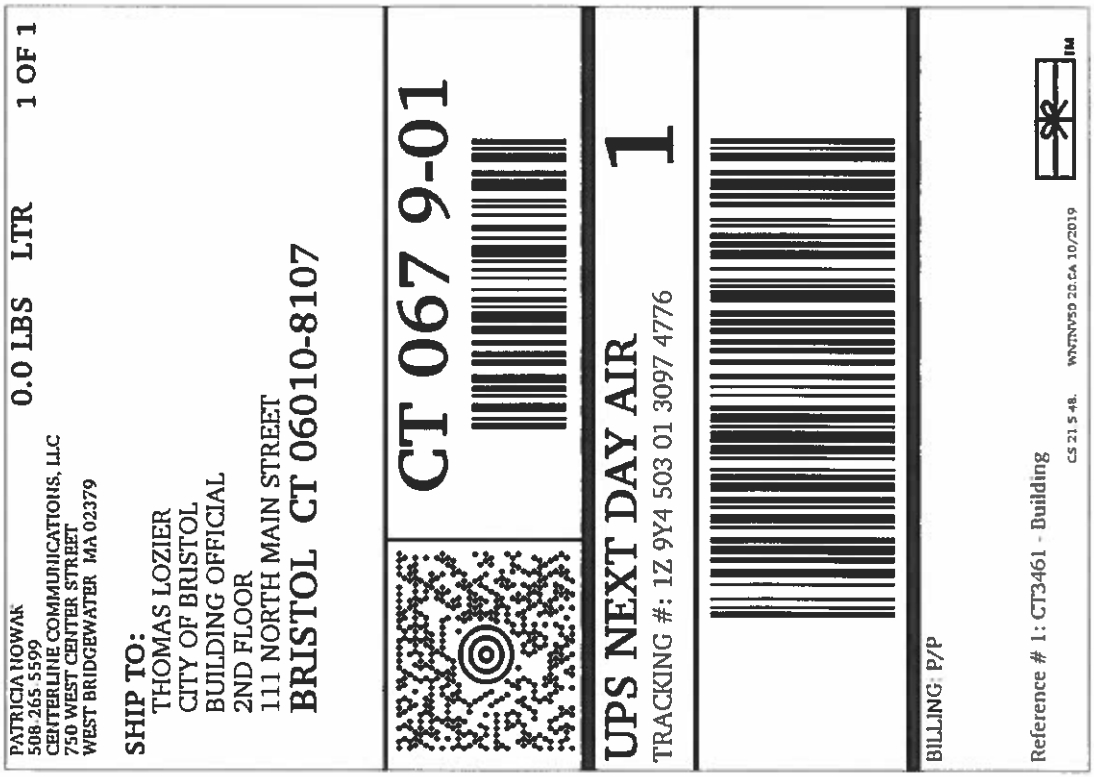

UPS CampusShip: View/Print Label

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   Customers with a Daily Pickup
   Your driver will pickup your shipment(s) as usual.

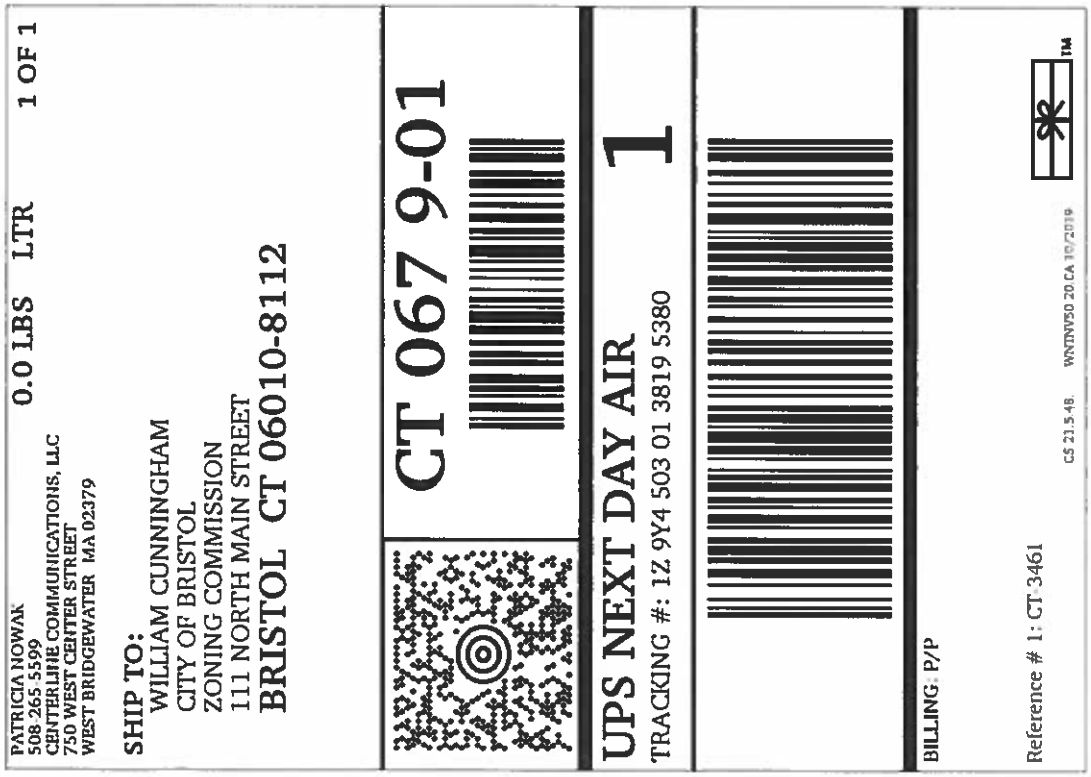
   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
   Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
   Hand the package to any UPS driver in your area.

UPS Access Point™
CVS STORE # 972
555 WASHINGTON ST
SOUTH EASTON ,MA 02375

UPS Access Point™
CVS STORE # 7232
689 DEPOT ST
NORTH EASTON ,MA 02356

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

FOLD HERE



UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**
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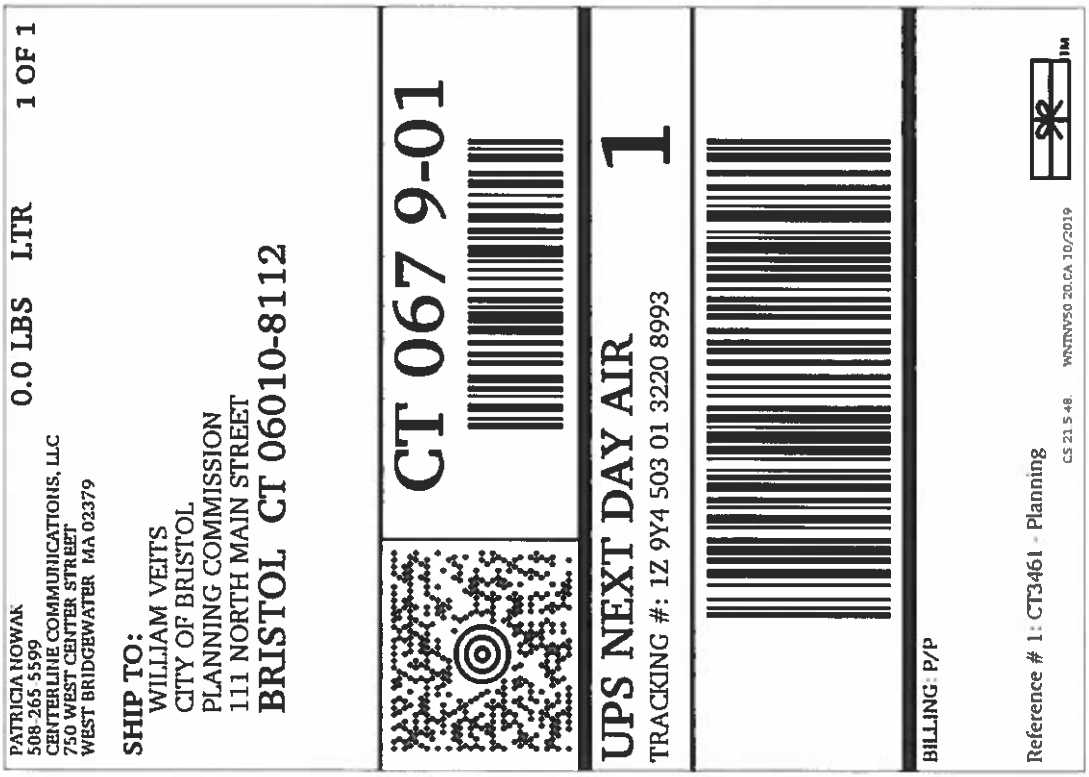

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