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
Web Site: portal.ct.gov/csc

**VIA ELECTRONIC MAIL**

September 4, 2020

Allison Hebel
Site Acquisition Consultant
Centerline Communications LLC
750 West Center Street, Suite 301
West Bridgewater, MA 02379

RE: **EM-CING-064-200716 –** New Cingular Wireless PCS, LLC (AT&T) notice of intent to modify an existing telecommunications facility located at 99 Meadow Street, Hartford, Connecticut.

Dear Ms. Hebel:

The Connecticut Siting Council (Council) received a notice of intent to modify the above-referenced facility on July 16, 2020. On July 29, 2020, the Council issued a letter stating that the request for exempt modification was incomplete because of the following deficiencies:

1. No property card for the underlying property had been provided with the request;
2. No construction drawings were provided for the proposed modification;
3. The request for exempt modification lacked proof that it was mailed to the underlying property owner; and
4. The exempt modification request lacked documentation of the original facility approval and any conditions of such approval or correspondence with the City of Hartford stating that the City no longer retains records of its decision.

The Council recommended that Centerline Communications provide detailed construction drawings consistent with the rest of the request, a property card for the underlying property, documentation showing the original facility approval with conditions if any or correspondence with the City stating that there are no records of the original facility approval and evidence that notice of this exempt modification request was provided to the underlying property owner.

On September 2, 2020, the Council received an electronic mail with a municipal approval document, a revised construction drawing, a property card and proof of notice to the underlying property owner. The documents provided satisfy the original incomplete request.

However, staff has further reviewed this exempt modification request for completeness and has identified an additional deficiency in the request. The radio frequency emissions report provided with the request does not include certain required values used in calculating the maximum permissible exposure in accordance with the standards adopted by the Federal Communications Commission (FCC) pursuant to Section 704 of the Telecommunications Act of 1996, as amended, and the State Department of Energy and Environmental Protection, pursuant to Section 22a-162 of the Connecticut General Statutes.

The missing values include:

1. Effective Radiated Power; and
2. Number of channels being used by the proposed equipment.

Therefore, the exempt modification request remains incomplete at this time. The Council recommends that Centerline Communications provide a radio frequency emissions report that includes the above referenced information for the proposed modification, on or before October 5, 2020. If additional time is needed to gather the requested information, please submit a written request for an extension of time prior to October 5, 2020. **Please provide an electronic version of the requested information for the incomplete exempt modification to be rendered complete and processed. Please include the Council's exempt modification identification number referenced above with the submittal**

This notice of incompletion shall have the effect of tolling the Federal Communications Commission (FCC) 60-day timeframe in accordance with Paragraph 217 of the FCC Wireless Infrastructure Report and Order issued on October 21, 2014 (FCC 14-153).

Thank you for your attention to this matter. Should you have any questions, please feel free to contact me at 860-827-2951.

Sincerely,

*s/ Melanie A. Bachman*

Melanie Bachman
Executive Director

MAB/IN/emr

**From:** Allison Hebel <ahebel@clinellc.com>
**Sent:** Wednesday, September 2, 2020 1:33 PM
**To:** Robidoux, Evan <Evan.Robidoux@ct.gov>
**Cc:** CSC-DL Siting Council <Siting.Council@ct.gov>
**Subject:** RE: Council Incomplete Letter for EM-CING-064-200716 (Meadow Road, Hartford)

Hi Evan,
Please see attached revised application.

Best Regards,


**Allison Hebel |** Site Acquisition Consultant
750 West Center St. Suite 301 | West Bridgewater, MA 02379
Phone: 215.588.7035 Fax: 508.819.3017
ahebel@clinellc.com | www.centerlinecommunications.com

**From:** Robidoux, Evan <Evan.Robidoux@ct.gov>
**Sent:** Wednesday, July 29, 2020 12:36 PM
**To:** Allison Hebel <ahebel@clinellc.com>
**Cc:** CSC-DL Siting Council <Siting.Council@ct.gov>
**Subject:** Council Incomplete Letter for EM-CING-064-200716 (Meadow Road, Hartford)

Please see the attached correspondence.

426 Kinds Park Dr. EXT Apt D
Liverpool, NY 13090
ahebel@clinellc.com
215.588.7035

July 16, 2020

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

**Re:** Notice of Exempt Modifications – AT&T Site CT5127
AT&T Telecommunications Facility @ 99 Meadow Street Hartford, CT

Dear Ms. Bachman,

New Cingular Wireless, PCS, LLC ("AT&T") currently maintains a wireless telecommunications facility on an existing +/- 147' monopole tower at the above referenced address, latitude 41.7438919, longitude -72.6682989. Said monopole tower is owned and managed by American Tower Corporation.

AT&T desires to modify its existing telecommunications facility by replacing three (3) antennas, replacing (3) RRUs, adding six (6) new remote radio units, adding one (1) surge arrestor with the associated cables as more particularly detailed and described on the enclosed Construction Drawings prepared by SMW Engineering Group Inc., last revised on May 28, 2020. The centerline height of the existing antennas is and will remain at 138 feet.

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: Luke Bronin, Mayor of the City of Hartford: Aimee Chambers Director of Planning of the City of Hartford and American Tower Corporation, as property and tower owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. §16-50j-72(b)(2). 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 Commissions safety standard. *Please see the RF emissions calculation for AT&T's modified facility enclosed herewith.*
5. The proposed modifications will not cause an ineligible change or alternation in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading. Please see the structural analysis dated April 22, 2020 and prepared by American Tower Corporation enclosed herewith.

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

Best Regards,

**Allison Hebel**
*Site Acquisition Consultant – Agent for AT&T*
*Centerline Communications LLC*
750 West Center St. Ste 301
West Bridgewater, MA 02379
215-588-7035
ahebel@clinellc.com

Enclosures:
Exhibit 1 – Construction Drawings
Exhibit 2 – Property Card and GIS
Exhibit 3 – Structural Analysis
Exhibit 4 – Mount Analysis
Exhibit 5 – RF Emissions Analysis Report Evaluation
Exhibit 6 – Available City of Hartford Original Tower Approval Records
Exhibit 7 – Notice Deliver Confirmations

Cc:
Luke Bronin, City of Hartford as elected official
Aimee Chambers Director of Planning, City of Hartford
American Tower Corporation, Owner

020660

**Centerline Communications LLC**

CONNECTICUT SITING COUNCIL

Check: 20660
Date: 7/2/2020
Vendor: 0

| Invoice | P.O. Num. | Invoice Amt | Prior Balance | Retention | Discount | Amt. Paid |
|---|---|---|---|---|---|---|
| 517909-003-1 CT5127 | | 625.00 | 625.00 | 0.00 | 0.00 | 625.00 |
| | | 625.00 | 625.00 | 0.00 | 0.00 | 625.00 |

# EXHIBIT 1


VICINITY MAP

AMERICAN TOWER®

ATC SITE NAME: PETRO LOCK
ATC SITE NUMBER: 302468
AT&T PACE NUMBER: MRCTB045544/MRCTB045501/
MRCTB045480/MRCTB045503
AT&T SITE ID: CTL05127
AT&T FA CODE:10070908
AT&T SITE NAME: 1 91 AND 5 SPLIT
PROJECTS: 6C,BWE,4TX4RX RETROFIT, 5G NR
SITE ADDRESS: 99 MEADOW ST
HARTFORD, CT 06114-1598

AT&T MOBILITY
ANTENNA AMENDMENT DRAWINGS


LOCATION MAP

## COMPLIANCE CODE

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNMENT AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

1. INTERNATIONAL BUILDING CODE (IBC)
2. NATIONAL ELECTRIC CODE (NEC)
3. LOCAL BUILDING CODE
4. CITY/COUNTY ORDINANCES

## UTILITY COMPANIES

POWER COMPANY: EVERSOURCE
PHONE: (877) 659-6326

TELEPHONE COMPANY: FRONTIER COMMUNICATIONS
PHONE: (800) 376-6843

811 Know what's below. Call before you dig.

## PROJECT SUMMARY

SITE ADDRESS:

99 MEADOW ST

HARTFORD, CT 06114-1598

COUNTY: HARTFORD

GEOGRAPHIC COORDINATES:

LATITUDE: 41.74319722

LONGITUDE: -72.6675

GROUND ELEVATION: 18' AMSL

## PROJECT TEAM

TOWER OWNER:

AMERICAN TOWER
10 PRESIDENTIAL WAY
WOBURN, MA 01801

APPLICANT:

AT&T MOBILITY

ENGINEER:

SMW ENGINEERING GROUP, INC
158 BUSINESS CENTER DRIVE
BIRMINGHAM, AL 35244
SMW JOB#20-10206

PROPERTY OWNER:

MEADOW ST REALTY LLC
99 MEADOW ST
HARTFORD, CT 06114

CONSULTING ENGINEER

JOHN LIU, PE
(423) 541-0561
JOHNLIU@TELECOM.TEAM

## PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW:
TOWER WORK:
REMOVE (3) ANTENNAS, (6) 1-5/8" GSM COAX CABLES, AND (3) RRHS.

INSTALL (3) ANTENNAS , (9) RRHS, (1) DC/FIBER SQUID.

EXISTING (9) ANTENNAS, (12) RRHS, (2) SQUIDS, (2) 0.78" 8AWG6 DC CABLES AND (1) 0.39" FIBER CABLE TO REMAIN.

GROUND WORK:
(1) 6630 AND (1) IDLE CABLE

## PROJECT NOTES

1. THE FACILITY IS UNMANNED.
2. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE.
3. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE.
4. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED.
5. HANDICAP ACCESS IS NOT REQUIRED.

## PROJECT LOCATION DIRECTIONS

FROM HARTFORD TAKE I-91 SOUTH TO EXIT 27. TURN RIGHT OFF EXIT AND TAKE 1ST RIGHT ONTO LOCUST. FOLLOW TO MEADOW ST AND TURN LEFT. TOWER IS ON LEFT BEHIND LINEN CO BUSINESS.

## SHEET INDEX

| SHEET NO: | DESCRIPTION: | REV: | DATE: | BY: |
|---|---|---|---|---|
| G-001 | COVER SHEET | 0 | 05/28/20 | ZDS |
| G-002 | GENERAL NOTES | 0 | 05/28/20 | ZDS |
| C-101 | DETAILED SITE PLAN | 0 | 05/28/20 | ZDS |
| C-201 | TOWER ELEVATION | 0 | 05/28/20 | ZDS |
| C-401 | EXISTING RF SCHEDULE AND ANTENNA INSTALLATION | 0 | 05/28/20 | ZDS |
| C402 | FINAL RF SCHEDULE AND ANTENNA INSTALLATION | 0 | 05/28/20 | ZDS |
| C-501 | CONSTRUCTION DETAILS | 0 | 05/28/20 | ZDS |
| C-502 | EQUIPMENT SPECIFICATIONS | 0 | 05/28/20 | ZDS |
| E-501 | GROUNDING DETAILS | 0 | 05/28/20 | ZDS |
| R-601 | SUPPLEMENTAL | 0 | 05/28/20 | ZDS |
| R-602 | SUPPLEMENTAL | 0 | 05/28/20 | ZDS |

AMERICAN TOWER®

SMW ENGINEERING GROUP, INC.
TOGETHER PLANNING A BETTER TOMORROW
158 BUSINESS CENTER DRIVE
BIRMINGHAM, AL 35244
TEL: 205-252-6985 FAX: 205-320-1504

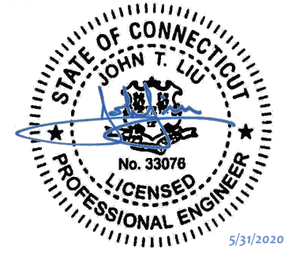
| REV. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| 0 | FOR CONSTRUCTION | ZDS | 05/28/20 |

ATC SITE NUMBER:
302468

ATC SITE NAME:
PETRO LOCK

SITE ADDRESS:
99 MEADOW ST
HARTFORD, CT 06114-1598

SEAL:




AT&T

| | |
|---|---|
| DATE DRAWN: | 05/28/20 |
| ATC JOB NO: | 302468 |
| CUSTOMER ID: | 10070908 |
| CUSTOMER #: | 20-10206 |

COVER SHEET

SHEET NUMBER: G-001

REVISION: 0

## GENERAL CONSTRUCTION NOTES:

1. OWNER FURNISHED MATERIALS, AT&T MOBILITY "THE COMPANY" WILL PROVIDE AND THE CONTRACTOR WILL INSTALL
   - A. BTS EQUIPMENT FRAME (PLATFORM) AND ICEBRIDGE SHELTER (GROUND BUILD/CO-LOCATE ONLY)
   - B. AC/TELCO INTERFACE BOX (PPC)
   - C. ICE BRIDGE (CABLE TRAY WITH COVER) (GROUND BUILD/CO-LOCATE ONLY, GC TO FURNISH AND INSTALL FOR ROOFTOP INSTALLATION)
   - D. TOWERS, MONOPOLES
   - E. TOWER LIGHTING
   - F. GENERATORS & LIQUID PROPANE TANK
   - G. ANTENNA STANDARD BRACKETS, FRAMES AND PIPES FOR MOUNTING
   - H. ANTENNAS (INSTALLED BY OTHERS)
   - I. TRANSMISSION LINE
   - J. TRANSMISSION LINE JUMPERS
   - K. TRANSMISSION LINE CONNECTORS WITH WEATHERPROOFING KITS
   - L. TRANSMISSION LINE GROUND KITS
   - M. HANGERS
   - N. HOISTING GRIPS
   - O. BTS EQUIPMENT
2. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL OTHER MATERIALS FOR THE COMPLETE INSTALLATION OF THE SITE INCLUDING, BUT NOT LIMITED TO, SUCH MATERIALS AS FENCING, STRUCTURAL STEEL SUPPORTING SUB-FRAME FOR PLATFORM, ROOFING LABOR AND MATERIALS, GROUNDING RINGS, GROUNDING WIRES, COPPER-CLAD OR XIT CHEMICAL GROUND ROD(S), BUSS BARS, TRANSFORMERS AND DISCONNECT SWITCHES WHERE APPLICABLE, TEMPORARY ELECTRICAL POWER, CONDUIT, LANDSCAPING COMPOUND STONE, CRANES, CORE DRILLING, SLEEPERS AND RUBBER MATTING, REBAR, CONCRETE CAISSONS, PADS AND/OR AUGER MOUNTS, MISCELLANEOUS FASTENERS, CABLE TRAYS, NON-STANDARD ANTENNA FRAMES AND ALL OTHER MATERIAL AND LABOR REQUIRED TO COMPLETE THE JOB ACCORDING TO THE DRAWINGS AND SPECIFICATIONS. IT IS THE POSITION OF AT&T MOBILITY TO APPLY FOR PERMITTING AND CONTRACTOR RESPONSIBLE FOR PICKUP AND PAYMENT OF REQUIRED PERMITS.
3. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS.
4. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
6. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
7. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
8. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
9. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
11. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
12. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE AT&T MOBILITY REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE AT&T MOBILITY REP PRIOR TO PROCEEDING.
13. EACH CONTRACTOR SHALL COOPERATE WITH THE AT&T MOBILITY REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
14. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE AT&T MOBILITY CONSTRUCTION MANAGER.
15. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
16. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE AT&T MOBILITY REP AND ENGINEER OF RECORD IMMEDIATELY.
17. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
18. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
19. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH AMERICAN TOWER CORPORATION (ATC) AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
20. CONTRACTOR SHALL FURNISH AT&T MOBILITY AND AMERICAN TOWER CORPORATION (ATC) WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
21. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH AT&T MOBILITY REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED.
22. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH AT&T MOBILITY REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY AT&T MOBILITY MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
23. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH AT&T MOBILITY SPECIFICATIONS AND REQUIREMENTS.
24. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO AT&T MOBILITY FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
25. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO AT&T MOBILITY SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
26. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
27. CONTRACTOR SHALL NOTIFY AT&T MOBILITY REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
28. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.
29. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
30. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE AT&T MOBILITY REP. ANY WORK FOUND BY THE AT&T MOBILITY REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
31. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.
32. AT&T MOBILITY FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE AT&T MOBILITY WAREHOUSE, NO LATER THAN 48HR AFTER BEING NOTIFIED INSURED, STORED, UNCRATE, PROTECTED AND INSTALLED BY THE CONTRACTOR WITH ALL APPURTENANCES REQUIRED TO PLACE THE EQUIPMENT IN OPERATION, READY FOR USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EQUIPMENT AFTER PICKING IT UP.
33. AT&T MOBILITY OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OWN OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO AT&T MOBILITY OR THEIR ARCHITECT/ENGINEER.

## SPECIAL CONSTRUCTION ANTENNA INSTALLATION NOTES:

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

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

AMERICAN TOWER®

SMW ENGINEERING GROUP, INC.
TOGETHER PLANNING A BETTER TOMORROW
158 BUSINESS CENTER DRIVE
BIRMINGHAM, AL 35244
TEL: 205-252-6985 FAX: 205-320-1504

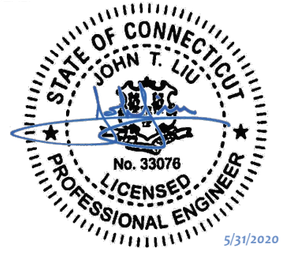
| REV. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| 0 | FOR CONSTRUCTION | ZDS | 05/28/20 |
| | | | |
| | | | |
| | | | |
| | | | |

ATC SITE NUMBER:
302468

ATC SITE NAME:
PETRO LOCK

SITE ADDRESS:
99 MEADOW ST
HARTFORD, CT 06114-1598

SEAL:




AT&T

| | |
|---|---|
| DATE DRAWN: | 05/28/20 |
| ATC JOB NO: | 302468 |
| CUSTOMER ID: | 10070908 |
| CUSTOMER #: | 20-10206 |

GENERAL NOTES

| SHEET NUMBER: | REVISION: |
|---|---|
| G-002 | 0 |

SITE PLAN NOTES:

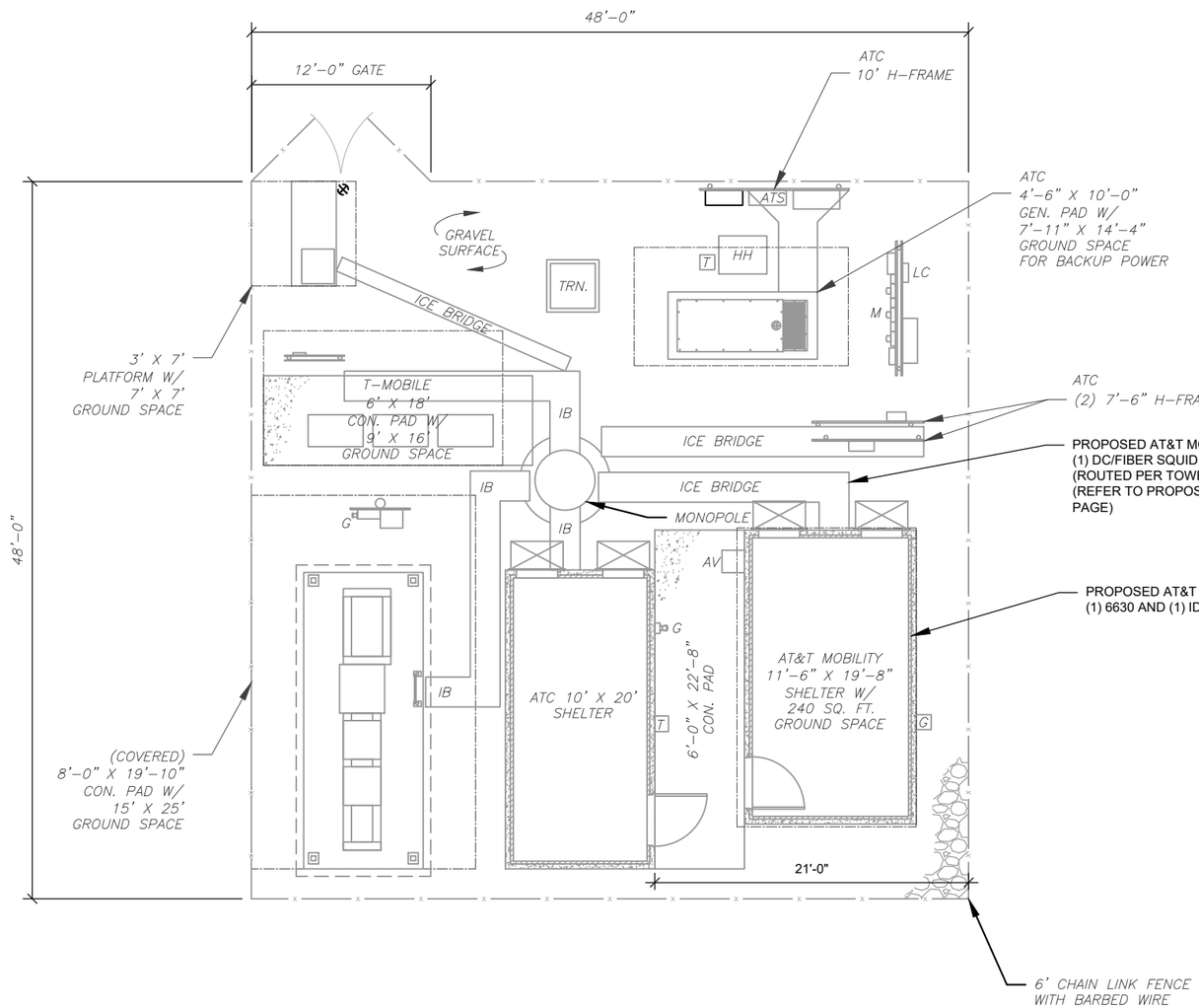
1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.

2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.

3. THIS PROJECT INCLUDES NO INSTALL OR MODIFICATION AT GRADE.

## LEGEND

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




**PROPOSED CABLE LENGTH:**

1. ESTIMATED LENGTH OF PROPOSED CABLE IS **XXX**. ESTIMATED LENGTH OF CABLE WAS PROVIDED BY CUSTOMER OR CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM THE SHELTER ENTRY PLATE TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES), CDS DEFER TO GREATEST CABLE LENGTH.
2. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. WHERE POSSIBLE UTILIZE EXISTING CABLE SUPPORT STRUCTURES AS PROVIDED FOR CARRIER TO ADEQUATELY SECURE CABLES, USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER. OTHERWISE, ATTACH CABLES TO HORIZONTAL OR DIAGONAL TOWER MEMBERS USING PROPOSED STAINLESS STEEL ADAPTERS (DO NOT ATTACH TO TOWER LEG).

1 DETAILED SITE PLAN

0 10' 20'

SCALE: 1"=10' (11X17)
1"=5' (22X34)

AMERICAN TOWER®


SMW ENGINEERING GROUP, INC.
TOGETHER PLANNING A BETTER TOMORROW
158 BUSINESS CENTER DRIVE
BIRMINGHAM, AL 35244
TEL: 205-252-6985 FAX: 205-320-1504

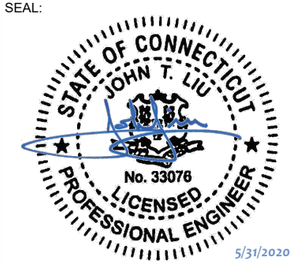

| REV. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| 0 | FOR CONSTRUCTION | ZDS | 05/28/20 |

ATC SITE NUMBER:
302468

ATC SITE NAME:
PETRO LOCK

SITE ADDRESS:
99 MEADOW ST
HARTFORD, CT 06114-1598

SEAL:



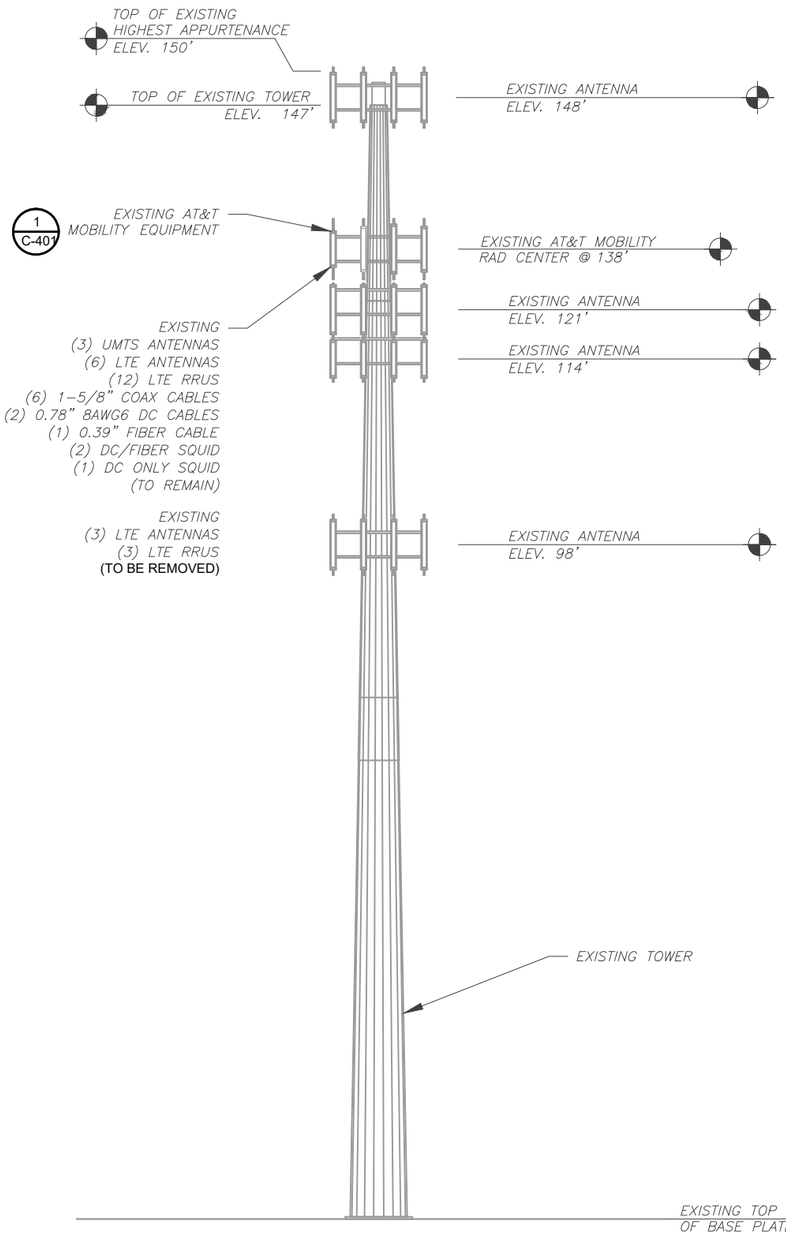

AT&T

| | |
|---|---|
| DATE DRAWN: | 05/28/20 |
| ATC JOB NO: | 302468 |
| CUSTOMER ID: | 10070908 |
| CUSTOMER #: | 20-10206 |

DETAILED SITE PLAN

| SHEET NUMBER: | REVISION: |
|---|---|
| C-101 | 0 |

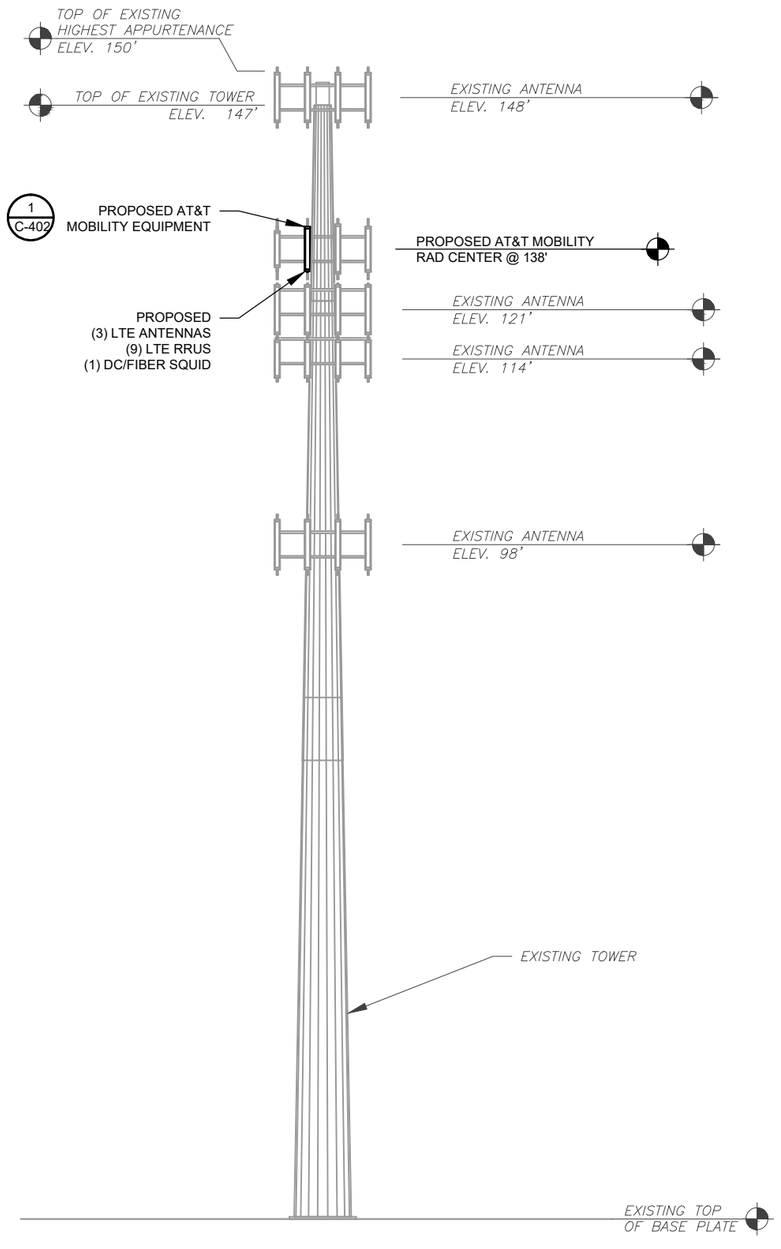
EXISTING AND FINAL CONFIGURATIONS ARE BASED ON RFDS. CONTRACTOR TO VERIFY EXISTING CONDITIONS.




1 EXISTING TOWER ELEVATION

SCALE: 1" = 20'

PER MOUNT ANALYSIS COMPLETED BY MASTEC, DATED 04/22/20, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING




2 FINAL TOWER ELEVATION

SCALE: 1" = 20'

TOWER NOTE:

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE AMERICAN TOWER CONSTRUCTION MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
2. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.
3. TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)

SCOPE OF WORK:

1. WHEN STACKING CABLES 3 OR MORE DEEP, USE STACKABLE SNAP-INS, TALLEY PART NUMBER SSH-158-3 (OR ENGINEER APPROVED EQUAL).
2. CONTRACTOR SHALL CONFIRM THE FINAL CABLE ROUTING PLAN WITH THE STRUCTURAL ANALYSIS.

COAXIAL CABLE NOTES:

1. CONTRACTOR SHALL CONFIRM COAX COLOR CODING PRIOR TO CONSTRUCTION. REFER TO "ANTENNA SYSTEM LABELING STANDARD" ND-00027 LATEST VERSION.
2. CONTRACTOR SHALL WEATHERPROOF ALL ANTENNA CONNECTORS WITH SELF AMALGAMATING TAPE. WEATHERPROOFING SHALL BE COMPLETED IN STRICT ACCORDANCE WITH AT&T STANDARDS.
3. CONTRACTOR SHALL GROUND ALL EQUIPMENT. INCLUDING ANTENNAS, RET MOTORS, TMA'S, COAX CABLES, AND RET CONTROL CABLES AS A COMPLETE SYSTEM. GROUNDING SHALL BE EXECUTED BY QUALIFIED WIREMEN IN COMPLIANCE WITH MANUFACTURER'S SPECIFICATION AND RECOMMENDATION.
4. CONTRACTOR TO VERIFY THAT EXISTING COAX HANGERS ARE STACKABLE SNAP IN HANGERS. IF EXISTING HANGERS ARE NOT STACKABLE SNAP IN HANGERS THE CONTRACTOR SHALL REPLACE EXISTING HANGERS WITH NEW SNAP IN HANGERS IF APPLICABLE.

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BIRMINGHAM, AL 35244
TEL: 205-252-6985 FAX: 205-320-1504


| REV. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| 0 | FOR CONSTRUCTION | ZDS | 05/28/20 |

ATC SITE NUMBER:

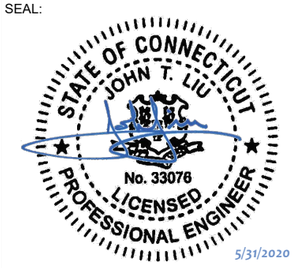
302468

ATC SITE NAME:

PETRO LOCK

SITE ADDRESS:
99 MEADOW ST
HARTFORD, CT 06114-1598

SEAL:



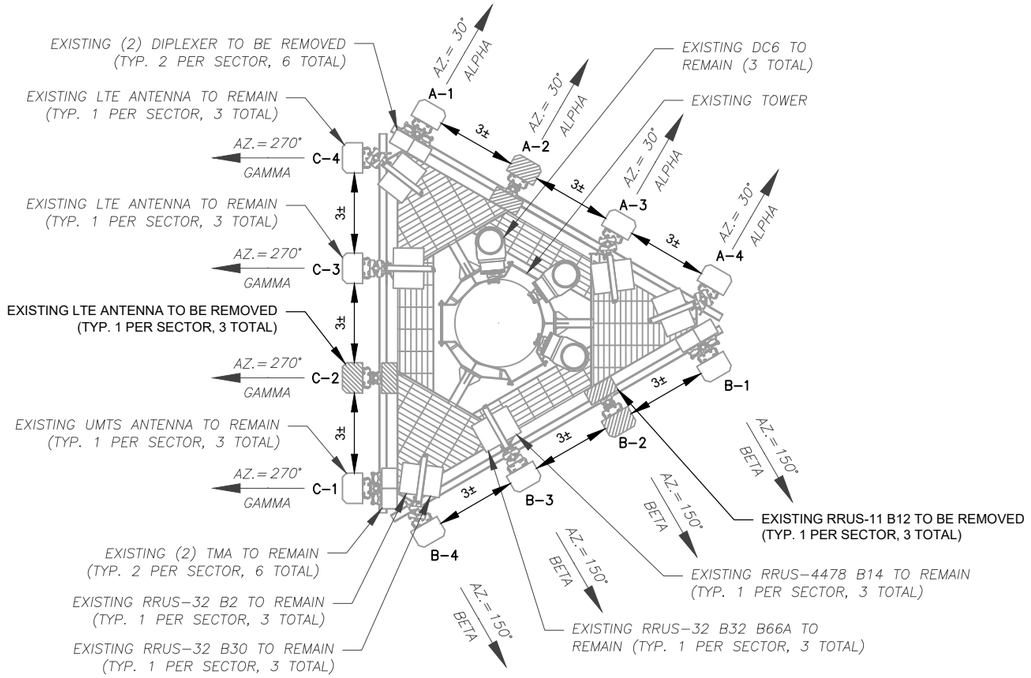

AT&T

| | |
|---|---|
| DATE DRAWN: | 05/28/20 |
| ATC JOB NO: | 302468 |
| CUSTOMER ID: | 10070908 |
| CUSTOMER #: | 20-10206 |

TOWER ELEVATION

| SHEET NUMBER: | REVISION: |
|---|---|
| C-201 | 0 |

EXISTING AND FINAL CONFIGURATIONS ARE BASED ON RFDS. CONTRACTOR TO VERIFY EXISTING CONDITIONS.




1 CURRENT ANTENNA PLAN
1" = 5'-0"

NOTES

1. BASED ON APPROVED ATC APPLICATION 302468, DATED 04/16/20. CONFIRM WITH AT&T MOBILITY REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
2. ATC HAS NOT YET VERIFIED ANY EXISTING ANTENNA CONFIG OR MOUNT CONFIG. CONTRACTOR TO VERIFY MOUNT CONFIG HAS SUFFICIENT SPACE FOR PROPOSED LESSEE EQUIPMENT (EQUIP) (I.E. CLEARANCES, MOUNT PIPE, SUFFICIENT LENGTH, ETC.) ATC DID NOT ANALYZE ANTENNA MOUNT TO DETERMINE ADEQUATE STRUCTURAL CAPACITY FOR ANY LESSEE LOADING.
3. ALL PROPOSED EQUIP INCLUDING ANTENNAS, COAX, ETC. SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS ON FILE WITH ATC'S CM.
4. CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.
5. POSITIONS START WITH FIRST PIPE ON THE LEFT SIDE (AS VIEWED FROM BEHIND THE MOUNT).

EXISTING ANTENNA SCHEDULE

| LOCATION | | | ANTENNA SUMMARY | | | | NON ANTENNA SUMMARY | |
|---|---|---|---|---|---|---|---|---|
| SECTOR | RAD | AZ | POS | ANTENNA | BAND | STATUS | ADDITIONAL TOWER MOUNTED EQUIPMENT | STATUS |
| ALPHA | 138' | 30° | A1 | POWERWAVE 7750 | UMTS | RMN | POWERWAVE LGP 21901 DIPLEXER | RMV |
| | | | | | | | POWERWAVE LGP 21401 TMA | RMN |
| | | | A2 | KMW AM-X-CD-16-65-00T-RET | LTE | RMV | RRUS-11 B12 | RMV |
| | | | A3 | KATHREIN 800-10965 | LTE | RMN | RRUS-4478 B14 | RMN |
| | | | | | | | RRUS-32 B66A | RMN |
| | | | A4 | QUINTEL QS66512-3 | LTE | RMN | RRUS-32 B2 | RMN |
| | | | | | | | RRUS-32 B30 | RMN |
| BETA | 138' | 150° | B1 | POWERWAVE 7750 | UMTS | RMN | POWERWAVE LGP 21901 DIPLEXER | RMV |
| | | | | | | | POWERWAVE LGP 21401 TMA | RMN |
| | | | B2 | KMW AM-X-CD-16-65-00T-RET | LTE | RMV | RRUS-11 B12 | RMV |
| | | | B3 | KATHREIN 800-10965 | LTE | RMN | RRUS-4478 B14 | RMN |
| | | | | | | | RRUS-32 B66A | RMN |
| | | | B4 | QUINTEL QS66512-3 | LTE | RMN | RRUS-32 B2 | RMN |
| | | | | | | | RRUS-32 B30 | RMN |
| GAMMA | 138' | 270° | C1 | POWERWAVE 7750 | UMTS | RMN | POWERWAVE LGP 21901 DIPLEXER | RMV |
| | | | | | | | POWERWAVE LGP 21401 TMA | RMN |
| | | | C2 | ANDREW SBNH-1D6565C | LTE | RMV | RRUS-11 B12 | RMV |
| | | | C3 | KATHREIN 800-10966 | LTE | RMN | RRUS-4478 B14 | RMN |
| | | | | | | | RRUS-32 B66A | RMN |
| | | | C4 | CCI TPA-65R-LCUUUU-H8 | LTE | RMN | RRUS-32 B2 | RMN |
| | | | | | | | RRUS-32 B30 | RMN |

CABLE LENGTHS FOR JUMPERS
FIBER DISTRIBUTION/SQUID TO RRU: 15'
RRU TO ANTENNA: 10'

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

| EXISTING FIBER DISTRIBUTION/SQUID | | EXISTING CABLING SUMMARY | | | |
|---|---|---|---|---|---|
| MODEL NUMBER | STATUS | COAX | DC | FIBER | STATUS |
| DC6-48-60-18-8C | RMN | (6) 1-5/8" COAX | (2) 0.78" 8AWG6 | 0.39" | RMN |
| DC6-48-60-18-8F | RMN | – | (2) 0.78" 8AWG6 | 0.39" | RMN |
| DC6-48-60-18-8F | RMN | – | (2) 0.78" 8AWG6 | 0.39" | RMN |

2 EQUIPMENT SCHEDULES

AMERICAN TOWER®


SMW ENGINEERING GROUP, INC.
TOGETHER PLANNING A BETTER TOMORROW
158 BUSINESS CENTER DRIVE
BIRMINGHAM, AL 35244
TEL: 205-252-6985 FAX: 205-320-1504



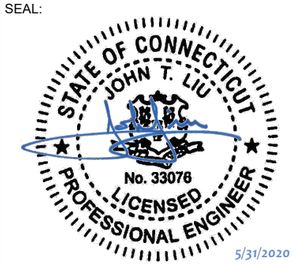

| REV. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| 0 | FOR CONSTRUCTION | ZDS | 05/28/20 |

ATC SITE NUMBER:
302468

ATC SITE NAME:
PETRO LOCK

SITE ADDRESS:
99 MEADOW ST
HARTFORD, CT 06114-1598

SEAL:



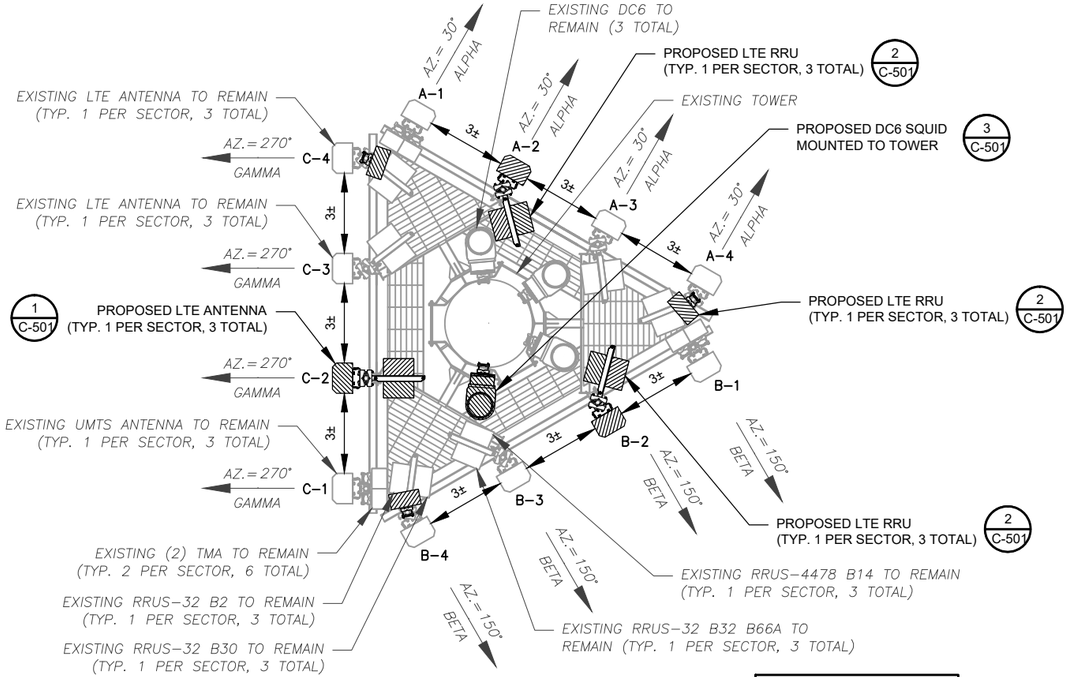

AT&T

| | |
|---|---|
| DATE DRAWN: | 05/28/20 |
| ATC JOB NO: | 302468 |
| CUSTOMER ID: | 10070908 |
| CUSTOMER #: | 20-10206 |

EXISTING RF SCHEDULE AND ANTENNA INSTALLATION

| SHEET NUMBER: | REVISION: |
|---|---|
| C-401 | 0 |

PER MOUNT ANALYSIS COMPLETED BY MASTEC, DATED 04/22/20, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING




1 FINAL ANTENNA PLAN
1" = 5'-0"

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

NOTES

1. BASED ON APPROVED ATC APPLICATION 302468, DATED 04/16/20. CONFIRM WITH AT&T MOBILITY REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
2. ATC HAS NOT YET VERIFIED ANY EXISTING ANTENNA CONFIG OR MOUNT CONFIG. CONTRACTOR TO VERIFY MOUNT CONFIG HAS SUFFICIENT SPACE FOR PROPOSED LESSEE EQUIPMENT (EQUIP) (I.E. CLEARANCES, MOUNT PIPE, SUFFICIENT LENGTH, ETC.) ATC DID NOT ANALYZE ANTENNA MOUNT TO DETERMINE ADEQUATE STRUCTURAL CAPACITY FOR ANY LESSEE LOADING.
3. ALL PROPOSED EQUIP INCLUDING ANTENNAS, COAX, ETC. SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS ON FILE WITH ATC'S CM.
4. CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.
5. POSITIONS START WITH FIRST PIPE ON THE LEFT SIDE (AS VIEWED FROM BEHIND THE MOUNT).

FINAL ANTENNA SCHEDULE

| LOCATION | | | ANTENNA SUMMARY | | | | NON ANTENNA SUMMARY | |
|---|---|---|---|---|---|---|---|---|
| SECTOR | RAD | AZ | POS | ANTENNA | BAND | STATUS | ADDITIONAL TOWER MOUNTED EQUIPMENT | STATUS |
| ALPHA | 138' | 30° | A1 | POWERWAVE 7750 | UMTS | RMN | POWERWAVE LGP 21401 TMA | RMN |
| | | | A2 | CCI DMP65R-BU6DA | LTE | ADD | RRUS-4449 B5/B12 | ADD |
| | | | | | | | RRUS-32 B2 | ADD |
| | | | A3 | KATHREIN 800–10965 | LTE | RMN | RRUS–4478 B14 | RMN |
| | | | | | | | RRUS–32 B66A | RMN |
| | | | A4 | QUINTEL QS66512–3 | LTE | RMN | RRUS-E2 B29 | ADD |
| | | | | | | | RRUS–32 B2 | RMN |
| | | | | | | | RRUS–32 B30 | RMN |
| BETA | 138' | 150° | B1 | POWERWAVE 7750 | UMTS | RMN | POWERWAVE LGP 21401 TMA | RMN |
| | | | B2 | CCI DMP65R-BU6DA | LTE | ADD | RRUS-4449 B5/B12 | ADD |
| | | | | | | | RRUS-32 B2 | ADD |
| | | | B3 | KATHREIN 800–10965 | LTE | RMN | RRUS–4478 B14 | RMN |
| | | | | | | | RRUS–32 B66A | RMN |
| | | | B4 | QUINTEL QS66512-3 | LTE | RMN | RRUS-E2 B29 | ADD |
| | | | | | | | RRUS–32 B2 | RMN |
| | | | | | | | RRUS–32 B30 | RMN |
| GAMMA | 138' | 270° | C1 | POWERWAVE 7750 | UMTS | RMN | POWERWAVE LGP 21401 TMA | RMN |
| | | | C2 | CCI DMP65R-BU8DA | LTE | ADD | RRUS-4449 B5/B12 | ADD |
| | | | | | | | RRUS-32 B2 | ADD |
| | | | C3 | KATHREIN 800–10966 | LTE | RMN | RRUS–4478 B14 | RMN |
| | | | | | | | RRUS–32 B66A | RMN |
| | | | C4 | CCI TPA–65R–LCUUUU–H8 | LTE | RMN | RRUS-E2 B29 | ADD |
| | | | | | | | RRUS–32 B2 | RMN |
| | | | | | | | RRUS–32 B30 | RMN |

CABLE LENGTHS FOR JUMPERS
FIBER DISTRIBUTION/SQUID TO RRU: 15'
RRU TO ANTENNA: 10'

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

| FINAL FIBER DISTRIBUTION/SQUID | | FINAL CABLING SUMMARY | | | |
|---|---|---|---|---|---|
| MODEL NUMBER | STATUS | COAX | DC | FIBER | STATUS |
| DC6–48–60–18–8C | RMN | (6) 1–5/8" COAX | (2) 0.78" 8AWG6 | 0.39" | RMN |
| DC6–48–60–18–8F | RMN | – | (2) 0.78" 8AWG6 | 0.39" | RMN |
| DC6–48–60–18–8F | RMN | – | (2) 0.78" 8AWG6 | 0.39" | RMN |
| DC6-48-60-18-8F | ADD | - | (2) 0.78" 8AWG6 | 0.39" | ADD |

2 EQUIPMENT SCHEDULES



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BIRMINGHAM, AL 35244
TEL: 205-252-6985 FAX: 205-320-1504

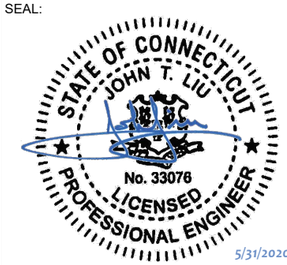
| REV. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| 0 | FOR CONSTRUCTION | ZDS | 05/28/20 |

ATC SITE NUMBER:
302468

ATC SITE NAME:
PETRO LOCK

SITE ADDRESS:
99 MEADOW ST
HARTFORD, CT 06114-1598

SEAL:

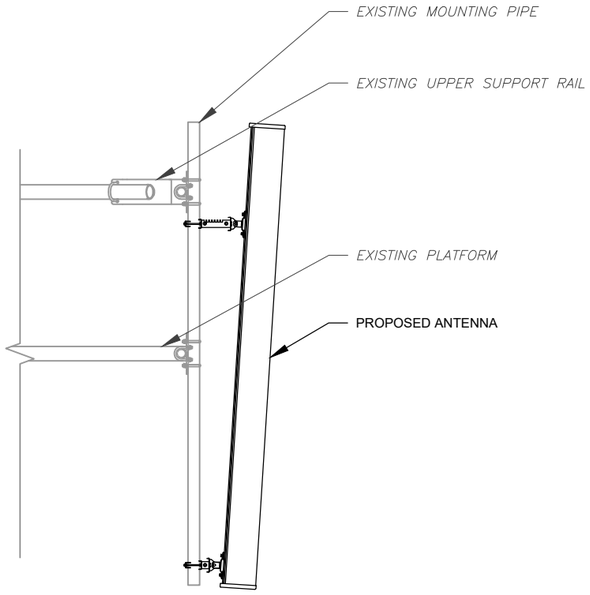



AT&T

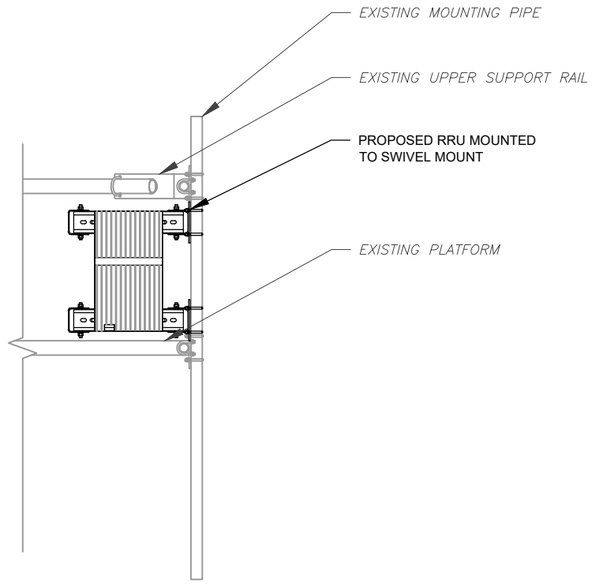
| | |
|---|---|
| DATE DRAWN: | 05/28/20 |
| ATC JOB NO: | 302468 |
| CUSTOMER ID: | 10070908 |
| CUSTOMER #: | 20-10206 |

FINAL RF SCHEDULE AND ANTENNA INSTALLATION

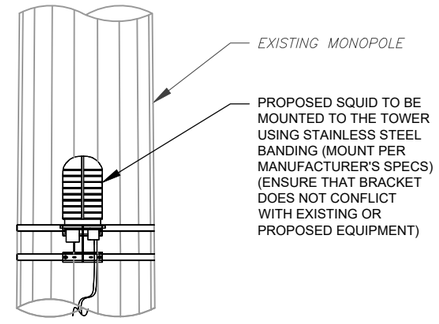
| SHEET NUMBER: | REVISION: |
|---|---|
| C-402 | 0 |




1 ANTENNA DETAIL
SCALE: N.T.S.




2 RRU DETAIL
SCALE: N.T.S.




3 PROPOSED SQUID MOUNTING
SCALE: NOT TO SCALE



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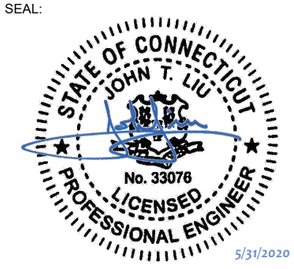
| REV. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| 0 | FOR CONSTRUCTION | ZDS | 05/28/20 |
| | | | |
| | | | |
| | | | |
| | | | |

ATC SITE NUMBER:
302468

ATC SITE NAME:
PETRO LOCK

SITE ADDRESS:
99 MEADOW ST
HARTFORD, CT 06114-1598

SEAL:

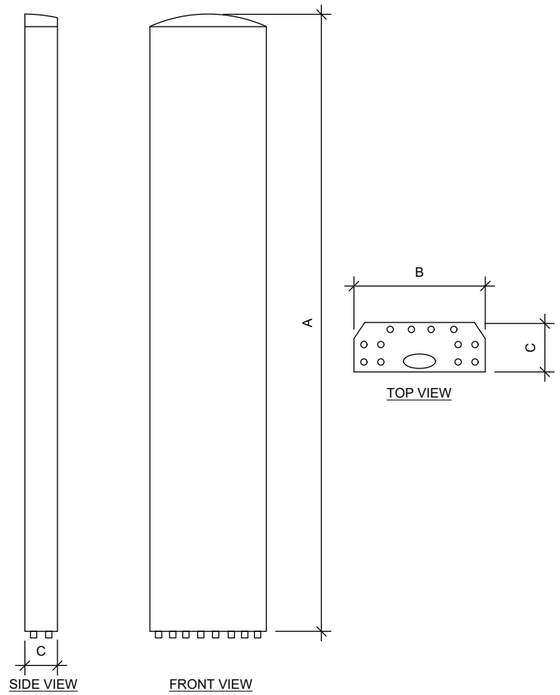



AT&T

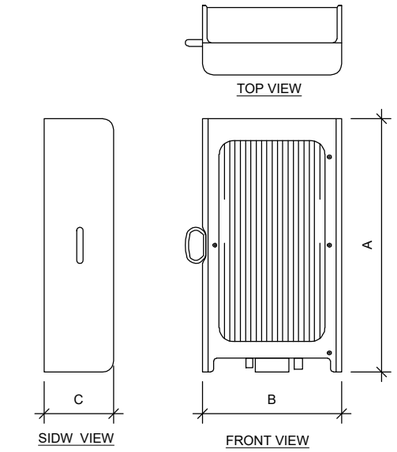
| | |
|---|---|
| DATE DRAWN: | 05/28/20 |
| ATC JOB NO: | 302468 |
| CUSTOMER ID: | 10070908 |
| CUSTOMER #: | 20-10206 |

CONSTRUCTION DETAILS

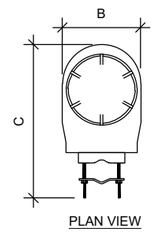
| SHEET NUMBER: | REVISION: |
|---|---|
| C-501 | 0 |

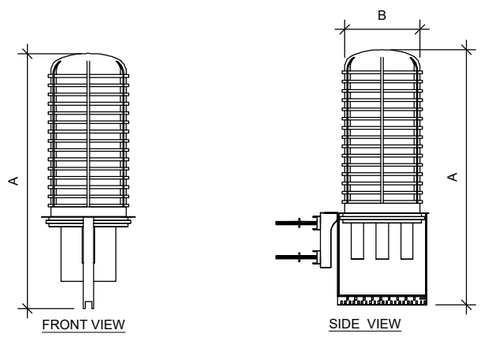



| ANTENNA SPECIFICATIONS | | | | |
|---|---|---|---|---|
| ANTENNA MODEL | A | B | C | WEIGHT (LBS) |
| CCI DMP65R-BU6DA | 71.2" | 20.7" | 7.7" | 79.4 |
| CCI DMP65R-BU8DA | 96.0" | 20.7" | 7.7" | 95.7 |




| RRU SPECIFICATIONS | | | | |
|---|---|---|---|---|
| RRU MODEL | A | B | C | WEIGHT (LBS) |
| RRUS-4449 B5/B12 | 17.9" | 13.2" | 9.4" | 71.0 |
| RRUS-32 B2 | 27.2" | 12.0" | 7.0" | 53.0 |
| RRUS-E2 B29 | 20.4" | 18.5" | 7.5" | 60.0 |




| RAYCAP SPECIFICATIONS | | | | |
|---|---|---|---|---|
| RAYCAP MODEL | A | B | C | WEIGHT (LBS) |
| DC6-48-60-18-8F | 31.41" | 10.24" | 18.28" | 16.0 |

1 EQUIPMENT SPECIFICATIONS

SCALE: NOT TO SCALE



AMERICAN TOWER®

SNW ENGINEERING GROUP, INC.
TOGETHER PLANNING A BETTER TOMORROW
158 BUSINESS CENTER DRIVE
BIRMINGHAM, AL 35244
TEL: 205-252-6985 FAX: 205-320-1504

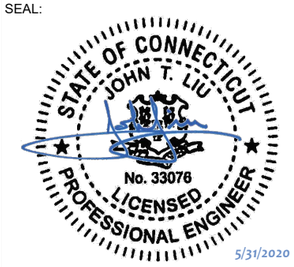
| REV. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| 0 | FOR CONSTRUCTION | ZDS | 05/28/20 |
| | | | |
| | | | |
| | | | |
| | | | |

ATC SITE NUMBER:
302468

ATC SITE NAME:
PETRO LOCK

SITE ADDRESS:
99 MEADOW ST
HARTFORD, CT 06114-1598

SEAL:

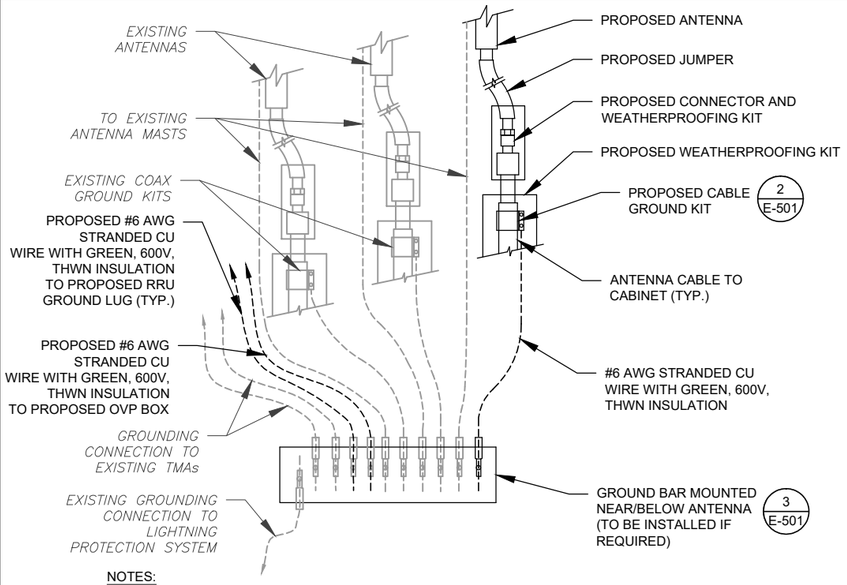



AT&T

| | |
|---|---|
| DATE DRAWN: | 05/28/20 |
| ATC JOB NO: | 302468 |
| CUSTOMER ID: | 10070908 |
| CUSTOMER #: | 20-10206 |

EQUIPMENT SPECIFICATIONS

| SHEET NUMBER: | REVISION: |
|---|---|
| C-502 | 0 |

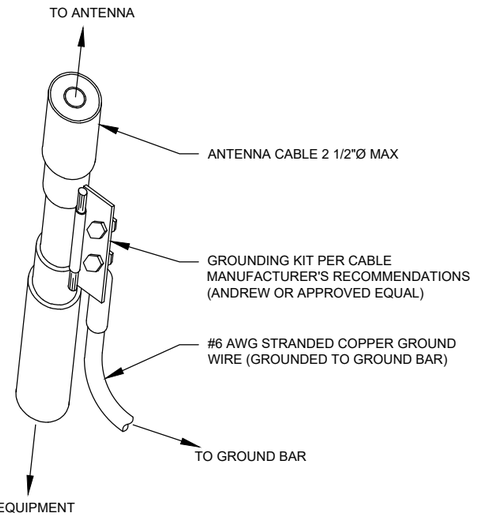



NOTES:

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

## 1 TYPICAL ANTENNA GROUNDING DIAGRAM

SCALE: N.T.S.

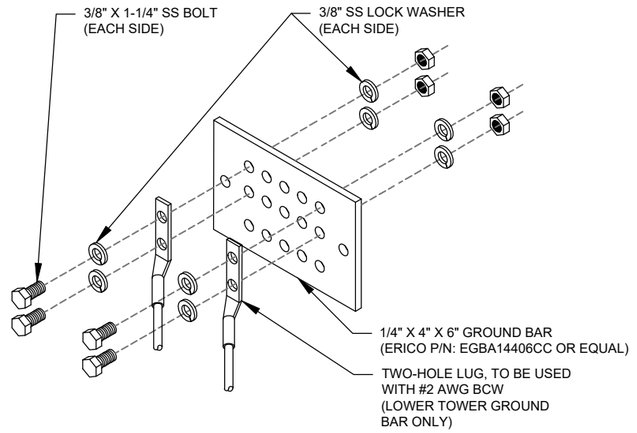



GROUND KIT NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. CONTRACTOR SHALL PROVIDE WEATHERPROOFING KIT (ANDREW PART NUMBER 221213) AND INSTALL/TAPE PER MANUFACTURER'S SPECIFICATIONS.

## 2 CABLE GROUND KIT CONNECTION DETAIL

SCALE: N.T.S.

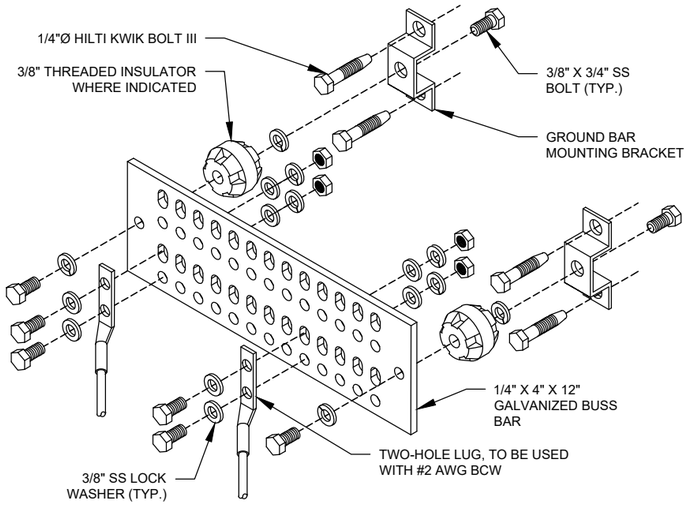



GROUND BAR NOTES:

1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

## 3 TOWER GROUND BAR DETAIL

SCALE: N.T.S.

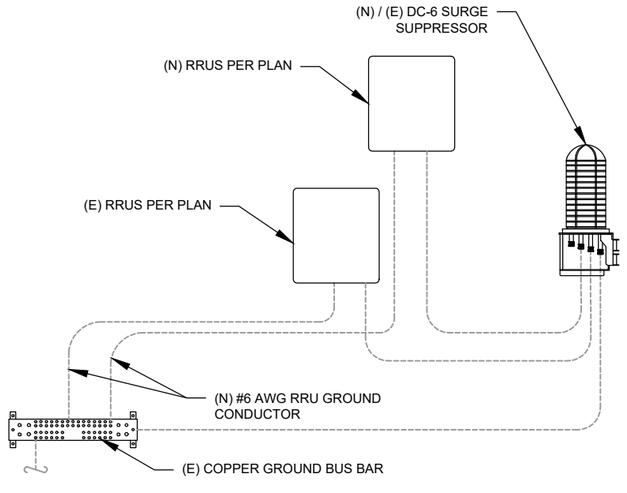



GROUND BAR NOTES

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

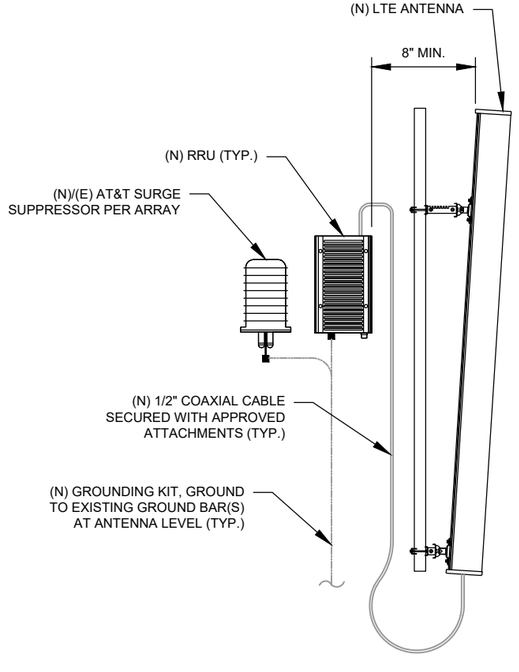
## 4 MAIN GROUND BAR DETAIL

SCALE: N.T.S.




## 5 RRU GROUNDING

SCALE: N.T.S.




## 6 ANTENNA/RRU GROUNDING

SCALE: N.T.S.

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158 BUSINESS CENTER DRIVE
BIRMINGHAM, AL 35244
TEL: 205-252-6985 FAX: 205-320-1504

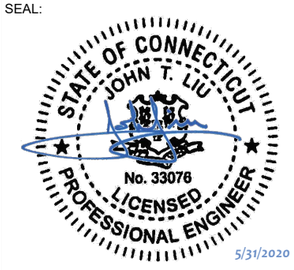
| REV. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| 0 | FOR CONSTRUCTION | ZDS | 05/28/20 |

ATC SITE NUMBER:
302468

ATC SITE NAME:
PETRO LOCK

SITE ADDRESS:
99 MEADOW ST
HARTFORD, CT 06114-1598

SEAL:




AT&T

| | |
|---|---|
| DATE DRAWN: | 05/28/20 |
| ATC JOB NO: | 302468 |
| CUSTOMER ID: | 10070908 |
| CUSTOMER #: | 20-10206 |

GROUNDING DETAILS

| SHEET NUMBER: | REVISION: |
|---|---|
| E-501 | 0 |

AMERICAN TOWER®

MasTec Network Solutions

**April 22, 2020**


**Geoff Middlebrooks**
American Tower Corporation
3500 Regency Parkway, Suite 100
Cary, NC 27518

**MasTec Network Solutions**
507 Airport Blvd, Suite 111
Morrisville, NC 27560
Tel (919) 674-5895
MNS.Engineering@mastec.com


| | | |
|---|---|---|
| **Subject:** | **Mount Structural Analysis** | |
| **ATC Designation:** | **Site Name:** | Petro Lock |
| | **Site Number:** | 302468 |
| **Carrier Designation:** | **Carrier:** | AT&T |
| | **Site Name:** | MRCTB045503 |
| | **Site Number:** | CTL05127 |
| | **FA Number:** | 10070908 |
| **Engineering Firm Designation:** | **MNS Project Number:** | 21952-MNT1 |
| **Site Data:** | **99 Meadow Street, Hartford, Hartford County, CT 06114**<br>**Latitude 41.7439°, Longitude -72.6683°**<br>**150 ft Monopole**<br>**137 ft RAD Center (12.5 ft Platform w/ Handrail)** | |

Dear Geoff,

MasTec Network Solutions is pleased to submit this **Mount Structural Analysis** to determine the structural integrity of the above-mentioned structure.

This analysis has been performed in compliance with the *ANSI/TIA-222-H Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Support Structures*. Based on our analysis we have determined the structural strength to have the following result:

| | | |
|---|---|---|
| **Antenna Mounting Structure** | **73%** | **Sufficient** |

We at MasTec Network Solutions appreciate the opportunity of providing continued specialty services. Please do not hesitate to contact our office should you have any questions.

Prepared By:

Samiha Ahmed, EIT
Structural Engineer II

STATE OF CONNECTICUT · RAPHAEL MOHAMED · No. 25112 · LICENSED · PROFESSIONAL ENGINEER

Reviewed By:

Raphael Mohamed

Digitally signed by Raphael Mohamed
DN: E=Raphael.Mohamed@mastec.com, CN=Raphael Mohamed, OU=Users, OU=MasTec Network Solutions, OU=Service Lines, DC=mastec, DC=local
Date: 2020.04.22 09:47:13-04'00'

Raphael I. Mohamed, PE, PEng
Senior Director of Engineering
CT PE License No. 25112

This item has been digitally signed and sealed by Raphael I. Mohamed, PE.
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. PLEASE REFERENCE THE MOUNT ANALYSIS REPORT FOR COMPLETE MOUNT ANALYSIS CALCULATIONS AND DETAILS. SUPPLEMENTAL PAGES INCLUDED IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS TO VERIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONSTRUCTION.

AMERICAN TOWER®


SMW ENGINEERING GROUP, INC.
TOGETHER PLANNING A BETTER TOMORROW
158 BUSINESS CENTER DRIVE
BIRMINGHAM, AL 35244
TEL: 205-252-6985 FAX: 205-320-1504




| REV. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| 0 | FOR CONSTRUCTION | ZDS | 05/28/20 |
| | | | |
| | | | |
| | | | |
| | | | |

ATC SITE NUMBER:
302468

ATC SITE NAME:
PETRO LOCK

SITE ADDRESS:
99 MEADOW ST
HARTFORD, CT 06114-1598

SEAL:

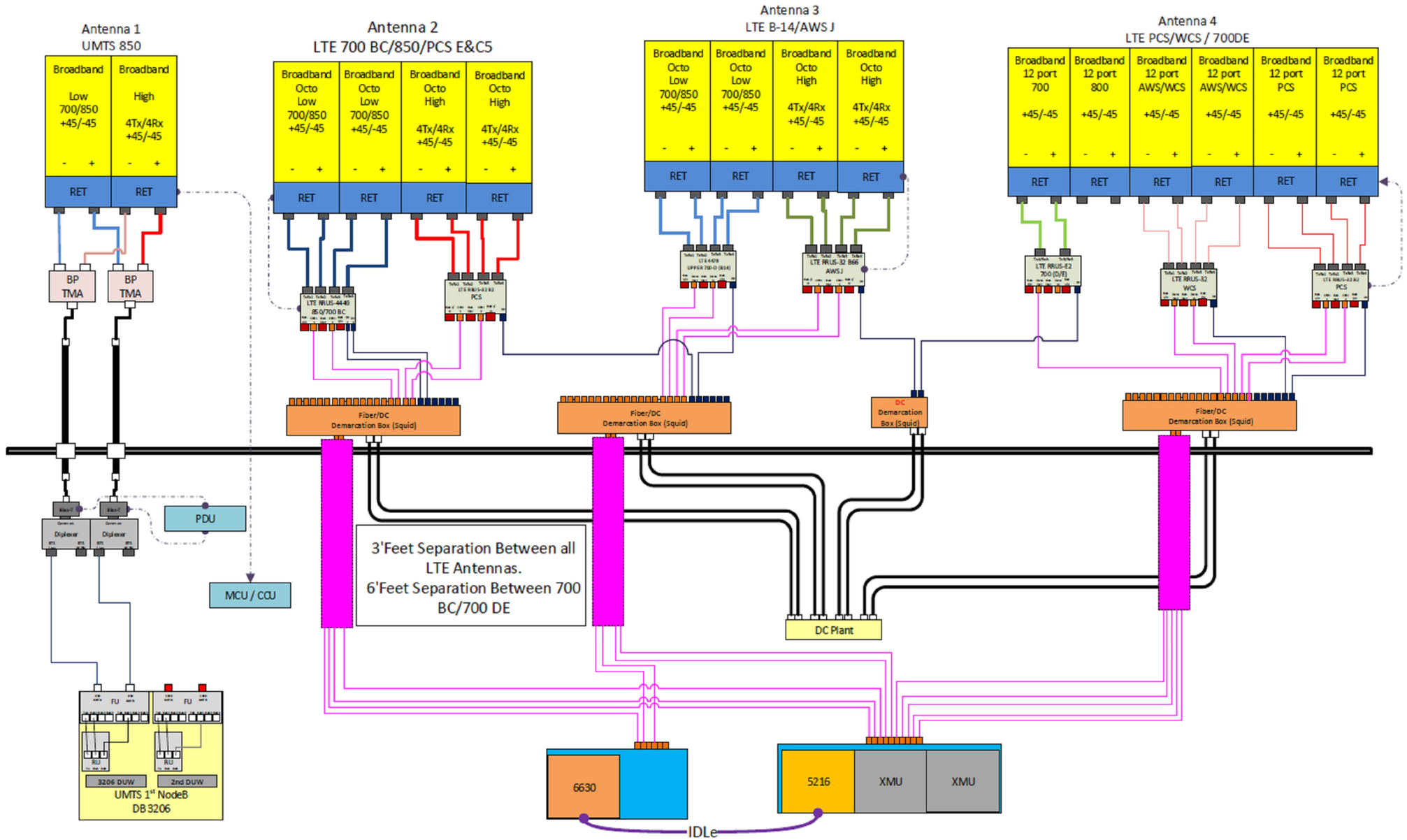
STATE OF CONNECTICUT · JOHN T. LIU · No. 33076 · LICENSED · PROFESSIONAL ENGINEER
5/31/2020

AT&T

| | |
|---|---|
| DATE DRAWN: | 05/28/20 |
| ATC JOB NO: | 302468 |
| CUSTOMER ID: | 10070908 |
| CUSTOMER #: | 20-10206 |

SUPPLEMENTAL

| SHEET NUMBER: | REVISION: |
|---|---|
| R-601 | 0 |




1 PLUMBING DIAGRAM
SCALE: NOT TO SCALE

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



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SNW ENGINEERING GROUP, INC.
TOGETHER PLANNING A BETTER TOMORROW
158 BUSINESS CENTER DRIVE
BIRMINGHAM, AL 35244
TEL: 205-252-6985 FAX: 205-320-1504

| REV. | DESCRIPTION | BY | DATE |
|---|---|---|---|
| 0 | FOR CONSTRUCTION | ZDS | 05/28/20 |
| | | | |
| | | | |
| | | | |
| | | | |

ATC SITE NUMBER:
302468

ATC SITE NAME:
PETRO LOCK

SITE ADDRESS:
99 MEADOW ST
HARTFORD, CT 06114-1598

SEAL:
STATE OF CONNECTICUT
JOHN T. LIU
No. 33076
LICENSED
PROFESSIONAL ENGINEER
5/31/2020

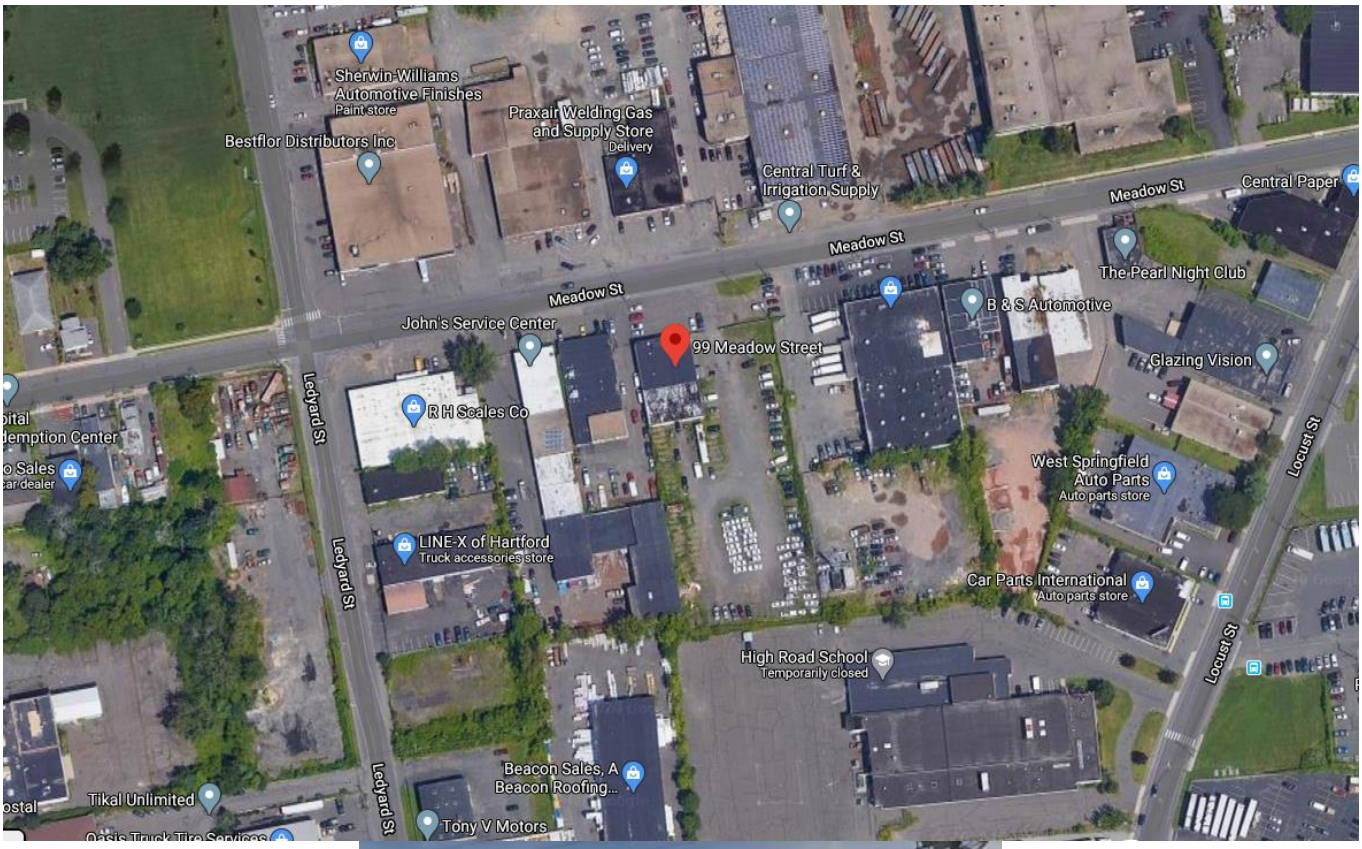
AT&T

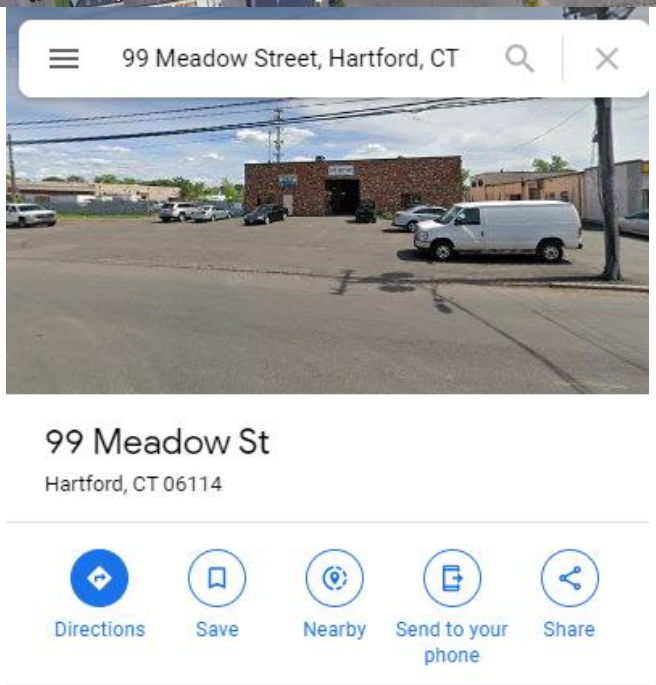
| | |
|---|---|
| DATE DRAWN: | 05/28/20 |
| ATC JOB NO: | 302468 |
| CUSTOMER ID: | 10070908 |
| CUSTOMER #: | 20-10206 |

SUPPLEMENTAL

| SHEET NUMBER: | REVISION: |
|---|---|
| R-602 | 0 |

# EXHIBIT 2


Sherwin-Williams Automotive Finishes
Paint store
Praxair Welding Gas and Supply Store
Delivery
Bestflor Distributors Inc
Central Turf & Irrigation Supply
Central Paper
Meadow St
Meadow St
Meadow St
The Pearl Night Club
B & S Automotive
John's Service Center
99 Meadow Street
Glazing Vision
R H Scales Co
Ledyard St
Ledyard St
Ledyard St
Locust St
Locust St
West Springfield Auto Parts
Auto parts store
LINE-X of Hartford
Truck accessories store
Car Parts International
Auto parts store
High Road School
Temporarily closed
Beacon Sales, A Beacon Roofing...
Tikal Unlimited
Tony V Motors


99 Meadow Street, Hartford, CT
99 Meadow St
Hartford, CT 06114
Directions
Save
Nearby
Send to your phone
Share

Card 1 of 1

| Location 99 MEADOW ST | Property Account Number | Parcel ID 275-6 |
|---|---|---|
| | | Old Parcel ID I-E 2016- |

**Current Property Mailing Address**

| | |
|---|---|
| Owner MEADOW STREET REALTY LLC | City HARTFORD |
| | State CT |
| Address 99 MEADOW ST | Zip 06114-1506 |
| | Zoning ID-1 |

**Current Property Sales Information**

| | |
|---|---|
| Sale Date 4/7/2000 | Legal Reference 04225-0189 |
| Sale Price 0 | Grantor(Seller) MEADOW STREET REALTY, LLC |

**Current Property Assessment**

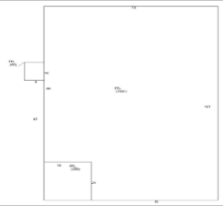
| | |
|---|---|
| | **Card 1 Value** |
| Year 2020 | Building Value 0 |
| | Xtra Features Value 0 |
| Land Area 124146 - | Land Value 0 |
| | Total Value 0 |

**Narrative Description**

This property contains 124146 - of land mainly classified as AUTO REPAIR with a(n) AUTO SERVICE style building, built about 1979 , having Conc Block exterior and Asphalt roof cover, with 0 commercial unit(s) and 0 residential unit(s), 0 total room(s), 0 total bedroom(s), 0 total bath(s), 0 total half bath(s) total 3/4 bath(s).

**Legal Description**

**Property Images**



# EXHIBIT 3

AMERICAN TOWER®
CORPORATION

# Structural Analysis Report

| | | |
|---|---|---|
| **Structure** | : | **147.9 ft Monopole** |
| **ATC Site Name** | : | **Petro Lock, CT** |
| **ATC Asset Number** | : | **302468** |
| **Engineering Number** | : | **13199500_C3_03** |
| **Proposed Carrier** | : | **AT&T MOBILITY** |
| **Carrier Site Name** | : | **MRCTB045503** |
| **Carrier Site Number** | : | **CTL05127** |
| **Site Location** | : | **99 Meadow St**<br>**Hartford, CT 06114-1598**<br>**41.743200,-72.667500** |
| **County** | : | **Hartford** |
| **Date** | : | **April 22, 2020** |
| **Max Usage** | : | **68%** |
| **Result** | : | **Pass** |


Prepared By:
Lucas Tait
Structural Engineer

L Tait

Reviewed By:

**COA: PEC.0001553**

AMERICAN TOWER®
CORPORATION

## Table of Contents

## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 147.9 ft monopole to reflect the change in loading by AT&T MOBILITY.

## Supporting Documents

| | |
|---|---|
| **Tower Drawings** | FWT Job #21719000 Rev. 1, dated July 18, 2000 |
| **Foundation Drawing** | FWT Job #21719000 Rev. 1, dated July 18, 2000 |
| **Geotechnical Report** | Osprey Environmental Engineering Job #98083-01, dated August 28, 1998 |

## Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

| | |
|---|---|
| **Basic Wind Speed:** | 97 mph (3-Second Gust, Vasd) / 125 mph (3-Second Gust, Vult) |
| **Basic Wind Speed w/ Ice:** | 50 mph (3-Second Gust) w/ 1" radial ice concurrent |
| **Code:** | ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code |
| **Structure Class:** | II |
| **Exposure Category:** | B |
| **Topographic Category:** | 1 |
| **Crest Height:** | 0 ft |
| **Spectral Response:** | Ss = 0.18, $S_1$ = 0.06 |
| **Site Class:** | D - Stiff Soil |

## Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

## Existing and Reserved Equipment

| Elev.[1] (ft) | Qty | Antenna | Mount Type | Lines | Carrier |
|---|---|---|---|---|---|
| 152.0 | 4 | Decibel DB844H90E-XY | Platform with Handrails | - | SPRINT NEXTEL |
| | 8 | Andrew 844G65VTZASX | | | |
| 137.0 | 2 | Raycap DC6-48-60-18-8F (23.5" Height) | Platform with Handrails | (2) 0.39" (10mm) Fiber Trunk<br>(6) 0.78" (19.7mm) 8 AWG 6<br>(6) 1 5/8" Coax<br>(1) 3" conduit | AT&T MOBILITY |
| | 3 | Ericsson RRUS 4478 B14 (15") | | | |
| | 1 | Raycap DC6-48-60-18-8C | | | |
| | 3 | Ericsson RRUS 32 B66A | | | |
| | 3 | Ericsson RRUS 32 B2 | | | |
| | 3 | Powerwave Allgon 7750.00 | | | |
| | 2 | Quintel QS66512-3 (112 lbs.) | | | |
| | 1 | CCI TPA-65R-LCUUUU-H8 | | | |
| | 2 | Kathrein Scala 80010965 | | | |
| | 6 | Powerwave Allgon LGP21401 | | | |
| | 6 | Powerwave Allgon LGP21901 | | | |
| | 6 | Powerwave Allgon 7020.00 Dual Band RET | | | |
| 123.0 | 3 | Ericsson KRY 112 144/1 | T-Arm | (1) 1 5/8" (1.63"-41.3mm) Fiber<br>(24) 1 5/8" Coax | T-MOBILE |
| | 3 | Andrew LNX-6515DS-VTM | | | |
| | 3 | RFS APX16DWV-16DWVS-E-A20 | | | |
| | 3 | Ericsson AIR 32 B4A-B2P | | | |
| | 3 | Ericsson KRY 112 489/1 | | | |
| | 3 | Kathrein Scala Smart Bias Tee | | | |
| 113.0 | 3 | RFS APXV18-206517 | Flush | (6) 1 5/8" Coax | METRO PCS INC |
| 98.0 | 3 | RFS APXVSPP18-C-A20 | Low Profile Platform | (3) 1 1/4" Hybriflex Cable<br>(1) 1.7" (43.2mm) Hybrid | SPRINT NEXTEL |
| | 3 | Nokia 2.5G MAA - AAHC(64T64R) | | | |
| | 3 | Alcatel-Lucent 4x40W RRH (88 lb) | | | |
| | 3 | Alcatel-Lucent 800 MHz 2X50W RRH w/ Filter | | | |
| | 3 | RFS IBC1900BB-1 | | | |
| | 3 | RFS IBC1900HG-2A | | | |
| 89.0 | 3 | DragonWave Horizon Compact | Side Arm | (1) 2" conduit<br>(3) 1/2" Coax<br>(6) 5/16" (0.31"-7.9mm) Coax | CLEARWIRE CORPORATION |
| | 3 | Argus LLPX310R | | | |
| | 1 | DragonWave A-ANT-11G-2.5-C | | | |
| | 3 | NextNet BTS-2500 | | | |
| | 2 | DragonWave A-ANT-18G-2-C | | | |
| | 12 | Commscope SBNHH-1D65B | Low Profile Platform | (2) 1 5/8" Hybriflex | VERIZON WIRELESS |
| | 2 | RFS DB-T1-6Z-8AB-0Z | | | |
| | 3 | Alcatel-Lucent RRH2x60 700 | | | |
| | 3 | Alcatel-Lucent RRH2X60-AWS | | | |
| | 3 | Alcatel-Lucent RRH2x60 | | | |
| 20.0 | 1 | Lucent KS-24019 | Flush | (1) 1/2" Coax | SPRINT NEXTEL |

## Equipment to be Removed

| Elev.[1] (ft) | Qty | Antenna | Mount Type | Lines | Carrier |
|---|---|---|---|---|---|
| | 3 | Ericsson RRUS 11 (Band 12) (55 lb) | - | (1) 0.39" (10mm) Fiber Trunk (6) 1 5/8" Coax | AT&T MOBILITY |
| | 3 | Ericsson RRUS-32 (77 lbs) | | | |
| | 1 | Kathrein Scala 80010965 | | | |
| | 1 | Andrew SBNH-1D6565C | | | |
| | 2 | KMW AM-X-CD-16-65-00T-RET | | | |

## Proposed Equipment

| Elev.[1] (ft) | Qty | Antenna | Mount Type | Lines | Carrier |
|---|---|---|---|---|---|
| | 1 | Powerwave Allgon LGP21401 | Platform with Handrails | (2) 0.39" (9.8mm) Cable (2) 0.78" (19.7mm) 8 AWG 6 (2) 3" conduit | AT&T MOBILITY |
| | 1 | Raycap DC6-48-60-18-8F ("Squid") | | | |
| | 3 | Ericsson RRUS 4449 B5, B12 | | | |
| | 3 | Ericsson RRUS 32 B2 | | | |
| | 3 | Ericsson RRUS E2 B29 | | | |
| | 3 | Ericsson RRUS-32 B30 (77 lbs) | | | |
| | 2 | CCI DMP65R-BU6DA | | | |
| | 1 | Kathrein Scala 80010966 | | | |
| | 1 | CCI DMP65R-BU8D | | | |

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

Install proposed coax inside the pole shaft.

## Structure Usages

| Structural Component | Controlling Usage | Pass/Fail |
|---|---|---|
| Anchor Bolts | 66% | Pass |
| Shaft | 68% | Pass |
| Base Plate | 19% | Pass |

## Foundations

| Reaction Component | Analysis Reactions | % of Usage |
|---|---|---|
| Moment (Kips-Ft) | 3,363.9 | 68% |
| Axial (Kips) | 57.7 | 3% |
| Shear (Kips) | 31.5 | 50% |

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

## Deflection and Sway*

| Antenna Elevation (ft) | Antenna | Carrier | Deflection (ft) | Sway (Rotation) (°) |
|---|---|---|---|---|
| 137.0 | Powerwave Allgon LGP21401 | AT&T MOBILITY | 1.160 | 0.847 |
| | Raycap DC6-48-60-18-8F ("Squid") | | | |
| | Ericsson RRUS 4449 B5, B12 | | | |
| | Ericsson RRUS 32 B2 | | | |
| | Ericsson RRUS E2 B29 | | | |
| | Ericsson RRUS-32 B30 (77 lbs) | | | |
| | CCI DMP65R-BU6DA | | | |
| | Kathrein Scala 80010966 | | | |
| | CCI DMP65R-BU8D | | | |
| | DragonWave A-ANT-18G-2-C | CLEARWIRE CORPORATION | 0.519 | 0.645 |
| | DragonWave A-ANT-11G-2.5-C | | | |

***Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G**

## Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

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

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

# EXHIBIT 4

**April 22, 2020**

**Geoff Middlebrooks**
American Tower Corporation
3500 Regency Parkway, Suite 100
Cary, NC 27518

**MasTec Network Solutions**
507 Airport Blvd, Suite 111
Morrisville, NC 27560
Tel (919) 674-5895
MNS.Engineering@mastec.com

| | | |
|---|---|---|
| **Subject:** | **Mount Structural Analysis** | |
| **ATC Designation:** | **Site Name:** | Petro Lock |
| | **Site Number:** | 302468 |
| **Carrier Designation:** | **Carrier:** | AT&T |
| | **Site Name:** | MRCTB045503 |
| | **Site Number:** | CTL05127 |
| | **FA Number:** | 10070908 |
| **Engineering Firm Designation:** | **MNS Project Number:** | 21952-MNT1 |
| **Site Data:** | **99 Meadow Street, Hartford, Hartford County, CT 06114**<br>**Latitude 41.7439°, Longitude -72.6683°**<br>**150 ft Monopole**<br>**137 ft RAD Center (12.5 ft Platform w/ Handrail)** | |

Dear Geoff,

MasTec Network Solutions is pleased to submit this **Mount Structural Analysis** to determine the structural integrity of the above-mentioned structure.

This analysis has been performed in compliance with the *ANSI/TIA-222-H Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Support Structures*. Based on our analysis we have determined the structural strength to have the following result:

| | | |
|---|---|---|
| **Antenna Mounting Structure** | **73%** | **Sufficient** |

We at MasTec Network Solutions appreciate the opportunity of providing continued specialty services. Please do not hesitate to contact our office should you have any questions.

Prepared By:

Samiha Ahmed, EIT
Structural Engineer II

STATE OF CONNECTICUT
RAPHAEL MOHAMED
No. 25112
LICENSED
PROFESSIONAL ENGINEER

Reviewed By:

Raphael I. Mohamed, PE, PEng
Senior Director of Engineering
CT PE License No. 25112

This item has been digitally signed and sealed by Raphael I. Mohamed, PE.
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

**TABLE OF CONTENTS**

## EXECUTIVE SUMMARY

The purpose of this analysis is to determine the acceptability of AT&T's proposed loading. Documents used for this analysis are stated in **Table 1**. This analysis has been performed in compliance with the applicable codes and parameters listed in **Table 2**.

**Table 1: Referenced Documents**

| Company | Document Type | Reference | Date |
|---|---|---|---|
| SAI | Redlined Construction Drawings | Site No. CT5127 | 7/3/2018 |
| MasTec | Mount Mapping | ATC# 302468 | 4/9/2020 |
| ATC | APP | ATC# 302468 | 3/18/2020 |
| AT&T | RFDS | RFDS Name: CTL05127 | 3/2/2020 |

**Table 2: Design Basis**

| Codes and Standards | |
|---|---|
| TIA Standard | *ANSI/TIA-222-H* |
| **Wind Parameters** | |
| Ultimate Wind Speed | 118 mph |
| Nominal Wind Speed with Ice | 50 mph |
| Radial Ice Thickness | 1.50 in |
| Operational Wind Speed | 30 mph |
| Exposure Category | B |
| Risk Category | II |
| Topographic Category | 1 |
| **Seismic Parameters** | |
| $S_S$ | 0.191 |
| $S_1$ | 0.055 |
| **Man Load** | |
| Maintenance Load, $L_m$ | 500 lbs |
| Maintenance Load, $L_v$ | 250 lbs |

Seismic effects have been considered in accordance with *Section 2.7 of TIA-222-H.*

Based on our analysis, we have determined the mounting components to be **adequate** to support the existing and proposed loading as described in **Table 3** of this analysis report. No modifications are required at this time.

To ensure the requirements of the applicable standards are met, we have the following recommendations:

**Recommendations:**

1) All bolts and hardware should be checked for tightness and condition prior to installing the proposed equipment.

## CARRIER LOADING

The existing and proposed antenna equipment with corresponding mounts are shown below in **Table 3**. If the equipment listed below differs from actual field conditions, MasTec Network Solutions should be contacted to review the discrepancies.

**Table 3: Appurtenance Loading**

**Final Carrier Loading:**

| Mount Elevation (ft) | Antenna Elevation (ft) | Qty | Description | Carrier | Mount Type | Notes |
|---|---|---|---|---|---|---|
| 137 | 137 | 2 | Quintel QS66512-3 | AT&T | (1) 12.5' Platform with Handrail | -- |
| | | 2 | Kathrein Scala 80010965 | | | |
| | | 1 | Kathrein Scala 80010966 | | | |
| | | 1 | CCI DMP65R-BU8D | | | |
| | | 3 | Powerwave Allgon 7750.00 | | | |
| | | 2 | CCI DMP65R-BU6DA | | | |
| | | 1 | CCI TPA-65R-LCUUUU-H8 | | | |
| | | 6 | Powerwave Allgon LGP21401 | | | |
| | | 3 | Raycap DC6-48-60-18-8F | | | |
| | | 1 | Raycap DC6-48-60-18-8C | | | |
| | | 6 | Powerwave Allgon 7020.00 | | | |
| | | 3 | Ericsson RRUS 4449 B5/B12 | | | |
| | | 6 | Ericsson RRUS 32 B2 | | | |
| | | 3 | Ericsson RRUS-32 B30 | | | |
| | | 3 | Ericsson RRUS E2 B29 | | | |
| | | 3 | Ericsson RRUS 4478 B14 | | | |
| | | 3 | Ericsson RRUS 32 B66A | | | |

**ANALYSIS RESULTS**

RISA-3D (V17.0.4), a commercially available software package for structural analysis, was used to create a three-dimensional model of the structure and calculate member stresses for various loading cases. Selected output from the analysis is included in **APPENDIX 3**. Please find below a summary of the structure analysis results.

Capacity percentages below 105% are considered acceptable for structure components.

**Table 4: Mount Components**

| Structural Component | Capacity Percentage | Result | Notes |
|---|---|---|---|
| Face Horizontal | 70% | Pass | 1 |
| Handrail | 41% | Pass | 1 |
| Stand Off | 23% | Pass | 1 |
| Mount Pipe | 40% | Pass | 1 |
| Grating Support | 10% | Pass | 1 |
| Connection Plate | 2% | Pass | 1 |
| Handrail Connection Plate | 11% | Pass | 1 |
| Platform Connection Plate | 73% | Pass | 1 |
| Site Pro1 PRK-1245 | 19% | Pass | 1 |
| Site Pro1 PRK-SFS | 12% | Pass | 1 |
| Reinforcement Pipe | 43% | Pass | 1 |

1. Please see **APPENDIX 3** for calculation details

**Table 5: Additional Structural Components**

| Component | Percentage | Result | Notes |
|---|---|---|---|
| Connection Bolts | 7% | Pass | 1 |
| Connection Plate | 7% | Pass | 1 |

1. Please see **APPENDIX 2** for calculation details.

**ASSUMPTIONS, LIMITATIONS AND DISCLAIMER**

1) The mount was built in accordance with the designer's specifications and the mount has been maintained and is free of damage.
2) This Structural Analysis is not a condition assessment of the mount and is an evaluation of the theoretical structural capacity.
3) This analysis is based from the information supplied, and therefore, this report's results are as accurate as the supplied data.
4) MasTec Network Solutions makes no warranties, expressed and/or implied, in connection with this report, and disclaims any liability associated with material, fabrication, or erection of this tower. MasTec will not be held responsible from any consequential or incidental damages sustained by any person, firm, or organization as a result of the contents of this report. The maximum liability of MasTec pursuant to this report will be limited to the total fee received for compilation of this report.
5) It is the tower owner's responsibility to verify that the mount modeled and analyzed is the correct structure modeled.
6) The use of this report shall be limited to the purpose for which it was commissioned and may not be used for any other purposes without the written consent of MasTec Network Solutions.
7) The mount was properly fabricated and was constructed and has been maintained in accordance with manufacturer's specifications.
8) The connection from the tower to the mount is assumed to be adequate and in good condition.
9) Member connections are assumed to have been designed to meet for exceed the theoretical capacity of the connected member.
10) Steel grades have been assumed as follows:

| | |
|---|---|
| Channel, Solid Round, Angle, Plate | ASTM A36 (GR 36) |
| HSS (Rectangular) | ASTM 500 (GR B-46) |
| HSS (Round) | ASTM 500 (GR B-42) |
| Pipe | ASTM A53 (GR 35) |
| Connection Bolts | ASTM A325 |
| U-Bolts | SAE 429 Gr.2 |

# EXHIBIT 5

Lawrence Behr Associates INC
www.lbagroup.com

# NIER Study Report

SITE NAME:

## 302468 Petro Lock

LOCATION:

Hartford, Connecticut

COMPANY:

American Tower Corporation
Woburn, Massachusetts

*July 13th, 2020*

3400 Tupper Drive | Greenville, NC 27834
252-757-0279 | 800-522-4464 | lbagrp@lbagroup.com

# Contents

## DISCLAIMER NOTICE

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NIER STUDY REPORT

# 302468 Petro Lock

*Hartford, Connecticut*

## INTRODUCTION

Lawrence Behr Associates, Inc. (LBA) has been retained by American Tower Corporation (ATC) of Woburn, Massachusetts to evaluate the RF emissions of an existing tower at this location.

## SITE AND FACILITY CONSIDERATIONS

Site 302468 Petro Lock is located at 99 Meadow Street in Hartford, Connecticut at coordinates 41.74319, -72.6675. The support structure is a 149' monopole. The installation consists of five antenna levels with radiation centers of 80', 90', 99', 123', and 138' above ground level. All antennae will have a radiation center as described above. All data used in this study was provided by one or more of the following sources:

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

A topographic map of the study area is located in Appendix 1. A satellite view of the study area is located in Appendix 2.

The load list may be seen in Appendix 3.

## POWER DENSITY CALCULATIONS

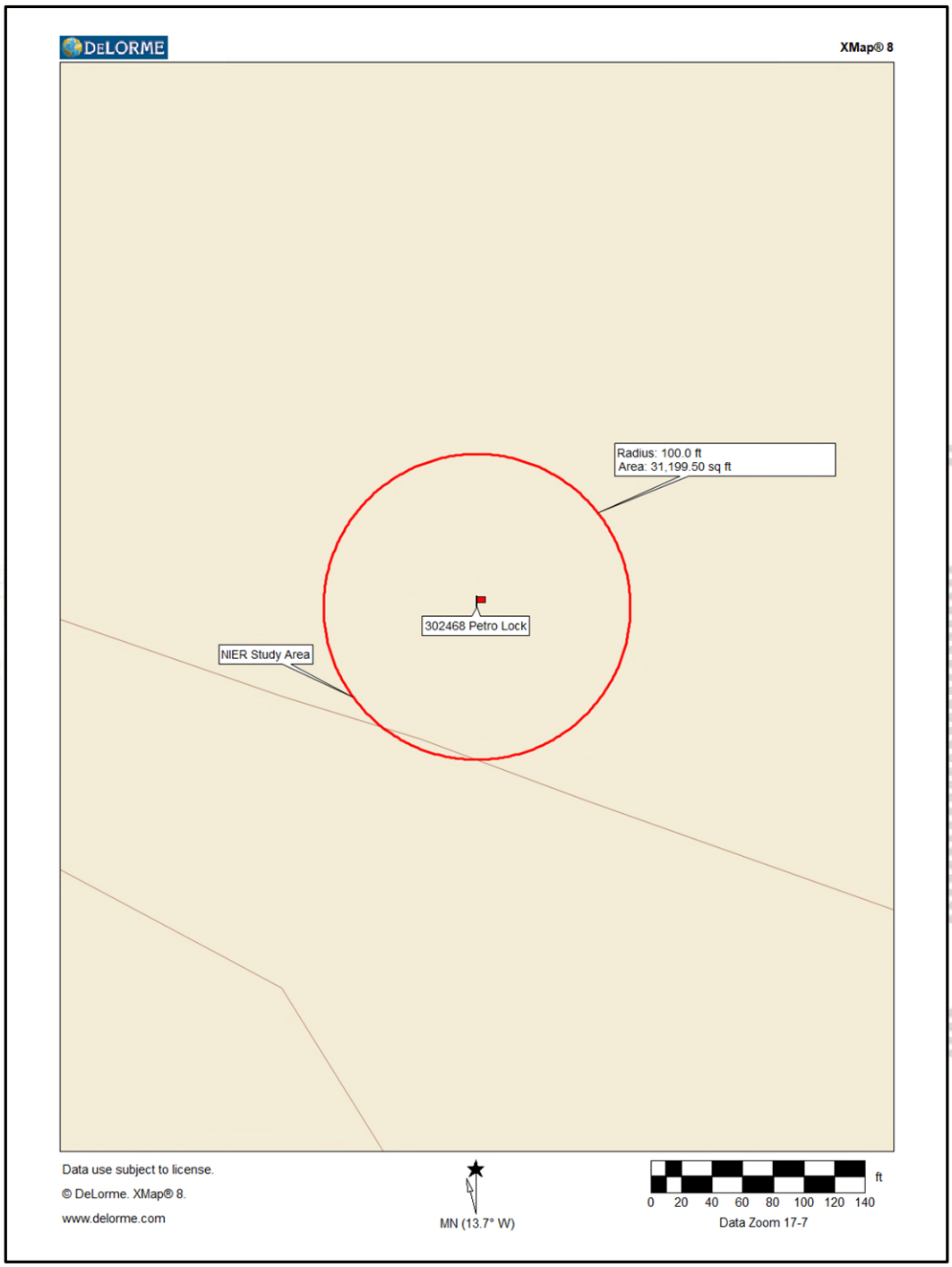
Graphs of the power density at different distances from the transmitter, compared to FCC MPE general population and occupational limits, may be seen in Appendix 4. These limits are based upon the Information Relating to MPE Standards found in Appendix 6. Study methodology may be seen in Appendix 7, which describes the Non-Ionizing Radiation Prediction Models. Approximate radiation patterns may be found in Appendix 5. This site ***IS*** in compliance with FCC OET-65 MPE limits.

July 13th, 2020

Kathryn G. Tesh
Wireless Services Manager

# APPENDIX 1

*Topographic Map*



# APPENDIX 2

*Satellite Photo*

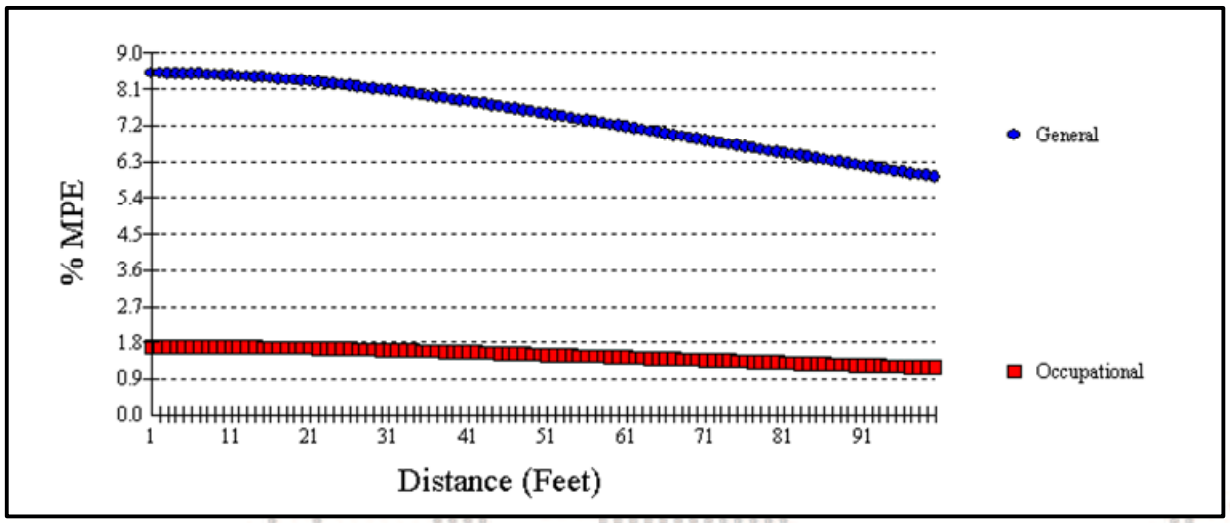
# APPENDIX 3

*Load List*

| Proposed | Customer | RAD Height (ft) | Equipment Quantity | Equipment Type | Manufacturer | Model Number | Line Quantity | Line size | Mount Type | Azimuths | TX Frequency | RX Frequency |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No | SPRINT NEXTEL | 152 | 8 | PANEL | Andrew | 844G65VTZASX | | | Platform with Handrails | | | |
| No | AT&T MOBILITY | 138 | 3 | PANEL | Kathrein Scala | 80010965 | | | Platform with Handrails | 30/150/270 | 2170-2180, 788-798 | 1770-1780, 758-768 |
| No | AT&T MOBILITY | 137 | 1 | PANEL | CCI | TPA-65R-LCUUUU-H8 | | | Platform with Handrails | 270 | 1930-1935, 1945-1950, 1965-1970, 1982-1990, 891-894 | 1930-1935, 1945-1950, 1965-1970, 1982-1990, 891-894 |
| No | AT&T MOBILITY | 137 | 2 | PANEL | KMW | AM-X-CD-16-65-00T-RET | | | Platform with Handrails | 30/150 | | |
| No | AT&T MOBILITY | 138 | 1 | PANEL | Andrew | SBNH-1D6565C | | | Platform with Handrails | 270 | | |
| No | AT&T MOBILITY | 138 | 3 | PANEL | Powerwave Allgon | 7750.00 | 12 | 1 5/8" Coax | Platform with Handrails | 30/150/270 | 1930-1935-1965-1970-1945-1950, 1982.5-1990-891.6-893.8 | 1930-1935-1965-1970-1945-1950, 1982.5-1990-891.6-893.8 |
| No | AT&T MOBILITY | 138 | 2 | PANEL | Quintel | QS66512-3 (112 lbs.) | | | Platform with Handrails | 150/270 | 1930-1935, 1945-1950, 1965-1970, 1982-1990, 891-894 | 1930-1935, 1945-1950, 1965-1970, 1982-1990, 891-894 |
| No | T-MOBILE | 124 | 3 | PANEL | RFS | APX16DWV-16DWVS-E-A20 | 6 | 1 5/8" Coax | T-Arm | 0/170/270 | 1850-1910, 1930-1945, 2110-2120, 2110-2155, 2140-2145 | 1710-1720, 1710-1780, 1740-1745, 1850-1865, 1930-1990 |
| No | T-MOBILE | 124 | 3 | PANEL | Andrew | LNX-6515DS-VTM | 6 | 1 5/8" Coax | T-Arm | 0/160/270 | 728-734 | 698-704 |
| Yes | T-MOBILE | 123 | 3 | PANEL | RFS | APX16DWV-16DWVS-E-A20 | | | Platform with Handrails | 0/160/270 | 1850-1910, 1930-1945, 2110-2120, 2110-2155, 2140-2145 | 1710-1720, 1710-1780, 1740-1745, 1850-1865, 1930-1990 |
| Yes | T-MOBILE | 123 | 3 | PANEL | Ericsson | Air6449 B41 | 0 | 1 5/8" (1.63"-41.3mm) Fiber | Platform with Handrails | 0/160/270 | 2496-2690 | 2496-2690 |
| Yes | T-MOBILE | 123 | 3 | PANEL | Ericsson | AIR32 B66Aa/B2a | 6 | 1 5/8" Coax | Platform with Handrails | 0/160/270 | 1930-1945, 2140-2145 | 1740-1745, 1850-1865 |
| Yes | T-MOBILE | 123 | 3 | PANEL | RFS | APXVAARR24_43-U-NA20 | 6 | 1 5/8" Coax | Platform with Handrails | 0/160/270 | 1850-1910, 617-652, 698-704 | 1930-1990, 663-697, 728-746 |
| No | SPRINT NEXTEL | 99 | 3 | PANEL | RFS | APXVTM14-C-I20 | 1 | 1 1/4" Hybriflex Cable | Low Profile Platform | 350/115/220 | | |
| No | SPRINT NEXTEL | 99 | 3 | PANEL | RFS | APXVSPP18-C-A20 | 2 | 1 1/4" Hybriflex Cable | Low Profile Platform | 350/115/22 | 1930-1990, 1990-1995, 862-869 | 1850-1910, 1910-1915, 817-824 |
| No | CLEARWIRE CORPORATION | 89 | 3 | PANEL | Argus | LLPX310R | | | Stand-Off | 30/150/270 | 2300-2700 | 2300-2700 |
| No | CLEARWIRE CORPORATION | 90 | 1 | DISH-HP | | A-ANT-11G-2.5-C | 0 | 1/2" Coax | Stand-Off | 177.1835 | 11 | 11 |
| No | CLEARWIRE CORPORATION | 90 | 2 | DISH-HP | | A-ANT-18G-2-C | 1 | 1/2" Coax | Stand-Off | 148.6753/350.2848 | 18 | 18 |
| No | VERIZON WIRELESS | 79 | 12 | PANEL | Commscope | SBNHH-1D65B | | | T-Arm with Platform | 0 | 1970-1975, 2145-2155, 746-757, 869-880, 890-892 | 1745-1755, 1890-1895, 776-787, 824-835, 845-847 |

# APPENDIX 4

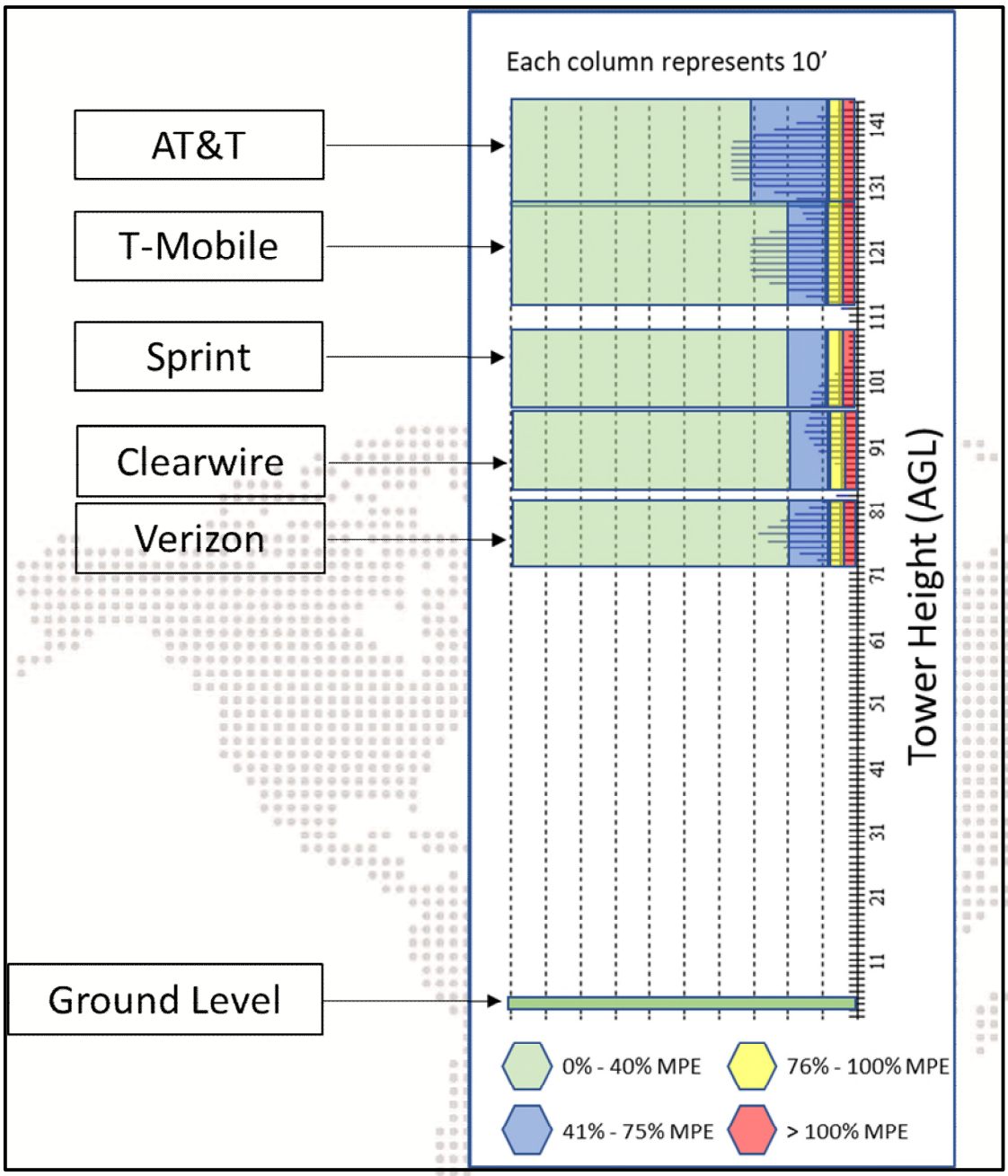
*FCC OET-65 MPE Limit Study*




| | |
|---|---|
| General Population MPE (@1'): | 8.4926% |
| Occupational MPE (@1'): | 1.6985% |
| Maximum Power Density (@1'): | 0.0783 mW/cm² |

# APPENDIX 5

*Tower Radiation Patterns*



# APPENDIX 6

*Information Pertaining to MPE Studies*

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

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

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

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

MPE limits are defined in terms of power density (units of milliwatts per centimeter squared: $mW/cm^2$), electric field strength (units of volts per meter: V/m) and magnetic field strength (units of amperes per meter: A/m). The far-field of a transmitting antenna is where the electric field vector (E), the

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

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

**General population/uncontrolled exposure** limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment-related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area. Additional details can be found in FCC OET 65.

# APPENDIX 7

*MPE Standards Methodology*

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

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

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

| **Limits for Occupational/Controlled Exposure** | | | | |
|---|---|---|---|---|
| **Frequency Range (MHz)** | **Electric Field Strength (E) (V/m)** | **Magnetic Field Strength (H) (A/m)** | **Power Density (S) ($mW/cm^2$)** | **Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)** |
| 0.3 - 3.0 | 614 | 0.63 | 100* | 6 |
| 3.0 - 30 | 1842/f | 4.89/f | $900/F^2$ | 6 |
| 30 - 300 | 61.4 | 0.163 | 1.0 | 6 |
| 300 - 1500 | -- | -- | f/300 | 6 |
| 1500 - 100,000 | -- | -- | 5 | 6 |

f = frequency

* = Plane-wave equivalent power density

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

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

f = frequency
* = Plane-wave equivalent power density

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

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

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

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

**Cylindrical Model (Near Field Predictions)**

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

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

Where:
S = Power Density
P = Total Power into antenna
R = Distance from the antenna
L = Antenna aperture length

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

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

Where:
S = Power Density
$\theta_{BW}$ = Beam width of antenna in degrees (3 dB half-power point)
P = Total Power into antenna
R = Distance from the antenna
L = Antenna aperture length

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

**Spherical Model (Far Field Predictions)**

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

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

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

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

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

Where:
S = Power Density
EIRP = Effective Radiated Power from antenna
Rc = Reflection Coefficient (2.56)
R = Distance from the antenna

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

# EXHIBIT 6

# CITY OF HARTFORD

DEPARTMENT OF LICENSES AND INSPECTIONS
550 Main Street, Hartford, Connecticut 06103

COUNCIL – MANAGER GOVERNMENT

January 6, 1999

Mr. Jason Hafer
Nextel Communications
100 Corporate Place
Rocky Hill, CT 06067

RE: 305 West Service Road and 99 Meadow Street, Hartford.

Dear Mr. Hafer:

We are in receipt of your four affidavits dated December 30, 1998 signed by you, John Suckey of Deleon Industries and Jim Russo, owner of 305 West Service Road and Gaetano Amenta, owner of 99 Meadow Street. In these affidavits, you state that you are removing Cathye Graberek as applicant and Tim Bonanno as contractor. By this same affidavit, John Suckey of Deleon Industries has agreed to become applicant and contractor and has agreed to take responsibility for the following permits:

| | | |
|---|---|---|
| 305 West Service Rd. | Building Permit No. B-985374 C | Dated 10-19-98 |
| 305 West Service Rd. | Fence Permit No. B-984873 GC | Dated 09-16-98 |
| 99 Meadow St. | Building Permit No. B-985309 C | Dated 10-16-98 |
| 99 Meadow St. | Fence Permit No. B-984874 GC | Dated 09-16-98 |

99 Meadow St.

Also by this affidavit, Nextel has fulfilled all financial obligations including, but not limited to, payment of all permit fees and any and all fees and costs due and payable to Cathye Graberek.

This letter is confirmation that the City of Hartford, Department of Licenses and Inspections has accepted John Suckey of Deleon Industries as the new applicant and contractor for the above stated permits. This letter is an understanding that John Suckey of Deleon Industries has accepted full responsibility for these above referenced permits.

Abraham Ford, Jr., Director
Department of Licenses & Inspections
January 6, 1999

Joseph Hewes, P.E.
Building Official/Deputy Director
Department of Licenses & Inspections
January 6, 1999

AF/JH/kjc

cc: Donald Mikkelson, Chief Building Inspector
Robert McCloud, Building Inspector

John Suckey
Deleon Industries
85 Franklin Road, Ste. 1B
Dover, NJ 07801
(973) 361-9100

Gaetano Amenta, Owner
99 Meadow Street
Hartford, CT 06114

Jim Russo, Owner
305 West Service Road
Hartford, CT 06120

File (1)

# 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 28, 2015

David P. Cooper
Empire Telecom
16 Esquire Road
Billerica, MA 01862

RE: **EM-AT&T-064-150901** – AT&T Mobility (AT&T) notice of intent to modify an existing telecommunications facility located at 99 Meadow Street, Hartford, Connecticut.

Dear Mr. Cooper:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- Any deviation from the proposed modification as specified in this notice and supporting materials with the Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- Any nonfunctioning antenna and associated antenna mounting equipment on this facility owned and operated by AT&T Mobility (AT&T) shall be removed within 60 days of the date the antenna ceased to function;
- The validity of this action shall expire one year from the date of this letter; and
- 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.

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated August 18, 2015. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site by any dimension, increase noise levels at the tower site boundary by six decibels or more, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standards adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996 and by the state Department of Energy and Environmental Protection pursuant to Connecticut General Statutes § 22a-162. This facility has also 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.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include 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. Thank you for your attention and cooperation.

Very truly yours,

Melanie A. Bachman
Acting Executive Director

MAB/CH/cm

c: The Honorable Pedro E. Segarra, Mayor, City of Hartford
Darrell V. Hill, Chief Operating Officer, City of Hartford
Khara Dodds, Planning Division Director, City of Hartford
American Tower
Meadow Street Realty, LLC

# STATE OF CONNECTICUT

*CONNECTICUT SITING COUNCIL*

Ten Franklin Square, New Britain, CT 06051
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E-Mail: siting.council@ct.gov
www.ct.gov/csc


April 11, 2016

Sarah Snell
Empire Telecom
16 Esquire Road
Billerica, MA 01862

RE: **EM-AT&T-064-160323 -** AT&T notice of intent to modify an existing telecommunications facility located at 99 Meadow Street, Hartford, Connecticut.

Dear Ms. Snell:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

1. Any deviation from the proposed modification as specified in this notice and supporting materials with the Council shall render this acknowledgement invalid;

2. Any material changes to this modification as proposed shall require the filing of a new notice with the Council;

3. Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;

4. Any nonfunctioning antenna and associated antenna mounting equipment on this facility owned and operated by AT&T 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.

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated March 22, 2016. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site by any dimension, increase noise levels at the tower site boundary by six decibels or more, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standards adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996 and by the state Department of Energy and Environmental Protection pursuant to Connecticut General Statutes § 22a-162. This facility has also 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.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require

explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include 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. Thank you for your attention and cooperation.

Very truly yours,

Melanie A. Bachman
Acting Executive Director

MAB/CH/cm

c: The Honorable Luke Bronin, Mayor, City of Hartford
Jamie Bratt, Director of Planning and Economic Development, City of Hartford
American Tower
Meadow Street Realty, LLC

# STATE OF CONNECTICUT

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E-Mail: siting.council@ct.gov

www.ct.gov/csc


December 27, 2016

Sarah Snell
Empire Telecom
16 Esquire Road
Billerica, MA 01862

RE: **EM-AT&T-064-161208** - AT&T notice of intent to modify an existing telecommunications facility located at 99 Meadow Street, Hartford, Connecticut.

Dear Ms. Snell:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

1. Any deviation from the proposed modification as specified in this notice and supporting materials with the Council shall render this acknowledgement invalid;

2. Any material changes to this modification as proposed shall require the filing of a new notice with the Council;

3. Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;

4. Any nonfunctioning antenna and associated antenna mounting equipment on this facility owned and operated by AT&T 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.

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated December 2, 2016. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site by any dimension, increase noise levels at the tower site boundary by six decibels or more, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standards adopted by the Federal Communications Commission pursuant to Section 704 of the Telecommunications Act of 1996 and by the state Department of Energy and Environmental Protection pursuant to Connecticut General Statutes § 22a-162. This facility has also 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.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require

explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include 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. Thank you for your attention and cooperation.

Very truly yours,

Melanie A. Bachman
Acting Executive Director

MAB/CW/cm

c: The Honorable Luke Bronin, Mayor, City of Hartford
Jamie Bratt, AICP, LEED AP, Director of Planning and Economic Development, City of Hartford
American Tower Corporation, tower owner
Meadow Street Realty LLC, property owner

# EXHIBIT 7

**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.

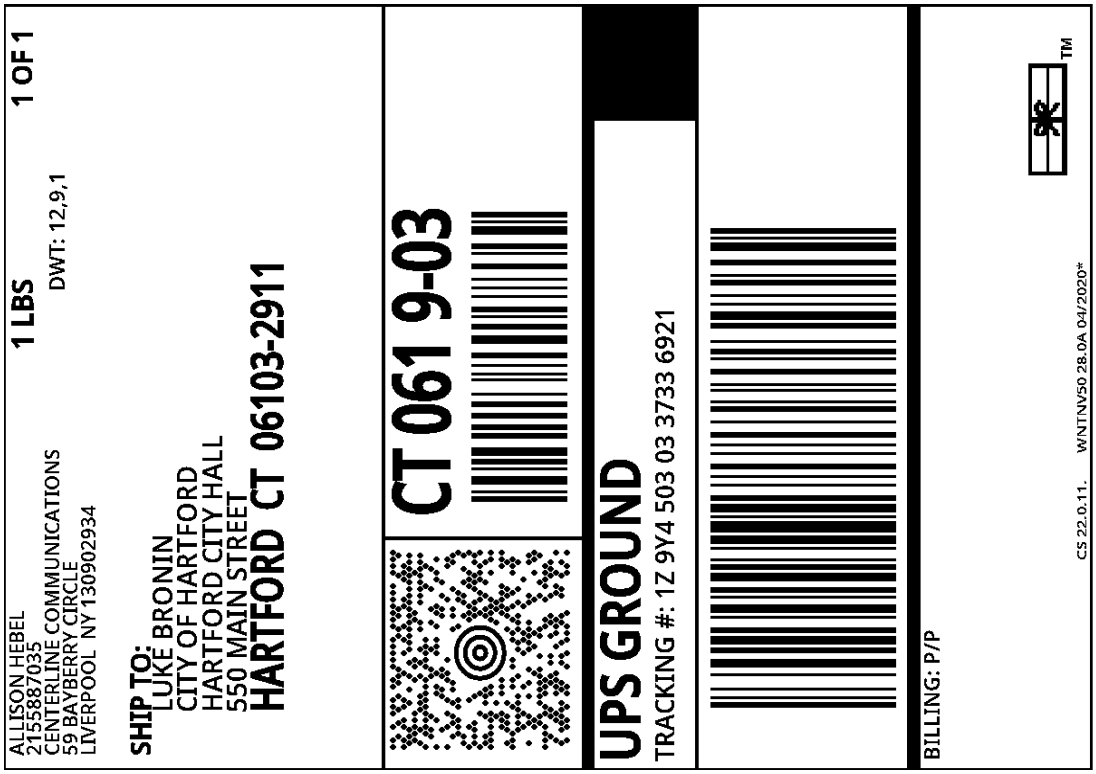
   **Customers without a Daily Pickup**
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. 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™
ADVANCE AUTO PART STORE 6538
8410 OSWEGO RD
LIVERPOOL ,NY 13090

UPS Access Point™
THE UPS STORE
8417 OSWEGO RD
BALDWINSVILLE ,NY 13027

UPS Access Point™
ADVANCE AUTO PART STORE 6324
3731 BREWERTON RD
SYRACUSE ,NY 13212

FOLD HERE



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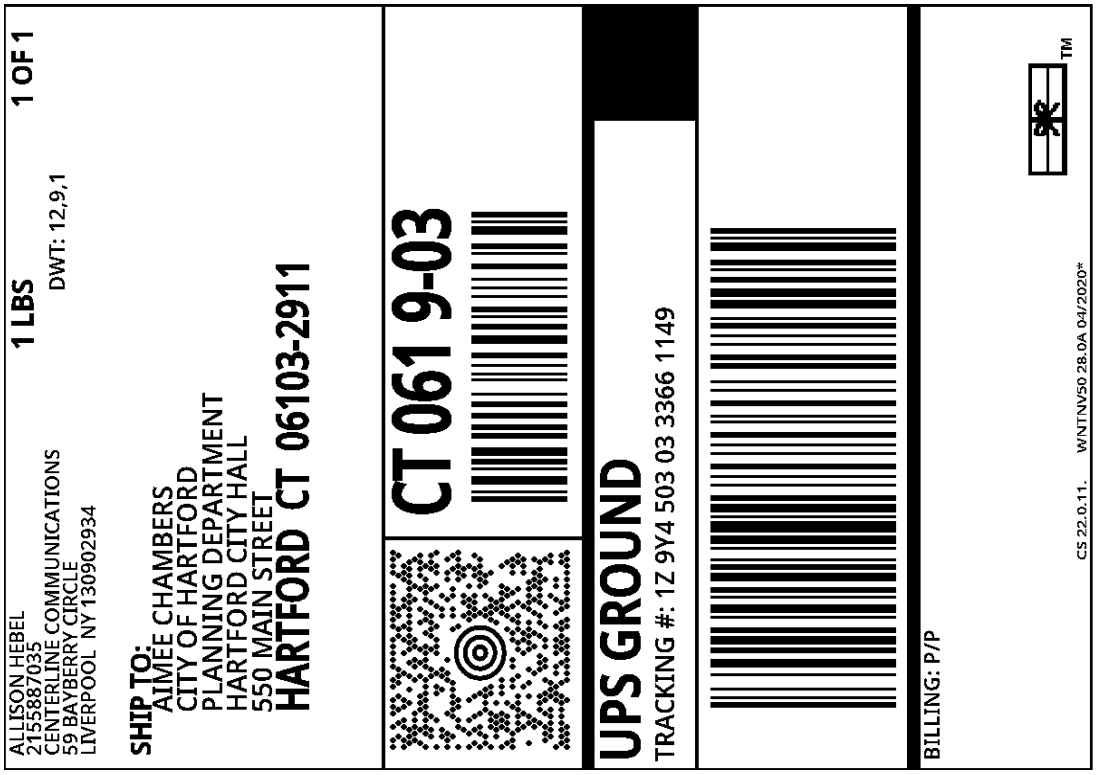

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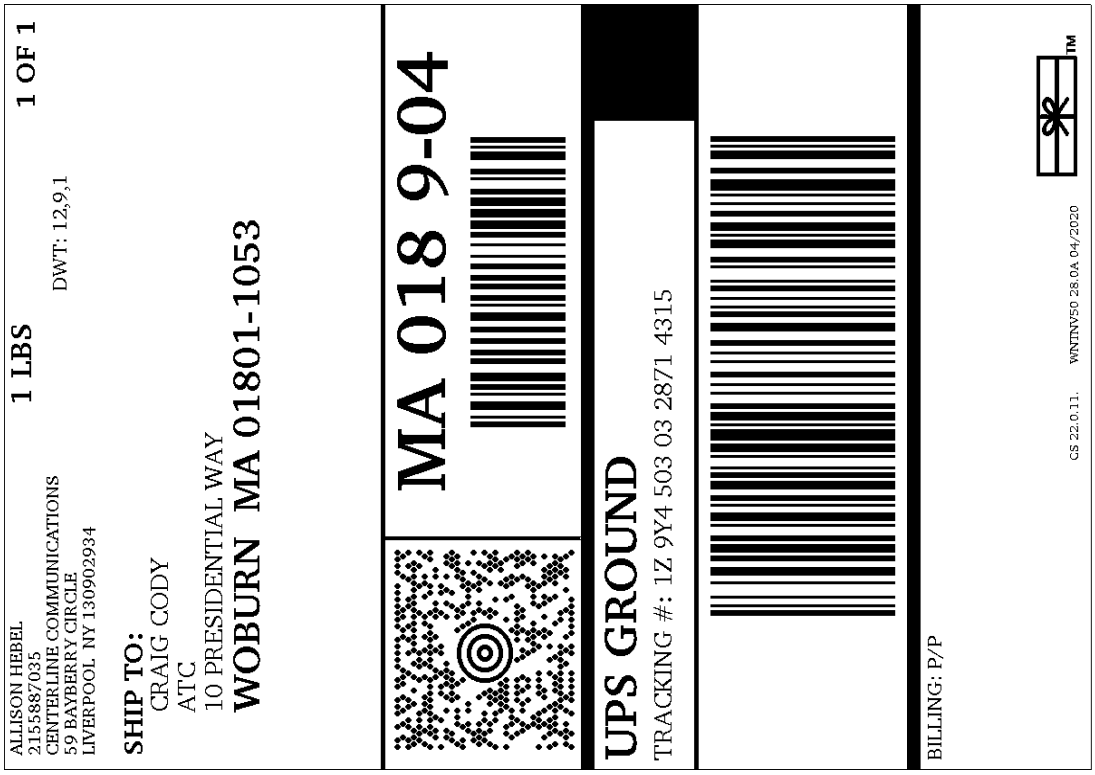

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