



Northeast Site Solutions
Denise Sabo
199 Brickyard Rd Farmington, CT 06032
860-209-4690
denise@northeastsitesolutions.com

June 30, 2016

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
99 Meadow Street, Hartford CT 06114
Latitude: 41.743197
Longitude: -72.667500
T-Mobile Site#: CT11661D_L1900

Dear Ms. Bachman:

T-Mobile currently maintains nine (6) antennas at the 123-foot level of the existing 147-foot monopole at 99 Meadow Street, Hartford CT 06120. The tower is owned by American Tower Corporation. The property is owned by Meadow Street Realty LLC. T-Mobile now intends to add three (3) new 1900 MHz antenna. The antenna would be installed at the 123-foot level of the tower. T-Mobile also intends to add (1) hybrid line.

Planned Modifications:

Remove: NONE
Remove and Replace: NONE

Install New:

(3)AIR32 B4A/B2P Antenna
(1) 1-5/8" Fiber Line

Existing to Remain:

(3)Katherine Smart Bias Tee
(3) Commscope LNX-6515-VTM Antenna
(3) RFS APX16DWV-16DWVS-VTM
(3) Ericsson KRY 112 489/1
(3) Ericsson KRY 112 144/1
(12) 1-5/8" Coax
(3) RRU **Mounted on Ground**



This facility was approved by the City of Hartford PZC. The city file is no longer available – See attached letter from the City Planner.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Mayor Luke Bronin, Elected Official for the City of Hartford, as well as the property owner and the tower owner.

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

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

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

Sincerely,

Denise Sabo

Mobile: 860-209-4690

Fax: 413-521-0558

Office: 199 Brickyard Rd, Farmington, CT 06032

Email: denise@northeastsitesolutions.com

Attachments

- cc: Luke Bronin- Mayor - as elected official
- American Tower Corporation - as tower owner
- Meadow Street Realty LLC - as property owner

Exhibit A

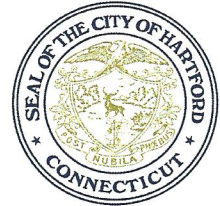


LUKE BRONIN
MAYOR

CITY OF HARTFORD

DEPARTMENT OF DEVELOPMENT SERVICES
Planning and Economic Development Division
250 Constitution Plaza, 4th Floor
Hartford, Connecticut 06103

Telephone: (860) 757-9025
Fax: (860) 722-6402
www.hartford.gov



JAMIE BRÄTT
DIRECTOR

June 7, 2016

Denise Sabo
Northeast Site Solutions
54 Main Street Unit 3
Sturbridge MA 01566

RE: 123 Meadow Street (a.k.a 99 Meadow Street)

Dear Ms. Sabo:

In response to your inquiry regarding cell towers at 123 Meadow Street, the Planning Division did not find any original zoning approvals. However, a Certificate of Occupancy was found for the use of cell towers. Building permits indicate that the use of cell towers currently exists on the subject property.

Please feel free to contact me at 860-757-9055, should you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Lynda Crespo".

Lynda Crespo,
Administrative Assistant

Exhibit B



Printable Record Card | Previous Assessment | Condo Info | Zoning | Yahoo Maps | **WebPro**

Card 1 of 1

Location 0099 MEADOW ST HARTFORD **Parcel ID** 275-690-115

Current Property Mailing Address

Owner MEADOW STREET REALTY LLC **City** HARTFORD
Address 99 MEADOW ST **State** CT
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,

Two Year Prior Assessment History

Fiscal Year 2013 **Fiscal Year 2014**
Property Use 242 **Property Use** 242
Total Value 442,680 **Total Value** 402,430

Current Property Assessment

Fiscal Year 2015 **Building Value** 160,790
Land Area 2.850 acres **Land Value** 234,640
Total Value 402,430

2011 Grand List Revaluation Fair Market Value

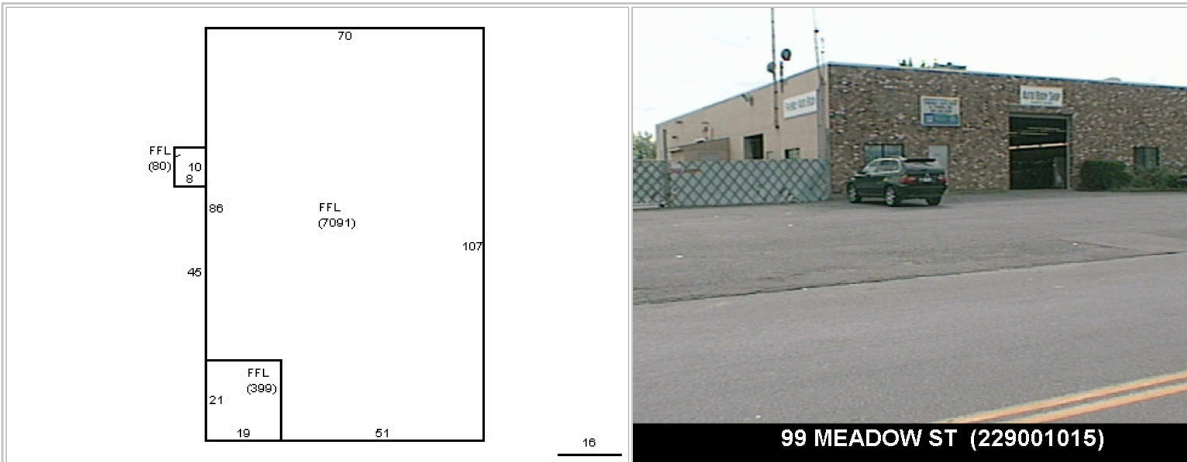
574,900

Narrative Description

This property contains 2.850 acres of land mainly classified as AUTO REPAIR with a(n) AUTO REPAIR SERVICE style building, built about 1979, having Conc Block exterior and Asphalt roof with 0 unit(s), 0 total room(s), 0 total bedroom(s), 0 total bath(s), 0 total half bath(s), 0 total bath(s).

Legal Description

Click Property Images to Enlarge





Enhanced Se...

Parcel ID: 275690115
Property Address: 99 MEADOW ST
Owner Name: MEADOW STREET REALTY LLC
Mailing Address 1: 99 MEADOW ST
Mailing Address 2:
City: HARTFORD
State: CT
Zip: 06114-1506

Zoom to

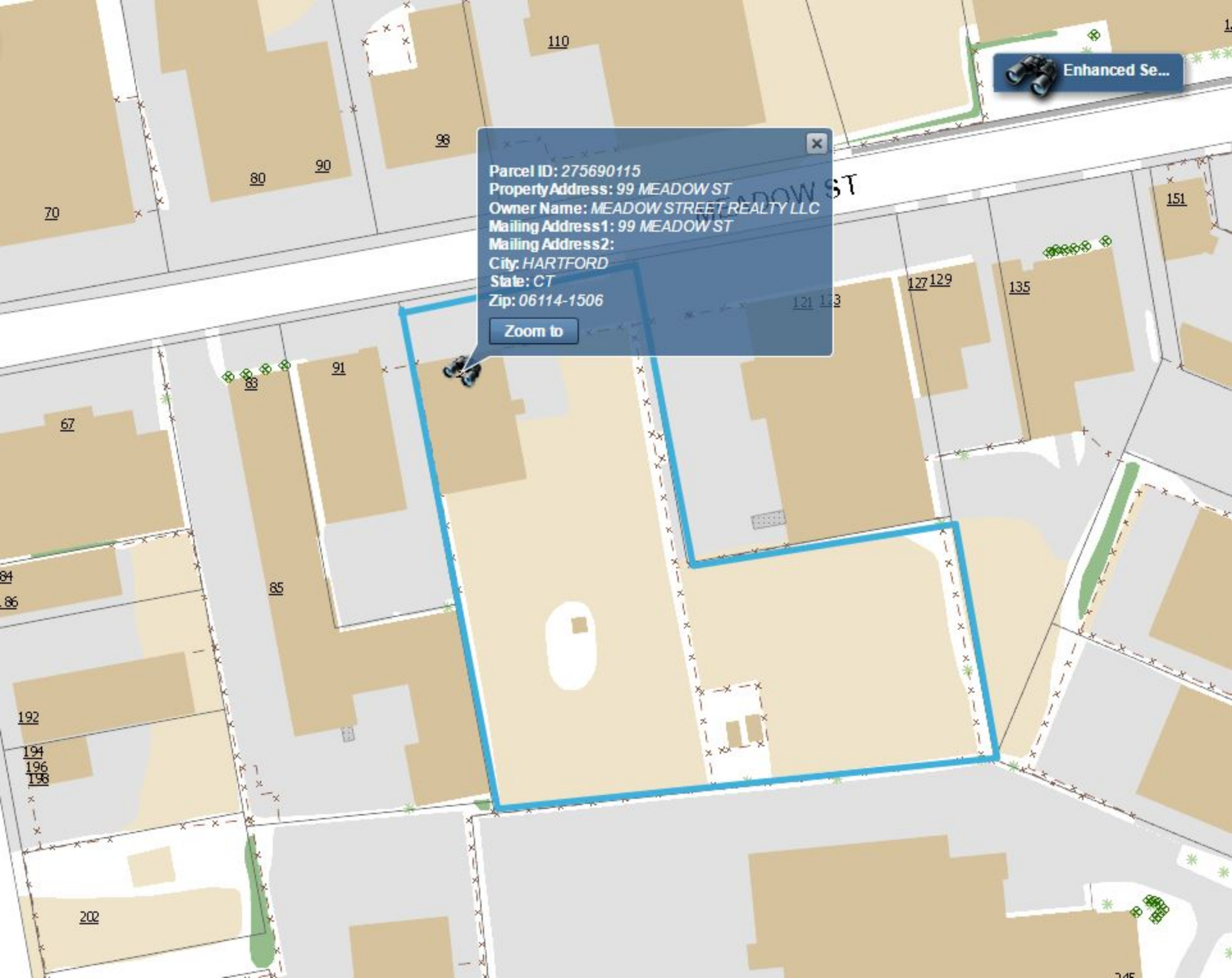


Exhibit C



T-MOBILE NORTHEAST LLC

SITE #: CT11661A

SITE NAME: HARTFORD SOUTH 2/FRNKLN AV.

SITE ADDRESS:

99 MEADOW STREET

HARTFORD, CT 06114

WIRELESS BROADBAND FACILITY

CONSTRUCTION DRAWINGS

(794DB CONFIGURATION)



T-MOBILE NORTHEAST, LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 692-7100
FAX: (860) 692-7139



54 Jacqueline Road, Suite #7
Waltham, MA 02452
Phone number: 617-852-3611
Fax Number: 781-742-2247

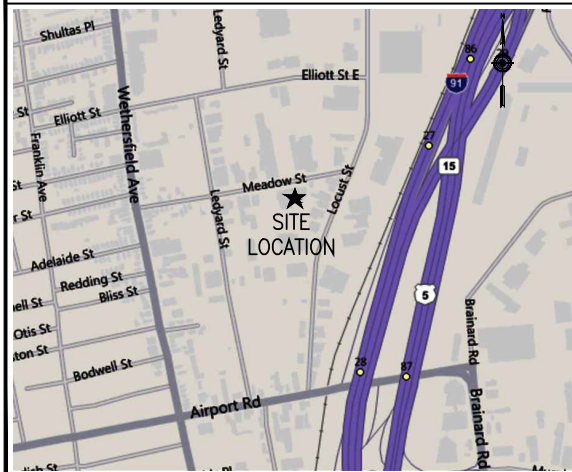
SUBMITTALS

DATE	DESCRIPTION	REVISION
06/09/16	ISSUED FOR REVIEW	A
06/23/16	FINAL CD	0
06/14/16	REVISION	1
06/16/16	FINAL CD	2
06/27/16	REVISION	3

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO: CT11661A
 DRAWN BY: FG
 CHECKED BY: KM

VICINITY MAP



GENERAL NOTES

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES.
2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONSTRUCT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE T-MOBILE REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF THE CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES, THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXPENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.
4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING OF ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.
7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
8. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUM OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
9. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER CONTRACT.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY PERMITS AND INSPECTIONS WHICH ARE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY, OR LOCAL GOVERNMENT AUTHORITY.
11. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC., DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
12. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
13. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS, AS WELL AS THE LATEST EDITIONS OF ANY PERTINENT STATE SAFETY REGULATIONS.
14. THE CONTRACTOR SHALL NOTIFY THE T-MOBILE REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE T-MOBILE REPRESENTATIVE.
15. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC., ON THE JOB.
16. THE CONTRACTOR SHALL RETURN ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITION AT THE COMPLETION OF WORK.
17. ATLANTIS DESIGN GROUP, INC. HAS NOT CONDUCTED A STRUCTURAL ANALYSIS FOR THIS PROJECT AND DOES NOT ASSUME ANY LIABILITY FOR THE ADEQUACY OF THE STRUCTURE AND COMPONENTS.

SITE INFORMATION

SITE NUMBER: CT11661A
 SITE NAME: HARTFORD SOUTH 2/FRNKLN AV.
 SITE ADDRESS: 99 MEADOW STREET
 HARTFORD, CT 06114

 LAT./LONG.: N 41.743198 / W -72.667564

 JURISDICTION: CITY OF HARTFORD , CT

 PROPERTY OWNER: BRUCE HOFFMASTER
 PROJECT MANAGER - SITE DEVELOPMENT
 AMERICAN TOWER CORPORATION
 MOBILE 484-942-6339
 BRUCE.HOFFMASTER@AMERICANTOWER.COM

PROJECT SUB-CONTRACTORS

APPLICANT: T-MOBILE NORTHEAST, LLC.
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
 (860) 692-7100

 PROJECT MANAGER: LISA LIN ALLEN
 NORTHEAST SITE SOLUTIONS
 54 MAIN STREET
 STURBRIDGE, MA 01566
 (508) 434-5237

 A&E: ATLANTIS DESIGN GROUP INC.
 54 JACQUELINE ROAD, SUITE #7
 WALTHAM, MA 02452
 (617)-852-3611



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DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

CALL BEFORE YOU DIG:
 WWW.CBYD.COM
 CALL 800 922 4455, OR 811
 CALL THREE WORKING DAYS PRIOR TO DIGGING
 SAFETY PRECAUTIONS SHALL BE IMPLEMENTED BY CONTRACTOR(S) AT ALL TRENCHING IN ACCORDANCE WITH CURRENT OSHA STANDARDS.

COLOR CODE FOR UTILITY LOCATIONS

ELECTRIC - RED	SEWER - GREEN
GAS/OIL - YELLOW	SURVEY - PINK
TEL/CATV - ORANGE	PROPOSED EXCAVATION - WHITE
WATER - BLUE	RECLAIMED WATER - PURPLE

CODE COMPLIANCE

CONNECTICUT STATE BUILDING CODE
 2005 CONNECTICUT BUILDING CODE WITH 2013 AMENDMENT
 2011 NATIONAL ELECTRICAL CODE
 CONSTRUCTION TYPE: 2B USE GROUP: N/A

SHEET INDEX

SHEET	DESCRIPTION
T-1	TITLE SHEET
N-1	GENERAL AND ELECTRICAL NOTES
A-1	SITE PLAN
A-2	ELEVATION
A-3	DETAILS
E-1	GROUNDING AND COAX/FIBER DIAGRAM
E-2	GROUNDING DETAILS

SITE NUMBER
CT11661A
 SITE NAME
**HARTFORD SOUTH
 2/FRNKLN AV.**
 SITE ADDRESS
**99 MEADOW STREET
 HARTFORD, CT 06114**

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

ELECTRICAL NOTES:

- WORK INCLUDED
1. INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, PLANT SERVICES AND ADMINISTRATIVE TASKS REQUIRED TO COMPLETE AND MAKE OPERABLE THE ELECTRICAL WORK SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN...

- GENERAL REQUIREMENTS
1. PROVIDE ALL WORK IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL AND STATE ELECTRICAL CODES.
2. THE ELECTRICAL PLANS ARE DIAGRAMMATIC ONLY...

- CLEANING
1. REMOVE ALL CONSTRUCTION DEBRIS RESULTING FROM THE WORK.
2. CLEAN EQUIPMENT AND SYSTEMS FOLLOWING THE COMPLETION OF THE PROJECT TO THE SATISFACTION OF THE ENGINEER.
COORDINATION AND SUPERVISION
1. CAREFULLY LAY OUT ALL WORK IN ADVANCE TO AVOID UNNECESSARY CUTTING, CHANNELING, CHASING OR DRILLING OF FLOORS, WALLS, PARTITIONS, CEILINGS OR OTHER SURFACES...

- RACEWAYS CONT'D
L. PENETRATIONS OF WALLS, FLOORS AND ROOFS, FOR THE PASSAGE OF ELECTRICAL RACEWAYS, TO BE PROPERLY SEALED AFTER INSTALLATION OF RACEWAYS SO AS TO MAINTAIN THE STRUCTURAL OR WATERPROOF INTEGRITY OF THE WALL, FLOOR OR ROOF SYSTEM TO BE PENETRATED.
M. PROVIDE ALL CONDUIT ENDS WITH INSULATED METALLIC GROUNDING BUSHINGS.
WIRING DEVICES
1. ALL RECEPTACLES INSTALLED IN THIS PROJECT TO BE GROUNDED TYPE, WITH GROUNDED PIN SLOT CONNECTED TO DEVICE GROUND SCREW FOR GROUND WIRE CONNECTION...

- CONFLICTS
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATIONS OF ALL MEASUREMENTS AT THE SITE BEFORE ORDERING ANY MATERIALS OR DOING ANY WORK. NO EXTRA CHARGE OR COMPENSATION SHALL BE ALLOWED DUE TO DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS INDICATED ON THE CONSTRUCTION DRAWINGS.
CONTRACTS AND WARRANTIES
1. CONTRACTOR IS RESPONSIBLE FOR APPLICATION AND PAYMENT OF CONTRACTOR LICENSES AND BONDS.
STORAGE
1. ALL MATERIALS MUST BE STORED IN A LEVEL AND DRY FASHION AND IN A MANNER THAT DOES NOT NECESSARILY OBSTRUCT THE FLOW OF OTHER WORK...

- QUALITY ASSURANCE
1. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS. THESE SHALL INCLUDE, BUT NOT BE LIMITED TO THE APPLICABLE CODES SET FORTH BY THE LOCAL GOVERNING BODY.
ADMINISTRATION
1. BEFORE THE COMMENCEMENT OF ANY WORK, THE CONTRACTOR WILL ASSIGN A PROJECT MANAGER WHO WILL ACT AS A SINGLE POINT OF CONTACT FOR ALL PERSONNEL INVOLVED IN THIS PROJECT.
INSURANCE AND BONDS
1. CONTRACTOR, AT THEIR OWN EXPENSE, SHALL CARRY AND MAINTAIN, FOR THE DURATION OF THE PROJECT, ALL INSURANCE, AS REQUIRED AND LISTED, AND SHALL NOT COMMENCE WITH THEIR WORK UNTIL THEY HAVE PRESENTED AN ORIGINAL CERTIFICATE OF INSURANCE STATING ALL COVERAGES TO THE OWNER...

ABBREVIATIONS
Table with 2 columns: Abbreviation and Full Name. Includes entries like ADJ (ADJUSTABLE), AG (ABOVE GROUND LINE), & (AND), APPROX (APPROXIMATE), etc.

T-Mobile
T-MOBILE NORTHEAST, LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 692-7100
FAX: (860) 692-7139

ATLANTIS DESIGN GROUP, INC.
54 Jacqueline Road, Suite #7
Waltham, MA 02452
Phone Number: 617-852-3611
Fax Number: 781-742-2247

SUBMITTALS
Table with 3 columns: DATE, DESCRIPTION, REVISION. Shows dates from 05/09/16 to 06/27/16 and descriptions like ISSUED FOR REVIEW, FINAL CD.

Table with 4 columns: DEPT., DATE, APP'D, REVISIONS. Includes rows for RFE, RF MAN., ZONING, OPS, CONSTR., SITE AC.

PROJECT NO: CT11661A
DRAWN BY: FG
CHECKED BY: KM

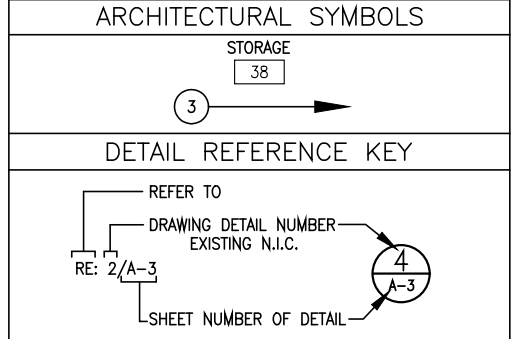


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SITE NUMBER
CT11661A
SITE NAME
HARTFORD SOUTH
2/FRNKLN AV.
SITE ADDRESS
99 MEADOW STREET
HARTFORD, CT 06114

SHEET TITLE
GENERAL AND ELECTRICAL NOTES

SHEET NUMBER
N-1



- GENERAL NOTES:
1. THESE SPECIFICATIONS AND CONSTRUCTION DRAWINGS ACCOMPANYING THEM DESCRIBE THE WORK TO BE DONE AND THE MATERIALS TO BE FURNISHED FOR CONSTRUCTION.
2. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO BE FULLY EXPLANATORY AND SUPPLEMENTARY, HOWEVER, SHOULD ANYTHING BE SHOWN, INDICATED, OR SPECIFIED ON ONE AND NOT THE OTHER, IT SHALL BE DONE THE SAME AS IF SHOWN, INDICATED OR SPECIFIED IN BOTH.
3. THE INTENTION OF THE DOCUMENTS IS TO INCLUDE ALL LABOR AND MATERIALS REASONABLY NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK AS STIPULATED IN THE CONTRACT...



T-MOBILE NORTHEAST, LLC
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
 OFFICE: (860) 692-7100
 FAX: (860) 692-7139



54 Jacqueline Road, Suite #7
 Waltham, MA 02452
 Phone number: 617-852-3811
 Fax Number: 781-742-2247

GENERAL SITE NOTES

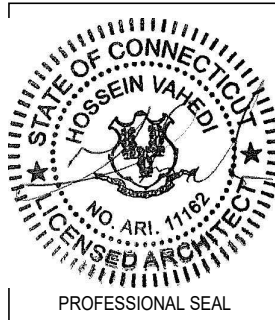
1. SITE INFORMATION WAS OBTAINED FROM A FIELD INVESTIGATION PERFORMED BY ATLANTIS DESIGN GROUP, INC. CONTRACTOR TO FIELD VERIFY DIMENSIONS AS NECESSARY BEFORE CONSTRUCTION.
2. THE PROPOSED DEVELOPMENT DOES NOT INCLUDE SIGNS OF ADVERTISING.
3. THE PROPOSED DEVELOPMENT IS UNMANNED AND THEREFORE DOES NOT REQUIRE A MEANS OF WATER SUPPLY OR SEWAGE DISPOSAL.
4. NO LANDSCAPING WORK IS PROPOSED IN CONJUNCTION WITH THIS DEVELOPMENT OTHER THAN THAT WHICH IS SHOWN.
5. THE PROPOSED DEVELOPMENT DOES NOT INCLUDE OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES.
6. UTILITIES SHOWN ON PLAN ARE TAKEN FROM OWNERS RECORDS AND FIELD LOCATION OF VISIBLE SURFACE FEATURES. THE EXISTENCE, EXTENT AND EXACT HORIZONTAL AND VERTICAL LOCATIONS OF UTILITIES HAS NOT BEEN VERIFIED. ANY CONTRACTOR PERFORMING WORK ON THIS SITE MUST CONTACT CALL BEFORE YOU DIG THREE WORKING DAYS PRIOR TO COMMENCING WORK.
7. ALL OBSOLETE OR UNUSED FACILITIES SHALL BE REMOVED WITHIN 12 MONTHS OF CESSATION OF OPERATIONS.

SUBMITTALS

DATE	DESCRIPTION	REVISION
05/09/16	ISSUED FOR REVIEW	A
06/23/16	FINAL CD	0
06/14/16	REVISION	1
06/16/16	FINAL CD	2
06/27/16	REVISION	3

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

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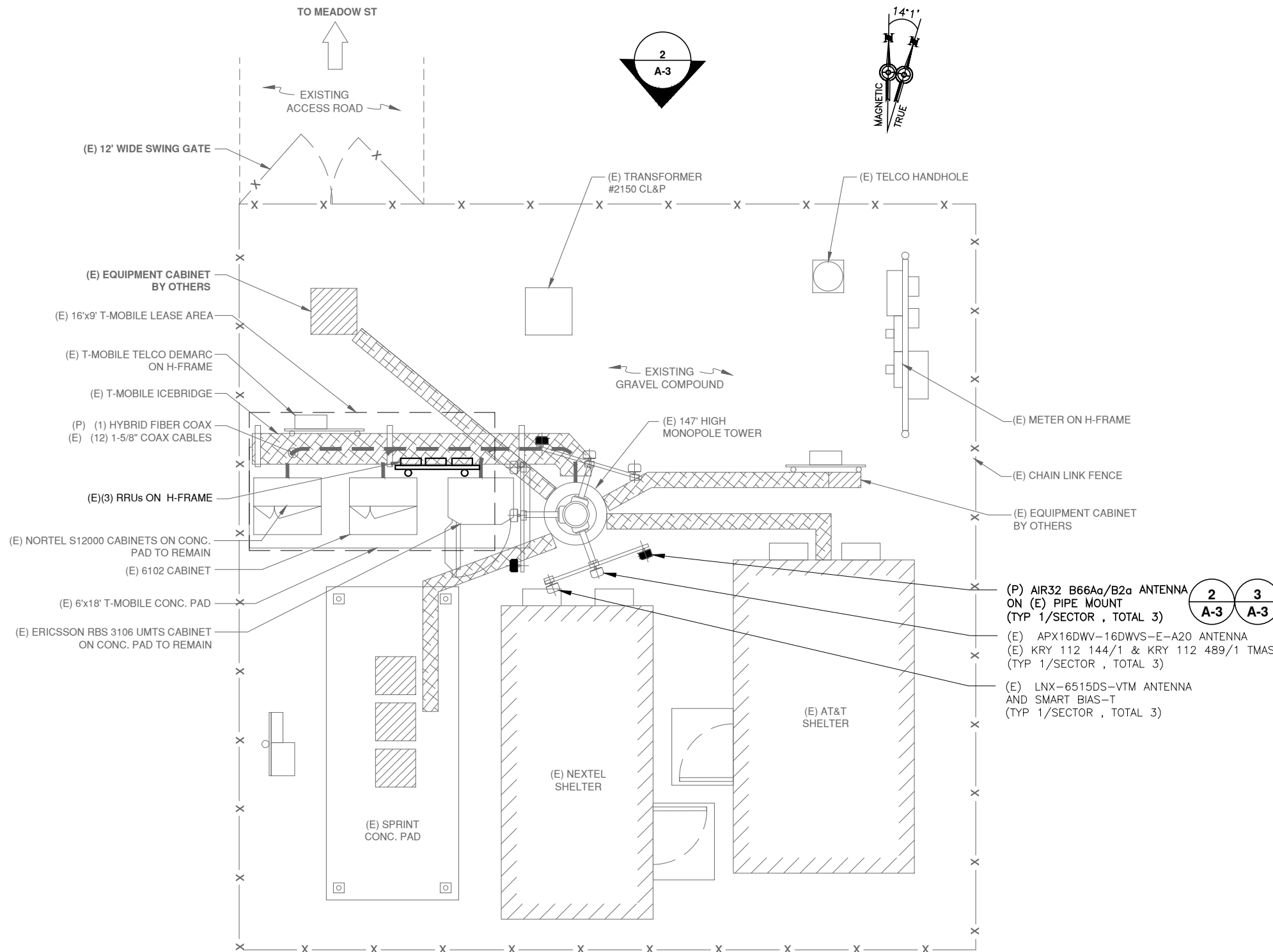
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 HARTFORD, CT 06114

SHEET TITLE

SITE PLAN

SHEET NUMBER

A-1

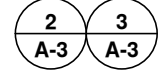
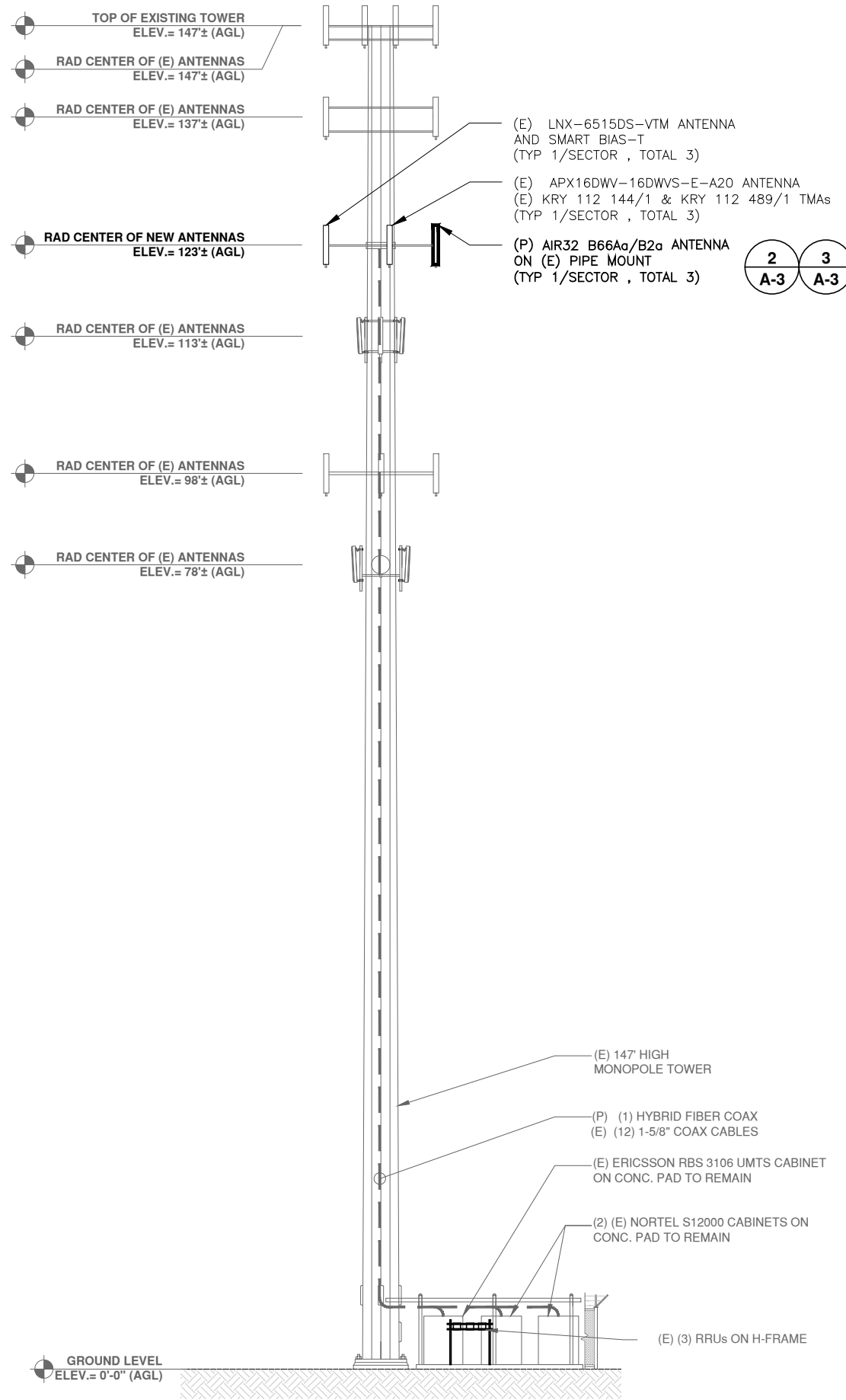


COMPOUND PLAN

SCALE: 1/8" = 1'-0" (11x17)
 SCALE: 1/4" = 1'-0" (24x36)

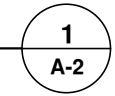
1 A-1





ELEVATION

SCALE: 1/16" = 1'-0" (11x17)
SCALE: 1/8" = 1'-0" (24x36)



SCALE 1"=16' (11x17)
1"=8' (24x36)

T-Mobile
T-MOBILE NORTHEAST, LLC
 35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
 OFFICE: (860) 692-7100
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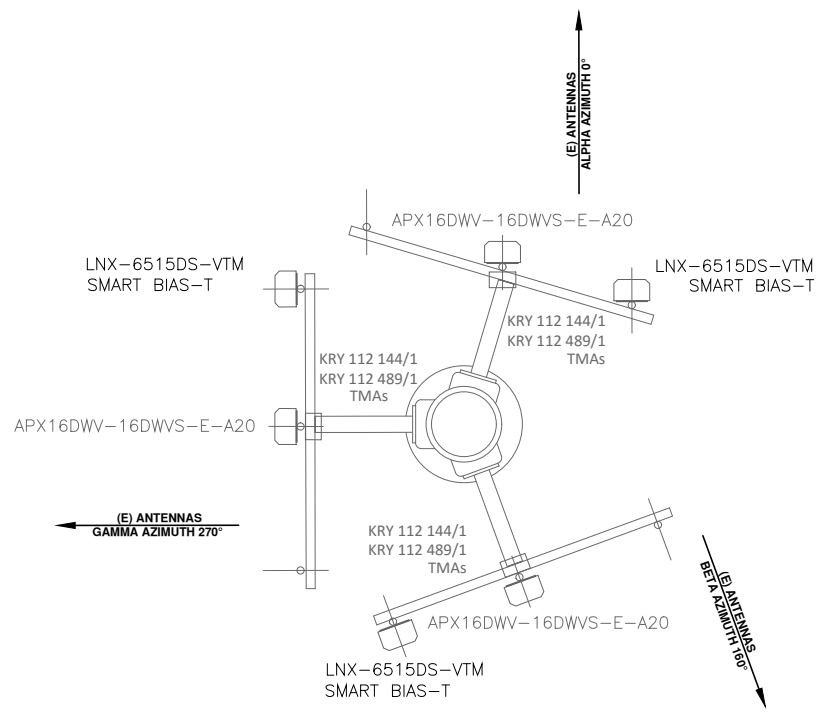


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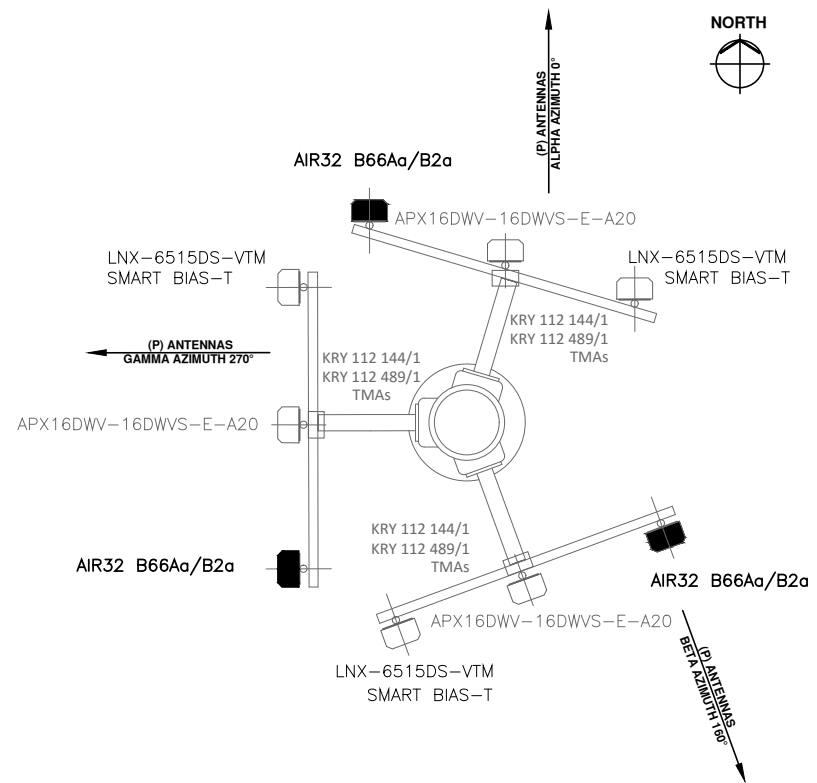
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SHEET TITLE
ELEVATION

SHEET NUMBER
A-2



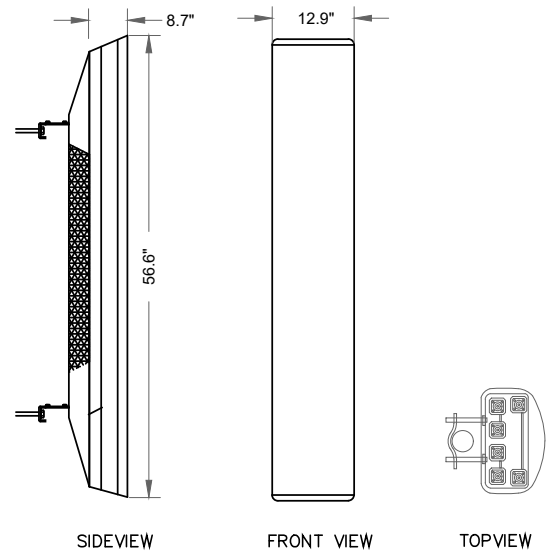
EXISTING ANTENNA CONFIGURATION



PROPOSED ANTENNA CONFIGURATION

ANTENNA PLAN
SCALE: NTS

1
A-3

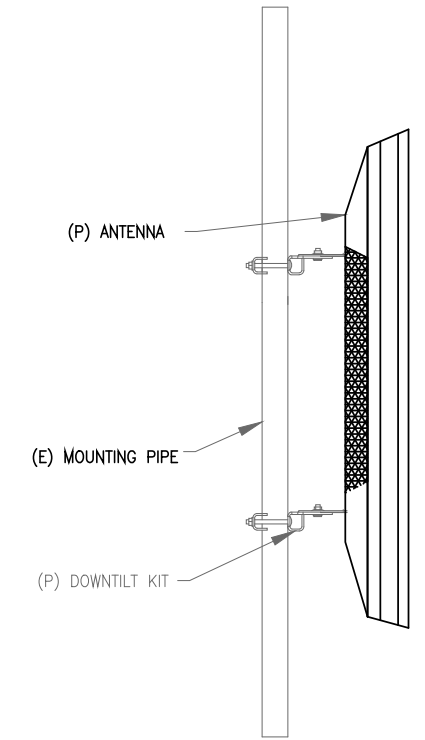


MANUFACTURER: ERICSSON
MODEL NO.: ERICSSON AIR32 AIR32 B66Aa/B2a
DIMENSIONS - HxWxD, (IN) 56.6"x12.9"x8.7"

**ERICSSON AIR32 B66Aa/B2a
ANTENNA DETAILS**

SCALE: N.T.S

2
A-3



ANTENNA MOUNT DETAILS

SCALE: N.T.S

3
A-3

T-Mobile
T-MOBILE NORTHEAST, LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 692-7100
FAX: (860) 692-7139

ATLANTIS DESIGN GROUP, INC.
54 Jacqueline Road, Suite #7
Waltham, MA 02452
Phone number: 617-852-3611
Fax Number: 781-742-2247

SUBMITTALS		
DATE	DESCRIPTION	REVISION
05/09/16	ISSUED FOR REVIEW	A
05/23/16	FINAL CD	0
06/14/16	REVISION	1
06/15/16	FINAL CD	2
06/27/16	REVISION	3

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO: CT11661A
DRAWN BY: FG
CHECKED BY: KM

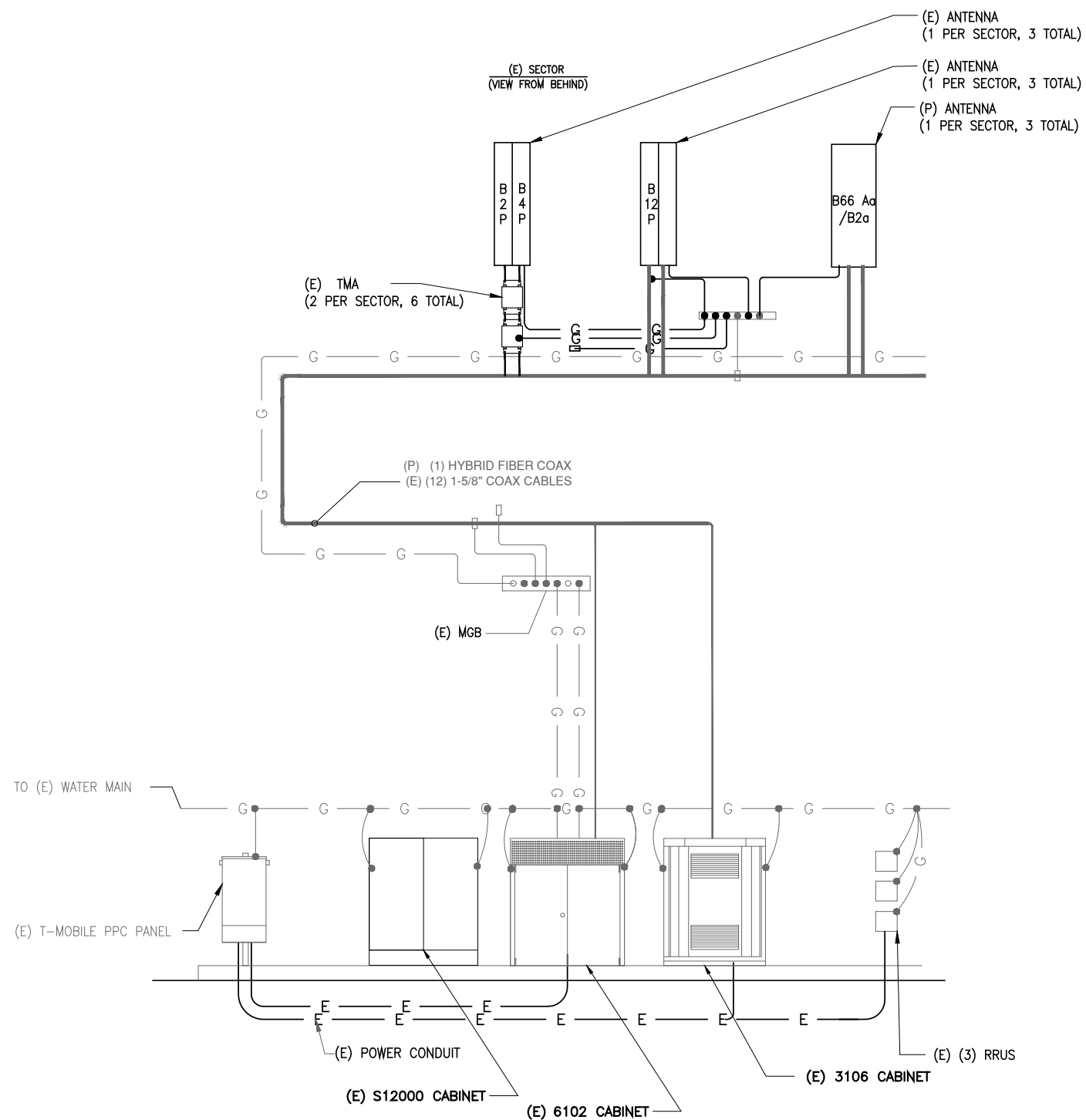
PROFESSIONAL SEAL

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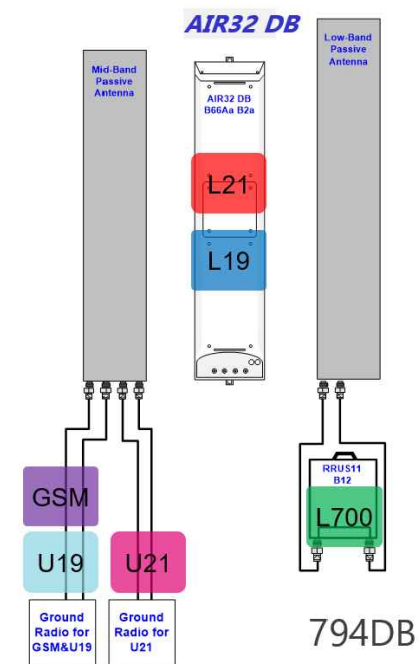
SITE NUMBER
CT11661A
SITE NAME
HARTFORD SOUTH
2/FRNKLN AV.
SITE ADDRESS
99 MEADOW STREET
HARTFORD, CT 06114

SHEET TITLE
**ANTENNA PLAN
AND DETAILS**

SHEET NUMBER
A-3



GROUNDING AND ONE LINE DIAGRAM
SCALE: N.T.S. 1 E-1



TRUNK FIBER NOTES:

1. IN GENERAL THIS CABLE WILL HANDLE SIMILARLY TO 3/8" COAXIAL CABLE, AND SIMILAR INSTALLATION TECHNIQUES APPLY. ALL CABLES ARE INDIVIDUALLY SERIALIZED, BE SURE TO WRITE DOWN THE CABLE SERIAL NUMBER FOR FUTURE REFERENCE.
2. THE TERMINATED FIBER ENDS (THE BROKEN OUT FIBERS PLUS CONNECTORS) HOWEVER ARE FRAGILE, AND THESE MUST BE PROTECTED DURING THE INSTALLATION PROCESS.
3. LEAVE THE PROTECTIVE TUBE AND SOCK AROUND THE FIBER TAILS AND CONNECTORS IN PLACE DURING HOISTING AND SECURING THE CABLE. REMOVE THIS ONLY JUST PRIOR TO MAKING THE FINAL CONNECTIONS TO THE OVP BOX.
4. DO NOT BEND THE FIBER ENDS (IN THE ORANGE FURCATION TUBES) TIGHTER THAN 3/4" (19MM) BEND RADIUS, ELSE THERE IS A RISK OF BREAKING THE GLASS FIBERS.
5. BE SURE THAT THE LACE UP ENDS AND FIBER CONNECTORS ARE NOT DAMAGED BY ATTACHMENT OF A HOISTING GRIP OR DURING THE HOISTING PROCESS. ATTACH A HOISTING GRIP ON THE JACKETED CABLE NO LESS THAN 6 INCHES BELOW THE FIBER BREAKOUT POINT. IF A HOISTING GRIP IS NOT EASILY ATTACHED, USE A SIMPLE LINE ATTACHED BELOW THE FIBER BREAK-OUT POINT (I.E. AT THE CABLE OUTER JACKET). PREVENT THE FIBER TAILS (IN PROTECTIVE TUBE) AT THE CABLE END FROM UNDUE MOVEMENT DURING HOISTING BY SECURING THE PROTECTIVE TUBE (WITH OUTER SOCK) TO THE HOISTING LINE.
6. DURING HOISTING ENSURE THAT THERE IS A FREE PATH AND THAT THE CABLE, AND ESPECIALLY THE FIBER ENDS, WILL NOT BE SNAGGED ON TOWER MEMBERS OR OTHER OBSTACLES.
7. INSTALLATION TEMPERATURE RANGE IS -22F TO 158F (-30C TO +70C).
8. MINIMUM CABLE BEND RADI ARE 22.2" (565MM) LOADED (WITH TENSION ON THE CABLE) AND 11.1" (280MM) UNLOADED.
9. MAXIMUM CABLE TENSILE LOAD IS 3560 N (800 LB) SHORT TERM (DURING INSTALLATION) AND 1070 N (240 LB) LONG TERM.
10. COMMSCOPE NON LACE UP GRIP RECOMMENDED FOR MONOPOLE INSTALLATIONS.
11. MAXIMUM HANGER SPACING 3FT (0.9 M).

HYBRID FIBER/POWER JUMPER NOTES:

1. IN GENERAL THIS CABLE WILL HANDLE SIMILARLY TO A 3/8" COAXIAL CABLE.
2. THE TERMINATED FIBER ENDS HOWEVER ARE FRAGILE AND MUST BE PROTECTED DURING INSTALLATION. LEAVE THE PACKAGING AROUND THE FIBER ENDS IN PLACE UNTIL READY TO CONNECT THE JUMPER BETWEEN OVP AND RRU OR BBU.
3. DO NOT BEND THE FIBER BREAKOUT CABLE (BETWEEN THE MAIN CABLE AND THE FIBER CONNECTOR) TIGHTER THAN 3/4" (19MM) RADIUS, ELSE THERE IS A RISK OF BREAKING THE GLASS.
4. ATTACH THE MAIN CABLE SECURELY TO THE STRUCTURE OR EQUIPMENT USING HANGERS AND/OR CABLE TIES TO PREVENT STRAIN ON CONNECTIONS FROM MOVEMENT IN WIND OR SNOW/ICE CONDITIONS.
5. ENSURE THE LC FIBER CONNECTORS ARE SEATED FIRMLY IN PANEL IN OVP OR IN EQUIPMENT.
6. INSTALLATION TEMPERATURE RANGE IS -22F TO 158F (-30C TO 70C).
7. MINIMUM CABLE BEND RADI ARE 10.3 INCH (265MM) LOADED (WITH TENSION ON THE CABLE) AND 5.2 INCH (130MM) UNLOADED.
8. MAXIMUM CABLE TENSILE LOAD IS 350 LB (1560N) SHORT TERM (DURING INSTALLATION) AND 105 LB (470N) LONG TERM.
9. STANDARD LENGTHS AVAILABLE ARE 6 FEET, 15 FEET AND 20 FEET

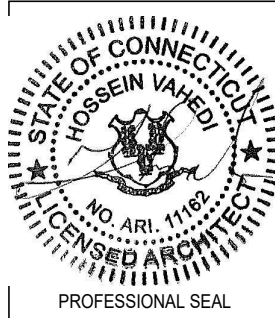
794DB CONFIGURATION
COAX/FIBER PLUMBING DIAGRAM
SCALE: N.T.S. 2 E-1

SUBMITTALS

DATE	DESCRIPTION	REVISION
06/09/16	ISSUED FOR REVIEW	A
06/23/16	FINAL CD	0
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06/27/16	REVISION	3

DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	CT11661A
DRAWN BY:	FG
CHECKED BY:	KM

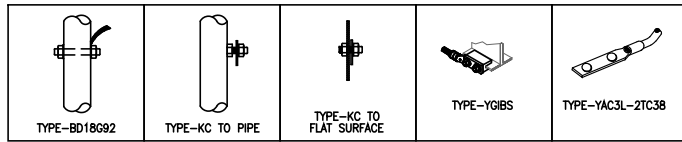


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HARTFORD SOUTH
2/FRNKLN AV.
SITE ADDRESS
99 MEADOW STREET
HARTFORD, CT 06114

SHEET TITLE
GROUNDING AND ONE
LINE DIAGRAM
COAX/FIBER DIAGRAM

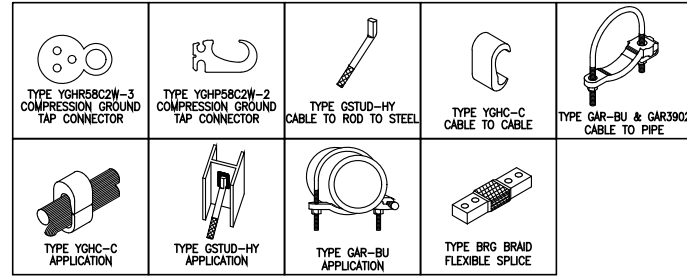
SHEET NUMBER
E-1



BURNDY GROUNDING DETAILS

SCALE: N.T.S

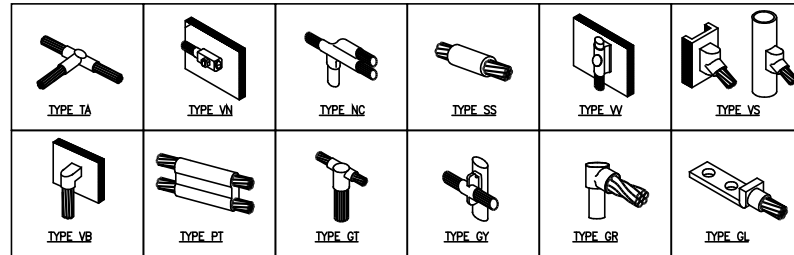
1
E-3



BURNDY GROUNDING PRODUCTS

SCALE: N.T.S

2
E-3



CADWELD GROUNDING CONNECTION PRODUCTS

SCALE: N.T.S

3
E-3

TERMINATION TYPES:

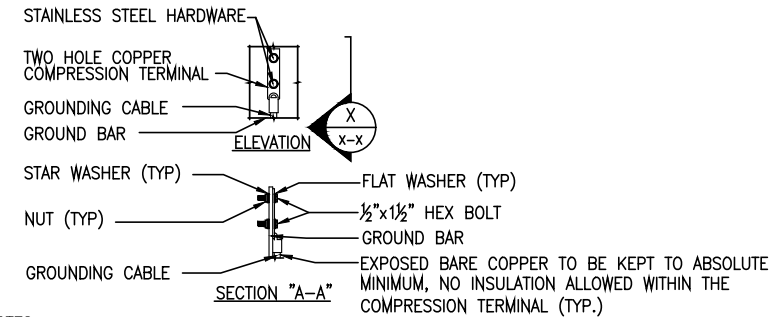
- A. MECHANICAL COMPRESSION LUG
- B. DOUBLE BARRELL COMPRESSION CONNECTOR
- C. EXOTHERMIC TERMINATION
- D. BEAM CLAMP

	SOLID #2 TINNED COPPER	#6 GROUND LEAD	#2/O STRANDED MAIN DOWN CONDUCTOR	MASTER GRND BAR	STRUCTURAL OR TOWER STEEL	BLDG SERVICE ENTR OR GRND RING	GROUND ROD
SOLID #2 TINNED COPPER	B OR C	B OR C					
#6 GROUND LEAD	B OR C						
#2/O STRANDED GRNDG ELECTRODE CONDUCTOR				A, C, OR D	A, C, OR D	A	
MASTER GROUND BAR	C	A	A				
STRUCTURAL OR TOWER STEEL	A, C, OR D	A, C, OR D	A, C, OR D				
GROUND RING	C		C				C

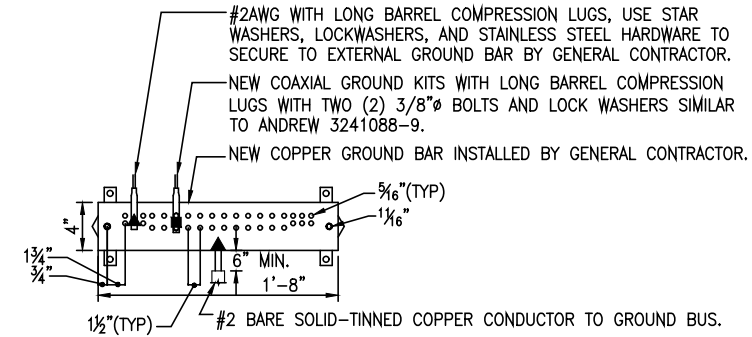
GROUNDING TERMINATION MATRIX

SCALE: N.T.S

7
E-3



- NOTES:
- OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

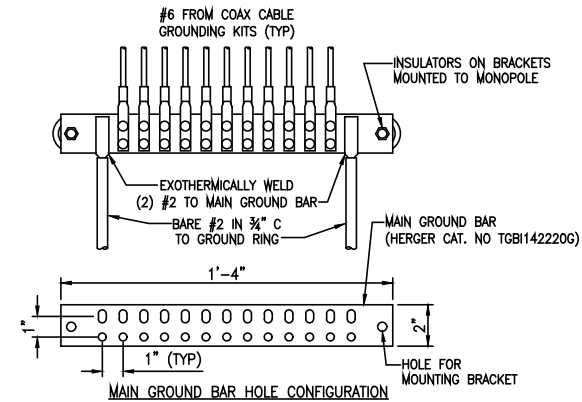


- NOTES:
- ALL HARDWARE STAINLESS STEEL COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
 - FOR GROUND BOND TO STEEL ONLY: INSERT A TOOTH WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH KOPR-SHIELD.
 - ALL HOLES ARE COUNTERSUNK 1/16 inch.

TYPICAL GROUND BAR CONNECTIONS DETAIL

SCALE: N.T.S

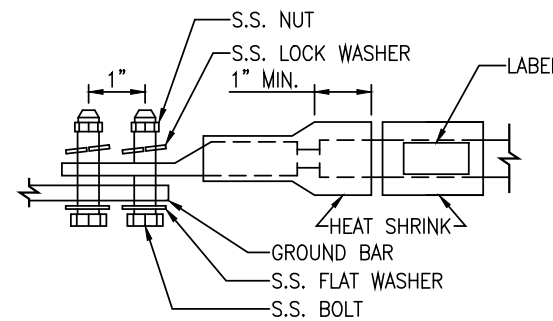
4
E-3



GROUND BAR DETAIL

SCALE: N.T.S

5
E-3



- LUG NOTES:
- ALL HARDWARE IS 18-8 STAINLESS STEEL, INCLUDING LOCK WASHERS.
 - ALL HARDWARE SHALL BE S.S. 3/8 inch Ø OR LARGER.
 - FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL. COAT ALL SURFACES WITH ANTI-OXIDIZATION COMPOUND PRIOR TO MATING.

GROUND BAR DETAIL

SCALE: N.T.S

6
E-3



T-MOBILE NORTHEAST, LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
OFFICE: (860) 692-7100
FAX: (860) 692-7139



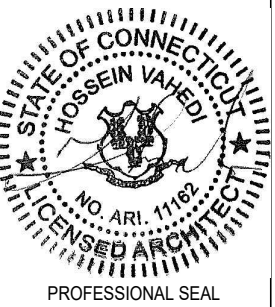
54 Jacqueline Road, Suite #7
Waltham, MA 02452
Phone number: 617-852-3811
Fax Number: 781-742-2247

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DEPT.	DATE	APP'D	REVISIONS
RFE			
RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO: CT11661A
DRAWN BY: FG
CHECKED BY: KM



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SITE NUMBER
CT11661A
SITE NAME
HARTFORD SOUTH
2/FRNKLN AV.
SITE ADDRESS
99 MEADOW STREET
HARTFORD, CT 06114

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER

E-2

Exhibit D



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 147.9 ft Monopole
ATC Site Name : Petro Lock, CT
ATC Site Number : 302468
Engineering Number : 663406KK2
Proposed Carrier : T-Mobile
Carrier Site Name : Hartford South2/Frnkln Ave
Carrier Site Number : CT11661D
Site Location : 99 Meadow St
Hartford, CT 06114-1598
41.743197,-72.667500
County : Hartford
Date : May 17, 2016
Max Usage : 92%
Result : Pass

Prepared By:
Amir H. Tabarestani, E.I.
Structural Engineer II

COA: PEC.0001553



Table of Contents

Introduction	1
Supporting Documents	1
Analysis	1
Conclusion.....	1
Existing and Reserved Equipment.....	2
Equipment to be Removed.....	2
Proposed Equipment	3
Structure Usages	3
Foundations	3
Deflection, Twist, and Sway.....	3
Standard Conditions	4
Calculations	Attached



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 T-Mobile.

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/EIA-222.

Basic Wind Speed:	80 mph (Fastest Mile)
Basic Wind Speed w/ Ice:	69 mph (Fastest Mile)w/ 1/2" radial ice concurrent
Code:	ANSI/TIA/EIA-222-F / 2003 IBC , Sec. 1609.1.1, Exception (5) & Sec. 3108.4 w/ 2005 CT Supplement & 2009 CT Amendment

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

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
149.0	149.0	4	Decibel DB844H90E-XY	Platform w/ Handrails	(12) 1 5/8" Coax (1) 1/2" Coax	Sprint Nextel
		8	Andrew 844G65VTZASX			
135.0	137.0	6	Powerwave LGP21401	Platform w/ Handrails	(12) 1 5/8" Coax (2) 0.78" 8 AWG 6 (1) 0.39" Cable (1) 3" Conduit	AT&T Mobility
		3	Ericsson RRUS 11 (Band 12) (55 lb)			
		3	Ericsson RRUS 11 w/ RRUS A2			
		3	Ericsson RRUS-32			
		3	Powerwave 7750.00			
		2	KMW AM-X-CD-16-65-00T-RET			
		2	Quintel QS66512-3 (112 lbs.)			
	135.0	1	Andrew SBNH-1D6565C			
		1	CCI TPA-65R-LCUUUU-H8			
		6	CCI TPX-070821			
		2	Raycap DC6-48-60-18-8F			
123.0	123.0	3	Kathrein Smart Bias Tee	T-Arms	(12) 1 5/8" Coax	T-Mobile
		3	RFS APX16DWV-16DWVS-E-A20			
		3	Andrew LNX-6515DS-VTM			
		3	Ericsson KRY 112 144/1			
		3	Ericsson KRY 112 489/1			
113.0	113.0	3	RFS APXV18-206517	Flush	(6) 1 5/8" Coax	Metro PCS
98.0	98.0	3	RFS IBC1900BB-1	Low Profile Platform	(4) 1 1/4" Hybriflex	Sprint Nextel
		3	RFS IBC1900HG-2A			
		3	Alcatel-Lucent 800MHz 2X50W RRH w/ Filter			
		3	Alcatel-Lucent 4x40W RRH (88 lb)			
		3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
		3	RFS APXVTM14-C-I20			
		3	RFS APXVSP18-C-A20			
89.0	89.0	3	DragonWave Horizon Compact	Side Arms	(6) 5/16" Coax (3) 1/2" Coax (1) 2" Conduit	Clearwire
		3	NextNet BTS-2500			
		2	DragonWave A-ANT-18G-2-C			
		3	Argus LLPX310R			
		1	DragonWave A-ANT-11G-2.5-C			
79.0	79.0	3	Alcatel-Lucent RRH2X60-AWS	Low Profile Platform	(2) 1 5/8" Hybriflex	Verizon
		3	Alcatel-Lucent RRH2x60 700			
		3	Alcatel-Lucent RRH2x60			
		2	RFS DB-T1-6Z-8AB-OZ			
		12	Commscope SBNHH-1D65B			
20.0	20.0	1	Lucent KS-24019	Flush	(1) 1/2" Coax	Sprint Nextel

Equipment to be Removed

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
No loading considered as to be removed						



Proposed Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
123.0	123.0	3	Ericsson AIR 32 B4A-B2P	T-Arms	(1) 1 5/8" Fiber	T-Mobile

¹Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax alongside existing lines outside the pole shaft. Stacking is not allowed.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	91%	Pass
Shaft	92%	Pass
Base Plate	49%	Pass

Foundations

Reaction Component	Analysis Reactions
Moment (Kips-Ft)	3,640.3
Axial (Kips)	45.2
Shear (Kips)	35.3

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) (°)
123.0	Ericsson AIR 32 B4A-B2P	T-Mobile	1.868	1.569
89.0	DragonWave A-ANT-18G-2-C	Clearwire	1.021	1.257
	DragonWave A-ANT-11G-2.5-C			

*Deflection and Sway was evaluated considering a design wind speed of 50 mph (Fastest Mile) per ANSI/TIA/EIA-222-F.



Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

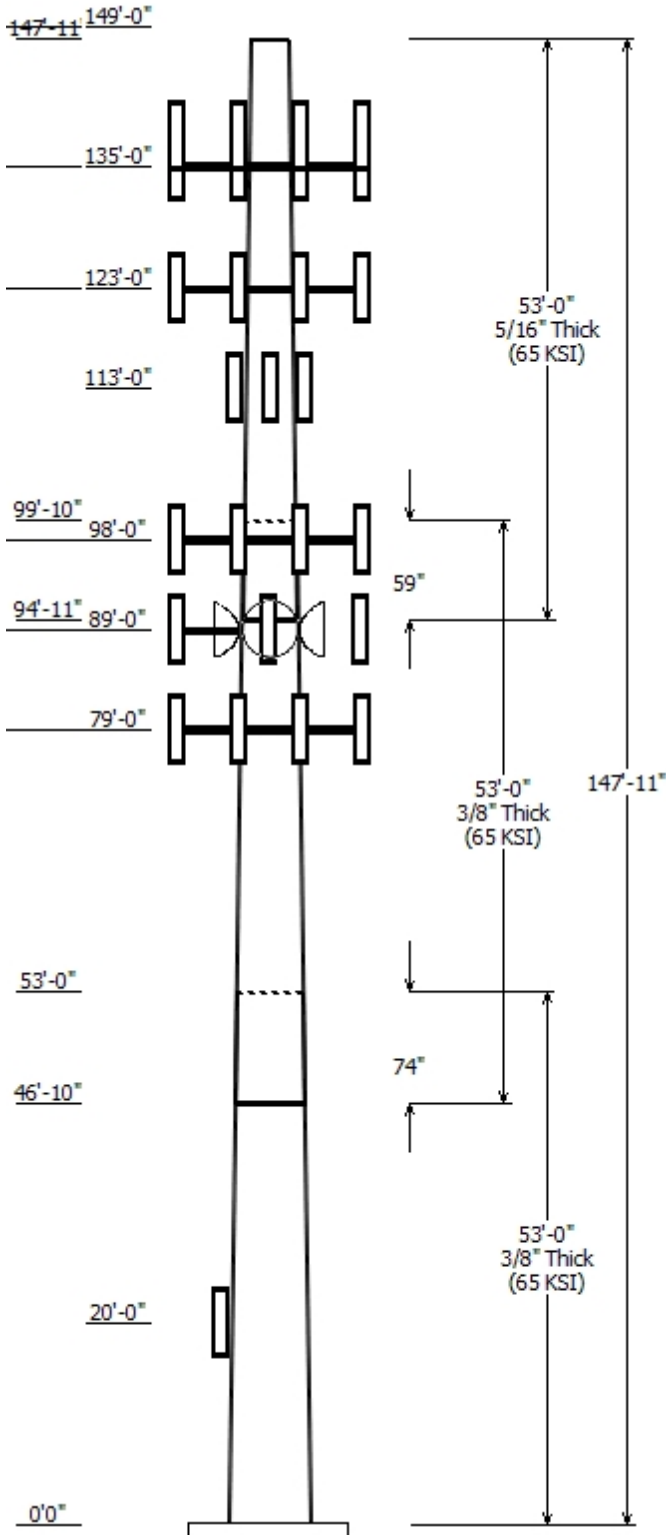
- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.
- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

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. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and American Tower Corporation, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

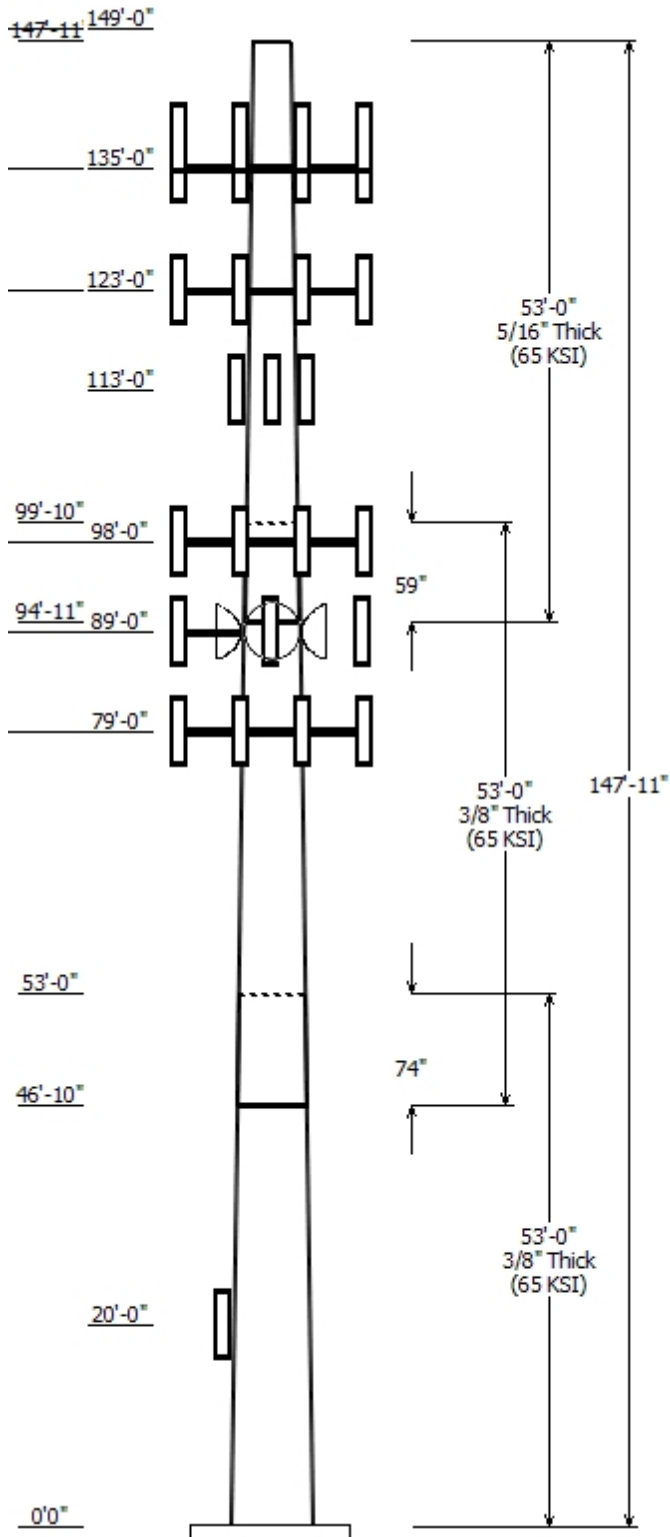
All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

Job Information	
Pole :	302468
Code :	TIA/EIA-222-F
Description :	148' FWT Monopole
Client :	T-MOBILE
Location :	Petro Lock, CT
Shape :	18 Sides
Height :	147.92 (ft)
Base Elev (ft):	0.00
Taper:	0.21456(in/ft)



Sections Properties								
Section	Length (ft)	Diameter (in)		Thick (in)	Joint Type	Overlap		Steel Grade (ksi)
		Top	Bottom			Length (in)	Taper (in/ft)	
1	53.000	45.20	56.58	0.375		0.000	0.214600	65
2	53.000	35.90	47.28	0.375	Slip Joint	74.000	0.214600	65
3	53.000	26.21	37.58	0.313	Slip Joint	59.000	0.214600	65

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
149.000	149.000	1	Flat Platform w/ Handrails
149.000	149.000	8	Andrew 844G65VTZASX
149.000	149.000	4	Decibel DB844H90E-XY
135.000	137.000	1	CCI TPA-65R-LCUUUU-H8
135.000	137.000	2	Quintel QS66512-3 (112 lbs.)
135.000	137.000	3	Ericsson RRUS-32
135.000	137.000	3	Ericsson RRUS 11 w/ RRUS A2
135.000	135.000	2	Raycap DC6-48-60-18-8F
135.000	137.000	3	Ericsson RRUS 11 (Band 12) (55
135.000	137.000	1	Andrew SBNH-1D6565C
135.000	137.000	2	KMW AM-X-CD-16-65-00T-RET
135.000	135.000	6	CCI TPX-070821
135.000	137.000	6	Powerwave LGP21401
135.000	135.000	1	Flat Platform w/ Handrails
135.000	137.000	3	Powerwave 7750.00
123.000	123.000	3	Ericsson AIR 32 B4A-B2P
123.000	123.000	3	Andrew LNX-6515DS-VTM
123.000	123.000	3	RFS APX16DWV-16DWVS-E-A20
123.000	123.000	3	Ericsson KRY 112 489/1
123.000	123.000	3	Ericsson KRY 112 144/1
123.000	123.000	3	Kathrein Scala Smart Bias Tee
123.000	123.000	3	Round T-Arms
113.000	113.000	3	RFS APXV18-206517
98.000	98.000	3	RFS APXVTM14-C-120
98.000	98.000	3	Alcatel-Lucent TD-RRH8x20-25
98.000	98.000	3	RFS IBC1900HG-2A
98.000	98.000	3	RFS IBC1900BB-1
98.000	98.000	3	Alcatel-Lucent 800 MHz 2X50W
98.000	98.000	3	Alcatel-Lucent 4x40W RRH (88 l
98.000	98.000	3	RFS APXVSP18-C-A20
98.000	98.000	1	Round Low Profile Platform
89.000	89.000	1	DragonWave A-ANT-11G-2.5-C
89.000	89.000	1	Side Arms
89.000	89.000	3	NextNet BTS-2500
89.000	89.000	3	Argus LLPX310R
89.000	89.000	3	DragonWave Horizon Compact
89.000	89.000	2	DragonWave A-ANT-18G-2-C
79.000	79.000	1	Flat Low Profile Platform
79.000	79.000	12	Commscope SBNH-1D65B
79.000	79.000	2	RFS DB-T1-6Z-8AB-0Z
79.000	79.000	3	Alcatel-Lucent RRH2x60
79.000	79.000	3	Alcatel-Lucent RRH2X60-AWS
79.000	79.000	3	Alcatel-Lucent RRH2x60 700
20.000	20.000	1	Lucent KS-24019

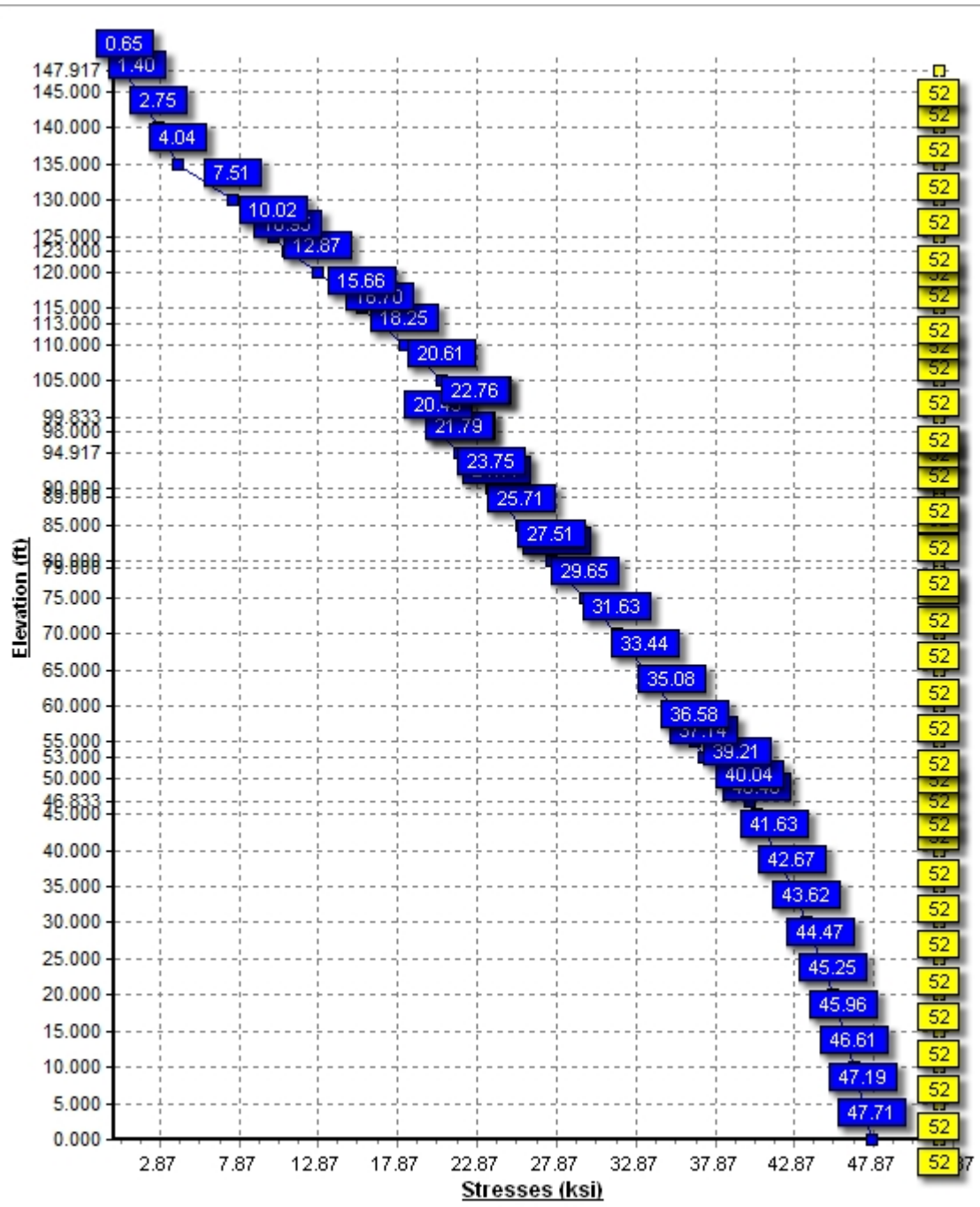


Linear Appurtenance			
Elev (ft)		Description	Exposed To Wind
From	To		
5.000	20.000	1/2" Coax	No
5.000	79.000	1 5/8" Hybriflex	Yes
5.000	89.000	1/2" Coax	Yes
5.000	89.000	2" Conduit	Yes
5.000	89.000	5/16" Coax	No
5.000	98.000	1 1/4" Hybriflex	No
5.000	113.0	1 5/8" Coax	No
5.000	123.0	1 5/8" Coax	No
5.000	123.0	1 5/8" Coax	Yes
5.000	123.0	1 5/8" Fiber	Yes
5.000	135.0	0.39" Cable	No
5.000	135.0	0.78" 8 AWG 6	No
5.000	135.0	1 5/8" Coax	No
5.000	135.0	3" Conduit	No
5.000	149.0	1 5/8" Coax	No
5.000	149.0	1/2" Coax	No

Load Cases	
No Ice	80.00 mph Wind with No Ice
Ice	69.28 mph Wind with Ice
Twist/Sway	50.00 mph Wind with No Ice

Reactions			
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
No Ice	3640.31	35.31	45.21
Ice	2690.75	25.73	52.68
Twist/Sway	1423.08	13.79	45.26

Dish Deflections			
Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
Twist/Sway	89.00	12.258	1.257
Twist/Sway	89.00	12.258	1.257



Site Number: 302468

Code: TIA/EIA-222-F

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Site Name: Petro Lock, CT

Engineering Number: 663406KK2

5/17/2016 9:12:59 AM

Customer: T-MOBILE

Analysis Parameters

Location:	Hartford County, CT	Height (ft):	147.
Code:	TIA/EIA-222-F	Base Diameter (in):	56.58
Shape:	18 Sides	Top Diameter (in):	26.22
Pole Type:	Taper	Taper (in/ft) :	0.215
Pole Manufacturer:	FWT Inc		

Load Cases

No Ice	80.00 mph Wind with No Ice
Ice	69.28 mph Wind with Ice
Twist/Sway	50.00 mph Wind with No Ice

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Site Name: Petro Lock, CT

Engineering Number: 663406KK2

5/17/2016 9:12:59 AM

Customer: T-MOBILE

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom						Top						
							Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)
1-18	53.000	0.3750	65		0.00	10,844	56.58	0.00	66.90	26698.9	24.84	150.88	45.20	53.00	53.36	13550.6	19.49	120.55	0.214568
2-18	53.000	0.3750	65	Slip	74.00	8,848	47.28	46.83	55.83	15518.7	20.47	126.08	35.90	99.83	42.29	6746.8	15.12	95.76	0.214568
3-18	53.000	0.3125	65	Slip	59.00	5,651	37.58	94.92	36.97	6490.6	19.45	120.28	26.21	147.92	25.69	2178.2	13.03	83.89	0.214568
Shaft Weight						25,342													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice			Ice			Distance From Face (ft)	Vert Ecc (ft)
			Weight (lb)	EPAA (sf)	Orientation Factor	Weight (lb)	EPAA (sf)	Orientation Factor		
149.00	Andrew 844G65VTZASX	8	16.00	5.890	0.84	54.72	6.500	0.84	0.000	0.000
149.00	Decibel DB844H90E-XY	4	14.00	3.733	0.91	40.30	4.288	0.91	0.000	0.000
149.00	Flat Platform w/ Handrails	1	2000.00	42.400	1.00	2,450.00	48.400	1.00	0.000	0.000
135.00	Andrew SBNH-1D6565C	1	66.10	11.440	1.00	132.00	12.370	1.00	0.000	2.000
135.00	CCI TPA-65R-LCUUUU-H8	1	82.10	13.440	1.00	141.77	14.350	1.00	0.000	2.000
135.00	CCI TPX-070821	6	7.50	0.550	0.50	7.90	0.380	0.50	0.000	0.000
135.00	Ericsson RRUS 11 (Band 12)	3	55.00	2.940	0.67	74.30	3.290	0.67	0.000	2.000
135.00	Ericsson RRUS 11 w/ RRUS	3	72.00	3.260	0.67	0.00	0.000	0.67	0.000	2.000
135.00	Ericsson RRUS-32	3	77.00	3.870	0.67	104.90	4.300	0.67	0.000	2.000
135.00	Flat Platform w/ Handrails	1	2000.00	42.400	1.00	2,450.00	48.400	1.00	0.000	0.000
135.00	KMW AM-X-CD-16-65-00T-	2	48.50	8.260	0.84	95.00	9.080	0.84	0.000	2.000
135.00	Powerwave 7750.00	3	27.00	5.920	0.76	65.67	6.540	0.76	0.000	2.000
135.00	Powerwave LGP21401	6	14.10	1.290	0.50	21.26	1.530	0.50	0.000	2.000
135.00	Quintel QS66512-3 (112 lbs.)	2	112.00	8.400	0.93	0.00	0.000	0.93	0.000	2.000
135.00	Raycap DC6-48-60-18-8F	2	20.00	1.260	1.00	35.10	1.460	1.00	0.000	0.000
123.00	Andrew LNX-6515DS-VTM	3	51.30	11.430	0.84	117.10	12.360	0.84	0.000	0.000
123.00	Ericsson AIR 32 B4A-B2P	3	105.80	6.520	0.86	0.00	0.000	0.86	0.000	0.000
123.00	Ericsson KRY 112 144/1	3	11.00	0.410	0.50	14.10	0.550	0.50	0.000	0.000
123.00	Ericsson KRY 112 489/1	3	15.40	0.650	0.50	20.40	0.830	0.50	0.000	0.000
123.00	Kathrein Scala Smart Bias	3	3.30	0.090	0.50	0.00	0.000	0.50	0.000	0.000
123.00	RFS APX16DWV-16DWVS-E-	3	40.70	7.220	0.66	75.00	7.910	0.66	0.000	0.000
123.00	Round T-Arms	3	250.00	9.700	0.75	314.00	12.100	0.75	0.000	0.000
113.00	RFS APXV18-206517	3	26.40	5.050	0.80	48.13	5.700	0.80	0.000	0.000
98.00	Alcatel-Lucent 4x40W RRH	3	88.00	2.910	0.67	122.40	4.230	0.67	0.000	0.000
98.00	Alcatel-Lucent 800 MHz	3	64.00	2.400	0.67	86.10	2.720	0.67	0.000	0.000
98.00	Alcatel-Lucent TD-RRH8x20-	3	70.00	4.720	0.67	122.40	4.230	0.67	0.000	0.000
98.00	RFS APXVSP18-C-A20	3	57.00	8.260	0.82	106.50	9.080	0.82	0.000	0.000
98.00	RFS APXVTM14-C-I20	3	52.90	6.900	0.76	73.60	7.740	0.76	0.000	0.000
98.00	RFS IBC1900BB-1	3	22.00	1.130	0.50	59.80	1.360	0.50	0.000	0.000
98.00	RFS IBC1900HG-2A	3	22.00	1.130	0.50	59.80	1.360	0.50	0.000	0.000
98.00	Round Low Profile Platform	1	1500.00	21.700	1.00	1,700.00	27.200	1.00	0.000	0.000
89.00	Argus LLPX310R	3	28.60	4.830	0.70	54.50	5.360	0.70	0.000	0.000
89.00	DragonWave A-ANT-11G-2.5-	1	47.60	8.670	0.95	117.00	9.170	0.95	0.000	0.000
89.00	DragonWave A-ANT-18G-2-C	2	27.10	4.690	0.85	55.10	5.050	0.85	0.000	0.000
89.00	DragonWave Horizon	3	10.60	0.430	0.50	17.00	0.580	0.50	0.000	0.000
89.00	NextNet BTS-2500	3	35.00	2.120	0.67	48.30	2.430	0.67	0.000	0.000
89.00	Side Arms	1	560.00	8.500	1.00	680.00	10.500	1.00	0.000	0.000
79.00	Alcatel-Lucent RRH2x60	3	60.00	3.960	0.67	82.70	4.430	0.67	0.000	0.000
79.00	Alcatel-Lucent RRH2x60 700	3	56.70	2.510	0.67	71.08	2.810	0.67	0.000	0.000
79.00	Alcatel-Lucent RRH2X60-	3	44.00	2.190	0.67	61.40	2.870	0.67	0.000	0.000
79.00	Commscope SBNHH-1D65B	12	50.70	8.380	0.69	0.00	0.000	0.69	0.000	0.000
79.00	Flat Low Profile Platform	1	1500.00	26.100	1.00	1,700.00	31.600	1.00	0.000	0.000
79.00	RFS DB-T1-6Z-8AB-OZ	2	44.00	5.600	0.67	44.30	3.280	0.67	0.000	0.000
20.00	Lucent KS-24019	1	4.00	0.910	1.00	15.00	1.300	1.00	0.000	0.000
Totals		130	13222.10			16,016.22			Number of Loadings :	44

Site Number: 302468

Code: TIA/EIA-222-F

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Site Name: Petro Lock, CT

Engineering Number: 663406KK2

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Customer: T-MOBILE

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	No Ice		Ice		Exposed To Wind
				Weight (lb/ft)	CaAa (sf/ft)	Weight (lb/ft)	CaAa (sf/ft)	
5.00	149.00	12	1 5/8" Coax	9.84	0.00	0.00	0.00	N
5.00	149.00	1	1/2" Coax	0.15	0.00	0.00	0.00	N
5.00	135.00	1	0.39" Cable	0.07	0.00	0.00	0.00	N
5.00	135.00	2	0.78" 8 AWG 6	1.18	0.00	0.00	0.00	N
5.00	135.00	12	1 5/8" Coax	9.84	0.00	0.00	0.00	N
5.00	135.00	1	3" Conduit	7.58	0.00	0.00	0.00	N
5.00	123.00	6	1 5/8" Coax	4.92	0.00	0.00	0.00	N
5.00	123.00	6	1 5/8" Coax	4.92	0.20	9.46	0.25	Y
5.00	123.00	1	1 5/8" Fiber	1.61	0.00	3.10	0.00	Y
5.00	113.00	6	1 5/8" Coax	4.92	0.00	0.00	0.00	N
5.00	98.00	4	1 1/4" Hybriflex Cable	5.20	0.00	0.00	0.00	N
5.00	89.00	3	1/2" Coax	0.45	0.00	0.00	0.00	Y
5.00	89.00	1	2" Conduit	3.65	0.24	4.53	0.29	Y
5.00	89.00	6	5/16" Coax	0.24	0.00	0.00	0.00	N
5.00	79.00	2	1 5/8" Hybriflex	1.64	0.20	3.15	0.25	Y
5.00	20.00	1	1/2" Coax	0.15	0.00	0.00	0.00	N
Total Weight				6,719.89 (lb)		2,095.70 (lb)		

Site Number: 302468

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Site Name: Petro Lock, CT

Engineering Number: 663406KK2

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Customer: T-MOBILE

Segment Properties (Max Len : 5.ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Fa (ksi)	Weight (lb)
0.00		0.3750	56.580	66.895	26,698.9	24.84	150.88	65	52	0	0.0
5.00		0.3750	55.507	65.618	25,199.0	24.34	148.02	65	52	0	1,127.3
10.00		0.3750	54.434	64.341	23,756.4	23.83	145.16	65	52	0	1,105.6
15.00		0.3750	53.361	63.065	22,369.9	23.33	142.30	65	52	0	1,083.8
20.00		0.3750	52.288	61.788	21,038.4	22.82	139.44	65	52	0	1,062.1
25.00		0.3750	51.216	60.511	19,760.8	22.32	136.57	65	52	0	1,040.4
30.00		0.3750	50.143	59.234	18,536.1	21.81	133.71	65	52	0	1,018.7
35.00		0.3750	49.070	57.957	17,363.0	21.31	130.85	65	52	0	996.9
40.00		0.3750	47.997	56.680	16,240.5	20.81	127.99	65	52	0	975.2
45.00		0.3750	46.924	55.403	15,167.4	20.30	125.13	65	52	0	953.5
46.83	Bot - Section 2	0.3750	46.531	54.935	14,786.1	20.12	124.08	65	52	0	344.2
50.00		0.3750	45.851	54.126	14,142.7	19.80	122.27	65	52	0	1,184.8
53.00	Top - Section 1	0.3750	45.958	54.253	14,242.1	19.85	122.55	65	52	0	1,106.4
55.00		0.3750	45.528	53.742	13,843.6	19.64	121.41	65	52	0	367.5
60.00		0.3750	44.456	52.465	12,880.1	19.14	118.55	65	52	0	903.5
65.00		0.3750	43.383	51.188	11,962.4	18.64	115.69	65	52	0	881.8
70.00		0.3750	42.310	49.911	11,089.3	18.13	112.83	65	52	0	860.0
75.00		0.3750	41.237	48.634	10,259.8	17.63	109.97	65	52	0	838.3
79.00		0.3750	40.379	47.613	9,626.8	17.22	107.68	65	52	0	655.0
80.00		0.3750	40.164	47.357	9,472.7	17.12	107.10	65	52	0	161.6
85.00		0.3750	39.091	46.081	8,726.9	16.62	104.24	65	52	0	794.9
89.00		0.3750	38.233	45.059	8,159.3	16.21	101.96	65	52	0	620.3
90.00		0.3750	38.019	44.804	8,021.4	16.11	101.38	65	52	0	152.9
94.92	Bot - Section 3	0.3750	36.964	43.548	7,365.7	15.62	98.57	65	52	0	739.1
95.00		0.3750	36.946	43.527	7,354.9	15.61	98.52	65	52	0	22.8
98.00		0.3750	36.302	42.761	6,973.3	15.31	96.81	65	52	0	814.4
99.83	Top - Section 2	0.3125	36.534	35.926	5,955.0	18.85	116.91	65	52	0	490.6
100.0		0.3125	36.498	35.890	5,937.4	18.83	116.79	65	52	0	20.4
105.0		0.3125	35.425	34.826	5,424.8	18.23	113.36	65	52	0	601.6
110.0		0.3125	34.352	33.762	4,942.6	17.62	109.93	65	52	0	583.5
113.0		0.3125	33.709	33.124	4,667.5	17.26	107.87	65	52	0	341.4
115.0		0.3125	33.279	32.698	4,489.8	17.01	106.49	65	52	0	224.0
120.0		0.3125	32.207	31.634	4,065.6	16.41	103.06	65	52	0	547.3
123.0		0.3125	31.563	30.995	3,824.4	16.05	101.00	65	52	0	319.7
125.0		0.3125	31.134	30.570	3,669.0	15.80	99.63	65	52	0	209.5
130.0		0.3125	30.061	29.506	3,299.0	15.20	96.19	65	52	0	511.1
135.0		0.3125	28.988	28.442	2,954.8	14.59	92.76	65	52	0	493.0
140.0		0.3125	27.915	27.377	2,635.4	13.99	89.33	65	52	0	474.8
145.0		0.3125	26.842	26.313	2,339.9	13.38	85.90	65	52	0	456.7
147.9		0.3125	26.216	25.693	2,178.2	13.03	83.89	65	52	0	258.1
											25,342.4

Site Number: 302468

Code: TIA/EIA-222-F

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Site Name: Petro Lock, CT

Engineering Number: 663406KK2

5/17/2016 9:12:59 AM

Customer: T-MOBILE

Load Case: No Ice	80.00 mph Wind with No Ice	22 Iterations
Gust Response Factor : 1.69		
Dead Load Factor : 1.00		
Wind Load Factor : 1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		210.1	0.0					0.0	0.0	210.1	0.0	0.0	0.0
5.00		416.3	1,127.3					0.0	0.0	416.3	1,127.3	0.0	0.0
10.00		408.2	1,105.6					88.6	281.8	496.8	1,387.4	0.0	0.0
15.00		400.2	1,083.8					88.6	281.8	488.8	1,365.6	0.0	0.0
20.00	Appertunance(s)	392.1	1,062.1	25.2	0.0	0.0	4.0	88.6	281.8	505.9	1,347.9	0.0	0.0
25.00		384.1	1,040.4					88.6	281.1	472.7	1,321.4	0.0	0.0
30.00		376.0	1,018.7					88.6	281.1	464.6	1,299.7	0.0	0.0
35.00		374.7	996.9					88.6	281.1	463.4	1,278.0	0.0	0.0
40.00		380.0	975.2					91.9	281.1	471.9	1,256.3	0.0	0.0
45.00		261.9	953.5					95.2	281.1	357.1	1,234.5	0.0	0.0
46.83	Bot - Section 2	195.0	344.2					35.7	103.1	230.7	447.2	0.0	0.0
50.00		242.6	1,184.8					62.6	178.0	305.2	1,362.8	0.0	0.0
53.00	Top - Section 1	197.2	1,106.4					60.4	168.6	257.6	1,275.0	0.0	0.0
55.00		276.7	367.5					40.8	112.4	317.5	479.9	0.0	0.0
60.00		395.3	903.5					103.8	281.1	499.2	1,184.5	0.0	0.0
65.00		394.7	881.8					106.3	281.1	501.1	1,162.8	0.0	0.0
70.00		393.2	860.0					108.7	281.1	501.9	1,141.1	0.0	0.0
75.00		352.1	838.3					110.9	281.1	463.0	1,119.4	0.0	0.0
79.00	Appertunance(s)	194.8	655.0	4,278.0	0.0	0.0	2,678.5	90.3	224.8	4,563.1	3,558.4	0.0	0.0
80.00		231.9	161.6					15.7	54.6	247.5	216.2	0.0	0.0
85.00		346.0	794.9					79.1	272.9	425.2	1,067.7	0.0	0.0
89.00	Appertunance(s)	191.0	620.3	1,461.7	0.0	0.0	884.4	64.3	218.3	1,716.9	1,722.9	0.0	0.0
90.00		223.6	152.9					7.4	50.2	230.9	203.1	0.0	0.0
94.92	Bot - Section 3	188.7	739.1					36.5	247.0	225.3	986.0	0.0	0.0
95.00		117.0	22.8					0.6	4.2	117.7	27.0	0.0	0.0
98.00	Appertunance(s)	183.0	814.4	3,072.3	0.0	0.0	2,627.7	22.6	150.7	3,277.9	3,592.8	0.0	0.0
99.83	Top - Section 2	75.4	490.6					13.9	82.6	89.3	573.2	0.0	0.0
100.00		192.7	20.4					1.3	7.5	193.9	27.9	0.0	0.0
105.00		369.7	601.6					38.3	225.2	408.0	826.7	0.0	0.0
110.00		291.7	583.5					38.8	225.2	330.5	808.6	0.0	0.0
113.00	Appertunance(s)	180.0	341.4	477.0	0.0	0.0	79.2	23.5	135.1	680.5	555.7	0.0	0.0
115.00		248.1	224.0					15.8	80.2	263.8	304.2	0.0	0.0
120.00		280.6	547.3					39.8	200.6	320.4	747.8	0.0	0.0
123.00	Appertunance(s)	172.7	319.7	3,365.8	0.0	0.0	1,432.5	24.1	120.3	3,562.7	1,872.5	0.0	0.0
125.00		237.4	209.5					0.0	57.3	237.4	266.8	0.0	0.0
130.00		333.5	511.1					0.0	143.3	333.5	654.4	0.0	0.0
135.00	Appertunance(s)	325.1	493.0	5,753.9	0.0	7,650.7	3,331.8	0.0	143.3	6,078.9	3,968.1	0.0	0.0
140.00		316.3	474.8					0.0	50.0	316.3	524.8	0.0	0.0
145.00		244.8	456.7					0.0	50.0	244.8	506.7	0.0	0.0
147.92		88.8	258.1					0.0	29.1	88.8	287.2	0.0	0.0
Totals:										31,377.1	43,089.5	0.00	0.00

Site Number: 302468

Code: TIA/EIA-222-F

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Site Name: Petro Lock, CT

Engineering Number: 663406KK2

5/17/2016 9:13:01 AM

Customer: T-MOBILE

Load Case: No Ice	80.00 mph Wind with No Ice	22 Iterations
Gust Response Factor : 1.69		
Dead Load Factor : 1.00		
Wind Load Factor : 1.00		

Calculated Shaft Forces and Deflections

Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	-35.313	-45.214	0.000	0.000	0.000	-3,640.313	0.000	0.000	0.000	0.000
5.00	-35.041	-43.971	0.000	0.000	0.000	-3,463.751	-0.102	0.000	0.102	-0.189
10.00	-34.679	-42.471	0.000	0.000	0.000	-3,288.549	-0.403	0.000	0.403	-0.380
15.00	-34.317	-40.994	0.000	0.000	0.000	-3,115.156	-0.904	0.000	0.904	-0.572
20.00	-33.929	-39.538	0.000	0.000	0.000	-2,943.575	-1.607	0.000	1.607	-0.764
25.00	-33.565	-38.111	0.000	0.000	0.000	-2,773.935	-2.512	0.000	2.512	-0.957
30.00	-33.201	-36.708	0.000	0.000	0.000	-2,606.113	-3.619	0.000	3.619	-1.151
35.00	-32.829	-35.330	0.000	0.000	0.000	-2,440.113	-4.929	0.000	4.929	-1.345
40.00	-32.440	-33.977	0.000	0.000	0.000	-2,275.970	-6.442	0.000	6.442	-1.538
45.00	-32.123	-32.680	0.000	0.000	0.000	-2,113.772	-8.156	0.000	8.156	-1.730
46.83	-31.933	-32.186	0.000	0.000	0.000	-2,054.881	-8.835	0.000	8.835	-1.802
50.00	-31.647	-30.768	0.000	0.000	0.000	-1,953.762	-10.073	0.000	10.073	-1.924
53.00	-31.395	-29.450	0.000	0.000	0.000	-1,858.822	-11.319	0.000	11.319	-2.039
55.00	-31.125	-28.913	0.000	0.000	0.000	-1,796.033	-12.190	0.000	12.190	-2.116
60.00	-30.665	-27.655	0.000	0.000	0.000	-1,640.411	-14.501	0.000	14.501	-2.292
65.00	-30.195	-26.425	0.000	0.000	0.000	-1,487.089	-16.996	0.000	16.996	-2.465
70.00	-29.715	-25.222	0.000	0.000	0.000	-1,336.118	-19.668	0.000	19.668	-2.633
75.00	-29.260	-24.052	0.000	0.000	0.000	-1,187.544	-22.513	0.000	22.513	-2.795
79.00	-24.553	-20.693	0.000	0.000	0.000	-1,070.507	-24.909	0.000	24.909	-2.920
80.00	-24.327	-20.451	0.000	0.000	0.000	-1,045.954	-25.524	0.000	25.524	-2.951
85.00	-23.890	-19.353	0.000	0.000	0.000	-924.322	-28.694	0.000	28.694	-3.099
89.00	-22.103	-17.700	0.000	0.000	0.000	-828.762	-31.339	0.000	31.339	-3.214
90.00	-21.886	-17.480	0.000	0.000	0.000	-806.660	-32.015	0.000	32.015	-3.242
94.92	-21.623	-16.484	0.000	0.000	0.000	-699.057	-35.423	0.000	35.423	-3.373
95.00	-21.515	-16.448	0.000	0.000	0.000	-697.256	-35.482	0.000	35.482	-3.376
98.00	-18.043	-13.038	0.000	0.000	0.000	-632.711	-37.628	0.000	37.628	-3.453
99.83	-17.924	-12.464	0.000	0.000	0.000	-599.633	-38.962	0.000	38.962	-3.499
100.0	-17.744	-12.426	0.000	0.000	0.000	-596.646	-39.084	0.000	39.084	-3.503
105.0	-17.312	-11.588	0.000	0.000	0.000	-507.924	-42.823	0.000	42.823	-3.635
110.0	-16.947	-10.774	0.000	0.000	0.000	-421.368	-46.695	0.000	46.695	-3.757
113.0	-16.241	-10.249	0.000	0.000	0.000	-370.526	-49.077	0.000	49.077	-3.826
115.0	-15.970	-9.944	0.000	0.000	0.000	-338.044	-50.689	0.000	50.689	-3.869
120.0	-15.611	-9.200	0.000	0.000	0.000	-258.194	-54.791	0.000	54.791	-3.963
123.0	-11.932	-7.572	0.000	0.000	0.000	-211.362	-57.296	0.000	57.296	-4.013
125.0	-11.682	-7.313	0.000	0.000	0.000	-187.500	-58.982	0.000	58.982	-4.042
130.0	-11.309	-6.674	0.000	0.000	0.000	-129.090	-63.247	0.000	63.247	-4.104
135.0	-4.962	-3.151	0.000	0.000	0.000	-64.894	-67.567	0.000	67.567	-4.147
140.0	-4.610	-2.649	0.000	0.000	0.000	-40.084	-71.921	0.000	71.921	-4.172
145.0	-4.329	-2.161	0.000	0.000	0.000	-17.036	-76.296	0.000	76.296	-4.188
147.9	-4.159	0.000	0.000	0.000	0.000	-4.409	-78.854	0.000	78.854	-4.192

Site Number: 302468

Code: TIA/EIA-222-F

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Site Name: Petro Lock, CT

Engineering Number: 663406KK2

5/17/2016 9:13:01 AM

Customer: T-MOBILE

Load Case: No Ice	80.00 mph Wind with No Ice	22 Iterations
Gust Response Factor : 1.69		
Dead Load Factor : 1.00		
Wind Load Factor : 1.00		

Calculated Stresses

Seg Elev (ft)	Applied Stresses							Allowable Stress (Fb) (ksi)	Allowable Stress (Fa) (ksi)	Stress Ratio
	Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)			
0.00	0.68	1.06	0.00	0.00	0.00	47.00	47.71	52.0	0.0	0.918
5.00	0.67	1.08	0.00	0.00	0.00	46.48	47.19	52.0	0.0	0.908
10.00	0.66	1.09	0.00	0.00	0.00	45.91	46.61	52.0	0.0	0.897
15.00	0.65	1.10	0.00	0.00	0.00	45.27	45.96	52.0	0.0	0.884
20.00	0.64	1.11	0.00	0.00	0.00	44.57	45.25	52.0	0.0	0.871
25.00	0.63	1.12	0.00	0.00	0.00	43.80	44.47	52.0	0.0	0.856
30.00	0.62	1.13	0.00	0.00	0.00	42.95	43.62	52.0	0.0	0.839
35.00	0.61	1.14	0.00	0.00	0.00	42.01	42.67	52.0	0.0	0.821
40.00	0.60	1.15	0.00	0.00	0.00	40.98	41.63	52.0	0.0	0.801
45.00	0.59	1.17	0.00	0.00	0.00	39.84	40.48	52.0	0.0	0.779
46.83	0.59	1.17	0.00	0.00	0.00	39.40	40.04	52.0	0.0	0.770
50.00	0.57	1.18	0.00	0.00	0.00	38.59	39.21	52.0	0.0	0.754
53.00	0.54	1.17	0.00	0.00	0.00	36.54	37.14	52.0	0.0	0.715
55.00	0.54	1.17	0.00	0.00	0.00	35.99	36.58	52.0	0.0	0.704
60.00	0.53	1.18	0.00	0.00	0.00	34.50	35.08	52.0	0.0	0.675
65.00	0.52	1.19	0.00	0.00	0.00	32.86	33.44	52.0	0.0	0.643
70.00	0.51	1.20	0.00	0.00	0.00	31.06	31.63	52.0	0.0	0.609
75.00	0.49	1.21	0.00	0.00	0.00	29.08	29.65	52.0	0.0	0.570
79.00	0.43	1.04	0.00	0.00	0.00	27.36	27.85	52.0	0.0	0.536
80.00	0.43	1.04	0.00	0.00	0.00	27.02	27.51	52.0	0.0	0.529
85.00	0.42	1.04	0.00	0.00	0.00	25.23	25.71	52.0	0.0	0.495
89.00	0.39	0.99	0.00	0.00	0.00	23.66	24.11	52.0	0.0	0.464
90.00	0.39	0.98	0.00	0.00	0.00	23.29	23.75	52.0	0.0	0.457
94.92	0.38	1.00	0.00	0.00	0.00	21.37	21.82	52.0	0.0	0.420
95.00	0.38	1.00	0.00	0.00	0.00	21.34	21.79	52.0	0.0	0.419
98.00	0.30	0.85	0.00	0.00	0.00	20.07	20.43	52.0	0.0	0.393
99.83	0.35	1.01	0.00	0.00	0.00	22.41	22.83	52.0	0.0	0.439
100.00	0.35	1.00	0.00	0.00	0.00	22.35	22.76	52.0	0.0	0.438
105.00	0.33	1.00	0.00	0.00	0.00	20.21	20.61	52.0	0.0	0.397
110.00	0.32	1.01	0.00	0.00	0.00	17.84	18.25	52.0	0.0	0.351
113.00	0.31	0.99	0.00	0.00	0.00	16.30	16.70	52.0	0.0	0.321
115.00	0.30	0.98	0.00	0.00	0.00	15.27	15.66	52.0	0.0	0.301
120.00	0.29	0.99	0.00	0.00	0.00	12.46	12.87	52.0	0.0	0.248
123.00	0.24	0.78	0.00	0.00	0.00	10.63	10.95	52.0	0.0	0.211
125.00	0.24	0.77	0.00	0.00	0.00	9.69	10.02	52.0	0.0	0.193
130.00	0.23	0.77	0.00	0.00	0.00	7.17	7.51	52.0	0.0	0.145
135.00	0.11	0.35	0.00	0.00	0.00	3.88	4.04	52.0	0.0	0.078
140.00	0.10	0.34	0.00	0.00	0.00	2.59	2.75	52.0	0.0	0.053
145.00	0.08	0.33	0.00	0.00	0.00	1.19	1.40	52.0	0.0	0.027
147.92	0.00	0.33	0.00	0.00	0.00	0.32	0.65	52.0	0.0	0.013

Site Number: 302468

Code: TIA/EIA-222-F

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Site Name: Petro Lock, CT

Engineering Number: 663406KK2

5/17/2016 9:13:02 AM

Customer: T-MOBILE

Load Case: Ice

69.28 mph Wind with Ice

22 Iterations

Gust Response Factor : 1.69

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		160.4	0.0					0.0	0.0	160.4	0.0	0.0	0.0
5.00		317.8	1,300.1					0.0	0.0	317.8	1,300.1	0.0	0.0
10.00		311.8	1,275.1					82.0	321.7	393.8	1,596.7	0.0	0.0
15.00		305.7	1,250.0					82.0	321.7	387.8	1,571.7	0.0	0.0
20.00	Appertunance(s)	299.7	1,225.0	27.0	0.0	0.0	15.0	82.0	321.7	408.7	1,561.7	0.0	0.0
25.00		293.7	1,200.0					82.0	320.9	375.7	1,520.9	0.0	0.0
30.00		287.6	1,174.9					82.0	320.9	369.6	1,495.8	0.0	0.0
35.00		286.8	1,149.9					82.0	320.9	368.8	1,470.8	0.0	0.0
40.00		291.0	1,124.9					85.1	320.9	376.0	1,445.8	0.0	0.0
45.00		200.6	1,099.8					88.2	320.9	288.7	1,420.7	0.0	0.0
46.83	Bot - Section 2	149.3	397.4					33.1	117.7	182.4	515.0	0.0	0.0
50.00		185.8	1,276.9					58.0	203.2	243.8	1,480.1	0.0	0.0
53.00	Top - Section 1	151.1	1,192.4					55.9	192.5	207.0	1,384.9	0.0	0.0
55.00		212.1	424.3					37.8	128.4	249.9	552.7	0.0	0.0
60.00		303.2	1,042.2					96.1	320.9	399.3	1,363.1	0.0	0.0
65.00		302.9	1,017.2					98.4	320.9	401.3	1,338.1	0.0	0.0
70.00		301.9	992.1					100.6	320.9	402.5	1,313.0	0.0	0.0
75.00		270.4	967.1					102.7	320.9	373.1	1,288.0	0.0	0.0
79.00	Appertunance(s)	149.7	755.9	1,500.7	0.0	0.0	2,434.1	83.6	256.7	1,733.9	3,446.8	0.0	0.0
80.00		178.3	186.7					14.4	61.0	192.7	247.7	0.0	0.0
85.00		266.1	917.0					72.8	305.2	339.0	1,222.2	0.0	0.0
89.00	Appertunance(s)	147.0	715.9	1,235.4	0.0	0.0	1,266.6	59.2	244.1	1,441.5	2,226.6	0.0	0.0
90.00		172.1	176.7					6.9	56.3	179.0	232.9	0.0	0.0
94.92	Bot - Section 3	145.3	852.8					34.3	276.6	179.6	1,129.4	0.0	0.0
95.00		90.1	24.8					0.6	4.7	90.7	29.5	0.0	0.0
98.00	Appertunance(s)	140.9	883.7	2,656.5	0.0	0.0	3,591.8	21.2	168.8	2,818.6	4,644.3	0.0	0.0
99.83	Top - Section 2	58.1	532.5					13.0	93.6	71.1	626.1	0.0	0.0
100.00		148.5	24.2					1.2	8.5	149.7	32.7	0.0	0.0
105.00		285.1	712.4					35.9	255.3	321.0	967.7	0.0	0.0
110.00		225.1	691.0					36.4	255.3	261.5	946.3	0.0	0.0
113.00	Appertunance(s)	139.0	404.7	403.8	0.0	0.0	144.4	22.1	153.2	564.8	702.3	0.0	0.0
115.00		191.7	265.7					14.8	92.3	206.5	357.9	0.0	0.0
120.00		216.9	648.2					37.3	230.7	254.2	878.9	0.0	0.0
123.00	Appertunance(s)	133.6	379.0	2,301.5	0.0	0.0	1,621.8	22.6	138.4	2,457.7	2,139.3	0.0	0.0
125.00		183.8	248.5					0.0	57.3	183.8	305.9	0.0	0.0
130.00		258.4	605.4					0.0	143.3	258.4	748.7	0.0	0.0
135.00	Appertunance(s)	252.2	583.9	4,022.2	0.0	4,786.0	3,893.5	0.0	143.3	4,274.4	4,620.8	0.0	0.0
140.00		245.7	562.5					0.0	50.0	245.7	612.5	0.0	0.0
145.00		190.3	541.1					0.0	50.0	190.3	591.1	0.0	0.0
147.92		69.1	306.2					0.0	29.1	69.1	335.3	0.0	0.0
Totals:										22,389.9	49,663.8	0.00	0.00

Site Number: 302468

Code: TIA/EIA-222-F

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Site Name: Petro Lock, CT

Engineering Number: 663406KK2

5/17/2016 9:13:04 AM

Customer: T-MOBILE

Load Case: Ice

69.28 mph Wind with Ice

22 Iterations

Gust Response Factor : 1.69

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Calculated Shaft Forces and Deflections

Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	-25.735	-52.680	0.000	0.000	0.000	-2,690.751	0.000	0.000	0.000	0.000
5.00	-25.541	-51.318	0.000	0.000	0.000	-2,562.081	-0.075	0.000	0.075	-0.140
10.00	-25.264	-49.661	0.000	0.000	0.000	-2,434.378	-0.298	0.000	0.298	-0.281
15.00	-24.986	-48.030	0.000	0.000	0.000	-2,308.059	-0.669	0.000	0.669	-0.423
20.00	-24.680	-46.410	0.000	0.000	0.000	-2,183.131	-1.189	0.000	1.189	-0.566
25.00	-24.400	-44.832	0.000	0.000	0.000	-2,059.733	-1.859	0.000	1.859	-0.709
30.00	-24.119	-43.281	0.000	0.000	0.000	-1,937.736	-2.679	0.000	2.679	-0.853
35.00	-23.831	-41.757	0.000	0.000	0.000	-1,817.144	-3.650	0.000	3.650	-0.997
40.00	-23.530	-40.259	0.000	0.000	0.000	-1,697.990	-4.772	0.000	4.772	-1.141
45.00	-23.277	-38.805	0.000	0.000	0.000	-1,580.345	-6.045	0.000	6.045	-1.285
46.83	-23.132	-38.265	0.000	0.000	0.000	-1,537.671	-6.549	0.000	6.549	-1.338
50.00	-22.909	-36.756	0.000	0.000	0.000	-1,464.423	-7.469	0.000	7.469	-1.430
53.00	-22.711	-35.349	0.000	0.000	0.000	-1,395.697	-8.395	0.000	8.395	-1.516
55.00	-22.505	-34.765	0.000	0.000	0.000	-1,350.276	-9.043	0.000	9.043	-1.574
60.00	-22.143	-33.363	0.000	0.000	0.000	-1,237.756	-10.763	0.000	10.763	-1.707
65.00	-21.773	-31.989	0.000	0.000	0.000	-1,127.043	-12.621	0.000	12.621	-1.837
70.00	-21.394	-30.643	0.000	0.000	0.000	-1,018.181	-14.615	0.000	14.615	-1.965
75.00	-21.032	-29.329	0.000	0.000	0.000	-911.213	-16.739	0.000	16.739	-2.089
79.00	-19.197	-25.930	0.000	0.000	0.000	-827.087	-18.531	0.000	18.531	-2.185
80.00	-19.027	-25.666	0.000	0.000	0.000	-807.890	-18.992	0.000	18.992	-2.209
85.00	-18.683	-24.425	0.000	0.000	0.000	-712.757	-21.367	0.000	21.367	-2.323
89.00	-17.172	-22.244	0.000	0.000	0.000	-638.027	-23.352	0.000	23.352	-2.411
90.00	-17.007	-22.000	0.000	0.000	0.000	-620.856	-23.859	0.000	23.859	-2.433
94.92	-16.797	-20.865	0.000	0.000	0.000	-537.240	-26.419	0.000	26.419	-2.534
95.00	-16.716	-20.831	0.000	0.000	0.000	-535.840	-26.463	0.000	26.463	-2.536
98.00	-13.706	-16.306	0.000	0.000	0.000	-485.693	-28.076	0.000	28.076	-2.595
99.83	-13.611	-15.679	0.000	0.000	0.000	-460.566	-29.079	0.000	29.079	-2.631
100.0	-13.475	-15.641	0.000	0.000	0.000	-458.297	-29.171	0.000	29.171	-2.634
105.0	-13.134	-14.667	0.000	0.000	0.000	-390.922	-31.985	0.000	31.985	-2.736
110.0	-12.845	-13.718	0.000	0.000	0.000	-325.252	-34.901	0.000	34.901	-2.830
113.0	-12.255	-13.036	0.000	0.000	0.000	-286.719	-36.696	0.000	36.696	-2.882
115.0	-12.043	-12.677	0.000	0.000	0.000	-262.209	-37.910	0.000	37.910	-2.916
120.0	-11.755	-11.801	0.000	0.000	0.000	-201.994	-41.004	0.000	41.004	-2.989
123.0	-9.194	-9.789	0.000	0.000	0.000	-166.729	-42.895	0.000	42.895	-3.028
125.0	-9.000	-9.488	0.000	0.000	0.000	-148.342	-44.168	0.000	44.168	-3.052
130.0	-8.709	-8.748	0.000	0.000	0.000	-103.341	-47.391	0.000	47.391	-3.100
135.0	-4.191	-4.364	0.000	0.000	0.000	-55.013	-50.657	0.000	50.657	-3.136
140.0	-3.913	-3.765	0.000	0.000	0.000	-34.058	-53.951	0.000	53.951	-3.157
145.0	-3.691	-3.185	0.000	0.000	0.000	-14.492	-57.264	0.000	57.264	-3.170
147.9	-3.509	0.000	0.000	0.000	0.000	-3.725	-59.201	0.000	59.201	-3.173

Site Number: 302468

Code: TIA/EIA-222-F

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Site Name: Petro Lock, CT

Engineering Number: 663406KK2

5/17/2016 9:13:04 AM

Customer: T-MOBILE

Load Case: Ice

69.28 mph Wind with Ice

22 Iterations

Gust Response Factor : 1.69

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Calculated Stresses

Seg Elev (ft)	Applied Stresses							Allowable Stress (Fb) (ksi)	Allowable Stress (Fa) (ksi)	Stress Ratio
	Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)			
0.00	0.79	0.78	0.00	0.00	0.00	34.74	35.55	52.0	0.0	0.684
5.00	0.78	0.78	0.00	0.00	0.00	34.38	35.19	52.0	0.0	0.677
10.00	0.77	0.79	0.00	0.00	0.00	33.98	34.78	52.0	0.0	0.669
15.00	0.76	0.80	0.00	0.00	0.00	33.54	34.33	52.0	0.0	0.660
20.00	0.75	0.81	0.00	0.00	0.00	33.06	33.84	52.0	0.0	0.651
25.00	0.74	0.81	0.00	0.00	0.00	32.52	33.29	52.0	0.0	0.641
30.00	0.73	0.82	0.00	0.00	0.00	31.94	32.70	52.0	0.0	0.629
35.00	0.72	0.83	0.00	0.00	0.00	31.29	32.04	52.0	0.0	0.616
40.00	0.71	0.84	0.00	0.00	0.00	30.57	31.32	52.0	0.0	0.602
45.00	0.70	0.85	0.00	0.00	0.00	29.79	30.52	52.0	0.0	0.587
46.83	0.70	0.85	0.00	0.00	0.00	29.48	30.21	52.0	0.0	0.581
50.00	0.68	0.85	0.00	0.00	0.00	28.93	29.64	52.0	0.0	0.570
53.00	0.65	0.84	0.00	0.00	0.00	27.44	28.13	52.0	0.0	0.541
55.00	0.65	0.84	0.00	0.00	0.00	27.06	27.74	52.0	0.0	0.534
60.00	0.64	0.85	0.00	0.00	0.00	26.03	26.70	52.0	0.0	0.514
65.00	0.62	0.86	0.00	0.00	0.00	24.90	25.57	52.0	0.0	0.492
70.00	0.61	0.86	0.00	0.00	0.00	23.67	24.33	52.0	0.0	0.468
75.00	0.60	0.87	0.00	0.00	0.00	22.31	22.97	52.0	0.0	0.442
79.00	0.54	0.81	0.00	0.00	0.00	21.14	21.73	52.0	0.0	0.418
80.00	0.54	0.81	0.00	0.00	0.00	20.87	21.46	52.0	0.0	0.413
85.00	0.53	0.82	0.00	0.00	0.00	19.45	20.03	52.0	0.0	0.385
89.00	0.49	0.77	0.00	0.00	0.00	18.21	18.76	52.0	0.0	0.361
90.00	0.49	0.77	0.00	0.00	0.00	17.93	18.47	52.0	0.0	0.355
94.92	0.48	0.78	0.00	0.00	0.00	16.43	16.96	52.0	0.0	0.326
95.00	0.48	0.77	0.00	0.00	0.00	16.40	16.93	52.0	0.0	0.326
98.00	0.38	0.65	0.00	0.00	0.00	15.40	15.83	52.0	0.0	0.304
99.83	0.44	0.76	0.00	0.00	0.00	17.21	17.70	52.0	0.0	0.341
100.00	0.44	0.76	0.00	0.00	0.00	17.16	17.65	52.0	0.0	0.340
105.00	0.42	0.76	0.00	0.00	0.00	15.55	16.03	52.0	0.0	0.308
110.00	0.41	0.77	0.00	0.00	0.00	13.77	14.24	52.0	0.0	0.274
113.00	0.39	0.75	0.00	0.00	0.00	12.62	13.07	52.0	0.0	0.252
115.00	0.39	0.74	0.00	0.00	0.00	11.84	12.30	52.0	0.0	0.237
120.00	0.37	0.75	0.00	0.00	0.00	9.75	10.20	52.0	0.0	0.196
123.00	0.32	0.60	0.00	0.00	0.00	8.38	8.76	52.0	0.0	0.169
125.00	0.31	0.59	0.00	0.00	0.00	7.67	8.05	52.0	0.0	0.155
130.00	0.30	0.59	0.00	0.00	0.00	5.74	6.12	52.0	0.0	0.118
135.00	0.15	0.30	0.00	0.00	0.00	3.29	3.48	52.0	0.0	0.067
140.00	0.14	0.29	0.00	0.00	0.00	2.20	2.39	52.0	0.0	0.046
145.00	0.12	0.28	0.00	0.00	0.00	1.01	1.24	52.0	0.0	0.024
147.92	0.00	0.28	0.00	0.00	0.00	0.27	0.55	52.0	0.0	0.011

Site Number: 302468

Code: TIA/EIA-222-F

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Site Name: Petro Lock, CT

Engineering Number: 663406KK2

5/17/2016 9:13:04 AM

Customer: T-MOBILE

Load Case: Twist/Sway	50.00 mph Wind with No Ice	22 Iterations
Gust Response Factor : 1.69		
Dead Load Factor : 1.00		
Wind Load Factor : 1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		82.1	0.0					0.0	0.0	82.1	0.0	0.0	0.0
5.00		162.6	1,127.3					0.0	0.0	162.6	1,127.3	0.0	0.0
10.00		159.5	1,105.6					34.6	281.8	194.1	1,387.4	0.0	0.0
15.00		156.3	1,083.8					34.6	281.8	190.9	1,365.6	0.0	0.0
20.00	Appertunance(s)	153.2	1,062.1	9.8	0.0	0.0	4.0	34.6	281.8	197.6	1,347.9	0.0	0.0
25.00		150.0	1,040.4					34.6	281.1	184.6	1,321.4	0.0	0.0
30.00		146.9	1,018.7					34.6	281.1	181.5	1,299.7	0.0	0.0
35.00		146.4	996.9					34.6	281.1	181.0	1,278.0	0.0	0.0
40.00		148.5	975.2					35.9	281.1	184.4	1,256.3	0.0	0.0
45.00		102.3	953.5					37.2	281.1	139.5	1,234.5	0.0	0.0
46.83	Bot - Section 2	76.2	344.2					13.9	103.1	90.1	447.2	0.0	0.0
50.00		94.8	1,184.8					24.5	178.0	119.2	1,362.8	0.0	0.0
53.00	Top - Section 1	77.0	1,106.4					23.6	168.6	100.6	1,275.0	0.0	0.0
55.00		108.1	367.5					15.9	112.4	124.0	479.9	0.0	0.0
60.00		154.4	903.5					40.6	281.1	195.0	1,184.5	0.0	0.0
65.00		154.2	881.8					41.5	281.1	195.7	1,162.8	0.0	0.0
70.00		153.6	860.0					42.5	281.1	196.1	1,141.1	0.0	0.0
75.00		137.5	838.3					43.3	281.1	180.9	1,119.4	0.0	0.0
79.00	Appertunance(s)	76.1	655.0	1,671.1	0.0	0.0	2,678.5	35.3	224.8	1,782.4	3,558.4	0.0	0.0
80.00		90.6	161.6					6.1	54.6	96.7	216.2	0.0	0.0
85.00		135.2	794.9					30.9	272.9	166.1	1,067.7	0.0	0.0
89.00	Appertunance(s)	74.6	620.3	571.0	0.0	0.0	884.4	25.1	218.3	670.7	1,722.9	0.0	0.0
90.00		87.3	152.9					2.9	50.2	90.2	203.1	0.0	0.0
94.92	Bot - Section 3	73.7	739.1					14.3	247.0	88.0	986.0	0.0	0.0
95.00		45.7	22.8					0.2	4.2	46.0	27.0	0.0	0.0
98.00	Appertunance(s)	71.5	814.4	1,200.1	0.0	0.0	2,627.7	8.8	150.7	1,280.4	3,592.8	0.0	0.0
99.83	Top - Section 2	29.4	490.6					5.4	82.6	34.9	573.2	0.0	0.0
100.00		75.3	20.4					0.5	7.5	75.8	27.9	0.0	0.0
105.00		144.4	601.6					15.0	225.2	159.4	826.7	0.0	0.0
110.00		114.0	583.5					15.2	225.2	129.1	808.6	0.0	0.0
113.00	Appertunance(s)	70.3	341.4	186.3	0.0	0.0	79.2	9.2	135.1	265.8	555.7	0.0	0.0
115.00		96.9	224.0					6.2	80.2	103.1	304.2	0.0	0.0
120.00		109.6	547.3					15.5	200.6	125.1	747.8	0.0	0.0
123.00	Appertunance(s)	67.5	319.7	1,314.8	0.0	0.0	1,432.5	9.4	120.3	1,391.7	1,872.5	0.0	0.0
125.00		92.7	209.5					0.0	57.3	92.7	266.8	0.0	0.0
130.00		130.3	511.1					0.0	143.3	130.3	654.4	0.0	0.0
135.00	Appertunance(s)	127.0	493.0	2,247.6	0.0	2,988.6	3,331.8	0.0	143.3	2,374.6	3,968.1	0.0	0.0
140.00		123.6	474.8					0.0	50.0	123.6	524.8	0.0	0.0
145.00		95.6	456.7					0.0	50.0	95.6	506.7	0.0	0.0
147.92		34.7	258.1					0.0	29.1	34.7	287.2	0.0	0.0
Totals:										12,256.7	43,089.5	0.00	0.00

Site Number: 302468

Code: TIA/EIA-222-F

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Site Name: Petro Lock, CT

Engineering Number: 663406KK2

5/17/2016 9:13:06 AM

Customer: T-MOBILE

Load Case: Twist/Sway	50.00 mph Wind with No Ice	22 Iterations
Gust Response Factor : 1.69		
Dead Load Factor : 1.00		
Wind Load Factor : 1.00		

Calculated Shaft Forces and Deflections

Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	-13.794	-45.264	0.000	0.000	0.000	-1,423.084	0.000	0.000	0.000	0.000
5.00	-13.688	-44.120	0.000	0.000	0.000	-1,354.114	-0.040	0.000	0.040	-0.074
10.00	-13.547	-42.715	0.000	0.000	0.000	-1,285.674	-0.158	0.000	0.158	-0.148
15.00	-13.406	-41.332	0.000	0.000	0.000	-1,217.940	-0.354	0.000	0.354	-0.223
20.00	-13.255	-39.968	0.000	0.000	0.000	-1,150.912	-0.628	0.000	0.628	-0.299
25.00	-13.114	-38.630	0.000	0.000	0.000	-1,084.639	-0.982	0.000	0.982	-0.374
30.00	-12.972	-37.315	0.000	0.000	0.000	-1,019.073	-1.415	0.000	1.415	-0.450
35.00	-12.828	-36.022	0.000	0.000	0.000	-954.214	-1.927	0.000	1.927	-0.526
40.00	-12.677	-34.751	0.000	0.000	0.000	-890.077	-2.519	0.000	2.519	-0.601
45.00	-12.553	-33.506	0.000	0.000	0.000	-826.695	-3.189	0.000	3.189	-0.677
46.83	-12.480	-33.052	0.000	0.000	0.000	-803.681	-3.455	0.000	3.455	-0.705
50.00	-12.369	-31.681	0.000	0.000	0.000	-764.163	-3.939	0.000	3.939	-0.752
53.00	-12.271	-30.399	0.000	0.000	0.000	-727.057	-4.426	0.000	4.426	-0.797
55.00	-12.166	-29.911	0.000	0.000	0.000	-702.516	-4.767	0.000	4.767	-0.827
60.00	-11.988	-28.715	0.000	0.000	0.000	-641.687	-5.671	0.000	5.671	-0.896
65.00	-11.805	-27.542	0.000	0.000	0.000	-581.750	-6.646	0.000	6.646	-0.964
70.00	-11.619	-26.391	0.000	0.000	0.000	-522.726	-7.692	0.000	7.692	-1.030
75.00	-11.442	-25.264	0.000	0.000	0.000	-464.633	-8.804	0.000	8.804	-1.093
79.00	-9.602	-21.736	0.000	0.000	0.000	-418.866	-9.742	0.000	9.742	-1.142
80.00	-9.514	-21.516	0.000	0.000	0.000	-409.264	-9.982	0.000	9.982	-1.154
85.00	-9.344	-20.444	0.000	0.000	0.000	-361.694	-11.223	0.000	11.223	-1.212
89.00	-8.646	-18.732	0.000	0.000	0.000	-324.318	-12.258	0.000	12.258	-1.257
90.00	-8.561	-18.526	0.000	0.000	0.000	-315.672	-12.522	0.000	12.522	-1.268
94.92	-8.459	-17.538	0.000	0.000	0.000	-273.580	-13.856	0.000	13.856	-1.319
95.00	-8.417	-17.510	0.000	0.000	0.000	-272.875	-13.879	0.000	13.879	-1.320
98.00	-7.059	-13.945	0.000	0.000	0.000	-247.624	-14.718	0.000	14.718	-1.350
99.83	-7.013	-13.372	0.000	0.000	0.000	-234.682	-15.240	0.000	15.240	-1.368
100.0	-6.943	-13.342	0.000	0.000	0.000	-233.514	-15.288	0.000	15.288	-1.370
105.0	-6.774	-12.514	0.000	0.000	0.000	-198.799	-16.751	0.000	16.751	-1.422
110.0	-6.632	-11.704	0.000	0.000	0.000	-164.928	-18.267	0.000	18.267	-1.470
113.0	-6.356	-11.153	0.000	0.000	0.000	-145.031	-19.199	0.000	19.199	-1.496
115.0	-6.251	-10.849	0.000	0.000	0.000	-132.318	-19.830	0.000	19.830	-1.513
120.0	-6.111	-10.102	0.000	0.000	0.000	-101.065	-21.435	0.000	21.435	-1.550
123.0	-4.671	-8.267	0.000	0.000	0.000	-82.734	-22.416	0.000	22.416	-1.570
125.0	-4.573	-8.001	0.000	0.000	0.000	-73.393	-23.076	0.000	23.076	-1.581
130.0	-4.427	-7.349	0.000	0.000	0.000	-50.528	-24.745	0.000	24.745	-1.605
135.0	-1.943	-3.449	0.000	0.000	0.000	-25.403	-26.437	0.000	26.437	-1.622
140.0	-1.805	-2.928	0.000	0.000	0.000	-15.689	-28.141	0.000	28.141	-1.632
145.0	-1.695	-2.424	0.000	0.000	0.000	-6.666	-29.854	0.000	29.854	-1.638
147.9	-1.625	0.000	0.000	0.000	0.000	-1.722	-30.855	0.000	30.855	-1.640

Site Number: 302468

Code: TIA/EIA-222-F

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Site Name: Petro Lock, CT

Engineering Number: 663406KK2

5/17/2016 9:13:06 AM

Customer: T-MOBILE

Load Case: Twist/Sway

50.00 mph Wind with No Ice

22 Iterations

Gust Response Factor : 1.69

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Calculated Stresses

Seg Elev (ft)	Applied Stresses							Allowable Stress (Fb) (ksi)	Allowable Stress (Fa) (ksi)	Stress Ratio
	Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)			
0.00	0.68	0.42	0.00	0.00	0.00	18.37	19.06	52.0	0.0	0.367
5.00	0.67	0.42	0.00	0.00	0.00	18.17	18.86	52.0	0.0	0.363
10.00	0.66	0.42	0.00	0.00	0.00	17.95	18.63	52.0	0.0	0.358
15.00	0.66	0.43	0.00	0.00	0.00	17.70	18.37	52.0	0.0	0.353
20.00	0.65	0.43	0.00	0.00	0.00	17.43	18.09	52.0	0.0	0.348
25.00	0.64	0.44	0.00	0.00	0.00	17.13	17.78	52.0	0.0	0.342
30.00	0.63	0.44	0.00	0.00	0.00	16.80	17.44	52.0	0.0	0.336
35.00	0.62	0.45	0.00	0.00	0.00	16.43	17.07	52.0	0.0	0.328
40.00	0.61	0.45	0.00	0.00	0.00	16.03	16.66	52.0	0.0	0.320
45.00	0.60	0.46	0.00	0.00	0.00	15.58	16.21	52.0	0.0	0.312
46.83	0.60	0.46	0.00	0.00	0.00	15.41	16.03	52.0	0.0	0.308
50.00	0.59	0.46	0.00	0.00	0.00	15.09	15.70	52.0	0.0	0.302
53.00	0.56	0.46	0.00	0.00	0.00	14.29	14.88	52.0	0.0	0.286
55.00	0.56	0.46	0.00	0.00	0.00	14.08	14.65	52.0	0.0	0.282
60.00	0.55	0.46	0.00	0.00	0.00	13.49	14.06	52.0	0.0	0.271
65.00	0.54	0.46	0.00	0.00	0.00	12.85	13.42	52.0	0.0	0.258
70.00	0.53	0.47	0.00	0.00	0.00	12.15	12.71	52.0	0.0	0.244
75.00	0.52	0.47	0.00	0.00	0.00	11.38	11.93	52.0	0.0	0.229
79.00	0.46	0.41	0.00	0.00	0.00	10.70	11.18	52.0	0.0	0.215
80.00	0.45	0.40	0.00	0.00	0.00	10.57	11.05	52.0	0.0	0.213
85.00	0.44	0.41	0.00	0.00	0.00	9.87	10.34	52.0	0.0	0.199
89.00	0.42	0.39	0.00	0.00	0.00	9.26	9.70	52.0	0.0	0.187
90.00	0.41	0.39	0.00	0.00	0.00	9.12	9.55	52.0	0.0	0.184
94.92	0.40	0.39	0.00	0.00	0.00	8.36	8.79	52.0	0.0	0.169
95.00	0.40	0.39	0.00	0.00	0.00	8.35	8.78	52.0	0.0	0.169
98.00	0.33	0.33	0.00	0.00	0.00	7.85	8.20	52.0	0.0	0.158
99.83	0.37	0.39	0.00	0.00	0.00	8.77	9.17	52.0	0.0	0.176
100.00	0.37	0.39	0.00	0.00	0.00	8.75	9.14	52.0	0.0	0.176
105.00	0.36	0.39	0.00	0.00	0.00	7.91	8.30	52.0	0.0	0.160
110.00	0.35	0.40	0.00	0.00	0.00	6.98	7.36	52.0	0.0	0.142
113.00	0.34	0.39	0.00	0.00	0.00	6.38	6.75	52.0	0.0	0.130
115.00	0.33	0.39	0.00	0.00	0.00	5.98	6.34	52.0	0.0	0.122
120.00	0.32	0.39	0.00	0.00	0.00	4.88	5.24	52.0	0.0	0.101
123.00	0.27	0.30	0.00	0.00	0.00	4.16	4.46	52.0	0.0	0.086
125.00	0.26	0.30	0.00	0.00	0.00	3.79	4.09	52.0	0.0	0.079
130.00	0.25	0.30	0.00	0.00	0.00	2.81	3.10	52.0	0.0	0.060
135.00	0.12	0.14	0.00	0.00	0.00	1.52	1.66	52.0	0.0	0.032
140.00	0.11	0.13	0.00	0.00	0.00	1.01	1.14	52.0	0.0	0.022
145.00	0.09	0.13	0.00	0.00	0.00	0.47	0.60	52.0	0.0	0.012
147.92	0.00	0.13	0.00	0.00	0.00	0.13	0.25	52.0	0.0	0.005

Site Number: 302468

Code: TIA/EIA-222-F

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Site Name: Petro Lock, CT

Engineering Number: 663406KK2

5/17/2016 9:13:06 AM

Customer: T-MOBILE

Analysis Summary

Load Case	Reactions						Max Stresses			
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Combined Stress (ksi)	Allowable Stress (ksi)	Elev (ft)	Stress Ratio
No Ice	35.3	0.00	45.21	0.00	0.00	3640.31	47.71	52.0	0.00	0.918
Ice	25.7	0.00	52.68	0.00	0.00	2690.75	35.55	52.0	0.00	0.684
Twist/Sway	13.8	0.00	45.26	0.00	0.00	1423.08	19.06	52.0	0.00	0.367

Site Number: 302468

Code: TIA/EIA-222-F

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Site Name: Petro Lock, CT

Engineering Number: 663406KK2

5/17/2016 9:13:06 AM

Customer: T-MOBILE

Base Summary

Reactions

Original Design			Analysis			
Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment Design %
2,489.00	36.10	23.90	3,640.31	52.68	35.31	146.26

Base Plate

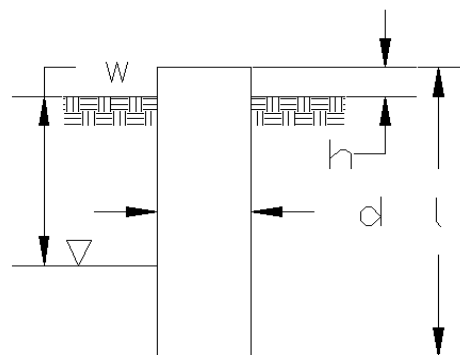
Yield (ksi)	Thick (in)	Width (in)	Style	Poly Sides	Clip Len (in)	Effective Len (in)	Moment (kip-in)	Allow Stress (ksi)	Applied Stress (ksi)	Stress Ratio
60.0	2.500	69.000	Round	0	0.00	11.224	340.23	60.00	29.10	0.49

Anchor Bolts

Bolt Circle	Num Bolts	Bolt Type	Bolt Dia (in)	Yield (ksi)	Ultimate (ksi)	Arrange	Cluster Dist (in)	Start Angle (deg)	Compression			Tension		
									Force (kip)	Allow (kip)	Ratio	Force (kip)	Allow (kip)	Ratio
63.00	16	2.25" 18J	2.25	75.00	100.00	Radial	0.00	0.0	176.64	195.00	0.91	170.06	195.00	0.87

Site Name: Petro Lock, CT
 Site Number: 302468
 Engineer: AT
 Engineering Number: 663406KK2
 Date: 05/17/16

Program Last Updated: 5/13/2014
 American Tower Corporation



Design Base Loads (Unfactored) - Analysis per TIA-222-F Standards

Analyze or Design a Foundation? Analyze
 Foundation Mapped: N
 Moment (M): 3640.3 k-ft
 Shear/Leg (V): 35.3 k
 Axial Load (P): 45.2 k
 Uplift/Leg (U): 0.0 k
 Tower Type (GT / SST / MP): MP

Diameter of Caisson (d): 7.0 ft
 Caisson Embedment (L-h): 33.5 ft
 Caisson Height Above Ground (h): 0.5 ft
 Depth Below Ground Surface to Water Table (w): 7.0 ft
 Unit Weight of Concrete: 150.0 pcf
 Unit Weight of Water: 62.4 pcf
 Tension Skin Friction/Compression Skin Friction: 1.00
 Pullout Angle: 30.0 degrees

Engineer Notes

Soil Mechanical Properties

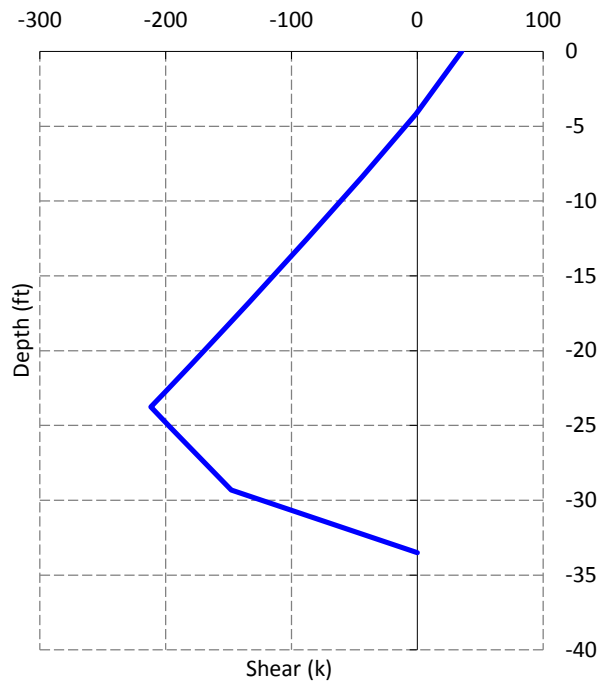
Depth (ft)		γ_{Soil}	Cohesion	ϕ	Allowable Skin	Allowable Bearing
Top	Bottom	(pcf)	(psf)	(degree)	Friction (psf)	Pressure (psf)
0.0	4.0	100	0	0	0	0
4.0	26.0	110	2880		1440	
26.0	33.5	120	10080		5040	40000

Required Embedment: 20.1 ft - OK, Caisson Embedment Satisfactory
 Volume of Concrete: 1308.5 ft³ = 48.5 yd³
 Weight of Concrete (Buoyancy Effect Considered): 132.6 k
 Average Soil Unit Weight: 61.7 pcf
 Skin Friction Resistance: 1527.9 k
 Compressive Bearing Resistance: 1539.4 k
 Pullout Weight (Minus Concrete Weight): 1248.9 k
 Allowable Uplift Capacity (U_{Allow}): 730.6 k
 Allowable Compressive Capacity (P_{Allow}): 3067.3 k
 Compressive Design Load (P): 95.4 k
 U / U_{Allow} : 0.00 Result: OK
 P / P_{Allow} : 0.03 Result: OK
 Total Lateral Resistance: 5818.2 k
 Inflection Point (Below Ground Surface): 23.8 ft
 Design Overturning Moment At Inflection Point (M_D): 4496.7 k-ft
 Nominal Moment Capacity (M_{Allow}): 46061.8 k-ft
 M_{Allow} / M_D Factor of Safety: 10.24 Result: OK

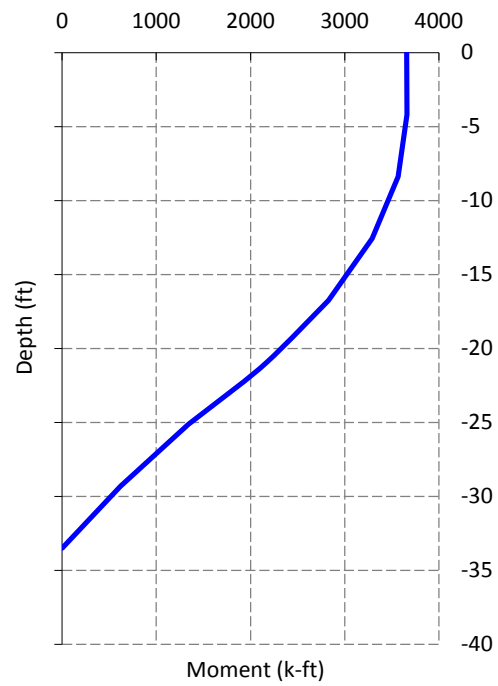
Caisson Strength Capacity

Concrete Compressive Strength (f'_c):	3000 psi
Vertical Steel Rebar Size #:	11
Vertical Steel Rebar Area:	1.56 in ²
Design # of Vertical Steel Rebars:	21
Vertical Steel Rebar Yield Strength (F_y):	60 ksi
Horizontal Tie / Stirrup Size #:	5
Horizontal Tie / Stirrup Area:	0.31 in ²
Design Horizontal Tie / Stirrup Spacing:	18.0 in
Horizontal Tie / Stirrup Steel Yield Strength (F_y):	60 ksi
Rebar Cage Diameter:	76.0 in
Strength Bending/Tension Reduction Factor (ϕ_B):	0.90 ACI318-05 - 9.3.2.1
Strength Shear Reduction Factor (ϕ_V):	0.75 ACI318-05 - 9.3.2.3
Strength Compression Reduction Factor (ϕ_P):	0.65 ACI318-05 - 9.3.2.2
Wind Design Factor:	1.30 ACI318-05 - 9.2.1
Steel Elastic Modulus:	29000 ksi
Design Moment (M_u):	4759.4 k-ft
Nominal Moment Capacity ($\phi_B M_n$):	4963.4 k-ft - ACI318-005 - 10.2
$M_u / \phi_B M_n$:	0.96 Result: OK
Design Shear (V_u):	275.3 k
Nominal Shear Capacity ($\phi_V V_n$):	457.2 k - ACI318-05 - 11.3.1.1 or 11.5.7.2
$V_u / \phi_V V_n$:	0.60 Result: OK
Design Tension (T_u):	0.0 k
Nominal Tension Capacity ($\phi_T T_n$):	1769.0 k - ACI318-05 - 10.2
$T_u / \phi_T T_n$:	0.00 Result: OK
Design Compression (P_u):	124.1 k
Nominal Compression Capacity ($\phi_P P_n$):	7304.9 k - ACI318-05 - 10.3.6.2
$P_u / \phi_P P_n$:	0.02 Result: OK
Bending Reinforcement Ratio:	0.006 ACI318-05 - 10.8.4 & 10.9.1
$M_u / \phi_B M_n + T_u / \phi_T T_n$:	0.96 Result: OK

Design Unfactored Shear / Depth



Design Unfactored Moment / Depth



Nominal and Factored Moment Capacity and Factored Design Loads

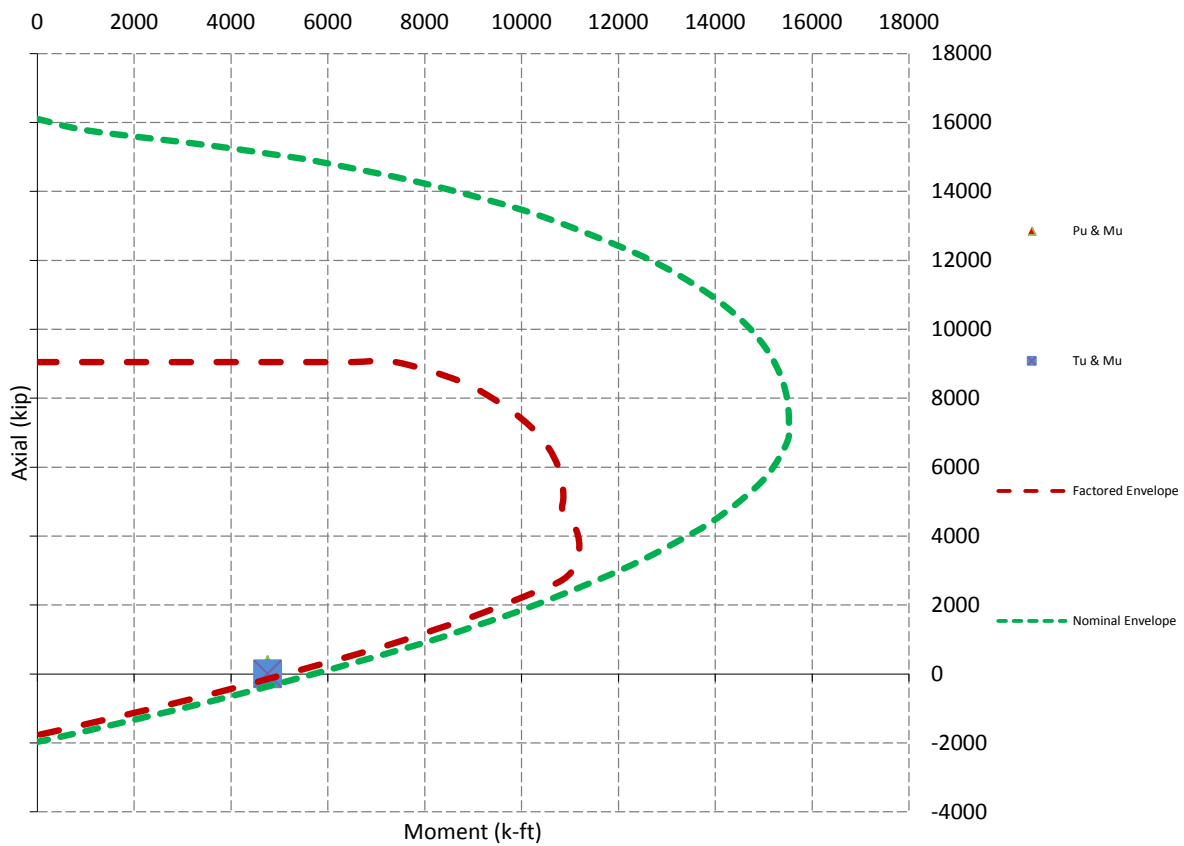


Exhibit E



RADIO FREQUENCY EMISSIONS ANALYSIS REPORT EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CT11661A

Hartford South 2/Frnkln Av.
99 Meadow Street
Hartford, CT 06114

May 15, 2016

EBI Project Number: 6216002334

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	10.29 %



May 15, 2016

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CT11661A – Hartford South 2/Frnklin Av.**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **99 Meadow Street, Hartford, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

General population/uncontrolled exposure limits apply to situations in which the general 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.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limit for the 700 MHz Band is approximately 467 $\mu\text{W}/\text{cm}^2$, and the general population exposure limit for the PCS and AWS bands is 1000 $\mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



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.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **99 Meadow Street, Hartford, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

- 1) 2 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel
- 2) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 3) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel
- 4) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 5) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel
- 6) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.



- 7) Since some radios are ground mounted there are additional cabling losses accounted for the passive antennas. For each passive RF path the following losses were calculated. 0.90 dB of additional cable loss for all 700 MHz Channels, 1.66 dB of additional cable loss for all 1900 MHz channels and 1.71 dB of additional cable loss for all 2100 MHz channels. This is based on manufacturers Specifications for 161 feet of 1-5/8" coax cable on each path. The passive antennas on this site are the RFS APX16DWV-16DWVS-E-A20 and the Commscope LNX-6515DS-VTM
- 8) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 9) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 10) The antennas used in this modeling are the **Ericsson AIR32 B4A/B2A** for 1900 MHz (PCS) and 2100 MHz (AWS) channels, **RFS APX16DWV-16DWVS-E-A20** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Ericsson AIR32 B4A/B2A** has a maximum gain of **15.9 dBd** at its main lobe. The **RFS APX16DWV-16DWVS-E-A20** has a maximum gain of **16.3 dBd** at its main lobe. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 11) The antenna mounting height centerline of the proposed antennas is **123 feet** above ground level (AGL).
- 12) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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



T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR32 B4A/B2A	Make / Model:	Ericsson AIR32 B4A/B2A	Make / Model:	Ericsson AIR32 B4A/B2A
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	123	Height (AGL):	123	Height (AGL):	123
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	9,337.08	ERP (W):	9,337.08	ERP (W):	9,337.08
Antenna A1 MPE%	2.45	Antenna B1 MPE%	2.45	Antenna C1 MPE%	2.45
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	123	Height (AGL):	123	Height (AGL):	123
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	6	Channel Count	6	Channel Count	6
Total TX Power(W):	180	Total TX Power(W):	180	Total TX Power(W):	180
ERP (W):	5,219.30	ERP (W):	5,219.30	ERP (W):	5,219.30
Antenna A2 MPE%	1.37	Antenna B2 MPE%	1.37	Antenna C2 MPE%	1.37
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	123	Height (AGL):	123	Height (AGL):	123
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power(W):	30	Total TX Power(W):	30	Total TX Power(W):	30
ERP (W):	703.27	ERP (W):	703.27	ERP (W):	703.27
Antenna A3 MPE%	0.40	Antenna B3 MPE%	0.40	Antenna C3 MPE%	0.40

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	4.22 %
MetroPCS	1.06 %
AT&T	2.38 %
Nextel	0.26 %
Clearwire	0.27 %
Sprint	2.10 %
Site Total MPE %:	10.29 %

T-Mobile Sector 1 Total:	4.22 %
T-Mobile Sector 2 Total:	4.22 %
T-Mobile Sector 3 Total:	4.22 %
Site Total:	10.29 %

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 2100 MHz (AWS) LTE	2	2334.27	123	12.23	2100	1000	1.23 %
T-Mobile 1900 MHz (PCS) LTE	2	2334.27	123	12.26	1900	1000	1.23 %
T-Mobile 1900 MHz (PCS) UMTS / GSM	4	873.22	123	9.17	1900	1000	0.92 %
T-Mobile 2100 MHz (AWS) UMTS	2	863.22	123	4.53	2100	1000	0.45 %



T-Mobile 700 MHz LTE	1	703.27	123	1.85	700	467	0.40 %
						Total:	4.22%

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector 1:	4.22 %
Sector 2:	4.22 %
Sector 3:	4.22 %
T-Mobile Per Sector Maximum:	4.22 %
Site Total:	10.29 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **10.29%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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