EMPIRE telecom

July 22, 2019

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

Regarding:	Notice of Exempt Modification – Equipment Modification
Property Address:	302 Ball Pond Road, New Fairfield, CT 06812 (the "Property")
Applicant:	AT&T Mobility ("AT&T", Site # CT2070)

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 175-foot monopole at the above-referenced address, latitude 41.46477778°, longitude -73.49694444°. Said monopole and the underlying property owner is the Town of New Fairfield.

AT&T desires to modify its existing telecommunications facility by swapping three (3) antennas and upgrading ancillary equipment as follow: adding (6) remote-radio heads ("RRHs"), adding one (1) DC Surge Suppressor and associated cabling. The centerline height of the existing antennas and ancillary tower-mounted equipment is and will remain at 135 feet.

Please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16-50j-72 (b)(2). In accordance with R.C.S.A. §16-50j-73, a copy of this letter is being sent to the Honorable Pat Del Monaco, First Selectman of the Town of New Fairfield; Even White, as Zoning Enforcement Officer of the Town of New Fairfield.

The planned modifications to AT&T's facility fall squarely within those activities explicitly provided for in R.C.S.A. §16-50j-72 (b)(2). Specifically:

1. The planned modification will not result in an increase in the height of the existing structure. The modified equipment will be installed at the existing height of 135 feet on the 175 foot monopole.

2. The proposed modifications will not involve any changes to AT&T's ground-space footprint, and therefore and therefore will not require an extension of the site boundary.

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

4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above Federal Communications Commission (FCC) safety standard. An RF emissions calculation (enclosed) for AT&T's modified facility is herein provided.

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 AT&T's proposed modifications. Please see enclosed structural analysis completed by Maser Consulting- Connecticut, dated July 22, 2019.

For the foregoing reasons, AT&T respectfully requests that the proposed installation be allowed within the exempt modifications under R.C.S.A. §16-50j-72 (b)(2).

Sincerely,

Michelle Scharath

Michelle Scharath
Site Acquisition Specialist
Empire Telecom USA, LLC

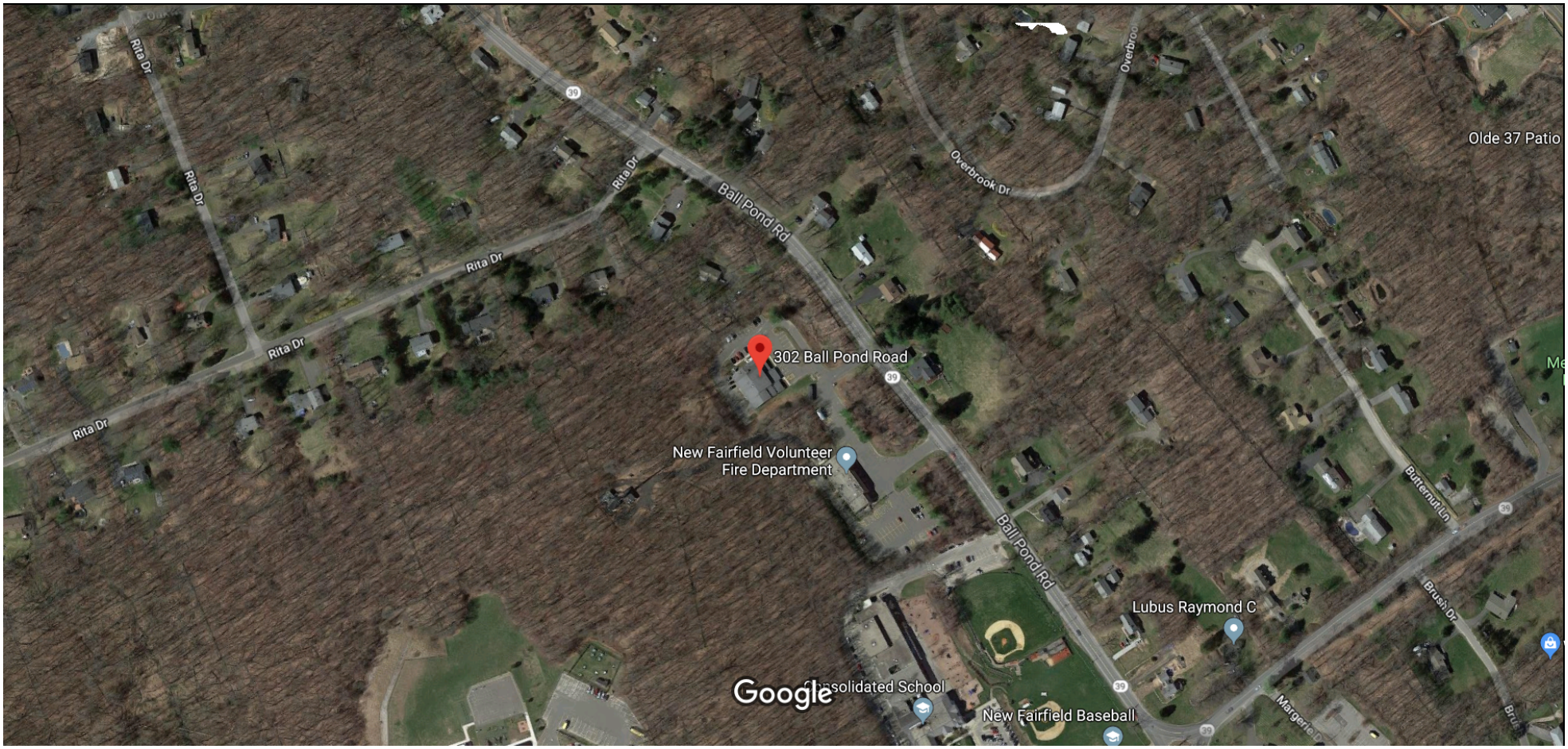
Enclosures: Exhibit 1 – GIS Map
Exhibit 2 – Construction Drawings
Exhibit 3 – Structural Analysis
Exhibit 4 – RF Emissions Analysis Report Evaluation

cc:

Hon. Pat Del Monaco
New Fairfield Town Hall
4 Brush Hill Road
New Fairfield, CT 06812

Evan White
Zoning Enforcement Officer
New Fairfield Town Hall
4 Brush Hill Road
New Fairfield, CT 06812

Google Maps 302 Ball Pond Rd



Imagery ©2019 Google, Map data ©2019 Google 200 ft

PROJECT NOTES

1. SITE INFORMATION OBTAINED FROM THE FOLLOWING:
   A. PLAN ENTITLED "NEW FAIRFIELD CTR" PREPARED BY VRG OF AUBURN, MA LAST REVISED 10/31/2016.
   B. LIMITED FIELD OBSERVATION BY MASER CONSULTING ON 9/21/2018.
2. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITY COMPANIES OR OTHER PUBLIC/GOVERNING AUTHORITIES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
4. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE AS A RESULT OF CONSTRUCTION OF THIS FACILITY AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
6. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
7. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING THE BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND CONSTRUCTION DRAWINGS.
8. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THESE DRAWINGS MUST BE VERIFIED. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
9. SINCE THE CELL SITE MAY BE ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE REQUIRED TO BE WORN TO ALERT OF ANY POTENTIALLY DANGEROUS EXPOSURE LEVELS.
10. THE PROPOSED FACILITY WILL CAUSE AN INSIGNIFICANT OR "DE-MINIMUS" INCREASE IN STORM WATER RUNOFF, THEREFORE, NO DRAINAGE STRUCTURES ARE PROPOSED.
11. NO NOISE, SMOKE, DUST OR ODOR WILL RESULT FROM THIS FACILITY AS TO CAUSE A NUISANCE.
12. THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION (NO HANDICAP ACCESS IS REQUIRED).
13. THE FACILITY DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.
14. CONTRACTOR SHALL VERIFY ANTENNA ELEVATION AND AZIMUTHS WITH RF ENGINEERING PRIOR TO INSTALLATION.
15. THE TOWER, MOUNTS AND ANTENNAS SHALL BE DESIGNED TO MEET EIA/TIA-222-H AS PER IBC REQUIREMENTS.
16. CONTRACTOR MUST FIELD LOCATE ALL EXISTING UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION.
17. CONSTRUCTION SHALL NOT COMMENCE UNTIL COMPLETION OF A PASSING STRUCTURAL ANALYSIS CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER. THE STRUCTURAL ANALYSIS IS TO BE PERFORMED BY OTHERS.

at&t

SITE NAME: NEW FAIRFIELD SR37-SR39
FA NUMBER: 10035312
SITE NUMBER: CT2070
LTE - 3C/4C
302 BALL POND ROAD
NEW FAIRFIELD, CT 06812
FAIRFIELD COUNTY

VICINITY MAP

CODE COMPLIANCE

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

1. 2018 CONNECTICUT STATE BUILDING CODE, INCORPORATING THE 2015 IBC
2. 2017 NATIONAL ELECTRICAL CODE - NFPA 70
3. 2017 NFPA 101
4. AMERICAN INSTITUTE OF STEEL CONSTRUCTION 360-10
5. AMERICAN CONCRETE INSTITUTE
6. TIA-222-G
7. TIA 607 FOR GROUNDING
8. INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS 81 IEEE C2 LATEST EDITION
9. TELCORDIA GR-1275
10. ANSI T1.311
11. PROPOSED USE: UNMANNED TELECOM FACILITY
12. HANDICAP REQUIREMENTS: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS NOT REQUIRED.
13. CONSTRUCTION TYPE: IIB
14. USE GROUP: U

PROJECT INFORMATION

SITE INFORMATION

LATITUDE:	41.4647169° N
LONGITUDE:	73.4969519° W
JURISDICTION:	TOWN OF NEW FAIRFIELD

APPLICANT/LESSEE

COMPANY:	NEW CINGULAR WIRELESS PCS, LLC
ADDRESS:	550 COCHITUATE ROAD
CITY, STATE, ZIP:	FRAMINGHAM, MA 01701

STRUCTURE OWNER

COMPANY:	TOWN OF NEW FAIRFIELD
ADDRESS:	4 BRUSH HILL ROAD
CITY, STATE, ZIP:	NEW FAIRFIELD, CT 06812

CLIENT REPRESENTATIVE

COMPANY:	EMPIRE TELECOM
ADDRESS:	16 ESQUIRE ROAD
CITY, STATE, ZIP:	BILLERICA, MA 01862
CONTACT:	DAVID COOPER
E-MAIL:	DCOOPER@EMPIRETELECOM.COM

SITE ACQUISITION

COMPANY:	EMPIRE TELECOM
ADDRESS:	16 ESQUIRE ROAD
CITY, STATE, ZIP:	BILLERICA, MA 01862
CONTACT:	DAVID COOPER
E-MAIL:	DCOOPER@EMPIRETELECOM.COM

ENGINEER

COMPANY:	MASER CONSULTING CONNECTICUT
ADDRESS:	331 NEWMAN SPRINGS ROAD
CITY, STATE, ZIP:	RED BANK, NJ 07701-5669
CONTACT:	ROBERT ANDREWS
PHONE:	(856) 797-0412
E-MAIL:	RANDREWS@MASERCONSULTING.COM

PROJECT DESCRIPTION/ SCOPE OF WORK

- INSTALL (6) NEW RRU'S, (2) PER SECTOR
- INSTALL (3) NEW PANEL ANTENNAS, (1) PER SECTOR
- REMOVE (3) EXISTING PANEL ANTENNAS, (1) PER SECTOR
- REMOVE (6) DIPLEXERS, (2) PER SECTOR
- REMOVE (6) TMA's, (2) PER SECTOR
- INSTALL (1) NEW DC-6 SURGE SUPPRESSION DOME
- INSTALL (1) NEW 18-PAIR FIBER CABLE
- INSTALL (1) NEW FIBER SLACK BOX, AT GRADE
- INSTALL (2) NEW 6/C DC CABLES
- SWITCH BB TO 5216
- INSTALL NEW BB 6630

PROPOSED PROJECT SCOPE BASED ON RFDS ID# 2454216, VERSION 4.00, LAST UPDATED 2/15/19.

SHEET INDEX

SHEET	DESCRIPTION
T-1	TITLE SHEET
GN-1	GENERAL NOTES
C-1	COMPOUND PLAN
C-2	EQUIPMENT LAYOUT AND ELEVATION VIEW
C-3	ANTENNA LAYOUTS AND ANTENNA SCHEDULE
A-1	CONSTRUCTION DETAILS
A-2	CONSTRUCTION DETAILS
A-3	RF PLUMBING DIAGRAM
G-1	GROUNDING DETAILS AND NOTES

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16 ESQUIRE ROAD
BILLERICA, MA 01862

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE :	JOB NUMBER :
AS SHOWN	18963030A

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2	04/26/19	REVISED PER COMMENTS	AJC	RA
1	3/5/19	ISSUED FOR REVIEW	AJC	RA

STATE OF CONNECTICUT · PETROS TSOUKALAS · 32577 · LICENSED PROFESSIONAL ENGINEER

PETROS E. TSOUKALAS
CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER: 32577

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE NAME:

NEW FAIRFIELD SR37-SR39
FA# 10035312
SITE# CT2070

302 BALL POND ROAD
NEW FAIRFIELD, CT 06812
FAIRFIELD COUNTY

RED BANK OFFICE
331 Newman Springs Road
Suite 203
Red Bank, NJ 07701-5669
Phone: .732.383.1950
Fax: .732.383.1984
email: solutions@maserconsulting.com

SHEET TITLE : TITLE SHEET

SHEET NUMBER : T-1

GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5O HMS OR LESS.
4. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
5. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
6. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
7. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE EQUIPMENT GROUND RING WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
8. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
9. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
10. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
11. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED. ALL BENDS SHALL BE MADE WITH 12" RADIUS OR LARGER.
12. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
13. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS EXCEPT FOR GROUND BAR CONNECTION FROM MGB TO OUTSIDE EXTERIOR GROUND SHALL ALL BE CADWELD CONNECTIONS.
14. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
15. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED TO THE TOWER GROUND BAR.
16. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
17. ALL EXTERIOR AND INTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
18. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
19. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
20. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G. NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
21. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/4" IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50.
22. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

    CONTRACTOR - EMPIRE TELECOM
    SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
    OWNER - AT&T (NEW CINGULAR WIRELESS PCS, LLC)

23. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
24. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
25. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
26. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
27. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
28. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
29. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
30. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
31. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
32. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE RESPONSIBLE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION.
33. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
34. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION.
35. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
36. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
37. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
38. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
39. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
40. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
41. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
42. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR.
43. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
44. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
45. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS.
46. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
47. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
48. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
49. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION, ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
50. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN ALERT OF DANGEROUS EXPOSURE LEVELS.

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT:
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SCALE :	JOB NUMBER :
AS SHOWN	18963030A

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
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2	04/26/19	REVISED PER COMMENTS	AJC	RA
1	3/5/19	ISSUED FOR REVIEW	AJC	RA

PETROS E. TSOUKALAS
CONNECTICUT PROFESSIONAL
ENGINEER - LICENSE NUMBER: 32577

STATE OF CONNECTICUT
PETROS TSOUKALAS
32577
LICENSED PROFESSIONAL ENGINEER

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE NAME:

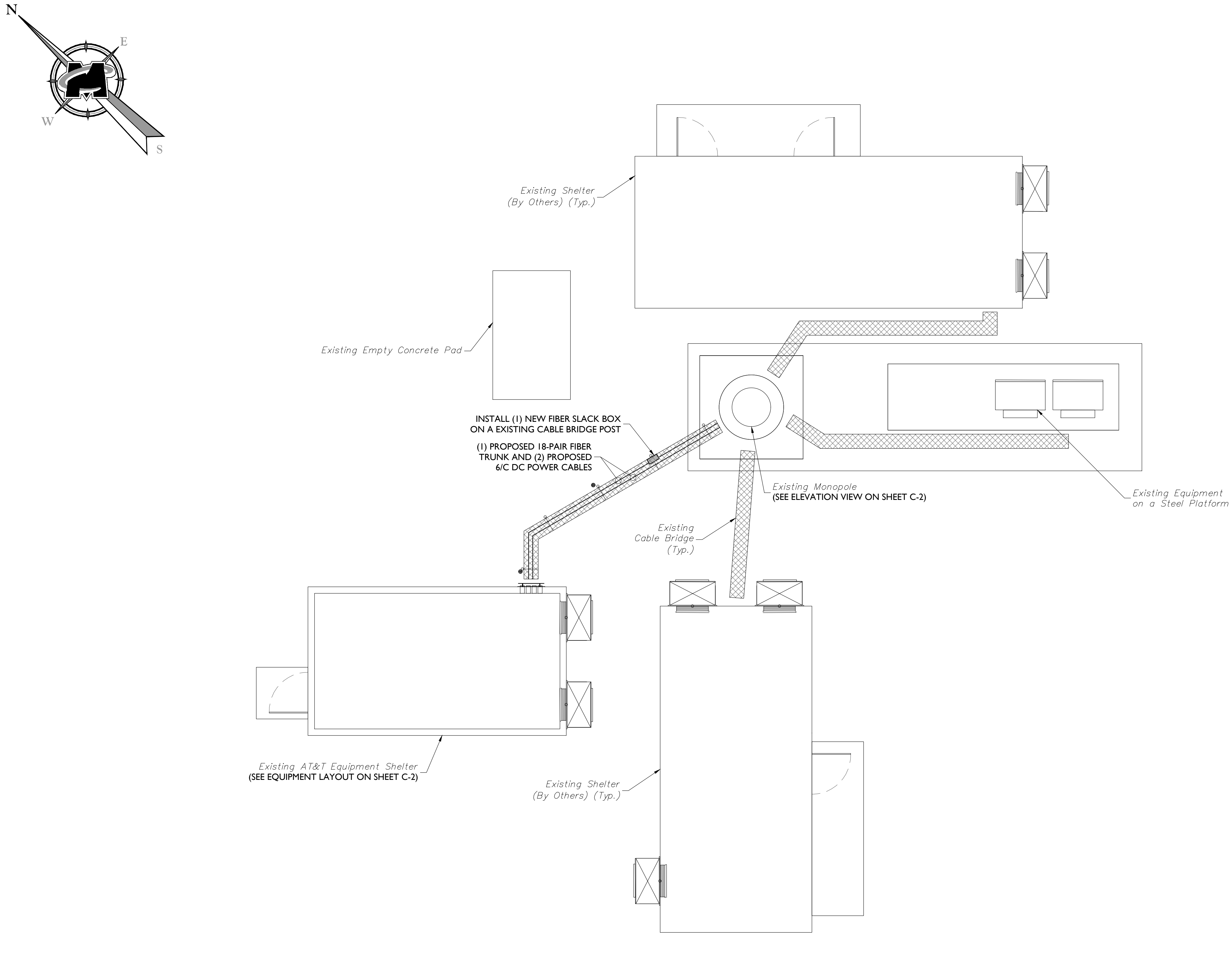
NEW FAIRFIELD SR37-SR39
FA# 10035312
SITE# CT2070

302 BALL POND ROAD
NEW FAIRFIELD, CT 06812
FAIRFIELD COUNTY

RED BANK OFFICE
331 Newman Springs Road
Suite 203
Red Bank, NJ 07701-5669
Phone: .732.383.1950
Fax: .732.383.1984
email: solutions@maserconsulting.com

SHEET TITLE :
GENERAL NOTES

SHEET NUMBER :
GN-1



COMPOUND PLAN

4 0 4 8

SCALE : 1" = 4' FOR 22"X34"
(SCALE : 1" = 8' FOR 11"X17")

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2	04/26/19	REVISED PER COMMENTS	AJC	RA
1	3/5/19	ISSUED FOR REVIEW	AJC	RA

STATE OF CONNECTICUT
PETROS E. TSOUKALAS
CONNECTICUT PROFESSIONAL ENGINEER LICENSE NUMBER: 32577
32577
PROFESSIONAL ENGINEER

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SITE NAME:

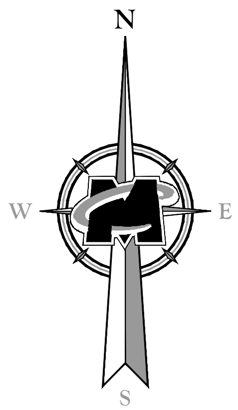
NEW FAIRFIELD SR37-SR39
FA# 10035312
SITE# CT2070

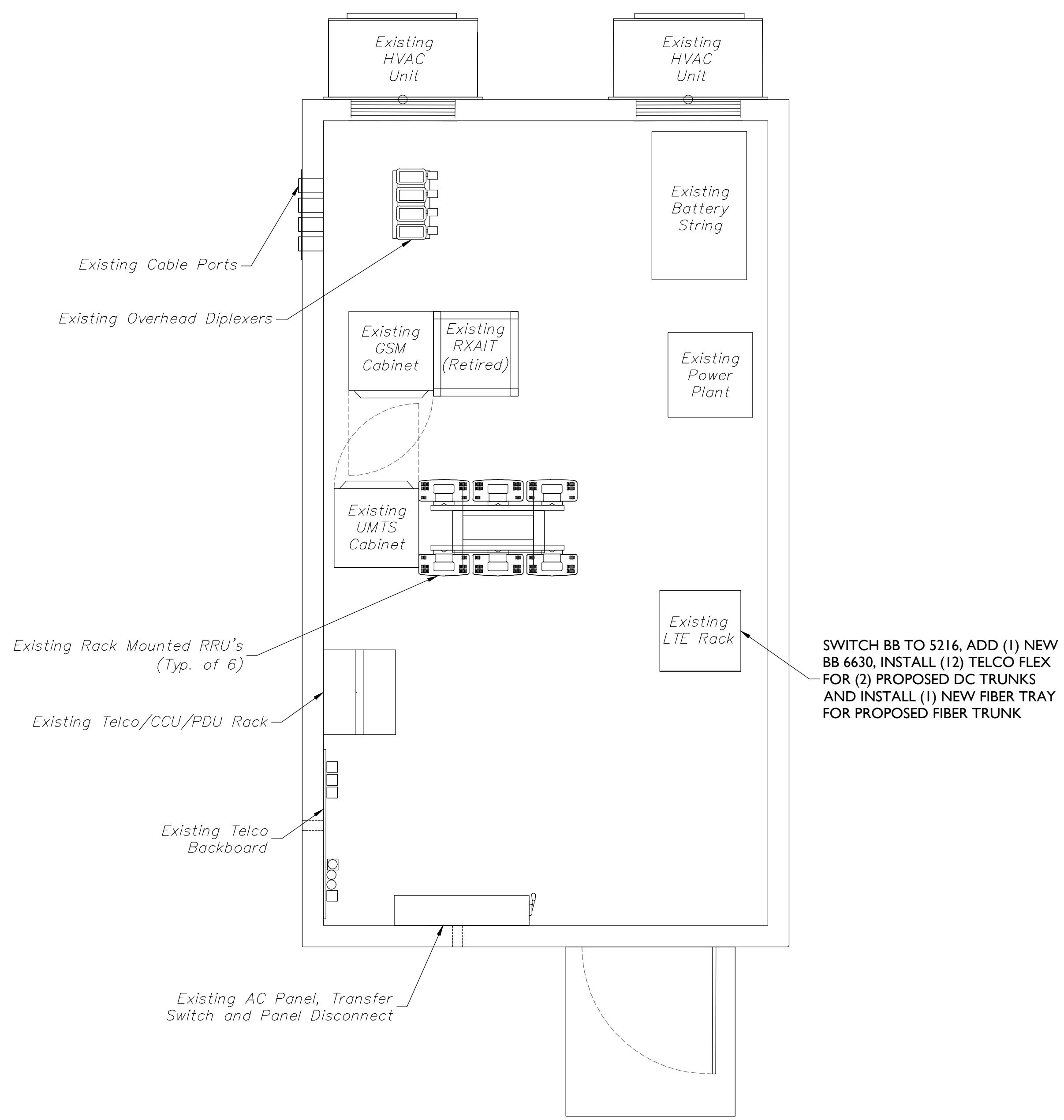
302 BALL POND ROAD
NEW FAIRFIELD, CT 06812
FAIRFIELD COUNTY

RED BANK OFFICE
331 Newman Springs Road
Suite 203
Red Bank, NJ 07701-5669
Phone: .732.383.1950
Fax: .732.383.1984
email: solutions@maserconsulting.com

SHEET TITLE :
COMPOUND PLAN

SHEET NUMBER :
C-1



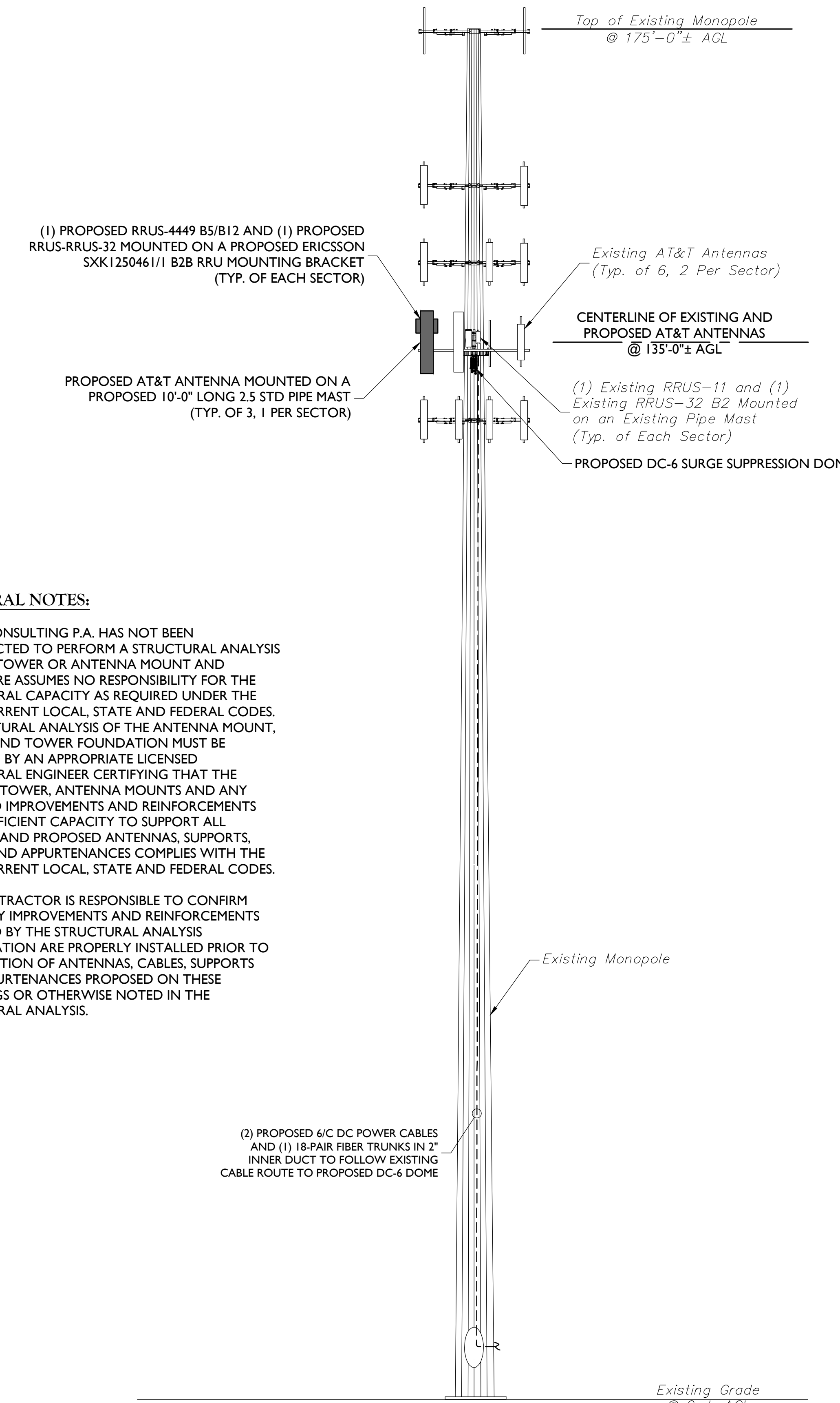


EQUIPMENT LAYOUT

SCALE : 1" = 2' FOR 22"X34"
(SCALE : 1" = 4' FOR 11"X17")

STRUCTURAL NOTES:

1. MASER CONSULTING P.A. HAS NOT BEEN CONTRACTED TO PERFORM A STRUCTURAL ANALYSIS ON THIS TOWER OR ANTENNA MOUNT AND THEREFORE ASSUMES NO RESPONSIBILITY FOR THE STRUCTURAL CAPACITY AS REQUIRED UNDER THE MOST CURRENT LOCAL, STATE AND FEDERAL CODES. A STRUCTURAL ANALYSIS OF THE ANTENNA MOUNT, TOWER AND TOWER FOUNDATION MUST BE PREPARED BY AN APPROPRIATE LICENSED STRUCTURAL ENGINEER CERTIFYING THAT THE EXISTING TOWER, ANTENNA MOUNTS AND ANY REQUIRED IMPROVEMENTS AND REINFORCEMENTS HAVE SUFFICIENT CAPACITY TO SUPPORT ALL EXISTING AND PROPOSED ANTENNAS, SUPPORTS, CABLES AND APPURTENANCES COMPLIES WITH THE MOST CURRENT LOCAL, STATE AND FEDERAL CODES.
2. THE CONTRACTOR IS RESPONSIBLE TO CONFIRM THAT ANY IMPROVEMENTS AND REINFORCEMENTS REQUIRED BY THE STRUCTURAL ANALYSIS CERTIFICATION ARE PROPERLY INSTALLED PRIOR TO THE ADDITION OF ANTENNAS, CABLES, SUPPORTS AND APPURTENANCES PROPOSED ON THESE DRAWINGS OR OTHERWISE NOTED IN THE STRUCTURAL ANALYSIS.



ELEVATION VIEW

SCALE : 1" = 10' FOR 22"X34"
(SCALE : 1" = 20' FOR 11"X17")

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PETROS E. TSOUKALAS
CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER: 32577

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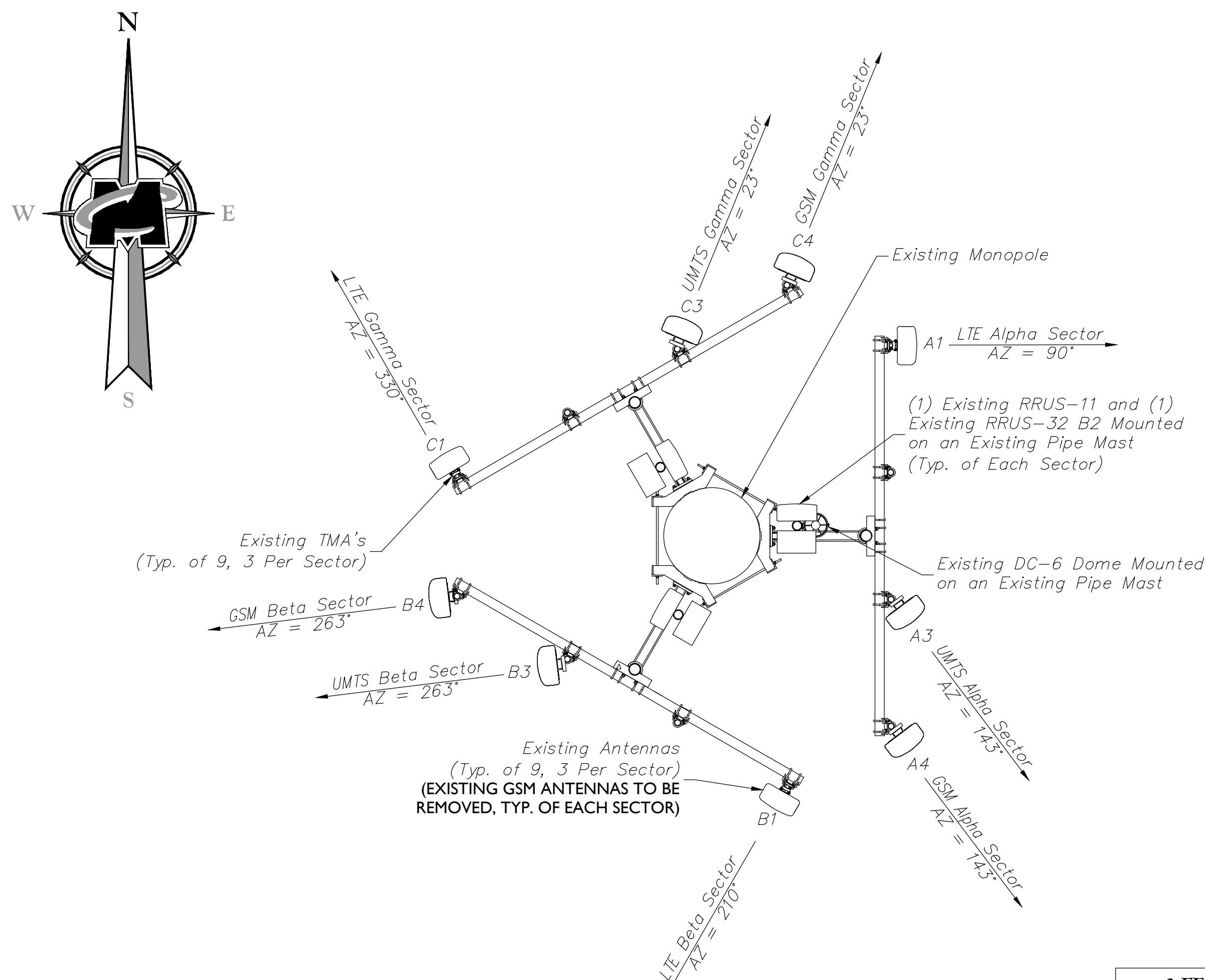
SHEET TITLE :
EQUIPMENT LAYOUT AND ELEVATION VIEW

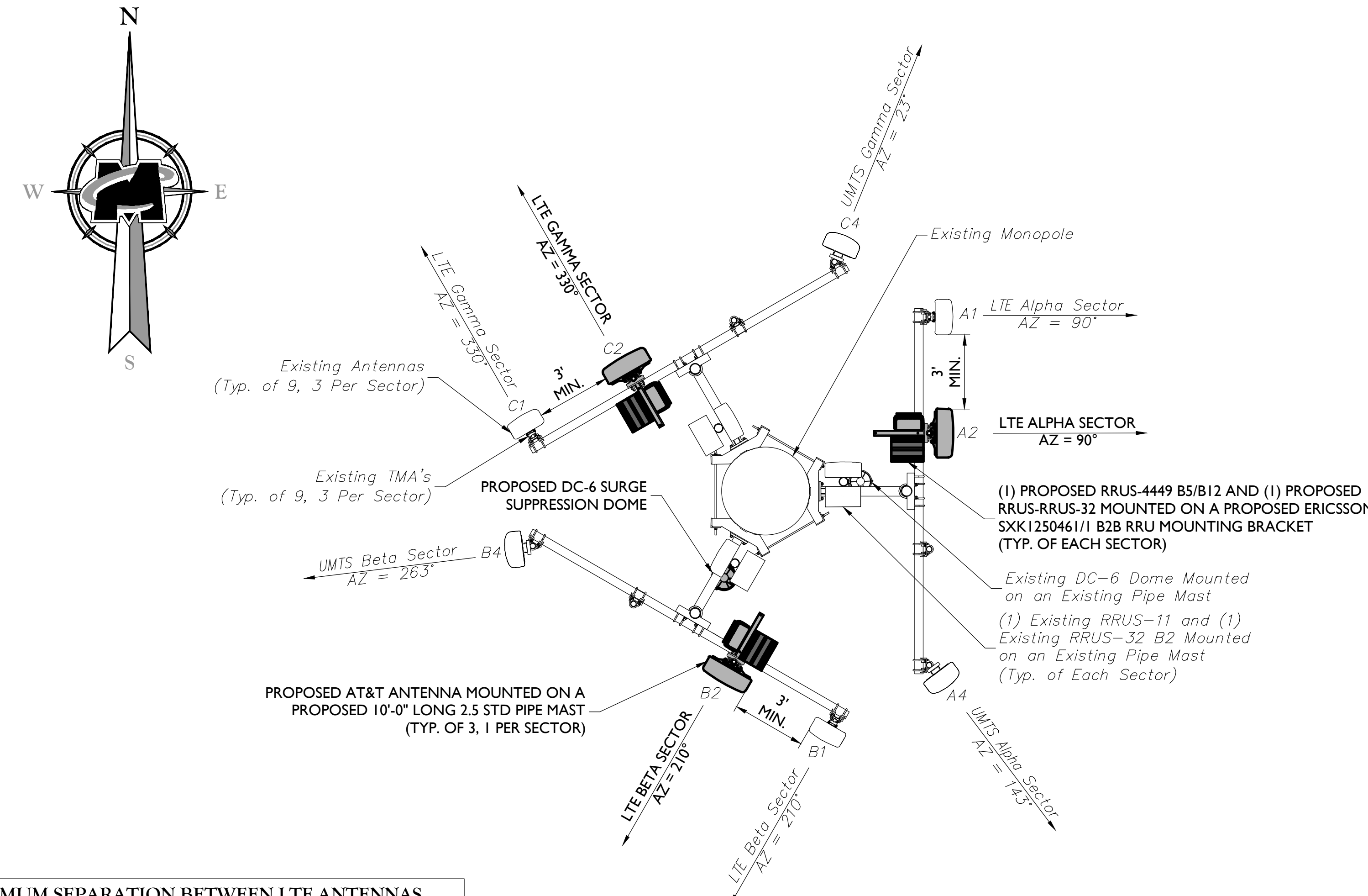
SHEET NUMBER :
C-2



EXISTING ANTENNA LAYOUT

NOT TO SCALE

3 FEET MINIMUM SEPARATION BETWEEN LTE ANTENNAS
6 FEET MINIMUM SEPARATION BETWEEN 700BC & 700 DE
8 INCH MINIMUM SEPARATION FROM BACK OF PANEL ANTENNA TO EXISTING/PROPOSED EQUIPMENT



PROPOSED ANTENNA LAYOUT

NOT TO SCALE

ANTENNA SCHEDULE

SECTOR		EXISTING ANTENNA	PROPOSED ANTENNA	TECHNOLOGY	ANTENNA STATUS	HEIGHT (in)	WIDTH (in)	DEPTH (in)	WEIGHT (lbs)	ANTENNA AZIMUTH (DEG.)	ANT. CL. ELEV. (ft.)	REMOTE RADIO/TMA CONFIGURATION	TRANSMISSION CABLE QUANTITY	TRANSMISSION CABLE TYPE	TRANSMISSION CABLE STATUS
Sector 1	1	CCI HPA-65R-BUU-H8	CCI HPA-65R-BUU-H8	LTE	EXISTING	92.80	14.40	7.30	65.60	90	135'	(1) RRUS-32 B2 (EXISTING)	1/2	FIBER/DC	EXISTING
Sector 1	2		**KATHREIN 80010966**	**LTE**	**PROPOSED**	**96.00**	**20.00**	**6.90**	**125.70**	**90**	**135'**	**(1) B5/B12 4449 (PROPOSED) (1) RRUS-32 (PROPOSED)**	**1/2**	**FIBER/DC**	**SHARED**
Sector 1	3	POWERWAVE 7770			**REMOVED**								2	1 5/8" COAX	REMAIN
Sector 1	4	POWERWAVE 7770	POWERWAVE 7770	UMTS	EXISTING	55.00	11.00	5.00	35.00	143	135'	(2) LGP 21901 DIPLEXER (AT GRADE) (2) LGP 21401 TMA	2	1 5/8" COAX	EXISTING
Sector 2	1	CCI HPA-65R-BUU-H6	CCI HPA-65R-BUU-H6	LTE	EXISTING	72.30	14.40	7.30	55.50	210'	135'	(1) RRUS-11 (EXISTING) (1) RRUS-32 B2 (EXISTING)	1/2	FIBER/DC	SHARED
Sector 2	2		**KATHREIN 80010966**	**LTE**	**PROPOSED**	**96.00**	**20.00**	**6.90**	**125.70**	**210**	**135'**	**(1) B5/B12 4449 (PROPOSED) (1) RRUS-32 (PROPOSED)**	**1/2**	**FIBER/DC**	**PROPOSED**
Sector 2	3	POWERWAVE 7770			**REMOVED**					-			2	1 5/8" COAX	REMAIN
Sector 2	4	POWERWAVE 7770	POWERWAVE 7770	UMTS	EXISTING	55.00	11.00	5.00	35.00	263'	135'	(2) LGP 21901 DIPLEXER (AT GRADE) (2) LGP 21401 TMA	2	1 5/8" COAX	EXISTING
Sector 3	1	CCI HPA-65R-BUU-H6	CCI HPA-65R-BUU-H6	LTE	EXISTING	72.30	14.40	7.30	55.50	330'	135'	(1) RRUS-11 (EXISTING) (1) RRUS-32 B2 (EXISTING)	1/2	FIBER/DC	SHARED
Sector 3	2		**KATHREIN 80010966**	**LTE**	**PROPOSED**	**96.00**	**20.00**	**6.90**	**125.70**	**330**	**135'**	**(1) B5/B12 4449 (PROPOSED) (1) RRUS-32 (PROPOSED)**	**1/2**	**FIBER/DC**	**SHARED**
Sector 3	3	POWERWAVE 7770			**REMOVED**								2	1 5/8" COAX	REMAIN
Sector 3	4	POWERWAVE 7770	POWERWAVE 7770	UMTS	EXISTING	55.00	11.00	5.00	35.00	23	135'	(2) LGP 21901 DIPLEXER (AT GRADE) (2) LGP 21401 TMA	2	1 5/8" COAX	EXISTING

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STATE OF CONNECTICUT
PETROS TSOUKALAS
32577
LICENSED PROFESSIONAL ENGINEER

PETROS E. TSOUKALAS
CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER: 32577

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SITE# CT2070

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Red Bank, NJ 07701-5669
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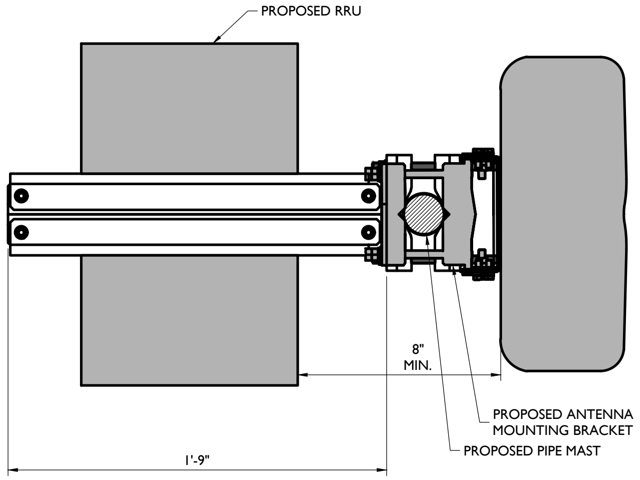
email: solutions@maserconsulting.com

SHEET TITLE :
ANTENNA LAYOUT AND ANTENNA SCHEDULE

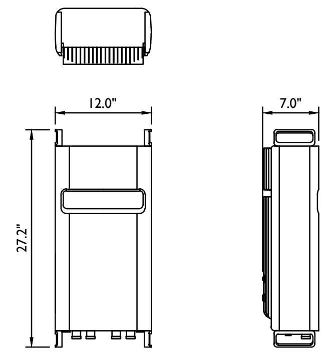
SHEET NUMBER :
C-3



NOTE:

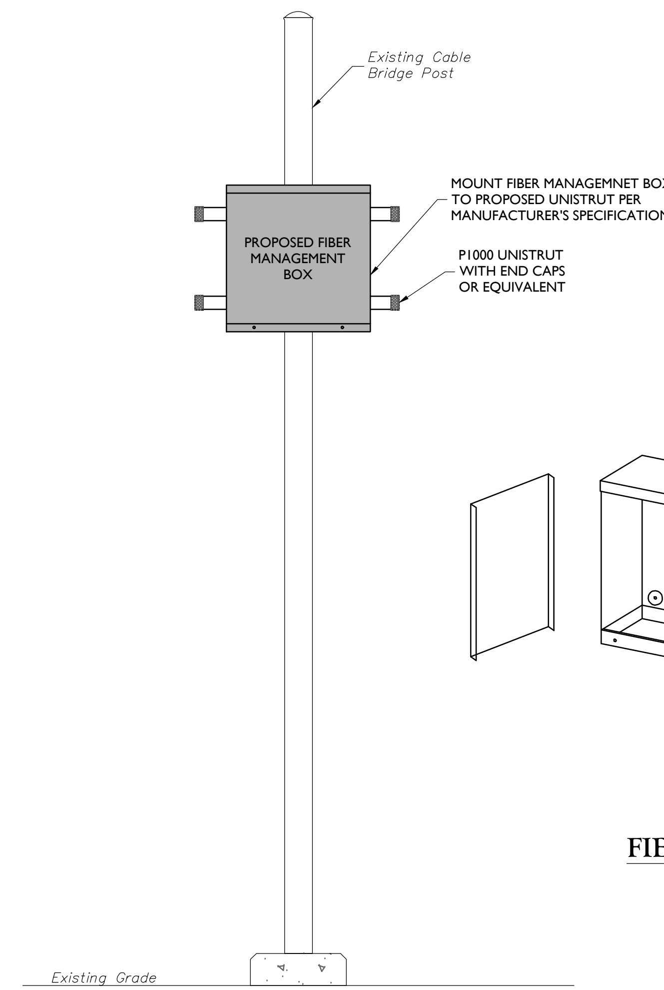
8" MINIMUM SEPARATION REQUIRED FROM BACK OF PANEL ANTENNA TO EXISTING/PROPOSED EQUIPMENT

ANTENNA AND RRUS MOUNTING DETAIL
NOT TO SCALE

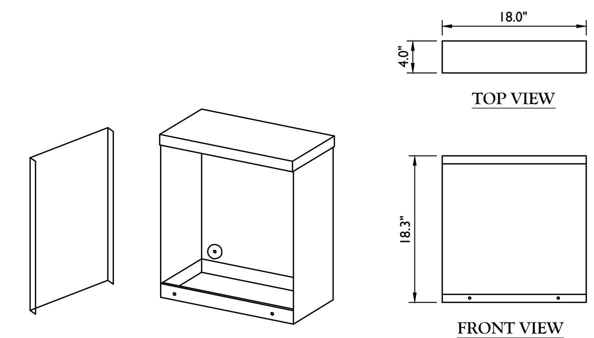


WEIGHT WITHOUT BRACKETS = 52.9 LB

ERICSSON RRUS-32
NOT TO SCALE



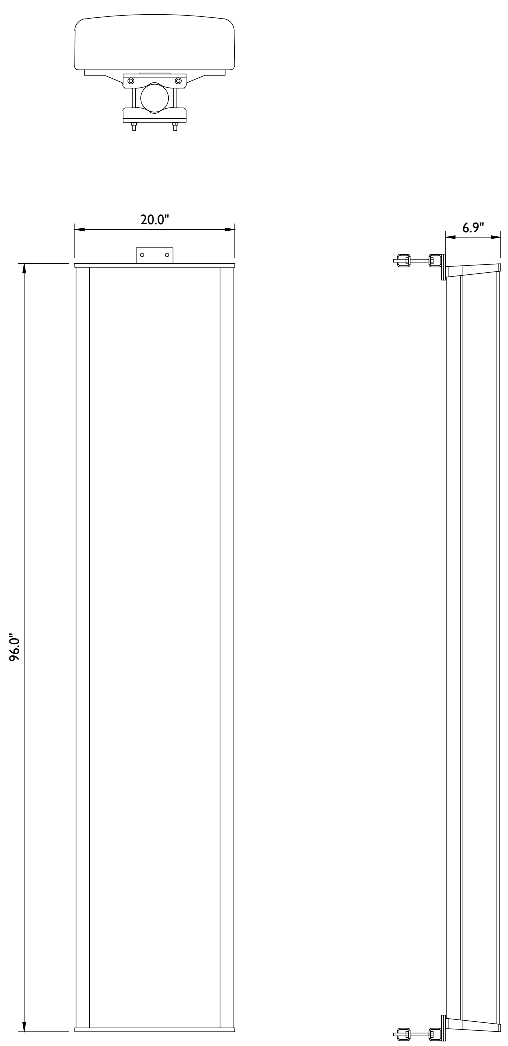
FIBER SLACK BOX & MOUNTING DETAIL
NOT TO SCALE



NOTES:

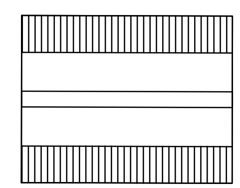
1. ANDREW PART NUMBER FE-18184
2. WEIGHT = 9.8 LBS.
3. REFER TO MANUFACTURER'S SPECIFICATIONS FOR CONNECTION TO POST.

FIBER STORAGE BOX DETAIL
NOT TO SCALE

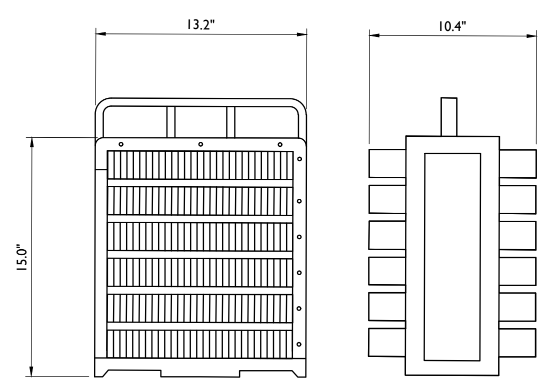


WEIGHT = 125.7 LB

KATHREIN 80010966
NOT TO SCALE



PLAN VIEW



FRONT VIEW

SIDE VIEW

WEIGHT = 73.0 LBS (INCLUDES SUNSHIELD AND DOUBLE FILTER CHASSIS)

ERICSSON DUAL BAND RRU4449 B5+B12 DETAIL
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PETROS E. TSOUKALAS
CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER: 32577

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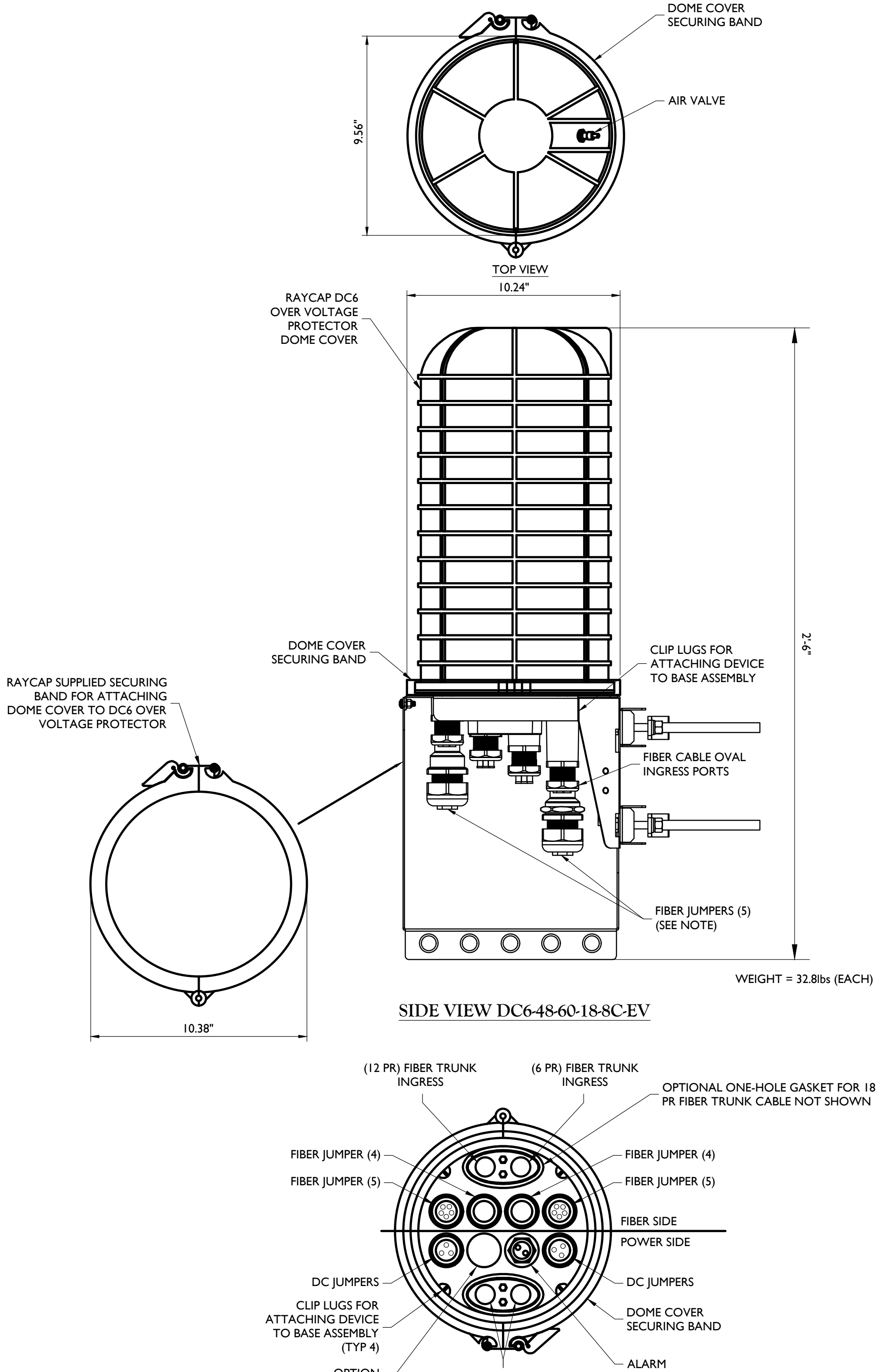
SHEET TITLE :
DETAILS

SHEET NUMBER :
A-1



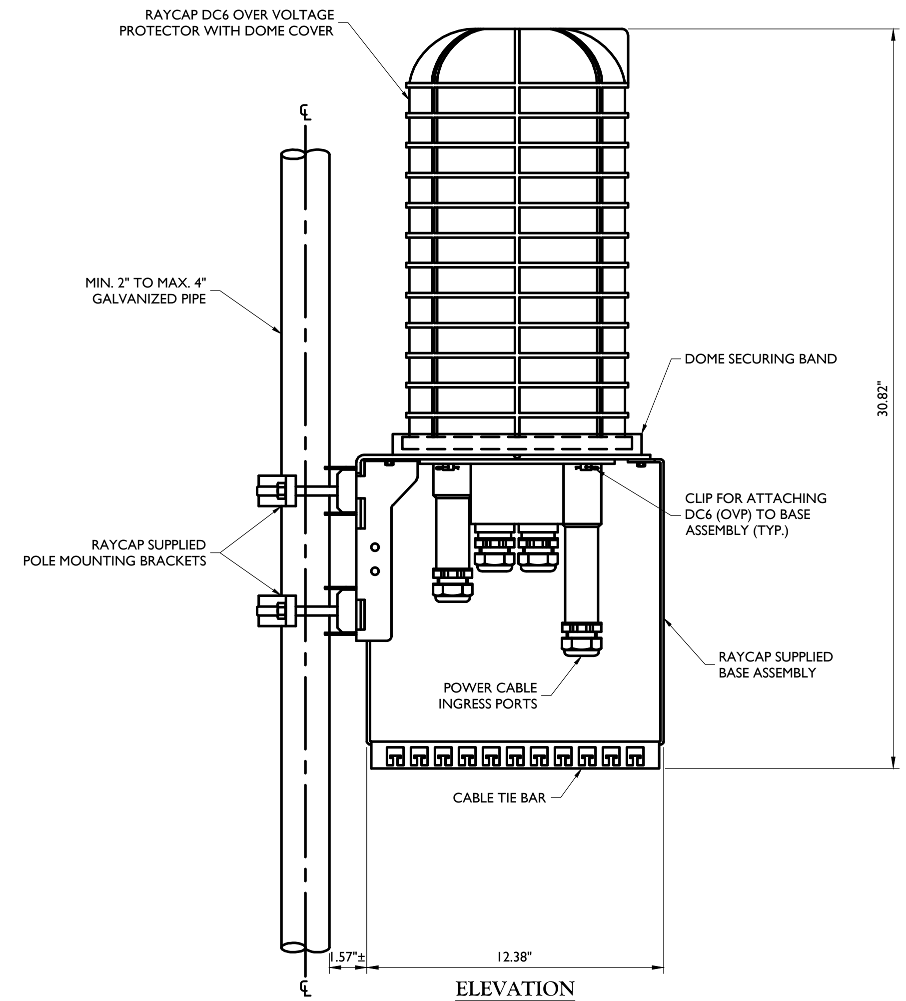
NOTE:

REMOVE CABLE SEALING GLAND AND INSTALL M32x1.5 METRIC-TO-1" NPT ADAPTER (COOPER CROUSE-HINES P/N CAP 740 994 OR EQUIVALENT MFR) WHEN CONNECTING CONDUIT TO OVP.

BOTTOM VIEW
DC6-48-60-18-8C-EV

DC6 SURGE SUPPRESSION DOME DETAIL

NOT TO SCALE



RAYCAP DC6-48-60-18-8C -EV
DC POWER OVER VOLTAGE PROTECTOR (OVP)
POLE MOUNT BASE ASSEMBLY

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SHEET TITLE :
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SHEET NUMBER :
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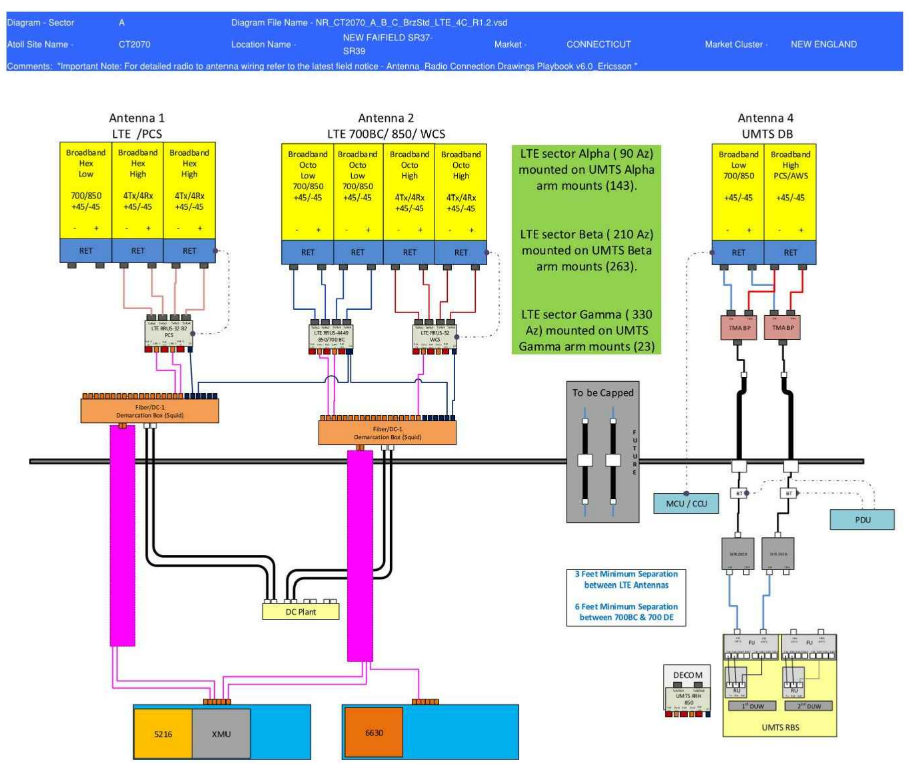
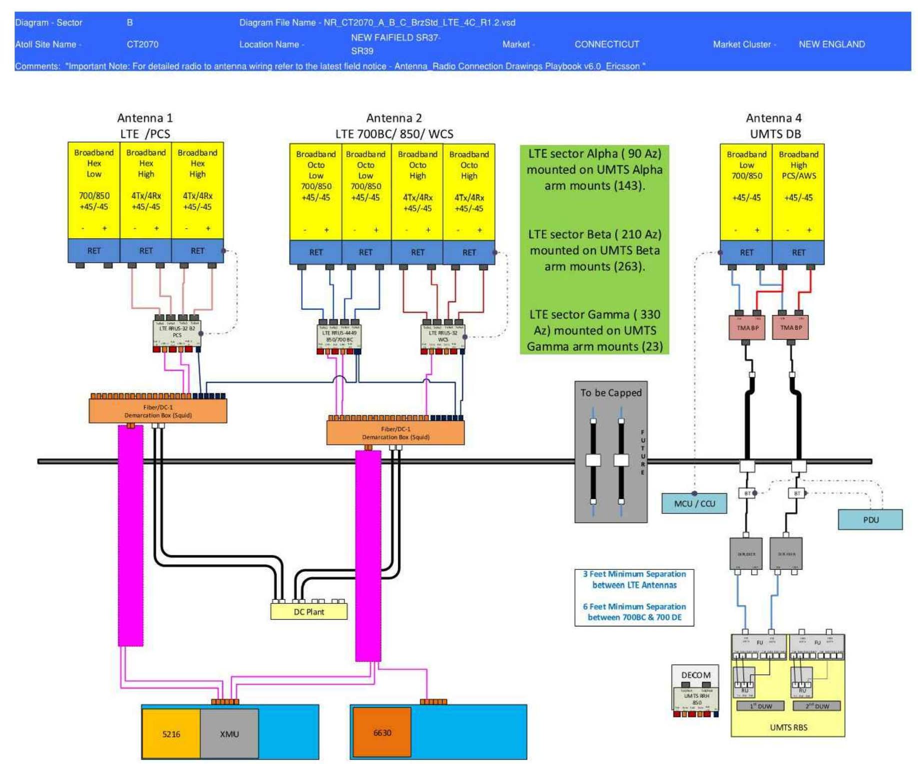
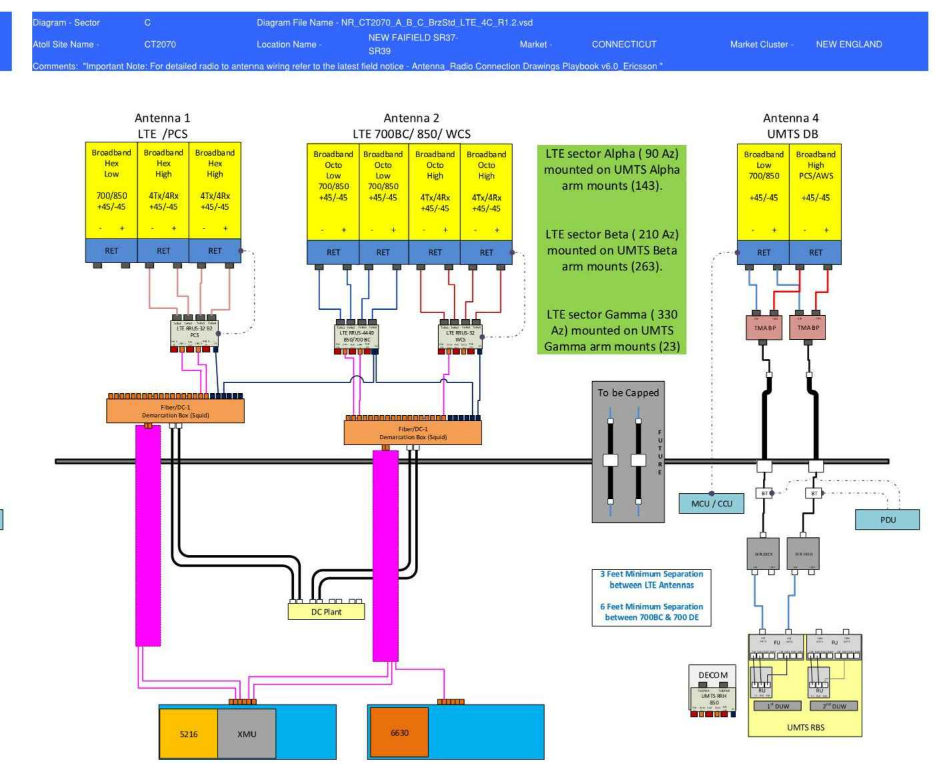


ALPHA SECTOR



BETA SECTOR



GAMMA SECTOR

BASED ON: RF ENGINEERING DESIGN ENTITLED "NEW-ENGLAND_CONNECTICUT_CT2070_2019-LTE-Next-Carrier_LTE_rx855w_2051A0JDAJ_10035312_27009_06-29-2018_As-Built-In-Progress_v4.00", LAST REVISED XX/XX/XX.

RF PLUMBING DIAGRAMS

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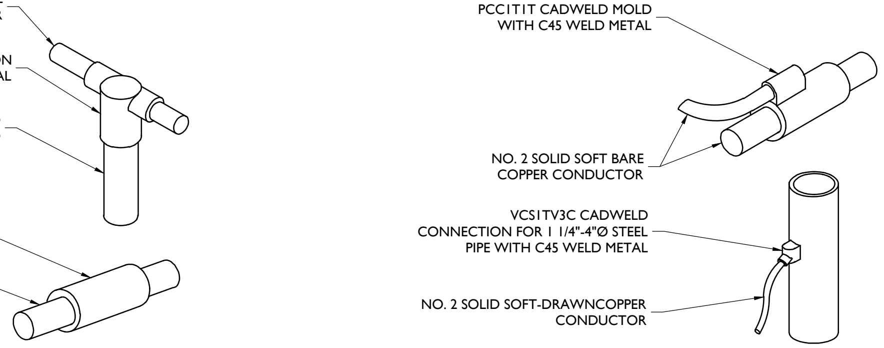
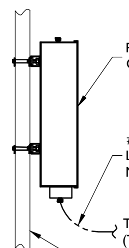
SHEET TITLE :
RF PLUMBING DIAGRAM

SHEET NUMBER :
A-3



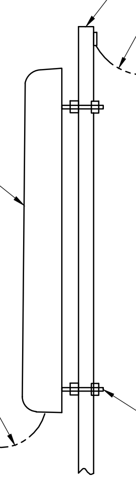
CADWELD DETAILS

NOT TO SCALE



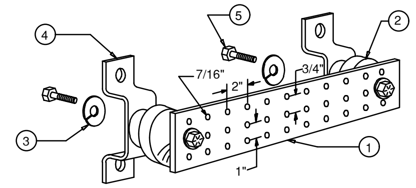
RRU GROUNDING

NOT TO SCALE



ANTENNA GROUNDING

NOT TO SCALE



LEGEND

1- TINNED COPPER GROUND BAR, 1/4"x4"x20", NEWTON INSTRUMENT CO. CAT. NO. B-6142 OR EQUAL. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.

2- INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4

3- 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8

4- WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-5056

5- 5/8-11 X 1" HHCS BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012-1

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

SECTION "P" - SURGE PRODUCERS

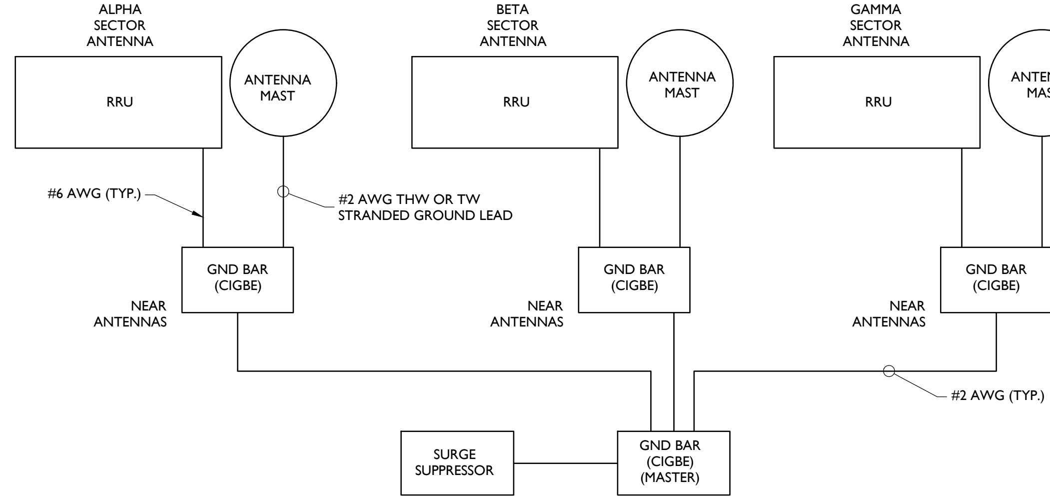
CABLE ENTRY PORTS (HATCH PLATES) (#2)
GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
TELCO GROUND BAR
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
+24V POWER SUPPLY RETURN BAR (#2)
-48V POWER SUPPLT RETURN BAR (#2)
RECTIFIER FRAMES.

SECTION "A" - SURGE ABSORBERS

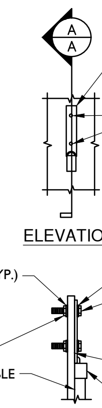
INTERIOR GROUND RING (#2)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
BUILDING STEEL (IF AVAILABLE) (#2)

MASTER GROUND BAR

NOT TO SCALE

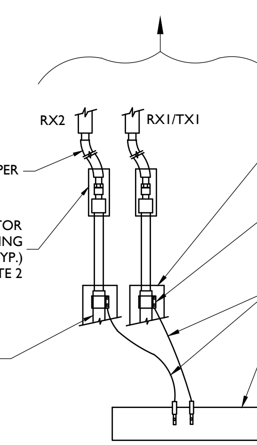


SCHEMATIC DIAGRAM GROUNDING SYSTEM



TYPICAL GROUND BAR CONNECTION DETAIL

NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

TYPICAL GROUND WIRE TO GROUNDING BAR

NOT TO SCALE

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ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

SCALE:	JOB NUMBER:
AS SHOWN	18963030A

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
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.	.	.	.	.
2	04/26/19	REVISED PER COMMENTS	AJC	RA
1	3/5/19	ISSUED FOR REVIEW	AJC	RA

STATE OF CONNECTICUT
PETROS E. TSOUKALAS
CONNECTICUT PROFESSIONAL ENGINEER LICENSE NUMBER: 32577
LICENSED PROFESSIONAL ENGINEER

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF THE RESPONSIBLE LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE NAME:

NEW FAIRFIELD SR37-SR39
FA# 10035312
SITE# CT2070

302 BALL POND ROAD
NEW FAIRFIELD, CT 06812
FAIRFIELD COUNTY

RED BANK OFFICE
331 Newman Springs Road
Suite 203
Red Bank, NJ 07701-5669
Phone: 732.383.1950
Fax: 732.383.1984
email: solutions@maserconsulting.com

SHEET TITLE:
GROUNDING DETAILS

SHEET NUMBER:
G-1

MASER CONSULTING
— CONNECTICUT —

Monopole Structural Analysis

FOR

CT2070 – New Fairfield SR37-SR39

FA# 10035312
302 Ball Pond Road
New Fairfield, CT 06812
Fairfield County
41.4647169, -73.4969519

Monopole Utilization: 88.9%
Foundation Utilization: 77.8%

July 22, 2019

Prepared For

AT&T
550 Cochituate Road
Framingham, MA 01701

Prepared By

Maser Consulting Connecticut
331 Newman Springs Road, Suite 203
Red Bank, NJ 07701
(732) 383.1950

Petros E. Tsoukalas, P.E.
Geographic Discipline Leader
Connecticut License No. 32557

MC Project No. 18963030A

Objective:

The objective of this report is to determine the capacity of the monopole and foundation at the subject facility for the final wireless telecommunications configuration, per the applicable codes and standards.

Introduction:

Maser Consulting Connecticut has reviewed the following documents in completing this report:

Document Type	Remarks	Source
Radio Frequency Data Sheet (RFDS)	*RFDS ID: 2454216, Version 4.00 Dated February 15, 2019*	*Empire Telecom*
Tower Design Documents	*Fred A. Nudd Corporation Drawings #02-0203-1, dated February 14, 2003*	*Maser Consulting Connecticut*
Structural Analysis	*Infinigy Engineering Project #158-093, Dated February 16, 2016*	*Empire Telecom*
Structural Analysis	*Malouf Engineering Project #CT01113M-16V0, Dated November 2, 2016*	*Empire Telecom*
Mount Modification Analysis	*Maser Consulting Project #18963030A, Dated May 7, 2019*	*Maser Consulting Connecticut*

Codes, Standards and Loading:

Maser Consulting Connecticut utilized the following codes and standards:

- 2018 Connecticut State Building Code, Incorporating the 2015 IBC
- Structural Standards for Antenna Supporting Structures and Antennas ANSI/TIA-222-G
    - Nominal Wind Speed – 89 mph (Per Connecticut Building Code)
    - Exposure Category – C
    - Structure Class – II
    - Ice Thickness – 0.75”
    - Ice Wind Speed – 50 mph

Proposed Discrete and Linear Appurtenances:

Carrier	Mount Elevation (ft)	Antenna Elevation (ft)	Quantity	Antenna Manufacturer	Antenna Model	Mount	Coax
AT&T	135.0	135.0	3	Kathrein	800-10966	-	(1) Fiber (2) DC
			3	Ericsson	4449 B5/B12		
			3	Ericsson	RRUS-32		
			1	Raycap	DC6-48-60-08C		

Existing Discrete and Linear Appurtenances:

Carrier	Mount Elevation (ft)	Antenna Elevation (ft)	Quantity	Antenna Manufacturer	Antenna Model	Mount	Coax
Town	175.0	175.0	4	Celwave	PD220	Low Profile Platfrom	(4) 1-5/8” (2) 1/2"
			1	-	1’ Square Panel		
			1	-	2’ Dish		
Sprint	155.0	155.0	3	RFS	APXVTM14-C-120	Low Profile Platform & Collar Mount	(4) Hybrid
			2	Andrew	RR65-18-02DP		
			1	RFS	APXVSPP18-C-A20		
			2	Powerwave	P40-16-XLPP-RR		
			1	EMS	RR45-19-02DPL4		
			3	ALU	1900MHz RRH		
			3	ALU	800MHz RRH		
			3	ALU	RRH8x20		
T-Mobile	145.0	145.0	3	Commscope	LNX-6515DS-VTM	(3) T-Arm	(18) 1-5/8” (1) Hybrid
			3	Ericsson	AIR21 B2A/B4P		
			3	Ericsson	AIR21 B4A/B2P		
			3	Ericsson	RRUS-11		
			3	-	TMA		
AT&T	135.0	135.0	1	CCI	HPA-65R-BUU-H8	(3) Modified T-Arm	(12) 1-5/8” (2) DC (1) Fiber
			2	CCI	HPA-65R-BUU-H6		
			3	Powerwave	7770.00		
			3	Ericsson	RRUS-32 B2		
			3	Ericsson	RRUS-11		
			6	Powerwave	LGP21401		
			1	Raycap	DC6-48-60-18-8F		
Verizon	125.0	125.0	6	Antel	BXA-171085-12CF	(3) T-Arm	(18) 1-5/8” (1) 1-1/4”
			6	Antel	LPA-80080-6CF		
			3	Antel	BXA-70063-6CF		
			3	ALU	RRH2x60		
			1	Raycap	RxxDC-3315-PF-48		
Town	100.0	100.0	1	Celwave	PD220	Side-Arm	(1) 1-5/8”
Sprint	85.0	85.0	3	-	GPS	Collar	(3) 1/2"

Analysis Approach:

A three-dimensional model was created using tnxTower (version 8.0.5.0), a commercially available analysis software package. This model was used to calculate member stressed for live, dead, wind and ice load cases.

Assumptions:

General Site Design Assumptions:

1. The tower was constructed in accordance with its original design and maintained per the manufacturer's specifications.
2. The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in the above tables and the referenced drawings.
3. Mount sizes, weights, and manufacturers are best estimates based on photos provided and determined without the benefit of a site visit by Maser Consulting.
4. Mount pipes are removed when the antennas they support are removed.
5. Coax mounting equipment (feedline ladders, T-brackets, etc.) is removed when all coax attached to the equipment is removed from the tower.
6. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
7. All foundation steel reinforcing is assumed to have been designed to meet or exceed the load carrying capacity of the surrounding soils unless otherwise specified in this report.
8. Tower Leg A is assumed to be at 0° based on satellite imagery.

Site Specific Assumptions and Design Parameters:

1. Structural Steel Grades have been assumed as follows, unless otherwise noted in this analysis:
    - Pole Sections — ASTM A572 (Gr. 65)
    - Base Plate — ASTM A572 (Gr. 42)
    - Anchor Rods — ASTM A615 (Gr. 75)
    - Reinforcement Bars — ASTM A1035 (Gr. 120)
2. The existing tower is constructed to plumb and is properly maintained with no structural deficiencies and deteriorations.
3. It is assumed that the telecommunication equipment supports, antenna supports, and existing structure have been designed by a registered licensed professional engineer for the existing loads acting on the structure, as required by all applicable codes.
4. It is assumed that information provided by the client regarding the structure itself, the antenna models, feed lines, and other relevant information is current and correct.
5. It is assumed all other existing appurtenances, antennas, cables, etc. belonging to others have been installed and supported per code and per specifications so as not to damage any existing structural support members, and that any contributing loads from adjacent equipment has been taken into consideration for their design.
6. It is assumed the modification has been installed as intended as outlined in the referenced SA report.

Calculations:

Selected calculations and analysis output can be found in Appendix A of this report.

Analysis Results and Conclusion:

Component	Utilization %	Pass/Fail
Monopole	*88.9*	*Pass*
Anchor Rods	*66.9*	*Pass*
Foundation	*77.8*	*Pass*

Structure Rating – *(Controlling Utilization of all Components)*	**88.9%**

Recommendation:

The monopole and foundation have **SUFFICIENT** capacity to carry the existing and proposed loading and do not require any modifications.

Maser Consulting Connecticut reserves the right to amend this report if additional information regarding the members is provided. The conclusions reached by Maser Consulting Connecticut in this report are only valid for the appurtenances listed in this report. Any change to the installation will require a revision to this structural analysis.

We appreciate the opportunity to be of service on this project. If you should have any questions or require any additional information, please do not hesitate to call our office.

Sincerely,
Maser Consulting Connecticut

Petros E. Tsoukalas, P.E.
Geographic Discipline Leader

Nathaniel Ober
Assistant Project Manager

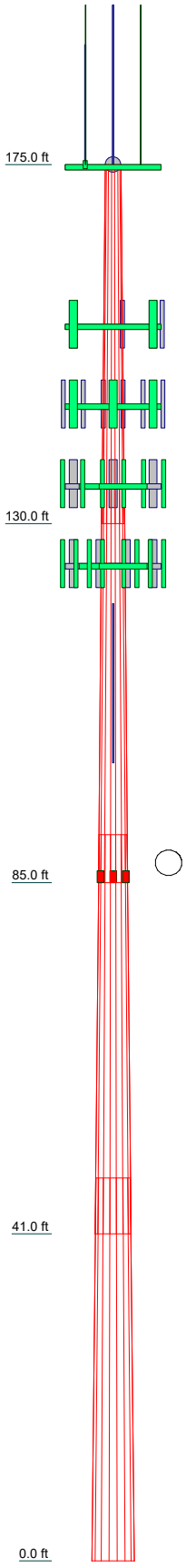
Disclaimer of Warranties:

Maser Consulting Connecticut has not performed a site visit to the tower to verify member sizes or antenna/coax loading. Maser Consulting Connecticut shall be contacted immediately if the existing conditions are not as represented on the tower elevation contained in this report in order to evaluate the significance of the discrepancy. Maser Consulting Connecticut has not performed a condition assessment of the tower foundation. This report does not replace a full tower inspection

The engineering services rendered by Maser Consulting Connecticut in connection with this structural analysis are limited to an analysis of the tower structure and theoretical capacity of its main structural members. Miscellaneous items such as antenna mounts, etc., have not been designed or detailed as part of our work. We recommend that material of suitable size and strength be purchased from a reputable tower manufacturer.

Maser Consulting Connecticut makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this tower. Maser Consulting Connecticut will not be responsible whatsoever for, or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data contained in this report.

APPENDIX A



Section	1	2	3	4
Length (ft)	45.00	50.00	50.00	48.00
Number of Sides	18	18	18	18
Thickness (in)	0.2500	0.3125	0.3750	0.3750
Socket Length (ft)	5.00	6.00	7.00	
Top Dia (in)	24.0000	33.0004	42.6605	52.0925
Bot Dia (in)	34.6880	44.6880	54.5000	64.5000
Grade	A572-65			
Weight (K)	3.5	6.5	9.8	11.3

Total: 31.1

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Platform Mount (Town)	175	7770.00 w/ Mount Pipe (ATI)	135
PD220 (Town)	175	7770.00 w/ Mount Pipe (ATI)	135
PD220 (Town)	175	7770.00 w/ Mount Pipe (ATI)	135
PD220 (Town)	175	800-10966 (ATI)	135
PD220 (Town)	175	800-10966 (ATI)	135
1' Square Panel (Town)	175	800-10966 (ATI)	135
Lightning Rod 15'	175	RRUS 32 B2 (ATI)	135
2' Dish	175	RRUS 32 B2 (ATI)	135
RR45-19-02DPL4 w/ Mount Pipe (Sprint)	155	RRUS 32 B2 (ATI)	135
P40-16-XLPP-RR w/ Mount Pipe (Sprint)	155	RRUS 11 (ATI)	135
P40-16-XLPP-RR w/ Mount Pipe (Sprint)	155	RRUS 11 (ATI)	135
APXVTM14-C-120 w/ Mount Pipe (Sprint)	155	RRUS 32 (ATI)	135
APXVTM14-C-120 w/ Mount Pipe (Sprint)	155	RRUS 32 (ATI)	135
APXVTM14-C-120 w/ Mount Pipe (Sprint)	155	RRUS 32 (ATI)	135
1900MHz RRH (Sprint)	155	RRUS 4449 B5/B12 (ATI)	135
1900MHz RRH (Sprint)	155	RRUS 4449 B5/B12 (ATI)	135
1900MHz RRH (Sprint)	155	RRUS 4449 B5/B12 (ATI)	135
800MHZ RRH (Sprint)	155	(2) LGP21401 (ATI)	135
800MHZ RRH (Sprint)	155	(2) LGP21401 (ATI)	135
800MHZ RRH (Sprint)	155	(2) LGP21401 (ATI)	135
TD-RRH8x20 (Sprint)	155	DC6-48-60-18-8F (ATI)	135
TD-RRH8x20 (Sprint)	155	DC6-48-60-0-8C (ATI)	135
TD-RRH8x20 (Sprint)	155	LPA-80080-6CF-EDIN-2 w/ Mount Pipe (Verizon)	125
RR65-18-00DPL2 w/ Mount Pipe (Sprint)	155	LPA-80080-6CF-EDIN-2 w/ Mount Pipe (Verizon)	125
RR65-18-00DPL2 w/ Mount Pipe (Sprint)	155	LPA-80080-6CF-EDIN-2 w/ Mount Pipe (Verizon)	125
APXVSPP18-C-A20 w/ Mount Pipe (Sprint)	155	LPA-80080-6CF-EDIN-2 w/ Mount Pipe (Verizon)	125
Platform Mount (Sprint)	155	LPA-80080-6CF-EDIN-2 w/ Mount Pipe (Verizon)	125
Collar Mount (Sprint)	155	BXA-70063-6CF-EDIN-0 w/ Mount Pipe (Verizon)	125
LNX-6515DS-VTM w/ Mount Pipe (T-Mo)	145	BXA-70063-6CF-EDIN-0 w/ Mount Pipe (Verizon)	125
AIR 21 B2A/B4P (T-Mo)	145	BXA-70063-6CF-EDIN-0 w/ Mount Pipe (Verizon)	125
AIR 21 B2A/B4P (T-Mo)	145	RRH2X60 (Verizon)	125
AIR 21 B2A/B4P (T-Mo)	145	RRH2X60 (Verizon)	125
AIR 21 B4A/B2P (T-Mo)	145	RRH2X60 (Verizon)	125
AIR 21 B4A/B2P (T-Mo)	145	RXXDC-3315-PF-48 (Verizon)	125
AIR 21 B4A/B2P (T-Mo)	145	BXA-171085-12CF-EDIN-X w/ Mount Pipe (Verizon)	125
RRUS 11 (T-Mo)	145	BXA-171085-12CF-EDIN-X w/ Mount Pipe (Verizon)	125
RRUS 11 (T-Mo)	145	BXA-171085-12CF-EDIN-X w/ Mount Pipe (Verizon)	125
RRUS 11 (T-Mo)	145	BXA-171085-12CF-EDIN-X w/ Mount Pipe (Verizon)	125
TMA (11"x9"x7") (T-Mo)	145	LPA-80080-6CF-EDIN-2 w/ Mount Pipe (Verizon)	125
TMA (11"x9"x7") (T-Mo)	145	T-Arm Mount (Verizon)	125
TMA (11"x9"x7") (T-Mo)	145	T-Arm Mount (Verizon)	125
T-Arm Mount (T-Mo)	145	T-Arm Mount (Verizon)	125
T-Arm Mount (T-Mo)	145	BXA-171085-12CF-EDIN-X w/ Mount Pipe (Verizon)	125
T-Arm Mount (T-Mo)	145	BXA-171085-12CF-EDIN-X w/ Mount Pipe (Verizon)	125
LNX-6515DS-VTM w/ Mount Pipe (T-Mo)	145	Side Arm Mount (Town)	100
LNX-6515DS-VTM w/ Mount Pipe (T-Mo)	145	PD220 (Town)	100
Modified T-Arm Mount (ATI)	135	Generic GPS (Sprint)	85
Modified T-Arm Mount (ATI)	135	Generic GPS (Sprint)	85
Modified T-Arm Mount (ATI)	135	Collar Mount (Sprint)	85
HPA-65R-BUU-H8 w/ Mount Pipe (ATI)	135	Generic GPS (Sprint)	85
HPA-65R-BUU-H6 w/ Mount Pipe (ATI)	135		
HPA-65R-BUU-H6 w/ Mount Pipe (ATI)	135		

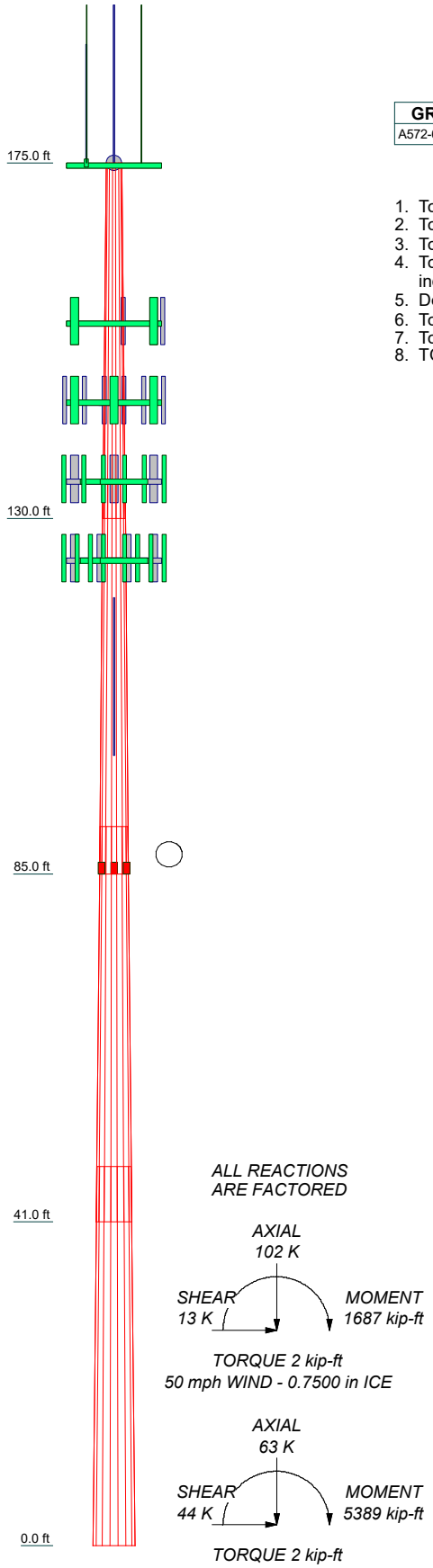
MATERIAL STRENGTH

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

Maser Consulting
5141 Virginia Way, Suite 420
Brentwood, TN 37027
Phone: (615) 686-2575
FAX:

Job: **18963030A**			
Project: **CT2070**			
Client: AT&T / Empire Telecom	Drawn by: NOber	App'd:	
Code: TIA-222-G	Date: 05/30/19	Scale: NTS	
Path: R:\All\Offices\MtLaurel\Projects\2018\18963000A\18963030A\Structural\Tower Analysis\Rev 0\TNX\CT2070.eri		Dwg No. E-1	

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	45.00	18	0.2500	5.00	24.0000	34.6880	A572-65	3.5
2	50.00	18	0.3125	6.00	33.0004	44.6880		6.5
3	50.00	18	0.3750	7.00	42.6605	54.5000		9.8
4	48.00	18	0.3750		52.0925	64.5000		11.3
								31.1



MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 89 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 88.9%

Maser Consulting
5141 Virginia Way, Suite 420
Brentwood, TN 37027
Phone: (615) 686-2575
FAX:

Job: **18963030A**			
Project: **CT2070**			
Client: AT&T / Empire Telecom	Drawn by: NOber	App'd:	
Code: TIA-222-G	Date: 05/30/19	Scale: NTS	
Path: R:\All\Offices\Mt Laurel\Projects\2018\18963000A\18963030A\Structural\Tower Analysis\Rev 0\TNX\CT2070.eri		Dwg No. E-1	

Tower Input Data

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

Tower is located in Fairfield County, Connecticut.
ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
Basic wind speed of 89 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification		Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
	Include Bolts In Member Capacity	√	Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	175.00-130.00	45.00	5.00	18	24.0000	34.6880	0.2500	1.0000	A572-65 (65 ksi)
L2	130.00-85.00	50.00	6.00	18	33.0004	44.6880	0.3125	1.2500	A572-65 (65 ksi)
L3	85.00-41.00	50.00	7.00	18	42.6605	54.5000	0.3750	1.5000	A572-65 (65 ksi)
L4	41.00-0.00	48.00		18	52.0925	64.5000	0.3750	1.5000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	24.3317	18.8456	1342.9976	8.4313	12.1920	110.1540	2687.7623	9.4246	3.7840	15.136
	35.1846	27.3266	4094.4743	12.2255	17.6215	232.3567	8194.3362	13.6659	5.6651	22.66
L2	34.6481	32.4224	4376.8053	11.6042	16.7642	261.0801	8759.3697	16.2143	5.2581	16.826
	45.3292	44.0149	10950.2535	15.7533	22.7015	482.3581	21914.9156	22.0117	7.3151	23.408
L3	44.7034	50.3303	11369.7220	15.0114	21.6715	524.6386	22754.4046	25.1699	6.8482	18.262
	55.2829	64.4223	23843.4650	19.2144	27.6860	861.2102	47718.3038	32.2173	8.9320	23.819
L4	54.6756	61.5567	20801.1541	18.3597	26.4630	786.0475	41629.6788	30.7842	8.5083	22.689
	65.4372	76.3248	39651.3314	22.7644	32.7660	1210.1365	79354.8371	38.1696	10.6920	28.512

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 175.00-130.00				1	1	1			
L2 130.00-85.00				1	1	1			
L3 85.00-41.00				1	1	1			
L4 41.00-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
***										
Safety Line 3/8	C	No	Surface Ar (CaAa)	175.00 - 0.00	1	1	0.000 0.000	0.3750		0.22
Step Pegs (3/4" Diameter)	C	No	Surface Ar (CaAa)	175.00 - 0.00	1	1	0.000 0.000	0.7500		1.50

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
1 5/8 (Town)	C	No	No	Inside Pole	175.00 - 0.00	4	No Ice	0.00	1.04
							1/2" Ice	0.00	1.04
							1" Ice	0.00	1.04
1/2 (Town)	C	No	No	Inside Pole	175.00 - 0.00	2	No Ice	0.00	0.25
							1/2" Ice	0.00	0.25
							1" Ice	0.00	0.25
Hybrid Cables (Sprint)	C	No	No	Inside Pole	155.00 - 0.00	4	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
1 5/8 (T-Mo)	C	No	No	Inside Pole	145.00 - 0.00	18	No Ice	0.00	1.04
							1/2" Ice	0.00	1.04
							1" Ice	0.00	1.04
Hybrid Cables (T-Mo)	C	No	No	Inside Pole	145.00 - 0.00	1	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
1 5/8 (AT&T)	C	No	No	Inside Pole	135.00 - 0.00	12	No Ice	0.00	1.04
							1/2" Ice	0.00	1.04
							1" Ice	0.00	1.04
3/8" Fiber (AT&T)	C	No	No	Inside Pole	135.00 - 0.00	2	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
7/8 DC (AT&T)	C	No	No	Inside Pole	135.00 - 0.00	4	No Ice	0.00	0.58
							1/2" Ice	0.00	0.58
							1" Ice	0.00	0.58
1 5/8 (VzW)	C	No	No	Inside Pole	125.00 - 0.00	18	No Ice	0.00	1.04
							1/2" Ice	0.00	1.04
							1" Ice	0.00	1.04
1 1/4 (VzW)	C	No	No	Inside Pole	125.00 - 0.00	1	No Ice	0.00	0.66
							1/2" Ice	0.00	0.66
							1" Ice	0.00	0.66
1 5/8 (Town)	C	No	No	Inside Pole	100.00 - 0.00	1	No Ice	0.00	1.04
							1/2" Ice	0.00	1.04
							1" Ice	0.00	1.04
1/2 (Sprint)	C	No	No	Inside Pole	85.00 - 0.00	3	No Ice	0.00	0.25
							1/2" Ice	0.00	0.25
							1" Ice	0.00	0.25

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	175.00-130.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	5.063	0.000	0.71
L2	130.00-85.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	5.063	0.000	2.77
L3	85.00-41.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	4.950	0.000	2.87
L4	41.00-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	4.612	0.000	2.67

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	175.00-130.00	A	1.747	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	36.504	0.000	1.16
L2	130.00-85.00	A	1.687	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	36.504	0.000	3.21
L3	85.00-41.00	A	1.599	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	34.638	0.000	3.27
L4	41.00-0.00	A	1.431	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	30.840	0.000	3.02

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	175.00-130.00	0.0000	0.9776	0.0000	2.9334
L2	130.00-85.00	0.0000	0.9888	0.0000	3.1445
L3	85.00-41.00	0.0000	0.9955	0.0000	3.2049
L4	41.00-0.00	0.0000	0.9999	0.0000	3.1763

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

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	14	Safety Line 3/8	130.00 - 175.00	1.0000	1.0000
L1	15	Step Pegs (3/4" Diameter)	130.00 - 175.00	1.0000	1.0000
L2	14	Safety Line 3/8	85.00 - 130.00	1.0000	1.0000
L2	15	Step Pegs (3/4" Diameter)	85.00 - 130.00	1.0000	1.0000
L3	14	Safety Line 3/8	41.00 - 85.00	1.0000	1.0000
L3	15	Step Pegs (3/4" Diameter)	41.00 - 85.00	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Platform Mount (Town)	C	None		0.0000	175.00	No Ice	20.80	20.80	1.80
						1/2" Ice	28.10	28.10	2.07
						1" Ice	35.40	35.40	2.33
PD220 (Town)	A	From Leg	3.00 0.00 10.00	0.0000	175.00	No Ice 1/2" Ice 1" Ice	3.56 7.13 10.70	3.56 7.13 10.70	0.02 0.05 0.07
PD220 (Town)	A	From Leg	3.00 0.00 10.00	0.0000	175.00	No Ice 1/2" Ice 1" Ice	3.56 7.13 10.70	3.56 7.13 10.70	0.02 0.05 0.07
PD220 (Town)	B	From Leg	3.00 0.00 10.00	0.0000	175.00	No Ice 1/2" Ice 1" Ice	3.56 7.13 10.70	3.56 7.13 10.70	0.02 0.05 0.07
PD220 (Town)	C	From Leg	3.00 0.00 10.00	0.0000	175.00	No Ice 1/2" Ice 1" Ice	3.56 7.13 10.70	3.56 7.13 10.70	0.02 0.05 0.07
1' Square Panel (Town)	C	From Leg	3.00 0.00 0.00	0.0000	175.00	No Ice 1/2" Ice 1" Ice	1.20 1.34 1.48	0.41 0.50 0.59	0.02 0.03 0.04
***									
Platform Mount (Sprint)	C	None		0.0000	155.00	No Ice 1/2" Ice 1" Ice	14.66 18.87 23.08	14.66 18.87 23.08	1.25 1.48 1.71
Collar Mount (Sprint)	C	None		0.0000	155.00	No Ice 1/2" Ice 1" Ice	1.50 1.74 1.98	1.50 1.74 1.98	0.03 0.04 0.04
RR45-19-02DPL4 w/ Mount Pipe (Sprint)	B	From Face	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	5.30 5.69 6.09	3.28 3.88 4.50	0.04 0.08 0.13
P40-16-XLPP-RR w/ Mount Pipe (Sprint)	C	From Face	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	8.24 8.70 9.16	4.83 5.57 6.27	0.07 0.14 0.21
P40-16-XLPP-RR w/ Mount Pipe (Sprint)	C	From Face	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	8.24 8.70 9.16	4.83 5.57 6.27	0.07 0.14 0.21
APXVTM14-C-120 w/ Mount Pipe (Sprint)	A	From Face	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	6.58 7.03 7.47	4.96 5.75 6.47	0.08 0.13 0.19
APXVTM14-C-120 w/ Mount Pipe (Sprint)	B	From Face	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	6.58 7.03 7.47	4.96 5.75 6.47	0.08 0.13 0.19
APXVTM14-C-120 w/ Mount Pipe (Sprint)	C	From Face	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	6.58 7.03 7.47	4.96 5.75 6.47	0.08 0.13 0.19
1900MHz RRH (Sprint)	A	From Face	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	2.49 2.70 2.91	3.26 3.48 3.72	0.04 0.08 0.11
1900MHz RRH (Sprint)	B	From Face	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	2.49 2.70 2.91	3.26 3.48 3.72	0.04 0.08 0.11
1900MHz RRH (Sprint)	C	From Face	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	2.49 2.70 2.91	3.26 3.48 3.72	0.04 0.08 0.11
800MHZ RRH (Sprint)	A	From Face	3.00 0.00	0.0000	155.00	No Ice 1/2" Ice	1.71 1.87	1.29 1.44	0.05 0.07

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	2.04	1.59	0.09
800MHZ RRH	B	From Face	3.00	0.0000	155.00	No Ice	1.71	1.29	0.05
(Sprint)			0.00			1/2" Ice	1.87	1.44	0.07
			0.00			1" Ice	2.04	1.59	0.09
800MHZ RRH	C	From Face	3.00	0.0000	155.00	No Ice	1.71	1.29	0.05
(Sprint)			0.00			1/2" Ice	1.87	1.44	0.07
			0.00			1" Ice	2.04	1.59	0.09
TD-RRH8x20	A	From Face	3.00	0.0000	155.00	No Ice	3.70	1.29	0.07
(Sprint)			0.00			1/2" Ice	3.95	1.46	0.09
			0.00			1" Ice	4.20	1.64	0.12
TD-RRH8x20	B	From Face	3.00	0.0000	155.00	No Ice	3.70	1.29	0.07
(Sprint)			0.00			1/2" Ice	3.95	1.46	0.09
			0.00			1" Ice	4.20	1.64	0.12
TD-RRH8x20	C	From Face	3.00	0.0000	155.00	No Ice	3.70	1.29	0.07
(Sprint)			0.00			1/2" Ice	3.95	1.46	0.09
			0.00			1" Ice	4.20	1.64	0.12
***									
T-Arm Mount	A	From Face	0.00	0.0000	145.00	No Ice	14.16	9.13	0.36
(T-Mo)			0.00			1/2" Ice	14.16	12.17	0.47
			0.00			1" Ice	14.16	15.21	0.57
T-Arm Mount	B	From Face	0.00	0.0000	145.00	No Ice	14.16	9.13	0.36
(T-Mo)			0.00			1/2" Ice	14.16	12.17	0.47
			0.00			1" Ice	14.16	15.21	0.57
T-Arm Mount	C	From Face	0.00	0.0000	145.00	No Ice	14.16	9.13	0.36
(T-Mo)			0.00			1/2" Ice	14.16	12.17	0.47
			0.00			1" Ice	14.16	15.21	0.57
LNX-6515DS-VTM w/	A	From Face	3.00	0.0000	145.00	No Ice	11.68	9.84	0.08
Mount Pipe			0.00			1/2" Ice	12.40	11.37	0.17
(T-Mo)			0.00			1" Ice	13.14	12.91	0.27
LNX-6515DS-VTM w/	B	From Face	3.00	0.0000	145.00	No Ice	11.68	9.84	0.08
Mount Pipe			0.00			1/2" Ice	12.40	11.37	0.17
(T-Mo)			0.00			1" Ice	13.14	12.91	0.27
LNX-6515DS-VTM w/	C	From Face	3.00	0.0000	145.00	No Ice	11.68	9.84	0.08
Mount Pipe			0.00			1/2" Ice	12.40	11.37	0.17
(T-Mo)			0.00			1" Ice	13.14	12.91	0.27
AIR 21 B2A/B4P	A	From Face	3.00	0.0000	145.00	No Ice	5.92	4.22	0.08
(T-Mo)			0.00			1/2" Ice	6.29	4.56	0.12
			0.00			1" Ice	6.66	4.91	0.17
AIR 21 B2A/B4P	B	From Face	3.00	0.0000	145.00	No Ice	5.92	4.22	0.08
(T-Mo)			0.00			1/2" Ice	6.29	4.56	0.12
			0.00			1" Ice	6.66	4.91	0.17
AIR 21 B2A/B4P	C	From Face	3.00	0.0000	145.00	No Ice	5.92	4.22	0.08
(T-Mo)			0.00			1/2" Ice	6.29	4.56	0.12
			0.00			1" Ice	6.66	4.91	0.17
AIR 21 B4A/B2P	A	From Face	3.00	0.0000	145.00	No Ice	5.92	4.22	0.08
(T-Mo)			0.00			1/2" Ice	6.29	4.56	0.12
			0.00			1" Ice	6.66	4.91	0.17
AIR 21 B4A/B2P	B	From Face	3.00	0.0000	145.00	No Ice	5.92	4.22	0.08
(T-Mo)			0.00			1/2" Ice	6.29	4.56	0.12
			0.00			1" Ice	6.66	4.91	0.17
AIR 21 B4A/B2P	C	From Face	3.00	0.0000	145.00	No Ice	5.92	4.22	0.08
(T-Mo)			0.00			1/2" Ice	6.29	4.56	0.12
			0.00			1" Ice	6.66	4.91	0.17
RRUS 11	A	From Face	3.00	0.0000	145.00	No Ice	2.78	1.19	0.05
(T-Mo)			0.00			1/2" Ice	2.99	1.33	0.07
			0.00			1" Ice	3.21	1.49	0.10
RRUS 11	B	From Face	3.00	0.0000	145.00	No Ice	2.78	1.19	0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(T-Mo)			0.00				1/2" Ice	2.99	1.33	0.07
			0.00				1" Ice	3.21	1.49	0.10
RRUS 11	C	From Face	3.00		0.0000	145.00	No Ice	2.78	1.19	0.05
(T-Mo)			0.00				1/2" Ice	2.99	1.33	0.07
			0.00				1" Ice	3.21	1.49	0.10
TMA (11"x9"x7")	A	From Face	3.00		0.0000	145.00	No Ice	0.82	0.64	0.02
(T-Mo)			0.00				1/2" Ice	0.94	0.75	0.03
			0.00				1" Ice	1.06	0.86	0.04
TMA (11"x9"x7")	B	From Face	3.00		0.0000	145.00	No Ice	0.82	0.64	0.02
(T-Mo)			0.00				1/2" Ice	0.94	0.75	0.03
			0.00				1" Ice	1.06	0.86	0.04
TMA (11"x9"x7")	C	From Face	3.00		0.0000	145.00	No Ice	0.82	0.64	0.02
(T-Mo)			0.00				1/2" Ice	0.94	0.75	0.03
			0.00				1" Ice	1.06	0.86	0.04
***										
T-Arm Mount	A	From Leg	0.00		0.0000	125.00	No Ice	14.16	9.13	0.36
(Verizon)			0.00				1/2" Ice	14.16	12.17	0.47
			0.00				1" Ice	14.16	15.21	0.57
T-Arm Mount	B	From Leg	0.00		0.0000	125.00	No Ice	14.16	9.13	0.36
(Verizon)			0.00				1/2" Ice	14.16	12.17	0.47
			0.00				1" Ice	14.16	15.21	0.57
T-Arm Mount	C	From Leg	0.00		0.0000	125.00	No Ice	14.16	9.13	0.36
(Verizon)			0.00				1/2" Ice	14.16	12.17	0.47
			0.00				1" Ice	14.16	15.21	0.57
BXA-171085-12CF-EDIN-X	A	From Leg	3.00		0.0000	125.00	No Ice	5.03	5.29	0.04
w/ Mount Pipe			0.00				1/2" Ice	5.58	6.46	0.09
(Verizon)			0.00				1" Ice	6.10	7.35	0.14
BXA-171085-12CF-EDIN-X	B	From Leg	3.00		0.0000	125.00	No Ice	5.03	5.29	0.04
w/ Mount Pipe			0.00				1/2" Ice	5.58	6.46	0.09
(Verizon)			0.00				1" Ice	6.10	7.35	0.14
BXA-171085-12CF-EDIN-X	C	From Leg	3.00		0.0000	125.00	No Ice	5.03	5.29	0.04
w/ Mount Pipe			0.00				1/2" Ice	5.58	6.46	0.09
(Verizon)			0.00				1" Ice	6.10	7.35	0.14
BXA-171085-12CF-EDIN-X	A	From Leg	3.00		0.0000	125.00	No Ice	5.03	5.29	0.04
w/ Mount Pipe			0.00				1/2" Ice	5.58	6.46	0.09
(Verizon)			0.00				1" Ice	6.10	7.35	0.14
BXA-171085-12CF-EDIN-X	B	From Leg	3.00		0.0000	125.00	No Ice	5.03	5.29	0.04
w/ Mount Pipe			0.00				1/2" Ice	5.58	6.46	0.09
(Verizon)			0.00				1" Ice	6.10	7.35	0.14
BXA-171085-12CF-EDIN-X	C	From Leg	3.00		0.0000	125.00	No Ice	5.03	5.29	0.04
w/ Mount Pipe			0.00				1/2" Ice	5.58	6.46	0.09
(Verizon)			0.00				1" Ice	6.10	7.35	0.14
LPA-80080-6CF-EDIN-2 w/	A	From Leg	3.00		0.0000	125.00	No Ice	4.56	10.27	0.05
Mount Pipe			0.00				1/2" Ice	5.10	11.44	0.11
(Verizon)			0.00				1" Ice	5.61	12.32	0.19
LPA-80080-6CF-EDIN-2 w/	B	From Leg	3.00		0.0000	125.00	No Ice	4.56	10.27	0.05
Mount Pipe			0.00				1/2" Ice	5.10	11.44	0.11
(Verizon)			0.00				1" Ice	5.61	12.32	0.19
LPA-80080-6CF-EDIN-2 w/	C	From Leg	3.00		0.0000	125.00	No Ice	4.56	10.27	0.05
Mount Pipe			0.00				1/2" Ice	5.10	11.44	0.11
(Verizon)			0.00				1" Ice	5.61	12.32	0.19
LPA-80080-6CF-EDIN-2 w/	A	From Leg	3.00		0.0000	125.00	No Ice	4.56	10.27	0.05
Mount Pipe			0.00				1/2" Ice	5.10	11.44	0.11
(Verizon)			0.00				1" Ice	5.61	12.32	0.19
LPA-80080-6CF-EDIN-2 w/	B	From Leg	3.00		0.0000	125.00	No Ice	4.56	10.27	0.05
Mount Pipe			0.00				1/2" Ice	5.10	11.44	0.11
(Verizon)			0.00				1" Ice	5.61	12.32	0.19

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
LPA-80080-6CF-EDIN-2 w/	C	From Leg	3.00	0.0000	125.00	No Ice	4.56	10.27	0.05
Mount Pipe			0.00			1/2" Ice	5.10	11.44	0.11
(Verizon)			0.00			1" Ice	5.61	12.32	0.19
BXA-70063-6CF-EDIN-0 w/	A	From Leg	3.00	0.0000	125.00	No Ice	7.81	5.80	0.04
Mount Pipe			0.00			1/2" Ice	8.36	6.95	0.10
(Verizon)			0.00			1" Ice	8.87	7.82	0.17
BXA-70063-6CF-EDIN-0 w/	B	From Leg	3.00	0.0000	125.00	No Ice	7.81	5.80	0.04
Mount Pipe			0.00			1/2" Ice	8.36	6.95	0.10
(Verizon)			0.00			1" Ice	8.87	7.82	0.17
BXA-70063-6CF-EDIN-0 w/	C	From Leg	3.00	0.0000	125.00	No Ice	7.81	5.80	0.04
Mount Pipe			0.00			1/2" Ice	8.36	6.95	0.10
(Verizon)			0.00			1" Ice	8.87	7.82	0.17
RRH2X60	A	From Leg	3.00	0.0000	125.00	No Ice	3.50	1.82	0.06
(Verizon)			0.00			1/2" Ice	3.76	2.05	0.08
			0.00			1" Ice	4.03	2.29	0.11
RRH2X60	B	From Leg	3.00	0.0000	125.00	No Ice	3.50	1.82	0.06
(Verizon)			0.00			1/2" Ice	3.76	2.05	0.08
			0.00			1" Ice	4.03	2.29	0.11
RRH2X60	C	From Leg	3.00	0.0000	125.00	No Ice	3.50	1.82	0.06
(Verizon)			0.00			1/2" Ice	3.76	2.05	0.08
			0.00			1" Ice	4.03	2.29	0.11
RXXDC-3315-PF-48	A	From Leg	3.00	0.0000	125.00	No Ice	3.49	2.19	0.02
(Verizon)			0.00			1/2" Ice	3.73	2.39	0.05
			0.00			1" Ice	3.98	2.61	0.08
***									
Side Arm Mount	A	From Leg	0.00	0.0000	100.00	No Ice	0.85	1.67	0.07
(Town)			0.00			1/2" Ice	1.14	2.34	0.08
			0.00			1" Ice	1.43	3.01	0.09
PD220	A	From Leg	4.00	0.0000	100.00	No Ice	3.56	3.56	0.02
(Town)			0.00			1/2" Ice	7.13	7.13	0.05
			10.00			1" Ice	10.70	10.70	0.07
***									
Collar Mount	C	From Leg	0.00	0.0000	85.00	No Ice	1.50	1.50	0.03
(Sprint)			0.00			1/2" Ice	1.74	1.74	0.04
			0.00			1" Ice	1.98	1.98	0.04
Generic GPS	A	From Leg	0.00	0.0000	85.00	No Ice	0.21	0.21	0.02
(Sprint)			0.00			1/2" Ice	0.31	0.31	0.02
			0.00			1" Ice	0.42	0.42	0.02
Generic GPS	B	From Leg	0.00	0.0000	85.00	No Ice	0.21	0.21	0.02
(Sprint)			0.00			1/2" Ice	0.31	0.31	0.02
			0.00			1" Ice	0.42	0.42	0.02
Generic GPS	C	From Leg	0.00	0.0000	85.00	No Ice	0.21	0.21	0.02
(Sprint)			0.00			1/2" Ice	0.31	0.31	0.02
			0.00			1" Ice	0.42	0.42	0.02
***									
Modified T-Arm Mount	A	From Leg	0.00	0.0000	135.00	No Ice	27.50	136.60	0.71
(AT&T)			0.00			1/2" Ice	41.70	23.64	0.91
			0.00			1" Ice	54.90	29.54	1.11
Modified T-Arm Mount	B	From Leg	0.00	0.0000	135.00	No Ice	27.50	136.60	0.71
(AT&T)			0.00			1/2" Ice	41.70	23.64	0.91
			0.00			1" Ice	54.90	29.54	1.11
Modified T-Arm Mount	C	From Leg	0.00	0.0000	135.00	No Ice	27.50	136.60	0.71
(AT&T)			0.00			1/2" Ice	41.70	23.64	0.91
			0.00			1" Ice	54.90	29.54	1.11
HPA-65R-BUU-H8 w/	A	From Leg	3.00	0.0000	135.00	No Ice	13.21	9.58	0.10
Mount Pipe			0.00			1/2" Ice	13.90	11.05	0.20
(AT&T)			0.00			1" Ice	14.59	12.50	0.30

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
HPA-65R-BUU-H6 w/ Mount Pipe (AT&T)	B	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	9.90 10.47 11.01	8.11 9.30 10.21	0.08 0.16 0.25
HPA-65R-BUU-H6 w/ Mount Pipe (AT&T)	C	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	9.90 10.47 11.01	8.11 9.30 10.21	0.08 0.16 0.25
7770.00 w/ Mount Pipe (AT&T)	A	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
7770.00 w/ Mount Pipe (AT&T)	B	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
7770.00 w/ Mount Pipe (AT&T)	C	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	5.75 6.18 6.61	4.25 5.01 5.71	0.06 0.10 0.16
800-10966 (AT&T)	A	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	17.36 17.99 18.63	7.50 8.09 8.69	0.13 0.22 0.32
800-10966 (AT&T)	B	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	17.36 17.99 18.63	7.50 8.09 8.69	0.13 0.22 0.32
800-10966 (AT&T)	C	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	17.36 17.99 18.63	7.50 8.09 8.69	0.13 0.22 0.32
RRUS 32 B2 (AT&T)	A	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	2.73 2.95 3.18	1.67 1.86 2.05	0.05 0.07 0.10
RRUS 32 B2 (AT&T)	B	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	2.73 2.95 3.18	1.67 1.86 2.05	0.05 0.07 0.10
RRUS 32 B2 (AT&T)	C	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	2.73 2.95 3.18	1.67 1.86 2.05	0.05 0.07 0.10
RRUS 11 (AT&T)	B	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.10
RRUS 11 (AT&T)	C	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	2.78 2.99 3.21	1.19 1.33 1.49	0.05 0.07 0.10
RRUS 32 (AT&T)	A	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	2.86 3.08 3.32	1.78 1.97 2.17	0.06 0.08 0.10
RRUS 32 (AT&T)	B	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	2.86 3.08 3.32	1.78 1.97 2.17	0.06 0.08 0.10
RRUS 32 (AT&T)	C	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	2.86 3.08 3.32	1.78 1.97 2.17	0.06 0.08 0.10
RRUS 4449 B5/B12 (AT&T)	A	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	1.97 2.14 2.33	1.41 1.56 1.73	0.07 0.09 0.11
RRUS 4449 B5/B12 (AT&T)	B	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	1.97 2.14 2.33	1.41 1.56 1.73	0.07 0.09 0.11
RRUS 4449 B5/B12 (AT&T)	C	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	1.97 2.14 2.33	1.41 1.56 1.73	0.07 0.09 0.11

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) LGP21401 (AT&T)	A	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
(2) LGP21401 (AT&T)	B	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
(2) LGP21401 (AT&T)	C	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	1.10 1.24 1.38	0.21 0.27 0.35	0.01 0.02 0.03
DC6-48-60-18-8F (AT&T)	B	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	2.20 2.40 2.60	2.20 2.40 2.60	0.02 0.04 0.07
DC6-48-60-0-8C (AT&T)	C	From Leg	3.00 0.00 0.00	0.0000	135.00	No Ice 1/2" Ice 1" Ice	2.04 2.23 2.42	2.04 2.23 2.42	0.02 0.04 0.06
***									
RR65-18-00DPL2 w/ Mount Pipe (Sprint)	A	From Face	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	4.59 5.02 5.44	3.34 4.11 4.81	0.03 0.07 0.12
RR65-18-00DPL2 w/ Mount Pipe (Sprint)	A	From Face	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	4.59 5.02 5.44	3.34 4.11 4.81	0.03 0.07 0.12
APXVSPP18-C-A20 w/ Mount Pipe (Sprint)	B	From Face	3.00 0.00 0.00	0.0000	155.00	No Ice 1/2" Ice 1" Ice	8.02 8.48 8.94	6.71 7.66 8.49	0.08 0.14 0.22
***									
Lightning Rod 15'	A	From Face	3.00 0.00 7.50	0.0000	175.00	No Ice 1/2" Ice 1" Ice	3.00 4.53 6.07	3.00 4.53 6.07	0.05 0.07 0.11

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
2' Dish	A	Paraboloid w/o Radome	From Leg	3.00 0.00 0.00	0.0000		175.00	2.00	No Ice 1/2" Ice 1" Ice	3.14 3.41 3.68	0.01 0.02 0.03

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice

Comb. No.	Description
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	175 - 130	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-23.89	0.22	-0.49
			Max. Mx	20	-10.87	271.95	-1.27
			Max. My	14	-10.83	1.17	-281.64
			Max. Vy	20	-13.19	271.95	-1.27
			Max. Vx	14	13.50	1.17	-281.64

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	6			1.45
L2	130 - 85	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-56.78	0.20	-0.65
			Max. Mx	20	-26.93	1693.75	-3.00
			Max. My	14	-26.88	2.99	-1719.30
			Max. Vy	20	-35.74	1693.75	-3.00
			Max. Vx	14	36.09	2.99	-1719.30
			Max. Torque	20			-2.04
L3	85 - 41	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-76.48	0.30	-1.70
			Max. Mx	20	-42.27	3324.63	-4.86
			Max. My	14	-42.24	4.80	-3365.03
			Max. Vy	20	-39.91	3324.63	-4.86
			Max. Vx	14	40.25	4.80	-3365.03
			Max. Torque	20			-2.04
L4	41 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-101.81	0.30	-2.94
			Max. Mx	20	-62.61	5332.43	-6.92
			Max. My	14	-62.61	6.70	-5388.99
			Max. Vy	20	-43.44	5332.43	-6.92
			Max. Vx	14	43.77	6.70	-5388.99
			Max. Torque	20			-1.97

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	33	101.81	0.01	-13.47
	Max. H_x	20	62.64	43.40	-0.04
	Max. H_z	3	46.98	-0.04	43.64
	Max. M_x	2	5373.99	-0.04	43.64
	Max. M_z	8	5332.26	-43.40	0.04
	Max. Torsion	8	1.97	-43.40	0.04
	Min. Vert	19	46.98	37.59	-22.03
	Min. H_x	8	62.64	-43.40	0.04
	Min. H_z	14	62.64	0.04	-43.72
	Min. M_x	14	-5388.99	0.04	-43.72
	Min. M_z	20	-5332.43	43.40	-0.04
	Min. Torsion	20	-1.97	43.40	-0.04

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	52.20	0.00	0.00	0.49	0.06	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	62.64	0.04	-43.64	-5373.99	-6.53	-0.13
0.9 Dead+1.6 Wind 0 deg - No Ice	46.98	0.04	-43.64	-5316.42	-6.47	-0.12
1.2 Dead+1.6 Wind 30 deg - No Ice	62.64	21.77	-37.80	-4653.35	-2677.86	-1.24

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
0.9 Dead+1.6 Wind 30 deg - No Ice	46.98	21.77	-37.80	-4603.53	-2649.14	-1.23
1.2 Dead+1.6 Wind 60 deg - No Ice	62.64	37.63	-21.84	-2690.49	-4625.56	-1.87
0.9 Dead+1.6 Wind 60 deg - No Ice	46.98	37.63	-21.84	-2661.74	-4575.96	-1.86
1.2 Dead+1.6 Wind 90 deg - No Ice	62.64	43.40	-0.04	-6.31	-5332.26	-1.97
0.9 Dead+1.6 Wind 90 deg - No Ice	46.98	43.40	-0.04	-6.39	-5275.09	-1.96
1.2 Dead+1.6 Wind 120 deg - No Ice	62.64	37.56	21.96	2713.50	-4612.93	-1.55
0.9 Dead+1.6 Wind 120 deg - No Ice	46.98	37.56	21.96	2684.14	-4563.49	-1.56
1.2 Dead+1.6 Wind 150 deg - No Ice	62.64	21.63	37.88	4669.74	-2654.61	-0.72
0.9 Dead+1.6 Wind 150 deg - No Ice	46.98	21.63	37.88	4619.40	-2626.19	-0.73
1.2 Dead+1.6 Wind 180 deg - No Ice	62.64	-0.04	43.72	5388.99	6.70	0.13
0.9 Dead+1.6 Wind 180 deg - No Ice	46.98	-0.04	43.72	5330.94	6.60	0.12
1.2 Dead+1.6 Wind 210 deg - No Ice	62.64	-21.70	37.91	4676.32	2666.22	0.95
0.9 Dead+1.6 Wind 210 deg - No Ice	46.98	-21.70	37.91	4625.90	2637.61	0.94
1.2 Dead+1.6 Wind 240 deg - No Ice	62.64	-37.59	22.03	2724.95	4619.68	1.69
0.9 Dead+1.6 Wind 240 deg - No Ice	46.98	-37.59	22.03	2695.44	4570.12	1.68
1.2 Dead+1.6 Wind 270 deg - No Ice	62.64	-43.40	0.04	6.92	5332.43	1.97
0.9 Dead+1.6 Wind 270 deg - No Ice	46.98	-43.40	0.04	6.68	5275.22	1.97
1.2 Dead+1.6 Wind 300 deg - No Ice	62.64	-37.59	-21.78	-2679.05	4619.15	1.74
0.9 Dead+1.6 Wind 300 deg - No Ice	46.98	-37.59	-21.78	-2650.45	4569.58	1.74
1.2 Dead+1.6 Wind 330 deg - No Ice	62.64	-21.70	-37.76	-4646.77	2666.59	1.01
0.9 Dead+1.6 Wind 330 deg - No Ice	46.98	-21.70	-37.76	-4597.03	2637.96	1.02
1.2 Dead+1.0 Ice+1.0 Temp	101.81	0.00	0.00	2.94	0.30	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	101.81	0.01	-13.45	-1677.15	-0.98	-0.24
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	101.81	6.72	-11.65	-1451.63	-838.38	-1.05
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	101.81	11.62	-6.73	-837.59	-1449.38	-1.54
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	101.81	13.41	-0.01	1.79	-1671.49	-1.61
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	101.81	11.61	6.76	850.70	-1446.41	-1.25
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	101.81	6.69	11.67	1462.61	-832.88	-0.55
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	101.81	-0.01	13.47	1687.30	1.68	0.24
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	101.81	-6.70	11.68	1463.94	835.88	0.98
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	101.81	-11.61	6.78	853.00	1448.45	1.49

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	101.81	-13.41	0.01	4.45	1672.19	1.61
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	101.81	-11.61	-6.72	-835.29	1448.75	1.30
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	101.81	-6.71	-11.64	-1450.31	836.77	0.63
Dead+Wind 0 deg - Service	52.20	0.01	-11.09	-1357.58	-1.60	-0.03
Dead+Wind 30 deg - Service	52.20	5.53	-9.61	-1175.48	-676.61	-0.32
Dead+Wind 60 deg - Service	52.20	9.56	-5.55	-679.49	-1168.76	-0.48
Dead+Wind 90 deg - Service	52.20	11.03	-0.01	-1.24	-1347.31	-0.50
Dead+Wind 120 deg - Service	52.20	9.54	5.58	686.00	-1165.57	-0.40
Dead+Wind 150 deg - Service	52.20	5.50	9.63	1180.33	-670.74	-0.19
Dead+Wind 180 deg - Service	52.20	-0.01	11.11	1362.09	1.74	0.03
Dead+Wind 210 deg - Service	52.20	-5.52	9.64	1182.00	673.78	0.24
Dead+Wind 240 deg - Service	52.20	-9.55	5.60	688.89	1167.38	0.43
Dead+Wind 270 deg - Service	52.20	-11.03	0.01	2.10	1347.45	0.50
Dead+Wind 300 deg - Service	52.20	-9.55	-5.54	-676.59	1167.22	0.45
Dead+Wind 330 deg - Service	52.20	-5.51	-9.60	-1173.81	673.85	0.26

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-52.20	0.00	0.00	52.20	0.00	0.000%
2	0.04	-62.64	-43.64	-0.04	62.64	43.64	0.000%
3	0.04	-46.98	-43.64	-0.04	46.98	43.64	0.000%
4	21.77	-62.64	-37.80	-21.77	62.64	37.80	0.000%
5	21.77	-46.98	-37.80	-21.77	46.98	37.80	0.000%
6	37.63	-62.64	-21.84	-37.63	62.64	21.84	0.000%
7	37.63	-46.98	-21.84	-37.63	46.98	21.84	0.000%
8	43.40	-62.64	-0.04	-43.40	62.64	0.04	0.000%
9	43.40	-46.98	-0.04	-43.40	46.98	0.04	0.000%
10	37.56	-62.64	21.96	-37.56	62.64	-21.96	0.000%
11	37.56	-46.98	21.96	-37.56	46.98	-21.96	0.000%
12	21.63	-62.64	37.88	-21.63	62.64	-37.88	0.000%
13	21.63	-46.98	37.88	-21.63	46.98	-37.88	0.000%
14	-0.04	-62.64	43.72	0.04	62.64	-43.72	0.000%
15	-0.04	-46.98	43.72	0.04	46.98	-43.72	0.000%
16	-21.70	-62.64	37.91	21.70	62.64	-37.91	0.000%
17	-21.70	-46.98	37.91	21.70	46.98	-37.91	0.000%
18	-37.59	-62.64	22.03	37.59	62.64	-22.03	0.000%
19	-37.59	-46.98	22.03	37.59	46.98	-22.03	0.000%
20	-43.40	-62.64	0.04	43.40	62.64	-0.04	0.000%
21	-43.40	-46.98	0.04	43.40	46.98	-0.04	0.000%
22	-37.59	-62.64	-21.78	37.59	62.64	21.78	0.000%
23	-37.59	-46.98	-21.78	37.59	46.98	21.78	0.000%
24	-21.70	-62.64	-37.76	21.70	62.64	37.76	0.000%
25	-21.70	-46.98	-37.76	21.70	46.98	37.76	0.000%
26	0.00	-101.81	0.00	0.00	101.81	0.00	0.000%
27	0.01	-101.81	-13.45	-0.01	101.81	13.45	0.000%
28	6.72	-101.81	-11.65	-6.72	101.81	11.65	0.000%
29	11.62	-101.81	-6.73	-11.62	101.81	6.73	0.000%
30	13.41	-101.81	-0.01	-13.41	101.81	0.01	0.000%
31	11.61	-101.81	6.76	-11.61	101.81	-6.76	0.000%
32	6.69	-101.81	11.67	-6.69	101.81	-11.67	0.000%
33	-0.01	-101.81	13.47	0.01	101.81	-13.47	0.000%
34	-6.70	-101.81	11.68	6.70	101.81	-11.68	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
35	-11.61	-101.81	6.77	11.61	101.81	-6.78	0.000%
36	-13.41	-101.81	0.01	13.41	101.81	-0.01	0.000%
37	-11.61	-101.81	-6.72	11.61	101.81	6.72	0.000%
38	-6.71	-101.81	-11.64	6.71	101.81	11.64	0.000%
39	0.01	-52.20	-11.09	-0.01	52.20	11.09	0.000%
40	5.53	-52.20	-9.61	-5.53	52.20	9.61	0.000%
41	9.56	-52.20	-5.55	-9.56	52.20	5.55	0.000%
42	11.03	-52.20	-0.01	-11.03	52.20	0.01	0.000%
43	9.54	-52.20	5.58	-9.54	52.20	-5.58	0.000%
44	5.50	-52.20	9.63	-5.50	52.20	-9.63	0.000%
45	-0.01	-52.20	11.11	0.01	52.20	-11.11	0.000%
46	-5.52	-52.20	9.64	5.52	52.20	-9.64	0.000%
47	-9.55	-52.20	5.60	9.55	52.20	-5.60	0.000%
48	-11.03	-52.20	0.01	11.03	52.20	-0.01	0.000%
49	-9.55	-52.20	-5.54	9.55	52.20	5.54	0.000%
50	-5.51	-52.20	-9.60	5.51	52.20	9.60	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00001205
3	Yes	4	0.00000001	0.00014081
4	Yes	6	0.00000001	0.00005446
5	Yes	6	0.00000001	0.00001691
6	Yes	6	0.00000001	0.00005605
7	Yes	6	0.00000001	0.00001750
8	Yes	5	0.00000001	0.00004430
9	Yes	5	0.00000001	0.00002012
10	Yes	6	0.00000001	0.00005441
11	Yes	6	0.00000001	0.00001688
12	Yes	6	0.00000001	0.00005540
13	Yes	6	0.00000001	0.00001727
14	Yes	5	0.00000001	0.00001366
15	Yes	5	0.00000001	0.00000518
16	Yes	6	0.00000001	0.00005584
17	Yes	6	0.00000001	0.00001738
18	Yes	6	0.00000001	0.00005467
19	Yes	6	0.00000001	0.00001694
20	Yes	5	0.00000001	0.00003674
21	Yes	5	0.00000001	0.00001668
22	Yes	6	0.00000001	0.00005569
23	Yes	6	0.00000001	0.00001741
24	Yes	6	0.00000001	0.00005428
25	Yes	6	0.00000001	0.00001688
26	Yes	4	0.00000001	0.00000001
27	Yes	6	0.00000001	0.00004726
28	Yes	6	0.00000001	0.00006711
29	Yes	6	0.00000001	0.00006904
30	Yes	6	0.00000001	0.00004744
31	Yes	6	0.00000001	0.00006755
32	Yes	6	0.00000001	0.00006841
33	Yes	6	0.00000001	0.00004758
34	Yes	6	0.00000001	0.00006918
35	Yes	6	0.00000001	0.00006773

36	Yes	6	0.00000001	0.00004747
37	Yes	6	0.00000001	0.00006859
38	Yes	6	0.00000001	0.00006723
39	Yes	4	0.00000001	0.00006242
40	Yes	5	0.00000001	0.00002300
41	Yes	5	0.00000001	0.00002495
42	Yes	4	0.00000001	0.00008745
43	Yes	5	0.00000001	0.00002298
44	Yes	5	0.00000001	0.00002417
45	Yes	4	0.00000001	0.00006287
46	Yes	5	0.00000001	0.00002454
47	Yes	5	0.00000001	0.00002315
48	Yes	4	0.00000001	0.00008533
49	Yes	5	0.00000001	0.00002466
50	Yes	5	0.00000001	0.00002291

Maximum Tower Deflections - Service Wind

Section No.	*Elevation*	*Horz. Deflection*	*Gov. Load Comb.*	*Tilt*	*Twist*
	ft	*in*		*°*	*°*
L1	175 - 130	31.302	45	1.4327	0.0034
L2	135 - 85	19.593	45	1.3299	0.0014
L3	91 - 41	8.896	45	0.9241	0.0008
L4	48 - 0	2.479	45	0.4729	0.0003

Critical Deflections and Radius of Curvature - Service Wind

Elevation	*Appurtenance*	*Gov. Load Comb.*	*Deflection*	*Tilt*	*Twist*	*Radius of Curvature*
ft			*in*	*°*	*°*	*ft*
175.00	2' Dish	45	31.302	1.4327	0.0036	81744
155.00	Platform Mount	45	25.330	1.4054	0.0023	20435
145.00	T-Arm Mount	45	22.417	1.3767	0.0018	13623
135.00	Modified T-Arm Mount	45	19.593	1.3299	0.0014	10248
125.00	T-Arm Mount	45	16.885	1.2610	0.0012	8420
100.00	Side Arm Mount	45	10.795	1.0212	0.0008	5849
85.00	Collar Mount	45	7.731	0.8595	0.0007	5143

Maximum Tower Deflections - Design Wind

Section No.	*Elevation*	*Horz. Deflection*	*Gov. Load Comb.*	*Tilt*	*Twist*
	ft	*in*		*°*	*°*
L1	175 - 130	123.890	14	5.6795	0.0143
L2	135 - 85	77.554	14	5.2693	0.0057
L3	91 - 41	35.219	14	3.6608	0.0029
L4	48 - 0	9.814	14	1.8725	0.0011

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
175.00	2' Dish	14	123.890	5.6795	0.0143	20952
155.00	Platform Mount	14	100.257	5.5696	0.0094	5235
145.00	T-Arm Mount	14	88.731	5.4552	0.0073	3488
135.00	Modified T-Arm Mount	14	77.554	5.2693	0.0057	2621
125.00	T-Arm Mount	14	66.839	4.9960	0.0047	2152
100.00	Side Arm Mount	14	42.735	4.0454	0.0033	1490
85.00	Collar Mount	14	30.606	3.4048	0.0027	1307

Section Capacity Table

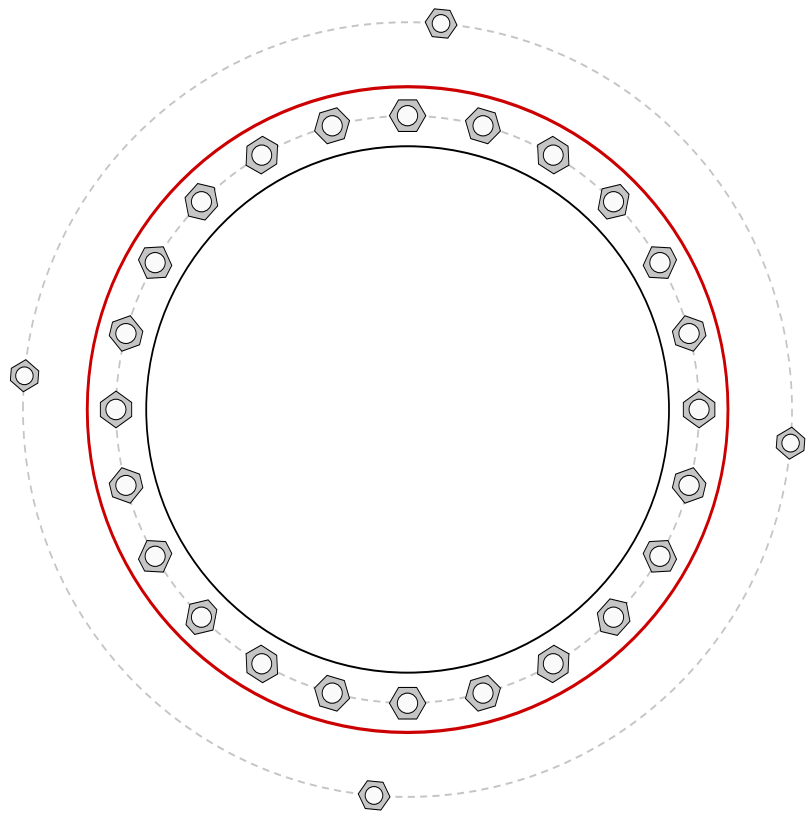
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	175 - 130	Pole	TP34.688x24x0.25	1	-10.83	1798.30	23.5	Pass
L2	130 - 85	Pole	TP44.688x33.0004x0.3125	2	-26.88	2869.34	68.8	Pass
L3	85 - 41	Pole	TP54.5x42.6605x0.375	3	-42.24	4176.03	75.7	Pass
L4	41 - 0	Pole	TP64.5x52.0925x0.375	4	-62.61	4661.85	88.9	Pass
							Summary	
						Pole (L4)	88.9	Pass
						RATING =	**88.9**	**Pass**

Monopole Base Plate Connection

Site Info	
BU #	
Site Name	
Order #	

Analysis Considerations	
TIA-222 Revision	G
Grout Considered:	Yes
l_{ar} (in)	0
Eta Factor, η	0.7

Applied Loads	
Moment (kip-ft)	5389.00
Axial Force (kips)	63.00
Shear Force (kips)	44.00



Connection Properties

Anchor Rod Data

GROUP 1: (24) 2" ø bolts (A687 N; Fy=105 ksi, Fu=125 ksi) on 58" BC

GROUP 2: (4) 1-3/4" ø bolts (A1035 Gr 120 N; Fy=120 ksi, Fu=150 ksi) on 76.5" BC

Base Plate Data

52" ID x 1.5" Plate (A572-42; Fy=42 ksi, Fu=60 ksi)

Stiffener Data

N/A

Pole Data

64.5" x 0.375" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

GROUP 1:

Pu_t = 149.88	ϕPn_t = 250	**Stress Rating**
Vu = 1.63	ϕVn = n/a	**60.9%**
Mu = n/a	ϕMn = n/a	**Pass**

GROUP 2:

Pu_t = 150.8	ϕPn_t = 228	**Stress Rating**
Vu = 1.24	ϕVn = n/a	**66.9%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	-
Allowable Stress (ksi):	-
Stress Rating:	**N/A**

Pier and Pad Foundation

TIA-222 Revision:	G
Tower Type:	Monopole

Top & Bot. Pad Rein. Different?:	☐
Block Foundation?:	☐

Superstructure Analysis Reactions		
Compression, P_{comp}:	63	kips
Base Shear, Vu_comp:	44.00	kips
Moment, M_u:	5389	ft-kips
Tower Height, **H**:	175	ft
BP Dist. Above Fdn, bp_{dist}:	3	in

Foundation Analysis Checks				
	Capacity	**Demand**	**Rating**	**Check**
Lateral (Sliding) (kips)	236.31	44.00	**18.6%**	**Pass**
Bearing Pressure (ksf)	6.00	2.91	**48.4%**	**Pass**
*Overturning (kip*ft)*	7293.76	5675.00	**77.8%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	11247.76	5488.00	**48.8%**	**Pass**
Pier Compression (kip)	18370.97	78.59	**0.4%**	**Pass**
*Pad Flexure (kip*ft)*	7616.25	2565.39	**33.7%**	**Pass**
Pad Shear - 1-way (kips)	1168.40	329.48	**28.2%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.031	**19.1%**	**Pass**

Soil Rating:	**77.8%**
Structural Rating:	**48.8%**

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, **dpier**:	7	ft
Ext. Above Grade, **E**:	0.25	ft
Pier Rebar Size, **Sc**:	11	
Pier Rebar Quantity, **mc**:	50	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	3	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	6	ft
Pad Width, **W**:	27.5	ft
Pad Thickness, **T**:	4	ft
Pad Rebar Size (Bottom), **Sp**:	10	
Pad Rebar Quantity (Bottom), **mp**:	32	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60000	psi
Concrete Compressive Strength, **F'c**:	3000	psi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	100	pcf
Ultimate Gross Bearing, Qult:	8.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	30	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:		
Neglected Depth, **N**:	3.50	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	N/A	ft

<--Toggle between Gross and Net

RF EMISSIONS COMPLIANCE REPORT

Empire Telecom on behalf of AT&T Mobility, LLC

Site Name: NEW FAIRFIELD SR37-SR39
AT&T Mobility, LLC Site FA #: 10035312
AT&T Mobility, LLC Site USID: 27009
AT&T Mobility, LLC Site ID: CT2070
302 BALL POND ROAD
NEW FAIRFIELD, CT
5/17/2019

Report Status:

AT&T Mobility, LLC Is Compliant

Prepared By:

Sitesafe, LLC

8618 Westwood Center Drive,
Suite 315

Vienna, VA 22182

Voice 703-276-1100
Fax 703-276-1169

Engineering Statement in Re:
Electromagnetic Energy Analysis
Empire Telecom
NEW FAIRFIELD, CT

The reviewer whose signature appears below here by certifies and affirms:

That I have extensive professional experience in the wireless communications engineering industry; and

That I am an employee of Sitesafe, LLC in Arlington, Virginia; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission ("the FCC" and "the FCC Rules") both in general and specifically as they apply to the FCC's Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; and

That the technical information serving as the basis for this report was supplied by Empire Telecom (See attached Site Summary and Carrier documents), and that AT&T Mobility, LLC's installations involve communications equipment, antennas and associated technical equipment at a location referred to as the "NEW FAIRFIELD SR37-SR39" ("the site"); and

That AT&T Mobility, LLC proposes to operate at the site with transmit antennas listed in the carrier summary and with a maximum effective radiated power as specified by AT&T Mobility, LLC and shown on the worksheet, and that worst-case 100% duty cycle have been assumed; and

That this analysis has been performed with the assumption that the ground immediately surrounding the tower is primarily flat or falling; and

That at this time, the FCC requires that certain licensees address specific levels of radio-frequency energy to which workers or members of the public might possibly be exposed (at §1.1307(b) of the FCC Rules); and

That such consideration of possible exposure of humans to radio-frequency radiation must utilize the standards set by the FCC, which is the Federal Agency having jurisdiction over communications facilities; and

That the FCC rules define two tiers of permissible exposure guidelines: 1) "uncontrolled environments," defined as situations in which persons may not be aware of (the "general public"), or may not be able to control their exposure to a transmission facility; and (2) "controlled environments," which defines situations in which persons are aware of their potential for exposure (industry personnel); and

That this statement specifically addresses the uncontrolled environment (which is more conservative than the controlled environment) and the limit set forth in the FCC rules for licensees of AT&T Mobility, LLC's operating frequency as shown on the attached antenna worksheet; and

That when applying the uncontrolled environment standards, the predicted Maximum Power Density at two meters above ground level from the proposed AT&T Mobility, LLC operation is no more than 7.2% of the maximum in any accessible area on the ground and

That it is understood per FCC Guidelines and OET65 Appendix A, that regardless of the existent radio-frequency environment, only those licenses whose contributions exceed five percent of the exposure limit pertinent to their operation(s) bear any responsibility for bringing any non-compliant area(s) into compliance; and

That when applying the uncontrolled environment standards, the cumulative predicted energy density from the proposed operation is no more than 10.211% of the maximum in any accessible area up to two meters above the ground per OET-65; and

That the calculations provided in this report are based on data provided by the client and antenna pattern data supplied by the antenna manufacturer, in accordance with FCC guidelines listed in OET-65. Horizontal and vertical antenna patterns are combined for modeling purposes to accurately reflect the energy two meters above ground level where on-axis energy refers to maximum energy two meters above the ground along the azimuth of the antenna and where area energy refers to the maximum energy anywhere two meters above the ground regardless of the antenna azimuth, accounting for cumulative energy from multiple antennas for the carrier and frequency range indicated; and

That the Occupational Safety and Health Administration has policies in place which address worker safety in and around communications sites, thus individual companies will be responsible for their employees' training regarding Radio Frequency Safety.

In summary, it is stated here that the proposed operation at the site would not result in exposure of the Public to excessive levels of radio-frequency energy as defined in the FCC Rules and Regulations, specifically 47 CFR 1.1307 and that AT&T Mobility, LLC's proposed operation is completely compliant.

Finally, it is stated that access to the tower should be restricted to communication industry professionals, and approved contractor personnel trained in radio-frequency safety; and that the instant analysis addresses exposure levels at two meters above ground level and does not address exposure levels on the tower, or in the immediate proximity of the antennas.

Young Min Kim

Empire Telecom
NEW FAIRFIELD SR37-SR39
Site Summary

Carrier	Area Maximum Percentage MPE
AT&T Mobility, LLC	0.219 %
AT&T Mobility, LLC	1.702 %
AT&T Mobility, LLC (Proposed)	1.473 %
AT&T Mobility, LLC (Proposed)	2.014 %
AT&T Mobility, LLC (Proposed)	1.792 %
Unknown Carrier	0.148 %
Unknown Carrier	0.994 %
Unknown Carrier	0.52 %
Unknown Carrier	0.567 %
Unknown Carrier	0.781 %
Composite Site MPE:	10.211 %

AT&T Mobility, LLC
NEW FAIRFIELD SR37-SR39
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	µW/cm^2
Maximum power density at ground level:	1.24343	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.21943	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Powerwave	7770	90	143	547	0.684097	0.120723	1.066653	0.188233
Powerwave	7770	90	263	547	0.684097	0.120723	1.066653	0.188233
Powerwave	7770	90	23	547	0.684097	0.120723	1.066653	0.188233

AT&T Mobility, LLC
NEW FAIRFIELD SR37-SR39
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	17.01923	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	1.70192	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
CCI Antennas	HPA-65R-BUU-H8	90	0	4777	13.391842	1.339184	15.079942	1.507994
CCI Antennas	HPA-65R-BUU-H6	90	210	2350	6.424754	0.642475	7.324093	0.732409
CCI Antennas	HPA-65R-BUU-H6	90	330	2350	4.292343	0.429234	5.718872	0.571887

AT&T Mobility, LLC (Proposed)
NEW FAIRFIELD SR37-SR39
Carrier Summary

Frequency:	2300	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	14.72504	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	1.4725	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Kathrein-Scala	800-10966	90	0	4046	5.258307	0.525831	8.17381	0.817381
Kathrein-Scala	800-10966	90	210	4046	5.258307	0.525831	8.17381	0.817381
Kathrein-Scala	800-10966	90	330	4046	5.209836	0.520984	8.17381	0.817381

AT&T Mobility, LLC (Proposed)
NEW FAIRFIELD SR37-SR39
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	µW/cm^2
Maximum power density at ground level:	11.41197	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	2.01388	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Kathrein-Scala	800-10966	90	0	2143	2.059846	0.363502	3.849432	0.679312
Kathrein-Scala	800-10966	90	0	2143	2.059846	0.363502	3.849432	0.679312
Kathrein-Scala	800-10966	90	210	2143	1.739975	0.307054	3.469076	0.61219
Kathrein-Scala	800-10966	90	210	2143	1.739975	0.307054	3.469076	0.61219
Kathrein-Scala	800-10966	90	330	2143	1.898192	0.334975	3.654156	0.644851
Kathrein-Scala	800-10966	90	330	2143	1.898192	0.334975	3.654156	0.644851

AT&T Mobility, LLC (Proposed)
NEW FAIRFIELD SR37-SR39
Carrier Summary

Frequency:	737	MHz
Maximum Permissible Exposure (MPE):	491.33	µW/cm^2
Maximum power density at ground level:	8.80653	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	1.79237	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Kathrein-Scala	800-10966	90	0	3623	4.137969	0.842192	5.730481	1.166312
Kathrein-Scala	800-10966	90	210	3623	3.529279	0.718306	5.242523	1.066999
Kathrein-Scala	800-10966	90	330	3623	3.83005	0.779522	5.476909	1.114703

Unknown Carrier
NEW FAIRFIELD SR37-SR39
Carrier Summary

Frequency:	150	MHz
Maximum Permissible Exposure (MPE):	200	µW/cm^2
Maximum power density at ground level:	0.2963	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.14815	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Generic	Omni	175	0	100	0.148148	0.074074	0.148148	0.074074
Generic	Omni	175	0	100	0.148148	0.074074	0.148148	0.074074

Unknown Carrier
NEW FAIRFIELD SR37-SR39
Carrier Summary

Frequency:	2100	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	9.93795	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.99379	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Generic	Panel	125	0	3992	5.416341	0.541634	5.416341	0.541634
Generic	Panel	125	120	3992	5.416341	0.541634	5.416341	0.541634
Generic	Panel	125	240	3992	5.38442	0.538442	5.407069	0.540707
Generic	Panel	145	0	3992	3.960761	0.396076	3.960761	0.396076
Generic	Panel	145	120	3992	3.93669	0.393669	3.953785	0.395379
Generic	Panel	145	240	3992	3.960761	0.396076	3.960761	0.396076

Unknown Carrier
NEW FAIRFIELD SR37-SR39
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	5.20462	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.52046	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Generic	Panel	125	0	4180	1.298241	0.129824	1.503912	0.150391
Generic	Panel	125	120	4180	1.298583	0.129858	1.503912	0.150391
Generic	Panel	125	240	4180	1.298241	0.129824	1.503912	0.150391
Generic	Panel	145	0	4180	0.958621	0.095862	1.100873	0.110087
Generic	Panel	145	120	4180	0.958621	0.095862	1.100873	0.110087
Generic	Panel	145	240	4180	0.958916	0.095892	1.100873	0.110087
Generic	Panel	155	0	4180	0.837956	0.083796	0.957357	0.095736
Generic	Panel	155	120	4180	0.837956	0.083796	0.957357	0.095736
Generic	Panel	155	240	4180	0.838271	0.083827	0.957357	0.095736

Unknown Carrier
NEW FAIRFIELD SR37-SR39
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	µW/cm^2
Maximum power density at ground level:	3.21353	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.56709	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Generic	Panel	125	0	2266	1.611277	0.284343	2.024873	0.357331
Generic	Panel	125	120	2266	1.611277	0.284343	2.024873	0.357331
Generic	Panel	125	240	2266	1.613085	0.284662	2.024873	0.357331
Generic	Panel	155	0	2266	1.022965	0.180523	1.290155	0.227674
Generic	Panel	155	120	2266	1.02432	0.180762	1.290155	0.227674
Generic	Panel	155	240	2266	1.022965	0.180523	1.290155	0.227674

Unknown Carrier
NEW FAIRFIELD SR37-SR39
Carrier Summary

Frequency:	700	MHz
Maximum Permissible Exposure (MPE):	466.67	µW/cm^2
Maximum power density at ground level:	3.6459	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.78126	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Generic	Panel	125	0	1960	1.34924	0.289123	1.915804	0.410529
Generic	Panel	125	120	1960	1.34924	0.289123	1.915803	0.410529
Generic	Panel	125	240	1960	1.355527	0.29047	1.915804	0.410529
Generic	Panel	145	0	1960	0.98394	0.210844	1.403255	0.300697
Generic	Panel	145	120	1960	0.987876	0.211688	1.403255	0.300697
Generic	Panel	145	240	1960	0.98394	0.210844	1.403255	0.300697

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