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Daniel M. Laub
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July 21, 2017

VIA EMAIL & OVERNIGHT DELIVERY

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

Re: Request for Modification
Connecticut Siting Council Petition 1108
Telecommunications Facility at Redding Ridge Fire Department
668 Jones Hill Road, West Haven, Connecticut

Dear Executive Director Bachman:

This letter is respectfully submitted on behalf of American Tower Corporation ("ATC") and New Cingular Wireless PCS, LLC ("AT&T") (together the "Petitioners"). The Petitioners hereby respectfully request a minor modification of the approved Petition plan as set forth below.

ATC and AT&T plan the following minor changes:

1. A reduced number of proposed antennas and equipment to be installed by AT&T. AT&T is reducing the number of antennas it will install on the existing tower facility to a total of three antennas as per the revised facility drawings included with this letter as Attachment 1. This modification reduces the loading on the existing tower and obviates the need for the previously required tower and foundation upgrades as shown in a new structural analysis included with this submission as Attachment 2.¹

2: Installation of a shared generator by ATC within the existing compound. In accordance with the September 25, 2014 submission and October 2, 2014 Siting Council decision, ATC will install a shared generator at the proposed facility. To promote the most efficient use of compound space, ATC plans to locate the approved generator in the northeast corner of the existing compound as opposed to the previously approved southwest corner.

The minor nature of these proposed changes pose no potential impact to the environment and the Petitioners respectfully request approval of these modifications as proposed.

¹ Due to the size of the structural report, only the top sheet of the structural is included as Attachment 2. Four (4) copies of the complete structural are being bulk filed with this submission for the Council's records.



July 21, 2017
Page 2

Thank you for your consideration of this request.

Very truly yours,


Daniel M. Laub

Enclosures

cc: Hon. Edward M. O'Brien, Mayor, City of West Haven
Joseph A Riccio, Jr. Commissioner, Planning & Development, City of West Haven
American Tower Corporation
AT&T
Centerline Communications

ATTACHMENT 1



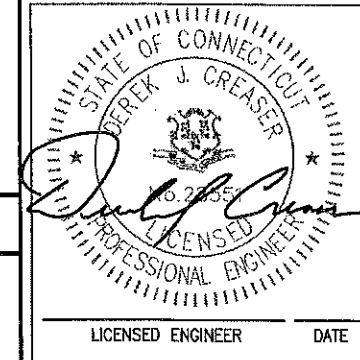
ATC SITE NAME: WEST HAVEN & RT 162 CT
ATC SITE #: 243036
S2899
WEST HAVEN JONES HILL

668 JONES HILL ROAD
 WEST HAVEN, CT 06516

SITE TYPE: CO-LOCATION ON EXISTING MONOPOLE



550 COCHITUATE ROAD
 FRAMINGHAM, MA 01701

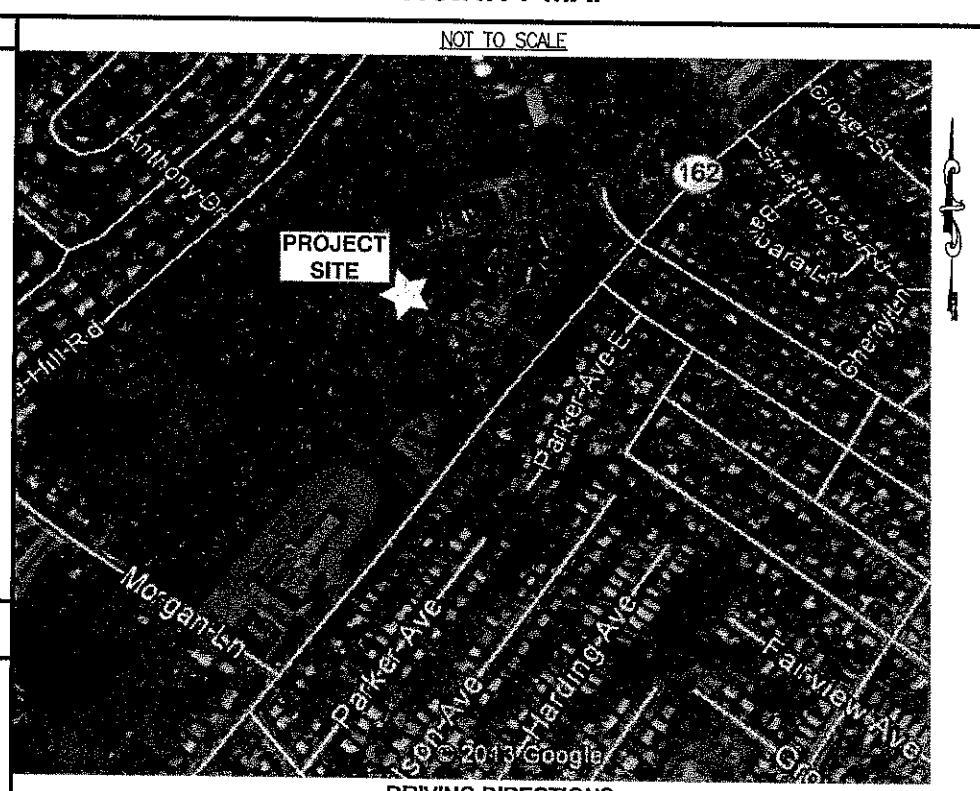


SHEET INDEX

VICINITY MAP

PROJECT DESCRIPTION

SHEET	DESCRIPTION	REV.
T-1	TITLE SHEET	4
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1. THIS IS AN UNMANNED AND RESTRICTED ACCESS EQUIPMENT SITE AND WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNALS FOR THE PURPOSE OF PROVIDING PUBLIC CELLULAR SERVICE.
2. THIS FACILITY WILL CONSUME NO UNRECOVERABLE ENERGY.
3. NO POTABLE WATER SUPPLY IS TO BE PROVIDED AT THIS LOCATION.
4. NO WASTE WATER WILL BE GENERATED AT THIS LOCATION.
5. NO SOLID WASTE WILL BE GENERATED AT THIS LOCATION.
6. AT&T MAINTENANCE CREW (TYPICALLY ONE PERSON) WILL MAKE AN AVERAGE OF ONE TRIP PER MONTH AT ONE HOUR PER VISIT.

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE PROJECT OWNER'S REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

UNDERGROUND SERVICE ALERT

3 WORKING DAYS



BEFORE YOU DIG



CALL TOLL FREE 1-800-922-4455

REVISIONS

REV. #	DATE	DESCRIPTION
4	06/26/17	ISSUED FOR CONSTRUCTION
3	09/12/14	ISSUED FOR CONSTRUCTION
2	08/20/14	ISSUED FOR CONSTRUCTION
1	06/25/14	ISSUED FOR CONSTRUCTION
A	10/15/13	ISSUED FOR REVIEW

PROJECT NO. S2899	DESIGNED BY: AT DRAWN BY: SG CHECKED BY: DPH	SCALE: AS SHOWN
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SITE NAME:
 ATC SITE NAME: WEST HAVEN & RT 162 CT
 ATC SITE #: 243036
 S2899
 WEST HAVEN JONES HILL

SITE ADDRESS:
 668 JONES HILL ROAD
 WEST HAVEN, CT 06516

SHEET TITLE:
 TITLE SHEET

SHEET NO:
 T-1

PROJECT INFORMATION:

PROPERTY OWNER: AMERICAN TOWER CORPORATION
 116 HUNTINGTON AVE.
 BOSTON, MA 02116

APPLICANT: ATC FOR NEW CINGULAR WIRELESS PCS, LLC (AT&T)
 116 HUNTINGTON AVE.
 BOSTON, MA 02116

SITE ADDRESS: 668 JONES HILL ROAD
 WEST HAVEN, CT 06516

COUNTY: NEW HAVEN

LATITUDE: N 41°15'23.04"

LONGITUDE: W 72°58'20.49"

ZONING CLASSIFICATION: R1- RESIDENTIAL DISTRICT

ZONING JURISDICTION: CITY OF WEST HAVEN

PARCEL ID: MAP: 19 BLOCK: 1A

ARCHITECT / ENGINEER: HUDSON DESIGN GROUP LLC
 1600 OSGOOD STREET
 BUILDING 20 NORTH, SUITE 3090
 N. ANDOVER, MA 01845

DRIVING DIRECTIONS

DIRECTIONS TO SITE:
 START OUT GOING WEST ON COCHITUATE RD/RT-30 W TOWARD BURR ST. CONTINUE TO FOLLOW RT-30 W. 2.1 MI. STAY STRAIGHT TO GO ONTO RT-9 W/WORCESTER RD. 2.4 MI. MERGE ONTO I-90 W/MASSACHUSETTSTURNPIKE/MASS PIKE TOWARD SPRINGFIELD/WORCESTER (PORTIONS TOLL). 33.5 MI. MERGE ONTO I-84 W VIA EXIT 9 TOWARD US-20/HARTFORD/NEW YORK CITY (PORTIONS TOLL) (CROSSING INTO CONNECTICUT). 41.7 MI. MERGE ONTO CT-15 S VIA EXIT 57 ON THE LEFT TOWARD I-91 S/CHARTER OAK BR/N.Y. CITY. 1.9 MI. MERGE ONTO I-91 S VIA EXIT 86 TOWARD NEW HAVEN/N.Y. CITY. 36.6 MI. MERGE ONTO I-95 S/GOVERNOR JOHN DAVIS LODGE TURNPIKE VIA THE EXIT ON THE LEFT TOWARD N.Y. CITY. 4.1 MI. TAKE THE CT-162/SAW MILL RD EXIT, EXIT 42. 0.2 MI. TURN RIGHT ONTO SAWMILL RD/CT-162. CONTINUE TO FOLLOW CT-162. 1.0 MI. TURN RIGHT ONTO PLATT AVE/CT-162. CONTINUE TO FOLLOW CT-162. 0.8 MI. TURN SLIGHT RIGHT ONTO PLATT AVE/CT-162. CONTINUE TO FOLLOW CT-162. 0.5 MI. 668 JONES HILL RD IS ON THE RIGHT.

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTNING 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 NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. 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.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 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

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 CONTRACTOR - AMERICAN TOWER
 SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER - AT&T MOBILITY
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. APPLICABLE BUILDING CODES:
 SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
 BUILDING CODE: 2003 IBC WITH 2005 CT SUPPLEMENT, + 2009 & 2013 CT AMENDMENTS
 ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS
 LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS

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

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

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-F, STRUCTURAL STANDARDS FOR STEEL

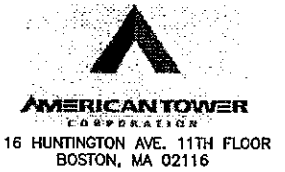
EQUIPMENT AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

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

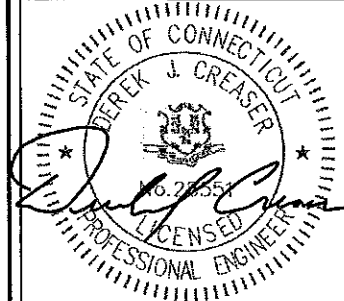
ABBREVIATIONS					
AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		



550 COCHITUATE ROAD
FRAMINGHAM, MA 01701



1600 OSWOOD STREET
BLD 20 N, SUITE 3080
N. ANDOVER, MA 01845
TEL: (978)-557-5553
FAX: (978)-336-5566



LICENSED ENGINEER DATE

REVISIONS

REV. #	DATE	DESCRIPTION
4	06/26/17	ISSUED FOR CONSTRUCTION
3	09/12/14	ISSUED FOR CONSTRUCTION
2	08/20/14	ISSUED FOR CONSTRUCTION
1	06/25/14	ISSUED FOR CONSTRUCTION
A	10/15/13	ISSUED FOR REVIEW

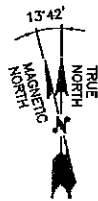
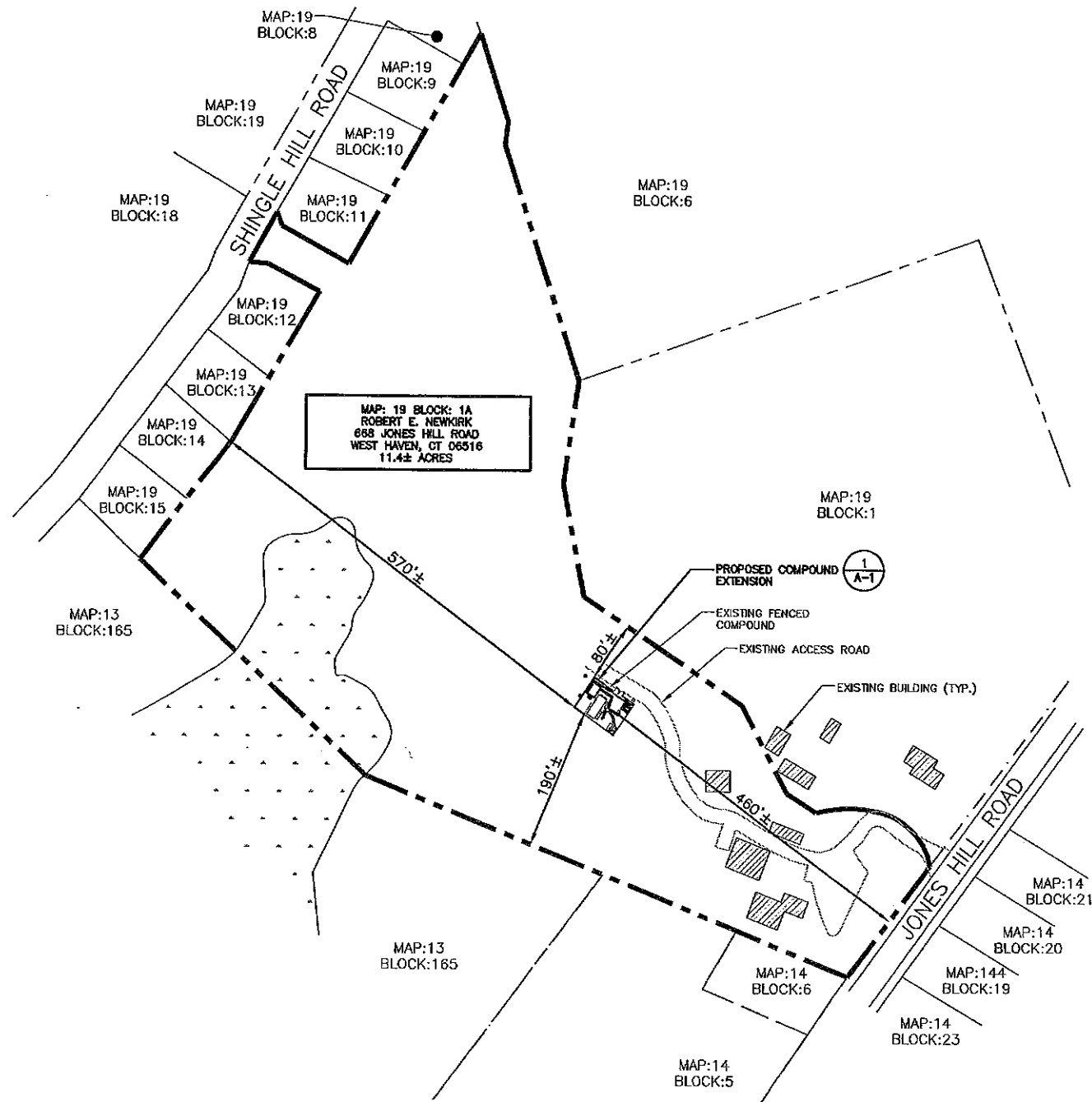
PROJECT NO.	DESIGNED BY:	SCALE:
S2899	AT	AS SHOWN
	SE	
	DFH	

SITE NAME:
 ATC SITE NAME: WEST HAVEN & RT 162 CT
 ATC SITE #: 243036
 S2899
 WEST HAVEN JONES HILL

SITE ADDRESS:
 668 JONES HILL ROAD
 WEST HAVEN, CT 06516

SHEET TITLE:
 GENERAL NOTES

SHEET NO:
 GN-1



SITE PLAN (1)
SCALE: 1"=100' (C-1)

NOTE:
SITE PLAN PREPARED BY HUDSON DESIGN GROUP, LLC FROM CITY OF WEST HAVEN, CT. ASSESSORS DATA AND OTHER SOURCES AND DOES NOT REPRESENT AN ACTUAL FIELD OR BOUNDARY SURVEY.

ZONING INFORMATION		
ZONING DISTRICT: R-1 RESIDENTIAL DISTRICT		
DIMENSION REQUIREMENTS:	REQUIRED	PROPOSED
EQUIPMENT SETBACKS:		
FRONT YARD SETBACK:	35'	460'±
SIDE YARD SETBACK:	20'	80'± & 190'±
REAR YARD SETBACK:	35'	570'±

HANDICAP REQUIREMENTS

FACILITY IS UNMANNED & NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS REQUIREMENTS NOT REQUIRED.

GENERAL NOTES:

1. PROPERTY LINE INFORMATION (WHEN APPLICABLE) WAS PREPARED USING TAX MAPS, AND PLANS OF RECORD AND SHOULD NOT BE CONSTRUCTED AS A BOUNDARY SURVEY.
2. NO NOISE, SMOKE, DUST, OR ODOR WILL RESULT FROM THIS FACILITY.
3. THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION (THERE IS NO HANDICAP ACCESS REQUIRED).
4. THE FACILITY IS UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.
5. CONNECTION TO ELECTRICAL & TELEPHONE UTILITIES TO BE DETERMINED BY THE APPROPRIATE UTILITY COMPANY.
6. SUBCONTRACTOR TO VERIFY ANTENNA ELEVATION AND AZIMUTH WITH RF ENGINEER PRIOR TO INSTALLATION. SEE ANTENNA CONFIGURATION SHEETS FOR SITE SPECIFIC DETAILS.
7. SUBCONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO EXCAVATING.
8. SUBCONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION.
9. THERE ARE NO TOPOGRAPHIC CHANGES BEING PROPOSED UNDER THE CURRENT APPLICATION.

LEGEND	
	PROPERTY LINE-SUBJECT PARCEL
	PROPERTY LINE-ABUTTERS
	TOWN BOUNDARY LINE
	(E) SUBJECT BUILDING
	ASSESSORS MAP-BLOCK-LOT NO.

550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

116 HUNTINGTON AVE. 11TH FLOOR
BOSTON, MA 02116

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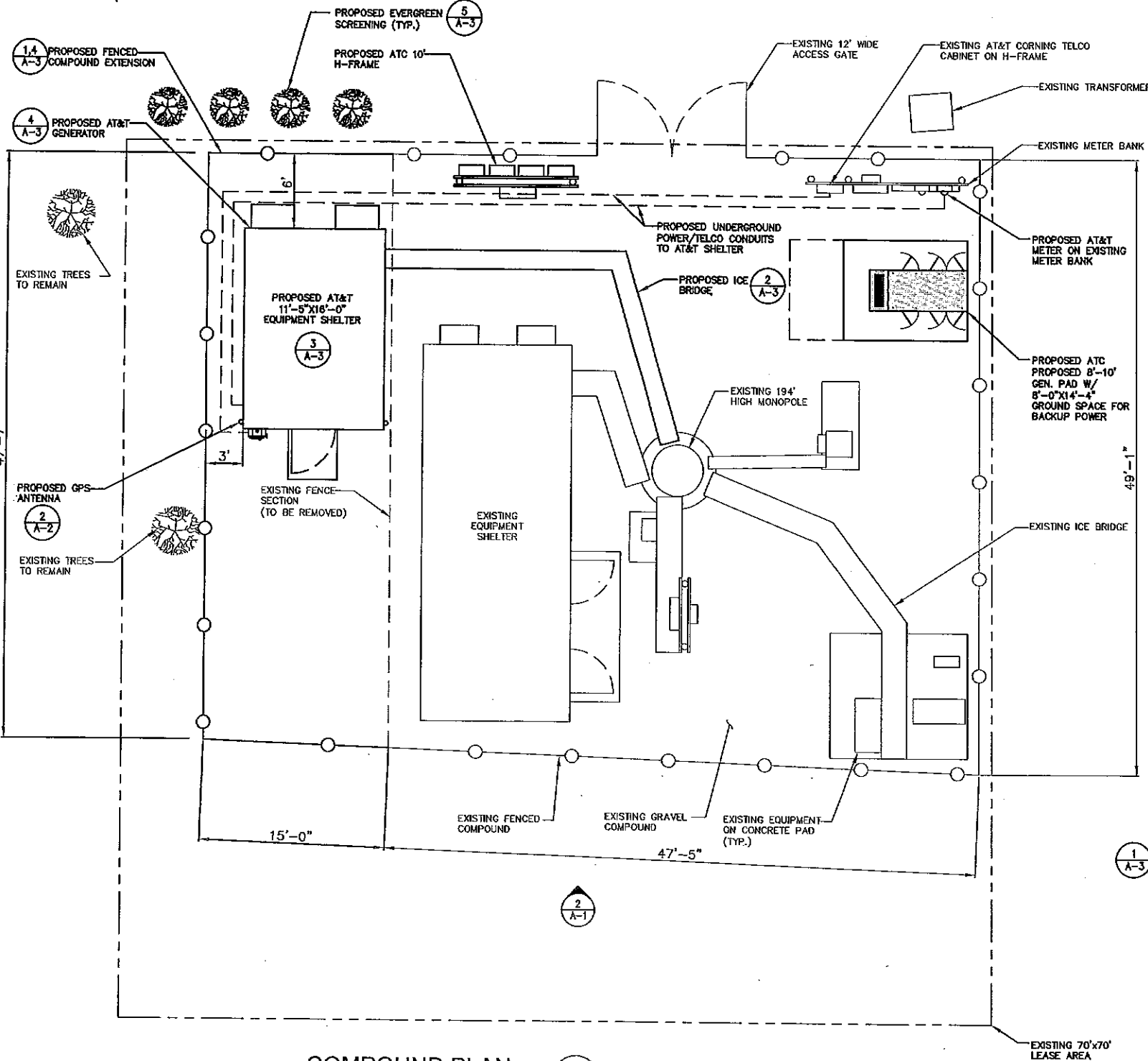
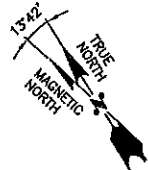
PROJECT NO. S2899	DESIGNED BY: AT DRAWN BY: SG CHECKED BY: DPH	SCALE: AS SHOWN
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WEST HAVEN JONES HILL

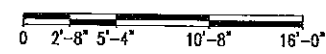
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688 JONES HILL ROAD
WEST HAVEN, CT 06516

SHEET TITLE:
SITE PLAN

SHEET NO.:
C-1

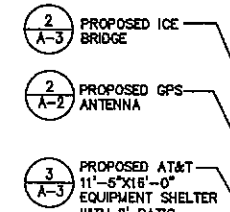
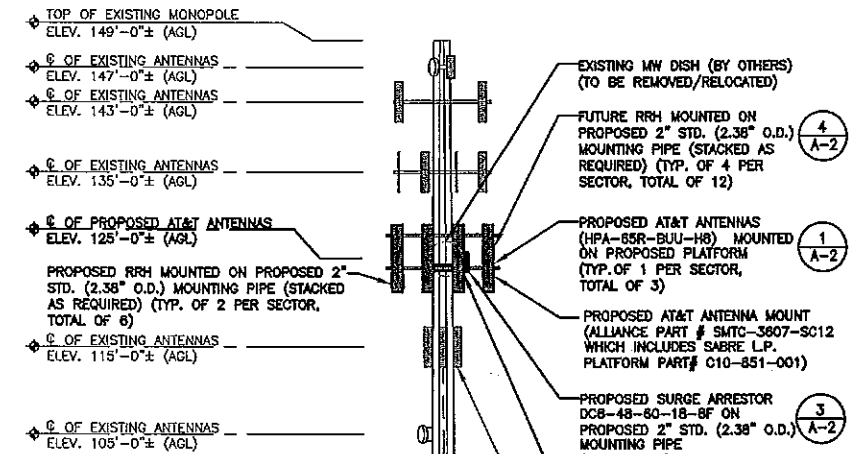


COMPOUND PLAN
SCALE: 3/16" = 1'-0"

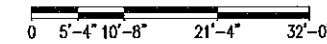


NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA CONFIGURATION.

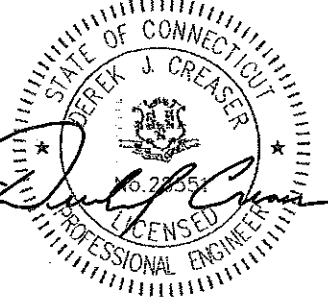
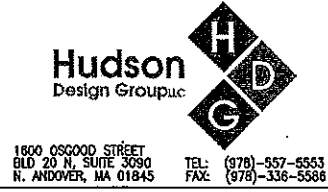
NOTE:
ALL ANTENNAS AND LINES TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY AMERICAN TOWER CORP. AND FINAL AT&T RF DATA SHEET.



SOUTHWEST ELEVATION



550 COCHITUATE ROAD
FRAMINGHAM, MA 01701



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SHEET TITLE:
COMPOUND PLAN & ELEVATION

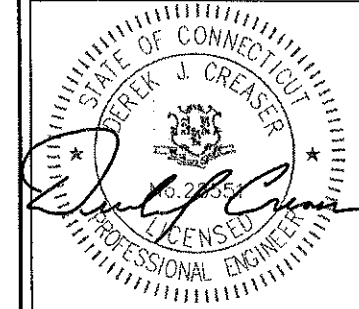
SHEET NO.:
A-1



550 COCHITUATE ROAD
FRAMINGHAM, MA 01701



Hudson
Design Group Inc.
1600 OSSEWOOD STREET
BLD 20 N. SUITE 3090
N. ANDOVER, MA 01845
TEL: (978)-557-5553
FAX: (978)-336-5586



LICENSED ENGINEER DATE

REVISIONS

REV. #	DATE	DESCRIPTION
4	06/26/17	ISSUED FOR CONSTRUCTION
3	09/12/14	ISSUED FOR CONSTRUCTION
2	08/20/14	ISSUED FOR CONSTRUCTION
1	06/25/14	ISSUED FOR CONSTRUCTION
A	10/15/13	ISSUED FOR REVIEW

PROJECT NO.	DESIGNED BY:	SCALE:
S2899	AT	AS SHOWN
	SC	
	DPH	

SITE NAME:
ATC SITE NAME: WEST HAVEN & RT 162 CT
ATC SITE #: 243036
S2899
WEST HAVEN JONES HILL

SITE ADDRESS:
668 JONES HILL ROAD
WEST HAVEN, CT 06516

SHEET TITLE:
DETAILS

SHEET NO:
A-2

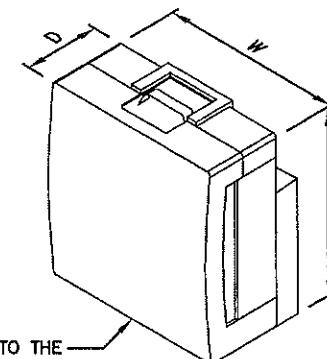
NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA CONFIGURATION.

NOTE:
ALL ANTENNAS AND LINES TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY AMERICAN TOWER CORP. AND FINAL AT&T RF DATA SHEET.

RRU CHART

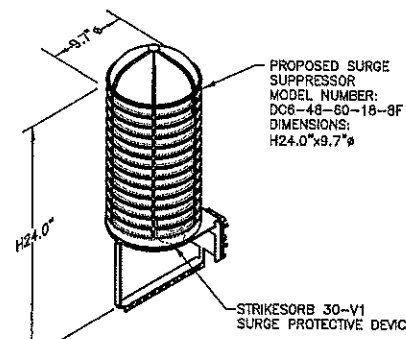
QUANTITY	MODEL	L	W	D
3(P),6(F)	RRUS-11	19.7"	17.0"	7.2"
-	RRUS-12	20.4"	18.5"	7.5"
3(P),3(F)	RRUS-32	27.2"	12.1"	7.0"
3(F)	RRUS-E2	20.4"	18.5"	7.5"
-	LTE-A2	16.4"	15.2"	3.4"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

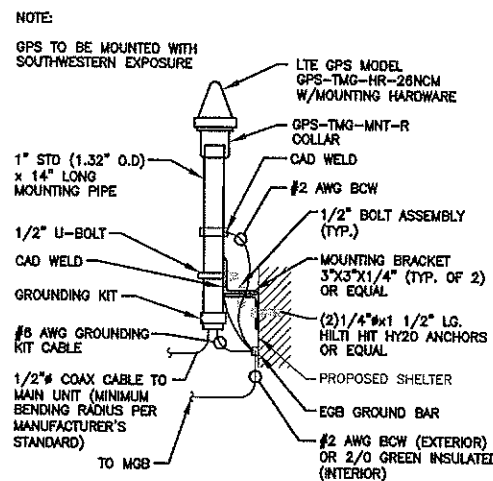


PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

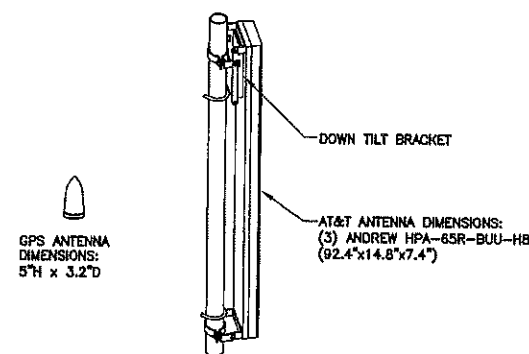
RRH MODULE DETAIL 4
SCALE: N.T.S.



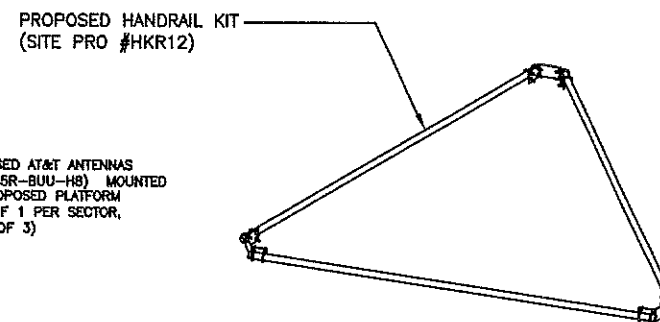
DC SURGE SUPPRESSOR DETAIL 3
SCALE: N.T.S.



GPS MOUNTING DETAIL 2
SCALE: N.T.S.

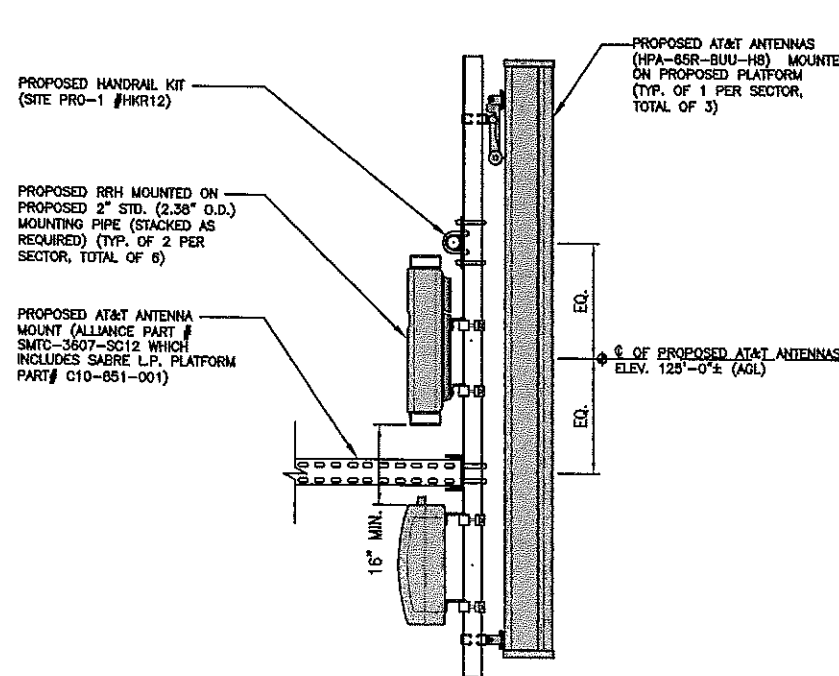


GPS AND ANTENNA DETAIL 1
SCALE: N.T.S.

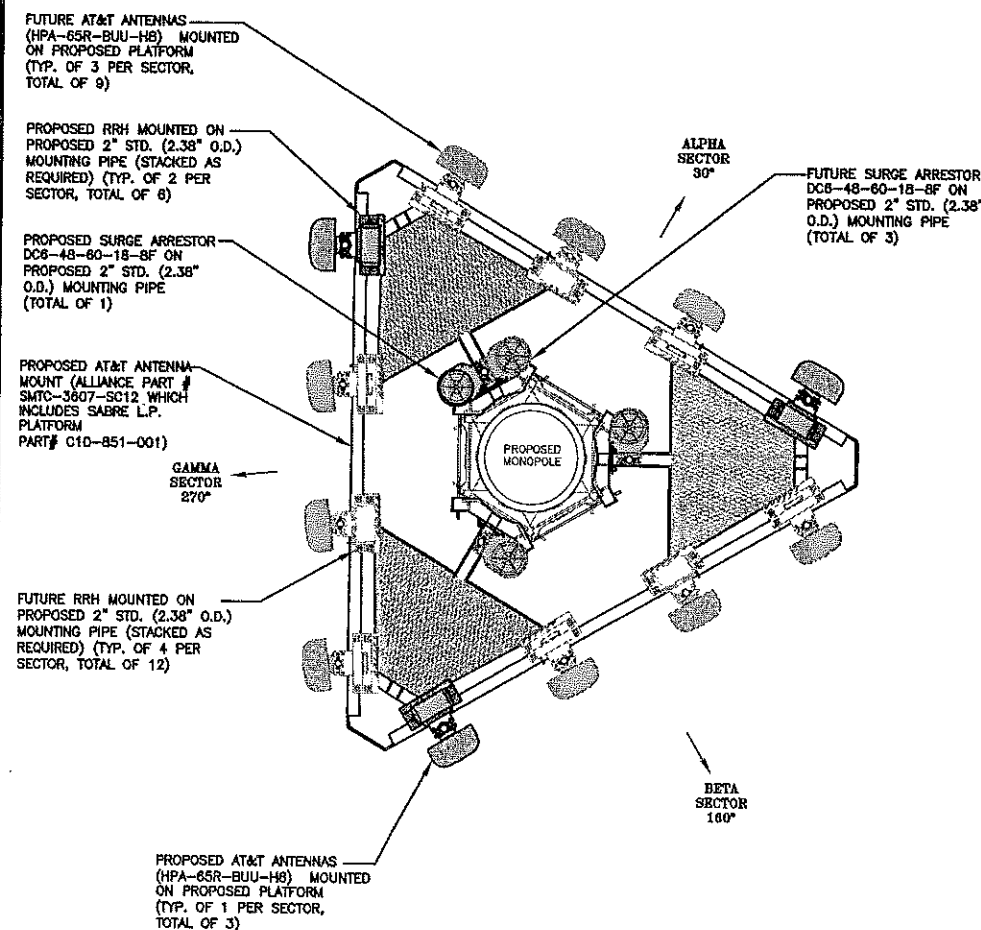
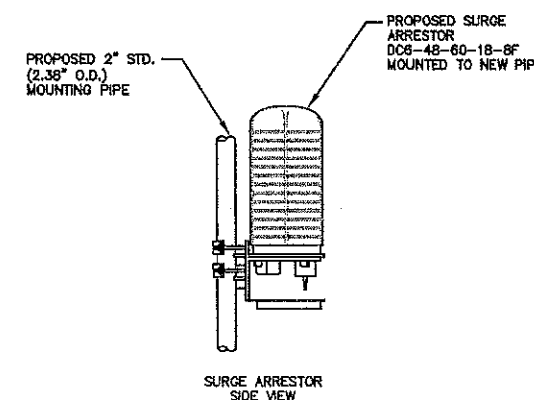


NOTE:
CONTRACTOR TO VERIFY FACE FRAME WIDTH PRIOR TO ORDERING HANDRAIL KIT

PROPOSED HANDRAIL KIT 7
SCALE: N.T.S.



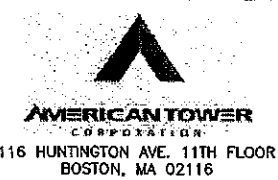
PROPOSED LTE ANTENNA, RRH, & SURGE ARRESTOR MOUNTING DETAIL 6
SCALE: N.T.S.



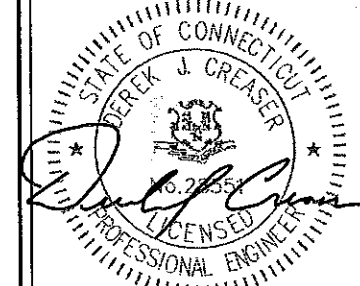
ANTENNA PLAN 5
SCALE: N.T.S.



550 COCHITUATE ROAD
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1600 OSGOOD STREET
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FAX: (978)-336-5886



LICENSED ENGINEER DATE

REVISIONS

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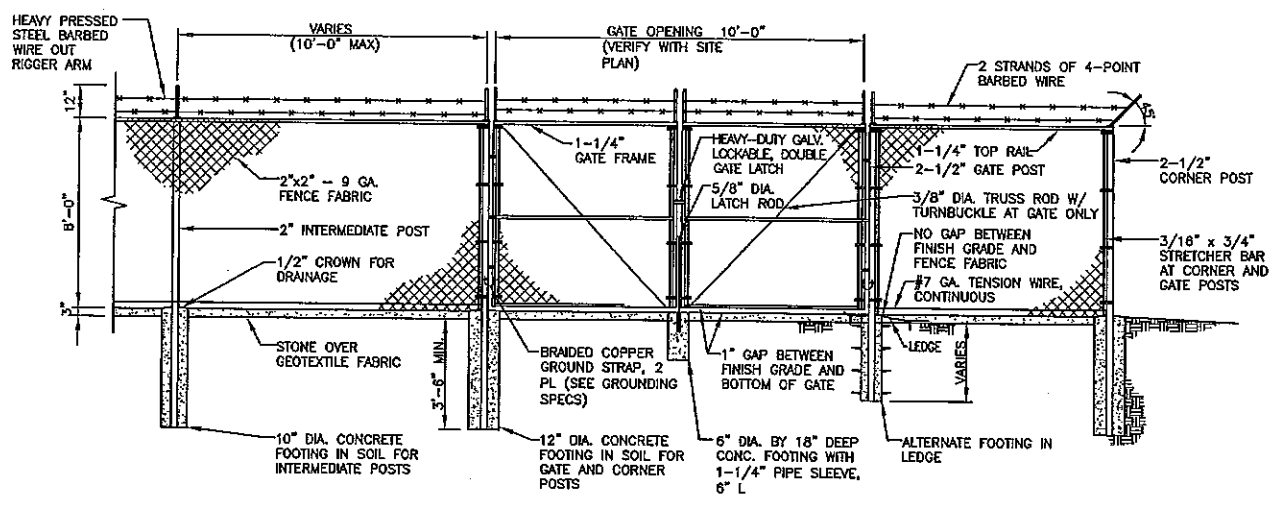
PROJECT NO.	DESIGNED BY:	SCALE:
S2899	AT	AS SHOWN

SITE NAME:
ATC SITE NAME: WEST HAVEN & RT 162 CT
ATC SITE #: 243036
S2899
WEST HAVEN JONES HILL

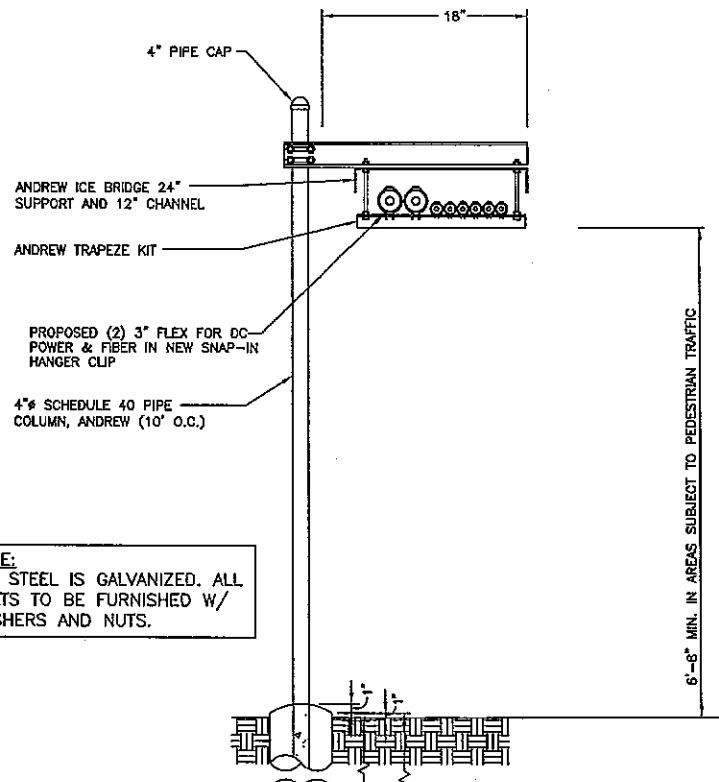
SITE ADDRESS:
668 JONES HILL ROAD
WEST HAVEN, CT 06516

SHEET TITLE:
DETAILS

SHEET NO:
A-3

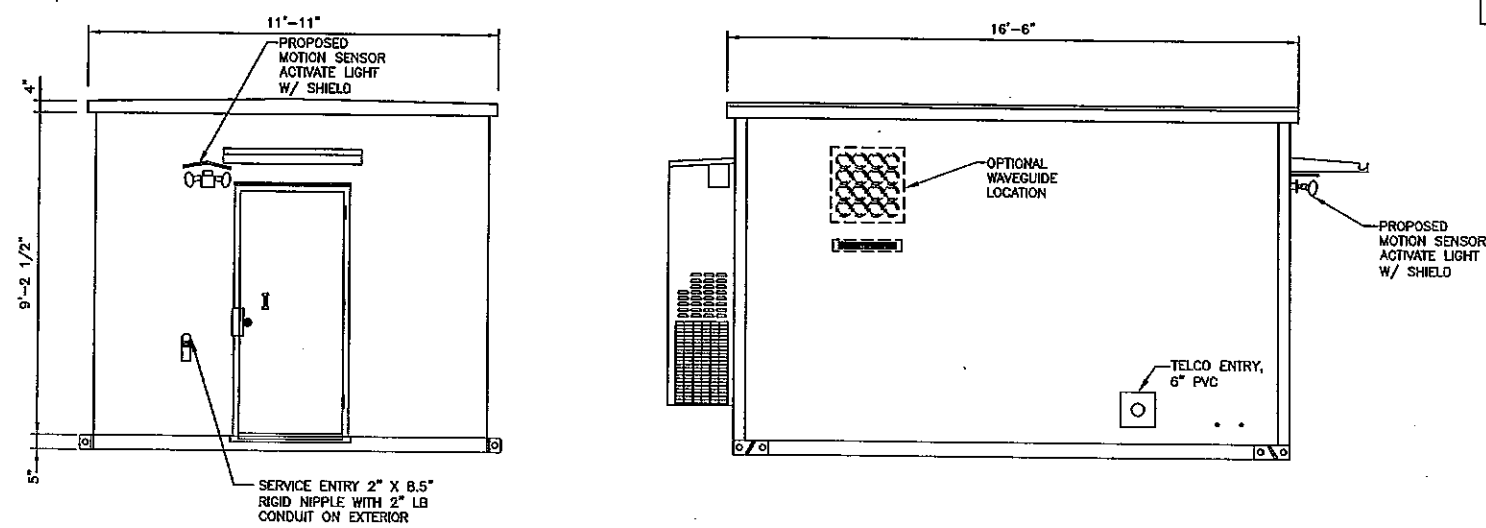


CHAIN LINK FENCE DETAIL
SCALE: N.T.S. 1 A-3

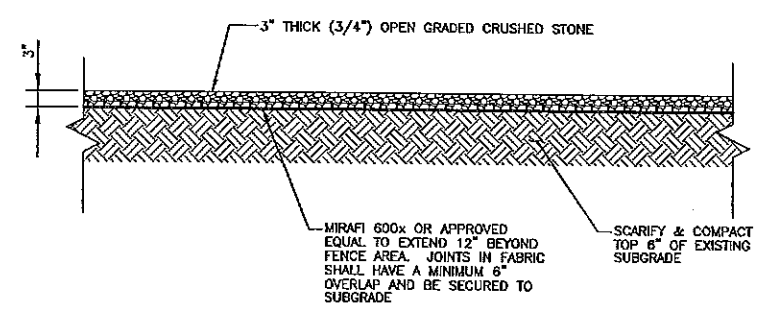


COAX ICE BRIDGE DETAIL
SCALE: N.T.S. 2 A-3

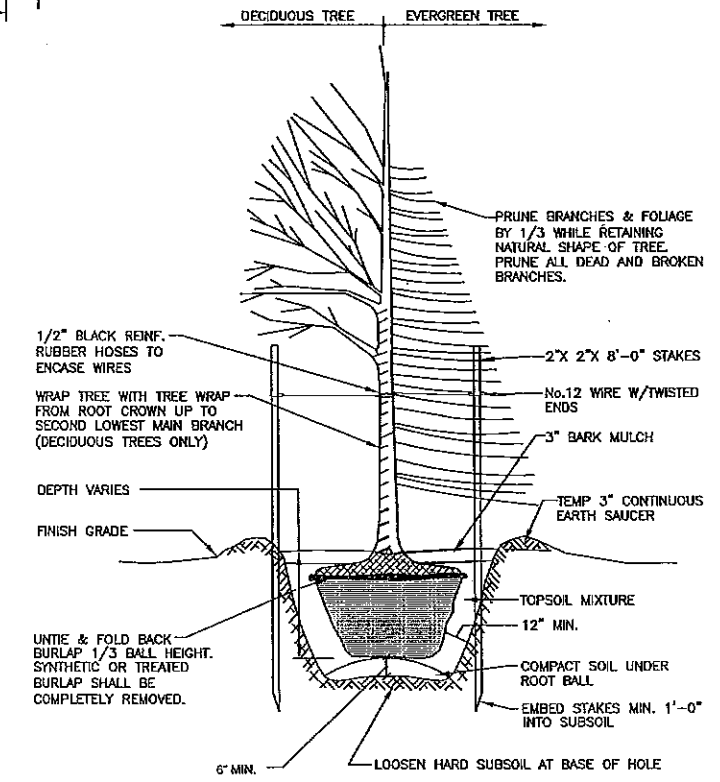
NOTE:
ALL STEEL IS GALVANIZED. ALL BOLTS TO BE FURNISHED W/ WASHERS AND NUTS.



TYPICAL SHELTER DETAILS
SCALE: 3/8" = 1'-0" 3 A-3



GRAVEL COMPOUND DETAIL
SCALE: N.T.S. 4 A-3

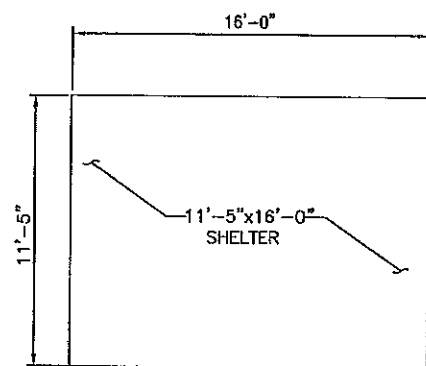


- NOTES:
- LANDSCAPE TREES SHALL BE A MINIMUM OF 6'-0" IN HEIGHT WHEN PLANTED.
 - SPECIES PROPOSED THUJA OCCIDENTALIS PYRAMIDAL (PYRAMIDAL ARBORVITAE)

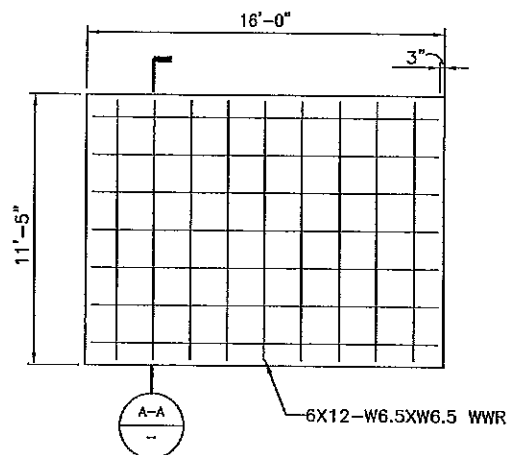
PLANTING DETAIL
SCALE: N.T.S. 5 A-3

FOUNDATION NOTES & CONCRETE SPECIFICATIONS

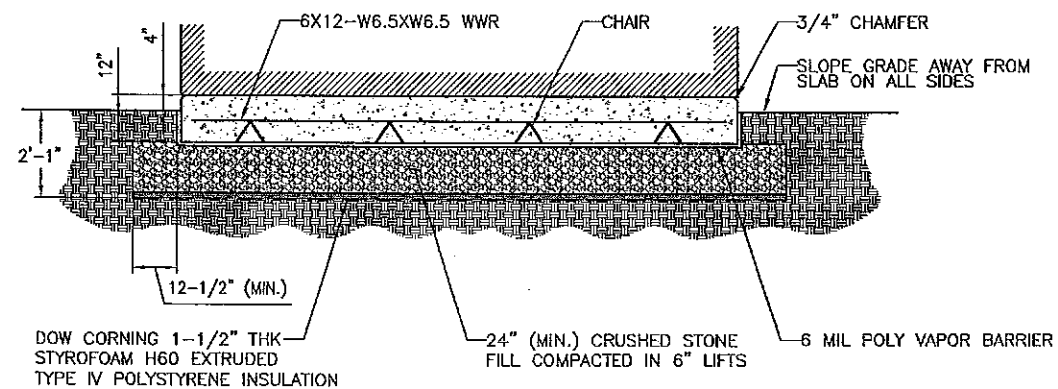
- FOUNDATION AREA SHALL BE EXCAVATED TO THE DEPTH AND DIMENSIONS SHOWN ON THE PLANS. EXISTING LEDGE AND ALL OTHER EXISTING UNSUITABLE MATERIAL SHALL BE REMOVED AND LEGALLY DISPOSED OF OFF-SITE. THE SUBGRADE SHALL BE ROLLED WITH A 1-TON, VIBRATORY, WALK-BEHIND ROLLER AT A SPEED OF LESS THAN 2 FPS, 6 PASSES MINIMUM, TO PROVIDE UNYIELDING SURFACE.
- UNDERCUT SOFT OR "WEAVING" AREAS A MINIMUM OF 12 INCHES DEEP. BACKFILL UNDERCUT AREA WITH FILL MEETING THE SPECIFICATIONS OF STRUCTURAL FILL.
- CONCRETE TO HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH (f'_c)=3000 psi. CONCRETE TO BE AIR ENTRAINED, DESIRED AIR CONTENT TO BE 6% (PLUS OR MINUS 2%)
- BAR REINFORCING TO BE ASTM A615 GRADE 60.
- WELDED WIRE FABRIC TO CONFORM TO THE REQUIREMENTS OF ASTM A185. WIRES FOR FABRIC TO CONFORM TO THE REQUIREMENTS OF ASTM A82.
- COORDINATE WITH MANUFACTURER OF PREFABRICATED SHELTER FOR LOCATION OF ATTACHMENTS TO BASE SLAB.
- ALL REINFORCING TO HAVE 2" MINIMUM CONCRETE COVER.
- ALL CONCRETE MATERIALS AND WORKMANSHIP SHALL CONFORM TO LATEST EDITION OF ACI 318 BUILDING CODE, AND IBC 2009.
- SLAB TO BE LEVEL $\pm 1/4"$.
- SLAB FOUNDATION DESIGNED ASSUMING ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF.
- SLAB FOUNDATION DESIGN ASSUMING MAXIMUM SOIL PLASTICITY OF 27.
- CONTRACTOR TO VERIFY FINAL SHELTER DIMENSIONS PRIOR TO CONSTRUCTION OF FOUNDATION.
- GRADE SHALL SLOPE AWAY FROM THE CONCRETE PAD TO ALLOW FOR PROPER WATER RUN OFF.
- ANCHOR SHELTER TO FOUNDATION PER SHELTER MANUFACTURER'S RECOMMENDATIONS.



SHELTER PLAN
SCALE: NOT TO SCALE

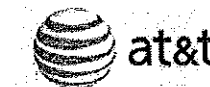
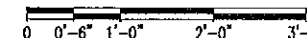


SHELTER FOUNDATION PLAN
SCALE: NOT TO SCALE



SECTION A-A

SHELTER FOUNDATION DETAIL
SCALE: 1"=1'-0"



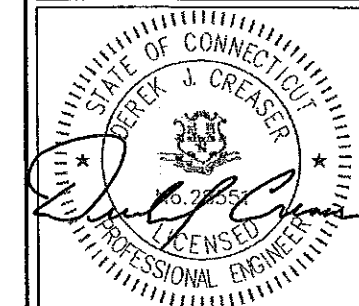
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701



116 HUNTINGTON AVE. 11TH FLOOR
BOSTON, MA 02116



1600 OSGOOD STREET
BLD 20 N, SUITE 3090
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PROJECT NO.	DESIGNED BY:	SCALE:
S2899	AT SS DPH	AS SHOWN

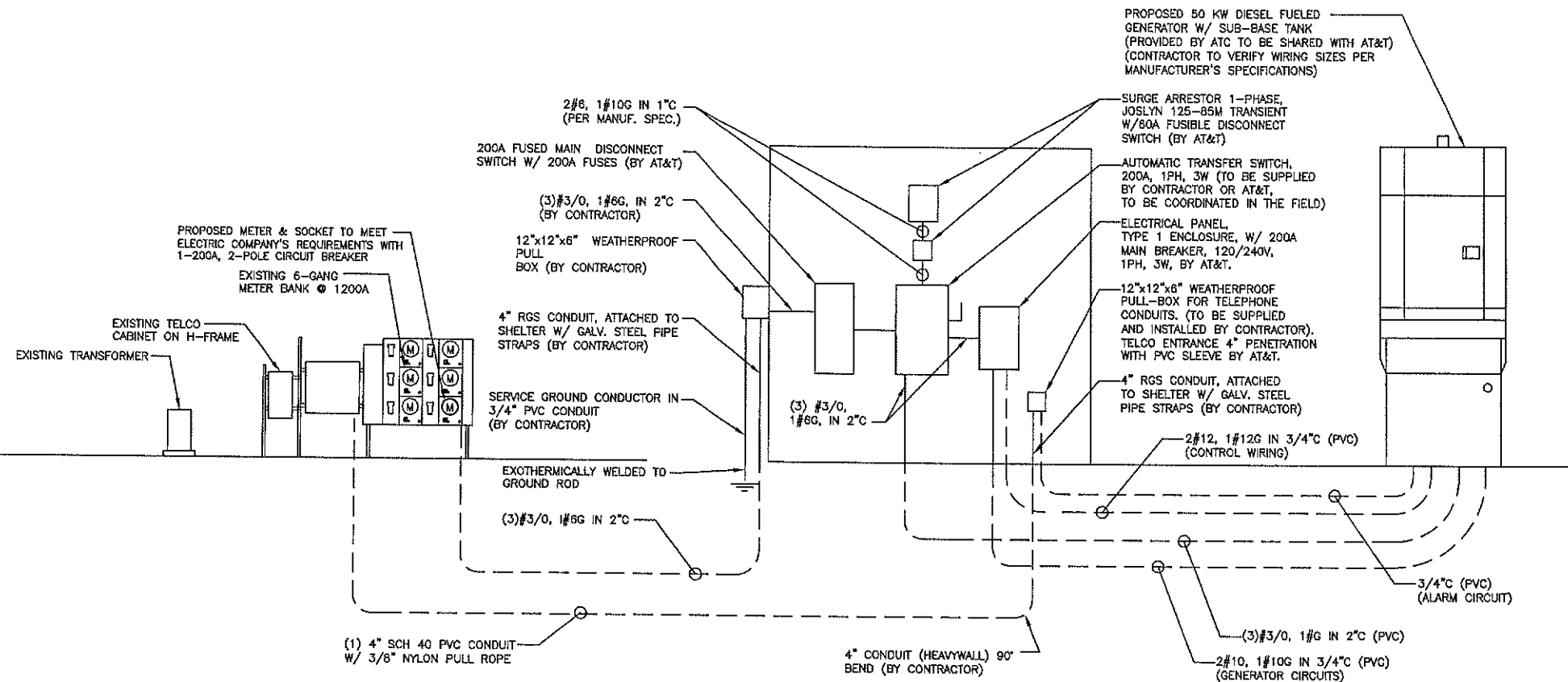
SITE NAME:
ATC SITE NAME: WEST HAVEN & RT 162 CT
ATC SITE #: 243036
S2899
WEST HAVEN JONES HILL

SITE ADDRESS:
668 JONES HILL ROAD
WEST HAVEN, CT 06516

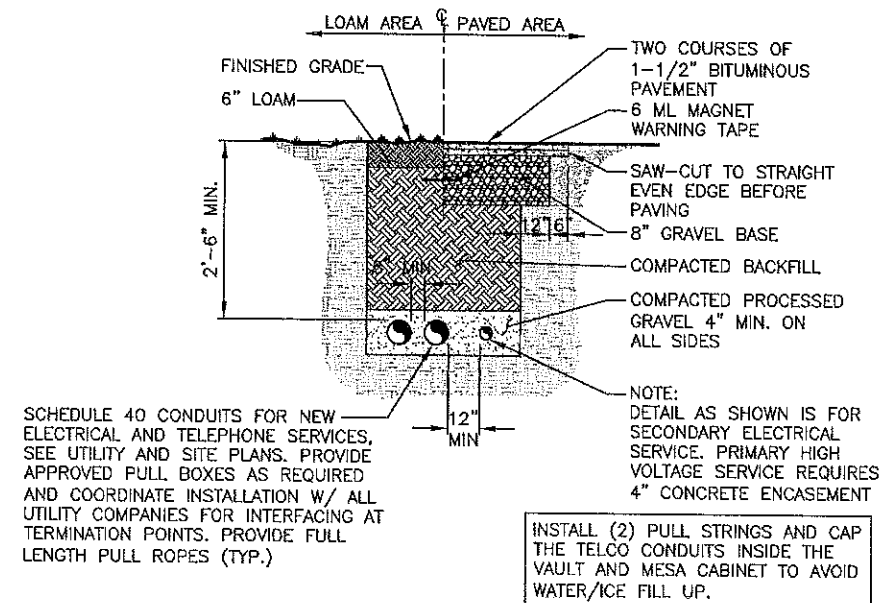
SHEET TITLE:
SHELTER FOUNDATION & DETAILS

SHEET NO:
S-1

NOTES:
 1. GROUND [ATS] TO PROPOSED GROUND BAR
 2. GROUND GENERATOR TO PROPOSED GROUND RING WITH 2 #2 AWG GROUND WIRES.



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



BURIED CONDUIT DETAIL 2
 SCALE: N.T.S. E-1

ELECTRICAL LEGEND

- NEW PANEL BOARD, SURFACE MOUNTED
- EXISTING PANEL BOARD, SURFACE MOUNTED
- DRY TYPE TRANSFORMER
- METER
- CIRCUIT BREAKER
- NON-FUSIBLE DISCONNECT SWITCH, MOUNTED 54" A.F.F.
- FUSIBLE DISCONNECT SWITCH, MOUNTED 54" A.F.F.
- TRANSIENT VOLTAGE SURGE SUPPRESSOR WITH BUILT-IN FUSES, SURFACE MOUNTED
- DUPLEX OUTLET, SURFACE MOUNTED, 20 AMP, 125 VOLTS, SINGLE PHASE
- JUNCTION BOX, SURFACE MOUNTED 18" A.F.F.
- EXPOSED WIRING
- HOME RUNS, MINIMUM 2#10 + 1#10S IN 3/4" CONDUIT U.O.N.
- A.F.F. ABOVE FINISHED FLOOR
- U.O.N. UNLESS OTHERWISE NOTED
- WP WEATHERPROOF
- GF GROUND FAULT INTERRUPTER
- A AMPERE
- V VOLT
- KWH KILOWATT - HOUR
- C CONDUIT
- GRC GALVANIZED RIGID CONDUIT
- G GROUND
- MEB MASTER GROUND BAR
- EGB EQUIPMENT GROUND BAR
- G GROUND COPPER WIRE, SIZE AS NOTED
- EXPOSED WIRING
- COAXIAL CABLE
- 5/8" COPPER CLAD STAINLESS STEEL GROUND ROD
- EXOTHERMIC (CAD WELD) OR MECHANICAL (COMPRESSION TYPE) CONNECTION
- PPC POWER PROTECTION CABINET
- OMNI-DIRECTIONAL ELECTRONIC MARKER SYSTEM (EAS) BALL

ELECTRICAL AND GROUNDING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THININSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.
11. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
12. PPC SUPPLIED BY PROJECT OWNER.
13. GROUNDING SHALL COMPLY WITH NEC ART. 250.
14. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
15. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
16. ALL GROUND CONNECTIONS TO BE BURNDY HYGROND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
17. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 8 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
18. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
19. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
20. BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
21. BOND ANTENNA EGB'S AND MGB TO GROUND RING.
22. CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMS MINIMUM RESISTANCE REQUIRED.
23. CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND LNA RETURN-LOSS AND DISTANCE-TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.
24. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2" 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.

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 TEL: (978)-557-5553
 FAX: (978)-336-5586

STATE OF CONNECTICUT
 BEREK J. CREASER
 10,2855
 LICENSED PROFESSIONAL ENGINEER
 LICENSED ENGINEER DATE

REVISIONS		
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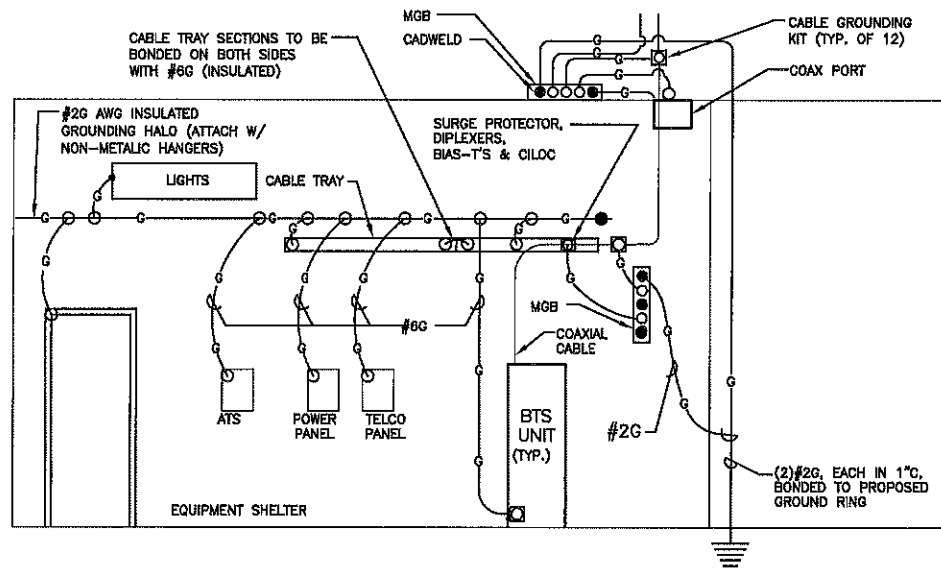
PROJECT NO. S2899	DESIGNED BY: AT DRAWN BY: SG CHECKED BY: DPH	SCALE: AS SHOWN
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SITE NAME:
 ATC SITE NAME: WEST HAVEN & RT 162 CT
 ATC SITE #: 243036
 S2899
 WEST HAVEN JONES HILL

SITE ADDRESS:
 668 JONES HILL ROAD
 WEST HAVEN, CT 06516

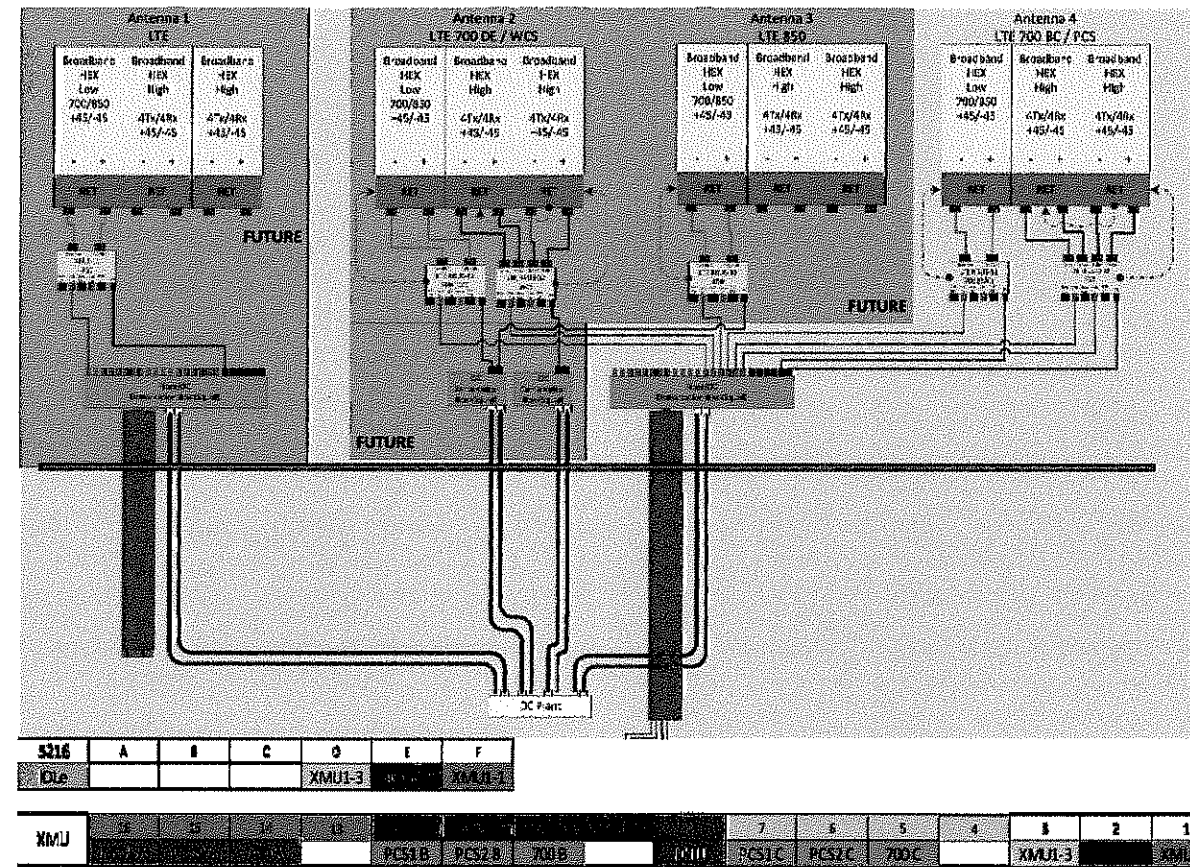
SHEET TITLE:
 ELECTRICAL ONE LINE DIAGRAM, DETAILS, & NOTES

SHEET NO:
 E-1



EQUIPMENT SHELTER GROUNDING RISER DIAGRAM 1
 N.T.S.

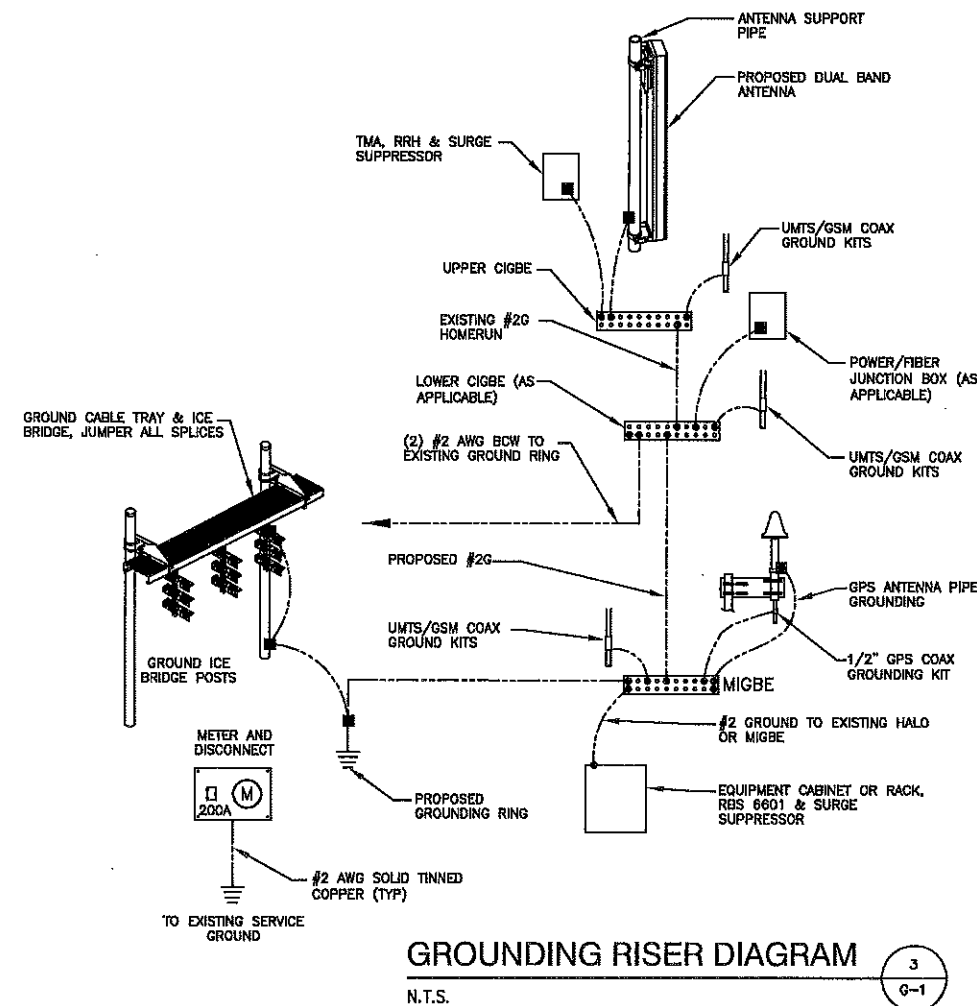
NOTE
 IF FIELD CONDITIONS VARY FROM PLAN, CONTRACTOR MUST NOTIFY DESIGN ENGINEER AND AT&T CONSTRUCTION MANAGER.



PLUMBING DIAGRAM 2
 N.T.S.

RF SCHEDULE & B.O.M.													
SECTOR	ANTENNA MAKE & MODEL	AZIMUTH (TRUE NORTH)	RAD CENTER	COAX	TMA	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	RRH	A2 MODULE	RET CABLES	FIBER	DC LINES	SURGE ARRESTOR
IA	CCI (F) HPA-65R-BUU-HB	30°	125'-0"	-	-	-	-	(1)(F) RRUS-11	-	(3) LINES (175'±)	(2) TRUNK LINE (175'±)	(8) DC CABLES (175'±)	(1) (P) RAYCAP DC6-48-60-18-8F (3) (F) RAYCAP DC6-48-60-18-8F
IIA	CCI (F) HPA-65R-BUU-HB	30°	125'-0"	-	-	-	-	(1)(F) RRUS-E2 (1)(F) RRUS-32	-				
IIIA	CCI (F) HPA-65R-BUU-HB	30°	125'-0"	-	-	-	-	(1)(F) RRUS-11	-				
IVA	CCI (P) HPA-65R-BUU-HB	30°	125'-0"	-	-	0°	2°	(1)(P) RRUS-11 (1)(P) RRUS-32B2	-				
IB	CCI (F) HPA-65R-BUU-HB	160°	125'-0"	-	-	-	-	(1)(F) RRUS-11	-				
IIB	CCI (F) HPA-65R-BUU-HB	160°	125'-0"	-	-	-	-	(1)(F) RRUS-E2 (1)(F) RRUS-32	-				
IIIB	CCI (F) HPA-65R-BUU-HB	160°	125'-0"	-	-	-	-	(1)(F) RRUS-11	-				
IVB	CCI (P) HPA-65R-BUU-HB	160°	125'-0"	-	-	0°	2°	(1)(P) RRUS-11 (1)(P) RRUS-32B2	-				
IG	CCI (F) HPA-65R-BUU-HB	270°	125'-0"	-	-	-	-	(1)(F) RRUS-11	-				
IIG	CCI (F) HPA-65R-BUU-HB	270°	125'-0"	-	-	-	-	(1)(F) RRUS-E2 (1)(F) RRUS-32	-				
IIIG	CCI (F) HPA-65R-BUU-HB	270°	125'-0"	-	-	-	-	(1)(F) RRUS-11	-				
IVG	CCI (P) HPA-65R-BUU-HB	270°	125'-0"	-	-	0°	2°	(1)(P) RRUS-11 (1)(P) RRUS-32B2	-				

RF SCHEDULE BASED ON RFDS CT2899 DATED 8/19/2017. CONTRACTOR TO VERIFY FINAL RFDS AND CABLE LENGTHS PRIOR TO CONSTRUCTION



GROUNDING RISER DIAGRAM 3
 N.T.S.

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Hudson Design Group, LLC
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 FAX: (978)-336-5566

STATE OF CONNECTICUT
 DEREK J. GREASER
 No. 28355
 LICENSED PROFESSIONAL ENGINEER
 LICENSED ENGINEER DATE

REVISIONS		
REV. #	DATE	DESCRIPTION
4	08/26/17	ISSUED FOR CONSTRUCTION
3	09/12/14	ISSUED FOR CONSTRUCTION
2	08/20/14	ISSUED FOR CONSTRUCTION
1	06/25/14	ISSUED FOR CONSTRUCTION
A	10/15/13	ISSUED FOR REVIEW

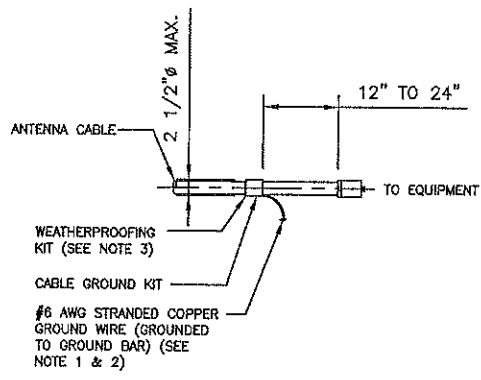
PROJECT NO. S2899
 DESIGNED BY: AT
 DRAWN BY: SG
 CHECKED BY: DPH
 SCALE: AS SHOWN

SITE NAME:
 ATC SITE NAME: WEST HAVEN & RT 162 CT
 ATC SITE #: 243036
 S2899
 WEST HAVEN JONES HILL

SITE ADDRESS:
 668 JONES HILL ROAD
 WEST HAVEN, CT 06516

SHEET TITLE:
 GROUNDING RISER & PLUMBING DIAGRAMS

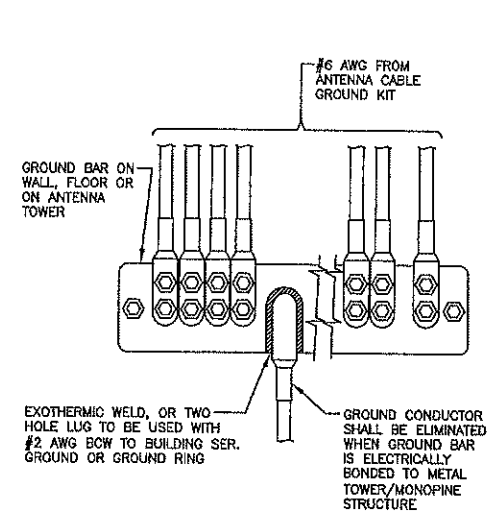
SHEET NO:
 G-1



- NOTES:**
- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
 - GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
 - WEATHER PROOFING SHALL BE TWO-PART TAPE SUPPLIED WITH KIT. COLD SHRINK SHALL NOT BE USED.

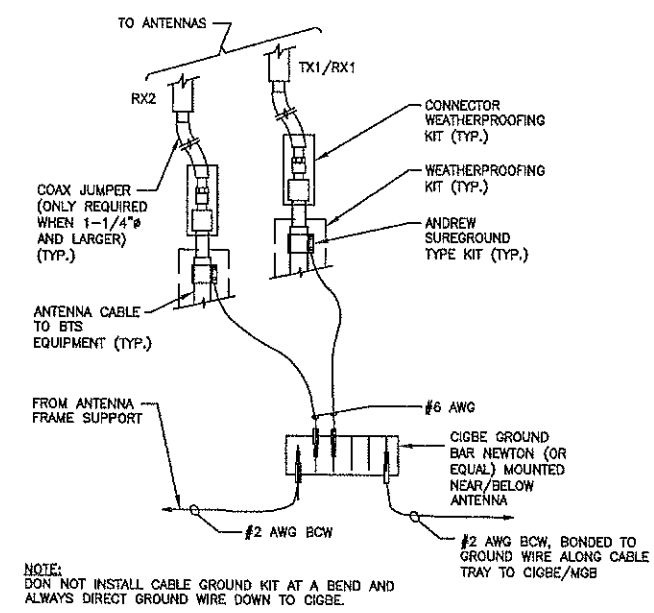
CONNECTION OF CABLE GROUND KIT TO ANTENNA CABLE
NOT TO SCALE

1
G-2



INSTALLATION OF GROUND WIRE TO GROUND BAR
NOT TO SCALE

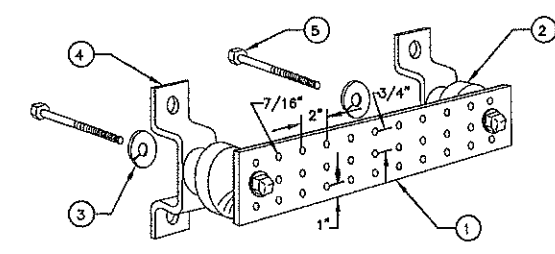
2
G-2



NOTE:
DON NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

INSTALLATION OF GROUND WIRE TO GROUNDING BAR, TOWER
NOT TO SCALE

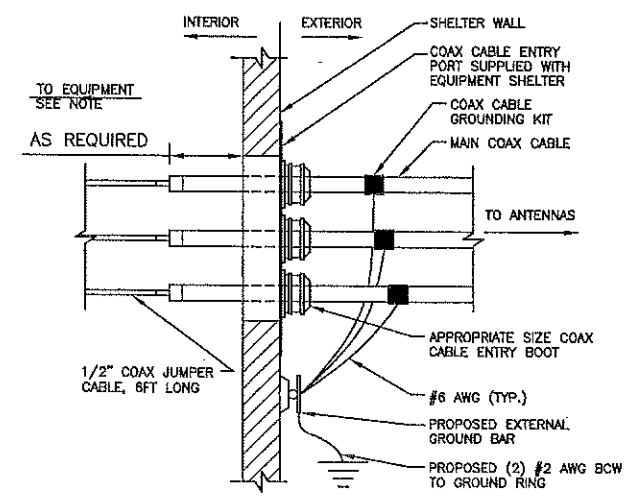
3
G-2



- LEGEND**
- COPPER GROUND BAR, 1/4"x4"x24", BY NEWTON INSTRUMENT CO. OR EQUAL. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION. (ACTUAL GROUND BAR SIZE WILL VARY BASED ON NUMBER OF GROUND CONNECTIONS)
 - INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4 OR EQUAL
 - 5/8" LOCKWASHERS OR EQUAL
 - WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-6056 OR EQUAL
 - 5/8-11x1" HHCS BOLTS, NEWTON INSTRUMENT CO. CAT. NO. 3012-1 OR EQUAL
 - INSULATORS SHALL BE ELIMINATED WHEN BONDING DIRECTLY TO TOWER/MONOPINE STRUCTURE. CONNECTION TO TOWER/MONOPINE STRUCTURE SHALL BE PER MANUFACTURERS RECOMMENDATIONS.

GROUND BAR DETAIL
NOT TO SCALE

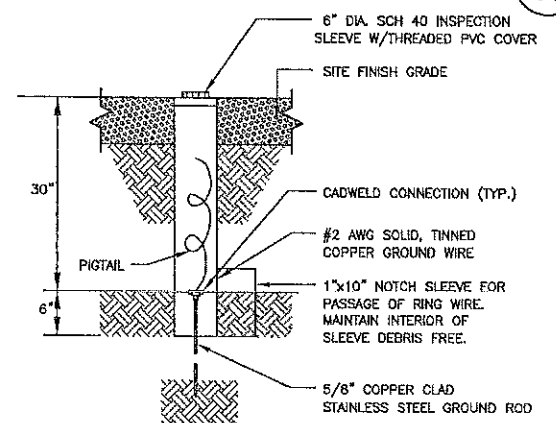
4
G-2



NOTE:
EXTEND MAIN COAXIAL CABLE AS CLOSE AS POSSIBLE TO BTS EQUIPMENT. MAX LENGTH OF BTS JUMPER IS 6 FT.

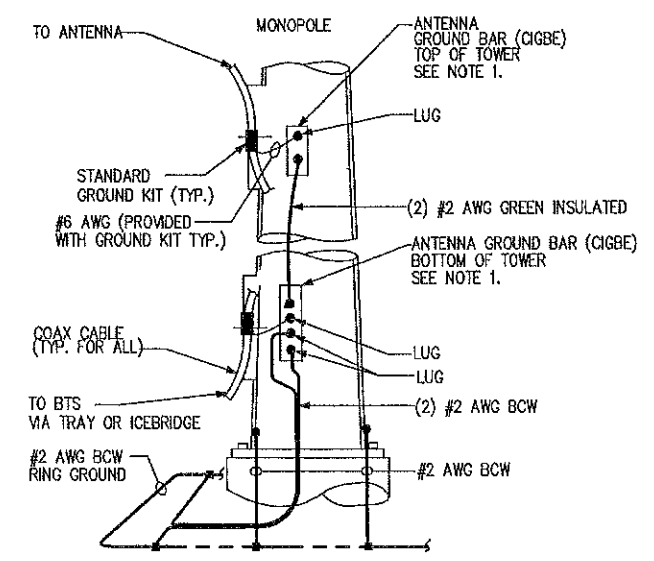
INSTALLATION OF GROUND WIRE TO GROUND BAR
NOT TO SCALE

5
G-1



GROUND ROD TEST WELL DETAIL
NOT TO SCALE

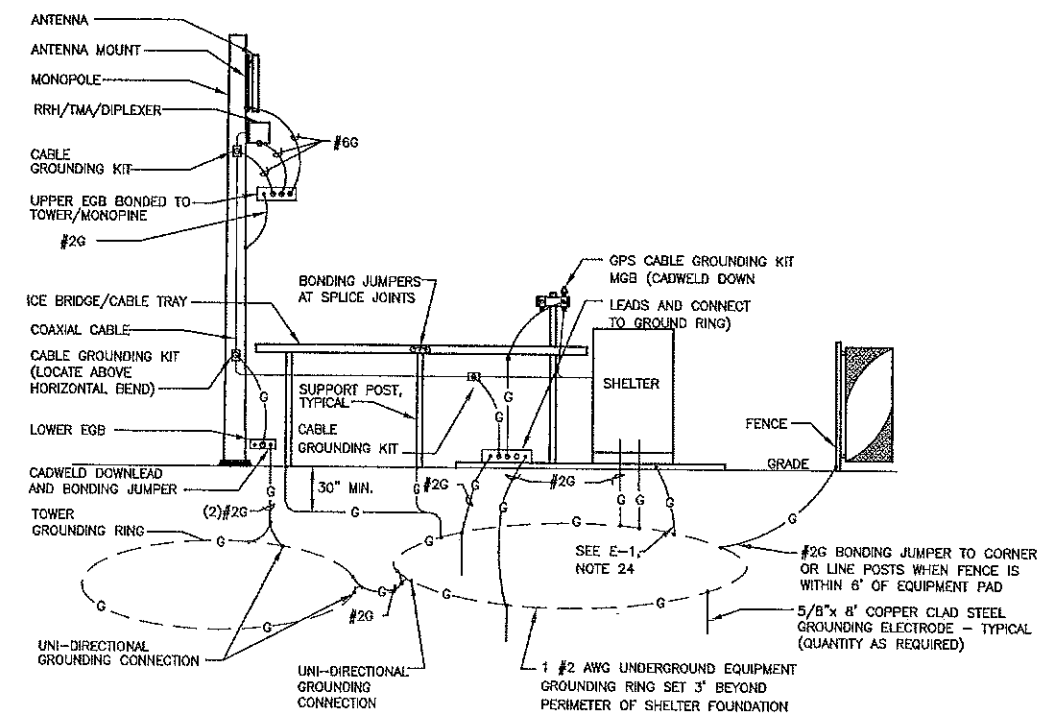
6
G-2



- NOTE:**
- NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATION AND CONNECTION ANTENNA LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
 - A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

MONOPOLE GROUNDING
NOT TO SCALE

7
G-2



GROUNDING ONE-LINE DIAGRAM
NOT TO SCALE

8
G-2

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

AMERICAN TOWER CORPORATION
116 HUNTINGTON AVE. 11TH FLOOR
BOSTON, MA 02116

Hudson Design Group, Inc.
1600 OSWOOD STREET
BLD 20 N, SUITE 3090
N. ANDOVER, MA 01845
TEL: (978)-557-5553
FAX: (978)-336-5686

STATE OF CONNECTICUT
BEREK J. CREASER
LICENSED PROFESSIONAL ENGINEER
LICENSE NO. 26255
LICENSED ENGINEER DATE

REVISIONS		
REV. #	DATE	DESCRIPTION
4	06/26/17	ISSUED FOR CONSTRUCTION
3	09/12/14	ISSUED FOR CONSTRUCTION
2	08/20/14	ISSUED FOR CONSTRUCTION
1	06/25/14	ISSUED FOR CONSTRUCTION
A	10/15/13	ISSUED FOR REVIEW

PROJECT NO. S2899
DESIGNED BY: AT
DRAWN BY: SG
CHECKED BY: DPH
SCALE: AS SHOWN

SITE NAME:
ATC SITE NAME: WEST HAVEN & RT 162 CT
ATC SITE #: 243036
S2899
WEST HAVEN JONES HILL

SITE ADDRESS:
668 JONES HILL ROAD
WEST HAVEN, CT 06516

SHEET TITLE:
GROUNDING ONE LINE DIAGRAM & DETAILS

SHEET NO.:
G-2

ATTACHMENT 2



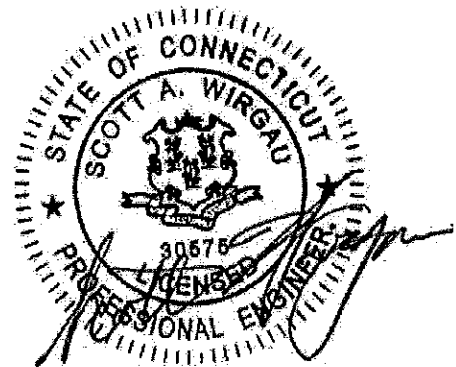
AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 149 ft Monopole
ATC Site Name : WEST HAVEN & RT 162 CT, CT
ATC Site Number : 243036
Engineering Number : OAA692349_C3_04
Proposed Carrier : AT&T Mobility
Carrier Site Name : West Haven Jones Hill Road
Carrier Site Number : CT2899
Site Location : 668 Jones Hill Road
West Haven, CT 06516-6311
41.256400,-72.972400
County : NEW HAVEN
Date : July 11, 2017
Max Usage : 91%
Result : Pass

Prepared By:
Christopher Clark Poe, E.I.
Structural Engineer II

Reviewed By:



Jul 11 2017 5:25 PM cosign

COA: PEC.0001553



Table of Contents

Introduction	1
Supporting Documents	1
Analysis	1
Conclusion.....	1
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Calculations	Attached



Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 149 ft monopole to reflect the change in loading by AT&T Mobility.

Supporting Documents

Tower Drawings	Sabre Drawing #06-08204-PE, dated August 19, 2005
Foundation Drawing	Sabre Drawing #06-10095-F1, dated October 12, 2005
Geotechnical Report	EBI Project #61051509, dated July 12, 2005

Analysis

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

Basic Wind Speed:	97 mph (3-Second Gust, V_{asd}) / 125 mph (3-Second Gust, V_{ult})
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
Structure Class:	II
Exposure Category:	C
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	$S_s = 0.19$, $S_1 = 0.06$
Site Class:	D - Stiff Soil

Conclusion

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

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



Existing and Reserved Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
149.0	151.0	3	DragonWave Horizon Compact	Collar	(6) 5/16" Coax (4) 1/2" Coax	Clearwire
		1	DragonWave A-ANT-23G-1-C			
		3	NextNet BTS-2500			
		3	Argus LLPX310R			
		2	DragonWave A-ANT-11G-2-C			
148.0	148.0	1	12" x 12" Junction Box	Flush	(1) 2" Conduit	
143.0	143.0	3	Kathrein Smart Bias Tee	Low Profile Platform	(12) 1 5/8" Coax (1) 7/8" Fiber	T-Mobile
		3	Ericsson KRY 112 14			
		3	Ericsson KRY 112 489/1			
		3	Ericsson RRUS 11 B12			
		3	Commscope SBNHH-1D65A			
		3	Ericsson AIR-32 B2A/B66Aa			
137.0	137.0	6	RFS FD9R6004/2C-3L	Low Profile Platform	(12) 1 5/8" Coax (1) 1 5/8" Fiber	Verizon
		3	Alcatel-Lucent RRH2x40-AWS			
		3	Antel BXA-171063-12BF-EDIN-X			
		3	Antel BXA-185085/12CF			
		1	RFS DB-T1-6Z-8AB-OZ			
		3	Andrew DB854DG65ESX			
		3	Commscope LNX-6514DS-A1M			
115.0	115.0	3	RFS APXV18-206517S-C	Flush	(6) 1 5/8" Coax	Metro PCS
105.0	105.0	1	3' Dish w/ Radome	Flush	-	Other
104.0	104.0	1	Proxim 5054-R-LR	Flush	-	

Equipment to be Removed

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
125.0	125.0	12	77" x 14" Panel	-	(12) 1 5/8" Coax	AT&T Mobility
		6	TTA			
		1	Proxim 5054-SA60-17			
		2	Proxim 5054-L-LR			
		1	Pacific Wireless HDDA5W-32-xx w/ Radome			

Proposed Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
125.0	125.0	1	Raycap DC6-48-60-0-8F	Low Profile Platform	(2) 0.78" 8 AWG 6 (1) 0.39" Fiber Trunk	AT&T Mobility
		3	Ericsson RRUS-11 800MHz			
		3	Ericsson RRUS 32			
		3	CCI CCI-HPA-65R-BUU-H8			

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

Install proposed coax inside the pole shaft.



Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	58%	Pass
Shaft	91%	Pass
Base Plate	49%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	2,840.0	3,834.0	2,853.2	74%
Shear (Kips)	26.3	35.5	26.2	74%

* The design reactions are factored by 1.35 per ANSI/TIA-222-G, Sec. 15.5.1

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
149.0	DragonWave A-ANT-23G-1-C	Clearwire	2.230	1.723
	DragonWave A-ANT-11G-2-C			
125.0	Raycap DC6-48-60-0-8F	AT&T Mobility	1.528	1.573
	Ericsson RRUS-11 800 MHz			
	Ericsson RRUS 32			
105.0	CCI CCI-HPA-65R-BUU-H8	Other	1.034	1.231
	3' Dish w/ Radome			

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



Standard Conditions

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

- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

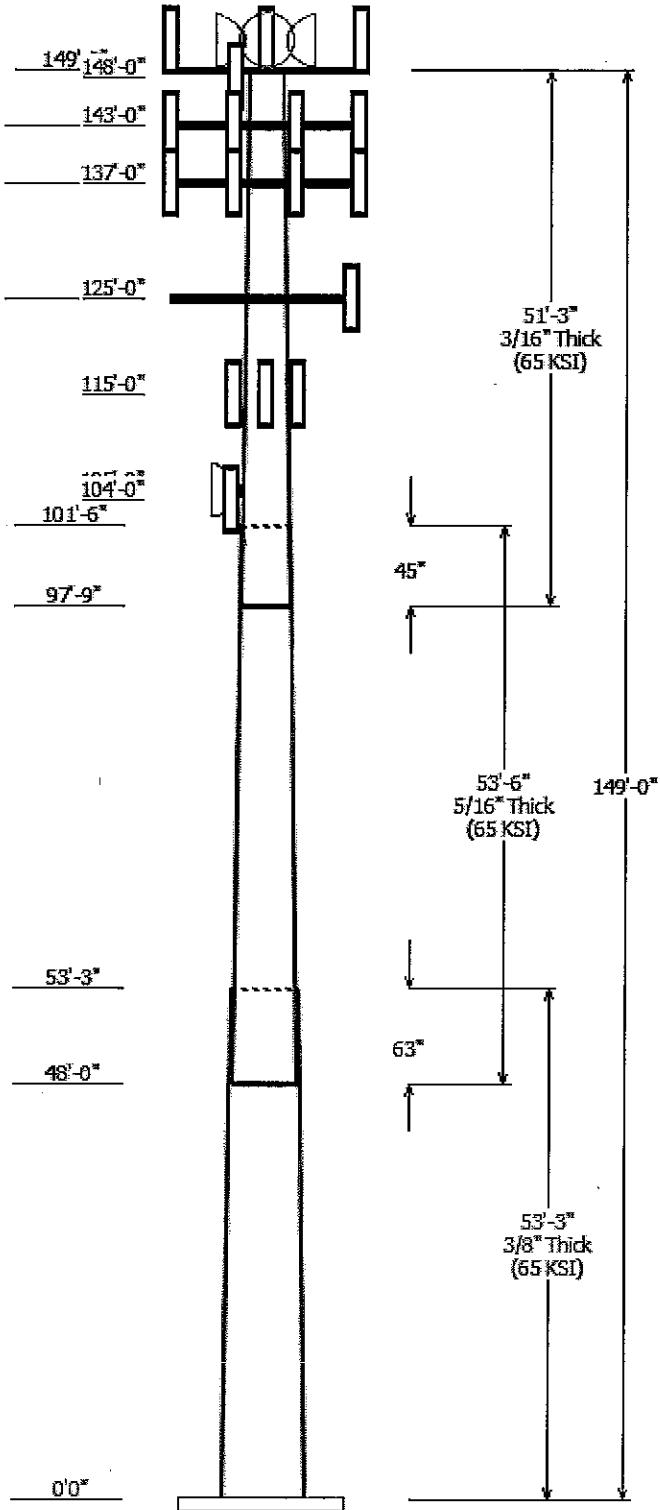
- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

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

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

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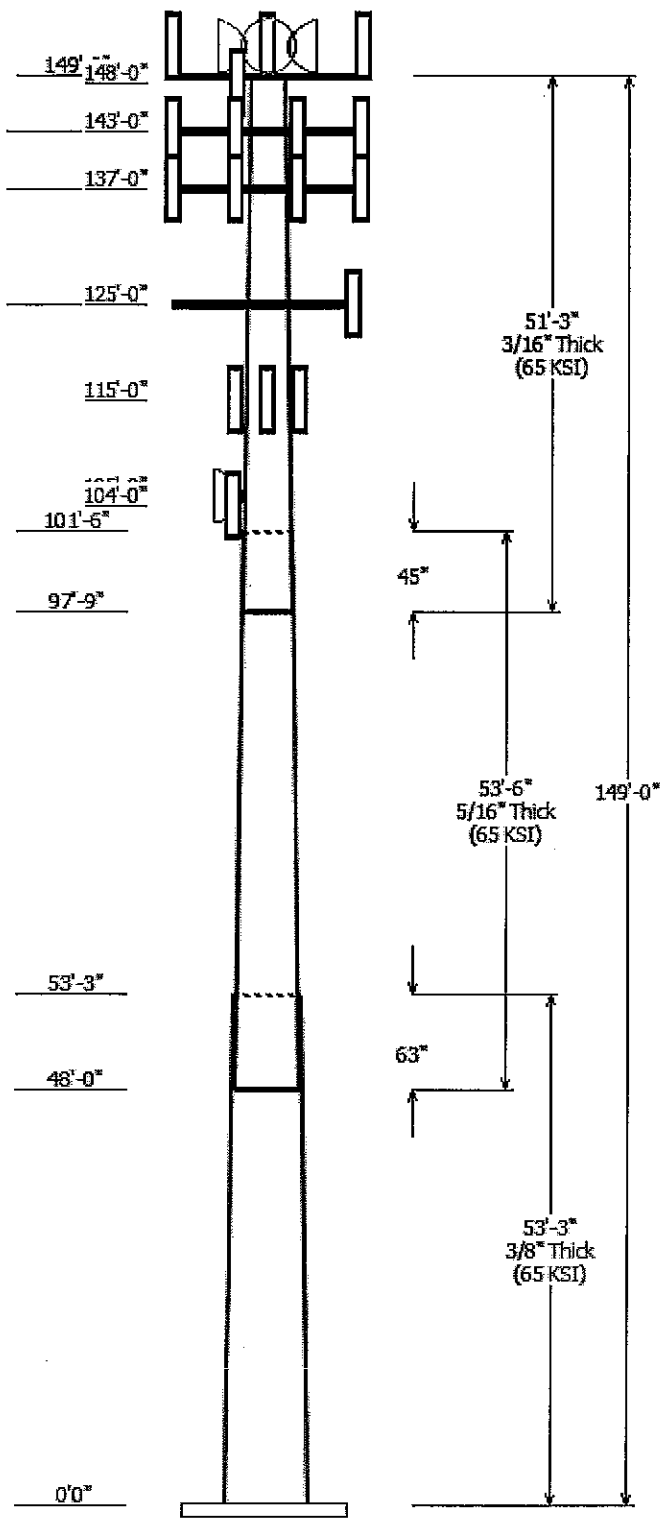


Job Information	
Pole : 243036	Code: ANSI/TIA-222-G
Description : Tower Model Verified: 12/13/2012	
Client : AT&T MOBILITY	Struct Class : II
Location : WEST HAVEN & RT 162 CT, CT	
Shape : 18 Sides	Exposure: C
Height : 149.00 (ft)	Topo : 1
Base Elev (ft): 0.00	
Taper: 0.234964(in/ft)	

Sections Properties								
Shaft Section	Length (ft)	Diameter (in)	Accross Flats Top	Accross Flats Bottom	Thick Joint (in)	Overlap Length (in)	Steel Taper (in/ft)	Steel Grade (ksi)
1	53.250	39.49	52.01	0.375		0.000	0.235000	65
2	53.500	28.78	41.35	0.313	Slip Joint	63.000	0.235000	65
3	51.250	18.00	30.04	0.188	Slip Joint	45.000	0.235000	65

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
149.000	151.000	1	DragonWave A-ANT-23G-1-C
149.000	151.000	3	DragonWave Horizon Compact
149.000	151.000	3	Argus LLPX310R
149.000	151.000	3	NextNet BTS-2500
149.000	151.000	2	DragonWave A-ANT-11G-2-C
149.000	149.000	3	Collar
148.000	148.000	1	12" x 12" Junction Box
143.000	143.000	3	Ericsson RRUS 11 B12
143.000	143.000	3	Ericsson AIR-32 B2A/B66Aa
143.000	143.000	3	Commscope SBNHH-1D65A
143.000	143.000	3	Ericsson KRY 112 489/1
143.000	143.000	3	Ericsson KRY 112 14
143.000	143.000	3	Kathrein Smart Bias Tee
143.000	143.000	1	Flat Low Profile Platform
137.000	137.000	1	Round Low Profile Platform
137.000	137.000	3	Commscope LNX-6514DS-A1M
137.000	137.000	3	Andrew DB854DG65ESX
137.000	137.000	1	RFS DB-T1-6Z-8AB-0Z
137.000	137.000	3	Antel BXA-185085/12CF
137.000	137.000	3	Amphenol Antel BXA-171063-
137.000	137.000	3	Alcatel-Lucent RRH2x40-AWS
137.000	137.000	6	RFS FD9R6004/2C-3L
125.000	125.000	3	CCI CCI-HPA-65R-BUU-H8
125.000	125.000	3	Ericsson RRUS 32
125.000	125.000	3	Ericsson RRUS-11 800 MHz
125.000	125.000	1	Flat Low Profile Platform
125.000	125.000	1	Raycap DC6-48-60-0-8F
115.000	115.000	3	RFS APXV18-206517S-C
105.000	105.000	1	3' Dish w/ Radome
104.000	104.000	1	Proxim 5054-R-LR

Linear Appurtenance			
Elev (ft) From	To	Description	Exposed To Wind
4.000	115.0	1 5/8" Coax	No
4.000	125.0	0.39" Fiber Trunk	No
4.000	125.0	0.78" 8 AWG 6	No
4.000	137.0	1 5/8" Coax	No
4.000	137.0	1 5/8" Fiber	No
4.000	143.0	1 5/8" Coax	No
4.000	143.0	7/8" Fiber	No
4.000	148.0	2" Conduit	No



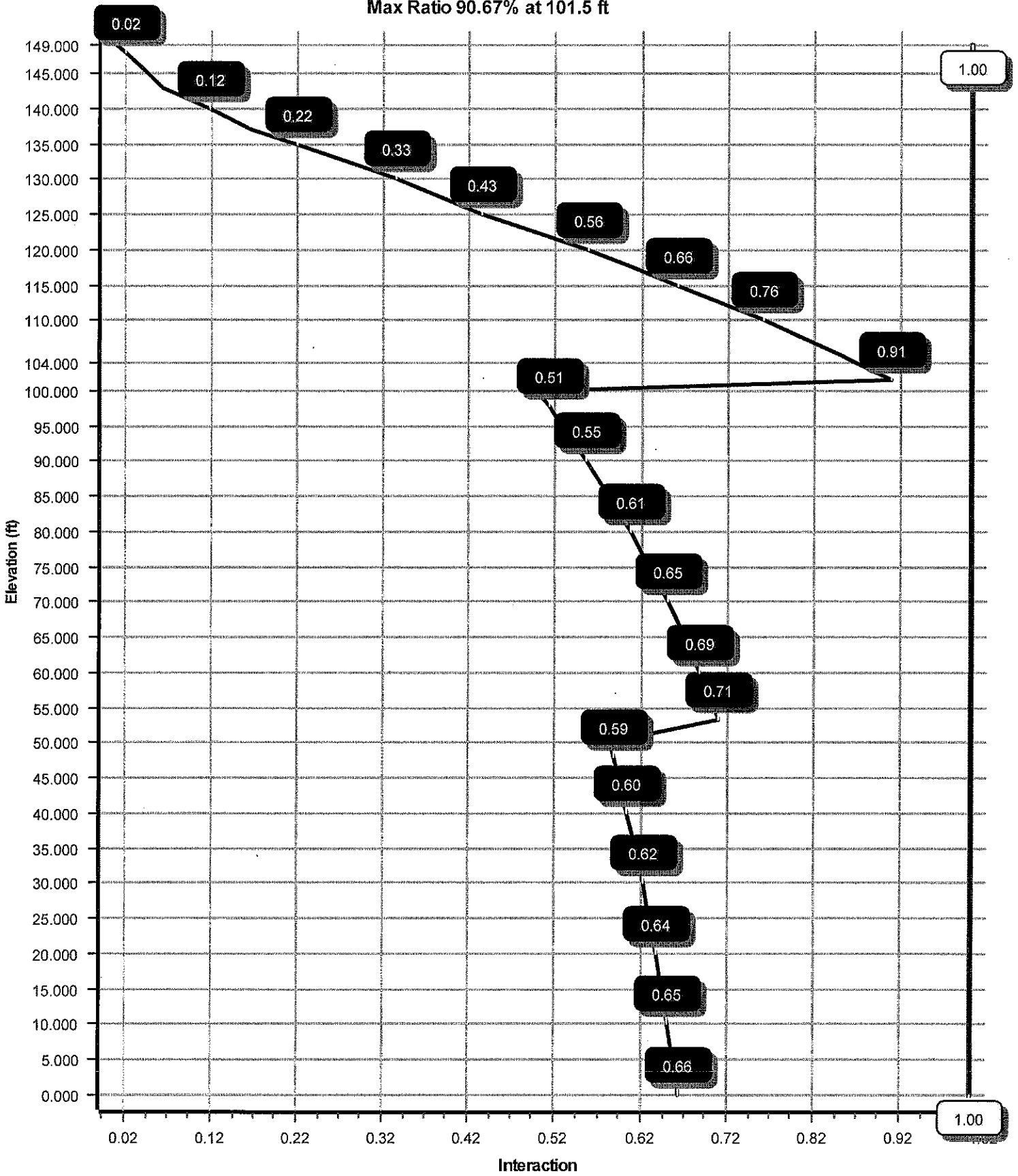
4.000	149.0	1/2" Coax	No
4.000	149.0	5/16" Coax	No

Load Cases	
1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions			
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	2853.23	26.20	37.27
0.9D + 1.6W	2818.64	26.19	27.94
1.2D + 1.0Di + 1.0Wi	818.32	7.54	57.52
(1.2 + 0.2Sds) * DL + E ELM	154.26	1.22	37.24
(1.2 + 0.2Sds) * DL + E EMAM	284.78	2.32	37.24
(0.9 - 0.2Sds) * DL + E ELM	151.88	1.21	25.82
(0.9 - 0.2Sds) * DL + E EMAM	280.08	2.31	25.82
1.0D + 1.0W	677.89	6.26	31.10

Dish Deflections			
Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	105.00	12.407	1.231
1.0D + 1.0W	149.00	26.756	1.723
1.0D + 1.0W	149.00	26.756	1.723

Load Case : 1.2D + 1.6W
Max Ratio 90.67% at 101.5 ft



Site Number: 243036

Code: ANSI/TIA-222-G

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Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number: OAA692349_C3_04

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Customer: AT&T MOBILITY

Analysis Parameters

Location:	NEW HAVEN County, CT	Height (ft):	149
Code:	ANSI/TIA-222-G	Base Diameter (in):	52.01
Shape:	18 Sides	Top Diameter (in):	18.00
Pole Type:	Taper	Taper (in/ft) :	0.235
Pole Manufacturer:	Sabre	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	97 mph
Exposure Category:	C	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0.0 ft	Design Ice Thickness:	0.75 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	2.46		
T_L (sec):	6	p :	1.3
S_s :	0.188	S_1 :	0.062
F_a :	1.600	F_v :	2.400
S_{ds} :	0.201	S_{d1} :	0.099
		C_s :	0.030
		C_s Max:	0.030
		C_s Min:	0.030

Load Cases

1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 243036

Code: ANSI/TIA-222-G © 2007 - 2017 by ATC IP LLC. All rights reserved.

Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number: OAA692349_C3_04

7/11/2017 4:16:29 PM

Customer: AT&T MOBILITY

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Joint Len (in)	Weight (lb)	Bottom						Top							
							Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)	
1-18	53.250	0.3750	65		0.00	9,787	52.01	0.00	61.46	20701.4	23.04	138.69	39.49	53.25	46.56	9004.7	17.16	105.33	0.234964	
2-18	53.500	0.3125	65	Slip	63.00	6,276	41.35	48.00	40.71	8664.4	21.92	132.34	28.78	101.50	28.24	2892.7	14.83	92.11	0.234964	
3-18	51.250	0.1875	65	Slip	45.00	2,473	30.04	97.75	17.77	2000.7	26.84	160.22	18.00	149.00	10.60	424.9	15.52	96.00	0.234964	
Shaft Weight						18,536														

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Weight (lb)	No Ice EPAa (sf)	Orientation Factor	Weight (lb)	Ice EPAa (sf)	Orientation Factor	Distance From Face (ft)	Vert Ecc (ft)
149.00	Argus LLPX310R	3	28.60	4.290	0.63	136.31	5.188	0.63	0.000	2.000
149.00	Collar	3	500.00	8.500	1.00	918.43	15.613	1.00	0.000	0.000
149.00	DragonWave A-ANT-11G-2-C	2	27.00	4.690	1.00	124.56	5.966	1.00	0.000	2.000
149.00	DragonWave A-ANT-23G-1-C	1	15.00	1.610	1.00	50.37	2.368	1.00	0.000	2.000
149.00	DragonWave Horizon	3	10.60	0.430	0.50	17.99	0.730	0.50	0.000	2.000
149.00	NextNet BTS-2500	3	35.00	1.820	0.50	92.05	2.362	0.50	0.000	2.000
148.00	12" x 12" Junction Box	1	10.00	1.400	1.00	61.86	1.665	1.00	0.000	0.000
143.00	Commscope SBNHH-1D65A	3	33.50	5.880	0.69	190.65	6.948	0.69	0.000	0.000
143.00	Ericsson AIR-32 B2A/B66Aa	3	132.20	6.510	0.71	314.63	7.648	0.71	0.000	0.000
143.00	Ericsson KRY 112 14	3	12.10	0.580	0.50	36.51	0.834	0.50	0.000	0.000
143.00	Ericsson KRY 112 489/1	3	15.40	0.650	0.50	39.99	0.906	0.50	0.000	0.000
143.00	Ericsson RRUS 11 B12	3	50.70	2.790	0.67	136.50	3.465	0.67	0.000	0.000
143.00	Flat Low Profile Platform	1	1500.00	26.100	1.00	2,145.44	45.120	1.00	0.000	0.000
143.00	Kathrein Smart Bias Tee	3	3.31	0.090	0.50	10.04	0.244	0.50	0.000	0.000
137.00	Alcatel-Lucent RRH2x40-AWS	3	44.00	2.160	0.67	116.63	2.797	0.67	0.000	0.000
137.00	Amphenol Antel BXA-171063-	3	15.00	4.730	0.88	132.86	5.943	0.88	0.000	0.000
137.00	Andrew DB854DG65ESX	3	18.50	5.250	0.75	149.87	6.234	0.75	0.000	0.000
137.00	Antel BXA-185085/12CF	3	13.00	4.790	0.88	131.88	5.987	0.88	0.000	0.000
137.00	Commscope LNX-6514DS-	3	38.80	8.170	0.83	213.38	10.966	0.83	0.000	0.000
137.00	RFS DB-T1-6Z-8AB-OZ	1	44.00	4.800	1.00	186.08	5.665	1.00	0.000	0.000
137.00	RFS FD9R6004/2C-3L	6	2.60	0.370	0.50	15.57	0.579	0.50	0.000	0.000
137.00	Round Low Profile Platform	1	1500.00	21.700	1.00	2,142.89	40.751	1.00	0.000	0.000
125.00	CCI CCI-HPA-65R-BUU-H8	3	68.00	12.980	0.67	352.27	14.561	0.67	0.000	0.000
125.00	Ericsson RRUS 32	3	50.80	2.690	0.67	113.81	3.713	0.67	0.000	0.000
125.00	Ericsson RRUS-11 800 MHz	3	54.00	2.520	0.67	141.15	3.164	0.67	0.000	0.000
125.00	Flat Low Profile Platform	1	1500.00	26.100	1.00	2,136.20	44.847	1.00	0.000	0.000
125.00	Raycap DC6-48-60-0-8F	1	32.80	1.280	1.00	123.48	2.839	1.00	0.000	0.000
115.00	RFS APXV18-206517S-C	3	26.40	5.160	0.80	139.75	6.371	0.80	0.000	0.000
105.00	3' Dish w/ Radome	1	100.00	6.100	1.00	275.93	7.258	1.00	0.000	0.000
104.00	Proxim 5054-R-LR	1	6.00	1.320	1.00	44.63	1.790	1.00	0.000	0.000
Totals		74	8227.13			17,663.48			Number of Loadings : 30	

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Projected Width (in)	Exposed To Wind	Carrier	
4.00	149.00	4	1/2" Coax	0.63	0.15	N	0.00	N	Clearwire
4.00	149.00	6	5/16" Coax	0.31	0.05	N	0.00	N	Clearwire
4.00	148.00	1	2" Conduit	2.38	3.65	N	0.00	N	Clearwire
4.00	143.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	T-Mobile
4.00	143.00	1	7/8" Fiber	0.88	0.70	N	0.00	N	T-Mobile
4.00	137.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	Verizon Wireless
4.00	137.00	1	1 5/8" Fiber	1.63	1.61	N	0.00	N	Verizon Wireless

Site Number: 243036

Code: ANSI/TIA-222-G

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Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number: OAA692349_C3_04

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Customer: AT&T MOBILITY

4.00	125.00	1	0.39" Fiber Trunk	0.39	0.06	N	0.00	N	AT&T Mobility
4.00	125.00	2	0.78" 8 AWG 6	0.78	0.59	N	0.00	N	AT&T Mobility
4.00	115.00	6	1 5/8" Coax	1.98	0.82	N	0.00	N	Metro PCS

Site Number: 243036

Code: ANSI/TIA-222-G

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Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number: OAA692349_C3_04

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Customer: AT&T MOBILITY

Segment Properties (Max Len : 5.ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in ³)	Z (in ³)	Weight (lb)
0.00		0.3750	52.010	61.456	20,701.4	23.04	138.69	74.3	784.0	0.0	0.0
5.00		0.3750	50.835	60.058	19,320.3	22.49	135.56	74.9	748.6	0.0	1,033.7
10.00		0.3750	49.660	58.659	18,002.0	21.94	132.43	75.6	714.0	0.0	1,009.9
15.00		0.3750	48.485	57.261	16,745.1	21.39	129.29	76.2	680.2	0.0	986.1
20.00		0.3750	47.310	55.863	15,548.1	20.83	126.16	76.9	647.3	0.0	962.3
25.00		0.3750	46.136	54.465	14,409.6	20.28	123.03	77.5	615.2	0.0	938.5
30.00		0.3750	44.961	53.066	13,328.0	19.73	119.90	78.2	583.9	0.0	914.8
35.00		0.3750	43.786	51.668	12,301.9	19.18	116.76	78.8	553.4	0.0	891.0
40.00		0.3750	42.611	50.270	11,329.9	18.63	113.63	79.5	523.7	0.0	867.2
45.00		0.3750	41.436	48.871	10,410.6	18.07	110.50	80.1	494.9	0.0	843.4
48.00	Bot - Section 2	0.3750	40.731	48.032	9,883.6	17.74	108.62	80.5	477.9	0.0	494.6
50.00		0.3750	40.261	47.473	9,542.3	17.52	107.36	80.8	466.8	0.0	600.4
53.25	Top - Section 1	0.3125	40.123	39.485	7,906.5	21.23	128.39	76.4	388.1	0.0	960.8
55.00		0.3125	39.712	39.078	7,664.0	21.00	127.08	76.7	380.1	0.0	233.9
60.00		0.3125	38.537	37.912	6,998.6	20.33	123.32	77.5	357.7	0.0	654.9
65.00		0.3125	37.362	36.747	6,373.0	19.67	119.56	78.3	336.0	0.0	635.1
70.00		0.3125	36.187	35.582	5,785.7	19.01	115.80	79.0	314.9	0.0	615.3
75.00		0.3125	35.012	34.417	5,235.7	18.34	112.04	79.8	294.5	0.0	595.5
80.00		0.3125	33.838	33.251	4,721.7	17.68	108.28	80.6	274.8	0.0	575.6
85.00		0.3125	32.663	32.086	4,242.5	17.02	104.52	81.4	255.8	0.0	555.8
90.00		0.3125	31.488	30.921	3,796.9	16.36	100.76	82.2	237.5	0.0	536.0
95.00		0.3125	30.313	29.756	3,383.6	15.69	97.00	82.6	219.9	0.0	516.2
97.75	Bot - Section 3	0.3125	29.667	29.115	3,169.7	15.33	94.93	82.6	210.4	0.0	275.4
100.0		0.3125	29.138	28.591	3,001.5	15.03	93.24	82.6	202.9	0.0	355.7
101.5	Top - Section 2	0.1875	29.161	17.242	1,828.7	26.01	155.52	70.8	123.5	0.0	233.6
104.0		0.1875	28.573	16.893	1,719.7	25.46	152.39	71.5	118.5	0.0	145.2
105.0		0.1875	28.338	16.753	1,677.4	25.24	151.14	71.7	116.6	0.0	57.2
110.0		0.1875	27.164	16.054	1,476.0	24.13	144.87	73.0	107.0	0.0	279.1
115.0		0.1875	25.989	15.354	1,291.4	23.03	138.61	74.3	97.9	0.0	267.2
117.9		0.1875	25.299	14.944	1,190.5	22.38	134.93	75.1	92.7	0.0	151.4
120.0		0.1875	24.814	14.655	1,122.9	21.92	132.34	75.6	89.1	0.0	103.9
125.0		0.1875	23.639	13.956	969.8	20.82	126.08	76.9	80.8	0.0	243.4
130.0		0.1875	22.464	13.257	831.2	19.72	119.81	78.2	72.9	0.0	231.5
135.0		0.1875	21.290	12.558	706.5	18.61	113.54	79.5	65.4	0.0	219.6
137.0		0.1875	20.820	12.278	660.4	18.17	111.04	80.0	62.5	0.0	84.5
140.0		0.1875	20.115	11.859	595.0	17.51	107.28	80.8	58.3	0.0	123.2
143.0		0.1875	19.410	11.439	534.0	16.84	103.52	81.6	54.2	0.0	118.9
145.0		0.1875	18.940	11.160	495.8	16.40	101.01	82.1	51.6	0.0	76.9
148.0		0.1875	18.235	10.740	442.0	15.74	97.25	82.6	47.7	0.0	111.8
149.0		0.1875	18.000	10.600	424.9	15.52	96.00	82.6	46.5	0.0	36.3
18,536.1											

Site Number: 243036

Code: ANSI/TIA-222-G

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Site Name: WEST HAVEN & RT 162 CT, CT

Engineering Number: OAA692349_C3_04

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Customer: AT&T MOBILITY

Load Case: 1.2D + 1.6W

97 mph with No Ice

26 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		242.1	0.0					0.0	0.0	242.1	0.0	0.0	0.0
5.00		478.6	1,240.5					0.0	39.2	478.6	1,279.7	0.0	0.0
10.00		467.5	1,211.9					0.0	196.0	467.5	1,407.9	0.0	0.0
15.00		463.6	1,183.4					0.0	196.0	463.6	1,379.4	0.0	0.0
20.00		471.8	1,154.8					0.0	196.0	471.8	1,350.8	0.0	0.0
25.00		482.5	1,126.3					0.0	196.0	482.5	1,322.3	0.0	0.0
30.00		488.7	1,097.7					0.0	196.0	488.7	1,293.7	0.0	0.0
35.00		491.8	1,069.2					0.0	196.0	491.8	1,265.2	0.0	0.0
40.00		492.3	1,040.6					0.0	196.0	492.3	1,236.6	0.0	0.0
45.00		393.0	1,012.1					0.0	196.0	393.0	1,208.1	0.0	0.0
48.00	Bot - Section 2	246.3	593.5					0.0	117.6	246.3	711.1	0.0	0.0
50.00		259.8	720.5					0.0	78.4	259.8	798.9	0.0	0.0
53.25	Top - Section 1	246.6	1,153.0					0.0	127.4	246.6	1,280.4	0.0	0.0
55.00		330.1	280.7					0.0	68.6	330.1	349.3	0.0	0.0
60.00		485.0	785.9					0.0	196.0	485.0	982.0	0.0	0.0
65.00		478.2	762.1					0.0	196.0	478.2	958.2	0.0	0.0
70.00		470.5	738.4					0.0	196.0	470.5	934.4	0.0	0.0
75.00		461.8	714.6					0.0	196.0	461.8	910.6	0.0	0.0
80.00		452.5	690.8					0.0	196.0	452.5	886.8	0.0	0.0
85.00		442.4	667.0					0.0	196.0	442.4	863.0	0.0	0.0
90.00		431.6	643.2					0.0	196.0	431.6	839.2	0.0	0.0
95.00		327.8	619.4					0.0	196.0	327.8	815.4	0.0	0.0
97.75	Bot - Section 3	208.4	330.5					0.0	107.8	208.4	438.3	0.0	0.0
100.00		155.5	426.9					0.0	88.2	155.5	515.1	0.0	0.0
101.50	Top - Section 2	163.5	280.3					0.0	58.8	163.5	339.1	0.0	0.0
104.00	Appertunance(s)	142.0	174.2	67.8	0.0	0.0	7.2	0.0	98.0	209.8	279.4	0.0	0.0
105.00	Appertunance(s)	237.7	68.7	314.1	0.0	0.0	120.0	0.0	39.2	551.9	227.9	0.0	0.0
110.00		388.4	334.9					0.0	196.0	388.4	530.9	0.0	0.0
115.00	Appertunance(s)	300.0	320.6	650.1	0.0	0.0	95.0	0.0	196.0	950.1	611.7	0.0	0.0
117.94		184.2	181.7					0.0	97.8	184.2	279.5	0.0	0.0
120.00		252.3	124.6					0.0	68.7	252.3	193.3	0.0	0.0
125.00	Appertunance(s)	347.3	292.1	3,011.6	0.0	0.0	2,461.4	0.0	166.5	3,358.9	2,920.0	0.0	0.0
130.00		332.7	277.8					0.0	159.1	332.7	436.9	0.0	0.0
135.00		225.7	263.5					0.0	159.1	225.7	422.6	0.0	0.0
137.00	Appertunance(s)	155.2	101.4	4,124.6	0.0	0.0	2,337.0	0.0	63.6	4,279.8	2,502.0	0.0	0.0
140.00		181.6	147.8					0.0	54.2	181.6	202.1	0.0	0.0
143.00	Appertunance(s)	147.5	142.7	2,912.8	0.0	0.0	2,690.0	0.0	54.2	3,060.2	2,886.9	0.0	0.0
145.00		142.8	92.3					0.0	10.8	142.8	103.1	0.0	0.0
148.00	Appertunance(s)	112.3	134.1	77.5	0.0	0.0	12.0	0.0	16.3	189.8	162.4	0.0	0.0
149.00	Appertunance(s)	27.6	43.6	2,413.0	0.0	1,998.9	2,149.9	0.0	1.0	2,440.6	2,194.5	0.0	0.0
Totals:										26,380.4	37,318.8	0.00	0.00

Site Number: 243036

Code: ANSI/TIA-222-G

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Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number: OAA692349_C3_04

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Customer: AT&T MOBILITY

Load Case: 1.2D + 1.6W

97 mph with No Ice

26 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Calculated Forces

Seg	Pu	Vu	Tu	Mu	Mu	Resultant	phi	phi	phi	phi	Total		
Elev	FY (-)	FX (-)	MY	MZ	MX	Moment	Pn	Vn	Tn	Mn	Deflect	Rotation	Ratio
(ft)	(kips)	(kips)	(ft-kips)	(ft-kips)	(ft-kips)	(ft-kips)	(kips)	(kips)	(ft-kips)	(ft-kips)	(in)	(deg)	
0.00	-37.27	-26.20	0.00	-2,853.23	0.00	2,853.23	4,109.35	2,054.67	8,723.89	4,368.43	0.00	0.00	0.662
5.00	-35.91	-25.84	0.00	-2,722.23	0.00	2,722.23	4,050.97	2,025.48	8,402.87	4,207.68	0.10	-0.19	0.656
10.00	-34.41	-25.49	0.00	-2,593.02	0.00	2,593.02	3,990.95	1,995.48	8,084.22	4,048.12	0.41	-0.39	0.649
15.00	-32.95	-25.13	0.00	-2,465.59	0.00	2,465.59	3,929.30	1,964.65	7,768.18	3,889.86	0.92	-0.59	0.642
20.00	-31.52	-24.75	0.00	-2,339.95	0.00	2,339.95	3,866.02	1,933.01	7,454.98	3,733.03	1.65	-0.79	0.635
25.00	-30.11	-24.36	0.00	-2,216.19	0.00	2,216.19	3,801.09	1,900.55	7,144.87	3,577.74	2.59	-1.00	0.628
30.00	-28.74	-23.96	0.00	-2,094.38	0.00	2,094.38	3,734.54	1,867.27	6,838.08	3,424.12	3.75	-1.21	0.620
35.00	-27.40	-23.54	0.00	-1,974.61	0.00	1,974.61	3,666.35	1,833.17	6,534.85	3,272.28	5.13	-1.43	0.611
40.00	-26.08	-23.12	0.00	-1,856.91	0.00	1,856.91	3,596.52	1,798.26	6,235.42	3,122.35	6.75	-1.65	0.602
45.00	-24.82	-22.77	0.00	-1,741.33	0.00	1,741.33	3,525.06	1,762.53	5,940.03	2,974.43	8.60	-1.88	0.593
48.00	-24.07	-22.54	0.00	-1,673.04	0.00	1,673.04	3,481.40	1,740.70	5,764.84	2,886.70	9.82	-2.02	0.587
50.00	-23.23	-22.31	0.00	-1,627.95	0.00	1,627.95	3,451.96	1,725.98	5,648.92	2,828.66	10.69	-2.11	0.582
53.25	-21.91	-22.06	0.00	-1,555.45	0.00	1,555.45	2,716.16	1,358.08	4,443.18	2,224.89	12.18	-2.27	0.707
55.00	-21.51	-21.78	0.00	-1,516.85	0.00	1,516.85	2,697.70	1,348.85	4,367.05	2,186.77	13.03	-2.35	0.702
60.00	-20.45	-21.35	0.00	-1,407.95	0.00	1,407.95	2,643.86	1,321.93	4,151.27	2,078.72	15.63	-2.62	0.685
65.00	-19.41	-20.92	0.00	-1,301.20	0.00	1,301.20	2,588.39	1,294.20	3,938.25	1,972.05	18.53	-2.90	0.668
70.00	-18.40	-20.49	0.00	-1,196.59	0.00	1,196.59	2,531.28	1,265.64	3,728.21	1,866.88	21.71	-3.18	0.648
75.00	-17.42	-20.07	0.00	-1,094.13	0.00	1,094.13	2,472.54	1,236.27	3,521.40	1,763.32	25.19	-3.46	0.628
80.00	-16.47	-19.64	0.00	-993.81	0.00	993.81	2,412.16	1,206.08	3,318.06	1,661.49	28.96	-3.74	0.605
85.00	-15.54	-19.22	0.00	-895.61	0.00	895.61	2,350.14	1,175.07	3,118.42	1,561.53	33.03	-4.03	0.580
90.00	-14.64	-18.80	0.00	-799.53	0.00	799.53	2,286.49	1,143.25	2,922.73	1,463.54	37.40	-4.31	0.553
95.00	-13.79	-18.46	0.00	-705.54	0.00	705.54	2,210.70	1,105.35	2,718.30	1,361.17	42.06	-4.59	0.525
97.75	-13.32	-18.25	0.00	-654.77	0.00	654.77	2,163.09	1,081.54	2,601.88	1,302.87	44.75	-4.75	0.509
100.00	-12.79	-18.08	0.00	-613.71	0.00	613.71	2,124.13	1,062.07	2,508.52	1,256.12	47.02	-4.88	0.495
101.50	-12.43	-17.91	0.00	-586.59	0.00	586.59	1,098.75	549.38	1,309.89	655.92	48.56	-4.96	0.907
104.00	-12.13	-17.70	0.00	-541.82	0.00	541.82	1,086.35	543.18	1,268.68	635.28	51.19	-5.10	0.865
105.00	-11.88	-17.18	0.00	-524.13	0.00	524.13	1,081.28	540.64	1,252.24	627.05	52.27	-5.19	0.848
110.00	-11.27	-16.82	0.00	-438.22	0.00	438.22	1,054.93	527.46	1,170.40	586.07	57.92	-5.60	0.759
115.00	-10.68	-15.87	0.00	-354.10	0.00	354.10	1,026.94	513.47	1,089.39	545.50	63.99	-5.98	0.660
117.94	-10.37	-15.69	0.00	-307.48	0.00	307.48	1,009.74	504.87	1,042.27	521.91	67.73	-6.19	0.600
120.00	-10.15	-15.46	0.00	-275.12	0.00	275.12	997.32	498.66	1,009.44	505.47	70.43	-6.34	0.555
125.00	-7.57	-11.83	0.00	-197.82	0.00	197.82	966.07	483.03	930.81	466.10	77.22	-6.64	0.433
130.00	-7.13	-11.47	0.00	-138.68	0.00	138.68	933.17	466.59	853.72	427.49	84.30	-6.88	0.333
135.00	-6.72	-11.21	0.00	-81.32	0.00	81.32	898.65	449.32	778.41	389.78	91.60	-7.07	0.217
137.00	-4.76	-6.66	0.00	-58.90	0.00	58.90	884.38	442.19	748.84	374.98	94.57	-7.13	0.163
140.00	-4.57	-6.46	0.00	-38.92	0.00	38.92	862.48	431.24	705.13	353.09	99.06	-7.19	0.116
143.00	-2.09	-3.06	0.00	-19.54	0.00	19.54	840.00	420.00	662.23	331.61	103.58	-7.23	0.061
145.00	-2.01	-2.91	0.00	-13.42	0.00	13.42	824.69	412.34	634.11	317.52	106.61	-7.25	0.045
148.00	-1.87	-2.70	0.00	-4.70	0.00	4.70	797.94	398.97	590.25	295.56	111.16	-7.27	0.018
149.00	0.00	-2.44	0.00	-2.00	0.00	2.00	787.55	393.77	574.90	287.88	112.68	-7.27	0.007

Site Number: 243036

Code: ANSI/TIA-222-G

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Site Name: WEST HAVEN & RT 162 CT, CT

Engineering Number: OAA692349_C3_04

7/11/2017 4:16:31 PM

Customer: AT&T MOBILITY

Load Case: 0.9D + 1.6W

97 mph with No Ice (Reduced DL)

26 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		242.1	0.0					0.0	0.0	242.1	0.0	0.0	0.0
5.00		478.6	930.3					0.0	29.4	478.6	959.7	0.0	0.0
10.00		467.5	908.9					0.0	147.0	467.5	1,055.9	0.0	0.0
15.00		463.6	887.5					0.0	147.0	463.6	1,034.5	0.0	0.0
20.00		471.8	866.1					0.0	147.0	471.8	1,013.1	0.0	0.0
25.00		482.5	844.7					0.0	147.0	482.5	991.7	0.0	0.0
30.00		488.7	823.3					0.0	147.0	488.7	970.3	0.0	0.0
35.00		491.8	801.9					0.0	147.0	491.8	948.9	0.0	0.0
40.00		492.3	780.5					0.0	147.0	492.3	927.5	0.0	0.0
45.00		393.0	759.0					0.0	147.0	393.0	906.1	0.0	0.0
48.00	Bot - Section 2	246.3	445.2					0.0	88.2	246.3	533.4	0.0	0.0
50.00		259.8	540.4					0.0	58.8	259.8	599.2	0.0	0.0
53.25	Top - Section 1	246.6	864.8					0.0	95.6	246.6	960.3	0.0	0.0
55.00		330.1	210.5					0.0	51.5	330.1	262.0	0.0	0.0
60.00		485.0	589.5					0.0	147.0	485.0	736.5	0.0	0.0
65.00		478.2	571.6					0.0	147.0	478.2	718.6	0.0	0.0
70.00		470.5	553.8					0.0	147.0	470.5	700.8	0.0	0.0
75.00		461.8	535.9					0.0	147.0	461.8	682.9	0.0	0.0
80.00		452.5	518.1					0.0	147.0	452.5	665.1	0.0	0.0
85.00		442.4	500.2					0.0	147.0	442.4	647.3	0.0	0.0
90.00		431.6	482.4					0.0	147.0	431.6	629.4	0.0	0.0
95.00		327.8	464.6					0.0	147.0	327.8	611.6	0.0	0.0
97.75	Bot - Section 3	208.4	247.9					0.0	80.9	208.4	328.8	0.0	0.0
100.00		155.5	320.2					0.0	66.2	155.5	386.3	0.0	0.0
101.50	Top - Section 2	163.5	210.2					0.0	44.1	163.5	254.3	0.0	0.0
104.00	Appertunance(s)	142.0	130.7	67.8	0.0	0.0	5.4	0.0	73.5	209.8	209.6	0.0	0.0
105.00	Appertunance(s)	237.7	51.5	314.1	0.0	0.0	90.0	0.0	29.4	551.9	170.9	0.0	0.0
110.00		388.4	251.2					0.0	147.0	388.4	398.2	0.0	0.0
115.00	Appertunance(s)	300.0	240.5	650.1	0.0	0.0	71.3	0.0	147.0	950.1	458.8	0.0	0.0
117.94		184.2	136.3					0.0	73.4	184.2	209.6	0.0	0.0
120.00		252.3	93.5					0.0	51.5	252.3	145.0	0.0	0.0
125.00	Appertunance(s)	347.3	219.1	3,011.6	0.0	0.0	1,846.1	0.0	124.9	3,358.9	2,190.0	0.0	0.0
130.00		332.7	208.4					0.0	119.3	332.7	327.6	0.0	0.0
135.00		225.7	197.6					0.0	119.3	225.7	316.9	0.0	0.0
137.00	Appertunance(s)	155.2	76.1	4,124.6	0.0	0.0	1,752.7	0.0	47.7	4,279.8	1,876.5	0.0	0.0
140.00		181.6	110.9					0.0	40.7	181.6	151.5	0.0	0.0
143.00	Appertunance(s)	147.5	107.0	2,912.8	0.0	0.0	2,017.5	0.0	40.7	3,060.2	2,165.2	0.0	0.0
145.00		142.8	69.2					0.0	8.1	142.8	77.3	0.0	0.0
148.00	Appertunance(s)	112.3	100.6	77.5	0.0	0.0	9.0	0.0	12.2	189.8	121.8	0.0	0.0
149.00	Appertunance(s)	27.6	32.7	2,413.0	0.0	1,998.9	1,612.4	0.0	0.8	2,440.6	1,645.9	0.0	0.0
Totals:										26,380.4	27,989.1	0.00	0.00

Site Number: 243036

Code: ANSI/TIA-222-G

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Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number: OAA692349_C3_04

7/11/2017 4:16:33 PM

Customer: AT&T MOBILITY

Load Case: 0.9D + 1.6W

97 mph with No Ice (Reduced DL)

26 Iterations*

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-27.94	-26.19	0.00	-2,818.64	0.00	2,818.64	4,109.35	2,054.67	8,723.89	4,368.43	0.00	0.00	0.652
5.00	-26.90	-25.79	0.00	-2,687.71	0.00	2,687.71	4,050.97	2,025.48	8,402.87	4,207.68	0.10	-0.19	0.646
10.00	-25.76	-25.41	0.00	-2,558.74	0.00	2,558.74	3,990.95	1,995.48	8,084.22	4,048.12	0.40	-0.38	0.639
15.00	-24.64	-25.02	0.00	-2,431.69	0.00	2,431.69	3,929.30	1,964.65	7,768.18	3,889.86	0.91	-0.58	0.632
20.00	-23.55	-24.62	0.00	-2,306.57	0.00	2,306.57	3,866.02	1,933.01	7,454.98	3,733.03	1.62	-0.78	0.624
25.00	-22.48	-24.21	0.00	-2,183.46	0.00	2,183.46	3,801.09	1,900.55	7,144.87	3,577.74	2.55	-0.99	0.616
30.00	-21.43	-23.78	0.00	-2,062.42	0.00	2,062.42	3,734.54	1,867.27	6,838.08	3,424.12	3.70	-1.20	0.608
35.00	-20.40	-23.34	0.00	-1,943.53	0.00	1,943.53	3,666.35	1,833.17	6,534.85	3,272.28	5.06	-1.41	0.600
40.00	-19.40	-22.90	0.00	-1,826.81	0.00	1,826.81	3,596.52	1,798.26	6,235.42	3,122.35	6.66	-1.63	0.591
45.00	-18.44	-22.54	0.00	-1,712.31	0.00	1,712.31	3,525.06	1,762.53	5,940.03	2,974.43	8.48	-1.85	0.581
48.00	-17.87	-22.31	0.00	-1,644.69	0.00	1,644.69	3,481.40	1,740.70	5,764.84	2,886.70	9.69	-1.99	0.575
50.00	-17.23	-22.07	0.00	-1,600.07	0.00	1,600.07	3,451.96	1,725.98	5,648.92	2,828.66	10.54	-2.08	0.571
53.25	-16.23	-21.82	0.00	-1,528.36	0.00	1,528.36	2,716.16	1,358.08	4,443.18	2,224.89	12.01	-2.23	0.693
55.00	-15.92	-21.53	0.00	-1,490.18	0.00	1,490.18	2,697.70	1,348.85	4,367.05	2,186.77	12.84	-2.32	0.688
60.00	-15.11	-21.08	0.00	-1,382.54	0.00	1,382.54	2,643.86	1,321.93	4,151.27	2,078.72	15.41	-2.58	0.671
65.00	-14.31	-20.64	0.00	-1,277.14	0.00	1,277.14	2,588.39	1,294.20	3,938.25	1,972.05	18.26	-2.85	0.653
70.00	-13.54	-20.20	0.00	-1,173.95	0.00	1,173.95	2,531.28	1,265.64	3,728.21	1,866.88	21.39	-3.13	0.634
75.00	-12.79	-19.76	0.00	-1,072.97	0.00	1,072.97	2,472.54	1,236.27	3,521.40	1,763.32	24.81	-3.40	0.614
80.00	-12.06	-19.33	0.00	-974.18	0.00	974.18	2,412.16	1,206.08	3,318.06	1,661.49	28.53	-3.68	0.592
85.00	-11.35	-18.90	0.00	-877.55	0.00	877.55	2,350.14	1,175.07	3,118.42	1,561.53	32.53	-3.96	0.567
90.00	-10.67	-18.47	0.00	-783.07	0.00	783.07	2,286.49	1,143.25	2,922.73	1,463.54	36.82	-4.24	0.540
95.00	-10.01	-18.14	0.00	-690.71	0.00	690.71	2,210.70	1,105.35	2,718.30	1,361.17	41.40	-4.51	0.512
97.75	-9.66	-17.93	0.00	-640.84	0.00	640.84	2,163.09	1,081.54	2,601.88	1,302.87	44.05	-4.67	0.497
100.00	-9.25	-17.76	0.00	-600.51	0.00	600.51	2,124.13	1,062.07	2,508.52	1,256.12	46.28	-4.79	0.483
101.50	-8.98	-17.59	0.00	-573.87	0.00	573.87	1,098.75	549.38	1,309.89	655.92	47.79	-4.88	0.884
104.00	-8.76	-17.38	0.00	-529.90	0.00	529.90	1,086.35	543.18	1,268.68	635.28	50.38	-5.01	0.843
105.00	-8.56	-16.85	0.00	-512.53	0.00	512.53	1,081.28	540.64	1,252.24	627.05	51.44	-5.10	0.826
110.00	-8.09	-16.48	0.00	-428.27	0.00	428.27	1,054.93	527.46	1,170.40	586.07	56.99	-5.50	0.739
115.00	-7.65	-15.53	0.00	-345.86	0.00	345.86	1,026.94	513.47	1,089.39	545.50	62.94	-5.87	0.642
117.94	-7.42	-15.35	0.00	-300.24	0.00	300.24	1,009.74	504.87	1,042.27	521.91	66.62	-6.08	0.584
120.00	-7.24	-15.11	0.00	-268.59	0.00	268.59	997.32	498.66	1,009.44	505.47	69.27	-6.22	0.540
125.00	-5.38	-11.55	0.00	-193.04	0.00	193.04	966.07	483.03	930.81	466.10	75.94	-6.51	0.420
130.00	-5.05	-11.20	0.00	-135.28	0.00	135.28	933.17	466.59	853.72	427.49	82.88	-6.75	0.322
135.00	-4.74	-10.95	0.00	-79.26	0.00	79.26	898.65	449.32	778.41	389.78	90.04	-6.94	0.209
137.00	-3.39	-6.48	0.00	-57.36	0.00	57.36	884.38	442.19	748.84	374.98	92.95	-6.99	0.157
140.00	-3.26	-6.28	0.00	-37.92	0.00	37.92	862.48	431.24	705.13	353.09	97.36	-7.05	0.111
143.00	-1.49	-2.98	0.00	-19.07	0.00	19.07	840.00	420.00	662.23	331.61	101.79	-7.09	0.059
145.00	-1.43	-2.83	0.00	-13.11	0.00	13.11	824.69	412.34	634.11	317.52	104.76	-7.11	0.043
148.00	-1.33	-2.63	0.00	-4.62	0.00	4.62	797.94	398.97	590.25	295.56	109.22	-7.13	0.017
149.00	0.00	-2.44	0.00	-2.00	0.00	2.00	787.55	393.77	574.90	287.88	110.71	-7.13	0.007

Site Number: 243036

Code: ANSI/TIA-222-G

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Site Name: WEST HAVEN & RT 162 CT, CT

Engineering Number: OAA692349_C3_04

7/11/2017 4:16:33 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

25 Iterations

Gust Response Factor :1.10

Ice Dead Load Factor :1.00

Wind Importance Factor :1.00

Dead Load Factor :1.20

Ice Importance Factor :1.00

Wind Load Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		77.5	0.0					0.0	0.0	77.5	0.0	0.0	0.0
5.00		153.7	1,617.9					0.0	39.2	153.7	1,657.1	0.0	0.0
10.00		150.9	1,624.7					0.0	196.0	150.9	1,820.8	0.0	0.0
15.00		150.1	1,608.4					0.0	196.0	150.1	1,804.4	0.0	0.0
20.00		153.2	1,584.4					0.0	196.0	153.2	1,780.4	0.0	0.0
25.00		157.1	1,556.5					0.0	196.0	157.1	1,752.5	0.0	0.0
30.00		159.6	1,526.1					0.0	196.0	159.6	1,722.1	0.0	0.0
35.00		161.0	1,494.0					0.0	196.0	161.0	1,690.0	0.0	0.0
40.00		161.6	1,460.6					0.0	196.0	161.6	1,656.6	0.0	0.0
45.00		129.3	1,426.2					0.0	196.0	129.3	1,622.2	0.0	0.0
48.00	Bot - Section 2	81.1	840.2					0.0	117.6	81.1	957.8	0.0	0.0
50.00		85.7	886.5					0.0	78.4	85.7	964.9	0.0	0.0
53.25	Top - Section 1	81.4	1,419.2					0.0	127.4	81.4	1,546.7	0.0	0.0
55.00		109.2	423.3					0.0	68.6	109.2	491.9	0.0	0.0
60.00		160.8	1,184.4					0.0	196.0	160.8	1,380.4	0.0	0.0
65.00		159.0	1,152.3					0.0	196.0	159.0	1,348.3	0.0	0.0
70.00		156.9	1,119.8					0.0	196.0	156.9	1,315.8	0.0	0.0
75.00		154.6	1,086.9					0.0	196.0	154.6	1,282.9	0.0	0.0
80.00		152.0	1,053.7					0.0	196.0	152.0	1,249.7	0.0	0.0
85.00		149.1	1,020.2					0.0	196.0	149.1	1,216.2	0.0	0.0
90.00		146.1	986.4					0.0	196.0	146.1	1,182.4	0.0	0.0
95.00		111.3	952.4					0.0	196.0	111.3	1,148.4	0.0	0.0
97.75	Bot - Section 3	70.9	510.7					0.0	107.8	70.9	618.5	0.0	0.0
100.00		53.0	574.0					0.0	88.2	53.0	662.2	0.0	0.0
101.50	Top - Section 2	55.8	377.4					0.0	58.8	55.8	436.3	0.0	0.0
104.00	Appertunance(s)	48.5	333.4	15.3	0.0	0.0	45.8	0.0	98.0	63.8	477.2	0.0	0.0
105.00	Appertunance(s)	81.6	132.0	62.1	0.0	0.0	243.6	0.0	39.2	143.7	414.8	0.0	0.0
110.00		133.7	639.8					0.0	196.0	133.7	835.8	0.0	0.0
115.00	Appertunance(s)	103.7	614.5	133.3	0.0	0.0	435.1	0.0	196.0	237.0	1,245.7	0.0	0.0
117.94		63.9	350.7					0.0	97.8	63.9	448.5	0.0	0.0
120.00		88.0	241.4					0.0	68.7	88.0	310.1	0.0	0.0
125.00	Appertunance(s)	121.7	563.5	723.8	0.0	0.0	4,129.3	0.0	166.5	845.5	4,859.3	0.0	0.0
130.00		117.4	537.7					0.0	159.1	117.4	696.8	0.0	0.0
135.00		80.0	511.8					0.0	159.1	80.0	670.9	0.0	0.0
137.00	Appertunance(s)	55.4	199.0	989.7	0.0	0.0	4,694.2	0.0	63.6	1,045.1	4,956.8	0.0	0.0
140.00		65.1	289.9					0.0	54.2	65.1	344.1	0.0	0.0
143.00	Appertunance(s)	53.1	280.5	708.3	0.0	0.0	4,578.8	0.0	54.2	761.4	4,913.4	0.0	0.0
145.00		51.7	182.3					0.0	10.8	51.7	193.1	0.0	0.0
148.00	Appertunance(s)	40.8	264.7	15.3	0.0	0.0	63.9	0.0	16.3	56.1	344.9	0.0	0.0
149.00	Appertunance(s)	10.1	86.7	643.5	0.0	424.5	5,416.6	0.0	1.0	653.5	5,504.3	0.0	0.0
Totals:										7,587.00	57,524.2	0.00	0.00

Site Number: 243036

Code: ANSI/TIA-222-G

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Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number: OAA692349_C3_04

7/11/2017 4:16:35 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

25 Iterations

Gust Response Factor :1.10

Ice Dead Load Factor :1.00

Wind Importance Factor :1.00

Dead Load Factor :1.20

Ice Importance Factor :1.00

Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-57.52	-7.54	0.00	-818.32	0.00	818.32	4,109.35	2,054.67	8,723.89	4,368.43	0.00	0.00	0.201
5.00	-55.86	-7.44	0.00	-780.64	0.00	780.64	4,050.97	2,025.48	8,402.87	4,207.68	0.03	-0.05	0.199
10.00	-54.03	-7.34	0.00	-743.45	0.00	743.45	3,990.95	1,995.48	8,084.22	4,048.12	0.12	-0.11	0.197
15.00	-52.22	-7.23	0.00	-706.77	0.00	706.77	3,929.30	1,964.65	7,768.18	3,889.86	0.26	-0.17	0.195
20.00	-50.43	-7.13	0.00	-670.60	0.00	670.60	3,866.02	1,933.01	7,454.98	3,733.03	0.47	-0.23	0.193
25.00	-48.67	-7.01	0.00	-634.96	0.00	634.96	3,801.09	1,900.55	7,144.87	3,577.74	0.74	-0.29	0.190
30.00	-46.94	-6.90	0.00	-599.89	0.00	599.89	3,734.54	1,867.27	6,838.08	3,424.12	1.07	-0.35	0.188
35.00	-45.25	-6.77	0.00	-565.42	0.00	565.42	3,666.35	1,833.17	6,534.85	3,272.28	1.47	-0.41	0.185
40.00	-43.58	-6.65	0.00	-531.56	0.00	531.56	3,596.52	1,798.26	6,235.42	3,122.35	1.93	-0.47	0.182
45.00	-41.96	-6.54	0.00	-498.32	0.00	498.32	3,525.06	1,762.53	5,940.03	2,974.43	2.47	-0.54	0.179
48.00	-41.00	-6.48	0.00	-478.70	0.00	478.70	3,481.40	1,740.70	5,764.84	2,886.70	2.82	-0.58	0.178
50.00	-40.03	-6.40	0.00	-465.75	0.00	465.75	3,451.96	1,725.98	5,648.92	2,828.66	3.06	-0.61	0.176
53.25	-38.48	-6.33	0.00	-444.94	0.00	444.94	2,716.16	1,358.08	4,443.18	2,224.89	3.49	-0.65	0.214
55.00	-37.98	-6.25	0.00	-433.86	0.00	433.86	2,697.70	1,348.85	4,367.05	2,186.77	3.73	-0.67	0.213
60.00	-36.60	-6.12	0.00	-402.62	0.00	402.62	2,643.86	1,321.93	4,151.27	2,078.72	4.48	-0.75	0.208
65.00	-35.24	-5.99	0.00	-372.02	0.00	372.02	2,588.39	1,294.20	3,938.25	1,972.05	5.31	-0.83	0.202
70.00	-33.92	-5.86	0.00	-342.07	0.00	342.07	2,531.28	1,265.64	3,728.21	1,866.88	6.22	-0.91	0.197
75.00	-32.63	-5.73	0.00	-312.76	0.00	312.76	2,472.54	1,236.27	3,521.40	1,763.32	7.22	-0.99	0.191
80.00	-31.38	-5.60	0.00	-284.10	0.00	284.10	2,412.16	1,206.08	3,318.06	1,661.49	8.30	-1.07	0.184
85.00	-30.16	-5.47	0.00	-256.09	0.00	256.09	2,350.14	1,175.07	3,118.42	1,561.53	9.46	-1.15	0.177
90.00	-28.97	-5.34	0.00	-228.73	0.00	228.73	2,286.49	1,143.25	2,922.73	1,463.54	10.71	-1.23	0.169
95.00	-27.82	-5.24	0.00	-202.01	0.00	202.01	2,210.70	1,105.35	2,718.30	1,361.17	12.05	-1.31	0.161
97.75	-27.20	-5.17	0.00	-187.61	0.00	187.61	2,163.09	1,081.54	2,601.88	1,302.87	12.82	-1.36	0.157
100.00	-26.53	-5.12	0.00	-175.98	0.00	175.98	2,124.13	1,062.07	2,508.52	1,256.12	13.47	-1.40	0.153
101.50	-26.10	-5.06	0.00	-168.31	0.00	168.31	1,098.75	549.38	1,309.89	655.92	13.91	-1.42	0.280
104.00	-25.62	-5.00	0.00	-155.65	0.00	155.65	1,086.35	543.18	1,268.68	635.28	14.67	-1.46	0.269
105.00	-25.20	-4.88	0.00	-150.65	0.00	150.65	1,081.28	540.64	1,252.24	627.05	14.98	-1.49	0.264
110.00	-24.36	-4.77	0.00	-126.25	0.00	126.25	1,054.93	527.46	1,170.40	586.07	16.60	-1.60	0.239
115.00	-23.11	-4.53	0.00	-102.38	0.00	102.38	1,026.94	513.47	1,089.39	545.50	18.34	-1.71	0.210
117.94	-22.66	-4.48	0.00	-89.07	0.00	89.07	1,009.74	504.87	1,042.27	521.91	19.41	-1.78	0.193
120.00	-22.35	-4.41	0.00	-79.83	0.00	79.83	997.32	498.66	1,009.44	505.47	20.19	-1.82	0.180
125.00	-17.52	-3.43	0.00	-57.81	0.00	57.81	966.07	483.03	930.81	466.10	22.14	-1.90	0.142
130.00	-16.82	-3.30	0.00	-40.68	0.00	40.68	933.17	466.59	853.72	427.49	24.17	-1.98	0.113
135.00	-16.15	-3.21	0.00	-24.16	0.00	24.16	898.65	449.32	778.41	389.78	26.27	-2.03	0.080
137.00	-11.24	-1.99	0.00	-17.74	0.00	17.74	884.38	442.19	748.84	374.98	27.13	-2.05	0.060
140.00	-10.89	-1.92	0.00	-11.76	0.00	11.76	862.48	431.24	705.13	353.09	28.42	-2.07	0.046
143.00	-6.01	-0.98	0.00	-6.01	0.00	6.01	840.00	420.00	662.23	331.61	29.73	-2.08	0.025
145.00	-5.82	-0.92	0.00	-4.05	0.00	4.05	824.69	412.34	634.11	317.52	30.60	-2.09	0.020
148.00	-5.48	-0.85	0.00	-1.28	0.00	1.28	797.94	398.97	590.25	295.56	31.91	-2.09	0.011
149.00	0.00	-0.65	0.00	-0.42	0.00	0.42	787.55	393.77	574.90	287.88	32.35	-2.09	0.001

Site Number: 243036

Code: ANSI/TIA-222-G

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Site Name: WEST HAVEN & RT 162 CT, CT

Engineering Number: OAA692349_C3_04

7/11/2017 4:16:36 PM

Customer: AT&T MOBILITY

Load Case: 1.0D + 1.0W

Serviceability 60 mph

24 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces			Sum of Forces			
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		57.9	0.0					0.0	0.0	57.9	0.0	0.0	0.0
5.00		114.4	1,033.7					0.0	32.7	114.4	1,066.4	0.0	0.0
10.00		111.8	1,009.9					0.0	163.4	111.8	1,173.3	0.0	0.0
15.00		110.9	986.1					0.0	163.4	110.9	1,149.5	0.0	0.0
20.00		112.8	962.3					0.0	163.4	112.8	1,125.7	0.0	0.0
25.00		115.4	938.5					0.0	163.4	115.4	1,101.9	0.0	0.0
30.00		116.9	914.8					0.0	163.4	116.9	1,078.1	0.0	0.0
35.00		117.6	891.0					0.0	163.4	117.6	1,054.3	0.0	0.0
40.00		117.7	867.2					0.0	163.4	117.7	1,030.5	0.0	0.0
45.00		94.0	843.4					0.0	163.4	94.0	1,006.7	0.0	0.0
48.00	Bot - Section 2	58.9	494.6					0.0	98.0	58.9	592.6	0.0	0.0
50.00		62.1	600.4					0.0	65.3	62.1	665.8	0.0	0.0
53.25	Top - Section 1	59.0	960.8					0.0	106.2	59.0	1,067.0	0.0	0.0
55.00		78.9	233.9					0.0	57.2	78.9	291.1	0.0	0.0
60.00		116.0	654.9					0.0	163.4	116.0	818.3	0.0	0.0
65.00		114.4	635.1					0.0	163.4	114.4	798.5	0.0	0.0
70.00		112.5	615.3					0.0	163.4	112.5	778.6	0.0	0.0
75.00		110.4	595.5					0.0	163.4	110.4	758.8	0.0	0.0
80.00		108.2	575.6					0.0	163.4	108.2	739.0	0.0	0.0
85.00		105.8	555.8					0.0	163.4	105.8	719.2	0.0	0.0
90.00		103.2	536.0					0.0	163.4	103.2	699.3	0.0	0.0
95.00		78.4	516.2					0.0	163.4	78.4	679.5	0.0	0.0
97.75	Bot - Section 3	49.8	275.4					0.0	89.8	49.8	365.3	0.0	0.0
100.00		37.2	355.7					0.0	73.5	37.2	429.2	0.0	0.0
101.50	Top - Section 2	39.1	233.6					0.0	49.0	39.1	282.6	0.0	0.0
104.00	Appertunance(s)	34.0	145.2	16.2	0.0	0.0	6.0	0.0	81.7	50.2	232.9	0.0	0.0
105.00	Appertunance(s)	56.9	57.2	75.1	0.0	0.0	100.0	0.0	32.7	132.0	189.9	0.0	0.0
110.00		92.9	279.1					0.0	163.4	92.9	442.4	0.0	0.0
115.00	Appertunance(s)	71.7	267.2	155.5	0.0	0.0	79.2	0.0	163.4	227.2	509.7	0.0	0.0
117.94		44.0	151.4					0.0	81.5	44.0	232.9	0.0	0.0
120.00		60.3	103.9					0.0	57.2	60.3	161.1	0.0	0.0
125.00	Appertunance(s)	83.0	243.4	720.2	0.0	0.0	2,051.2	0.0	138.8	803.2	2,433.3	0.0	0.0
130.00		79.6	231.5					0.0	132.6	79.6	364.1	0.0	0.0
135.00		54.0	219.6					0.0	132.6	54.0	352.2	0.0	0.0
137.00	Appertunance(s)	37.1	84.5	986.3	0.0	0.0	1,947.5	0.0	53.0	1,023.4	2,085.0	0.0	0.0
140.00		43.4	123.2					0.0	45.2	43.4	168.4	0.0	0.0
143.00	Appertunance(s)	35.3	118.9	696.5	0.0	0.0	2,241.6	0.0	45.2	731.8	2,405.7	0.0	0.0
145.00		34.1	76.9					0.0	9.0	34.1	85.9	0.0	0.0
148.00	Appertunance(s)	26.9	111.8	18.5	0.0	0.0	10.0	0.0	13.6	45.4	135.3	0.0	0.0
149.00	Appertunance(s)	6.6	36.3	577.0	0.0	478.0	1,791.6	0.0	0.9	583.6	1,828.8	0.0	0.0
Totals:										6,308.42	31,099.0	0.00	0.00

Site Number: 243036

Code: ANSI/TIA-222-G

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Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number: OAA692349_C3_04

7/11/2017 4:16:37 PM

Customer: AT&T MOBILITY

Load Case: 1.0D + 1.0W

Serviceability 60 mph

24 Iterations

Gust Response Factor :1.10

Wind Importance Factor 1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-31.10	-6.26	0.00	-677.89	0.00	677.89	4,109.35	2,054.67	8,723.89	4,368.43	0.00	0.00	0.163
5.00	-30.03	-6.17	0.00	-646.58	0.00	646.58	4,050.97	2,025.48	8,402.87	4,207.68	0.02	-0.05	0.161
10.00	-28.85	-6.08	0.00	-615.73	0.00	615.73	3,990.95	1,995.48	8,084.22	4,048.12	0.10	-0.09	0.159
15.00	-27.69	-5.99	0.00	-585.32	0.00	585.32	3,929.30	1,964.65	7,768.18	3,889.86	0.22	-0.14	0.158
20.00	-26.56	-5.90	0.00	-555.36	0.00	555.36	3,866.02	1,933.01	7,454.98	3,733.03	0.39	-0.19	0.156
25.00	-25.46	-5.80	0.00	-525.87	0.00	525.87	3,801.09	1,900.55	7,144.87	3,577.74	0.61	-0.24	0.154
30.00	-24.37	-5.70	0.00	-496.87	0.00	496.87	3,734.54	1,867.27	6,838.08	3,424.12	0.89	-0.29	0.152
35.00	-23.31	-5.60	0.00	-468.36	0.00	468.36	3,666.35	1,833.17	6,534.85	3,272.28	1.22	-0.34	0.149
40.00	-22.28	-5.49	0.00	-440.37	0.00	440.37	3,596.52	1,798.26	6,235.42	3,122.35	1.60	-0.39	0.147
45.00	-21.27	-5.41	0.00	-412.90	0.00	412.90	3,525.06	1,762.53	5,940.03	2,974.43	2.04	-0.45	0.145
48.00	-20.67	-5.36	0.00	-396.67	0.00	396.67	3,481.40	1,740.70	5,764.84	2,886.70	2.33	-0.48	0.143
50.00	-20.01	-5.30	0.00	-385.96	0.00	385.96	3,451.96	1,725.98	5,648.92	2,828.66	2.54	-0.50	0.142
53.25	-18.94	-5.24	0.00	-368.74	0.00	368.74	2,716.16	1,358.08	4,443.18	2,224.89	2.89	-0.54	0.173
55.00	-18.64	-5.17	0.00	-359.57	0.00	359.57	2,697.70	1,348.85	4,367.05	2,186.77	3.09	-0.56	0.171
60.00	-17.82	-5.07	0.00	-333.71	0.00	333.71	2,643.86	1,321.93	4,151.27	2,078.72	3.71	-0.62	0.167
65.00	-17.02	-4.96	0.00	-308.37	0.00	308.37	2,588.39	1,294.20	3,938.25	1,972.05	4.40	-0.69	0.163
70.00	-16.24	-4.86	0.00	-283.56	0.00	283.56	2,531.28	1,265.64	3,728.21	1,866.88	5.15	-0.75	0.158
75.00	-15.47	-4.76	0.00	-259.26	0.00	259.26	2,472.54	1,236.27	3,521.40	1,763.32	5.98	-0.82	0.153
80.00	-14.73	-4.66	0.00	-235.47	0.00	235.47	2,412.16	1,206.08	3,318.06	1,661.49	6.87	-0.89	0.148
85.00	-14.01	-4.55	0.00	-212.20	0.00	212.20	2,350.14	1,175.07	3,118.42	1,561.53	7.84	-0.95	0.142
90.00	-13.30	-4.45	0.00	-189.43	0.00	189.43	2,286.49	1,143.25	2,922.73	1,463.54	8.88	-1.02	0.135
95.00	-12.62	-4.38	0.00	-167.15	0.00	167.15	2,210.70	1,105.35	2,718.30	1,361.17	9.98	-1.09	0.129
97.75	-12.26	-4.33	0.00	-155.12	0.00	155.12	2,163.09	1,081.54	2,601.88	1,302.87	10.62	-1.13	0.125
100.00	-11.83	-4.29	0.00	-145.39	0.00	145.39	2,124.13	1,062.07	2,508.52	1,256.12	11.16	-1.16	0.121
101.50	-11.54	-4.25	0.00	-138.96	0.00	138.96	1,098.75	549.38	1,309.89	655.92	11.53	-1.18	0.222
104.00	-11.31	-4.20	0.00	-128.35	0.00	128.35	1,086.35	543.18	1,268.68	635.28	12.15	-1.21	0.213
105.00	-11.12	-4.07	0.00	-124.15	0.00	124.15	1,081.28	540.64	1,252.24	627.05	12.41	-1.23	0.208
110.00	-10.67	-3.99	0.00	-103.79	0.00	103.79	1,054.93	527.46	1,170.40	586.07	13.75	-1.33	0.187
115.00	-10.16	-3.76	0.00	-83.86	0.00	83.86	1,026.94	513.47	1,089.39	545.50	15.19	-1.42	0.164
117.94	-9.93	-3.72	0.00	-72.82	0.00	72.82	1,009.74	504.87	1,042.27	521.91	16.08	-1.47	0.149
120.00	-9.76	-3.66	0.00	-65.15	0.00	65.15	997.32	498.66	1,009.44	505.47	16.72	-1.50	0.139
125.00	-7.35	-2.80	0.00	-46.85	0.00	46.85	966.07	483.03	930.81	466.10	18.33	-1.57	0.108
130.00	-6.99	-2.72	0.00	-32.84	0.00	32.84	933.17	466.59	853.72	427.49	20.01	-1.63	0.084
135.00	-6.63	-2.66	0.00	-19.25	0.00	19.25	898.65	449.32	778.41	389.78	21.75	-1.68	0.057
137.00	-4.58	-1.57	0.00	-13.93	0.00	13.93	884.38	442.19	748.84	374.98	22.45	-1.69	0.042
140.00	-4.41	-1.53	0.00	-9.21	0.00	9.21	862.48	431.24	705.13	353.09	23.52	-1.70	0.031
143.00	-2.03	-0.72	0.00	-4.63	0.00	4.63	840.00	420.00	662.23	331.61	24.59	-1.71	0.016
145.00	-1.94	-0.69	0.00	-3.18	0.00	3.18	824.69	412.34	634.11	317.52	25.31	-1.72	0.012
148.00	-1.81	-0.64	0.00	-1.12	0.00	1.12	797.94	398.97	590.25	295.56	26.39	-1.72	0.006
149.00	0.00	-0.58	0.00	-0.48	0.00	0.48	787.55	393.77	574.90	287.88	26.76	-1.72	0.002

Site Number: 243036

Code: ANSI/TIA-222-G

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Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number: OAA692349_C3_04

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Customer: AT&T MOBILITY

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_g):	0.19
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Long-Period Transition Period (T_L):	6
Importance Factor (I_p):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.20
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_s	0.03
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	2.46
Redundancy Factor (ρ):	1.30
Seismic Force Distribution Exponent (k):	1.98
Total Unfactored Dead Load:	31.10 k
Seismic Base Shear (E):	1.21 k

Load Case (1.2 + 0.2Sds) * DL + E ELM Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
39	148.50	37	735	0.003	4	46
38	146.50	125	2,412	0.010	12	155
37	144.00	86	1,598	0.007	8	107
36	141.50	164	2,948	0.012	15	203
35	138.50	168	2,899	0.012	15	209
34	136.00	138	2,284	0.010	12	171
33	132.50	352	5,555	0.023	28	437
32	127.50	364	5,322	0.022	27	451
31	122.50	382	5,161	0.022	26	474
30	118.97	161	2,054	0.009	10	200
29	116.47	233	2,847	0.012	14	289
28	112.50	431	4,914	0.021	25	534
27	107.50	442	4,615	0.019	23	549
26	104.50	90	887	0.004	4	112
25	102.75	227	2,164	0.009	11	281
24	100.75	283	2,593	0.011	13	350
23	98.88	429	3,795	0.016	19	532
22	96.38	365	3,070	0.013	16	453
21	92.50	680	5,265	0.022	27	843
20	87.50	699	4,855	0.020	25	867
19	82.50	719	4,444	0.019	23	892
18	77.50	739	4,035	0.017	20	916
17	72.50	759	3,631	0.015	18	941

Site Number: 243036

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Site Name: WEST HAVEN & RT 162 CT, CT

Engineering Number: OAA692349_C3_04

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Customer: AT&T MOBILITY

16	67.50	779	3,235	0.014	16	966
15	62.50	798	2,849	0.012	14	990
14	57.50	818	2,476	0.010	13	1,015
13	54.13	291	781	0.003	4	361
12	51.63	1,067	2,608	0.011	13	1,323
11	49.00	666	1,468	0.006	7	826
10	46.50	593	1,178	0.005	6	735
9	42.50	1,007	1,675	0.007	8	1,248
8	37.50	1,031	1,339	0.006	7	1,278
7	32.50	1,054	1,032	0.004	5	1,307
6	27.50	1,078	758	0.003	4	1,337
5	22.50	1,102	521	0.002	3	1,366
4	17.50	1,126	324	0.001	2	1,396
3	12.50	1,149	170	0.001	1	1,425
2	7.50	1,173	63	0.000	0	1,455
1	2.50	1,066	7	0.000	0	1,322
DragonWave Horizon C	149.00	32	633	0.003	3	39
DragonWave A-ANT-23G	149.00	15	298	0.001	2	19
NextNet BTS-2500	149.00	105	2,089	0.009	11	130
Argus LLPX310R	149.00	86	1,707	0.007	9	106
DragonWave A-ANT-11G	149.00	54	1,074	0.004	5	67
Collar	149.00	1,500	29,845	0.125	151	1,860
12" x 12" Junction B	148.00	10	196	0.001	1	12
Kathrein Smart Bias	143.00	10	182	0.001	1	12
Ericsson KRY 112 14	143.00	36	666	0.003	3	45
Ericsson KRY 112 489	143.00	46	847	0.004	4	57
Ericsson RRUS 11 B12	143.00	152	2,790	0.012	14	189
Commscope SBNHH-1D65	143.00	101	1,843	0.008	9	125
Ericsson AIR-32 B2A/	143.00	397	7,275	0.030	37	492
Flat Low Profile Pla	143.00	1,500	27,514	0.115	140	1,860
RFS FD9R6004/2C-3L	137.00	16	263	0.001	1	19
Alcatel-Lucent RRH2x	137.00	132	2,224	0.009	11	164
Amphenol Antel BXA-	137.00	45	758	0.003	4	56
Antel BXA-185085/12C	137.00	39	657	0.003	3	48
RFS DB-T1-6Z-8AB-0Z	137.00	44	741	0.003	4	55
Andrew DB854DG65ESX	137.00	56	935	0.004	5	69
Commscope LNX-6514DS	137.00	116	1,962	0.008	10	144
Round Low Profile PI	137.00	1,500	25,278	0.106	128	1,860
Raycap DC6-48-60-0-8	125.00	33	461	0.002	2	41
Ericsson RRUS-11 800	125.00	162	2,277	0.010	12	201
Ericsson RRUS 32	125.00	152	2,142	0.009	11	189
CCI CCI-HPA-65R-BUU-	125.00	204	2,868	0.012	15	253
Flat Low Profile Pla	125.00	1,500	21,086	0.088	107	1,860
RFS APXV18-206517S-C	115.00	79	944	0.004	5	98
3' Dish w/ Radome	105.00	100	996	0.004	5	124
Proxim 5054-R-LR	104.00	6	59	0.000	0	7
		31,099	239,179	1.000	1,213	38,566

Load Case (0.9 - 0.2Sds) * DL + E ELMF

Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
39	148.50	37	735	0.003	4	32
38	146.50	125	2,412	0.010	12	108
37	144.00	86	1,598	0.007	8	74
36	141.50	164	2,948	0.012	15	141
35	138.50	168	2,899	0.012	15	145
34	136.00	138	2,284	0.010	12	118
33	132.50	352	5,555	0.023	28	303
32	127.50	364	5,322	0.022	27	313

Site Number: 243036

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Engineering Number: OAA692349_C3_04

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Customer: AT&T MOBILITY

31	122.50	382	5,161	0.022	26	329
30	118.97	161	2,054	0.009	10	139
29	116.47	233	2,847	0.012	14	200
28	112.50	431	4,914	0.021	25	370
27	107.50	442	4,615	0.019	23	380
26	104.50	90	887	0.004	4	77
25	102.75	227	2,164	0.009	11	195
24	100.75	283	2,593	0.011	13	243
23	98.88	429	3,795	0.016	19	369
22	96.38	365	3,070	0.013	16	314
21	92.50	680	5,265	0.022	27	584
20	87.50	699	4,855	0.020	25	601
19	82.50	719	4,444	0.019	23	618
18	77.50	739	4,035	0.017	20	635
17	72.50	759	3,631	0.015	18	653
16	67.50	779	3,235	0.014	16	670
15	62.50	798	2,849	0.012	14	687
14	57.50	818	2,476	0.010	13	704
13	54.13	291	781	0.003	4	250
12	51.63	1,067	2,608	0.011	13	918
11	49.00	666	1,468	0.006	7	573
10	46.50	593	1,178	0.005	6	510
9	42.50	1,007	1,675	0.007	8	866
8	37.50	1,031	1,339	0.006	7	886
7	32.50	1,054	1,032	0.004	5	907
6	27.50	1,078	758	0.003	4	927
5	22.50	1,102	521	0.002	3	948
4	17.50	1,126	324	0.001	2	968
3	12.50	1,149	170	0.001	1	988
2	7.50	1,173	63	0.000	0	1,009
1	2.50	1,066	7	0.000	0	917
DragonWave Horizon C	149.00	32	633	0.003	3	27
DragonWave A-ANT-23G	149.00	15	298	0.001	2	13
NextNet BTS-2500	149.00	105	2,089	0.009	11	90
Argus LLPX310R	149.00	86	1,707	0.007	9	74
DragonWave A-ANT-11G	149.00	54	1,074	0.004	5	46
Collar	149.00	1,500	29,845	0.125	151	1,290
12" x 12" Junction B	148.00	10	196	0.001	1	9
Kathrein Smart Bias	143.00	10	182	0.001	1	9
Ericsson KRY 112 14	143.00	36	666	0.003	3	31
Ericsson KRY 112 489	143.00	46	847	0.004	4	40
Ericsson RRUS 11 B12	143.00	152	2,790	0.012	14	131
Commscope SBNHH-1D65	143.00	101	1,843	0.008	9	86
Ericsson AIR-32 B2A/	143.00	397	7,275	0.030	37	341
Flat Low Profile Pla	143.00	1,500	27,514	0.115	140	1,290
RFS FD9R6004/2C-3L	137.00	16	263	0.001	1	13
Alcatel-Lucent RRH2x	137.00	132	2,224	0.009	11	114
Amphenol Antel BXA-	137.00	45	758	0.003	4	39
Antel BXA-185085/12C	137.00	39	657	0.003	3	34
RFS DB-T1-6Z-8AB-0Z	137.00	44	741	0.003	4	38
Andrew DB854DG65ESX	137.00	56	935	0.004	5	48
Commscope LNX-6514DS	137.00	116	1,962	0.008	10	100
Round Low Profile PI	137.00	1,500	25,278	0.106	128	1,290
Raycap DC6-48-60-0-8	125.00	33	461	0.002	2	28
Ericsson RRUS-11 800	125.00	162	2,277	0.010	12	139
Ericsson RRUS 32	125.00	152	2,142	0.009	11	131
CCI CCI-HPA-65R-BUU-	125.00	204	2,868	0.012	15	175
Flat Low Profile Pla	125.00	1,500	21,086	0.088	107	1,290
RFS APXV18-206517S-C	115.00	79	944	0.004	5	68
3' Dish w/ Radome	105.00	100	996	0.004	5	86
Proxim 5054-R-LR	104.00	6	59	0.000	0	5
		31,099	239,179	1.000	1,213	26,742

Site Number: 243036

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Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number: OAA692349_C3_04

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Customer: AT&T MOBILITY

Site Number: 243036

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Site Name: WEST HAVEN & RT 162 CT, CT

Engineering Number: OAA692349_C3_04

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Customer: AT&T MOBILITY

Load Case (1.2 + 0.2Sds) * DL + E ELMF Seismic Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-37.24	-1.22	0.00	-154.26	0.00	154.26	4,109.35	2,054.67	8,723.89	4,368.43	0.00	0.00	0.044
5.00	-35.79	-1.22	0.00	-148.18	0.00	148.18	4,050.97	2,025.48	8,402.87	4,207.68	0.01	-0.01	0.044
10.00	-34.36	-1.23	0.00	-142.07	0.00	142.07	3,990.95	1,995.48	8,084.22	4,048.12	0.02	-0.02	0.044
15.00	-32.97	-1.23	0.00	-135.94	0.00	135.94	3,929.30	1,964.65	7,768.18	3,889.86	0.05	-0.03	0.043
20.00	-31.60	-1.23	0.00	-129.79	0.00	129.79	3,866.02	1,933.01	7,454.98	3,733.03	0.09	-0.04	0.043
25.00	-30.26	-1.23	0.00	-123.62	0.00	123.62	3,801.09	1,900.55	7,144.87	3,577.74	0.14	-0.05	0.043
30.00	-28.95	-1.23	0.00	-117.45	0.00	117.45	3,734.54	1,867.27	6,838.08	3,424.12	0.21	-0.07	0.042
35.00	-27.68	-1.23	0.00	-111.27	0.00	111.27	3,666.35	1,833.17	6,534.85	3,272.28	0.28	-0.08	0.042
40.00	-26.43	-1.23	0.00	-105.12	0.00	105.12	3,596.52	1,798.26	6,235.42	3,122.35	0.37	-0.09	0.041
45.00	-25.69	-1.22	0.00	-98.98	0.00	98.98	3,525.06	1,762.53	5,940.03	2,974.43	0.47	-0.10	0.041
48.00	-24.87	-1.22	0.00	-95.31	0.00	95.31	3,481.40	1,740.70	5,764.84	2,886.70	0.54	-0.11	0.040
50.00	-23.54	-1.21	0.00	-92.87	0.00	92.87	3,451.96	1,725.98	5,648.92	2,828.66	0.59	-0.12	0.040
53.25	-23.18	-1.20	0.00	-88.95	0.00	88.95	2,716.16	1,358.08	4,443.18	2,224.89	0.67	-0.13	0.049
55.00	-22.17	-1.19	0.00	-86.84	0.00	86.84	2,697.70	1,348.85	4,367.05	2,186.77	0.72	-0.13	0.048
60.00	-21.18	-1.18	0.00	-80.88	0.00	80.88	2,643.86	1,321.93	4,151.27	2,078.72	0.87	-0.15	0.047
65.00	-20.21	-1.17	0.00	-74.97	0.00	74.97	2,588.39	1,294.20	3,938.25	1,972.05	1.03	-0.16	0.046
70.00	-19.27	-1.15	0.00	-69.13	0.00	69.13	2,531.28	1,265.64	3,728.21	1,866.88	1.21	-0.18	0.045
75.00	-18.35	-1.13	0.00	-63.37	0.00	63.37	2,472.54	1,236.27	3,521.40	1,763.32	1.40	-0.20	0.043
80.00	-17.46	-1.11	0.00	-57.69	0.00	57.69	2,412.16	1,206.08	3,318.06	1,661.49	1.62	-0.21	0.042
85.00	-16.59	-1.09	0.00	-52.13	0.00	52.13	2,350.14	1,175.07	3,118.42	1,561.53	1.85	-0.23	0.040
90.00	-15.75	-1.07	0.00	-46.67	0.00	46.67	2,286.49	1,143.25	2,922.73	1,463.54	2.10	-0.24	0.039
95.00	-15.30	-1.05	0.00	-41.35	0.00	41.35	2,210.70	1,105.35	2,718.30	1,361.17	2.36	-0.26	0.037
97.75	-14.77	-1.03	0.00	-38.46	0.00	38.46	2,163.09	1,081.54	2,601.88	1,302.87	2.51	-0.27	0.036
100.00	-14.41	-1.02	0.00	-36.14	0.00	36.14	2,124.13	1,062.07	2,508.52	1,256.12	2.64	-0.28	0.036
101.50	-14.13	-1.01	0.00	-34.61	0.00	34.61	1,098.75	549.38	1,309.89	655.92	2.73	-0.28	0.066
104.00	-14.01	-1.00	0.00	-32.09	0.00	32.09	1,086.35	543.18	1,268.68	635.28	2.88	-0.29	0.063
105.00	-13.34	-0.98	0.00	-31.09	0.00	31.09	1,081.28	540.64	1,252.24	627.05	2.94	-0.30	0.062
110.00	-12.81	-0.95	0.00	-26.21	0.00	26.21	1,054.93	527.46	1,170.40	586.07	3.27	-0.32	0.057
115.00	-12.42	-0.94	0.00	-21.45	0.00	21.45	1,026.94	513.47	1,089.39	545.50	3.62	-0.34	0.051
117.94	-12.22	-0.93	0.00	-18.70	0.00	18.70	1,009.74	504.87	1,042.27	521.91	3.83	-0.36	0.048
120.00	-11.75	-0.90	0.00	-16.79	0.00	16.79	997.32	498.66	1,009.44	505.47	3.99	-0.37	0.045
125.00	-8.75	-0.71	0.00	-12.29	0.00	12.29	966.07	483.03	930.81	466.10	4.38	-0.38	0.035
130.00	-8.32	-0.68	0.00	-8.74	0.00	8.74	933.17	466.59	853.72	427.49	4.79	-0.40	0.029
135.00	-8.14	-0.67	0.00	-5.34	0.00	5.34	898.65	449.32	778.41	389.78	5.22	-0.41	0.023
137.00	-5.52	-0.47	0.00	-4.00	0.00	4.00	884.38	442.19	748.84	374.98	5.39	-0.42	0.017
140.00	-5.32	-0.45	0.00	-2.59	0.00	2.59	862.48	431.24	705.13	353.09	5.65	-0.42	0.014
143.00	-2.43	-0.22	0.00	-1.23	0.00	1.23	840.00	420.00	662.23	331.61	5.92	-0.42	0.007
145.00	-2.28	-0.20	0.00	-0.80	0.00	0.80	824.69	412.34	634.11	317.52	6.09	-0.42	0.005
148.00	-2.22	-0.20	0.00	-0.20	0.00	0.20	797.94	398.97	590.25	295.56	6.36	-0.42	0.003
149.00	0.00	-0.18	0.00	0.00	0.00	0.00	787.55	393.77	574.90	287.88	6.45	-0.42	0.000

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Customer: AT&T MOBILITY

Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-25.82	-1.21	0.00	-151.88	0.00	151.88	4,109.35	2,054.67	8,723.89	4,368.43	0.00	0.00	0.041
5.00	-24.82	-1.22	0.00	-145.81	0.00	145.81	4,050.97	2,025.48	8,402.87	4,207.68	0.01	-0.01	0.041
10.00	-23.83	-1.22	0.00	-139.71	0.00	139.71	3,990.95	1,995.48	8,084.22	4,048.12	0.02	-0.02	0.040
15.00	-22.86	-1.22	0.00	-133.61	0.00	133.61	3,929.30	1,964.65	7,768.18	3,889.86	0.05	-0.03	0.040
20.00	-21.91	-1.22	0.00	-127.49	0.00	127.49	3,866.02	1,933.01	7,454.98	3,733.03	0.09	-0.04	0.040
25.00	-20.98	-1.22	0.00	-121.36	0.00	121.36	3,801.09	1,900.55	7,144.87	3,577.74	0.14	-0.05	0.039
30.00	-20.08	-1.22	0.00	-115.24	0.00	115.24	3,734.54	1,867.27	6,838.08	3,424.12	0.20	-0.07	0.039
35.00	-19.19	-1.22	0.00	-109.13	0.00	109.13	3,666.35	1,833.17	6,534.85	3,272.28	0.28	-0.08	0.039
40.00	-18.32	-1.21	0.00	-103.03	0.00	103.03	3,596.52	1,798.26	6,235.42	3,122.35	0.36	-0.09	0.038
45.00	-17.81	-1.21	0.00	-96.97	0.00	96.97	3,525.06	1,762.53	5,940.03	2,974.43	0.47	-0.10	0.038
48.00	-17.24	-1.20	0.00	-93.34	0.00	93.34	3,481.40	1,740.70	5,764.84	2,886.70	0.53	-0.11	0.037
50.00	-16.32	-1.19	0.00	-90.94	0.00	90.94	3,451.96	1,725.98	5,648.92	2,828.66	0.58	-0.12	0.037
53.25	-16.07	-1.19	0.00	-87.07	0.00	87.07	2,716.16	1,358.08	4,443.18	2,224.89	0.66	-0.12	0.045
55.00	-15.37	-1.18	0.00	-84.99	0.00	84.99	2,697.70	1,348.85	4,367.05	2,186.77	0.71	-0.13	0.045
60.00	-14.68	-1.16	0.00	-79.11	0.00	79.11	2,643.86	1,321.93	4,151.27	2,078.72	0.85	-0.14	0.044
65.00	-14.01	-1.15	0.00	-73.30	0.00	73.30	2,588.39	1,294.20	3,938.25	1,972.05	1.01	-0.16	0.043
70.00	-13.36	-1.13	0.00	-67.55	0.00	67.55	2,531.28	1,265.64	3,728.21	1,866.88	1.19	-0.18	0.041
75.00	-12.73	-1.11	0.00	-61.89	0.00	61.89	2,472.54	1,236.27	3,521.40	1,763.32	1.38	-0.19	0.040
80.00	-12.11	-1.09	0.00	-56.32	0.00	56.32	2,412.16	1,206.08	3,318.06	1,661.49	1.59	-0.21	0.039
85.00	-11.50	-1.07	0.00	-50.86	0.00	50.86	2,350.14	1,175.07	3,118.42	1,561.53	1.81	-0.22	0.037
90.00	-10.92	-1.04	0.00	-45.51	0.00	45.51	2,286.49	1,143.25	2,922.73	1,463.54	2.06	-0.24	0.036
95.00	-10.61	-1.03	0.00	-40.30	0.00	40.30	2,210.70	1,105.35	2,718.30	1,361.17	2.32	-0.26	0.034
97.75	-10.24	-1.01	0.00	-37.47	0.00	37.47	2,163.09	1,081.54	2,601.88	1,302.87	2.47	-0.26	0.033
100.00	-9.99	-1.00	0.00	-35.20	0.00	35.20	2,124.13	1,062.07	2,508.52	1,256.12	2.59	-0.27	0.033
101.50	-9.80	-0.98	0.00	-33.71	0.00	33.71	1,098.75	549.38	1,309.89	655.92	2.68	-0.28	0.060
104.00	-9.72	-0.98	0.00	-31.25	0.00	31.25	1,086.35	543.18	1,268.68	635.28	2.83	-0.28	0.058
105.00	-9.25	-0.95	0.00	-30.27	0.00	30.27	1,081.28	540.64	1,252.24	627.05	2.89	-0.29	0.057
110.00	-8.88	-0.93	0.00	-25.51	0.00	25.51	1,054.93	527.46	1,170.40	586.07	3.20	-0.31	0.052
115.00	-8.61	-0.91	0.00	-20.86	0.00	20.86	1,026.94	513.47	1,089.39	545.50	3.54	-0.34	0.047
117.94	-8.47	-0.90	0.00	-18.18	0.00	18.18	1,009.74	504.87	1,042.27	521.91	3.76	-0.35	0.043
120.00	-8.14	-0.88	0.00	-16.33	0.00	16.33	997.32	498.66	1,009.44	505.47	3.91	-0.36	0.040
125.00	-6.07	-0.69	0.00	-11.95	0.00	11.95	966.07	483.03	930.81	466.10	4.29	-0.38	0.032
130.00	-5.76	-0.66	0.00	-8.50	0.00	8.50	933.17	466.59	853.72	427.49	4.69	-0.39	0.026
135.00	-5.65	-0.65	0.00	-5.19	0.00	5.19	898.65	449.32	778.41	389.78	5.11	-0.40	0.020
137.00	-3.83	-0.46	0.00	-3.89	0.00	3.89	884.38	442.19	748.84	374.98	5.28	-0.41	0.015
140.00	-3.69	-0.44	0.00	-2.52	0.00	2.52	862.48	431.24	705.13	353.09	5.53	-0.41	0.011
143.00	-1.69	-0.21	0.00	-1.20	0.00	1.20	840.00	420.00	662.23	331.61	5.79	-0.41	0.006
145.00	-1.58	-0.20	0.00	-0.78	0.00	0.78	824.69	412.34	634.11	317.52	5.97	-0.41	0.004
148.00	-1.54	-0.19	0.00	-0.19	0.00	0.19	797.94	398.97	590.25	295.56	6.23	-0.41	0.003
149.00	0.00	-0.18	0.00	0.00	0.00	0.00	787.55	393.77	574.90	287.88	6.31	-0.41	0.000

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Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number: OAA692349_C3_04

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Equivalent Modal Forces Analysis

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.19
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.20
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.46
Redundancy Factor (p):	1.30

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
39	148.50	37	1.877	1.914	1.116	0.371	12	46
38	146.50	125	1.827	1.665	1.025	0.338	37	155
37	144.00	86	1.765	1.385	0.919	0.298	22	107
36	141.50	164	1.705	1.139	0.822	0.261	37	203
35	138.50	168	1.633	0.884	0.716	0.219	32	209
34	136.00	138	1.575	0.702	0.636	0.187	22	171
33	132.50	352	1.495	0.488	0.536	0.145	44	437
32	127.50	364	1.384	0.254	0.415	0.092	29	451
31	122.50	382	1.278	0.091	0.317	0.048	16	474
30	118.97	161	1.205	0.009	0.258	0.021	3	200
29	116.47	233	1.155	-0.034	0.222	0.005	1	289
28	112.50	431	1.077	-0.082	0.173	-0.016	-6	534
27	107.50	442	0.984	-0.114	0.123	-0.036	-14	549
26	104.50	90	0.930	-0.121	0.099	-0.045	-3	112
25	102.75	227	0.899	-0.122	0.087	-0.048	-9	281
24	100.75	283	0.864	-0.120	0.074	-0.051	-12	350
23	98.88	429	0.832	-0.117	0.064	-0.052	-19	532
22	96.38	365	0.791	-0.110	0.051	-0.052	-16	453
21	92.50	680	0.728	-0.095	0.036	-0.048	-28	843
20	87.50	699	0.652	-0.071	0.021	-0.036	-22	867
19	82.50	719	0.579	-0.045	0.012	-0.019	-12	892
18	77.50	739	0.511	-0.020	0.008	0.000	0	916
17	72.50	759	0.447	0.002	0.006	0.019	13	941
16	67.50	779	0.388	0.022	0.007	0.035	23	966
15	62.50	798	0.333	0.037	0.010	0.046	31	990
14	57.50	818	0.281	0.049	0.014	0.052	37	1,015
13	54.13	291	0.249	0.055	0.017	0.055	14	361
12	51.63	1,067	0.227	0.059	0.020	0.056	52	1,323
11	49.00	666	0.204	0.062	0.023	0.056	32	826
10	46.50	593	0.184	0.065	0.025	0.056	29	735
9	42.50	1,007	0.154	0.068	0.030	0.056	49	1,248
8	37.50	1,031	0.120	0.070	0.034	0.055	49	1,278
7	32.50	1,054	0.090	0.071	0.038	0.053	49	1,307
6	27.50	1,078	0.064	0.072	0.041	0.052	49	1,337

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5	22.50	1,102	0.043	0.071	0.042	0.051	48	1,366
4	17.50	1,126	0.026	0.067	0.040	0.048	47	1,396
3	12.50	1,149	0.013	0.059	0.034	0.044	43	1,425
2	7.50	1,173	0.005	0.044	0.025	0.035	35	1,455
1	2.50	1,066	0.001	0.018	0.010	0.016	15	1,322
DragonWave Horizon C	149.00	32	1.890	1.980	1.140	0.380	10	39
DragonWave A-ANT-23G	149.00	15	1.890	1.980	1.140	0.380	5	19
NextNet BTS-2500	149.00	105	1.890	1.980	1.140	0.380	35	130
Argus LLPX310R	149.00	86	1.890	1.980	1.140	0.380	28	106
DragonWave A-ANT-11G	149.00	54	1.890	1.980	1.140	0.380	18	67
Collar	149.00	1,500	1.890	1.980	1.140	0.380	493	1,860
12" x 12" Junction B	148.00	10	1.865	1.849	1.093	0.363	3	12
Kathrein Smart Bias	143.00	10	1.741	1.283	0.879	0.283	2	12
Ericsson KRY 112 14	143.00	36	1.741	1.283	0.879	0.283	9	45
Ericsson KRY 112 489	143.00	46	1.741	1.283	0.879	0.283	11	57
Ericsson RRUS 11 B12	143.00	152	1.741	1.283	0.879	0.283	37	189
Commscope SBNHH-	143.00	101	1.741	1.283	0.879	0.283	25	125
Ericsson AIR-32 B2A/	143.00	397	1.741	1.283	0.879	0.283	97	492
Flat Low Profile Pla	143.00	1,500	1.741	1.283	0.879	0.283	368	1,860
RFS FD9R6004/2C-3L	137.00	16	1.598	0.772	0.667	0.199	3	19
Alcatel-Lucent RRH2x	137.00	132	1.598	0.772	0.667	0.199	23	164
Amphenol Antel BXA-	137.00	45	1.598	0.772	0.667	0.199	8	56
Antel BXA-185085/12C	137.00	39	1.598	0.772	0.667	0.199	7	48
RFS DB-T1-6Z-8AB-0Z	137.00	44	1.598	0.772	0.667	0.199	8	55
Andrew DB854DG65ESX	137.00	56	1.598	0.772	0.667	0.199	10	69
Commscope LNX-	137.00	116	1.598	0.772	0.667	0.199	20	144
Round Low Profile PI	137.00	1,500	1.598	0.772	0.667	0.199	259	1,860
Raycap DC6-48-60-0-8	125.00	33	1.330	0.164	0.363	0.069	2	41
Ericsson RRUS-11 800	125.00	162	1.330	0.164	0.363	0.069	10	201
Ericsson RRUS 32	125.00	152	1.330	0.164	0.363	0.069	9	189
CCI CCI-HPA-65R-BUU-	125.00	204	1.330	0.164	0.363	0.069	12	253
Flat Low Profile Pla	125.00	1,500	1.330	0.164	0.363	0.069	90	1,860
RFS APXV18-206517S-C	115.00	79	1.126	-0.054	0.203	-0.003	0	98
3' Dish w/ Radome	105.00	100	0.939	-0.120	0.103	-0.043	-4	124
Proxim 5054-R-LR	104.00	6	0.921	-0.121	0.096	-0.046	0	7
		31,099	76.384	37.784	29.786	8.837	2,326	38,566

Load Case (0.9 - 0.2Sds) * DL + E EMAM

Seismic (Reduced DL) Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
39	148.50	37	1.877	1.914	1.116	0.371	12	32
38	146.50	125	1.827	1.665	1.025	0.338	37	108
37	144.00	86	1.765	1.385	0.919	0.298	22	74
36	141.50	164	1.705	1.139	0.822	0.261	37	141
35	138.50	168	1.633	0.884	0.716	0.219	32	145
34	136.00	138	1.575	0.702	0.636	0.187	22	118
33	132.50	352	1.495	0.488	0.536	0.145	44	303
32	127.50	364	1.384	0.254	0.415	0.092	29	313
31	122.50	382	1.278	0.091	0.317	0.048	16	329
30	118.97	161	1.205	0.009	0.258	0.021	3	139
29	116.47	233	1.155	-0.034	0.222	0.005	1	200
28	112.50	431	1.077	-0.082	0.173	-0.016	-6	370
27	107.50	442	0.984	-0.114	0.123	-0.036	-14	380
26	104.50	90	0.930	-0.121	0.099	-0.045	-3	77
25	102.75	227	0.899	-0.122	0.087	-0.048	-9	195
24	100.75	283	0.864	-0.120	0.074	-0.051	-12	243
23	98.88	429	0.832	-0.117	0.064	-0.052	-19	369
22	96.38	365	0.791	-0.110	0.051	-0.052	-16	314

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21	92.50	680	0.728	-0.095	0.036	-0.048	-28	584
20	87.50	699	0.652	-0.071	0.021	-0.036	-22	601
19	82.50	719	0.579	-0.045	0.012	-0.019	-12	618
18	77.50	739	0.511	-0.020	0.008	0.000	0	635
17	72.50	759	0.447	0.002	0.006	0.019	13	653
16	67.50	779	0.388	0.022	0.007	0.035	23	670
15	62.50	798	0.333	0.037	0.010	0.046	31	687
14	57.50	818	0.281	0.049	0.014	0.052	37	704
13	54.13	291	0.249	0.055	0.017	0.055	14	250
12	51.63	1,067	0.227	0.059	0.020	0.056	52	918
11	49.00	666	0.204	0.062	0.023	0.056	32	573
10	46.50	593	0.184	0.065	0.025	0.056	29	510
9	42.50	1,007	0.154	0.068	0.030	0.056	49	866
8	37.50	1,031	0.120	0.070	0.034	0.055	49	886
7	32.50	1,054	0.090	0.071	0.038	0.053	49	907
6	27.50	1,078	0.064	0.072	0.041	0.052	49	927
5	22.50	1,102	0.043	0.071	0.042	0.051	48	948
4	17.50	1,126	0.026	0.067	0.040	0.048	47	968
3	12.50	1,149	0.013	0.059	0.034	0.044	43	988
2	7.50	1,173	0.005	0.044	0.025	0.035	35	1,009
1	2.50	1,066	0.001	0.018	0.010	0.016	15	917
DragonWave Horizon C	149.00	32	1.890	1.980	1.140	0.380	10	27
DragonWave A-ANT-23G	149.00	15	1.890	1.980	1.140	0.380	5	13
NextNet BTS-2500	149.00	105	1.890	1.980	1.140	0.380	35	90
Argus LLPX310R	149.00	86	1.890	1.980	1.140	0.380	28	74
DragonWave A-ANT-11G	149.00	54	1.890	1.980	1.140	0.380	18	46
Collar	149.00	1,500	1.890	1.980	1.140	0.380	493	1,290
12" x 12" Junction B	148.00	10	1.865	1.849	1.093	0.363	3	9
Kathrein Smart Bias	143.00	10	1.741	1.283	0.879	0.283	2	9
Ericsson KRY 112 14	143.00	36	1.741	1.283	0.879	0.283	9	31
Ericsson KRY 112 489	143.00	46	1.741	1.283	0.879	0.283	11	40
Ericsson RRUS 11 B12	143.00	152	1.741	1.283	0.879	0.283	37	131
Commscope SBNHH-	143.00	101	1.741	1.283	0.879	0.283	25	86
Ericsson AIR-32 B2A/	143.00	397	1.741	1.283	0.879	0.283	97	341
Flat Low Profile Pla	143.00	1,500	1.741	1.283	0.879	0.283	368	1,290
RFS FD9R6004/2C-3L	137.00	16	1.598	0.772	0.667	0.199	3	13
Alcatel-Lucent RRH2x	137.00	132	1.598	0.772	0.667	0.199	23	114
Amphenol Antel BXA-	137.00	45	1.598	0.772	0.667	0.199	8	39
Antel BXA-185085/12C	137.00	39	1.598	0.772	0.667	0.199	7	34
RFS DB-T1-6Z-8AB-0Z	137.00	44	1.598	0.772	0.667	0.199	8	38
Andrew DB854DG65ESX	137.00	56	1.598	0.772	0.667	0.199	10	48
Commscope LNX-	137.00	116	1.598	0.772	0.667	0.199	20	100
Round Low Profile Pt	137.00	1,500	1.598	0.772	0.667	0.199	259	1,290
Raycap DC6-48-60-0-8	125.00	33	1.330	0.164	0.363	0.069	2	28
Ericsson RRUS-11 800	125.00	162	1.330	0.164	0.363	0.069	10	139
Ericsson RRUS 32	125.00	152	1.330	0.164	0.363	0.069	9	131
CCI CCI-HPA-65R-BUU-	125.00	204	1.330	0.164	0.363	0.069	12	175
Flat Low Profile Pla	125.00	1,500	1.330	0.164	0.363	0.069	90	1,290
RFS APXV18-206517S-C	115.00	79	1.126	-0.054	0.203	-0.003	0	68
3' Dish w/ Radome	105.00	100	0.939	-0.120	0.103	-0.043	-4	86
Proxim 5054-R-LR	104.00	6	0.921	-0.121	0.096	-0.046	0	5
		31,099	76.384	37.784	29.786	8.837	2,326	26,742

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Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-37.24	-2.32	0.00	-284.78	0.00	284.78	4,109.35	2,054.67	8,723.89	4,368.43	0.00	0.00	0.074
5.00	-35.79	-2.29	0.00	-273.20	0.00	273.20	4,050.97	2,025.48	8,402.87	4,207.68	0.01	-0.02	0.074
10.00	-34.36	-2.26	0.00	-261.74	0.00	261.74	3,990.95	1,995.48	8,084.22	4,048.12	0.04	-0.04	0.073
15.00	-32.96	-2.22	0.00	-250.43	0.00	250.43	3,929.30	1,964.65	7,768.18	3,889.86	0.09	-0.06	0.073
20.00	-31.60	-2.19	0.00	-239.31	0.00	239.31	3,866.02	1,933.01	7,454.98	3,733.03	0.17	-0.08	0.072
25.00	-30.26	-2.15	0.00	-228.38	0.00	228.38	3,801.09	1,900.55	7,144.87	3,577.74	0.26	-0.10	0.072
30.00	-28.95	-2.11	0.00	-217.65	0.00	217.65	3,734.54	1,867.27	6,838.08	3,424.12	0.38	-0.12	0.071
35.00	-27.67	-2.07	0.00	-207.11	0.00	207.11	3,666.35	1,833.17	6,534.85	3,272.28	0.52	-0.15	0.071
40.00	-26.42	-2.02	0.00	-196.78	0.00	196.78	3,596.52	1,798.26	6,235.42	3,122.35	0.69	-0.17	0.070
45.00	-25.69	-2.00	0.00	-186.66	0.00	186.66	3,525.06	1,762.53	5,940.03	2,974.43	0.88	-0.19	0.070
48.00	-24.86	-1.97	0.00	-180.66	0.00	180.66	3,481.40	1,740.70	5,764.84	2,886.70	1.00	-0.21	0.070
50.00	-23.54	-1.92	0.00	-176.71	0.00	176.71	3,451.96	1,725.98	5,648.92	2,828.66	1.09	-0.22	0.069
53.25	-23.18	-1.91	0.00	-170.47	0.00	170.47	2,716.16	1,358.08	4,443.18	2,224.89	1.25	-0.24	0.085
55.00	-22.16	-1.88	0.00	-167.12	0.00	167.12	2,697.70	1,348.85	4,367.05	2,186.77	1.33	-0.24	0.085
60.00	-21.17	-1.85	0.00	-157.73	0.00	157.73	2,643.86	1,321.93	4,151.27	2,078.72	1.61	-0.28	0.084
65.00	-20.20	-1.84	0.00	-148.47	0.00	148.47	2,588.39	1,294.20	3,938.25	1,972.05	1.91	-0.31	0.083
70.00	-19.26	-1.83	0.00	-139.29	0.00	139.29	2,531.28	1,265.64	3,728.21	1,866.88	2.25	-0.34	0.082
75.00	-18.35	-1.83	0.00	-130.14	0.00	130.14	2,472.54	1,236.27	3,521.40	1,763.32	2.62	-0.37	0.081
80.00	-17.45	-1.85	0.00	-120.97	0.00	120.97	2,412.16	1,206.08	3,318.06	1,661.49	3.03	-0.41	0.080
85.00	-16.58	-1.88	0.00	-111.72	0.00	111.72	2,350.14	1,175.07	3,118.42	1,561.53	3.47	-0.44	0.079
90.00	-15.74	-1.91	0.00	-102.34	0.00	102.34	2,286.49	1,143.25	2,922.73	1,463.54	3.95	-0.48	0.077
95.00	-15.29	-1.93	0.00	-92.81	0.00	92.81	2,210.70	1,105.35	2,718.30	1,361.17	4.47	-0.51	0.075
97.75	-14.75	-1.95	0.00	-87.50	0.00	87.50	2,163.09	1,081.54	2,601.88	1,302.87	4.77	-0.53	0.074
100.00	-14.40	-1.96	0.00	-83.12	0.00	83.12	2,124.13	1,062.07	2,508.52	1,256.12	5.03	-0.55	0.073
101.50	-14.12	-1.97	0.00	-80.19	0.00	80.19	1,098.75	549.38	1,309.89	655.92	5.20	-0.56	0.135
104.00	-14.00	-1.98	0.00	-75.26	0.00	75.26	1,086.35	543.18	1,268.68	635.28	5.50	-0.58	0.131
105.00	-13.33	-2.00	0.00	-73.28	0.00	73.28	1,081.28	540.64	1,252.24	627.05	5.63	-0.59	0.129
110.00	-12.79	-2.01	0.00	-63.31	0.00	63.31	1,054.93	527.46	1,170.40	586.07	6.28	-0.65	0.120
115.00	-12.40	-2.01	0.00	-53.26	0.00	53.26	1,026.94	513.47	1,089.39	545.50	6.99	-0.71	0.110
117.94	-12.20	-2.01	0.00	-47.35	0.00	47.35	1,009.74	504.87	1,042.27	521.91	7.44	-0.74	0.103
120.00	-11.73	-2.00	0.00	-43.20	0.00	43.20	997.32	498.66	1,009.44	505.47	7.77	-0.76	0.097
125.00	-8.73	-1.81	0.00	-33.21	0.00	33.21	966.07	483.03	930.81	466.10	8.59	-0.81	0.080
130.00	-8.29	-1.77	0.00	-24.15	0.00	24.15	933.17	466.59	853.72	427.49	9.46	-0.85	0.065
135.00	-8.12	-1.75	0.00	-15.31	0.00	15.31	898.65	449.32	778.41	389.78	10.38	-0.89	0.048
137.00	-5.51	-1.34	0.00	-11.82	0.00	11.82	884.38	442.19	748.84	374.98	10.75	-0.90	0.038
140.00	-5.30	-1.30	0.00	-7.80	0.00	7.80	862.48	431.24	705.13	353.09	11.32	-0.91	0.028
143.00	-2.43	-0.68	0.00	-3.91	0.00	3.91	840.00	420.00	662.23	331.61	11.90	-0.92	0.015
145.00	-2.27	-0.64	0.00	-2.55	0.00	2.55	824.69	412.34	634.11	317.52	12.28	-0.92	0.011
148.00	-2.21	-0.63	0.00	-0.63	0.00	0.63	797.94	398.97	590.25	295.56	12.86	-0.93	0.005
149.00	0.00	-0.59	0.00	0.00	0.00	0.00	787.55	393.77	574.90	287.88	13.06	-0.93	0.000

Site Number: 243036

Code: ANSI/TIA-222-G

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Site Name: WEST HAVEN & RT 162 CT, CT

Engineering Number: OAA692349_C3_04

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Customer: AT&T MOBILITY

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-25.82	-2.31	0.00	-280.08	0.00	280.08	4,109.35	2,054.67	8,723.89	4,368.43	0.00	0.00	0.070
5.00	-24.81	-2.29	0.00	-268.51	0.00	268.51	4,050.97	2,025.48	8,402.87	4,207.68	0.01	-0.02	0.070
10.00	-23.83	-2.25	0.00	-257.07	0.00	257.07	3,990.95	1,995.48	8,084.22	4,048.12	0.04	-0.04	0.069
15.00	-22.86	-2.21	0.00	-245.82	0.00	245.82	3,929.30	1,964.65	7,768.18	3,889.86	0.09	-0.06	0.069
20.00	-21.91	-2.17	0.00	-234.76	0.00	234.76	3,866.02	1,933.01	7,454.98	3,733.03	0.16	-0.08	0.069
25.00	-20.98	-2.13	0.00	-223.91	0.00	223.91	3,801.09	1,900.55	7,144.87	3,577.74	0.26	-0.10	0.068
30.00	-20.07	-2.08	0.00	-213.27	0.00	213.27	3,734.54	1,867.27	6,838.08	3,424.12	0.37	-0.12	0.068
35.00	-19.19	-2.04	0.00	-202.84	0.00	202.84	3,666.35	1,833.17	6,534.85	3,272.28	0.51	-0.14	0.067
40.00	-18.32	-2.00	0.00	-192.63	0.00	192.63	3,596.52	1,798.26	6,235.42	3,122.35	0.67	-0.17	0.067
45.00	-17.81	-1.97	0.00	-182.65	0.00	182.65	3,525.06	1,762.53	5,940.03	2,974.43	0.86	-0.19	0.066
48.00	-17.24	-1.94	0.00	-176.73	0.00	176.73	3,481.40	1,740.70	5,764.84	2,886.70	0.98	-0.20	0.066
50.00	-16.32	-1.89	0.00	-172.84	0.00	172.84	3,451.96	1,725.98	5,648.92	2,828.66	1.07	-0.21	0.066
53.25	-16.07	-1.88	0.00	-166.69	0.00	166.69	2,716.16	1,358.08	4,443.18	2,224.89	1.22	-0.23	0.081
55.00	-15.36	-1.85	0.00	-163.40	0.00	163.40	2,697.70	1,348.85	4,367.05	2,186.77	1.31	-0.24	0.080
60.00	-14.68	-1.82	0.00	-154.18	0.00	154.18	2,643.86	1,321.93	4,151.27	2,078.72	1.58	-0.27	0.080
65.00	-14.01	-1.80	0.00	-145.08	0.00	145.08	2,588.39	1,294.20	3,938.25	1,972.05	1.87	-0.30	0.079
70.00	-13.35	-1.79	0.00	-136.08	0.00	136.08	2,531.28	1,265.64	3,728.21	1,866.88	2.21	-0.33	0.078
75.00	-12.72	-1.79	0.00	-127.13	0.00	127.13	2,472.54	1,236.27	3,521.40	1,763.32	2.57	-0.36	0.077
80.00	-12.10	-1.81	0.00	-118.16	0.00	118.16	2,412.16	1,206.08	3,318.06	1,661.49	2.97	-0.40	0.076
85.00	-11.50	-1.83	0.00	-109.12	0.00	109.12	2,350.14	1,175.07	3,118.42	1,561.53	3.40	-0.43	0.075
90.00	-10.91	-1.86	0.00	-99.95	0.00	99.95	2,286.49	1,143.25	2,922.73	1,463.54	3.87	-0.47	0.073
95.00	-10.59	-1.88	0.00	-90.63	0.00	90.63	2,210.70	1,105.35	2,718.30	1,361.17	4.38	-0.50	0.071
97.75	-10.22	-1.90	0.00	-85.45	0.00	85.45	2,163.09	1,081.54	2,601.88	1,302.87	4.68	-0.52	0.070
100.00	-9.98	-1.91	0.00	-81.18	0.00	81.18	2,124.13	1,062.07	2,508.52	1,256.12	4.93	-0.54	0.069
101.50	-9.79	-1.92	0.00	-78.30	0.00	78.30	1,098.75	549.38	1,309.89	655.92	5.10	-0.55	0.128
104.00	-9.70	-1.93	0.00	-73.49	0.00	73.49	1,086.35	543.18	1,268.68	635.28	5.39	-0.57	0.125
105.00	-9.23	-1.95	0.00	-71.56	0.00	71.56	1,081.28	540.64	1,252.24	627.05	5.51	-0.58	0.123
110.00	-8.86	-1.96	0.00	-61.82	0.00	61.82	1,054.93	527.46	1,170.40	586.07	6.15	-0.64	0.114
115.00	-8.59	-1.96	0.00	-52.02	0.00	52.02	1,026.94	513.47	1,089.39	545.50	6.85	-0.69	0.104
117.94	-8.45	-1.96	0.00	-46.26	0.00	46.26	1,009.74	504.87	1,042.27	521.91	7.28	-0.72	0.097
120.00	-8.12	-1.95	0.00	-42.21	0.00	42.21	997.32	498.66	1,009.44	505.47	7.60	-0.75	0.092
125.00	-6.05	-1.77	0.00	-32.48	0.00	32.48	966.07	483.03	930.81	466.10	8.41	-0.79	0.076
130.00	-5.74	-1.73	0.00	-23.62	0.00	23.62	933.17	466.59	853.72	427.49	9.26	-0.83	0.061
135.00	-5.63	-1.70	0.00	-14.99	0.00	14.99	898.65	449.32	778.41	389.78	10.16	-0.87	0.045
137.00	-3.81	-1.31	0.00	-11.58	0.00	11.58	884.38	442.19	748.84	374.98	10.52	-0.88	0.035
140.00	-3.67	-1.27	0.00	-7.65	0.00	7.65	862.48	431.24	705.13	353.09	11.08	-0.89	0.026
143.00	-1.68	-0.67	0.00	-3.84	0.00	3.84	840.00	420.00	662.23	331.61	11.64	-0.90	0.014
145.00	-1.57	-0.63	0.00	-2.50	0.00	2.50	824.69	412.34	634.11	317.52	12.02	-0.90	0.010
148.00	-1.53	-0.61	0.00	-0.61	0.00	0.61	797.94	398.97	590.25	295.56	12.59	-0.91	0.004
149.00	0.00	-0.59	0.00	0.00	0.00	0.00	787.55	393.77	574.90	287.88	12.78	-0.91	0.000

Site Number: 243036

Code: ANSI/TIA-222-G

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Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number:OAA692349_C3_04

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Customer: AT&T MOBILITY

Analysis Summary

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	26.20	0.00	37.27	0.00	0.00	2853.23	101.50	0.91
0.9D + 1.6W	26.19	0.00	27.94	0.00	0.00	2818.64	101.50	0.88
1.2D + 1.0Di + 1.0Wi	7.54	0.00	57.52	0.00	0.00	818.32	101.50	0.28
(1.2 + 0.2Sds) * DL + E ELFM	1.22	0.00	37.24	0.00	0.00	154.26	101.50	0.07
(1.2 + 0.2Sds) * DL + E EMAM	2.32	0.00	37.24	0.00	0.00	284.78	101.50	0.14
(0.9 - 0.2Sds) * DL + E ELFM	1.21	0.00	25.82	0.00	0.00	151.88	101.50	0.06
(0.9 - 0.2Sds) * DL + E EMAM	2.31	0.00	25.82	0.00	0.00	280.08	101.50	0.13
1.0D + 1.0W	6.26	0.00	31.10	0.00	0.00	677.89	101.50	0.22

Site Number: 243036

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Site Name: WEST HAVEN & RT 162 CT, CT Engineering Number: OAA692349_C3_04

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Customer: AT&T MOBILITY

Base Summary

Reactions

Original Design			Analysis			
Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment Design %
2,840.00	37.20	26.30	2,853.23	57.52	26.20	74.42

Base Plate

Yield (ksi)	Thick (in)	Width (in)	Style	Poly Sides	Clip Len (in)	Effective Len (in)	Mu (kip-in)	Phi Mn (kip-in)	Ratio
60.0	2.750	59.000	Clipped	0	12.00	10.317	519.64	1053.31	0.49

Anchor Bolts

Bolt Circle	Num Bolts	Bolt Type	Bolt Dia (in)	Yield (ksi)	Ultimate (ksi)	Arrange	Cluster Dist (in)	Start Angle (deg)	Compression			Tension		
									Force (kip)	Allow (kip)	Ratio	Force (kip)	Allow (kip)	Ratio
59.00	16	2.25" 18J	2.25	75.00	100.00	Clustered	6.00	45.0	148.67	260.00	0.58	141.48	260.00	0.56