TRM
Convergent Network Solutions

CRAIG CODY

16 Chestnut Street, Suite 420
Foxboro, MA 02035
Tel (781) 831-1281
Fax (774) 215-5423

Melanie Bachman
Executive Director
Connecticut Siting Counsel
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – 668 Jones Hill Road, West ~~Hartford~~ Haven, CT**

Dear Ms. Bachman:

Please accept this letter as notification pursuant to R.C.S.A Section 16-50j-73, for construction that constitutes modification pursuant to R.C.S.A Section 16-50j-72(b) and 16-50j-73. In accordance with R.C.S.A Section 16-50j-73, a copy of this submission is being sent to the Town of West Haven. A copy of this submission is also being sent to American Tower's Inc., the property owner on which the tower is located.

T-Mobile Northeast LLC's Proposed Wireless Modifications

T-Mobile as successor in interest to Omnipoint Communications achieved an initial approval from the Siting Council to install antennas as well as related ground equipment and currently maintains this equipment. The facility consists of a One-Hundred and Fifty foot high communications tower within a fenced in compound. T-Mobile now intends to modify the facility as shown on the enclosed plans prepared by Infinigy Engineering and annexed hereto in Exhibit 1. The modifications will consist of adding three (3) new antennas at the existing AGL of One-Hundred and Forty Three feet. A structural analysis has been completed for the site and attached as exhibit 3,

T-Mobile's Proposed Wireless Modifications Constitutes An "Exempt Modification"

The proposed modification to the above mentioned Facility constitutes an exempt modification of an existing facility provided for in R.C.S.A Section 16-50j-72(b)(2) and Council regulations promulgated pursuant thereto.

1) The proposed modification will not result in an increase in the height of the existing tower.
2) The modifications will remain entirely within the limits of the leased area. The modifications therefor, will not require the extension of the boundary.

3) The proposed modification does not increase the noise levels at the boundary by six(6) decibels or more under normal conditions.
4) T-Mobile's proposed facility will not increase the cumulative radio frequency electromagnetic radiation power density at the Tower sites' boundary to or above the standard adopted by the Connecticut Department of Environmental Protection as set forth in Section 22a-162 of the Connecticut General Statutes and MPE limits established by the Federal Communications Commission. A cumulative General Power Density table for T-Mobile's proposed modified facility is included as Exhibit 2.
5) The facility has received all municipal zoning approvals and building permits. (Regs., Conn. State Agencies Section 16-50j-72))

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

Respectfully submitted,

Craig Cody 781.831.1281
On behalf of American Tower Corporation
c/o Tower Resource Management, Inc.
16 Chestnut Street, Suite 420
Foxboro, MA 02035

cc: **Town of West Haven**
American Tower's Inc.

Exhibit 1

Site Plan

Exhibit 2

Power Density Report

Exhibit 3

Structural Analysis

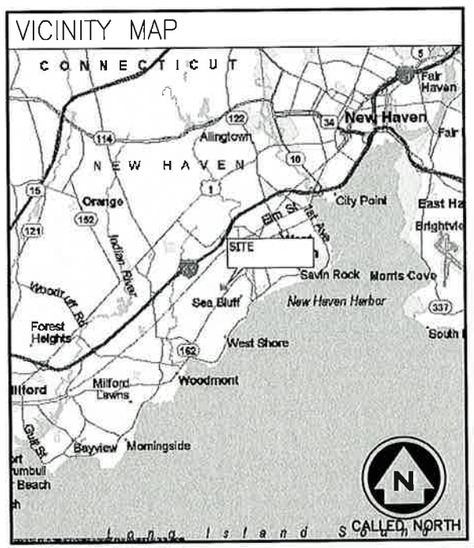
T-MOBILE NORTHEAST LLC

CT11821E
CT821/D&B FLOWER FARM

668 JONES HILL ROAD
WEST HAVEN, CT 06516

(704Bu CONFIGURATION)

VICINITY MAP



DO NOT SCALE DRAWINGS

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

CALL:
"CALL BEFORE YOU DIG"
WWW.CBYD.COM
CALL 811, OR 1-800-922-4455
CALL THREE WORKING DAYS PRIOR TO DIGGING

SAFETY PRECAUTIONS SHALL BE IMPLEMENTED BY CONTRACTOR(S) AT ALL TRENCHING IN ACCORDANCE WITH CURRENT OSHA STANDARDS.

COLOR CODE FOR UTILITY LOCATIONS

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

GENERAL NOTES

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

PROJECT SUMMARY

SITE NUMBER:	CT11821E	APPLICANT:	T–MOBILE NORTHEAST LLC 103 MONARCH DR. LIVERPOOL, NY 13088
SITE NAME:	CT821/D&B FLOWER FARM		
SITE ADDRESS:	668 JONES HILL ROAD WEST HAVEN, CT 06516	PROJECT MANAGER:	AMERICAN TOWER CORPORATION 319 QUARRY ROAD SPRING CITY, PA 19475
PROPERTY OWNER:	AMERICAN TOWER CORPORATION		
PARCEL:	19/1/A/CELL	CONTACT:	BRUCE HOFFMASTER (484) 942–6339
ZONING:	CELL		
JURISDICTION:	CITY OF WEST HAVEN	ARCHITECT/ENGINEER:	INFINIGY ENGINEERING 1033 WATERVLIET SHAKER ROAD ALBANY, NY 12205
ATC SITE NUMBER:	243036		
LAT./LONG.:	N 41.25638° / W –72.97245°		
CONSTRUCTION TYPE:	L700 UPGRADE	CONTACT:	ALEX WELLER 518–690–0790

PROJECT DESCRIPTION

- ☒ EXISTING MONOPOLE
- ☐ EXISTING LATTICE TOWER
- ☐ EXISTING GUYED TOWER
- ☐ EXISTING WATER TANK
- ☐ EXISTING BUILDING
- ☐ EXISTING FLAGPOLE
- ☐ EXISTING FORT WORTH
- ☒ EXISTING CABINET(S)
- ☐ EXISTING S12000
- ☒ EXISTING GSM 3106
- ☒ EXISTING RBS 6102
- ☐ SITE SUPPORT KIT
- ☐ SITE SUPPORT CABINET
- ☒ GPS
- ☒ OUTDOOR
- ☐ INDOOR
- ☒ EXISTING CONCRETE PAD
- ☐ EXISTING STEEL PLATFORM
- ☒ EXISTING PPC
- ☐ PANELBOARD

T–MOBILE NORTHEAST LLC PROPOSES THE MODIFICATION OF AN UNMANNED WIRELESS BROADBAND FACILITY. ADDITION OF PROPOSED RBS 6201–ODE TO EXISTING GROUND LEASE AREA. ADDITION OF PROPOSED LTE 700 PANEL ANTENNAS. REUSE, GPS ANTENNA AND EXISTING EQUIPMENT CABINETS.

SHEET INDEX

SHEET	DESCRIPTION	REVISION
T–1	TITLE SHEET	0
C–1	SITE PLAN	0
C–2	COMPOUND PLAN & ELEVATION	0
C–3	ANTENNA DETAIL & RF SCHEDULE	0
C–4	EQUIPMENT SPECIFICATIONS	0
E–1	GROUNDING AND POWER DIAGRAMS	0
E–2	COAX/FIBER PLUMBING DIAGRAM	0
N–1	GENERAL AND ELECTRICAL NOTES	0

T-MOBILE NORTHEAST LLC
103 MONARCH DR
LIVERPOOL, NY 13088

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0795

SUBMITTALS

DATE	DESCRIPTION	REVISION
8/10/15	FOR REVIEW	A
8/25/15	REVISED/FOR PERMIT	0

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

PROJECT NO:	317-000
DRAWN BY:	MAP
CHECKED BY:	ASW

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24706
LICENSED PROFESSIONAL ENGINEER

PROFESSIONAL SEAL

NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

SITE NUMBER:
CT11821E

SITE NAME:
CT821/D&B FLOWER FARM

668 JONES HILL ROAD
WEST HAVEN, CT 06516

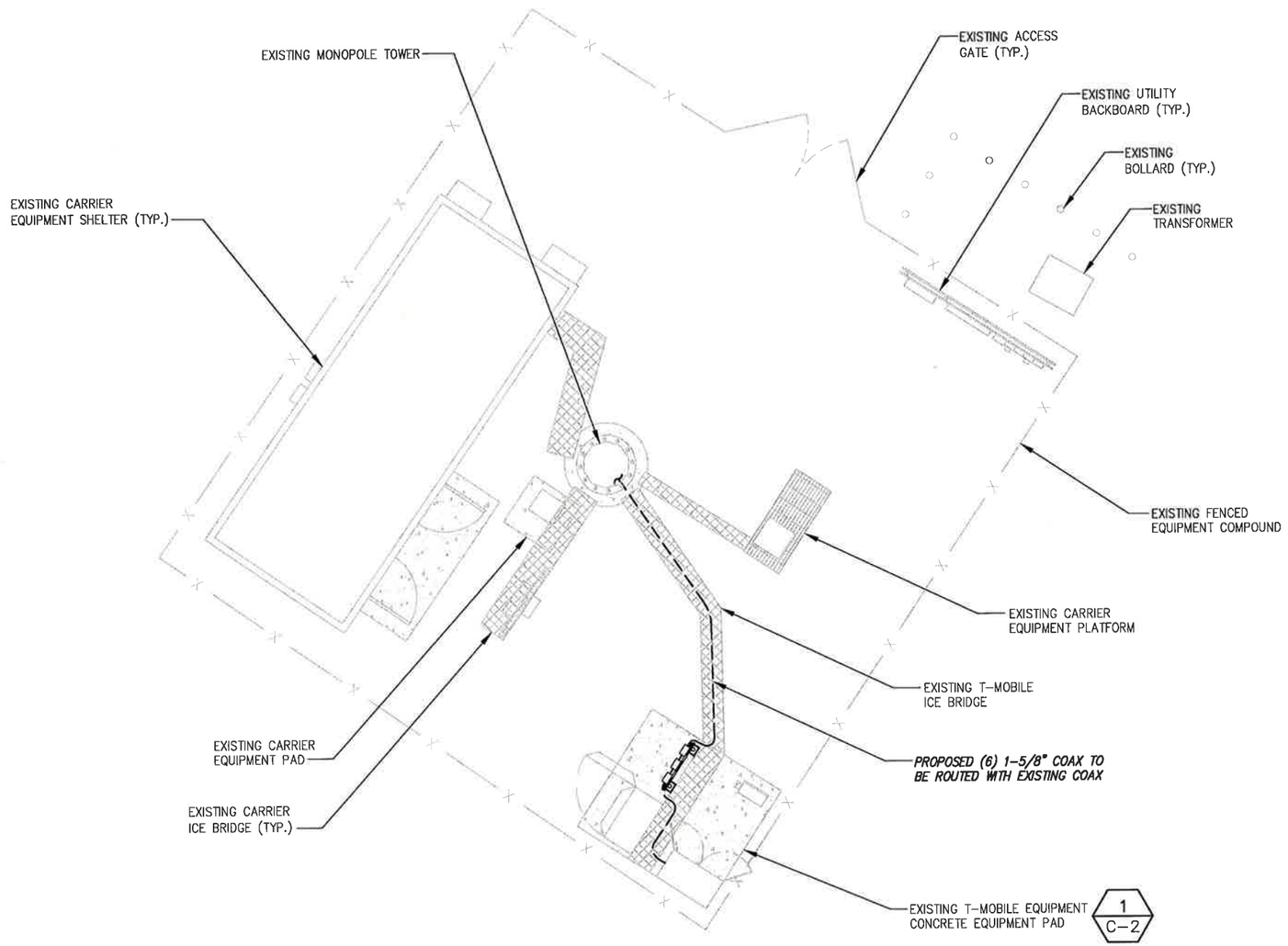
SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

SHEET 1 OF 8 SHEETS



CALLED NORTH

1 — COMPOUND PLAN
SCALE: AS NOTED

GENERAL SITE NOTES:

1. A COMPLETE BOUNDARY SURVEY OF THE HOST PARCEL HAS NOT BEEN PERFORMED BY INFINIGY. BOUNDARY INFORMATION IF SHOWN WAS OBTAINED FROM INFORMATION PROVIDED BY OTHERS. PROPERTY IS SUBJECT TO ALL EASEMENTS AND RESTRICTIONS OF RECORD.
2. BASEMAPPING INFORMATION BASED ON PROVIDED INFORMATION.
3. CONTRACTOR TO FIELD VERIFY DIMENSIONS AS NECESSARY BEFORE CONSTRUCTION.
4. THE PROPOSED DEVELOPMENT DOES NOT INCLUDE SIGNS OF ADVERTISING.
5. THE PROPOSED DEVELOPMENT IS UNMANNED AND THEREFORE DOES NOT REQUIRE A MEANS OF WATER SUPPLY OR SEWAGE DISPOSAL.
6. NO LANDSCAPING WORK IS PROPOSED IN CONJUNCTION WITH THIS DEVELOPMENT OTHER THAN THAT WHICH IS SHOWN.
7. THE PROPOSED DEVELOPMENT DOES NOT INCLUDE OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES.
8. UTILITIES SHOWN ON PLAN ARE TAKEN FROM OWNERS RECORDS AND FIELD LOCATION OF VISIBLE SURFACE FEATURES. THE EXISTENCE, EXTENT AND EXACT HORIZONTAL AND VERTICAL LOCATIONS OF UTILITIES HAS NOT BEEN VERIFIED, ANY CONTRACTOR PERFORMING WORK ON THIS SITE MUST CONTACT MISS UTILITY AT LEAST 48 HOURS PRIOR TO COMMENCING WORK.
9. ALL OBSOLETE OR UNUSED FACILITIES SHALL BE REMOVED WITHIN 12 MONTHS OF CESSATION OF OPERATIONS.

SITE LEGEND

— — —	SITE PROPERTY LINE
———	STREET OR ROAD
— x — x —	CHAIN LINK FENCE
—▫—▫—	OPAQUE WOODEN FENCE
	TREES/SHRUBS
	TREE LINE
⊠	UTILITY POLE
(E)	EXISTING
(N)	NEW
(P)	PROPOSED
(F)	FUTURE

GRAPHIC SCALE

10' 5' 0 5' 10'

SCALE (11x17): 1" = 10'-0"
SCALE (22x34): 1" = 5'-0"

T-Mobile
T-MOBILE NORTHEAST LLC
103 MONARCH DR
LIVERPOOL, NY 13088

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS

DATE	DESCRIPTION	REVISION
8/10/15	FOR REVIEW	A
8/25/15	REVISED/FOR PERMIT	B

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

PROJECT NO:	317-000
DRAWN BY:	MAP
CHECKED BY:	ASW

STATE OF CONNECTICUT
JOHN S. STEVENS
24708
LICENSED PROFESSIONAL ENGINEER

PROFESSIONAL SEAL

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SITE NAME:
CT821/D&B FLOWER FARM

668 JONES HILL ROAD
WEST HAVEN, CT 06516

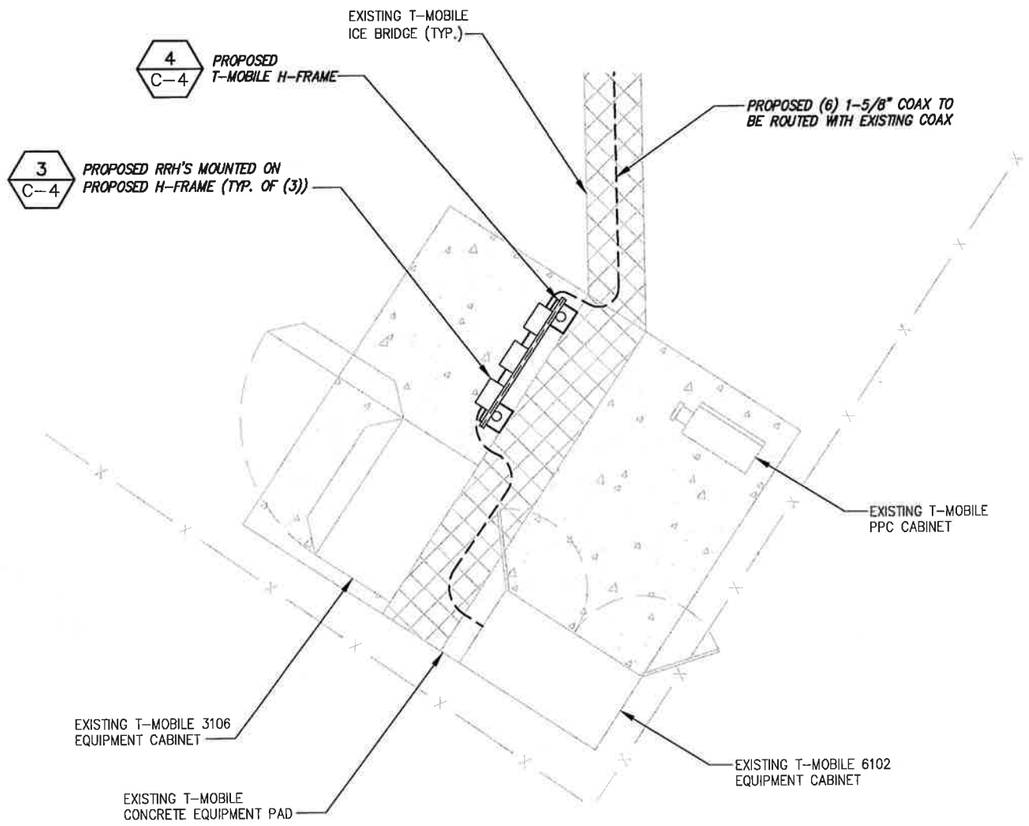
SHEET TITLE

SITE PLAN

SHEET NUMBER

C-1

SHEET 2 OF 8 SHEETS



CALLED NORTH

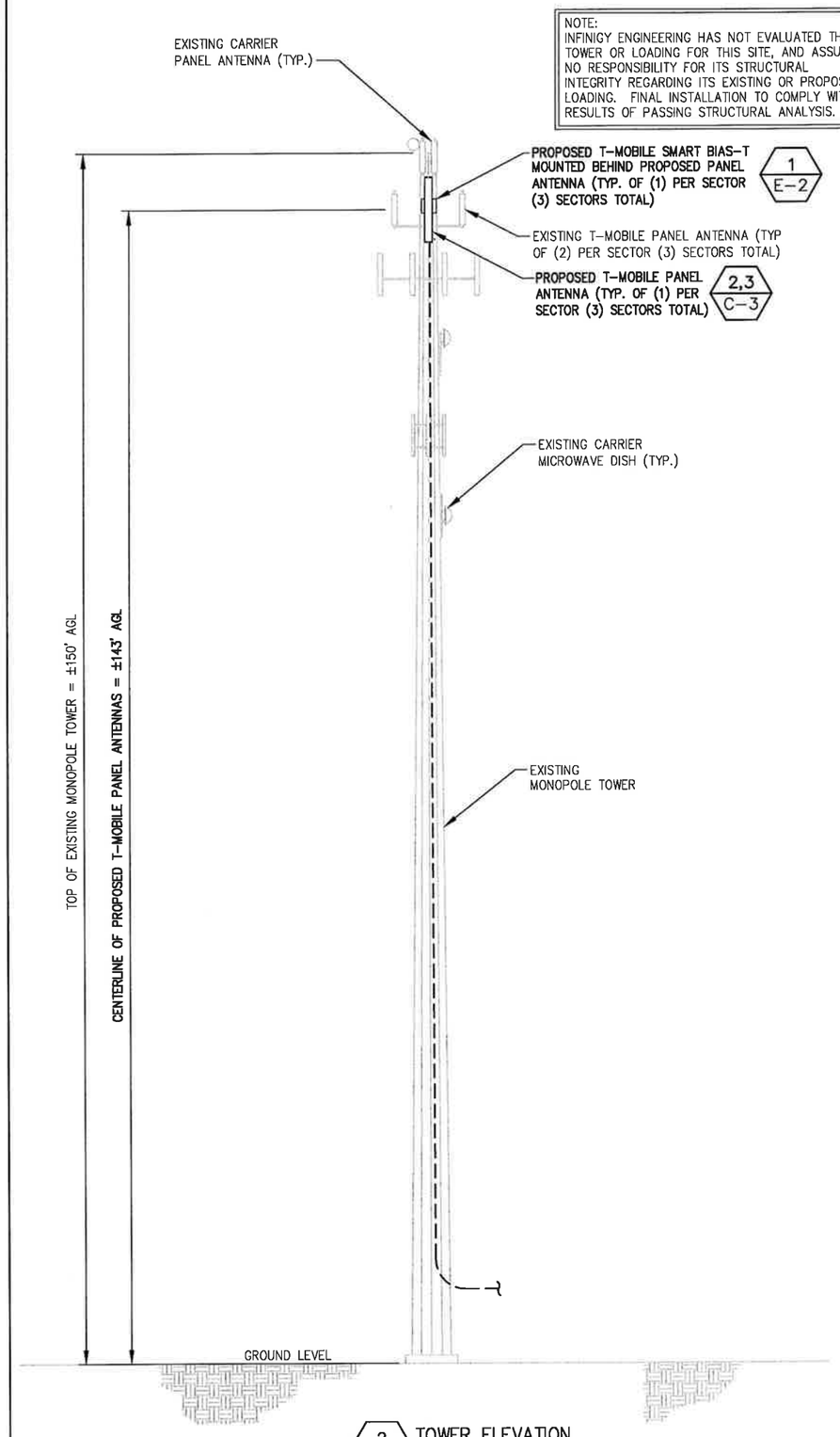
1 / -- COMPOUND PLAN
SCALE: AS NOTED

GRAPHIC SCALE

4' 2' 0 2' 4'

SCALE (11x17): 1" = 4'-0"
SCALE (22x34): 1" = 2'-0"

NOTE:
INFINIGY ENGINEERING HAS NOT EVALUATED THE TOWER OR LOADING FOR THIS SITE, AND ASSUMES NO RESPONSIBILITY FOR ITS STRUCTURAL INTEGRITY REGARDING ITS EXISTING OR PROPOSED LOADING. FINAL INSTALLATION TO COMPLY WITH RESULTS OF PASSING STRUCTURAL ANALYSIS.



2 / -- TOWER ELEVATION
NOT TO SCALE

T-Mobile
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LIVERPOOL, NY 13088

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RF MAN.			
ZONING			
OPS			
CONSTR.			
SITE AC.			

PROJECT NO:	317-000
DRAWN BY:	MAP
CHECKED BY:	ASW

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL SEAL

NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

SITE NUMBER:
CT11821E

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CT821/D&B FLOWER FARM

688 JONES HILL ROAD
WEST HAVEN, CT 06516

SHEET TITLE

COMPOUND PLAN & ELEVATION

SHEET NUMBER

C-2

SHEET 3 OF **8** SHEETS

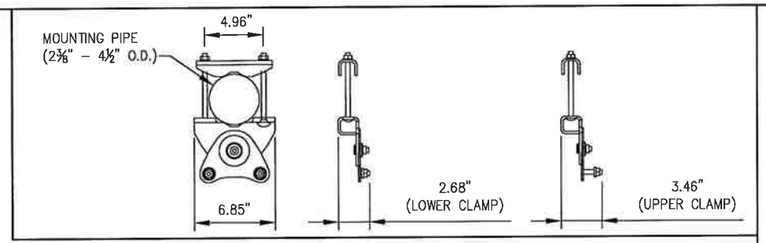
RF SYSTEM SCHEDULE (704Bu CONFIGURATION)

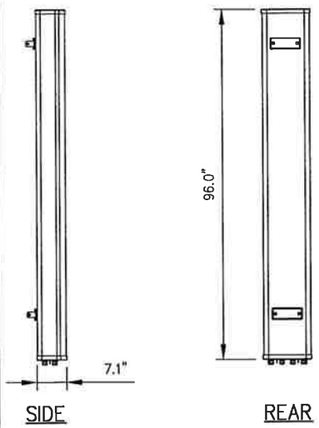
SECTOR	TECHNOLOGY	ANTENNA PORT	BAND	ANTENNA MODEL #	VENDOR	QTY (REMOVED)	QTY (NEW)	AZIMUTH	M-TILT	E-TILT	ANTENNA CENTERLINE	TMA MODEL #	VENDOR	RRU MODEL #	VENDOR	CABLE LENGTH	CABLE DIAMETER	CABLE TYPE	CABLE QUANTITY	CABLE MODEL #	VENDOR	CABLE TAGGING	COLOR CODING	JUMPER TYPE	JUMPER TAGGING	COLOR CODING
A	UMTS/LTE	OPTICAL #1	B4P	APX16DWV_16DWVS	RFS	0	0	60°	2°	10°	143'-0"	(1) ETW190VS12UB	ANDREW	–	–	EXISTING	1⅝"	COAX	2	EXISTING	N/A	–	–	FIBER	–	–
	LTE 700	**TBD**	**B12P**	**LNX-6515DS-VTM**	**COMMSCOPE**	**0**	**1**	**60°**	**0°**	**2°**	**143'-0"**	–	–	**(PROPOSED) RRUS 11**	***ERICSSON***	***(2) ±185'***	**1⅝"**	***COAX***	**2**	***EXISTING***	***N/A***	**–**	**–**	**FIBER**	**LTE 700 COAX**	**–**
	GSM/UMTS	OPTICAL #1	B2P	APX16PV_16PVL	RFS	0	0	60°	2°	8°	143'-0"	(1) ETW200VS12UB	ANDREW	–	–	EXISTING	1⅝"	COAX	2	EXISTING	N/A	–	–	FIBER	–	–
B	UMTS/LTE	OPTICAL #1	B4P	APX16DWV_16DWVS	RFS	0	0	170°	2°	6°	143'-0"	(1) ETW190VS12UB	ANDREW	–	–	EXISTING	1⅝"	COAX	2	EXISTING	N/A	–	–	FIBER	–	–
	LTE 700	**TBD**	**B12P**	**LNX-6515DS-VTM**	**COMMSCOPE**	**0**	**1**	**170°**	**0°**	**2°**	**143'-0"**	–	–	**(PROPOSED) RRUS 11**	***ERICSSON***	***(2) ±185'***	**1⅝"**	***COAX***	**2**	***EXISTING***	***N/A***	**–**	**–**	**FIBER**	**LTE 700 COAX**	**–**
	GSM/UMTS	OPTICAL #1	B2P	APX16PV_16PVL	RFS	0	0	170°	2°	6°	143'-0"	(1) ETW200VS12UB	ANDREW	–	–	EXISTING	1⅝"	COAX	2	EXISTING	N/A	–	–	FIBER	–	–
C	UMTS/LTE	OPTICAL #1	B4P	APX16DWV_16DWVS	RFS	0	0	270°	2°	6°	143'-0"	(1) ETW190VS12UB	ANDREW	–	–	EXISTING	1⅝"	COAX	2	EXISTING	N/A	–	–	FIBER	–	–
	LTE 700	**TBD**	**B12P**	**LNX-6515DS-VTM**	**COMMSCOPE**	**0**	**1**	**270°**	**0°**	**2°**	**143'-0"**	–	–	**(PROPOSED) RRUS 11**	***ERICSSON***	***(2) ±185'***	**1⅝"**	***COAX***	**2**	***EXISTING***	***N/A***	**–**	**–**	**FIBER**	**LTE 700 COAX**	**–**
	GSM/UMTS	OPTICAL #1	B2P	APX16PV_16PVL	RFS	0	0	270°	2°	4°	143'-0"	(1) ETW200VS12UB	ANDREW	–	–	EXISTING	1⅝"	COAX	2	EXISTING	N/A	–	–	FIBER	–	–

KEY

EXISTING	R – RED – GSM	G – GREEN – UMTS 1900
PROPOSED	B – BLUE – UMTS AWS	P – PURPLE – LTE
FIBER CONNECTION	O – ORANGE – FIBER CABLE	

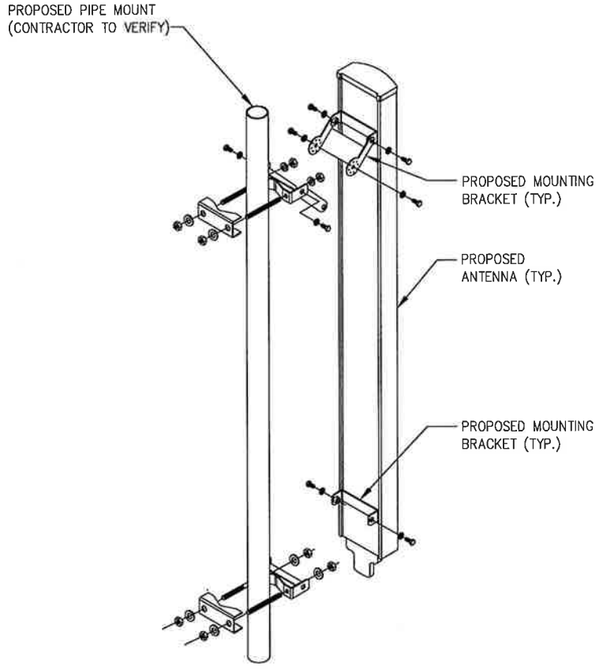
1 RF SYSTEM SCHEDULE
NOT TO SCALE



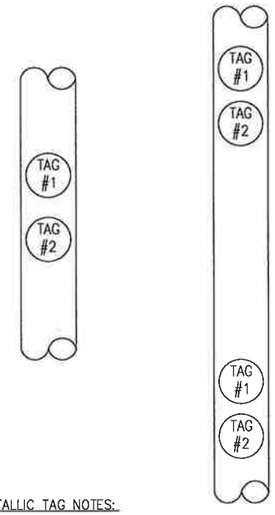


COMMSCOPE MODEL NO.:	LNX-6515DS-VTM
RADOME MATERIAL:	FIBERGLASS, UV RESISTANT
RADOME COLOR:	LIGHT GRAY
DIMENSIONS, HxWxD:	96.0"x11.9"x7.1" (2438 x 301 x 181 mm)
WEIGHT, W/ PRE-MOUNTED BRACKETS:	50.3 LBS (19.8 kg)
CONNECTOR:	(2) 7-16 DIN FEMALE/BOTTOM

2 ANTENNA DETAILS
NOT TO SCALE



3 MOUNTING DETAIL
NOT TO SCALE



METALLIC TAG NOTES:

1. TWO METALLIC TAGS SHALL BE ATTACHED AT EACH END OF EVERY CABLE LONGER THAN (3) THREE FEET.
2. CABLES LESS THAN (3) THREE FEET WILL HAVE TWO METALLIC TAGS ATTACHED AT THE CENTER OF THE CABLE.
3. TAGS WILL BE FASTENED WITH STAINLESS STEEL ZIP TIES APPROPRIATE FOR CABLE DIAMETER.
4. STANDARDIZED METALLIC TAG KITS WILL BE ASSEMBLED WITH TAGS ALREADY ENGRAVED TO ACCOMODATE ALL CONFIGURATIONS.

3/4 METALLIC TAG DETAIL
NOT TO SCALE

T-Mobile
T-MOBILE NORTHEAST LLC
103 MONARCH DR
LIVERPOOL, NY 13088

INFINIGY
1033 Watervliet Shaker Rd
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Office # (518) 690-0790
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SUBMITTALS

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PROJECT NO:	317-000
DRAWN BY:	MAP
CHECKED BY:	ASW

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
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PROFESSIONAL ENGINEER

PROFESSIONAL SEAL

NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

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CT11821E

SITE NAME:
CT821/D&B FLOWER FARM

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WEST HAVEN, CT 06516

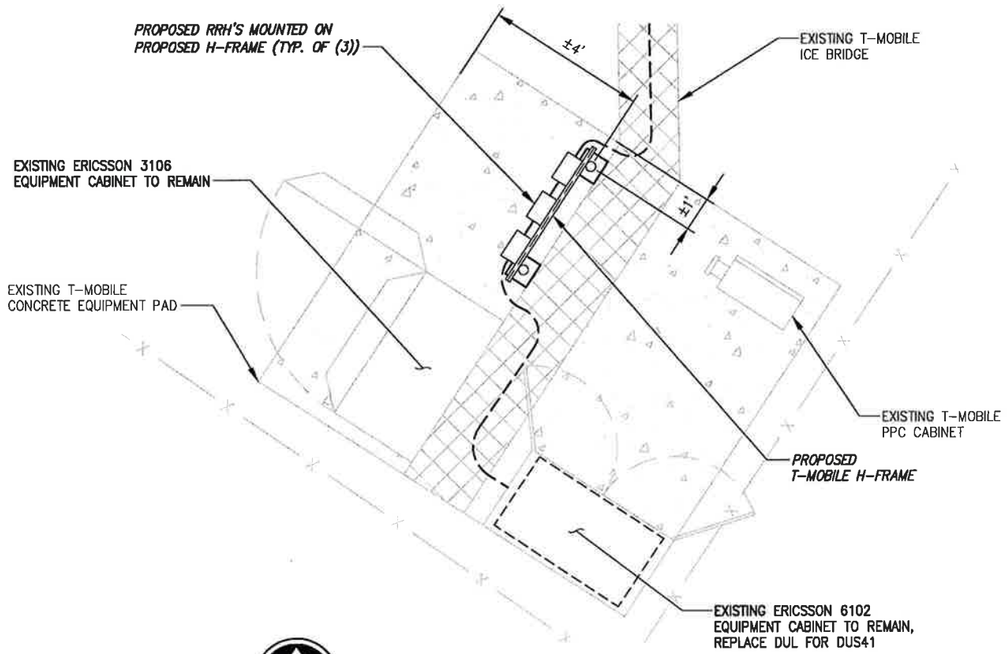
SHEET TITLE

ANTENNA DETAIL & RF SCHEDULE

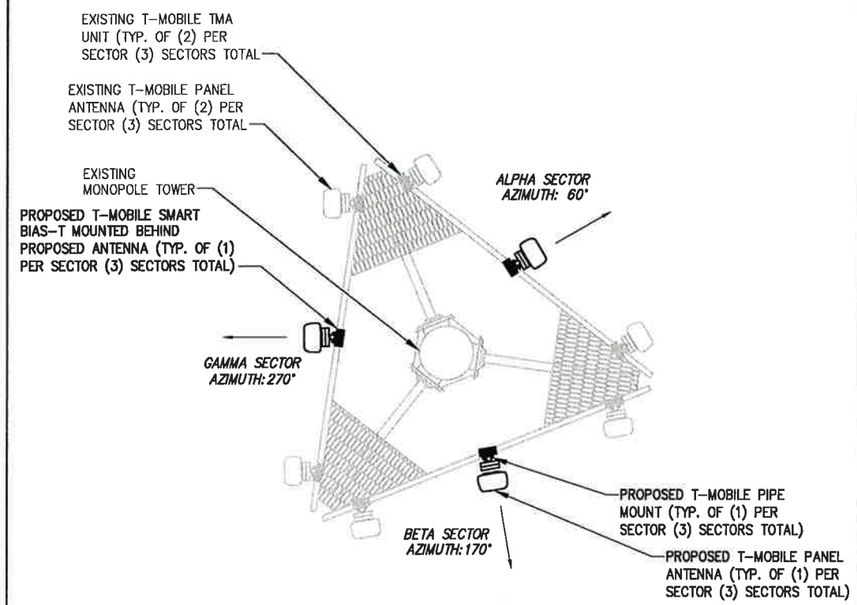
SHEET NUMBER

C-3

SHEET 4 OF 8 SHEETS



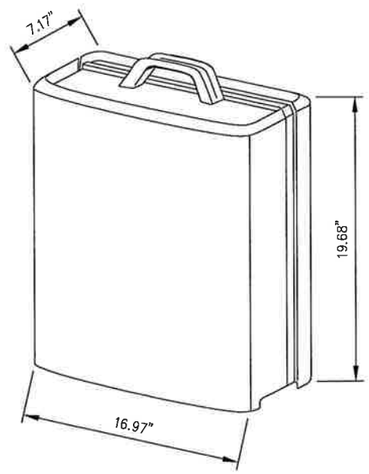
1 EQUIPMENT PAD LAYOUT PLAN
NOT TO SCALE



2 ANTENNA ORIENTATION PLAN
NOT TO SCALE

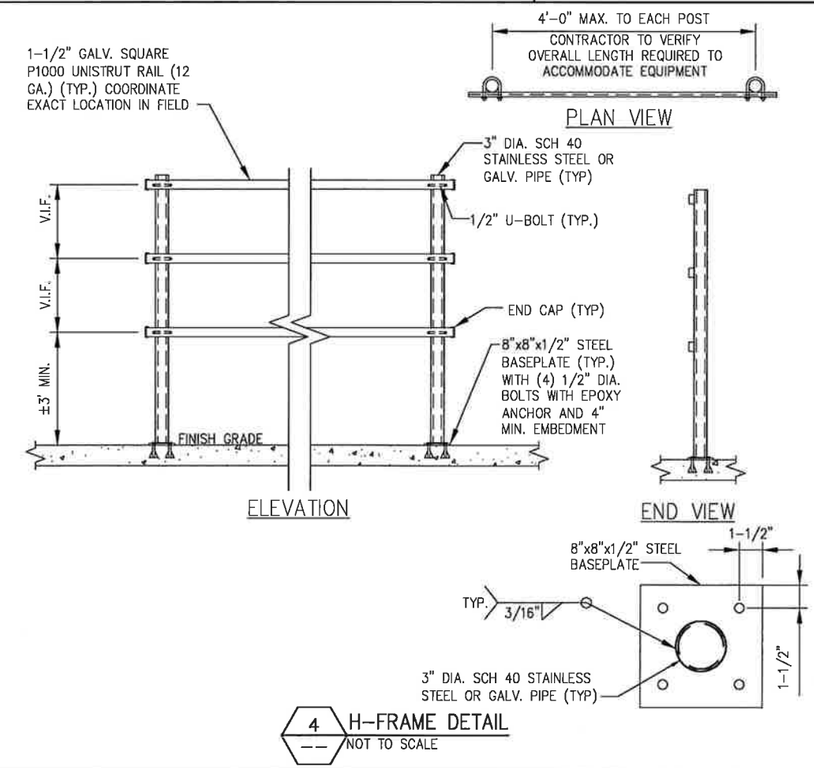
STRUCTURAL NOTES:

1. SPECIFICATIONS / CODES:
   - –CONCRETE WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE ACI CODE.
   - –STEEL WORK SHALL BE PERFORMED IN ACCORDANCE WITH AISC STEEL CONSTRUCTION MANUAL, 9tH EDITION.
   - –WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (AWS) D1.1–92 "STRUCTURAL WELDING" CODE–STEEL.
   - –REINFORCING STEEL SHALL BE PLACED IN ACCORDANCE WITH THE CONCRETE REINFORCING STEEL INSTITUTE (CRSI), "MANUAL OF STANDARD PRACTICE."
2. MATERIALS:
   - –CONCRETE: fc' – 3000psi. (MIN. U.N.O.)
   - –REINFORCING STEEL: ASTM A615, GRADE 60.
   - –WIRE MESH: ASTM A185.
   - –STRUCTURAL STEEL: ASTM A36.
   - –ELECTRODES FOR WELDING: E 70xx.
   - –GALVANIZING: ASTM A153 (BOLTS) OR ASTM A123 (SHAPES, PLATES).
   - –EXPANSION BOLTS: HILTI KWIK BOLT II, STAINLESS STEEL, 3/4"ø x 43/4" EMBEDMENT OR AN APPROVED EQUAL.



3 RRUS 11 DETAIL
NOT TO SCALE

ERICSSON MODEL NO.:	RRUS11
COLOR:	GRAY
DIMENSIONS, HxWxD:	19.68"x16.97"x7.17" (500 x 431 x 182 mm)
WEIGHT:	50.71 LBS (23 kg)



4 H-FRAME DETAIL
NOT TO SCALE

T-Mobile
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INFINIGY
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Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS		
DATE	DESCRIPTION	REVISION
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8/25/15	REVISED/FOR PERMIT	0

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

PROJECT NO:	317-000
DRAWN BY:	MAP
CHECKED BY:	ASW

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER
PROFESSIONAL SEAL

NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

SITE NUMBER:
CT11821E

SITE NAME:
CT821/D&B FLOWER FARM

668 JONES HILL ROAD
WEST HAVEN, CT 06516

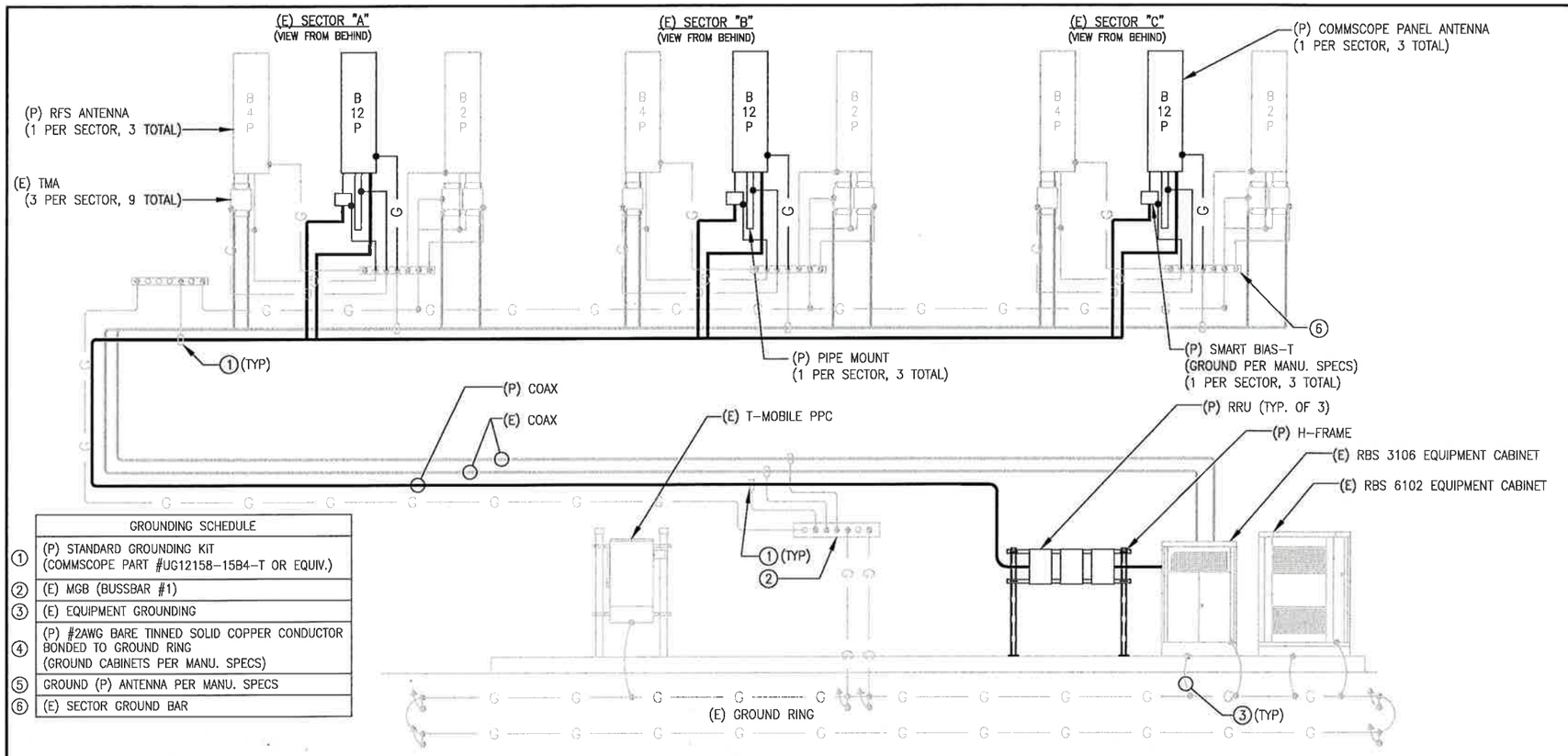
SHEET TITLE

EQUIPMENT SPECIFICATIONS

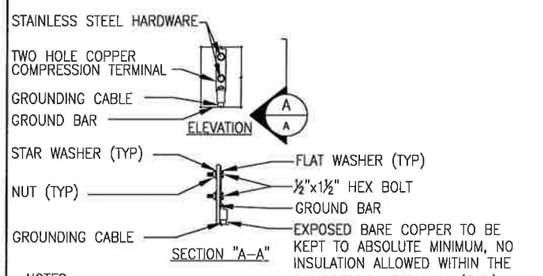
SHEET NUMBER

C-4

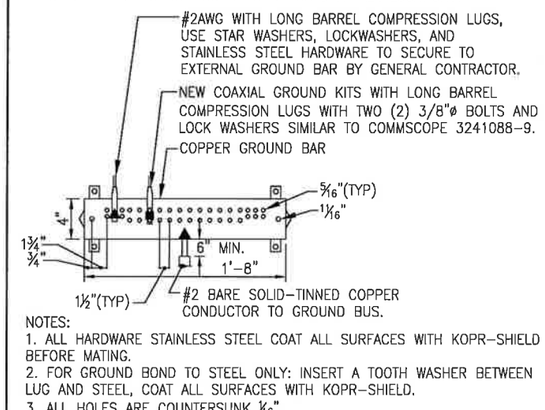
SHEET 5 OF **8** SHEETS



GROUNDING SCHEDULE	
①	(P) STANDARD GROUNDING KIT (COMMSCOPE PART #UG12158-15B4-T OR EQUIV.)
②	(E) MGB (BUSSBAR #1)
③	(E) EQUIPMENT GROUNDING
④	(P) #2AWG BARE TINNED SOLID COPPER CONDUCTOR BONDED TO GROUND RING (GROUND CABINETS PER MANU. SPECS)
⑤	GROUND (P) ANTENNA PER MANU. SPECS
⑥	(E) SECTOR GROUND BAR



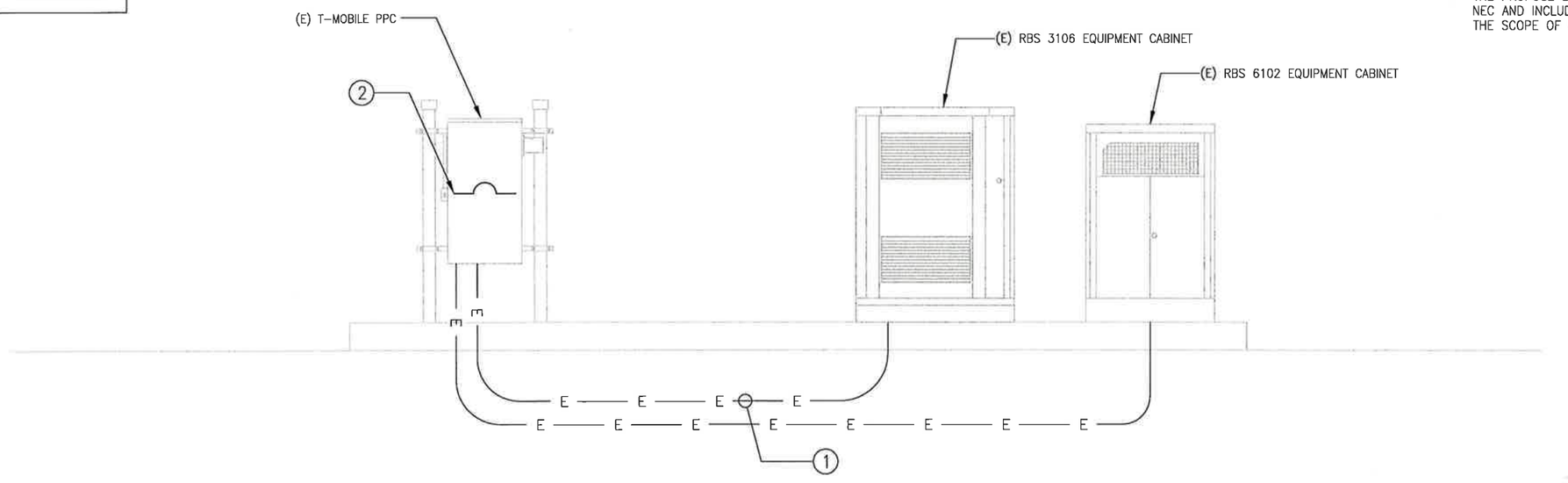
NOTES:
1. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.



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

2 GROUND BAR CONNECTION DETAILS
SCALE: NOT TO SCALE

CONDUIT SCHEDULE	
①	(P) WIRE AND CONDUIT UPGRADE FOR POWER
②	(P) 100A BREAKER UPGRADE



3 POWER DIAGRAM
SCALE: NOT TO SCALE

CONTRACTOR NOTE:
CONTRACTOR TO VERIFY THAT THE EXISTING CONDUITS AND WIRE SIZES ARE ADEQUATE FOR THE PROPOSE LOADING IN ACCORDANCE WITH NEC AND INCLUDE ELECTRICAL UPGRADES IN THE SCOPE OF WORK AS REQUIRED.

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

PROJECT NO:	317-000
DRAWN BY:	MAP
CHECKED BY:	ASW

PROFESSIONAL SEAL

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CT11821E

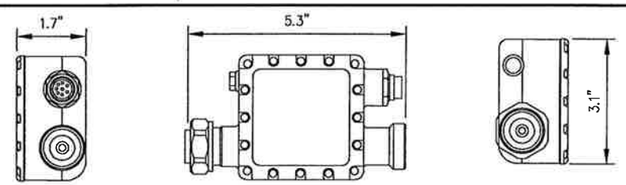
SITE NAME:
CT821/D&B FLOWER FARM

668 JONES HILL ROAD
WEST HAVEN, CT 06516

SHEET TITLE
GROUNDING & POWER DIAGRAMS

SHEET NUMBER
E-1

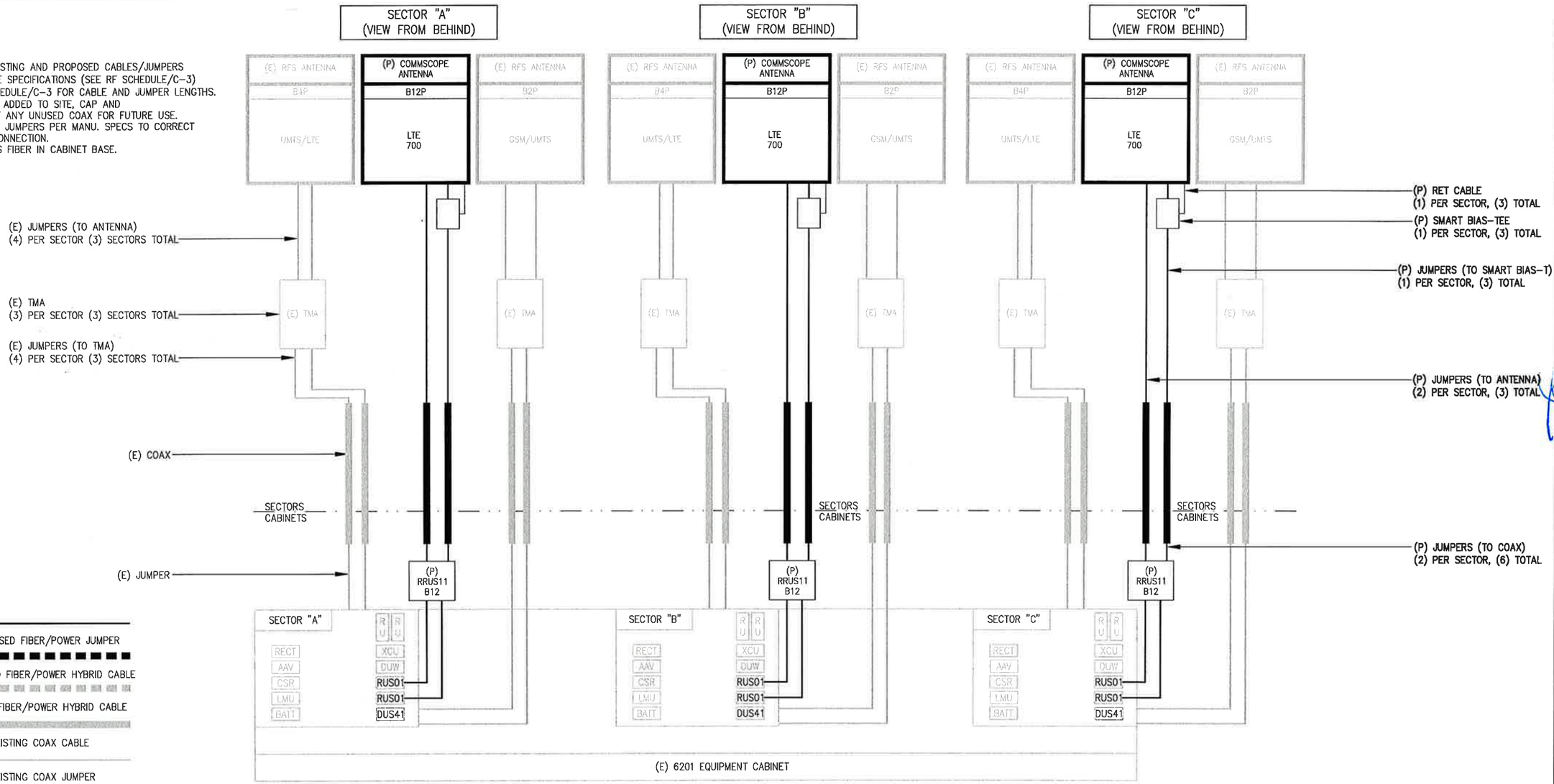
SHEET 6 OF 8 SHEETS



KATHREIN SCALA SMART BIAS-T
WEIGHT: 3.3 LBS

1 SMART BIAS-T DETAIL
NOT TO SCALE

NOTES:
1. TAG ALL EXISTING AND PROPOSED CABLES/JUMPERS PER T-MOBILE SPECIFICATIONS (SEE RF SCHEDULE/C-3)
2. SEE RF SCHEDULE/C-3 FOR CABLE AND JUMPER LENGTHS.
3. IF NEW GPS ADDED TO SITE, CAP AND WEATHERPROOF ANY UNUSED COAX FOR FUTURE USE.
4. TRIM POWER JUMPERS PER MANU. SPECS TO CORRECT LENGTH FOR CONNECTION.
5. COIL EXCESS FIBER IN CABINET BASE.



PROPOSED FIBER/POWER JUMPER
PROPOSED FIBER/POWER HYBRID CABLE
EXISTING FIBER/POWER HYBRID CABLE
EXISTING COAX CABLE
EXISTING COAX JUMPER

2 704Bu CONFIGURATION COAX/FIBER PLUMBING DIAGRAM
NOT TO SCALE

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PROJECT NO:	317-000
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STATE OF CONNECTICUT
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SITE NAME:
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668 JONES HILL ROAD
WEST HAVEN, CT 06516

SHEET TITLE
COAX/FIBER PLUMBING DIAGRAM

SHEET NUMBER
E-2

ELECTRICAL NOTES:

WORK INCLUDED

1. INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, PLANT SERVICES AND ADMINISTRATIVE TASKS REQUIRED TO COMPLETE AND MAKE OPERABLE THE ELECTRICAL WORK SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
   A. PREPARE AND SUBMIT SHOP DRAWINGS, DIAGRAMS AND ILLUSTRATIONS.
   B. PROCURE ALL NECESSARY PERMITS AND APPROVALS AND PAY ALL REQUIRED FEES AND CHARGES IN CONNECTION WITH THE WORK OF THIS CONTRACT.
   C. SUBMIT AS-BUILT DRAWINGS, OPERATING AND MAINTENANCE INSTRUCTIONS AND MANUALS.
   D. EXECUTE ALL CUTTING, DRILLING, ROUGH AND FINISH PATCHING OF EXISTING OR NEWLY INSTALLED CONSTRUCTION REQUIRED FOR THE WORK OF THIS CONTRACT. FOR SLAB PENETRATIONS THROUGH POST TENSION SLABS, X-RAY EXACT AREA OF PENETRATION PRIOR TO PERFORMING WORK. COORDINATE ALL X-RAY WORK WITH BUILDING ENGINEER.
   E. PROVIDE HANGERS, SUPPORTS, FOUNDATIONS, STRUCTURAL FRAMING SUPPORTS, AND BASES FOR CONDUIT AND EQUIPMENT PROVIDED OR INSTALLED UNDER THE WORK OF HIS CONTRACT. PROVIDE COUNTER FLASHING, SLEEVES AND SEALS FOR FLOOR AND WALL PENETRATIONS.
   F. MAINTAIN ALL EXISTING ELECTRICAL SERVICES IN THE BUILDING AREAS NOT AFFECTED BY THE ALTERATION DURING THE PROGRESS OF THE WORK INCLUDING PROVIDING ALL TEMPORARY JUMPERS, CONDUITS, CAPS, PROTECTIVE DEVICES, CONNECTIONS AND EQUIPMENT REQUIRED. PROVIDE TEMPORARY LIGHT AND POWER FOR CONSTRUCTION PURPOSES.
2. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO CALL FOR AN INSTALLATION THAT IS COMPLETE IN EVERY RESPECT. IT IS NOT THE INTENT TO GIVE EVERY DETAIL ON THE DRAWINGS AND IN THE SPECIFICATIONS. IF AN ITEM OF WORK IS INDICATED IN THE DRAWINGS, IT IS CONSIDERED SUFFICIENT FOR INCLUSION IN THE CONTRACT. FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT USUALLY FURNISHED OR NEEDED TO MAKE A COMPLETE INSTALLATION WHETHER OR NOT SPECIFICALLY MENTIONED IN THE CONTRACT DOCUMENTS.

GENERAL REQUIREMENTS

1. PROVIDE ALL WORK IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL AND STATE ELECTRICAL CODES.
2. THE ELECTRICAL PLANS ARE DIAGRAMMATIC ONLY. REFER TO THE ARCHITECTURAL PLANS FOR THE EXACT DIMENSIONS OF THE BUILDING.
3. LOAD CALCULATIONS ARE BASED ON EXISTING BUILDING INFORMATION/DRAWINGS PROVIDED TO ENGINEERING. CONTRACTOR IS TO VERIFY ALL EXISTING RATINGS AND LOADS PRIOR TO PURCHASING OF SPECIFIED EQUIPMENT FOR COMPLIANCE TO NEC. CONTRACTOR TO NOTIFY ENGINEER OF ANY DISCREPANCIES AND REQUEST FURTHER DIRECTION BY ENGINEER.
4. EXISTING BUILDING EQUIPMENT IS NOTED ON THE DRAWINGS. NEW OR RELOCATED EQUIPMENT IS SHOWN WITH SOLID LINES. FUTURE EQUIPMENT (NOT IN THIS CONTRACT) IS DEPICTED WITH SHADED LINES. REQUEST CLARIFICATION OF DRAWINGS OR OF SPECIFICATIONS PRIOR TO PRICING OR INSTALLATION.
5. GENERAL
   A. AFTER CAREFULLY STUDYING THE DRAWINGS AND SPECIFICATIONS, AND BEFORE SUBMITTING THE PROPOSAL, MAKE A MANDATORY SITE VISIT TO ASCERTAIN CONDITIONS OF THE SITE, AND THE NATURE AND EXACT QUANTITY OF WORK TO BE PERFORMED. NO EXTRA COMPENSATION WILL BE ALLOWED FOR FAILURE TO NOTIFY THE OWNER, IN WRITING, OF ANY DISCREPANCIES THAT MAY HAVE BEEN NOTED BETWEEN THE EXISTING CONDITIONS AND THE DRAWINGS AND SPECIFICATIONS.
   B. VERIFY ALL MEASUREMENTS AT THE SITE AND BE RESPONSIBLE FOR CORRECTNESS OF SAME.
6. QUALITY, WORKMANSHIP, MATERIALS AND SAFETY
   A. PROVIDE NEW MATERIALS AND EQUIPMENT OF A DOMESTIC MANUFACTURER BY THOSE REGULARLY ENGAGED IN THE PRODUCTION AND MANUFACTURE OF SPECIFIED MATERIALS AND EQUIPMENT. WHERE UL, OR OTHER AGENCY, HAS ESTABLISHED STANDARDS FOR MATERIALS, PROVIDE MATERIALS WHICH ARE LISTED AND LABELED ACCORDINGLY. THE COMMERCIALLY STANDARD ITEMS OF EQUIPMENT AND THE SPECIFIC NAMES MENTIONED HEREIN ARE INTENDED FOR THE PROPER FUNCTIONING OF THE WORK.
   B. WORK SHALL BE PERFORMED BY WORKMEN SKILLED IN THE TRADE REQUIRED FOR THE WORK. INSTALL MATERIALS AND EQUIPMENT TO PRESENT A NEAT APPEARANCE WHEN COMPLETED AND IN ACCORDANCE WITH THE APPROVED RECOMMENDATIONS OF THE MANUFACTURER AND IN ACCORDANCE WITH CONTRACT DOCUMENTS.
   C. PROVIDE LABOR, MATERIALS, APPARATUS AND APPLIANCES ESSENTIAL TO THE FUNCTIONING OF THE SYSTEMS DESCRIBED OR INDICATED HEREIN, OR WHICH MAY BE REASONABLY IMPLIED AS ESSENTIAL WHENEVER MENTIONED IN THE CONTRACT DOCUMENT OR NOT.
   D. MAKE WRITTEN REQUESTS FOR SUPPLEMENTARY INSTRUCTIONS TO ARCHITECT/ENGINEER IN CASE OF DOUBT AS TO WORK INTENDED OR IN EVENT OF NEED FOR EXPLANATION THEREOF.
   E. PERFORMANCE AND MATERIAL REQUIREMENTS SCHEDULED OR SPECIFIED ARE MINIMUM STANDARD ACCEPTABLE. THE RIGHT TO JUDGE THE QUALITY OF EQUIPMENT THAT DEVIATES FROM THE CONTRACT DOCUMENT REMAINS SOLELY WITH ARCHITECT/ENGINEER. CONTRACT DOCUMENT OR NOT.

GUARANTEE

1. GUARANTEE MATERIALS, PARTS AND LABOR FOR WORK FOR ONE YEAR FROM THE DATE OF ISSUANCE OF OCCUPANCY PERMIT. DURING THAT PERIOD, MAKE GOOD FAULTS OR IMPERFECTIONS THAT MAY ARISE DUE TO DEFECTS OR OMISSIONS IN MATERIALS OR WORKMANSHIP WITH NO ADDITIONAL COMPENSATION AND AS DIRECTED BY ARCHITECT.

CLEANING

1. REMOVE ALL CONSTRUCTION DEBRIS RESULTING FROM THE WORK.
2. CLEAN EQUIPMENT AND SYSTEMS FOLLOWING THE COMPLETION OF THE PROJECT TO THE SATISFACTION OF THE ENGINEER.

COORDINATION AND SUPERVISION

1. CAREFULLY LAY OUT ALL WORK IN ADVANCE TO AVOID UNNECESSARY CUTTING, CHANNELING, CHASING OR DRILLING OF FLOORS, WALLS, PARTITIONS, CEILINGS OR OTHER SURFACES. WHERE SUCH WORK IS NECESSARY, HOWEVER, PATCH AND REPAIR THE WORK IN AN APPROVED MANNER BY SKILLED MECHANICS AT NO ADDITIONAL COST TO THE OWNER. RENDER FULL COOPERATION TO OTHER TRADES WHERE WORK WILL BE INSTALLED IN CLOSE PROXIMITY TO WORK OF OTHER TRADES. ASSIST IN WORKING OUT SPACE CONDITIONS. IF WORK IS INSTALLED BEFORE COORDINATION WITH OTHER TRADES, OR CAUSES INTERFERENCE, MAKE CHANGES NECESSARY TO CORRECT CONDITIONS WITHOUT EXTRA CHARGE.

SUBMITTALS

1. AS-BUILT DRAWINGS:
   A. UPON COMPLETION OF THE WORK, FURNISH TO THE OWNER "AS-BUILT" DRAWINGS.
2. SERVICE MANUALS:
   A. UPON COMPLETION OF THE WORK, FULLY INSTRUCT T-MOBILE AS TO THE OPERATION AND MAINTENANCE OF ALL MATERIAL, EQUIPMENT AND SYSTEMS.
   B. PROVIDE 3 COMPLETE BOUND SETS OF INSTRUCTIONS FOR OPERATING AND MAINTAINING ALL SYSTEMS AND EQUIPMENT.

CUTTING AND PATCHING

1. PROVIDE ALL CUTTING, DRILLING, ROUGH AND FINISH PATCHING REQUIRED TO COMPLETE THE WORK.
2. OBTAIN OWNER APPROVAL PRIOR TO CUTTING THROUGH FLOORS OR WALLS FOR PIPING OR CONDUIT.

TESTS, INSPECTION AND APPROVAL

1. BEFORE ENERGIZING ANY ELECTRICAL INSTALLATION, INSPECT EACH UNIT IN DETAIL. TIGHTEN ALL BOLTS AND CONNECTIONS (TORQUE-TIGHTEN WHERE REQUIRED) AND DETERMINE THAT ALL COMPONENTS ARE ALIGNED, AND THE EQUIPMENT IS IN SAFE, OPERATIONAL CONDITION.
2. PROVIDE THE COMPLETE ELECTRICAL SYSTEM FREE OF GROUND FAULTS AND SHORT CIRCUITS SUCH THAT THE SYSTEM WILL OPERATE SATISFACTORILY UNDER FULL LOAD CONDITIONS, WITHOUT EXCESSIVE HEATING AT ANY POINT IN THE SYSTEM.

SPECIAL REQUIREMENTS

1. DO NOT LEAVE ANY WORK INCOMPLETE NOR ANY HAZARDOUS SITUATIONS CREATED WHICH WILL AFFECT THE LIFE OR SAFETY OF THE PUBLIC AND/OR BUILDING OCCUPANTS. DO NOT INTERFERE WITH OR CUTOFF ANY OF THE EXISTING SERVICES WITHOUT THE OWNER'S WRITTEN PERMISSION.
2. WHEN NECESSARY TO TEMPORARILY DISCONNECT ANY EXISTING BUILDING UTILITIES AND SERVICE SYSTEMS, INCLUDING FEEDER OR BRANCH CIRCUITING SUPPLYING EXISTING FACILITIES, CONFER WITH THE OWNER AND ARRANGE THE PERIOD OF INTERRUPTION FOR A TIME MUTUALLY AGREED UPON. SHUTDOWN NOTE: SCHEDULE AND NOTIFY OWNER 48 HOURS PRIOR TO SHUTDOWN. ALL SHUTDOWN WORK TO BE SCHEDULED AT A TIME CONVENIENT TO OWNER.

GROUNDING

1. ROUTE ALL GROUNDING CONDUCTORS AS SHOWN ON CONDUIT/GROUNDING RISER.
2. ROUTE 500 KCMIL CU. THHN CONDUCTOR FROM THE MGB LOCATION TO BUILDING STEEL. VERIFY BUILDING STEEL IS EFFECTIVELY GROUNDED PER NEC TO THE MAIN SERVICE GROUNDING ELECTRODE CONDUCTOR (GEC).
3. MAKE ALL GROUND CONNECTIONS FROM MGB TO ELECTRICAL EQUIPMENT WITH 2 HOLE, CRIMP TYPE, BURNDY COMPRESSION TERMINATIONS, SIZED AS REQUIRED.
4. USE 1 HOLE, CRIMP TYPE, BURNDY COMPRESSIONS TERMINATIONS, SIZED AS REQUIRED, AT EQUIPMENT GROUND CONNECTIONS.
5. HIRE AN INDEPENDENT LAB TO PERFORM THE SPECIFIED OHMS TESTING. PROVIDE 4 SETS OF THE CERTIFIED DOCUMENTS TO THE OWNER FOR VERIFICATION PRIOR TO THE PROJECT COMPLETION.

RACEWAYS

1. ALL WIRING TO BE INSTALLED IN CONDUIT SYSTEMS IN ACCORDANCE WITH THE FOLLOWING:
   A. EXTERIOR FEEDERS AND CONTROL, WHERE UNDERGROUND, TO BE IN SCH 40 PVC.
   B. EXTERIOR, ABOVE GROUND POWER CONDUITS TO BE GALVANIZED RIGID STEEL (RGS).
   C. ALL TELECOMMUNICATION CONDUITS, INTERIOR/EXTERIOR, TO BE EMT.
   D. INSTALL PULL ROPES IN ALL NEW EMPTY CONDUITS INSTALLED ON THIS PROJECT.
   E. ALL TELECOM CONDUITS AND PULL BOXES INSTALLED ON THIS PROJECT TO BE LABELED "T-MOBILE". OWNER WILL PROVIDE LABELS FOR CONTRACTOR TO INSTALL.
   F. INTERIOR FEEDERS TO BE INSTALLED IN E.M.T. WITH STEEL COMPRESSION FITTINGS.
   G. MINIMUM SIZE CONDUIT TO BE ¾" TRADE SIZE UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
   H. FINAL CONNECTIONS TO MOTORS AND VIBRATING EQUIPMENT TO BE INSTALLED IN LIQUID-TIGHT FLEXIBLE METAL CONDUIT.
   I. CONDUIT TO BE RUN CONCEALED IN CEILINGS, FINISHED AREAS OR DRYWALL PARTITIONS, UNLESS OTHERWISE NOTED.
   J. THE ROUTING OF CONDUITS INDICATED ON THE DRAWINGS IS DIAGRAMMATIC. BEFORE INSTALLING ANY WORK, EXAMINE THE WORKING LAYOUTS AND SHOP DRAWINGS OF THE OTHER TRADES TO DETERMINE THE EXACT LOCATIONS AND CLEARANCES.
   K. ALL EXTERIOR MOUNTING HARDWARE TO BE GALVANIZED STEEL. COORDINATE WITH BUILDING ENGINEER PRIOR TO ATTACHING TO BUILDING STRUCTURE.

RACEWAYS CONT'D

   L. PENETRATIONS OF WALLS, FLOORS AND ROOFS, FOR THE PASSAGE OF ELECTRICAL RACEWAYS, TO BE PROPERLY SEALED AFTER INSTALLATION OF RACEWAYS SO AS TO MAINTAIN THE STRUCTURAL OR WATERPROOF INTEGRITY OF THE WALL, FLOOR OR ROOF SYSTEM TO BE PENETRATED. SEAL ALL CONDUIT PENETRATIONS THROUGH FIRE OR SMOKE RATED WALLS, CEILINGS OR SMOKE TIGHT CORRIDOR PARTITIONS TO MAINTAIN PROPER RATING OF WALL OR CEILING.
   M. PROVIDE ALL CONDUIT ENDS WITH INSULATED METALLIC GROUNDING BUSHINGS.
   N. CONDUIT TO BE SUPPORTED AT MAXIMUM DISTANCE OF 8'-0", OR AS REQUIRED BY NEC, IN HORIZONTAL AND VERTICAL DIRECTIONS.
   O. PROVIDE STAINLESS STEEL BLANK COVER PLATES FOR ALL JUNCTION BOXES AND/OR OUTLET BOXES NOT USED IN EXPOSED AREAS. PROVIDE ALL OTHER UNUSED BOXES WITH STANDARD STEEL COVER PLATES.
   P. WHERE APPLICABLE, PROVIDE ROOFTOP CONDUIT SUPPORT SYSTEM, CONFORMING TO ROOFTOP WARRANTY REQUIREMENTS, PER BUILDING.

WIRES AND CABLES

1. CONTRACTOR TO COORDINATE WITH EQUIPMENT SUPPLIER AND VENDOR FOR EXACT EQUIPMENT OVER-CURRENT PROTECTION VOLTAGE, WIRE SIZE AND PLUG CONFIGURATION, IF APPLICABLE, PRIOR TO BID.
2. ALL EQUIPMENT/DEVICES TO BE PROVIDED WITH INSULATED GROUND CONDUCTOR.
3. ALL WIRE AND CABLE TO BE 600VOLT, COPPER, WITH THWN/THHN INSULATION, EXCEPT AS NOTED.
4. WIRE FOR POWER AND LIGHTING WILL NOT BE LESS THAN NO. 12AWG. ALL WIRE NO. 8 AND LARGER TO BE STRANDED.
5. CONTROL WIRING IS NOT TO BE LESS THAN NO. 14AWG, FLEXIBLE IN SINGLE CONDUCTORS OR MULTI-CONDUCTOR CABLES. CONTROL WIRING WILL CONSIST OF MULTI-CONDUCTOR CABLES WHEREVER POSSIBLE. CABLES TO BE PROVIDED WITH AN OVERALL FLAME-RETARDANT, EXTRUDED JACKET AND RATED FOR PLENUM USE. ALL CONTROL WIRE TO BE 600VOLT RATED.
6. WIRE PREVIOUSLY PULLED INTO CONDUIT IS CONSIDERED USED AND IS NOT TO BE RE-PULLED.
7. HOME RUNS AND BRANCH CIRCUIT WIRING FOR 20A, 120V CIRCUITS:

LENGTH (FT.)	HOME RUN WIRE SIZE
0 TO 50	NO. 12
51 TO 100	NO. 10
101 TO 150	NO. 8

8. VOLTAGE DROP IS NOT TO EXCEED 3%.
9. MAKE ALL CONNECTIONS WITH UL APPROVED, SOLDERLESS, PRESSURE TYPE INSULATED CONNECTORS: SCOTCHLOK OR AND APPROVED EQUAL.

WIRING DEVICES

1. ALL RECEPTACLES INSTALLED IN THIS PROJECT TO BE GROUNDING TYPE, WITH GROUNDING PIN SLOT CONNECTED TO DEVICE GROUND SCREW FOR GROUND WIRE CONNECTION.

DISCONNECT SWITCHES AND FUSES

1. DISCONNECT SWITCHES TO BE VOLTAGE-RATED TO SUIT THE CHARACTERISTICS OF THE SYSTEM FROM WHICH THEY ARE SUPPLIED.
2. PROVIDE HEAVY-DUTY, METAL-ENCLOSED, EXTERNALLY-OPERATED DISCONNECT SWITCHES, FUSED OR UNFUSED, OF SUCH TYPE AND SIZE AS REQUIRED TO PROPERLY PROTECT OR DISCONNECT THE LOAD FOR WHICH THEY ARE INTENDED.
3. PROVIDE NEMA 1 DISCONNECT SWITCHES FOR INTERIOR INSTALLATION, NEMA 3R FOR EXTERIOR INSTALLATION.
4. DISCONNECT SWITCHES TO BE MANUFACTURED BY:
   A. GENERAL ELECTRIC COMPANY
   B. SQUARE-D
5. PROVIDE RK-1 TYPE FUSES, UNLESS NOTED OTHERWISE.

INSTALLATION

1. INSTALL DISCONNECT SWITCHES WHERE INDICATED ON DRAWINGS.
2. INSTALL FUSES IN FUSIBLE DISCONNECT SWITCHES. FUSES MUST MATCH IN TYPE AND RATING.
3. FUSES TO BE MOUNTED SO THAT THE LABELS SHOWING THEIR RATINGS CAN BE READ WITHOUT REQUIRING FUSE REMOVAL.
4. FURNISH AND DEPOSIT SPARE FUSES AT THE JOB SITE AS FOLLOWS:
   A. THREE SPARES FOR EACH TYPE AND SIZE, IN EXCESS OF 60A, USED FOR INITIAL FUSING.
   B. TEN PERCENT SPARES FOR EACH TYPE AND SIZE, UP TO AND INCLUDING 60A, USED FOR INITIAL FUSING. IN NO CASE WILL LESS THAN THREE FUSES OF ONE PARTICULAR TYPE AND SIZE BE FURNISHED.

GENERAL NOTES:

INTENT

1. THESE SPECIFICATIONS AND CONSTRUCTION DRAWINGS ACCOMPANYING THEM DESCRIBE THE WORK TO BE DONE AND THE MATERIALS TO BE FURNISHED FOR CONSTRUCTION.
2. THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO BE FULLY EXPLANATORY AND SUPPLEMENTARY. HOWEVER, SHOULD ANYTHING BE SHOWN, INDICATED, OR SPECIFIED ON ONE AND NOT THE OTHER, IT SHALL BE DONE THE SAME AS IF SHOWN, INDICATED OR SPECIFIED IN BOTH
3. THE INTENTION OF THE DOCUMENTS IS TO INCLUDE ALL LABOR AND MATERIALS REASONABLY NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK AS STIPULATED IN THE CONTRACT.
4. THE PURPOSE OF THE SPECIFICATIONS IS TO INTERPRET THE INTENT OF THE DRAWINGS AND TO DESIGNATE THE METHOD OF THE PROCEDURE, TYPE AND QUALITY OF MATERIALS REQUIRED TO COMPLETE THE WORK.
5. MINOR DEVIATIONS FROM THE DESIGN LAYOUT ARE ANTICIPATED AND SHALL BE CONSIDERED AS PART OF THE WORK. NO CHANGES THAT ALTER THE CHARACTER OF THE WORK WILL BE MADE OR PERMITTED BY THE OWNER WITHOUT ISSUING A CHANGE ORDER.

CONFLICTS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATIONS OF ALL MEASUREMENTS AT THE SITE BEFORE ORDERING ANY MATERIALS OR DOING ANY WORK. NO EXTRA CHARGE OR COMPENSATION SHALL BE ALLOWED DUE TO DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS INDICATED ON THE CONSTRUCTION DRAWINGS. ANY SUCH DISCREPANCY IN DIMENSION WHICH MAY BE FOUND SHALL BE SUBMITTED TO THE OWNER FOR CONSIDERATION BEFORE THE CONTRACTOR PROCEEDS WITH THE WORK IN THE AFFECTED AREAS.
2. THE BIDDER, IF AWARDED THE CONTRACT, WILL NOT BE ALLOWED ANY EXTRA COMPENSATION BY REASON OF ANY MATTER OR THING CONCERNING SUCH BIDDER MIGHT HAVE FULLY INFORMED THEMSELVES PRIOR TO THE BIDDING.
3. NO PLEA OF IGNORANCE OF CONDITIONS THAT EXIST, OR OF DIFFICULTIES OR CONDITIONS THAT MAY BE ENCOUNTERED, OR OF ANY OTHER RELEVANT MATTER CONCERNING THE WORK TO BE PERFORMED IN THE EXECUTION OF THE WORK WILL BE ACCEPTED AS AN EXCUSE FOR ANY FAILURE OR OMISSION ON THE PART OF THE CONTRACTOR TO FULFILL EVERY DETAIL OF ALL THE REQUIREMENTS OF THE CONTRACT DOCUMENTS GOVERNING THE WORK.

CONTRACTS AND WARRANTIES

1. CONTRACTOR IS RESPONSIBLE FOR APPLICATION AND PAYMENT OF CONTRACTOR LICENSES AND BONDS.
2. SEE MASTER CONTRACTION SERVICES AGREEMENT FOR ADDITIONAL DETAILS.

STORAGE

1. ALL MATERIALS MUST BE STORED IN A LEVEL AND DRY FASHION AND IN A MANNER THAT DOES NOT NECESSARILY OBSTRUCT THE FLOW OF OTHER WORK. ANY STORAGE METHOD MUST MEET ALL RECOMMENDATIONS OF THE ASSOCIATED MANUFACTURER.

CLEANUP

1. THE CONTRACTORS SHALL, AT ALL TIMES, KEEP THE SITE FREE FROM ACCUMULATION OF WASTE MATERIALS OR RUBBISH CAUSED BY THEIR EMPLOYEES AT WORK AND AT THE COMPLETION OF THE WORK. THEY SHALL REMOVE ALL RUBBISH FROM AND ABOUT THE BUILDING AREA, INCLUDING ALL THEIR TOOLS, SCAFFOLDING AND SURPLUS MATERIALS AND SHALL LEAVE THEIR WORK CLEAN AND READY TO USE.
2. EXTERIOR
   A. VISUALLY INSPECT EXTERIOR SURFACES AND REMOVE ALL TRACES OF SOIL, WASTE MATERIALS, SMUDGES AND OTHER FOREIGN MATTER.
   B. REMOVE ALL TRACES OF SPLASHED MATERIALS FROM ADJACENT SURFACES.
   C. IF NECESSARY, TO ACHIEVE A UNIFORM DEGREE OF CLEANLINESS, HOSE DOWN THE EXTERIOR OF THE STRUCTURE.
3. INTERIOR
   A. VISUALLY INSPECT INTERIOR SURFACE AND REMOVE ALL TRACES OF SOIL, WASTE MATERIALS, SMUDGES AND OTHER FOREIGN MATTER FROM WALLS, FLOOR, AND CEILING.
   B. REMOVE ALL TRACES OF SPLASHED MATERIALS FROM ADJACENT SURFACES.
   C. REMOVE PAINT DROPPINGS, SPOTS, STAINS, AND DIRT FROM FINISHED SURFACES.

CHANGE ORDER PROCEDURE:

1. REFER TO SECTION 17 OF SIGNED MCSA: SEE PROFESSIONAL SERVICE AGREEMENT FOR MCSA.

RELATED DOCUMENTS AND COORDINATION

1. GENERAL CARPENTRY, ELECTRICAL AND ANTENNA DRAWINGS ARE INTERRELATED. IN PERFORMANCE OF THE WORK, THE CONTRACTOR MUST REFER TO ALL DRAWINGS. ALL COORDINATION TO BE THE RESPONSIBILITY OF THE CONTRACTOR.

SHOP DRAWINGS

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AS REQUIRED AND LISTED IN THESE SPECIFICATIONS TO THE OWNER FOR APPROVAL.
2. ALL SHOP DRAWINGS SHALL BE REVIEWED, CHECKED AND CORRECTED BY CONTRACTOR PRIOR TO SUBMITTAL TO THE OWNER.

PRODUCTS AND SUBSTITUTIONS

1. SUBMIT 3 COPIES OF EACH REQUEST FOR SUBSTITUTION. IN EACH REQUEST, IDENTIFY THE PRODUCT OR FABRICATION OR INSTALLATION METHOD TO BE REPLACED BY THE SUBSTITUTION. INCLUDE RELATED SPECIFICATION SECTION AND DRAWING NUMBERS AND COMPLETE DOCUMENTATION SHOWING COMPLIANCE WITH THE REQUIREMENTS FOR SUBSTITUTIONS.
2. SUBMIT ALL NECESSARY PRODUCT DATA AND CUT SHEETS WHICH PROPERLY INDICATE AND DESCRIBE THE ITEMS, PRODUCTS AND MATERIALS BEING INSTALLED. THE CONTRACTOR SHALL, IF DEEMED NECESSARY BY THE OWNER, SUBMIT ACTUAL SAMPLES TO THE OWNER FOR APPROVAL IN LIEU OF CUT SHEETS.

QUALITY ASSURANCE

1. ALL WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS. THESE SHALL INCLUDE, BUT NOT BE LIMITED TO THE APPLICABLE CODES SET FORTH BY THE LOCAL GOVERNING BODY. SEE "CODE COMPLIANCE" T-1.

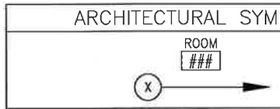
ADMINISTRATION

1. BEFORE THE COMMENCEMENT OF ANY WORK, THE CONTRACTOR WILL ASSIGN A PROJECT MANAGER WHO WILL ACT AS A SINGLE POINT OF CONTACT FOR ALL PERSONNEL INVOLVED IN THIS PROJECT. THIS PROJECT MANAGER WILL DEVELOP A MASTER SCHEDULE FOR THE PROJECT WHICH WILL BE SUBMITTED TO THE OWNER PRIOR TO THE COMMENCEMENT OF ANY WORK.
2. SUBMIT A BAR TYPE PROGRESS CHART, NOT MORE THAN 3 DAYS AFTER THE DATE ESTABLISHED FOR COMMENCEMENT OF THE WORK ON THE SCHEDULE, INDICATING A TIME BAR FOR EACH MAJOR CATEGORY OR UNIT OF WORK TO BE PERFORMED AT THE SITE, PROPERLY SEQUENCED AND COORDINATED WITH OTHER ELEMENTS OF WORK AND SHOWING COMPLETION OF THE WORK SUFFICIENTLY IN ADVANCE OF THE DATE ESTABLISHED FOR SUBSTANTIAL COMPLETION OF THE WORK.
3. PRIOR TO COMMENCING CONSTRUCTION, THE OWNER SHALL SCHEDULE AN ON-SITE MEETING WITH ALL MAJOR PARTIES. THIS WOULD INCLUDE, BUT NOT LIMITED TO, THE OWNER, PROJECT MANAGER, CONTRACTOR, LAND OWNER REPRESENTATIVE, LOCAL TELEPHONE COMPANY, TOWER ERECTION FOREMAN (IF SUBCONTRACTED).
4. CONTRACTOR SHALL BE EQUIPPED WITH SOME MEANS OF CONSTANT COMMUNICATIONS, SUCH AS A MOBILE PHONE OR A BEEPER. THIS EQUIPMENT WILL NOT BE SUPPLIED BY THE OWNER, NOR WILL WIRELESS SERVICE BE ARRANGED.
5. DURING CONSTRUCTION, CONTRACTOR MUST ENSURE THAT EMPLOYEES AND SUBCONTRACTORS WEAR HARD HATS AT ALL TIMES. CONTRACTOR WILL COMPLY WITH ALL WPCS SAFETY REQUIREMENTS IN THEIR AGREEMENT.
6. PROVIDE WRITTEN DAILY UPDATES ON SITE PROGRESS TO THE OWNER.
7. COMPLETE INVENTORY OF CONSTRUCTION MATERIALS AND EQUIPMENT IS REQUIRED PRIOR TO START OF CONSTRUCTION.
8. NOTIFY THE OWNER/PROJECT MANAGER IN WRITING NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POURS, TOWER ERECTIONS, AND EQUIPMENT CABINET PLACEMENTS.

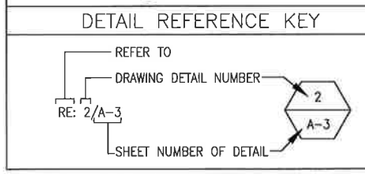
INSURANCE AND BONDS

1. CONTRACTOR, AT THEIR OWN EXPENSE, SHALL CARRY AND MAINTAIN, FOR THE DURATION OF THE PROJECT, ALL INSURANCE, AS REQUIRED AND LISTED, AND SHALL NOT COMMENCE WITH THEIR WORK UNTIL THEY HAVE PRESENTED AN ORIGINAL CERTIFICATE OF INSURANCE STATING ALL COVERAGES TO THE OWNER. REFER TO THE MASTER AGREEMENT FOR REQUIRED INSURANCE LIMITS.
2. THE OWNER SHALL BE NAMED AS AN ADDITIONAL INSURED ON ALL POLICIES.
3. CONTRACTOR MUST PROVIDE PROOF OF INSURANCE.

ARCHITECTURAL SYMBOLS



DETAIL REFERENCE KEY



ABBREVIATIONS

ADJ	ADJUSTABLE
AGL	ABOVE GROUND LINE
&	AND
APPROX	APPROXIMATE
@	AT
BTS	BASE TRANSMISSION STATION
CAB	CABINET
CLG	CEILING
CONC	CONCRETE
CONT	CONTINUOUS
DIA OR ø	DIAMETER
DWG	DRAWING
EA	EACH
ELEC	ELECTRICAL
ELEV	ELEVATION
EQ	EQUAL
EQUIP	EQUIPMENT
EGB	EQUIPMENT GROUND BAR
(E)	EXISTING
EXT	EXTERIOR
FF	FINISHED FLOOR
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GRND	GROUND
LG	LONG
MAX	MAXIMUM
MECH	MECHANICAL
MW	MICROWAVE DISH
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MTL	METAL
(N)	NEW
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OPP	OPPOSITE
(P)	PROPOSED
PCS	PERSONAL COMMUNICATION SYSTEM
PPC	POWER PROTECTION CABINET
SF	SQUARE FOOT
SHT	SHEET
SIM	SIMILAR
SS	STAINLESS STEEL
STL	STEEL
TOC	TOP OF CONCRETE
TOM	TOP OF MASONRY
TYP	TYPICAL
VIF	VERIFY IN FIELD
UON	UNLESS OTHERWISE NOTED
WWF	WELDED WIRE FABRIC
W/	WITH

T-Mobile

T-MOBILE NORTHEAST LLC
103 MONARCH DR
LIVERPOOL, NY 13088

INFINIGY
1033 Watervliet Shaker Rd
Albany, NY 12205
Office # (518) 690-0790
Fax # (518) 690-0793

SUBMITTALS

DATE	DESCRIPTION	REVISION
8/10/15	FOR REVIEW	A
8/25/15	REVISED/FOR PERMIT	0

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

PROJECT NO: 317-000
DRAWN BY: MAP
CHECKED BY: ASW

STATE OF CONNECTICUT
JOHN S. STEVENS
No. 24705
LICENSED PROFESSIONAL ENGINEER

PROFESSIONAL SEAL

NOTE: IF DRAWINGS ARE 22"x34", USE GRAPHICAL SCALE AND/OR 1/2 TIMES OF THE NOTED SCALE.

SITE NUMBER:
CT11821E

SITE NAME:
CT821/D&B FLOWER FARM

668 JONES HILL ROAD
WEST HAVEN, CT 06516

SHEET TITLE

GENERAL AND ELECTRICAL NOTES

SHEET NUMBER

N-1

SHEET 8 OF 8 SHEETS

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	:	**63605321**
Proposed Carrier	:	**T-Mobile**
Carrier Site Name	:	**N/A**
Carrier Site Number	:	**CT11821E**
Site Location	:	**668 Jones Hill Road** **West Haven, CT 06516-6311** **41.256403,-72.972361**
County	:	**New Haven**
Date	:	**September 17, 2015**
Max Usage	:	**97%**
Result	:	**Pass - Pending Modifications**

Reviewed by:
Scott Wirgau, PE
Structural Team Leader

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

Sep 18 2015 4:52 PM

COA: PEC.0001553

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Table of Contents

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 T-Mobile.

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
Modifications	ATC Project #543052310, dated June 10, 2014 (Foundation Not Installed) [Pending] ATC Project #543052315, dated September 15, 2015 [Pending]

Analysis

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

Basic Wind Speed:	90 mph (Fastest Mile)
Basic Wind Speed w/ Ice:	78 mph (Fastest Mile)w/ 1/2" radial ice concurrent
Code:	ANSI/TIA/EIA-222-F / 2003 IBC , Sec. 1609.1.1, Exception (5) & Sec. 3108.4 w/ 2005 CT Supplement & 2009 CT Amendment

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report once the pending modifications have been installed. Failure to install the modifications listed will void the results of this analysis.

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	Clearwire Mount	(6) 5/16" Coax (3) 1/2" Coax (1) 2" Conduit	Clearwire
		1	DragonWave A-ANT-23G-1-C			
		3	NextNet BTS-2500			
		2	DragonWave A-ANT-11G-2-C			
		3	Argus LLPX310R			
	149.0	1	10" x 10" x 6" Junction Box			
143.0	143.0	3	Andrew ETW200VS12UB	Low Profile Platform	(15) 1 5/8" Coax	T-Mobile
		3	Andrew ETW190VS12UB			
		6	RFS APX16PV-16PVL-A			
134.0	134.0	6	RFS FD9R6004/2C-3L	Low Profile Platform	(12) 1 5/8" Coax (1) 1 5/8" Fiber	Verizon
		3	Antel BXA-171063-12BF-EDIN-X			
		3	Antel BXA-185085/12CF ___			
		1	RFS DB-T1-6Z-8AB-0Z			
		3	Andrew DB854DG65ESX			
		3	Commscope LNX-6514DS-A1M			
	132.0	3	Alcatel-Lucent RRH2x40-AWS			
125.0	125.0	6	14" x 9" TTA	Low Profile Platform	(3) 3/8" Coax (12) 1 5/8" Coax (8) 0.76" 8 AWG 6 (2) 0.53" Hybrid Cable	AT&T Mobility
		4	Raycap DC6-48-60-18-8F			
		6	Ericsson RRUS A2			
		3	Ericsson RRUS-11 1900MHz			
		6	Ericsson RRUS-11 800MHz			
		3	Ericsson RRUS-12 1900MHz			
		3	Ericsson RRUS-12 800MHz			
		3	Ericsson RRUS E2 B29			
		3	Ericsson RRUS-32			
		12	CCI HPA-65R-BUU-H8			
111.0	114.0	3	RFS APXV18-206517LS-C	Flush	(6) 1 5/8" Coax	Metro PCS
105.0	105.0	1	Proxim 5054-R-LR	Stand-Off	(2) 1/4" Coax (1) 2" Conduit	Computer Hospital
		1	Pacific Wireless HDDA5W-32-xx			

Equipment to be Removed

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

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
143.0	143.0	3	Kathrein Scala Smart Bias Tee	Low Profile Platform	(3) 1 5/8" Coax	T-Mobile
		3	Andrew LNX-6515DS-VTM			

[1]Mount 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	91%	Pass
Shaft	82%	Pass
Base Plate	60%	Pass
Reinforcement	95%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	3,663.4	97%
Axial (Kips)	48.2	84%
Shear (Kips)	33.5	81%

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

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
149.0	DragonWave A-ANT-23G-1-C	Clearwire	2.214	1.598
	DragonWave A-ANT-11G-2-C			
143.0	Kathrein Smart Bias Tee	T-Mobile	2.047	1.589
	Andrew LNX-6515DS-VTM			
105.0	Pacific Wireless HDDA5W-32-xx	Computer Hospital Inc.	1.109	1.208

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

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Standard Conditions

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

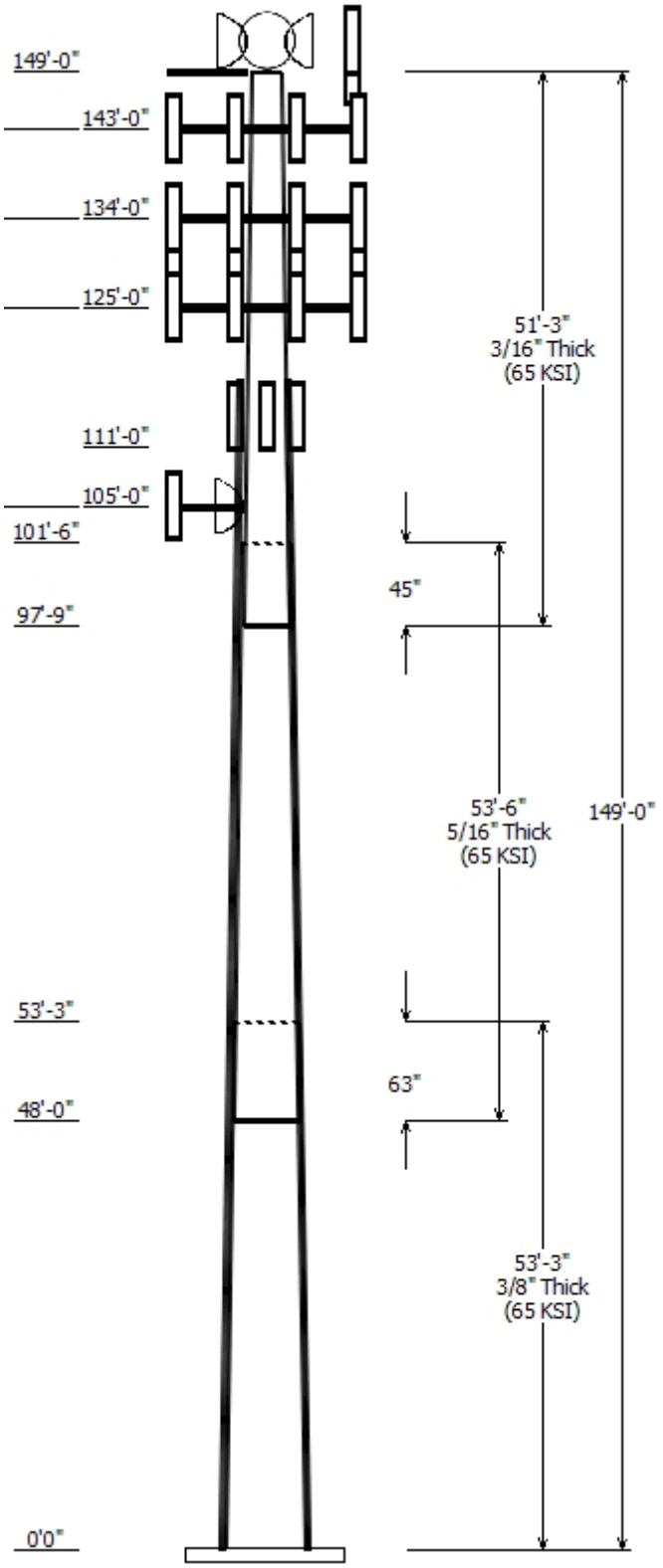
-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

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

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

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

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



Job Information

Pole :	243036 Code: TIA/EIA-222-F
Description :	Tower Model Verified: 12/13/2012
Client :	T-MOBILE
Location :	West Haven & Rt 162 CT, CT
Shape :	18 Sides
Height :	149.00 (ft)
Base Elev (ft):	0.00
Taper:	0.23496 (in/ft)

Sections Properties

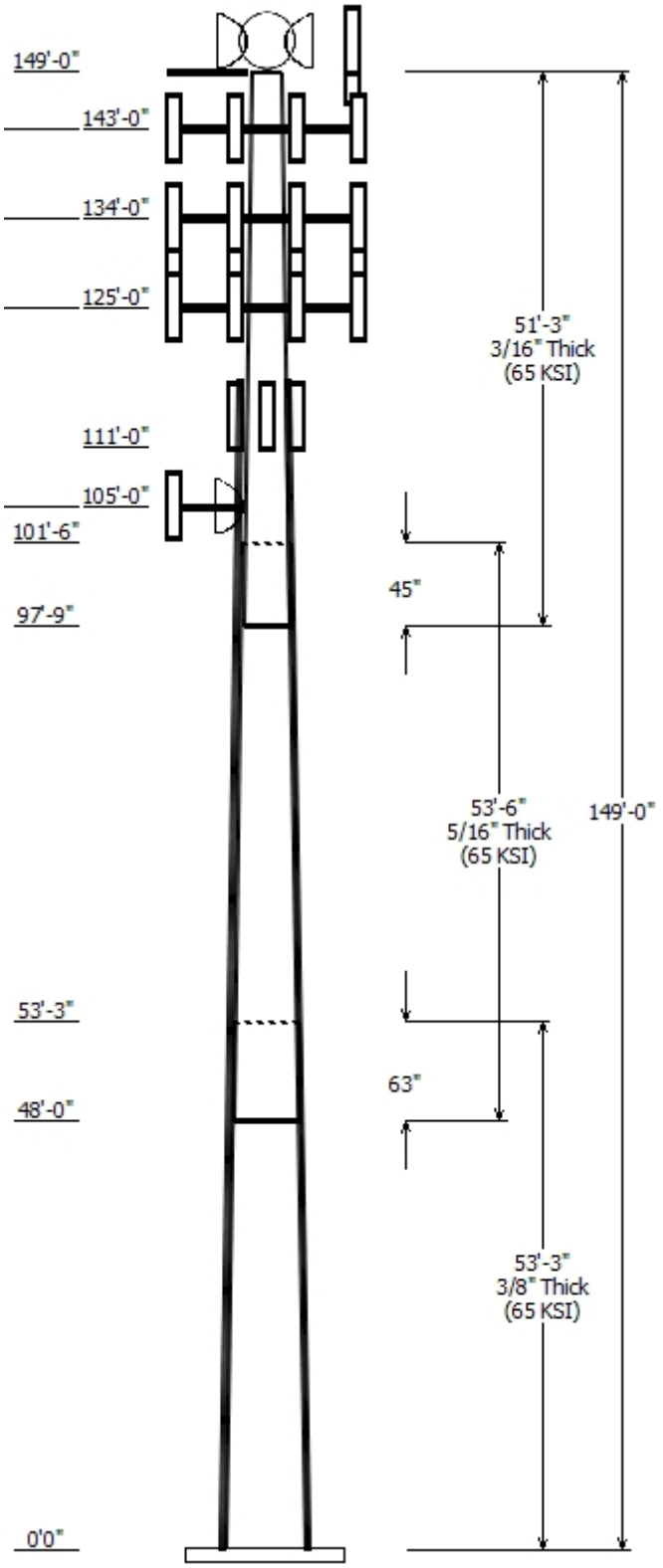
Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)
1	53.250	39.49	52.01	0.375		0.000	0.234965	65
2	53.500	28.78	41.35	0.313	Slip Joint	63.000	0.234965	65
3	51.250	18.00	30.04	0.188	Slip Joint	45.000	0.234965	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
149.000	149.000	1	10" x 10" x 6" Junction Box
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	1	Clearwire Mount
143.000	143.000	3	Kathrein Smart Bias Tee
143.000	143.000	3	Andrew LNX-6515DS-VTM
143.000	143.000	3	Andrew ETW200VS12UB
143.000	143.000	3	Andrew ETW190VS12UB
143.000	143.000	6	RFS APX16PV-16PVL-A
143.000	143.000	1	Flat Low Profile Platform
134.000	134.000	3	Commscope LNX-6514DS-A1M
134.000	134.000	1	RFS DB-T1-6Z-8AB-0Z
134.000	134.000	3	Amphenol Antel BXA-171063-
134.000	132.000	3	Alcatel-Lucent RRH2x40-AWS
134.000	134.000	3	Antel BXA-185085/12CF ___
134.000	134.000	6	RFS FD9R6004/2C-3L
134.000	134.000	1	Round Low Profile Platform
134.000	134.000	3	Andrew DB854DG65ESX
125.000	125.000	12	CCI HPA-65R-BUU-H8
125.000	125.000	3	Ericsson RRUS-32
125.000	125.000	3	Ericsson RRUS E2 B29
125.000	125.000	3	Ericsson RRUS-12 1900 MHz
125.000	125.000	3	Ericsson RRUS-12 800 MHz
125.000	125.000	3	Ericsson RRUS-11 1900 MHz
125.000	125.000	6	Ericsson RRUS-11 800 MHz
125.000	125.000	6	Ericsson RRUS A2
125.000	125.000	1	Flat Low Profile Platform
125.000	125.000	6	14" x 9" TTA
125.000	125.000	4	Raycap DC6-48-60-18-8F
111.000	114.000	3	RFS APXV18-206517LS-C
105.000	105.000	1	Proxim 5054-R-LR
105.000	105.000	1	Pacific Wireless HDDA5W-32-xx
105.000	105.000	1	Stand-Off

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
4.000	125.0	0.53" Hybrid Cable	No
4.000	125.0	0.76" 8 AWG 6	No
4.000	125.0	1 5/8" Coax	No



4.000	125.0	3/8" Coax	No
4.000	134.0	1 5/8" Coax	No
4.000	134.0	1 5/8" Fiber	No
4.000	143.0	1 5/8" Coax	No
4.000	143.0	1 5/8" Coax	No
4.000	149.0	1/2" Coax	No
4.000	149.0	2" Conduit	No
4.000	149.0	5/16" Coax	No
4.000	105.0	1/4" Coax	No
4.000	105.0	2" Conduit	No
4.000	111.0	1 5/8" Coax	No
0.000	122.5	Dywidag	Yes

Load Cases

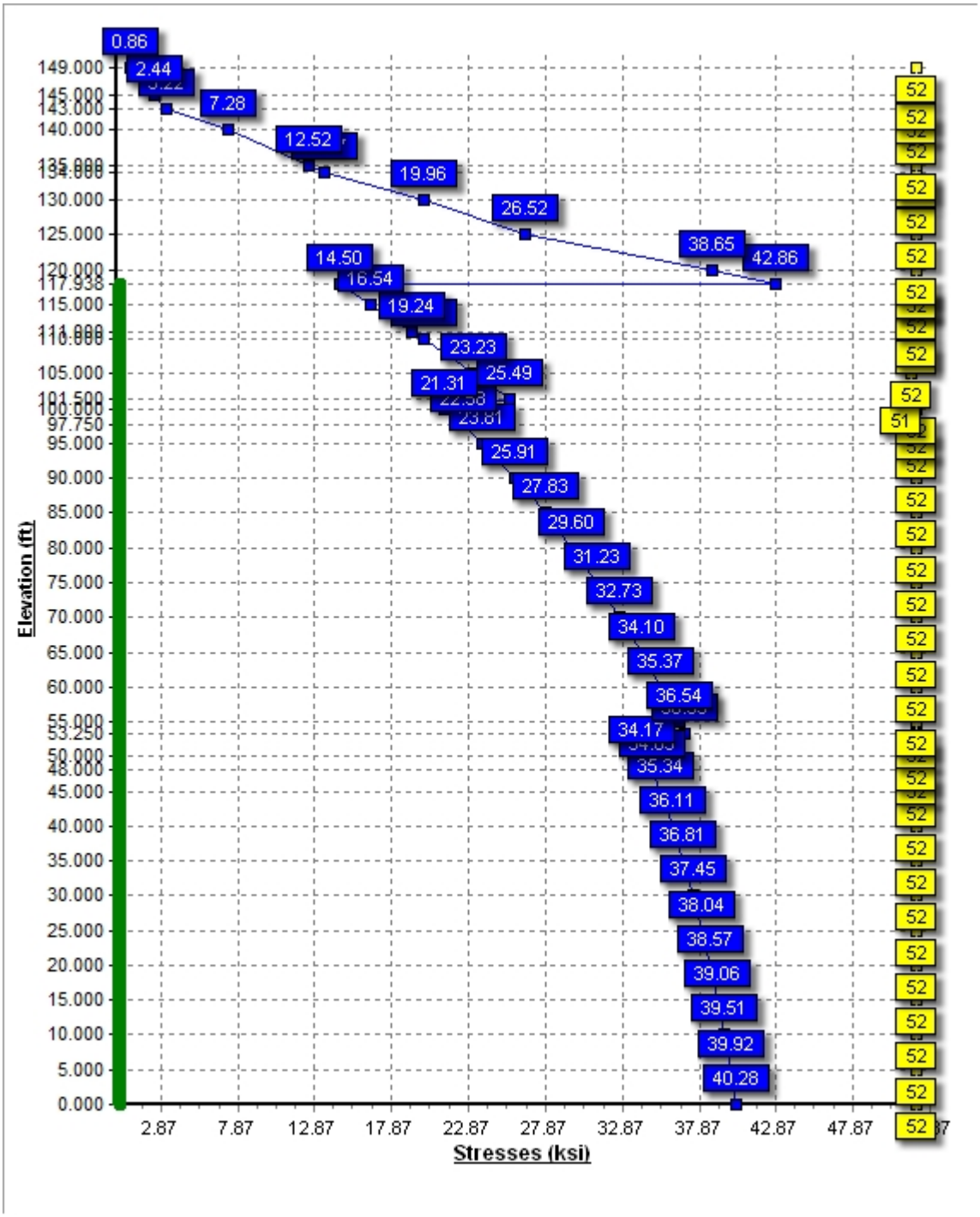
No Ice	90.00 mph Wind with No Ice
Ice	77.94 mph Wind with Ice
Twist/Sway	50.00 mph Wind with No Ice

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
No Ice	3663.38	33.54	41.92
Ice	3068.87	27.57	48.18
Twist/Sway	1131.76	10.35	41.96

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
Twist/Sway	105.00	13.303	1.208
Twist/Sway	149.00	26.568	1.598
Twist/Sway	149.00	26.568	1.598


Elevation (ft)
Stresses (ksi)
0.86
2.44
7.28
12.52
19.96
26.52
38.65
42.86
14.50
16.54
19.24
23.23
25.49
21.31
25.91
27.83
29.60
31.23
32.73
34.10
35.37
36.54
34.17
35.34
36.11
36.81
37.45
38.04
38.57
39.06
39.51
39.92
40.28
52
51

Site Number:	**243036**	**Code: TIA/EIA-222-F**	
Site Name:	**West Haven & Rt 162 CT, CT**	**Engineering Number: 63605321**	**9/17/2015 1:02:51 PM**
Customer:	**T-MOBILE**		

Analysis Parameters

Location:	**New Haven County, CT**		
Code:	**TIA/EIA-222-F**	**Height (ft):**	**149**
Shape:	**18 Sides**	**Base Diameter (in):**	**52.01**
Pole Type:	**Taper**	**Top Diameter (in):**	**18.00**
Pole Manfacturer:	**Sabre**	**Taper (in/ft) :**	**0.235**

Load Cases

No Ice	**90.00 mph Wind with No Ice**
Ice	**77.94 mph Wind with Ice**
Twist/Sway	**50.00 mph Wind with No Ice**

Site Number: 243036 Code: TIA/EIA-222-F

Site Name: West Haven & Rt 162 CT, CT Engineering Number: 63605321 9/17/2015 1:02:51 PM

Customer: T-MOBILE

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top 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	9004.6	17.16	105.33	0.234965
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	0.234965
3-18	51.250	0.1875	65	Slip	45.00	2,473	30.04	97.75	17.77	2000.6	26.84	160.22	18.00	149.00	10.60	424.9	15.52	96.00	0.234965
				Shaft Weight		18,536													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor	Distance From Face (ft)	Vert Ecc (ft)
149.00	10" x 10" x 6" Junction Box	1	30.00	0.970	0.50	38.00	1.180	0.50	0.000	0.000
149.00	Argus LLPX310R	3	28.60	4.830	0.62	54.50	5.360	0.62	0.000	2.000
149.00	Clearwire Mount	1	500.00	8.500	0.90	50.00	10.500	0.90	0.000	0.000
149.00	DragonWave A-ANT-11G-2-C	2	27.00	4.690	0.90	55.10	5.050	0.90	0.000	2.000
149.00	DragonWave A-ANT-23G-1-C	1	15.00	1.610	0.90	25.10	1.830	0.90	0.000	2.000
149.00	DragonWave Horizon	3	10.60	0.430	0.50	17.00	0.580	0.50	0.000	2.000
149.00	NextNet BTS-2500	3	35.00	2.120	0.50	48.30	2.430	0.50	0.000	2.000
143.00	Andrew ETW190VS12UB	3	11.00	0.760	0.50	16.30	0.760	0.50	0.000	0.000
143.00	Andrew ETW200VS12UB	3	11.00	0.470	0.50	14.52	0.620	0.50	0.000	0.000
143.00	Andrew LNX-6515DS-VTM	3	51.30	11.430	0.70	117.10	12.360	0.70	0.000	0.000
143.00	Flat Low Profile Platform	1	1500.00	26.100	1.00	1,700.00	31.600	1.00	0.000	0.000
143.00	Kathrein Smart Bias Tee	3	3.31	0.090	0.50	4.30	0.160	0.50	0.000	0.000
143.00	RFS APX16PV-16PVL-A	6	39.60	6.650	0.59	70.65	7.298	0.59	0.000	0.000
134.00	Alcatel-Lucent RRH2x40-AWS	3	44.00	2.520	0.50	61.40	2.870	0.50	0.000	-2.000
134.00	Amphenol Antel BXA-171063-	3	15.00	4.730	0.72	42.40	5.450	0.72	0.000	0.000
134.00	Andrew DB854DG65ESX	3	18.50	5.830	0.63	52.21	6.497	0.63	0.000	0.000
134.00	Antel BXA-185085/12CF___	3	13.00	4.790	0.72	40.46	5.470	0.72	0.000	0.000
134.00	Commscope LNX-6514DS-	3	38.80	8.410	0.69	89.30	9.240	0.69	0.000	0.000
134.00	RFS DB-T1-6Z-8AB-0Z	1	44.00	5.600	0.67	144.50	6.080	0.67	0.000	0.000
134.00	RFS FD9R6004/2C-3L	6	2.60	0.370	0.50	5.40	0.500	0.50	0.000	0.000
134.00	Round Low Profile Platform	1	1500.00	21.700	0.90	1,700.00	27.200	0.90	0.000	0.000
125.00	14" x 9" TTA	6	10.00	1.230	0.33	18.00	1.460	0.33	0.000	0.000
125.00	CCI HPA-65R-BUU-H8	12	68.00	13.290	0.66	141.77	14.350	0.66	0.000	0.000
125.00	Ericsson RRUS A2	6	15.00	1.870	0.50	25.40	2.150	0.50	0.000	0.000
125.00	Ericsson RRUS E2 B29	3	60.00	3.670	0.50	66.50	4.070	0.50	0.000	0.000
125.00	Ericsson RRUS-11 1900 MHz	3	44.00	2.940	0.50	63.30	3.290	0.50	0.000	0.000
125.00	Ericsson RRUS-11 800 MHz	6	54.00	2.940	0.50	75.64	3.290	0.50	0.000	0.000
125.00	Ericsson RRUS-12 1900 MHz	3	60.00	3.150	0.50	81.20	3.510	0.50	0.000	0.000
125.00	Ericsson RRUS-12 800 MHz	3	60.00	3.150	0.50	81.20	3.510	0.50	0.000	0.000
125.00	Ericsson RRUS-32	3	77.00	3.870	0.50	104.90	4.300	0.50	0.000	0.000
125.00	Flat Low Profile Platform	1	1500.00	26.100	0.90	1,700.00	31.600	0.90	0.000	0.000
125.00	Raycap DC6-48-60-18-8F	4	31.80	1.470	0.50	49.50	1.670	0.50	0.000	0.000
111.00	RFS APXV18-206517LS-C	3	22.00	5.020	0.68	53.13	5.850	0.68	0.000	3.000
105.00	Pacific Wireless HDDA5W-32-	1	22.00	12.090	1.00	57.70	12.760	1.00	0.000	0.000
105.00	Proxim 5054-R-LR	1	6.00	1.540	0.50	10.00	2.000	0.50	0.000	0.000
105.00	Stand-Off	1	50.00	1.000	1.00	100.00	3.000	1.00	0.000	0.000
	Totals	112	8700.73			11,729.32			Number of Loadings :	36

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	No Ice Weight (lb/ft)	No Ice CaAa (sf/ft)	Ice Weight (lb/ft)	Ice CaAa (sf/ft)	Exposed To Wind
4.00	149.00	3	1/2" Coax	0.45	0.00	0.00	0.00	N
4.00	149.00	1	2" Conduit	3.65	0.00	0.00	0.00	N
4.00	149.00	6	5/16" Coax	0.30	0.00	0.00	0.00	N

4.00	143.00	15	1 5/8" Coax	12.30	0.00	0.00	0.00	N
4.00	143.00	3	1 5/8" Coax	2.46	0.00	0.00	0.00	N
4.00	134.00	12	1 5/8" Coax	9.84	0.00	0.00	0.00	N
4.00	134.00	1	1 5/8" Fiber	1.61	0.00	0.00	0.00	N
4.00	125.00	2	0.53" Hybrid Cable	0.30	0.00	0.00	0.00	N
4.00	125.00	8	0.76" 8 AWG 6	4.24	0.00	0.00	0.00	N
4.00	125.00	12	1 5/8" Coax	9.84	0.17	0.00	0.25	N
4.00	125.00	3	3/8" Coax	0.24	0.00	0.00	0.00	N
0.00	122.50	4	Dywidag	0.00	0.40	0.00	0.45	Y
4.00	111.00	6	1 5/8" Coax	4.92	0.00	0.00	0.00	N
4.00	105.00	2	1/4" Coax	0.12	0.00	0.00	0.00	N
4.00	105.00	1	2" Conduit	3.65	0.00	0.00	0.00	N
			Total Weight	6,854.37 (lb)		0.00 (lb)		

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	— Intermediate Connections — Description	Spacing (in)	Len (in)	Connectors	Continuation?
0.00	117.9	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	No

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Fa (ksi)	Weight (lb)	Additional Reinforcing Area (in^2)	Additional Reinforcing Ix (in^4)	Additional Reinforcing Weight (lb)
0.00		0.3750	52.010	61.456	20,701.4	23.04	138.69	65	52	0	0.0	19.64	8,521	0.0
5.00		0.3750	50.835	60.058	19,320.3	22.49	135.56	65	52	0	1,033.7	19.64	8,185	334.0
10.00		0.3750	49.660	58.659	18,002.0	21.94	132.43	65	52	0	1,009.9	19.64	7,855	334.0
15.00		0.3750	48.485	57.261	16,745.1	21.39	129.29	65	52	0	986.1	19.64	7,533	334.0
20.00		0.3750	47.310	55.863	15,548.1	20.83	126.16	65	52	0	962.3	19.64	7,217	334.0
25.00		0.3750	46.136	54.465	14,409.5	20.28	123.03	65	52	0	938.5	19.64	6,907	334.0
30.00		0.3750	44.961	53.066	13,328.0	19.73	119.90	65	52	0	914.8	19.64	6,605	334.0
35.00		0.3750	43.786	51.668	12,301.9	19.18	116.76	65	52	0	891.0	19.64	6,309	334.0
40.00		0.3750	42.611	50.270	11,329.9	18.63	113.63	65	52	0	867.2	19.64	6,020	334.0
45.00		0.3750	41.436	48.871	10,410.5	18.07	110.50	65	52	0	843.4	19.64	5,738	334.0
48.00	Bot - Section 2	0.3750	40.731	48.032	9,883.5	17.74	108.62	65	52	0	494.6	19.64	5,572	200.4
50.00		0.3750	40.261	47.473	9,542.3	17.52	107.36	65	52	0	600.4	19.64	5,609	133.6
53.25	Top - Section 1	0.3125	40.123	39.485	7,906.4	21.23	128.39	65	52	0	960.8	19.64	5,431	217.1
55.00		0.3125	39.712	39.078	7,664.0	21.00	127.08	65	52	0	233.9	19.64	5,336	116.9
60.00		0.3125	38.537	37.912	6,998.6	20.33	123.32	65	52	0	654.9	19.64	5,071	334.0
65.00		0.3125	37.362	36.747	6,372.9	19.67	119.56	65	52	0	635.1	19.64	4,813	334.0
70.00		0.3125	36.187	35.582	5,785.7	19.01	115.80	65	52	0	615.3	19.64	4,561	334.0
75.00		0.3125	35.012	34.417	5,235.7	18.34	112.04	65	52	0	595.5	19.64	4,316	334.0
80.00		0.3125	33.837	33.251	4,721.7	17.68	108.28	65	52	0	575.6	19.64	4,077	334.0
85.00		0.3125	32.663	32.086	4,242.5	17.02	104.52	65	52	0	555.8	19.64	3,846	334.0
90.00		0.3125	31.488	30.921	3,796.9	16.36	100.76	65	52	0	536.0	19.64	3,621	334.0
95.00		0.3125	30.313	29.756	3,383.6	15.69	97.00	65	52	0	516.2	19.64	3,403	334.0
97.75	Bot - Section 3	0.3125	29.667	29.115	3,169.7	15.33	94.93	65	52	0	275.4	19.64	3,286	183.7
100.0		0.3125	29.138	28.590	3,001.5	15.03	93.24	65	52	0	355.7	19.64	3,259	150.3
101.5	Top - Section 2	0.1875	29.161	17.242	1,828.7	26.01	155.52	65	51	0	233.6	19.64	3,196	100.2
105.0		0.1875	28.338	16.753	1,677.3	25.24	151.14	65	52	0	202.4	19.64	3,052	233.8
110.0		0.1875	27.164	16.054	1,476.0	24.13	144.87	65	52	0	279.1	19.64	2,852	334.0
111.0		0.1875	26.929	15.914	1,437.7	23.91	143.62	65	52	0	54.4	19.64	2,813	66.8
115.0		0.1875	25.989	15.354	1,291.4	23.03	138.61	65	52	0	212.8	19.64	2,659	267.2
117.9	Reinf. Top	0.1875	25.298	14.944	1,190.5	22.38	134.92	65	52	0	151.5	19.64	2,549	196.3
120.0		0.1875	24.814	14.655	1,122.9	21.92	132.34	65	52	0	103.8			
125.0		0.1875	23.639	13.956	969.8	20.82	126.08	65	52	0	243.4			
130.0		0.1875	22.464	13.257	831.2	19.71	119.81	65	52	0	231.5			
134.0		0.1875	21.524	12.698	730.4	18.83	114.80	65	52	0	176.6			
135.0		0.1875	21.289	12.558	706.5	18.61	113.54	65	52	0	43.0			
140.0		0.1875	20.115	11.859	594.9	17.51	107.28	65	52	0	207.7			
143.0		0.1875	19.410	11.439	534.0	16.84	103.52	65	52	0	118.9			
145.0		0.1875	18.940	11.160	495.8	16.40	101.01	65	52	0	76.9			
149.0		0.1875	18.000	10.600	424.9	15.52	96.00	65	52	0	148.1			
											18,536.1			7,878.2

Load Case: No Ice — 90.00 mph Wind with No Ice — 23 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	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		244.0	0.0					0.0	0.0	244.0	0.0	0.0	0.0
5.00		482.5	1,033.7					70.1	387.9	552.6	1,421.6	0.0	0.0
10.00		471.3	1,009.9					70.1	603.6	541.4	1,613.5	0.0	0.0
15.00		460.2	986.1					70.1	603.6	530.3	1,589.7	0.0	0.0
20.00		449.0	962.3					70.1	603.6	519.1	1,565.9	0.0	0.0
25.00		437.9	938.5					70.1	603.6	508.0	1,542.1	0.0	0.0
30.00		426.7	914.8					70.1	603.6	496.8	1,518.4	0.0	0.0
35.00		423.2	891.0					70.1	603.6	493.3	1,494.6	0.0	0.0
40.00		427.0	867.2					72.7	603.6	499.7	1,470.8	0.0	0.0
45.00		343.4	843.4					75.3	603.6	418.7	1,447.0	0.0	0.0
48.00	Bot - Section 2	216.4	494.6					46.4	362.2	262.8	856.8	0.0	0.0
50.00		229.4	600.4					31.4	241.4	260.8	841.9	0.0	0.0
53.25	Top - Section 1	218.3	960.8					51.8	392.3	270.1	1,353.2	0.0	0.0
55.00		294.0	233.9					28.3	211.3	322.2	445.2	0.0	0.0
60.00		433.7	654.9					82.1	603.6	515.9	1,258.5	0.0	0.0
65.00		430.2	635.1					84.1	603.6	514.4	1,238.7	0.0	0.0
70.00		425.6	615.3					86.0	603.6	511.6	1,218.9	0.0	0.0
75.00		420.0	595.5					87.8	603.6	507.8	1,199.1	0.0	0.0
80.00		413.5	575.6					89.5	603.6	503.0	1,179.2	0.0	0.0
85.00		406.1	555.8					91.1	603.6	497.2	1,159.4	0.0	0.0
90.00		398.0	536.0					92.6	603.6	490.6	1,139.6	0.0	0.0
95.00		303.2	516.2					94.1	603.6	397.3	1,119.8	0.0	0.0
97.75	Bot - Section 3	193.3	275.4					52.4	332.0	245.7	607.4	0.0	0.0
100.00		144.5	355.7					43.2	271.6	187.6	627.3	0.0	0.0
101.50	Top - Section 2	189.7	233.6					28.9	181.1	218.7	414.7	0.0	0.0
105.00	Appertunance(s)	316.8	202.4	676.1	0.0	0.0	78.0	68.0	422.5	1,060.9	703.0	0.0	0.0
110.00		220.8	279.1					98.2	584.7	319.0	863.8	0.0	0.0
111.00	Appertunance(s)	179.0	54.4	511.4	0.0	1,534.2	66.0	19.8	116.9	710.2	237.3	0.0	0.0
115.00		245.3	212.8					79.7	448.1	325.0	660.9	0.0	0.0
117.94	Reinf. Top	173.3	151.5					59.0	329.1	232.3	480.6	0.0	0.0
120.00		238.0	103.8					41.7	93.3	279.7	197.1	0.0	0.0
125.00	Appertunance(s)	328.2	243.4	8,906.8	0.0	0.0	3,820.2	51.0	226.2	9,286.0	4,289.7	0.0	0.0
130.00		285.0	231.5					0.0	153.1	285.0	384.6	0.0	0.0
134.00	Appertunance(s)	154.4	176.6	4,034.7	0.0	-393.7	1,947.5	0.0	122.4	4,189.1	2,246.6	0.0	0.0
135.00		178.1	43.0					0.0	19.2	178.1	62.1	0.0	0.0
140.00		233.0	207.7					0.0	95.8	233.0	303.5	0.0	0.0
143.00	Appertunance(s)	140.7	118.9	4,029.2	0.0	0.0	1,967.4	0.0	57.5	4,170.0	2,143.8	0.0	0.0
145.00		162.9	76.9					0.0	8.8	162.9	85.7	0.0	0.0
149.00	Appertunance(s)	107.5	148.1	1,666.9	0.0	2,456.8	821.6	0.0	17.6	1,774.4	987.3	0.0	0.0
								Totals:		33,714.9	41,969.4	0.00	0.00

Site Number: 243036 Code: TIA/EIA-222-F

Site Name: West Haven & Rt 162 CT, CT Engineering Number: 63605321 9/17/2015 1:02:54 PM

Customer: T-MOBILE

Load Case: No Ice 90.00 mph Wind with No Ice 23 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Shaft Forces and Deflections

Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	-33.536	-41.917	0.000	0.000	0.000	-3,663.379	0.000	0.000	0.000	0.000
5.00	-33.105	-40.395	0.000	0.000	0.000	-3,495.702	-0.094	0.000	0.094	-0.174
10.00	-32.676	-38.683	0.000	0.000	0.000	-3,330.179	-0.372	0.000	0.372	-0.351
15.00	-32.250	-36.996	0.000	0.000	0.000	-3,166.800	-0.836	0.000	0.836	-0.529
20.00	-31.826	-35.335	0.000	0.000	0.000	-3,005.552	-1.488	0.000	1.488	-0.710
25.00	-31.405	-33.700	0.000	0.000	0.000	-2,846.422	-2.331	0.000	2.331	-0.893
30.00	-30.986	-32.090	0.000	0.000	0.000	-2,689.399	-3.366	0.000	3.366	-1.078
35.00	-30.562	-30.506	0.000	0.000	0.000	-2,534.470	-4.596	0.000	4.596	-1.264
40.00	-30.123	-28.949	0.000	0.000	0.000	-2,381.660	-6.021	0.000	6.021	-1.452
45.00	-29.738	-27.435	0.000	0.000	0.000	-2,231.046	-7.644	0.000	7.644	-1.641
48.00	-29.495	-26.537	0.000	0.000	0.000	-2,141.832	-8.713	0.000	8.713	-1.757
50.00	-29.253	-25.652	0.000	0.000	0.000	-2,082.843	-9.467	0.000	9.467	-1.835
53.25	-28.979	-24.260	0.000	0.000	0.000	-1,987.772	-10.759	0.000	10.759	-1.959
55.00	-28.699	-23.757	0.000	0.000	0.000	-1,937.059	-11.490	0.000	11.490	-2.026
60.00	-28.216	-22.419	0.000	0.000	0.000	-1,793.568	-13.723	0.000	13.723	-2.230
65.00	-27.726	-21.104	0.000	0.000	0.000	-1,652.490	-16.169	0.000	16.169	-2.434
70.00	-27.231	-19.814	0.000	0.000	0.000	-1,513.860	-18.827	0.000	18.827	-2.635
75.00	-26.730	-18.549	0.000	0.000	0.000	-1,377.708	-21.694	0.000	21.694	-2.834
80.00	-26.226	-17.309	0.000	0.000	0.000	-1,244.059	-24.767	0.000	24.767	-3.029
85.00	-25.719	-16.094	0.000	0.000	0.000	-1,112.931	-28.042	0.000	28.042	-3.219
90.00	-25.211	-14.905	0.000	0.000	0.000	-984.337	-31.513	0.000	31.513	-3.404
95.00	-24.778	-13.754	0.000	0.000	0.000	-858.285	-35.173	0.000	35.173	-3.580
97.75	-24.514	-13.127	0.000	0.000	0.000	-790.146	-37.264	0.000	37.264	-3.675
100.0	-24.300	-12.486	0.000	0.000	0.000	-734.991	-39.014	0.000	39.014	-3.751
101.5	-24.071	-12.054	0.000	0.000	0.000	-698.542	-40.200	0.000	40.200	-3.800
105.0	-22.993	-11.367	0.000	0.000	0.000	-614.295	-43.026	0.000	43.026	-3.907
110.0	-22.632	-10.489	0.000	0.000	0.000	-499.331	-47.211	0.000	47.211	-4.075
111.0	-21.921	-10.275	0.000	0.000	0.000	-475.164	-48.068	0.000	48.068	-4.107
115.0	-21.564	-9.603	0.000	0.000	0.000	-387.483	-51.560	0.000	51.560	-4.222
117.9	-21.307	-9.119	0.000	0.000	0.000	-324.127	-54.183	0.000	54.183	-4.298
120.0	-21.041	-8.878	0.000	0.000	0.000	-280.193	-56.050	0.000	56.050	-4.345
125.0	-11.469	-5.282	0.000	0.000	0.000	-174.992	-60.764	0.000	60.764	-4.633
130.0	-11.168	-4.889	0.000	0.000	0.000	-117.648	-65.733	0.000	65.733	-4.848
134.0	-6.805	-3.001	0.000	0.000	0.000	-72.977	-69.851	0.000	69.851	-4.978
135.0	-6.626	-2.947	0.000	0.000	0.000	-66.172	-70.896	0.000	70.896	-5.005
140.0	-6.370	-2.658	0.000	0.000	0.000	-33.042	-76.191	0.000	76.191	-5.105
143.0	-2.026	-0.895	0.000	0.000	0.000	-13.932	-79.408	0.000	79.408	-5.139
145.0	-1.856	-0.824	0.000	0.000	0.000	-9.881	-81.560	0.000	81.560	-5.152
149.0	-1.774	0.000	0.000	0.000	0.000	-2.457	-85.878	0.000	85.878	-5.166

Site Number:	**243036**	**Code: TIA/EIA-222-F**	
Site Name:	**West Haven & Rt 162 CT, CT**	**Engineering Number: 63605321**	**9/17/2015 1:02:54 PM**
Customer:	**T-MOBILE**		

Load Case: **No Ice** **90.00 mph Wind with No Ice** **23 Iterations**

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Stresses

Seg Elev (ft)	Applied Stresses							Allowable Stress (Fb) (ksi)	Allowable Stress (Fa) (ksi)	Stress Ratio
	Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)			
0.00	0.52	1.10	0.00	0.00	0.00	39.72	40.28	52.0	0.0	0.775
5.00	0.51	1.11	0.00	0.00	0.00	39.36	39.92	52.0	0.0	0.768
10.00	0.49	1.12	0.00	0.00	0.00	38.97	39.51	52.0	0.0	0.760
15.00	0.48	1.14	0.00	0.00	0.00	38.53	39.06	52.0	0.0	0.751
20.00	0.47	1.15	0.00	0.00	0.00	38.05	38.57	52.0	0.0	0.742
25.00	0.45	1.16	0.00	0.00	0.00	37.53	38.04	52.0	0.0	0.732
30.00	0.44	1.18	0.00	0.00	0.00	36.96	37.45	52.0	0.0	0.721
35.00	0.43	1.19	0.00	0.00	0.00	36.33	36.81	52.0	0.0	0.708
40.00	0.41	1.21	0.00	0.00	0.00	35.64	36.11	52.0	0.0	0.695
45.00	0.40	1.23	0.00	0.00	0.00	34.88	35.34	52.0	0.0	0.680
48.00	0.39	1.24	0.00	0.00	0.00	34.39	34.85	52.0	0.0	0.670
50.00	0.38	1.24	0.00	0.00	0.00	33.72	34.17	52.0	0.0	0.657
53.25	0.41	1.48	0.00	0.00	0.00	36.43	36.93	52.0	0.0	0.710
55.00	0.40	1.48	0.00	0.00	0.00	36.05	36.54	52.0	0.0	0.703
60.00	0.39	1.50	0.00	0.00	0.00	34.89	35.37	52.0	0.0	0.681
65.00	0.37	1.52	0.00	0.00	0.00	33.63	34.10	52.0	0.0	0.656
70.00	0.36	1.54	0.00	0.00	0.00	32.26	32.73	52.0	0.0	0.630
75.00	0.34	1.57	0.00	0.00	0.00	30.77	31.23	52.0	0.0	0.601
80.00	0.33	1.59	0.00	0.00	0.00	29.15	29.60	52.0	0.0	0.569
85.00	0.31	1.62	0.00	0.00	0.00	27.38	27.83	52.0	0.0	0.535
90.00	0.29	1.64	0.00	0.00	0.00	25.45	25.91	52.0	0.0	0.498
95.00	0.28	1.68	0.00	0.00	0.00	23.35	23.81	52.0	0.0	0.458
97.75	0.27	1.70	0.00	0.00	0.00	22.12	22.58	52.0	0.0	0.434
100.00	0.26	1.71	0.00	0.00	0.00	20.84	21.31	52.0	0.0	0.410
101.50	0.33	2.81	0.00	0.00	0.00	24.70	25.49	51.0	0.0	0.500
105.00	0.31	2.77	0.00	0.00	0.00	22.42	23.23	51.6	0.0	0.450
110.00	0.29	2.84	0.00	0.00	0.00	19.09	20.00	52.0	0.0	0.385
111.00	0.29	2.78	0.00	0.00	0.00	18.34	19.24	52.0	0.0	0.370
115.00	0.27	2.83	0.00	0.00	0.00	15.53	16.54	52.0	0.0	0.318
117.94	0.26	2.87	0.00	0.00	0.00	13.36	14.50	52.0	0.0	0.279
117.94	0.61	2.87	0.00	0.00	0.00	41.96	42.86	52.0	0.0	0.825
120.00	0.61	2.89	0.00	0.00	0.00	37.72	38.65	52.0	0.0	0.744
125.00	0.38	1.66	0.00	0.00	0.00	25.99	26.52	52.0	0.0	0.510
130.00	0.37	1.70	0.00	0.00	0.00	19.37	19.96	52.0	0.0	0.384
134.00	0.24	1.08	0.00	0.00	0.00	13.10	13.47	52.0	0.0	0.259
135.00	0.23	1.06	0.00	0.00	0.00	12.15	12.52	52.0	0.0	0.241
140.00	0.22	1.08	0.00	0.00	0.00	6.81	7.28	52.0	0.0	0.140
143.00	0.08	0.36	0.00	0.00	0.00	3.09	3.22	52.0	0.0	0.062
145.00	0.07	0.34	0.00	0.00	0.00	2.30	2.44	52.0	0.0	0.047
149.00	0.00	0.34	0.00	0.00	0.00	0.63	0.86	52.0	0.0	0.017

Load Case: Ice — 77.94 mph Wind with Ice — 23 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	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		186.6	0.0					0.0	0.0	186.6	0.0	0.0	0.0
5.00		369.0	1,192.1					59.1	387.9	428.1	1,580.0	0.0	0.0
10.00		360.6	1,164.7					59.1	603.6	419.7	1,768.3	0.0	0.0
15.00		352.2	1,137.3					59.1	603.6	411.4	1,740.9	0.0	0.0
20.00		343.9	1,109.9					59.1	603.6	403.0	1,713.5	0.0	0.0
25.00		335.5	1,082.5					59.1	603.6	394.6	1,686.1	0.0	0.0
30.00		327.1	1,055.0					59.1	603.6	386.3	1,658.6	0.0	0.0
35.00		324.6	1,027.6					59.1	603.6	383.8	1,631.2	0.0	0.0
40.00		327.7	1,000.2					61.3	603.6	389.1	1,603.8	0.0	0.0
45.00		263.7	972.8					63.6	603.6	327.3	1,576.4	0.0	0.0
48.00	Bot - Section 2	166.2	571.0					39.1	362.2	205.4	933.1	0.0	0.0
50.00		176.2	651.5					26.5	241.4	202.7	893.0	0.0	0.0
53.25	Top - Section 1	167.8	1,042.3					43.7	392.3	211.5	1,434.7	0.0	0.0
55.00		226.1	277.3					23.8	211.3	249.9	488.6	0.0	0.0
60.00		333.7	775.4					69.3	603.6	403.0	1,379.0	0.0	0.0
65.00		331.3	752.0					71.0	603.6	402.3	1,355.6	0.0	0.0
70.00		328.0	728.5					72.5	603.6	400.6	1,332.1	0.0	0.0
75.00		324.0	705.1					74.0	603.6	398.1	1,308.7	0.0	0.0
80.00		319.3	681.6					75.5	603.6	394.7	1,285.2	0.0	0.0
85.00		313.9	658.2					76.8	603.6	390.7	1,261.8	0.0	0.0
90.00		307.9	634.7					78.1	603.6	386.1	1,238.3	0.0	0.0
95.00		234.8	611.3					79.4	603.6	314.2	1,214.9	0.0	0.0
97.75	Bot - Section 3	149.8	326.6					44.2	332.0	194.0	658.6	0.0	0.0
100.00		112.0	397.4					36.4	271.6	148.4	669.0	0.0	0.0
101.50	Top - Section 2	147.2	261.0					24.4	181.1	171.6	442.1	0.0	0.0
105.00	Appertunance(s)	246.1	264.7	613.1	0.0	0.0	167.7	57.3	422.5	916.5	854.9	0.0	0.0
110.00		171.6	364.4					82.9	584.7	254.4	949.2	0.0	0.0
111.00	Appertunance(s)	139.3	71.3	447.0	0.0	1,340.9	159.4	16.7	116.9	603.0	347.7	0.0	0.0
115.00		191.0	278.2					67.2	448.1	258.3	726.3	0.0	0.0
117.94	Reinf. Top	135.1	198.2					49.8	329.1	184.9	527.4	0.0	0.0
120.00		185.8	136.1					35.2	93.3	220.9	229.3	0.0	0.0
125.00	Appertunance(s)	256.5	317.9	7,408.0	0.0	0.0	5,504.8	43.0	226.2	7,707.6	6,048.8	0.0	0.0
130.00		223.2	302.4					0.0	153.1	223.2	455.4	0.0	0.0
134.00	Appertunance(s)	121.1	231.0	3,503.8	0.0	-336.3	2,734.2	0.0	122.4	3,625.0	3,087.7	0.0	0.0
135.00		139.9	56.4					0.0	19.2	139.9	75.6	0.0	0.0
140.00		183.3	271.3					0.0	95.8	183.3	367.1	0.0	0.0
143.00	Appertunance(s)	111.0	155.8	3,424.4	0.0	0.0	2,580.5	0.0	57.5	3,535.3	2,793.8	0.0	0.0
145.00		128.7	100.9					0.0	8.8	128.7	109.7	0.0	0.0
149.00	Appertunance(s)	84.9	193.8	1,429.5	0.0	2,047.2	582.7	0.0	17.6	1,514.4	794.1	0.0	0.0
								Totals:		27,698.4	48,220.2	0.00	0.00

Load Case: Ice — 77.94 mph Wind with Ice — 23 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Shaft Forces and Deflections

Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	-27.575	-48.184	0.000	0.000	0.000	-3,068.873	0.000	0.000	0.000	0.000
5.00	-27.264	-46.535	0.000	0.000	0.000	-2,931.002	-0.079	0.000	0.079	-0.146
10.00	-26.954	-44.698	0.000	0.000	0.000	-2,794.684	-0.312	0.000	0.312	-0.294
15.00	-26.645	-42.890	0.000	0.000	0.000	-2,659.917	-0.701	0.000	0.701	-0.444
20.00	-26.336	-41.110	0.000	0.000	0.000	-2,526.697	-1.248	0.000	1.248	-0.596
25.00	-26.028	-39.358	0.000	0.000	0.000	-2,395.021	-1.956	0.000	1.956	-0.750
30.00	-25.720	-37.636	0.000	0.000	0.000	-2,264.885	-2.825	0.000	2.825	-0.905
35.00	-25.407	-35.941	0.000	0.000	0.000	-2,136.287	-3.858	0.000	3.858	-1.062
40.00	-25.082	-34.276	0.000	0.000	0.000	-2,009.253	-5.056	0.000	5.056	-1.221
45.00	-24.792	-32.652	0.000	0.000	0.000	-1,883.847	-6.421	0.000	6.421	-1.380
48.00	-24.608	-31.690	0.000	0.000	0.000	-1,809.473	-7.320	0.000	7.320	-1.478
50.00	-24.428	-30.766	0.000	0.000	0.000	-1,760.257	-7.954	0.000	7.954	-1.544
53.25	-24.218	-29.303	0.000	0.000	0.000	-1,680.868	-9.042	0.000	9.042	-1.649
55.00	-24.012	-28.774	0.000	0.000	0.000	-1,638.487	-9.657	0.000	9.657	-1.706
60.00	-23.649	-27.337	0.000	0.000	0.000	-1,518.428	-11.538	0.000	11.538	-1.879
65.00	-23.278	-25.927	0.000	0.000	0.000	-1,400.188	-13.598	0.000	13.598	-2.051
70.00	-22.900	-24.543	0.000	0.000	0.000	-1,283.801	-15.838	0.000	15.838	-2.221
75.00	-22.518	-23.185	0.000	0.000	0.000	-1,169.301	-18.256	0.000	18.256	-2.390
80.00	-22.131	-21.855	0.000	0.000	0.000	-1,056.714	-20.849	0.000	20.849	-2.556
85.00	-21.739	-20.552	0.000	0.000	0.000	-946.063	-23.613	0.000	23.613	-2.718
90.00	-21.345	-19.277	0.000	0.000	0.000	-837.367	-26.545	0.000	26.545	-2.874
95.00	-21.005	-18.038	0.000	0.000	0.000	-730.643	-29.637	0.000	29.637	-3.025
97.75	-20.798	-17.365	0.000	0.000	0.000	-672.881	-31.403	0.000	31.403	-3.106
100.0	-20.628	-16.686	0.000	0.000	0.000	-626.086	-32.882	0.000	32.882	-3.170
101.5	-20.452	-16.230	0.000	0.000	0.000	-595.144	-33.885	0.000	33.885	-3.212
105.0	-19.520	-15.387	0.000	0.000	0.000	-523.565	-36.274	0.000	36.274	-3.303
110.0	-19.231	-14.427	0.000	0.000	0.000	-425.965	-39.813	0.000	39.813	-3.446
111.0	-18.624	-14.096	0.000	0.000	0.000	-405.393	-40.539	0.000	40.539	-3.473
115.0	-18.341	-13.361	0.000	0.000	0.000	-330.898	-43.493	0.000	43.493	-3.572
117.9	-18.135	-12.830	0.000	0.000	0.000	-277.014	-45.713	0.000	45.713	-3.636
120.0	-17.933	-12.567	0.000	0.000	0.000	-239.621	-47.293	0.000	47.293	-3.677
125.0	-9.866	-7.008	0.000	0.000	0.000	-149.959	-51.284	0.000	51.284	-3.923
130.0	-9.628	-6.545	0.000	0.000	0.000	-100.631	-55.494	0.000	55.494	-4.107
134.0	-5.792	-3.723	0.000	0.000	0.000	-62.119	-58.985	0.000	58.985	-4.219
135.0	-5.651	-3.652	0.000	0.000	0.000	-56.327	-59.870	0.000	59.870	-4.242
140.0	-5.444	-3.295	0.000	0.000	0.000	-28.074	-64.359	0.000	64.359	-4.327
143.0	-1.707	-0.776	0.000	0.000	0.000	-11.743	-67.086	0.000	67.086	-4.355
145.0	-1.571	-0.676	0.000	0.000	0.000	-8.329	-68.912	0.000	68.912	-4.366
149.0	-1.514	0.000	0.000	0.000	0.000	-2.047	-72.572	0.000	72.572	-4.378

Site Number:	**243036**	**Code: TIA/EIA-222-F**	
Site Name:	**West Haven & Rt 162 CT, CT**	**Engineering Number: 63605321**	**9/17/2015 1:02:57 PM**
Customer:	**T-MOBILE**		

Load Case: **Ice** **77.94 mph Wind with Ice** **23 Iterations**

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Stresses

Seg Elev (ft)	Applied Stresses							Allowable Stress (Fb) (ksi)	Allowable Stress (Fa) (ksi)	Stress Ratio
	Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)			
0.00	0.59	0.90	0.00	0.00	0.00	33.28	33.91	52.0	0.0	0.652
5.00	0.58	0.91	0.00	0.00	0.00	33.00	33.62	52.0	0.0	0.647
10.00	0.57	0.93	0.00	0.00	0.00	32.70	33.31	52.0	0.0	0.641
15.00	0.56	0.94	0.00	0.00	0.00	32.36	32.96	52.0	0.0	0.634
20.00	0.54	0.95	0.00	0.00	0.00	31.99	32.58	52.0	0.0	0.627
25.00	0.53	0.96	0.00	0.00	0.00	31.58	32.15	52.0	0.0	0.619
30.00	0.52	0.98	0.00	0.00	0.00	31.12	31.69	52.0	0.0	0.610
35.00	0.50	0.99	0.00	0.00	0.00	30.62	31.17	52.0	0.0	0.600
40.00	0.49	1.01	0.00	0.00	0.00	30.06	30.60	52.0	0.0	0.589
45.00	0.48	1.02	0.00	0.00	0.00	29.45	29.98	52.0	0.0	0.577
48.00	0.47	1.03	0.00	0.00	0.00	29.05	29.57	52.0	0.0	0.569
50.00	0.46	1.04	0.00	0.00	0.00	28.50	29.01	52.0	0.0	0.558
53.25	0.50	1.24	0.00	0.00	0.00	30.81	31.37	52.0	0.0	0.604
55.00	0.49	1.24	0.00	0.00	0.00	30.49	31.06	52.0	0.0	0.597
60.00	0.47	1.26	0.00	0.00	0.00	29.54	30.09	52.0	0.0	0.579
65.00	0.46	1.28	0.00	0.00	0.00	28.49	29.04	52.0	0.0	0.559
70.00	0.44	1.30	0.00	0.00	0.00	27.36	27.89	52.0	0.0	0.537
75.00	0.43	1.32	0.00	0.00	0.00	26.11	26.64	52.0	0.0	0.513
80.00	0.41	1.34	0.00	0.00	0.00	24.76	25.28	52.0	0.0	0.486
85.00	0.40	1.37	0.00	0.00	0.00	23.27	23.79	52.0	0.0	0.458
90.00	0.38	1.39	0.00	0.00	0.00	21.65	22.17	52.0	0.0	0.426
95.00	0.37	1.42	0.00	0.00	0.00	19.88	20.40	52.0	0.0	0.392
97.75	0.36	1.44	0.00	0.00	0.00	18.84	19.35	52.0	0.0	0.372
100.00	0.35	1.45	0.00	0.00	0.00	17.75	18.27	52.0	0.0	0.352
101.50	0.44	2.39	0.00	0.00	0.00	21.04	21.88	51.0	0.0	0.429
105.00	0.42	2.35	0.00	0.00	0.00	19.11	19.95	51.6	0.0	0.387
110.00	0.40	2.41	0.00	0.00	0.00	16.28	17.20	52.0	0.0	0.331
111.00	0.40	2.36	0.00	0.00	0.00	15.64	16.55	52.0	0.0	0.318
115.00	0.38	2.41	0.00	0.00	0.00	13.26	14.26	52.0	0.0	0.274
117.94	0.37	2.45	0.00	0.00	0.00	11.42	12.52	52.0	0.0	0.241
117.94	0.86	2.45	0.00	0.00	0.00	35.86	36.97	52.0	0.0	0.711
120.00	0.86	2.47	0.00	0.00	0.00	32.26	33.39	52.0	0.0	0.642
125.00	0.50	1.42	0.00	0.00	0.00	22.27	22.91	52.0	0.0	0.441
130.00	0.49	1.46	0.00	0.00	0.00	16.57	17.25	52.0	0.0	0.332
134.00	0.29	0.92	0.00	0.00	0.00	11.15	11.56	52.0	0.0	0.222
135.00	0.29	0.91	0.00	0.00	0.00	10.34	10.75	52.0	0.0	0.207
140.00	0.28	0.93	0.00	0.00	0.00	5.78	6.27	52.0	0.0	0.121
143.00	0.07	0.30	0.00	0.00	0.00	2.60	2.72	52.0	0.0	0.052
145.00	0.06	0.28	0.00	0.00	0.00	1.94	2.06	52.0	0.0	0.040
149.00	0.00	0.29	0.00	0.00	0.00	0.53	0.73	52.0	0.0	0.014

Site Number: 243036 Code: TIA/EIA-222-F

Site Name: West Haven & Rt 162 CT, CT Engineering Number: 63605321 9/17/2015 1:02:57 PM

Customer: T-MOBILE

Load Case: Twist/Sway 50.00 mph Wind with No Ice 22 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	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		75.3	0.0					0.0	0.0	75.3	0.0	0.0	0.0
5.00		148.9	1,033.7					21.6	387.9	170.5	1,421.6	0.0	0.0
10.00		145.5	1,009.9					21.6	603.6	167.1	1,613.5	0.0	0.0
15.00		142.0	986.1					21.6	603.6	163.7	1,589.7	0.0	0.0
20.00		138.6	962.3					21.6	603.6	160.2	1,565.9	0.0	0.0
25.00		135.1	938.5					21.6	603.6	156.8	1,542.1	0.0	0.0
30.00		131.7	914.8					21.6	603.6	153.3	1,518.4	0.0	0.0
35.00		130.6	891.0					21.6	603.6	152.2	1,494.6	0.0	0.0
40.00		131.8	867.2					22.4	603.6	154.2	1,470.8	0.0	0.0
45.00		106.0	843.4					23.3	603.6	129.2	1,447.0	0.0	0.0
48.00	Bot - Section 2	66.8	494.6					14.3	362.2	81.1	856.8	0.0	0.0
50.00		70.8	600.4					9.7	241.4	80.5	841.9	0.0	0.0
53.25	Top - Section 1	67.4	960.8					16.0	392.3	83.4	1,353.2	0.0	0.0
55.00		90.7	233.9					8.7	211.3	99.4	445.2	0.0	0.0
60.00		133.9	654.9					25.4	603.6	159.2	1,258.5	0.0	0.0
65.00		132.8	635.1					26.0	603.6	158.8	1,238.7	0.0	0.0
70.00		131.4	615.3					26.5	603.6	157.9	1,218.9	0.0	0.0
75.00		129.6	595.5					27.1	603.6	156.7	1,199.1	0.0	0.0
80.00		127.6	575.6					27.6	603.6	155.2	1,179.2	0.0	0.0
85.00		125.3	555.8					28.1	603.6	153.5	1,159.4	0.0	0.0
90.00		122.8	536.0					28.6	603.6	151.4	1,139.6	0.0	0.0
95.00		93.6	516.2					29.0	603.6	122.6	1,119.8	0.0	0.0
97.75	Bot - Section 3	59.7	275.4					16.2	332.0	75.8	607.4	0.0	0.0
100.00		44.6	355.7					13.3	271.6	57.9	627.3	0.0	0.0
101.50	Top - Section 2	58.6	233.6					8.9	181.1	67.5	414.7	0.0	0.0
105.00	Appertunance(s)	97.8	202.4	208.7	0.0	0.0	78.0	21.0	422.5	327.4	703.0	0.0	0.0
110.00		68.1	279.1					30.3	584.7	98.5	863.8	0.0	0.0
111.00	Appertunance(s)	55.3	54.4	157.8	0.0	473.5	66.0	6.1	116.9	219.2	237.3	0.0	0.0
115.00		75.7	212.8					24.6	448.1	100.3	660.9	0.0	0.0
117.94	Reinf. Top	53.5	151.5					18.2	329.1	71.7	480.6	0.0	0.0
120.00		73.4	103.8					12.9	93.3	86.3	197.1	0.0	0.0
125.00	Appertunance(s)	101.3	243.4	2,749.0	0.0	0.0	3,820.2	15.7	226.2	2,866.0	4,289.7	0.0	0.0
130.00		88.0	231.5					0.0	153.1	88.0	384.6	0.0	0.0
134.00	Appertunance(s)	47.7	176.6	1,245.3	0.0	-121.5	1,947.5	0.0	122.4	1,292.9	2,246.6	0.0	0.0
135.00		55.0	43.0					0.0	19.2	55.0	62.1	0.0	0.0
140.00		71.9	207.7					0.0	95.8	71.9	303.5	0.0	0.0
143.00	Appertunance(s)	43.4	118.9	1,243.6	0.0	0.0	1,967.4	0.0	57.5	1,287.0	2,143.8	0.0	0.0
145.00		50.3	76.9					0.0	8.8	50.3	85.7	0.0	0.0
149.00	Appertunance(s)	33.2	148.1	514.5	0.0	758.3	821.6	0.0	17.6	547.7	987.3	0.0	0.0
								Totals:		10,405.8	41,969.4	0.00	0.00

Site Number:	**243036**	**Code: TIA/EIA-222-F**	
Site Name:	**West Haven & Rt 162 CT, CT**	**Engineering Number: 63605321**	**9/17/2015 1:03:00 PM**
Customer:	**T-MOBILE**		

Load Case: **Twist/Sway** **50.00 mph Wind with No Ice** **22 Iterations**

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Shaft Forces and Deflections

Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	-10.350	-41.964	0.000	0.000	0.000	-1,131.758	0.000	0.000	0.000	0.000
5.00	-10.217	-40.533	0.000	0.000	0.000	-1,080.008	-0.029	0.000	0.029	-0.054
10.00	-10.085	-38.910	0.000	0.000	0.000	-1,028.922	-0.115	0.000	0.115	-0.108
15.00	-9.954	-37.311	0.000	0.000	0.000	-978.497	-0.258	0.000	0.258	-0.164
20.00	-9.824	-35.736	0.000	0.000	0.000	-928.729	-0.460	0.000	0.460	-0.219
25.00	-9.694	-34.185	0.000	0.000	0.000	-879.612	-0.720	0.000	0.720	-0.276
30.00	-9.565	-32.658	0.000	0.000	0.000	-831.143	-1.040	0.000	1.040	-0.333
35.00	-9.435	-31.155	0.000	0.000	0.000	-783.318	-1.420	0.000	1.420	-0.391
40.00	-9.300	-29.676	0.000	0.000	0.000	-736.144	-1.861	0.000	1.861	-0.449
45.00	-9.182	-28.223	0.000	0.000	0.000	-689.644	-2.362	0.000	2.362	-0.507
48.00	-9.107	-27.362	0.000	0.000	0.000	-662.099	-2.693	0.000	2.693	-0.543
50.00	-9.033	-26.516	0.000	0.000	0.000	-643.884	-2.925	0.000	2.925	-0.567
53.25	-8.949	-25.159	0.000	0.000	0.000	-614.528	-3.325	0.000	3.325	-0.605
55.00	-8.863	-24.708	0.000	0.000	0.000	-598.867	-3.551	0.000	3.551	-0.626
60.00	-8.715	-23.442	0.000	0.000	0.000	-554.553	-4.241	0.000	4.241	-0.689
65.00	-8.565	-22.196	0.000	0.000	0.000	-510.979	-4.997	0.000	4.997	-0.752
70.00	-8.413	-20.971	0.000	0.000	0.000	-468.155	-5.819	0.000	5.819	-0.814
75.00	-8.260	-19.765	0.000	0.000	0.000	-426.091	-6.705	0.000	6.705	-0.876
80.00	-8.105	-18.580	0.000	0.000	0.000	-384.793	-7.656	0.000	7.656	-0.936
85.00	-7.950	-17.415	0.000	0.000	0.000	-344.268	-8.668	0.000	8.668	-0.995
90.00	-7.794	-16.271	0.000	0.000	0.000	-304.520	-9.742	0.000	9.742	-1.052
95.00	-7.661	-15.148	0.000	0.000	0.000	-265.551	-10.874	0.000	10.874	-1.107
97.75	-7.580	-14.539	0.000	0.000	0.000	-244.483	-11.521	0.000	11.521	-1.136
100.0	-7.514	-13.910	0.000	0.000	0.000	-227.428	-12.062	0.000	12.062	-1.160
101.5	-7.444	-13.494	0.000	0.000	0.000	-216.156	-12.429	0.000	12.429	-1.175
105.0	-7.112	-12.793	0.000	0.000	0.000	-190.102	-13.303	0.000	13.303	-1.208
110.0	-7.001	-11.927	0.000	0.000	0.000	-154.542	-14.598	0.000	14.598	-1.260
111.0	-6.782	-11.692	0.000	0.000	0.000	-147.067	-14.863	0.000	14.863	-1.270
115.0	-6.672	-11.030	0.000	0.000	0.000	-119.941	-15.944	0.000	15.944	-1.305
117.9	-6.593	-10.549	0.000	0.000	0.000	-100.339	-16.756	0.000	16.756	-1.329
120.0	-6.512	-10.348	0.000	0.000	0.000	-86.744	-17.333	0.000	17.333	-1.343
125.0	-3.551	-6.125	0.000	0.000	0.000	-54.185	-18.792	0.000	18.792	-1.433
130.0	-3.458	-5.739	0.000	0.000	0.000	-36.432	-20.331	0.000	20.331	-1.499
134.0	-2.107	-3.527	0.000	0.000	0.000	-22.600	-21.605	0.000	21.605	-1.540
135.0	-2.052	-3.466	0.000	0.000	0.000	-20.493	-21.929	0.000	21.929	-1.548
140.0	-1.973	-3.163	0.000	0.000	0.000	-10.232	-23.568	0.000	23.568	-1.579
143.0	-0.627	-1.056	0.000	0.000	0.000	-4.313	-24.564	0.000	24.564	-1.589
145.0	-0.575	-0.972	0.000	0.000	0.000	-3.058	-25.231	0.000	25.231	-1.593
149.0	-0.548	0.000	0.000	0.000	0.000	-0.758	-26.568	0.000	26.568	-1.598

Load Case: Twist/Sway — 50.00 mph Wind with No Ice — 22 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Stresses

Seg Elev (ft)	Applied Stresses Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)	Allowable Stress (Fb) (ksi)	Allowable Stress (Fa) (ksi)	Stress Ratio
0.00	0.52	0.34	0.00	0.00	0.00	12.27	12.80	52.0	0.0	0.246
5.00	0.51	0.34	0.00	0.00	0.00	12.16	12.68	52.0	0.0	0.244
10.00	0.50	0.35	0.00	0.00	0.00	12.04	12.55	52.0	0.0	0.241
15.00	0.49	0.35	0.00	0.00	0.00	11.91	12.41	52.0	0.0	0.239
20.00	0.47	0.35	0.00	0.00	0.00	11.76	12.25	52.0	0.0	0.236
25.00	0.46	0.36	0.00	0.00	0.00	11.60	12.08	52.0	0.0	0.232
30.00	0.45	0.36	0.00	0.00	0.00	11.42	11.89	52.0	0.0	0.229
35.00	0.44	0.37	0.00	0.00	0.00	11.23	11.68	52.0	0.0	0.225
40.00	0.42	0.37	0.00	0.00	0.00	11.01	11.46	52.0	0.0	0.220
45.00	0.41	0.38	0.00	0.00	0.00	10.78	11.21	52.0	0.0	0.216
48.00	0.40	0.38	0.00	0.00	0.00	10.63	11.05	52.0	0.0	0.213
50.00	0.40	0.38	0.00	0.00	0.00	10.42	10.84	52.0	0.0	0.209
53.25	0.43	0.46	0.00	0.00	0.00	11.26	11.72	52.0	0.0	0.225
55.00	0.42	0.46	0.00	0.00	0.00	11.14	11.59	52.0	0.0	0.223
60.00	0.41	0.46	0.00	0.00	0.00	10.79	11.22	52.0	0.0	0.216
65.00	0.39	0.47	0.00	0.00	0.00	10.40	10.82	52.0	0.0	0.208
70.00	0.38	0.48	0.00	0.00	0.00	9.98	10.39	52.0	0.0	0.200
75.00	0.37	0.48	0.00	0.00	0.00	9.52	9.92	52.0	0.0	0.191
80.00	0.35	0.49	0.00	0.00	0.00	9.01	9.40	52.0	0.0	0.181
85.00	0.34	0.50	0.00	0.00	0.00	8.47	8.85	52.0	0.0	0.170
90.00	0.32	0.51	0.00	0.00	0.00	7.87	8.24	52.0	0.0	0.159
95.00	0.31	0.52	0.00	0.00	0.00	7.23	7.59	52.0	0.0	0.146
97.75	0.30	0.52	0.00	0.00	0.00	6.84	7.20	52.0	0.0	0.139
100.00	0.29	0.53	0.00	0.00	0.00	6.45	6.80	52.0	0.0	0.131
101.50	0.37	0.87	0.00	0.00	0.00	7.64	8.15	51.0	0.0	0.160
105.00	0.35	0.86	0.00	0.00	0.00	6.94	7.44	51.6	0.0	0.144
110.00	0.33	0.88	0.00	0.00	0.00	5.91	6.43	52.0	0.0	0.124
111.00	0.33	0.86	0.00	0.00	0.00	5.68	6.19	52.0	0.0	0.119
115.00	0.32	0.88	0.00	0.00	0.00	4.81	5.34	52.0	0.0	0.103
117.94	0.31	0.89	0.00	0.00	0.00	4.13	4.70	52.0	0.0	0.090
117.94	0.71	0.89	0.00	0.00	0.00	12.99	13.78	52.0	0.0	0.265
120.00	0.71	0.90	0.00	0.00	0.00	11.68	12.48	52.0	0.0	0.240
125.00	0.44	0.51	0.00	0.00	0.00	8.05	8.53	52.0	0.0	0.164
130.00	0.43	0.53	0.00	0.00	0.00	6.00	6.50	52.0	0.0	0.125
134.00	0.28	0.33	0.00	0.00	0.00	4.06	4.37	52.0	0.0	0.084
135.00	0.28	0.33	0.00	0.00	0.00	3.76	4.08	52.0	0.0	0.078
140.00	0.27	0.34	0.00	0.00	0.00	2.11	2.44	52.0	0.0	0.047
143.00	0.09	0.11	0.00	0.00	0.00	0.96	1.06	52.0	0.0	0.020
145.00	0.09	0.10	0.00	0.00	0.00	0.71	0.82	52.0	0.0	0.016
149.00	0.00	0.10	0.00	0.00	0.00	0.20	0.27	52.0	0.0	0.005

Analysis Summary

	Reactions						Max Stresses			
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Combined Stress (ksi)	Allowable Stress (ksi)	Elev (ft)	Stress Ratio
No Ice	33.5	0.00	41.92	0.00	0.00	3663.38	42.86	52.0	117.94	0.825
Ice	27.6	0.00	48.18	0.00	0.00	3068.87	36.97	52.0	117.94	0.711
Twist/Sway	10.4	0.00	41.96	0.00	0.00	1131.76	13.78	52.0	117.94	0.265

Additional Steel Summary

			Intermediate Connectors			Upper Termination Connectors				Lower Termination Connectors				Max Member		
Elev From (ft)	Elev To (ft)	Member	VQ/I (lb/in)	Shear Applied (kips)	Shear Allow (kips)	MQ/I (kips)	Allow (kips)	Num Reqd	Num Actual	MQ/I (kips)	Allow (kips)	Num Reqd	Num Actual	fb (ksi)	Fb (ksi)	Ratio
0.00	117.	(4) SOL-#20 All Thre	450.0	13.5	12.9	82.2	8.1	11	12	0.0	8.1	0	0	46.7	57.8	0.807

Base/Flange Plate	Plate Type	***Baseplate***	
	Pole Diameter	52.01	in
	Pole Thickness	0.375	in
	Plate Length	59	in
	Plate Thickness	2.75	in
	Plate Fy	60	ksi
	Weld Length	0.3125	in
	Allowable	1646.23	k-in
	Applied	995.06	k-in
Stiffeners	#	***0***	

Bolts	#	***16***	
	Bolt Circle	59	in
	(R)adial / (S)quare	S	
	Bolt Gap	6	in
●	Diameter	2.25	in
	Hole Diameter	2.625	in
	Type	A615-75	
	Fy	75	ksi
	Fu	100	ksi
	Allowable	146.15	k
	Applied	133.03	k
Reinforcement	#	***4***	
●	DYW. Circle	58.885	in
	Offset Angle	0	°
	Type	#20	
	Diameter	2.5	in
	Fu	100	ksi
	Allowable	163.62	k
	Applied	156.03	k
Extra Bolts O	#	***0***	

Code Rev.	***F***	**Date**	9/17/2015
A.S.I.	1.00	**Engineer**	CCP
		Site #	243036
Moment	3663.4 k-ft	**Carrier**	T-Mobile
Axial	41.9 k		

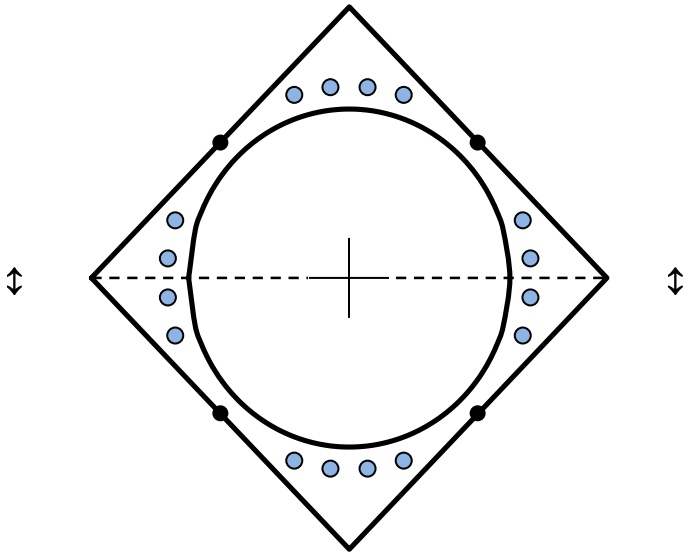
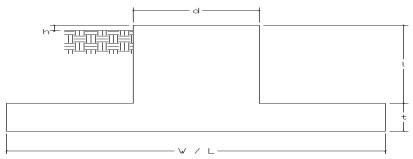


Plate Stress Ratio:
0.60 (Pass)

Bolt Stress Ratio:
0.91 (Pass)

Reinforcement Stress Ratio:
0.95 (Pass)

Site Name:	West Haven & RT 162 CT, CT	*Program Last Updated:*	*11/15/2012*
Site Number:	243036		
Engineering Number:	63605321		
Engineer:	C. Poe		
Date:	09/17/15		
Tower Type:	MP		



Design Loads (Unfactored)

Design / Analysis / Mapping:	Analysis		Concrete Strength (f'_c):	4000	psi
Compression/Leg:	41.9	k	Pad Tension Steel Depth:	20.00	in
Uplift/Leg:	0.0	k	Wind Load Factor:	1.3	
Total Shear:	33.5	k	ϕ_{Shear}:	0.75	
Moment:	3663.4	k-ft	$\phi_{Flexure\ /\ Tension}$:	0.90	
Tower + Appurtenance Weight:	42.0	k	$\phi_{Compression:}$	0.65	
Depth to Base of Foundation:	5.50	ft	β:	0.85	
Diameter of Pier (d):	7.00	ft	Bottom Pad Rebar Size #:	8	
Height of Pier above Ground (h):	1.00		# of Bottom Pad Rebar:	38	
Width of Pad (W):	22.50	ft	Pad Bottom Steel Area:	30.02	in^2
Length of Pad (L):	22.50	ft	Pad Steel F_y:	60000	psi
Thickness of Pad (t):	2.00	ft	Top Pad Rebar Size #:	8	
Tower Leg Center to Center:	0.00	ft	# of Top Pad Rebar:	38	
Number of Tower Legs:	1.0	(1 if MP or GT)	Pad Top Steel Area:	30.02	in^2
Tower Center from Mat Center:	0.00	ft	Pier Rebar Size #:	8	
Depth Below Ground Surface to Water Table:	8.00	ft	Pier Steel Area (Single Bar):	0.79	in^2
Unit Weight of Concrete:	150.0	pcf	# of Pier Rebar:	36	
Unit Weight of Soil Above Water Table:	125.0	pcf	Pier Steel F_y:	60000	psi
Unit Weight of Water:	62.4	pcf	Pier Cage Diameter:	76.0	in
Unit Weight of Soil Below Water Table:	67.5	pcf	Rebar Strain Limit:	0.008	
Friction Angle of Uplift:	15.00	Degrees	Steel Elastic Modulus:	29000	ksi
Ultimate Coefficient of Shear Friction:	0.35		Tie Rebar Size #:	4	
Allowable Compressive Bearing Pressure:	7500.0	psf	Tie Steel Area (Single Bar):	0.20	in^2
Ultimate Passive Pressure on Pad Face:	1000.0	psf	Tie Spacing:	12	in
Allowable Capacity Increase:	1.00		Tie Steel F_y:	60000	psi

Overturning Factor of Safety

Design OTM:	3881.1	k-ft
OTM Resistance:	8052.2	k-ft
OTM Resistance / Design OTM Factor of Safety:	2.07	Result: OK

Soil Bearing Pressure Usage:

Net Bearing Pressure:	6327	psf
Allowable Bearing Pressure:	7500	psf
Net Bearing Pressure/Allowable Bearing Pressure:	0.84	Result: OK
Load Direction Controling Design Bearing Pressure:	Diagonal to Pad Edge	

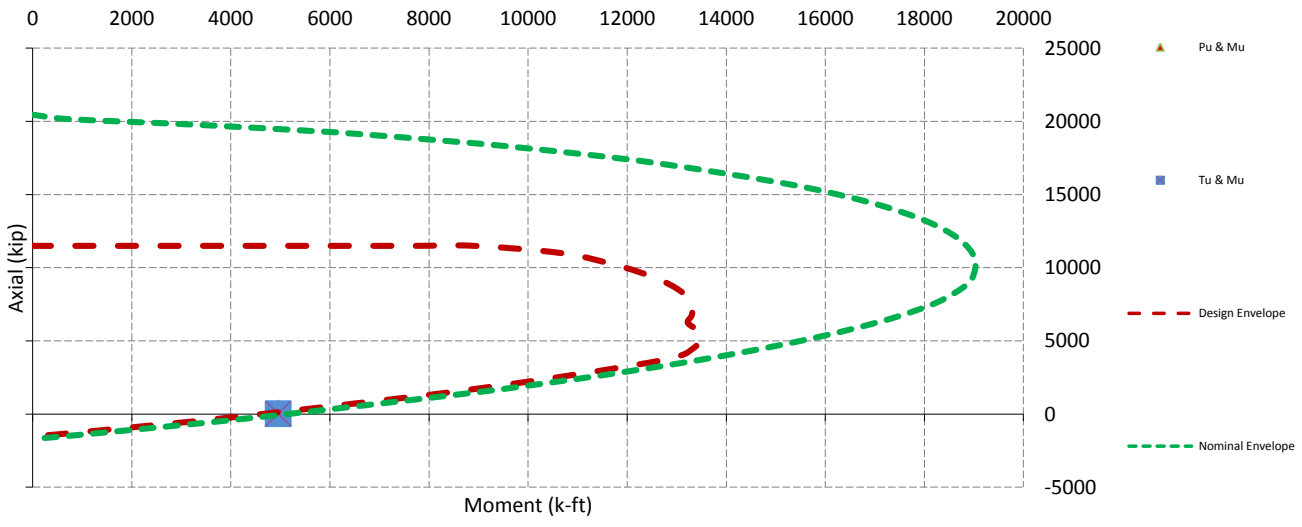
Sliding Factor of Safety

Total Ultimate Sliding Resistance:	193.6	k
Sliding Resistance/Sliding Design Factor of Safety:	5.78	Result: OK

One Way Shear, Flexual Capacity, and Punching Shear

Factored One Way Shear (V_u):	398.4	k
One Way Shear Capacity (ϕV_c):	489.2	k - ACI11.3.1.1
V_u / ϕV_c:	0.81	Result: OK
Load Direction Controling Shear Capacity:	Diagonal to Pad Edge	
Lower Pad Steel Factored Moment (M_u):	2522.2	k-ft
Lower Steel Pad Moment Capacity (ϕM_n):	2589.1	k-ft - ACI10.3
M_u / ϕM_n:	0.97	Result: OK
Load Direction Controling Flexural Capacity:	Parallel to Pad Edge	
Upper Steel Pad Factored Moment (M_u):	679.1	k-ft
Upper Steel Pad Moment Capacity (ϕM_n):	2589.1	k-ft
M_u / ϕM_n:	0.26	Result: OK
Lower Pad Flexural Reinforcement Ratio:	0.0056	OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Upper Pad Flexural Reinforcement Ratio:	0.0056	OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Lower Pad Reinforcement Spacing:	7	in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Upper Pad Reinforcement Spacing:	7	in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Factored Punching Shear (V_u):	54.5	k
Nominal Punching Shear Capacity ($\phi_c V_n$):	1239.8	k - ACI11.12.2.1
V_u / ϕV_c:	0.04	Result: OK
Factored Moment in Pier (M_u):	4958.4	k-ft
Pier Moment Capacity (ϕM_n):	8221.0	k-ft
M_u / ϕM_n:	0.60	Result: OK
Factored Shear in Pier (V_u):	43.6	k
Pier Shear Capacity (ϕV_n):	527.7	k
V_u / ϕV_c:	0.08	Result: OK
Pier Shear Reinforcement Ratio:	0.0004	No Ties Necessary for Shear - ACI11.5.6.1
Factored Tension in Pier (T_u):	0.0	k
Pier Tension Capacity (ϕT_n):	1535.8	k
T_u / ϕT_n:	0.00	Result: OK
Factored Compression in Pier (P_u):	54.5	k
Pier Compression Capacity (ϕP_n):	9747.6	k - ACI10.3.6.2
P_u / ϕP_n:	0.01	Result: OK
Pier Compression Reinforcement Ratio:	0.005	OK - Reinforcement Ratio Met - ACI10.9.1 & 10.8.4
$M_u/\phi_B M_n + T_u/\phi_T T_n$:	0.60	Result: OK

Nominal and Design Moment Capacity and Factored Design Loads



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

T-Mobile Existing Facility

Site ID: CT11821E

CT821/D&B Flower Farm
668 Jones Hill Road
West Haven, CT 06516

October 10, 2015

EBI Project Number: 6215005058

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	8.88 %

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October 10, 2015

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

Emissions Analysis for Site: **CT11821E – CT821/D&B Flower Farm**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **668 Jones Hill Road, West Haven, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **668 Jones Hill Road, West Haven, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

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

1) 2 GSM / UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel

2) 2 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

4) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

5) Since the radios are ground mounted there are additional cabling losses accounted for. For each RF path the following losses were calculated. 1.91 dB of additional cable loss at 1900 MHz, 1.96 dB of additional cable loss at 2100 MHz and 1.04 dB of additional cable loss at 700 MHz. This is based on manufacturers Specifications for 185 feet of 1-5/8” coax cable on each path.

6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

7) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antennas used in this modeling are the **RFS APX16PV-16PVL-A** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **RFS APX16PV-16PVL-A** has a maximum gain of **16.3 dBd** at its main lobe. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerline of the proposed antennas is **143 feet** above ground level (AGL).

10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

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T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APX16PV-16PVL-A	Make / Model:	RFS APX16PV-16PVL-A	Make / Model:	RFS APX16PV-16PVL-A
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	143	Height (AGL):	143	Height (AGL):	143
Frequency Bands	1900 MHz(PCS)	Frequency Bands	1900 MHz(PCS)	Frequency Bands	1900 MHz(PCS)
Channel Count	2	Channel Count	2	# PCS Channels:	2
Total TX Power:	60	Total TX Power:	60	# AWS Channels:	60
ERP (W):	1,648.74	ERP (W):	1,648.74	ERP (W):	1,648.74
Antenna A1 MPE%	0.32	Antenna B1 MPE%	0.32	Antenna C1 MPE%	0.32
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APX16PV-16PVL-A	Make / Model:	RFS APX16PV-16PVL-A	Make / Model:	RFS APX16PV-16PVL-A
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	143	Height (AGL):	143	Height (AGL):	143
Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power:	180	Total TX Power:	180	Total TX Power:	180
ERP (W):	4,889.59	ERP (W):	4,889.59	ERP (W):	4,889.59
Antenna A2 MPE%	0.94	Antenna B2 MPE%	0.94	Antenna C2 MPE%	0.94
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	143	Height (AGL):	143	Height (AGL):	143
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power:	30	Total TX Power:	30	Total TX Power:	30
ERP (W):	680.96	ERP (W):	680.96	ERP (W):	680.96
Antenna A3 MPE%	0.28	Antenna B3 MPE%	0.28	Antenna C3 MPE%	0.28

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**1.53 %**
Clearwire	0.05 %
Clearwire MW	0.07 %
MetroPCS	0.92 %
Computer Hospital	0.20 %
Verizon Wireless	2.21 %
AT&T	3.90 %
Site Total MPE %:	**8.88 %**

T-Mobile Sector 1 Total:	1.53 %
T-Mobile Sector 2 Total:	1.53 %
T-Mobile Sector 3 Total:	1.53 %
Site Total:	8.88 %

T-Mobile _per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 2100 MHz (AWS) LTE	**2**	**1629.86**	**143**	**6.24**	**2100**	**1000**	**0.62 %**
T-Mobile 700 MHz LTE	**1**	**680.96**	**143**	**1.30**	**700**	**467**	**0.28 %**
T-Mobile 1900 MHz (PCS) GSM/UMTS	**2**	**824.36**	**143**	**3.16**	**1900**	**1000**	**0.32 %**
T-Mobile 2100 MHz (AWS) UMTS	**2**	**814.93**	**143**	**3.12**	**2100**	**1000**	**0.31 %**
						Total:	**1.53%**

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Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector 1:	1.53 %
Sector 2:	1.53 %
Sector 3 :	1.53 %
T-Mobile Per Sector Maximum:	1.53 %
Site Total:	8.88 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **8.88%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Scott Heffernan
RF Engineering Director

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