July 6, 2016

VIA EMAIL AND HAND DELIVERY

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

RE: T-Mobile Northeast LLC – CTFF056A
Tower Share Application
366 Old Long Ride Road, Stamford, CT 06903
LAT: 41-09-11.35 N
LNG: -73-35-33.64 W

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of T-Mobile Northeast LLC ("T-Mobile"). T-Mobile plans to install antennas and related equipment at the Long Ridge Fire Department site located at 366 Old Long Ridge Road in Stamford, CT.

T-Mobile will install nine (9) 700/1900/2100 MHz antennas and six (6) RRH's at the 118' level of the existing 152' lattice tower. One (1) hybrid cable will also be installed on an existing cable ladder to the new antennas. T-Mobile's equipment and utility cabinets will be placed on a 6' x 15' concrete pad in the existing equipment area. A new 94' chainlink fence with 3 sets of barb and green privacy slats will be installed around T-Mobile's equipment pad and will match the existing fence. Included are plans prepared by All-Points Technology Corporation dated July 6, 2016, depicting the planned changes and attached as **Exhibit A**. Also included is a structural analysis prepared by Aecom dated June 16, 2016 confirming that the existing tower is structurally capable of supporting T-Mobile's equipment subject to tower modifications. The structural analysis and tower modification design is attached as **Exhibit B**.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of T-Mobile's intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Mayor David Martin, as well as the property/tower owner, Long Ridge Fire Co, Inc. Also, please see a redacted copy of the lease between T-Mobile and the tower owner authorizing the proposed shared use of the facility attached as **Exhibit C.**

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. 16-50j-89.

1. The proposed modifications will not result in an increase in the height of the existing structure. The top of the lattice tower is approximately 152' AGL; T-

Mobile's proposed antennas will be located at a centerline height of 118' AGL.

2. The proposed modifications will not require the extension of the site boundary as depicted on the attached site plan. An existing, abandoned Nextel shelter will be removed and T-Mobile's equipment pad will be installed in the same location.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria. The incremental effect of the proposed changes will be negligible.

4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, T-Mobile's operations at the site will result in a power density of 3.94%; the combined site operations will result in a total power density of 52.03% as evidenced by the power density calculations attached as **Exhibit D**.

5. The proposed equipment will not cause a change or alteration in the physical or environmental characteristics of the site.

Connecticut General Statutes 16-50aa indicates that the Council must approve the shared use of a telecommunications facility provided it finds the shared use is technically, legally, environmentally and economically feasible and meets the public safety concerns. As demonstrated in this letter, T-Mobile respectfully submits that the shared use of this facility satisfies these criteria:

A. Technical Feasibility. The existing lattice tower has been deemed to be structural capable of supporting T-Mobile's proposed loading subject to tower modifications. The structural analysis and tower modification design is included as **Exhibit B**.
B. Legal Feasibility. As referenced above, C.G.S. 16-50aa has been authorized to issue orders approving the shared use of an existing tower such as this lattice tower in Stamford. Under the authority granted to the Council, an order of the Council approving the requested shared use would permit T-Mobile to obtain a building permit for the proposed installation. Further, a redacted copy of the lease between T-Mobile and the tower owner is included as **Exhibit C** authorizing T-Mobile to file this application for shared use.
C. Environmental Feasibility. The proposed shared use of this facility would have a minimal environmental effect. The installation of T-Mobile's equipment at 118' AGL on the existing 152' lattice tower would have an insignificant visual impact on the area around the tower. An abandoned Nextel equipment shelter will be removed and T-Mobile's equipment pad will be installed in the same location. Therefore, T-Mobile's shared use would not cause any significant alteration in the physical or environmental characteristics of the existing site. Additionally, as evidenced by **Exhibit D**, the proposed antennas will not increase radio frequency emissions to a level at or above the Federal

Communications Commission safety standard.

D. Economic Feasibility. T-Mobile has entered into an agreement with the owner of this facility under mutually agreeable terms.
E. Public Safety Concerns. As discussed above, the lattice tower is structurally capable of supporting T-Mobile's proposed loading on the tower subject to tower modifications. T-Mobile is not aware of any public safety concerns relative to the proposed sharing of the existing lattice tower. T-Mobile's intent to provide new and improved wireless service through the shared use of this facility is expected to enhance the safety and welfare of residents and individuals traveling through the City of Stamford.

Respectfully submitted,

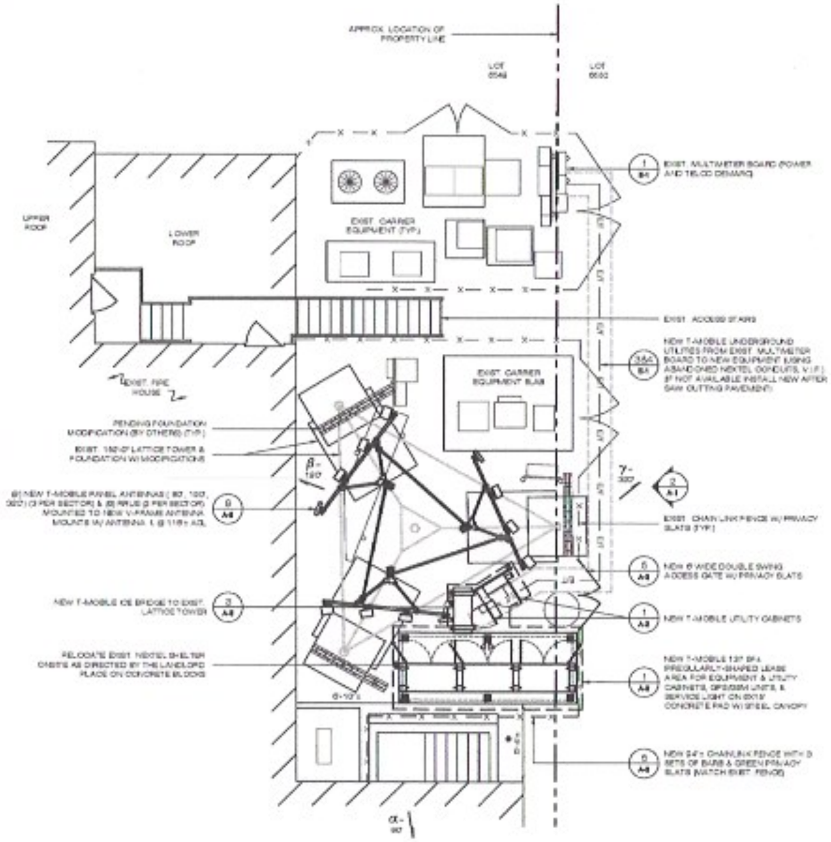
By: _____

Eric Dahl, Agent for T-Mobile
edahl@comcast.net
860-227-1975

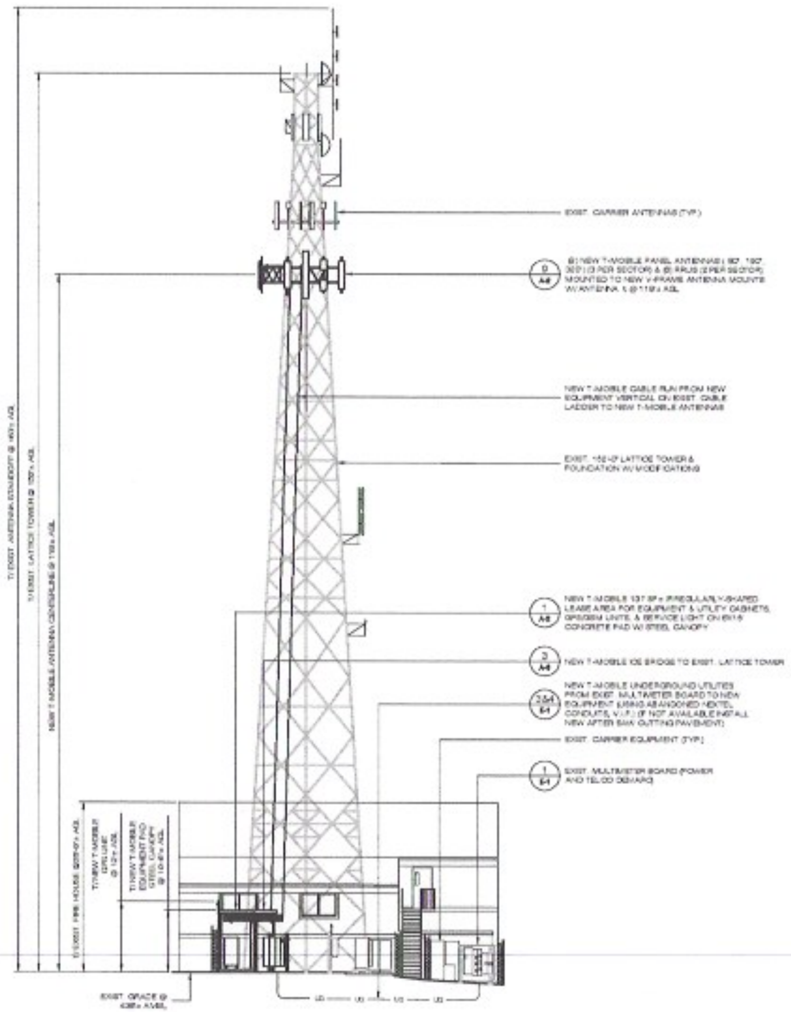
Attachments

cc: David Martin, Mayor, City of Stamford
Long Ridge Fire Co., Inc. - as property and tower owner

EXHIBIT A



1 / A-1 **COMPOUND PLAN**
SCALE: 1" = 8'-0"



2 / A-1 **NORTH ELEVATION**
SCALE: 1" = 10'-0"

ALL-POINTS TECHNOLOGY CORPORATION

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

VERTICAL

APPROVALS

LANDLORD:	DATE:
RF ENGINEER:	DATE:
CONSTRUCTION:	DATE:
OPERATIONS:	DATE:
SITE ACQ.:	DATE:

CONSTRUCTION DOCUMENTS

NO	DATE	REVISION
0	06/15/18	FOR REVIEW: RCB
1	07/06/18	FOR REVIEW: RCB
2		
3		
4		
5		
6		

DESIGN PROFESSIONALS OF RECORD

PROF: SCOTT M. CHASSE P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 3 SADDLEBROOK DRIVE KILLINGWORTH, CT 06419

NOTE:

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T-MOBILE
"LONG RIDGE FIRE DEPARTMENT"

SITE ADDRESS: 366-380 OLD LONG RIDGE ROAD, STAMFORD, CT 06903
APT FILING NUMBER: CT-490-110
SITE NUMBER: CTFF068

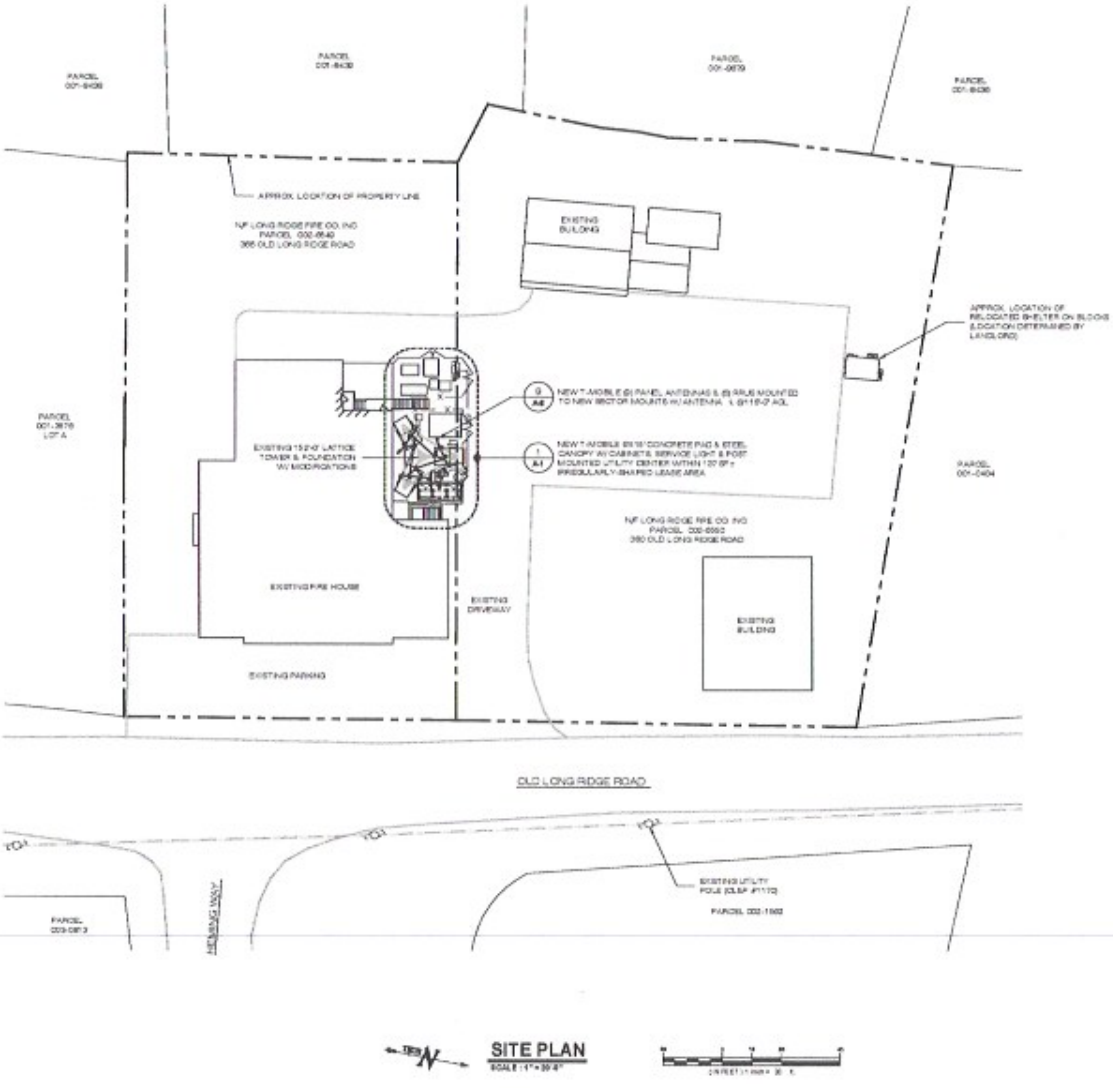
DRAWN BY: CSH | CHECKED BY: RCB
DATE: 06/15/18

CONFIGURATION
797DB2

REFER TO LATEST T-MOBILE RF DATA SHEET FOR FINAL RF DESIGN & BOM.

SHEET TITLE:
COMPOUND PLAN & ELEVATION

SHEET NUMBER:
A-1



BULK TABLE				
STAMFORD 366-380 OLD LONG RIDGE ROAD STAMFORD, CT 06903 MAP 002 BLOCK 6540/6560 LOT B & C ZONED RA2				
ITEM	ALLOWABLE	EXISTING (366)	EXISTING (380)	NEW
MIN. LOT AREA (SF)	87,120 SF	21,230 SF*	30,236 SF*	NC
MIN. LOT FRONTAGE (FT)	200 FT	112 ± FT*	136 ± FT*	NC
MIN. FRONT YARD (FT)	50 FT	25 ± FT*	12 ± FT*	NC
MIN. SIDE YARD (EACH) (FT)	35 FT	2.5 ± FT*	17 ± FT*	NC
MIN. REAR YARD (FT)	70 FT	68 ± FT*	24 ± FT*	NC
MAX. BUILDING HEIGHT (FT)	35 FT	25 ± FT	30 ± FT	NC
MAX. BUILDING COVERAGE (%)	10.0%	30.8%*	11.4%*	NC

* EXISTING NON-CONFORMITY
NA = NOT APPLICABLE NC = NO CHANGE

SITE PLAN NOTES

PROPERTY OWNER: LONG RIDGE FIRE CO. INC.
366 OLD LONG RIDGE ROAD
STAMFORD, CT 06903

1) NEW USE: INSTALLATION OF PERSONAL WIRELESS SERVICES FACILITY ON EXISTING 142'± AGL LATTICE TOWER W/ NEW GROUND EQUIPMENT AT THE BASE OF THE TOWER.
2) BOUNDARY, SITE & TOPOGRAPHIC INFORMATION TAKEN FROM CITY OF STAMFORD GEOGRAPHIC INFORMATION SYSTEMS AND CONNECTICUT ENVIRONMENTAL CONDITIONS ONLINE & SUPPLEMENTED WITH FIELD MEASUREMENTS.
3) NO ADDITIONAL PARKING IS NEEDED, AS THE NEW GROUND FACILITY INSTALLATION IS UNMANNED & VISITED APPROXIMATELY ONCE/MONTH FOR ROUTINE MAINTENANCE. ACCORDINGLY, THE NEW DEVELOPMENT WILL NOT ADVERSELY CHANGE OR AFFECT TRAFFIC PATTERNS.
4) SUBJECT FACILITY ON-SITE IS LOCATED WITHIN ZONE X FLOOD ZONE DESIGNATION (FIRM FLOOD INSURANCE RATE MAP #09001C0364F).
5) NEW EQUIPMENT SPACE WILL BE OUTFITTED WITH TWO 150W EXTERIOR LIGHT W/ MOTION DETECTOR (RAB H101E).
6) NO STORMWATER DRAINAGE, WATER SUPPLY, SEWAGE DISPOSAL, REFUSE STORAGE, IS REQUIRED, AS THE NEW INSTALLATION IS FOR AN UNMANNED FACILITY.
7) ALL NEW UTILITIES FOR NEW EQUIPMENT WILL BE PROVIDED FROM NEARBY SERVICES CURRENTLY SERVING THE SITE; CONNECTIONS TO SHALL BE DETERMINED BY A LOCAL UTILITY REPRESENTATIVE.
8) NO DUST, FUMES, ODORS, OR VIBRATIONS WILL OCCUR AS A RESULT OF THE NEW INSTALLATION.

LEGEND

CONCRETE CURB	UTILITY POLE
DROP CURB	BOLLARD
WALL	CHAIN LINK FENCE
EDGE OF PAVEMENT	STOCKADE FENCE
OVERHEAD WIRES	FENCE OTHER
STRUCTURE - MANHOLE	TOP/BOTTOM OF CURB
STRUCTURE - TELEPHONE	SPOT ELEVATION
STRUCTURE - DRAINAGE	CONCRETE
WATER VALVE	TREE LINE
WATER METER	MONUMENT
FIRE HYDRANT	HEDGE
DRAINAGE INLET	TREE
SIGN	HANDICAP PARKING
LIGHT POLE	PARKING STALL COUNT

ALL-POINTS TECHNOLOGY CORPORATION
3 SADDLEBROOK DRIVE, KILLINGWORTH, CT 06419 PHONE: (860)-663-1697 FAX: (860)-663-0935
WWW.ALLPOINTSTECH.COM

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

VERTICAL

APPROVALS
LANDLORD: ________ DATE: ____
RF ENGINEER: ________ DATE: ____
CONSTRUCTION: ________ DATE: ____
OPS STATIONS: ________ DATE: ____
SITE ACQ.: ________ DATE: ____

CONSTRUCTION DOCUMENTS

NO	DATE	REVISION
0	05/16/16	FOR REVIEW: RCB
1	07/05/16	FOR REVIEW: RCB
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4		
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6		

DESIGN PROFESSIONALS OF RECORD
PROF: SCOTT M. CHASSE P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 3 SADDLEBROOK DRIVE KILLINGWORTH, CT 06419

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T-MOBILE
"LONG RIDGE FIRE DEPARTMENT"
SITE ADDRESS: 366-380 OLD LONG RIDGE ROAD, STAMFORD, CT 06903
APT FILING NUMBER: CT-466-110
SITE NUMBER: CT11098B
DRAWN BY: CBH CHECKED BY: RCB
DATE: 05/16/16
CONFIGURATION
797DB2
REFER TO LATEST T-MOBILE RF DATA SHEET FOR FINAL RF DESIGN & BOM.
SHEET TITLE:
SITE PLAN
SHEET NUMBER:
SP-1

EXHIBIT B

AECOM

Submitted to
T-Mobile
35 Griffin Road South
Bloomfield CT 06002

Eversource Energy
107 Selden Street
Berlin, CT 06037

Submitted by
AECOM
500 Enterprise Drive,
Suite 3B
Rocky Hill, CT 06067
June 16, 2016

DETAILED STRUCTURAL ANALYSIS AND MODIFICATION FOR AN EXISTING 152' SELF SUPPORTING LATTICE TOWER AND FOUNDATION FOR PROPOSED ANTENNA ARRANGEMENT

T-Mobile

EVERSOURCE ENERGY

verizonwireless

Site Name: Long Ridge Fire Company
Site Address: 366 Old Long Ridge Road,
Stamford, CT

TMO-019
EVR-001
VZ5-193

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

This report summarizes the structural analysis and modification of the existing 152' self supporting lattice tower located at 366 Old Long Ridge Road, in Stamford, CT. The modification analysis was conducted in accordance with the 2005 Connecticut State Building Code and the TIA/EIA-222-F standard for a basic wind velocity of 85 mph (fastest mile) and 74 mph (fastest mile) concurrent with ½" ice design wind load. The antenna loading considered in the analysis consists of all existing and proposed antennas, transmission lines, and ancillary items as outlined in the Introduction section of this report.

The proposed Verizon, T-Mobile and Eversource antenna installation are listed below:

Proposed Antennas and Mounts	Carrier	Antenna Center Elevation
Remove: (3) Existing T-Frame Mounts **Install:** (2) LNX-8513DS-A1M Panel Antennas (Alpha Sector) (4) LNX-6514DS-A1M Panel Antennas (Beta & Gamma Sectors) (6) HBXX-6517DS-A2M Panel Antennas ((2) per Sector) (9) RRH units ((3) ALU RRH_2x40-700U, (3) ALU RRH_2x60-PCS, (3) ALU RRH_2x60-AWS) (3) T-Frame Antenna Mounts (2) DB-T1-6Z-8AB-0Z Distribution Boxes (2) 1-5/8" Fiber Optic Cables	Former Nextel (existing) Verizon (Previously Proposed)	@ 118' @ 98'
(3) AIR32 B66Aa/B2a Panel Antennas (1 per sector) (3) LNX-6515DS-A1M Panel Antennas (1 per sector) (3) APX16DWV-16DWV0S0E0A20 Panel Antennas (1 per sector) (3) Ericsson RRUS-11 B12 RRH Units (1 per sector) (3) Ericsson RRUS-32 B66a RRH Units (1 per sector) (3) VFA10-U Valmont V-Frame Antenna Assemblies (1 per sector) (12) Antenna Mount Pipes (4 per sector) (12) 1-5/8" Coaxial Cables (2) 1-1/4" Fiber Optic Cables	T-Mobile (Proposed)	@ 118'
(1) DB Spectra DS9A09F36D-N 20' Omni Antenna (1) Bird 430-94C-09168-M-110/48 TTA Unit (2) 1-5/8" Coaxial Cables (1) 1/2" Coaxial Cable	Eversource (Proposed)	Mounted @ 152' RAD Center @ 162'
(1) DB Spectra DS4F03C36D-N 10' Omni Antenna /w Pipe Mount (2) 1-5/8" Coaxial Cables	Eversource (Proposed)	Mounted @ 113' RAD Center @ 118'

1. EXECUTIVE SUMMARY - *continued*

The results of an initial analysis indicated the existing tower structure and foundation did not have enough capacity for the proposed loading conditions above. The tower structure and foundation require modifications shown on SK-1 through SK-7. **Once the modifications indicated on sheets SK-1 through SK-7 are performed, the modified structure is considered structurally adequate with the wind load classification specified above with the existing and proposed antenna loading.**

The analysis results presented herewith are based upon previous tower modifications proposed by AECOM's tower modification analysis report, project 60404060, signed and sealed February 26, 2016 on behalf of Verizon Wireless. The previously proposed modifications are herewith revised to include T-Mobile and Eversource proposed equipment identified above. **No installation of any of the above Verizon, T-Mobile and Eversource antenna equipment shall occur prior to the completion of the modifications stated in this report.**

This analysis is based on:

1) The tower structure's theoretical capacity, not including any assessment of the condition of the tower.
2) Original tower geometry, structural member sizes and foundation information including geotechnical information obtained from manufacturer's design documents prepared by ROHN Industries, Engineering File No. 24269DB, dated May 16, 1989. Geotechnical information utilized in ROHN design is based on report prepared by Goldberg, Zind and Associates, project number H-50276 dated 12/14/1988.
3) Completed Previous tower reinforcements:
   - Drawings SS-1 'Tower Foundation Reinforcement, Elevation, Sections and Details' and drawing SS-2 'Foundation Plan, Section and Notes' prepared by Tectonic Engineering Consultants P.C; on behalf of AT&T Wireless, PCS, LLC; dated April 23, 2002.
   - Drawing S-1 'Structural Details' prepared by Diversified Technology Consultants (dtc), on behalf of Nextel Communications, dated June 11, 2002.
   - Tower reinforcement drawings sheets 1 thru 5, entitled '2007 Modifications Tower Rework For a 153' ROHN SSV Tower' Long Ridge, CT., prepared by Vertical Structures on behalf of Motorola, dated May 24, 2007.
4) Geotechnical report from Dr. Clarence Welti, P.E. Geotechincal Engineering, Dated December 12, 2012.
5) Proposed antennas via Verizon Wireless (VZW) Radio Frequency Data Sheet (RFDS) obtained via e-mail dated December 1, 2015.
6) Detailed structural analysis and evaluation performed by AECOM on behalf of Verizon Wireless, project number 60404060, signed and sealed on December 15, 2015.
7) Detailed structural analysis and modification evaluation performed by AECOM on behalf of Verizon Wireless, project number 60404060 – Rev.2, signed and sealed on February 26, 2016
8) Detailed structural analysis and evaluation performed by AECOM on behalf of AT&T, project SAI-086, Signed and sealed on March, 3, 2016.
9) Proposed antenna inventory provided by T-Mobile RFDS obtained via e-mail dated March 22, 2016.

1. EXECUTIVE SUMMARY - *continued*

10) Proposed antenna inventory provided by Eversource, obtained via e-mail dated April 20, 2016.

11) Construction drawings provided on behalf of T-Mobile obtained via e-mail dated June 13, 2016.

12) Antenna and mount configuration as specified within Section 2 and 6 of this report.

13) Coax cable orientation as specified in section 6 of this report.

This report is only valid as per the assumptions and data utilized in this report for antenna inventory, mounts and associated cables. The user of this report shall field verify the antenna, cabling, and mount configuration used, as well as the physical condition of the tower members, connections and foundation. Notify the engineering writing immediately if any of the information in this report is found to be other than specified.

If you should have any questions, please call.

Sincerely,

AECOM, *contracting as URS Corporation AES,*

Richard A. Sambor, P.E.
Senior Structural Engineer

RAS/mcd
CC: IA, CF/Book – AECOM

2. INTRODUCTION

The subject tower is located at 366 Old Long Ridge Road, in Stamford, CT. The structure is an existing 152' self supporting three-legged steel tapered lattice tower designed and manufactured by ROHN.

The inventory is summarized in the table below:

Antenna Type	*Carrier*	*Mount*	*Antenna Centerline Elevation*	*Cable*
(1) 20' 4-Bay Dipole	(existing)	12' Pipe Mount	162'	(1) 7/8"
(1) Decibel DB563K Directional Omni with 22"x22"x6" Filter Box	(existing)	3' Stand-off	156.70'	(2) 1-5/8"
(1) DB Spectra DS9A09F36D-N 20' Omni Antenna (1) Bird 430-94C-09168-M-110/48 TTA Unit	**Eversource (Proposed)**	**3' Stand off (Omni) Leg Mounted (TTA)**	**Mounted @ 152' (RAD @ 162')**	**(2) 1-5/8" Coaxial Cables (1) 1/2" Coaxial Cable**
(1) 4' HP Dish with Radome	(existing)	4" Dish Mount	152'	(1) 7/8" Elliptical
(1) 30"x3" Omni Whip with 20"x6"x8" Filter Box	(existing)	3' Stand-off	151.25'	(2) 1-1/4"
(1) 12'x3" Decibel Omni Whip	(existing)	4' Stand-off	144'	(1) 7/8"
(3) SBNHH-1D65A Panel Antennas (3) Kaelus TMA2117F00V1-1 TMA Units	AT&T (existing)	Pipe Leg Mount	143'	(6) 1 5/8"
(1) Decibel DB563K Directional Omni	(existing)	3' Stand-off	141.70'	(1) 1-1/4"
(1) 4' HP Dish with Radome	(existing)	4" Dish Mount	140'	(1) 7/8" Elliptical
(1) 6'x3" Decibel Omni Whip	(existing)	3' Stand-off	138'	(2) 1-5/8"
(1) 2' HP Dish with Radome	(existing)	4" Dish Mount	136.5'	(1) 7/8" Elliptical
(1) Decibel DB495 Corner Reflector	(existing)	Leg Mount	135'	(1) 1/2"
(1) 8'x2" Decibel Omni Whip	(existing)	off Boom Gate listed below	133'	(1) 7/8"
(6) Decibel DB980H90 panel antennas	Sprint (existing)	(3) 11' Boom Gates	128'	(6) 1 5/8"
(1) Decibel DB254 Corner Reflector	(existing)	Leg Mount	122'	(1) 1/2"

Antenna Type	*Carrier*	*Mount*	*Antenna Centerline Elevation*	*Cable*
(3) AIR32 B66Aa/B2a Panel Antennas (3) LNX-6515DS-A1M Panel Antennas (3) APX16DWV-16DWV0S0E0A20 Panel Antennas (3) Ericsson RRUS-11 B12 RRH Units (3) Ericsson RRUS-32 B66a RRH Units (12) Antenna Mount Pipes (4 per sector)	**T-Mobile (Proposed)**	**(3) VFA10-U Valmont V-Frame Antenna Assemblies (1 per sector)**	**118'**	**(12) 1-5/8" (2 rows of 6) (2) 1-1/4" Fiber Optic Cables**
(1) DB Spectra DS4F03C36D-N 10' Omni Antenna	**Eversource (Proposed)**	**Pipe Mounted to Tower Leg**	**Mounted @ 113' (RAD Antenna @ 118')**	**(2) 1-5/8" Coaxial Cables**
(2) LNX-8513DS-A1M Panel Antennas (Alpha Sector) (4) LNX-6514DS-A1M Panel Antennas (Beta & Gamma Sectors) (6) HBXX-6517DS-A2M Panel Antennas ((2) per Sector) (3) ALU RRH_2x40-700U (3) ALU RRH_2x60-PCS (3) ALU RRH_2x60-AWS (2) DB-T1-6Z-8AB-0Z Distribution Boxes	**Verizon (previously proposed)**	**(3) T-Frames**	**98'**	**(2) 1-5/8" Fiber Optic Cables**
Vacant	(existing)	3' Stand-off	95.5'	n/a
(1) 4'x3" Omni Whip	(existing)	3' Stand-off	79'	(1) 1-1/4"
(1) 8' 2-Bay Dipole	(existing)	3' Stand-off	78'	(1) 7/8"
(1) 3' Kathrein Yagi with Radome	(existing)	same as listed above	72'	(1) 1/2"
(1) GPS antenna	Sprint (existing)	2' Stand-off	58'	(1) 1/2"

Notes:

1) Omni-whip antenna centerline elevations based on antenna size and respective mount height.
2) Refer to Section 6 Tower Feed Line Plan for coaxial cable locations.

This structural analysis and modification of the communications tower was performed by AECOM to add T-Mobile and Eversource to previously proposed modifications for Verizon Wireless (VZW). The purpose of this analysis was to investigate the structural integrity of the modified tower with its existing and proposed antenna loads. The analysis was also conducted to evaluate stress on the tower and the effect of forces to the foundation of the tower resulting from existing and proposed antenna arrangements.

2. ANALYSIS METHODOLOGY AND LOADING CONDITIONS

The structural analysis was done in accordance with the 2005 Connecticut State Building Code, TIA/EIA-222-F - Structural Standard for Steel Antenna Towers and Antenna Supporting Structures, and the American Institute of Steel Construction (AISC) Manual of Steel Construction – Allowable Stress Design (ASD).

The analysis was conducted using TNX Tower 7.0.5.1. Two load conditions were evaluated as shown below which were compared to allowable stresses according to AISC and TIA/EIA.

Basic Wind Speed:

- Fairfield County; v = **85**mph (fastest mile) [Section 16 of TIA/EIA-222-F-1996]
- Stamford; v = 105mph (3 second gust) equivalent to 85mph (fastest mile) [Appendix K, 2005 Connecticut State Building Code Supplement]

Loading Cases:

Load Condition 1 = 85 mph (fastest mile) Wind Load (without ice) + Tower Dead Load
Load Condition 2 = 74 mph (fastest mile) Wind Load (with ice) + Ice Load + Tower Dead Load

Please note that wind pressure is a function of velocity squared. Under Load Condition 2, a 25 percent reduction in wind pressure is allowed by code to account for the unlikelihood of the full wind pressure and ice load occurring at the same time. The same results may be achieved by utilizing a lower wind pressure without taking the 25 percent reduction, as shown above.

The TIA/EIA standard permits a one-third increase in allowable stresses for towers and monopoles less than 700 feet tall. For the purposes of this analysis, in computing the load capacity the allowable stresses of the tower members were increased by one-third.

4. FINDINGS AND EVALUATION

The combined axial and bending stresses on the tower were evaluated to compare with the allowable stress in accordance with AISC. The results of an initial analysis indicated that the existing tower structure and foundation did not have enough capacity to support the proposed loading conditions. The tower structure and foundation require modifications shown on SK-1 through SK-7. **Once the modifications indicated on sheets SK-1 through SK-7 are performed, the modified structure and foundation are considered structurally adequate with the wind load classification specified with the existing and proposed antenna loading noted herein.**

TABLE 1: Tower Base Reactions:

For detailed proposed tower reactions, see drawing no. E-1 in section 6 of this report.

Base Reactions	Proposed Reactions
Axial Load (kips)	28.7
Shear per Leg (kips)	24.2
Total Shear (kips)	39.7
Uplift per Leg (kips)	178.1
Comp.per Leg (kips)	204.3
O.T. Moment (ft-kips)	3504

TABLE 2: Tower Component Stress vs. Capacity Summary:

Component/ (Section No.)	Existing Component Size	Controlling Component/Elevation	Stress (% capacity)	Pass/Fail
Tower Leg (T19)	ROHN 5 STD w/ (3) 1.5"x0.5" Bars	Compression / 0'-10"	97.0 %	Pass
Diagonal (T13)	L3x3x1/4	Compression / 50 – 60'	95.7 %	Pass
Horizontal (T18)	L2.875x2.875x3/16	Compression / 10'-15'	94.6 %	Pass
Secondary Horizontal (T13)	L 2-1/2"x2-1/2"x1/4	Compression / 30'-40'	32.8 %	Pass
Top Girt (T1)	L2x2x1/8	Compression / 140'-152'	9.1 %	Pass
Red Horz Bracing (T17)	L2x2x1/4	Compression / 15'-20'	33.7 %	Pass
Red Diag Bracing (T17)	L2x2x1/4	Compression / 15'-20'	25.9 %	Pass
Bolt Checks				
Diagonal (T14)	0.625" dia A325N	Bolt Shear / 40'-50'	95.5 %	Pass
Anchor Bolts	(4) 1" dia A193 GR-7, A320 GR L7	Min Area per ASCE 10-97	90%	Pass

TABLE 3: Foundation Summary

Foundation	Component	Stress (% capacity/FOS)	Pass/Fail	Comments:
Reinf. Concrete Pad and Pier (Rock Anchored)	OTM	97.0%/2.062	Pass	Min. F.O.S of 2.0 reqd per IBC 2003 Section 3108.4.2

5. CONCLUSIONS AND RECOMMENDATIONS

The results of an initial analysis indicated the existing tower structure and foundation did not have enough capacity for the proposed loading conditions above. The tower structure and foundation require modifications shown on SK-1 through SK-7. **Once the modifications indicated on sheets SK-1 through SK-7 are performed, the modified structure is considered structurally adequate with the wind load classification specified herein with the existing and proposed antenna loading.**

The analysis results presented herewith are based upon previous tower modifications proposed by AECOM's tower modification analysis report, project 60404060, signed and sealed February 26, 2016 on behalf of Verizon Wireless. The previously proposed modifications are herewith revised to include T-Mobile and Eversource proposed equipment identified above. **No installation of any of the herein Verizon, T-Mobile and Eversource antenna equipment shall occur prior to the completion of the modifications stated in this report.**

Limitations/Assumptions:

This report is based on the following:

1) Tower inventory as listed in this report.
2) Tower is properly installed and maintained.
3) All members are as specified in the original design documents and are in good condition.
4) All required members are in place.
5) All bolts are in place and are properly tightened.
6) Tower is in plumb condition.
7) All member protective coatings are in good condition.
8) All tower members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
9) Foundations are in good condition without defect and were properly constructed to support original design loads as specified in the original design documents.
10) All coaxial cable is installed as specified in Section 6 of this report

AECOM is not responsible for any modifications completed prior to or hereafter in which AECOM is not or was not directly involved. Modifications include but are not limited to:

A. Adding antennas
B. Removing/replacing antennas
C. Adding coaxial cables

AECOM hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon information contained and set forth herein. If you are aware of any information which conflicts with that which is contained herein, or you are aware of any defects arising from original design, material, fabrication, or erection deficiencies, you should disregard this report and immediately contact AECOM. AECOM disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

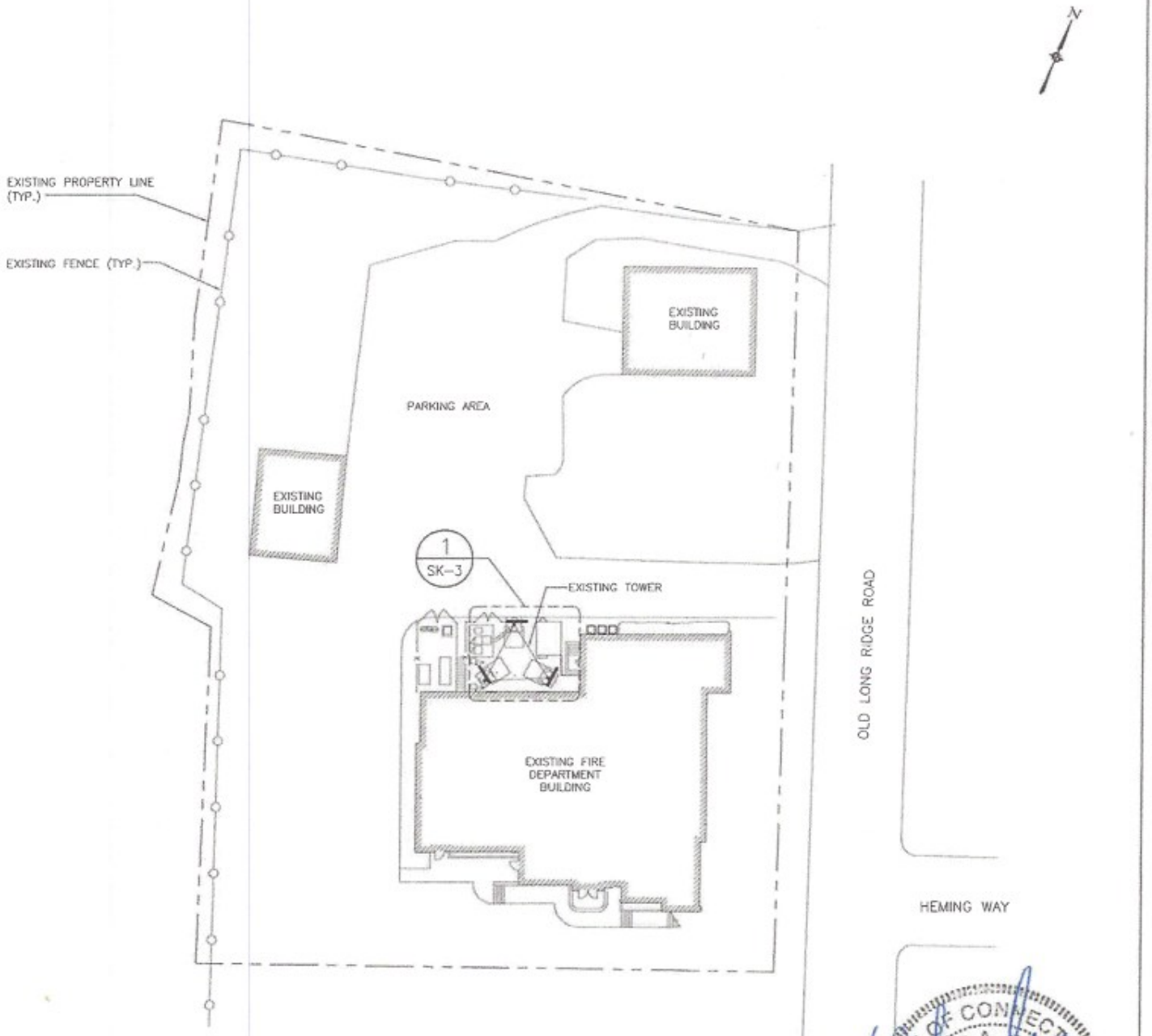
Ongoing and Periodic Inspection and Maintenance:

The owner shall refer to TIA/EIA-222-F for recommendations for maintenance and inspection. The frequency of the inspection and maintenance intervals is to be determined by the owner based upon actual site and environmental conditions. It is recommended that a complete and thorough inspection of the entire tower structural system be performed at least yearly and more frequently as conditions warrant. According to TIA/EIA-222-F section 14.1, Note 1; it is recommended that the structure be inspected after severe wind and/or ice storms or other extreme loading conditions.

6. DRAWINGS AND DATA

REINFORCEMENT DRAWINGS SK-1 THROUGH SK-7

NOTE:
NO ANTENNA INSTALLATION SHALL BE PERMITTED PRIOR TO THE COMPLETION AND APPROVAL OF FOUNDATION AND TOWER REINFORCEMENT WORK.



1 SK-1 SITE PLAN
SCALE: 1"=50'-0"

0 10 20 30 40 50 100

STATE OF CONNECTICUT
RICHARD A. HARBOR
No. 9057
LICENSED PROFESSIONAL ENGINEER

PROJECT NO.	
Designed by:	MCD
Drawn by:	KAP
Checked by:	KB
Approved by:	ICA

AECOM
500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT
860-529-8882

SITE PLAN

STAMFORD FIRE DEPARTMENT TOWER
SITE ADDRESS: 366 OLD LONG RIDGE ROAD
STAMFORD, CT

REV.	DATE:	DESCRIPTION

Scale: AS NOTED | Date: 06/16/16
Job No. | File No.

Dwg. No. SK-1
Dwg. 1 of 7

STRUCTURAL NOTES

GENERAL NOTES:

1. ALL WORK SHALL COMPLY WITH THE CONNECTICUT STATE BUILDING AND LIFE SAFETY CODES, SUPPLEMENTS AND AMENDMENTS.
2. CONTRACTOR TO CONTACT "CALL BEFORE YOU DIG" AT 1-800-922-4455 TO VERIFY & IDENTIFY THE EXACT LOCATIONS OF ALL UNDERGROUND UTILITIES AND OBSTRUCTIONS IDENTIFIED PRIOR TO COMMENCING WORK IN THE CONTRACT AREA.
3. CONTRACTOR IS TO REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUB-CONTRACTORS AND ALL RELATED PARTIES. THE SUB-CONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
4. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON DRAWINGS OR WRITTEN IN SPECIFICATIONS.
5. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
6. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION AND ELECTRICAL SUB-CONTRACTORS SHALL PAY FOR THEIR PERMITS.
7. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND ENSURE THE DISTRIBUTION OF NEW DRAWINGS TO SUB-CONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. CONTRACTOR SHALL FURNISH "AS-BUILT" SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
8. INSTALLATION OF THIS WIRELESS COMMUNICATIONS EQUIPMENT SITE REQUIRES WORK IN THE IMMEDIATE VICINITY OF EXISTING TELECOMMUNICATION SYSTEMS. THE CONTRACTOR SHALL PROVIDE AND COORDINATE THE METHODS OF PROTECTION WITH THE VARIOUS TELECOMMUNICATION CARRIERS AND THE TOWER OWNER.
9. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTORS FOR ANY CONDITION PER MFR'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR ARCHITECT.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
11. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ARCHITECT FOR REVIEW. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTAL TO THE ARCHITECT FOR REVIEW.
12. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA. SUBMIT TO THE ARCHITECT ANY DISCREPANCIES FROM THE DRAWINGS.
13. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURE AND IT'S COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
14. COORDINATE ALL CIVIL AND ELECTRICAL DRAWINGS FOR THE LOCATION OF ALL OPENINGS, RECESSES, BUILT-IN WORK, ETC.
15. CONTRACTOR SHALL COMPLY WITH OWNER ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.
16. CONTRACTOR TO VERIFY REQUIRED CLEARANCES INCLUDING BUT NOT LIMITED TO EXISTING BUILDINGS, EQUIPMENT PADS AND SHELTERS PRIOR TO COMMENCING WORK.

SOIL

1. SOIL BEARING CAPACITY OF 5,000 PSF USED FOR FOUNDATION DESIGN. GENERAL CONTRACTOR RESPONSIBLE FOR VERIFYING BEARING CAPACITIES.
2. ALL SURFACES MUST BE FREE OF STANDING WATER PRIOR TO PLACING
3. COMPACTED GRAVEL FILL PER CONNECTICUT DOT STANDARD SPEC. SECTION M.02.01 AND ASTM D1557.

STRUCTURAL STEEL MATERIAL:

CHANNELS, STIFFENER PLATES, 1/3 HSS TUBING A572-50
PLATES AND ANGLES A36
BOLTS ..... ASTM A325-N, A325-X & A490N

STRUCTURAL STEEL SHALL CONFORM TO ALL REQUIREMENTS OF THE 1999 AISC-LRFD SPECIFICATION, AS REFERENCED IN THE CODE.

UNLESS OTHERWISE NOTED, ALL STEEL WILL BE GALVANIZED IN ACCORDANCE WITH ASTM 123 AFTER FABRICATION. TOUCH UP ALL DAMAGED GALVANIZED STEEL WITH APPROVED COLD ZINC, "GALVANOX", "DRY GALV", "ZINC-IT", OR APPROVED EQUIVALENT, IN ACCORDANCE WITH MANUFACTURERS GUIDELINES. TOUCH-UP DAMAGED NON GALVANIZED STEEL WITH SAME PAINT APPLIED IN SHOP OR FIELD.

SHOP AND ERECTION DRAWINGS SHALL BE SUBMITTED FOR ALL STRUCTURAL STEEL WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. SUBMIT 2 SETS OF PRINTS FOR THE ENGINEER REVIEW.

EXISTING DIMENSIONS OF STRUCTURE SHOWN ON THESE DOCUMENTS ARE NOT GUARANTEED. CONTRACTOR SHALL TAKE FIELD DIMENSIONS AS NECESSARY TO ASSURE PROPER FIT OF ALL FINISHED WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THEIR ACCURACY. WHEN SHOP DRAWINGS BASED ON FIELD MEASUREMENT ARE SUBMITTED FOR REVIEW, DIMENSIONS ARE PROVIDED FOR THE ENGINEER'S REFERENCE ONLY.

ALL BOLT HOLES WILL BE DRILLED OR PUNCHED, WITH BURRS REMOVED PRIOR TO COATING.

MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.

THE OMISSION OF ANY MATERIAL THAT WAS SHOWN ON THE CONTRACT DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR OF PROVIDING THE SAME.

ALL WELDING SHALL BE DONE BY A CERTIFIED WELDER IN ACCORDANCE WITH AWS STANDARDS, USING E70XX ELECTRODES UNLESS OTHERWISE NOTED. WHERE WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZES PER "PREQUALIFIED WELDED JOINTS" TABLES IN AISC "MANUAL OF STEEL CONSTRUCTION", NINTH EDITION.

CONNECTIONS / FIELD ASSEMBLY:

BOLTED CONNECTIONS. UNLESS OTHERWISE NOTED, ALL JOINTS ARE BEARING TYPE, REQUIRING 1/2" & 3/4" DIA. ASTM A325-N, A325-X & A490N BOLTS, A563 NUTS AND F436 WASHERS, ALL GALVANIZED. BEVELED WASHERS SHALL BE USED ON BEAM FLANGES HAVING A SLOPE GREATER THAN 1:20.

NON-STRUCTURAL CONNECTIONS, SUCH AS FOR STEEL GRATING, MAY USE 5/8" DIA. GALVANIZED ASTM A307 BOLTS, UNLESS OTHERWISE NOTED.

STRUCTURE IS DESIGNED TO BE LEVEL AND PLUMB, SELF-SUPPORTING AND STABLE AFTER WORK IS COMPLETED.

COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.

WHEN WELDING GALVANIZED MATERIALS, USE PRECAUTION & PROCEDURES PER AWS D1.1.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STRUCTURAL INTEGRITY OF THE TOWER WHILE MEMBERS ARE REPLACED.

ONLY ONE MEMBER SHALL BE REPLACED AT A TIME.

THE CONTRACTOR SHALL PREPARE AND MINIMIZE THE TIME THAT MEMBERS ARE NOT CONNECTED TO THE TOWER.

THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION. NO MEMBER OF THE TOWER SHALL BE LEFT DISCONNECTED FOR THE NEXT WORKING DAY. THE CONTRACTOR SHALL BE AWARE OF WEATHER AND WIND CONDITIONS AND NOT PERFORM MEMBER REPLACEMENT IN A WIND.

INSPECTIONS:

SPECIAL INSPECTIONS REQUIRED PER THE 2005 CONNECTICUT STATE BUILDING CODE FOR FOUNDATION AND STRUCTURAL STEEL WORK.

PROJECT OWNER WILL SUPPLY THE SERVICES OF A SPECIAL INSPECTOR AND TESTING AGENTS AS REQUIRED. CONTRACTOR SHALL COORDINATE INSPECTIONS OF FABRICATOR'S AND ERECTOR'S WORK AND MATERIALS TO MEET THE REQUIREMENTS OF THE STATEMENT OF SPECIAL INSPECTIONS FOR THIS PROJECT.

COPIES OF TESTING AND INSPECTION REPORTS WILL BE PROVIDED TO THE OWNER, BUILDING OFFICIAL, ENGINEER OF RECORD AND CONTRACTOR.

STATE OF CONNECTICUT
RICHARD A. SAYDAH
No. 9057
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO.
Designed by: MCD
Drawn by: KAP
Checked by: KB
Approved by: ICA

AECOM
500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT
860-529-8882

STRUCTURAL NOTES

STAMFORD FIRE DEPARTMENT TOWER
SITE ADDRESS: 366 OLD LONG RIDGE ROAD
STAMFORD, CT

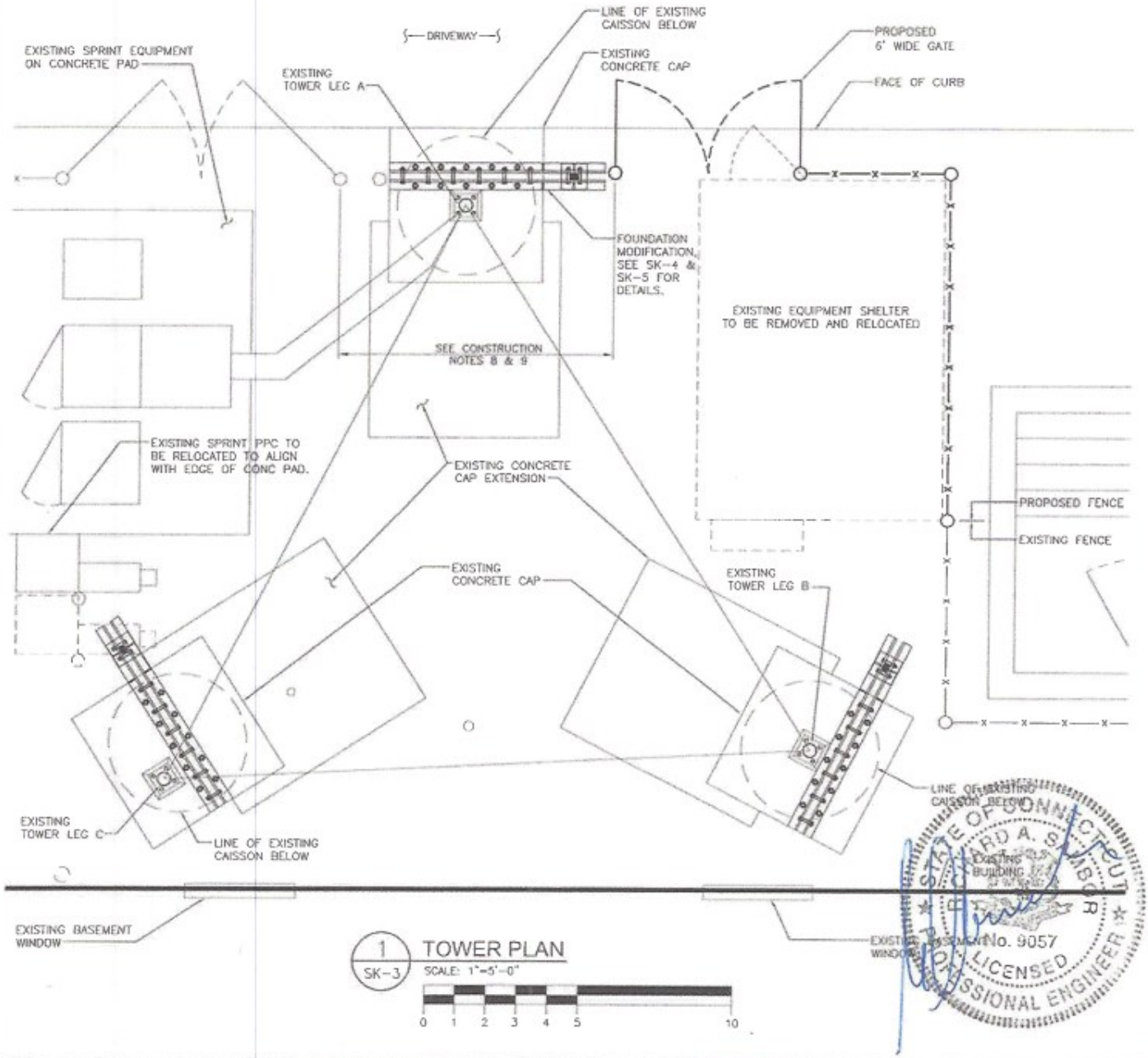
REV.	DATE:	DESCRIPTION

Scale: AS NOTED | Date: 06/16/15
Job No. | File No. | Dwg. 2 of 7

Dwg. No. SK-2

CONSTRUCTION NOTES

1. PRIOR TO DRILLING, CONTRACTOR SHALL CONFIRM THAT NO EXISTING CONDUITS, PIPES, LINES OR ANY OTHER OBJECTS ARE LOCATED WITHIN AREA TO BE DRILLED. CALL BEFORE YOU DIG, 1-800-922-4455.
2. GROUND WATER AT 8' BELOW GRADE, DOCUMENTED BY SITE SPECIFIC GEOTECHNICAL REPORT.
3. CONTRACTOR SHALL INSTALL "US SPEC RA GROUT" OR AN APPROVED EQUIVALENT FOR GROUTING ROCK ANCHOR.
4. GROUTED THREADED ANCHORS SHALL USE WILLIAMS FORM ENGINEERING CORP. CORROSION PROTECTION TO THE ANCHOR BAR. PROTECTION SLEEVES SHALL NOT BE INSTALLED IN THE "BONDING LENGTH" PORTION OF THE ANCHOR BAR.
5. THREADED ANCHORS SHOWN SHALL BE FULLY GROUTED FROM BOTTOM OF ANCHOR TO SOIL GRADE ELEVATION.
6. CONTRACTOR SHALL BE AWARE OF EXISTING STRUCTURES BEFORE INSTALLATION AND PLAN ON PROTECTING ALL EXISTING STRUCTURES & EQUIPMENT FROM CONSTRUCTION RELATED DAMAGE.
7. SEE SHEET SK-4 FOR INSTALLATION NOTES SPECIFIC TO ROCK ANCHOR INSTALLATION.
8. FENCE LOCATED WITHIN INDICATED REGION SHALL BE TEMPORARILY REMOVED DURING CONSTRUCTION.
9. RE-INSTALL FENCE AFTER INSTALLATION OF FOUNDATION REINFORCING. MODIFY FENCE AS REQUIRED TO ACCEPT REINFORCING WORK.



1 / SK-3 TOWER PLAN

SCALE: 1"=5'-0"

0 1 2 3 4 5 10

STATE OF CONNECTICUT
RICHARD A. SYMBOR
No. 9057
LICENSED PROFESSIONAL ENGINEER

PROJECT NO.	
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ROCKY HILL, CONNECTICUT
860-529-8882

TOWER PLAN

STAMFORD FIRE DEPARTMENT TOWER

SITE ADDRESS: 366 OLD LONG RIDGE ROAD
STAMFORD, CT

REV.	DATE:	DESCRIPTION

Scale: AS NOTED | Date: 06/16/16

Job No. | File No. | Dwg. 3 of 7

Dwg. No. SK-3

ROCK ANCHOR INSTALLATION NOTES

1. CONSTRUCTION AND INSTALLATION OF INDICATED SOIL/ROCK ANCHORS SHALL COORDINATE WITH SHEET SK-3 OF PLAN SET.

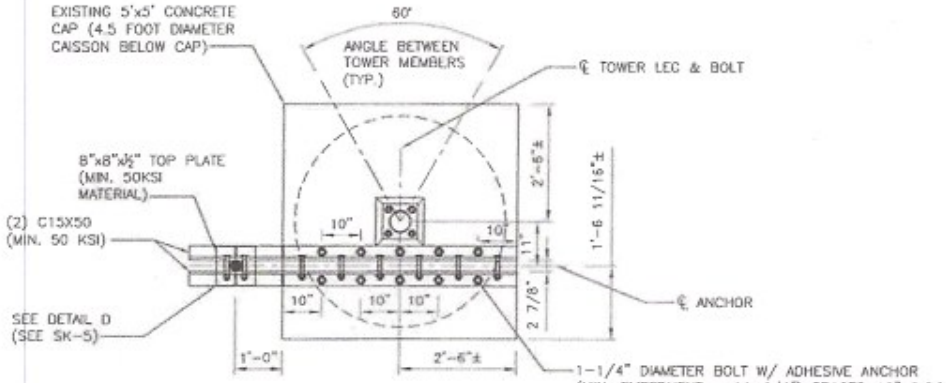
2. DIMENSIONS FOR TOWER LEGS ARE OBTAINED FROM "TOWER AND FOUNDATION REINFORCEMENT, SECTIONS AND DETAILS" DEVELOPED BY TECTONIC ENGINEERING, DATED AUGUST 2001. IF TOWER DIMENSIONS ARE NOT AS INDICATED ON THIS SHEET, CONTACT THE ENGINEER IMMEDIATELY.

3. INDIVIDUAL ANCHORS SHALL BE PROOF TESTED BEFORE ANCHORAGE INSTALLATION PROCEDURES CAN CONTINUE. THE UNFACTORED "P" DESIGN LOAD IS 180 KIPS. THE "PROOF LOAD" OF THESE ANCHORS SHALL BE TESTED TO 239 KIPS PER INDIVIDUAL ANCHOR BEFORE "LOCKING OFF" THE ANCHORS AT 135 KIPS. ANCHOR LOADS NOTED ARE BASED ON UNFACTORED ALLOWABLE STRESS DESIGN (ASD) PER STATE BUILDING CODE. THE ENGINEER SHALL BE CONTACTED IMMEDIATELY IF THERE IS A FAILURE OF THE PROOF LOAD TEST ON AN ANCHOR DURING INSTALLATION. INSTALLATION OF ROCK ANCHORS AND PROOF TESTING OF ANCHORS SHALL COMPLY WITH THE POST TENSIONING INSTITUTE RECOMMENDATIONS REGARDING ROCK/SOIL ANCHORS AND PROOF TEST PROCEDURES.

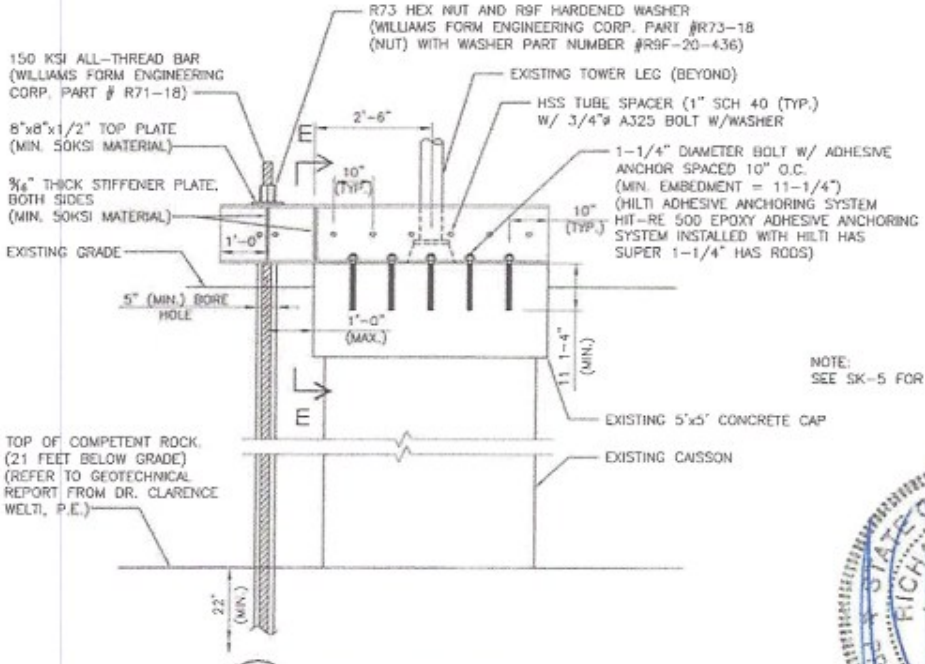
4. PRODUCTS INDICATED ON THIS SHEET (VIA PART NUMBER) ARE FOR REFERENCE. USE OF EITHER THE PRODUCTS AS SHOWN OR USE OF AN APPROVED EQUIVALENT WILL BE REQUIRED FOR FOUNDATION INSTALLATION.

5. ROCK ANCHOR MUST HAVE A MINIMUM OF 22 FEET OF BONDING LENGTH INTO COMPETENT ROCK LAYER. THE 21 FOOT SOIL LAYER SHALL HAVE ADDITIONAL GROUT INSTALLED INTO THE ACCESS HOLE AFTER THE PRIMARY ANCHORAGE ATTACHMENT HAS BEEN SET.

6. STEEL MATERIALS SHOWN SHALL HAVE A MINIMUM STRENGTH OF 50 KSI UNLESS NOTED OTHERWISE.



1 SK-4 LEG A - PLAN
LEG B - OPP HAND
SCALE: 1/4" = 1'-0"



2 SK-4 LEG A & B ELEVATION VIEW
SCALE: 1/4" = 1'-0"

STATE OF CONNECTICUT
RICHARD A. SANBORN
No. 9057
LICENSED PROFESSIONAL ENGINEER

PROJECT NO.	
Designed by:	MCD
Drawn by:	KAP
Checked by:	KB
Approved by:	ICA

AECOM
500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT
860-529-8882

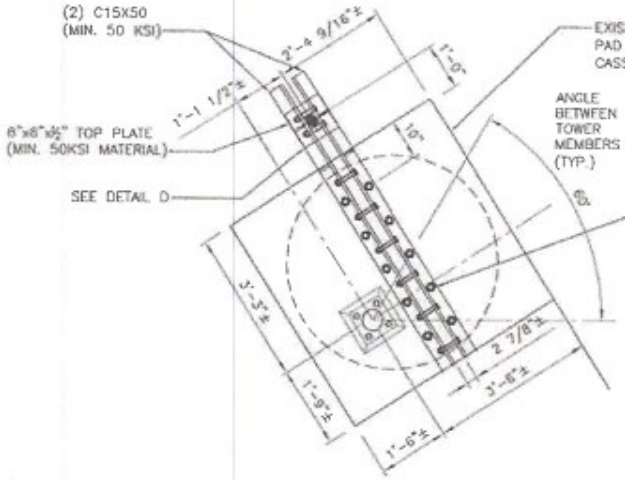
FOUNDATION DETAILS 1

STAMFORD FIRE DEPARTMENT TOWER
SITE ADDRESS: 366 OLD LONG RIDGE ROAD
STAMFORD, CT

REV.	DATE:	DESCRIPTION

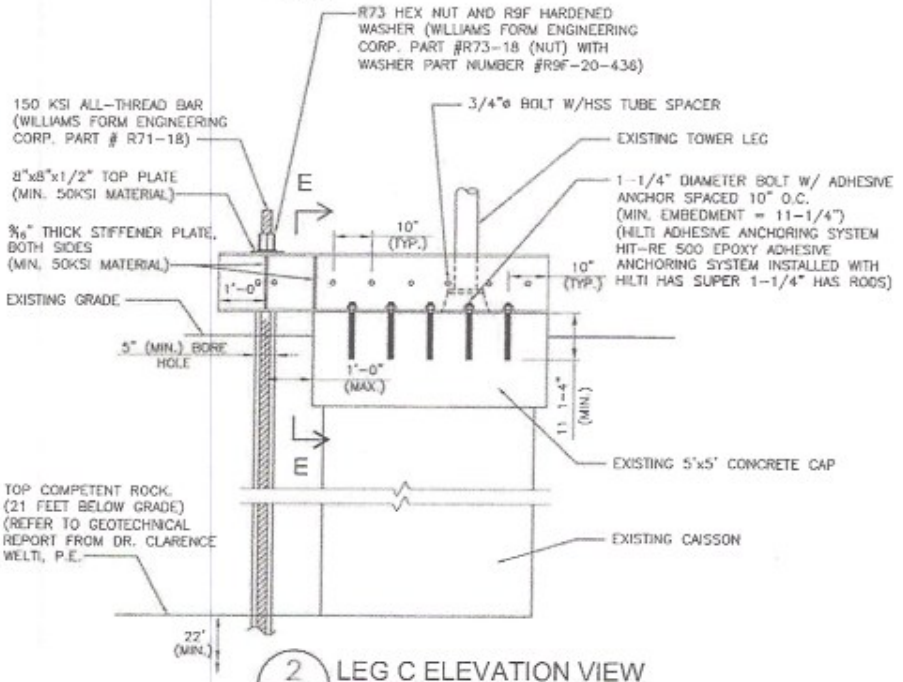
Scale: AS NOTED | Date: 05/16/16
Job No. | File No. | Dwg. 4 of 7

Dwg. No. SK-4

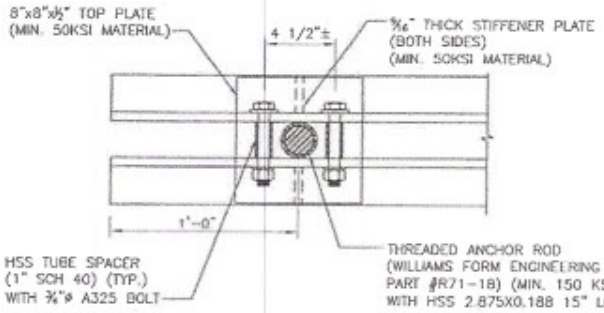


1 SK-5 LEG C PLAN VIEW
SCALE: 1/4" = 1'-0"

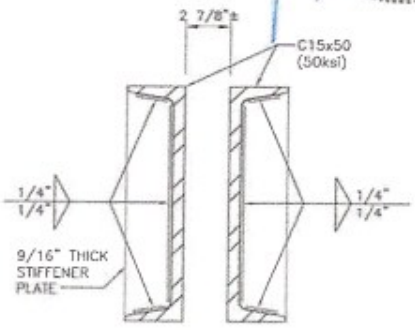
NOTES:
1. SEE SK-4 FOR ROCK ANCHOR INSTALLATION NOTES.
2. WELD DETAILS FOR STIFFENER PLATES SHOWN IN SECTION E ARE TYPICAL FOR PLATE INSTALLATION. WELD ELECTRODE SHALL USE E70 ELECTRODE.
3. WELDS SHALL HAVE A CLEAR DISTANCE OF 1/4" HORIZONTALLY & 1/2" VERTICALLY FROM EDGES OF STIFFENER PLATE.



2 SK-5 LEG C ELEVATION VIEW
SCALE: 1/4" = 1'-0"

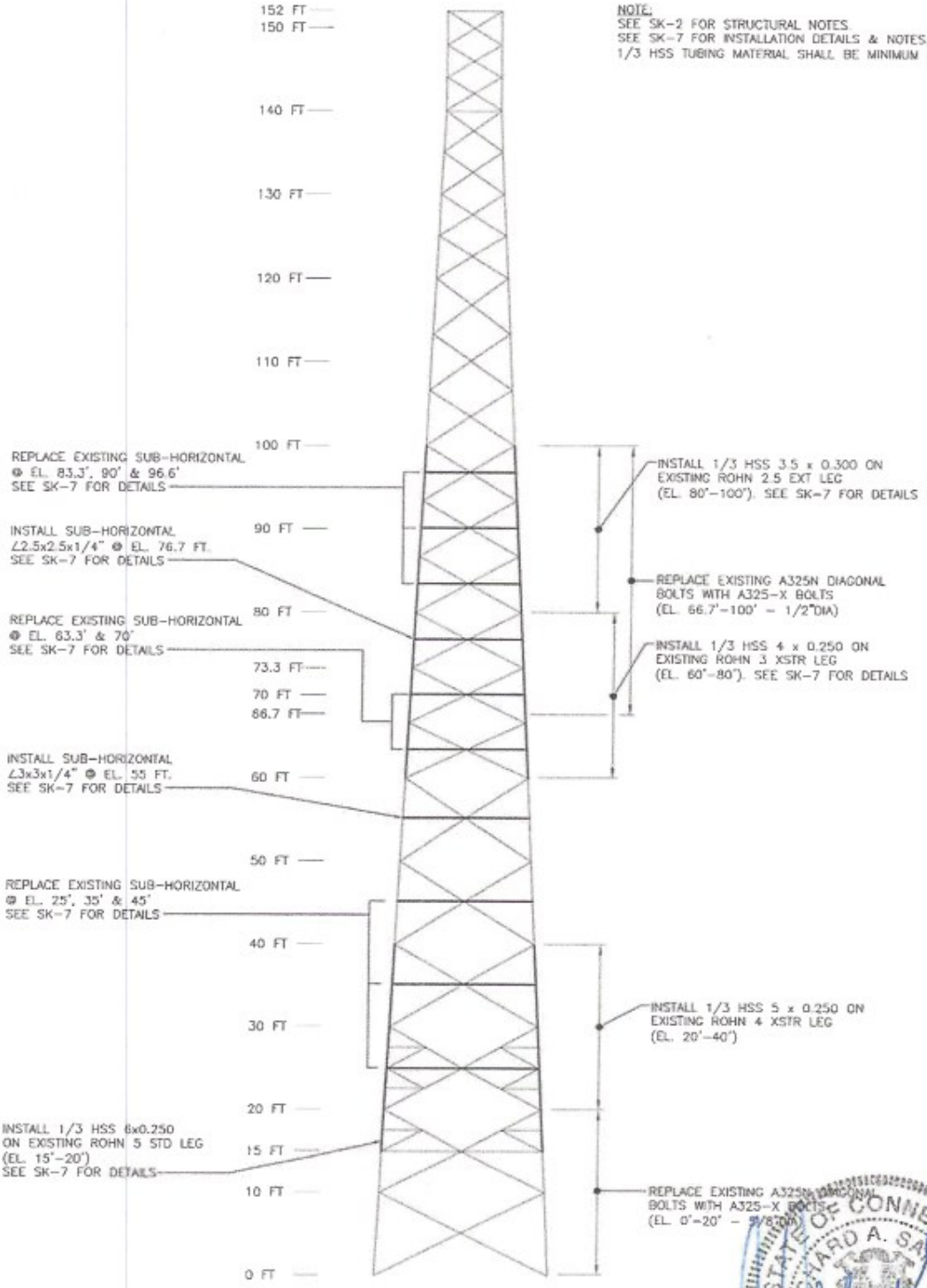


3 SK-5 DETAIL "D"
SCALE: 1" = 1'-0"



4 SK-5 SECTION "E"
SCALE: 1" = 1'-0"

PROJECT NO.	AECOM 500 ENTERPRISE DRIVE ROCKY HILL, CONNECTICUT 860-529-8882	FOUNDATION DETAILS 2	Dwg. No. SK-5
Designed by: MCD		STAMFORD FIRE DEPARTMENT TOWER	REV. DATE: DESCRIPTION
Drawn by: KAP		SITE ADDRESS: 366 OLD LONG RIDGE ROAD STAMFORD, CT	Scale: AS NOTED Date: 06/16/18
Checked by: KB			Job No. File No. Dwg. 5 of 7
Approved by: ICA			



NOTE:
SEE SK-2 FOR STRUCTURAL NOTES.
SEE SK-7 FOR INSTALLATION DETAILS & NOTES.
1/3 HSS TUBING MATERIAL SHALL BE MINIMUM 50 ksi YIELD STRESS.

1 / SK-6 TOWER ELEVATION
SCALE: 1"=20'-0"

STATE OF CONNECTICUT ★ RICHARD A. SAYBOR ★ No. 9057 LICENSED PROFESSIONAL ENGINEER

PROJECT NO.	
Designed by:	MCD
Drawn by:	KAP
Checked by:	KB
Approved by:	ICA

AECOM
500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT
860-529-8882

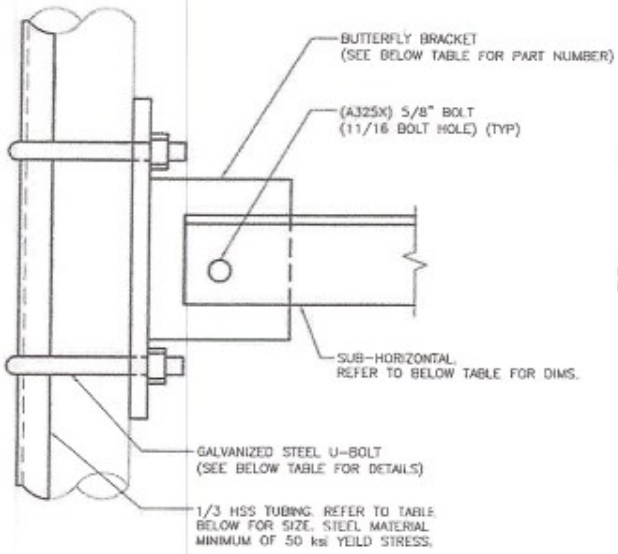
TOWER ELEVATION

STAMFORD FIRE DEPARTMENT TOWER
SITE ADDRESS: 366 OLD LONG RIDGE ROAD
STAMFORD, CT

REV.	DATE:	DESCRIPTION

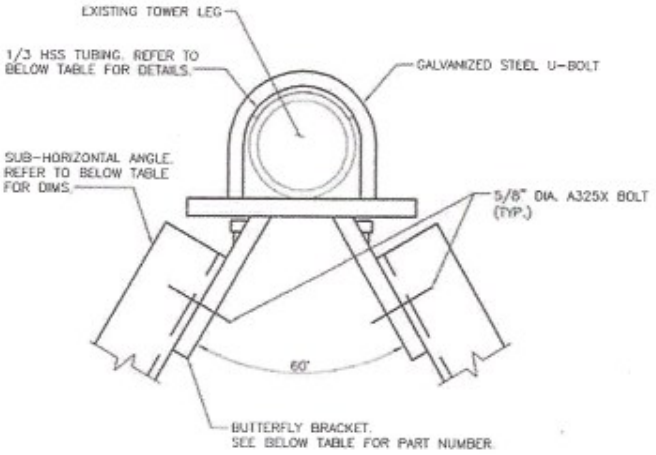
Scale: AS NOTED | Date: 06/16/16
Job No. | File No. | Dwg. 6 of 7

Dwg. No. SK-6



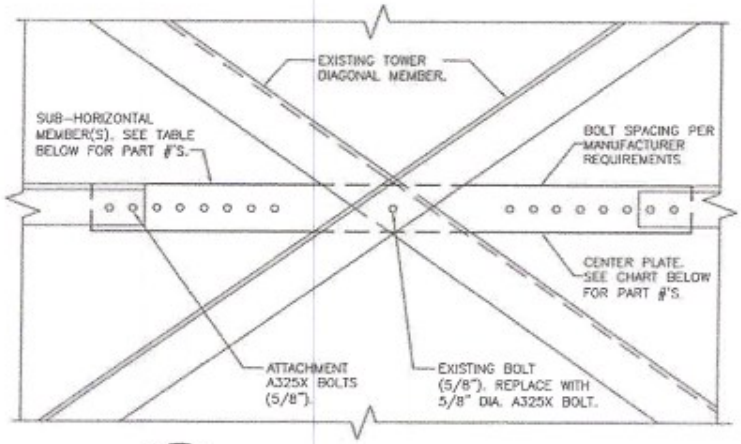
1 SK-7 SUB-HORIZONTAL ATTACHMENT - ELEVATION VIEW

SCALE: 1 1/2" = 1'-0"



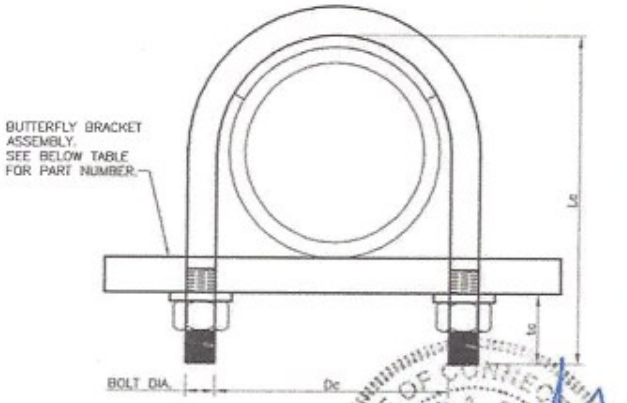
2 SK-7 SUB-HORIZONTAL ATTACHMENT - PLAN VIEW

SCALE: 1 1/2" = 1'-0"



3 SK-7 SUB-HORIZONTAL

SCALE: 3/4" = 1'-0"



4 SK-7 U-BOLT FOR BRACKET ATTACHMENT

SCALE: 3" = 1'-0"

ELEVATION	SECTION WIDTH (FT)	SUB-HORIZONTAL PART NUMBER	SIZE	CENTER PLATE	BUTTERFLY BRACKET PART NUMBER	TOWER LEG DIA. O.D. (IN)	U-BOLT DIA (IN)	(Dc) U-BOLT INTERIOR WIDTH (IN)	(Lc) U-BOLT INTERIOR LENGTH (IN)	(tr) U-BOLT THREAD LENGTH (IN)	1/3 HSS TUBE DIMS (IN)
25'	18.23	RSH-0617-19	L3x3x1/4	1/2"[t] x 4"	RSH-0568-68	4.5	5/8	5	7	2	5x0.250
35'	17.20	RSH-0617-19	L3x3x1/4	1/2"[t] x 4"	RSH-0568-68	4.5	5/8	5	7	2	5x0.250
45'	16.20	RSH-0617-17	L3x3x1/4	1/2"[t] x 4"	RSH-0545-68	4.5	5/8	4.5	4	2	N/A
55'	15.20	RSH-0617-17	L3x3x1/4	1/2"[t] x 4"	RSH-0545-68	4.5	5/8	4.5	4	2	N/A
63.3'	14.35	RSH-0617-15	L2-1/2"x2-1/2x1/4"	1/2"[t] x 4"	RSH-0545-68	3.5	5/8	4.25	6	2	4x0.250
70'	13.65	RSH-0617-15	L2-1/2"x2-1/2x1/4"	1/2"[t] x 4"	RSH-0545-68	3.5	5/8	4.25	6	2	4x0.250
76.6'	12.95	RSH-0617-13	L2-1/2"x2-1/2x1/4"	3/8"[t] x 3"	RSH-0545-68	3.5	5/8	4.25	6	2	4x0.250
83.3'	12.26	RSH-0617-13	L2-1/2"x2-1/2x1/4"	3/8"[t] x 3"	RSH-0535-35	2.875	5/8	3.5	5.5	2	3.5x0.300
90'	11.58	RSH-0617-13	L2-1/2"x2-1/2x1/4"	3/8"[t] x 3"	RSH-0535-35	2.875	5/8	3.5	5.5	2	3.5x0.300
96.6'	10.9	RSH-0617-13	L2-1/2"x2-1/2x1/4"	3/8"[t] x 3"	RSH-0535-35	2.875	5/8	3.5	5.5	2	3.5x0.300

NOTE: SUB-HORIZONTAL AND BUTTERFLY BRACKET INFORMATION BASED ON PRIMUS ELECTRONICS CORPORATION. CONTRACTOR SHALL USE PRODUCTS SIMILAR TO OR EXCEEDING IN QUALITY FOR TOWER CONSTRUCTION.
1/3 HSS TUBING SHALL BE MINIMUM 50 ksi YIELD STRESS.

5 SK-7 TOWER LEG - REINFORCEMENT

SCALE: 3" = 1'-0"

NOTE: WELD 4" EACH SIDE AT TOP & BOTTOM HSS SECTION & 2" PER 12"

PROJECT NO.
Designed by: MCD
Drawn by: KAP
Checked by: KB
Approved by: ICA

AECOM
500 ENTERPRISE DRIVE
ROCKY HILL, CONNECTICUT
860-529-8882

ATTACHMENT DETAILS

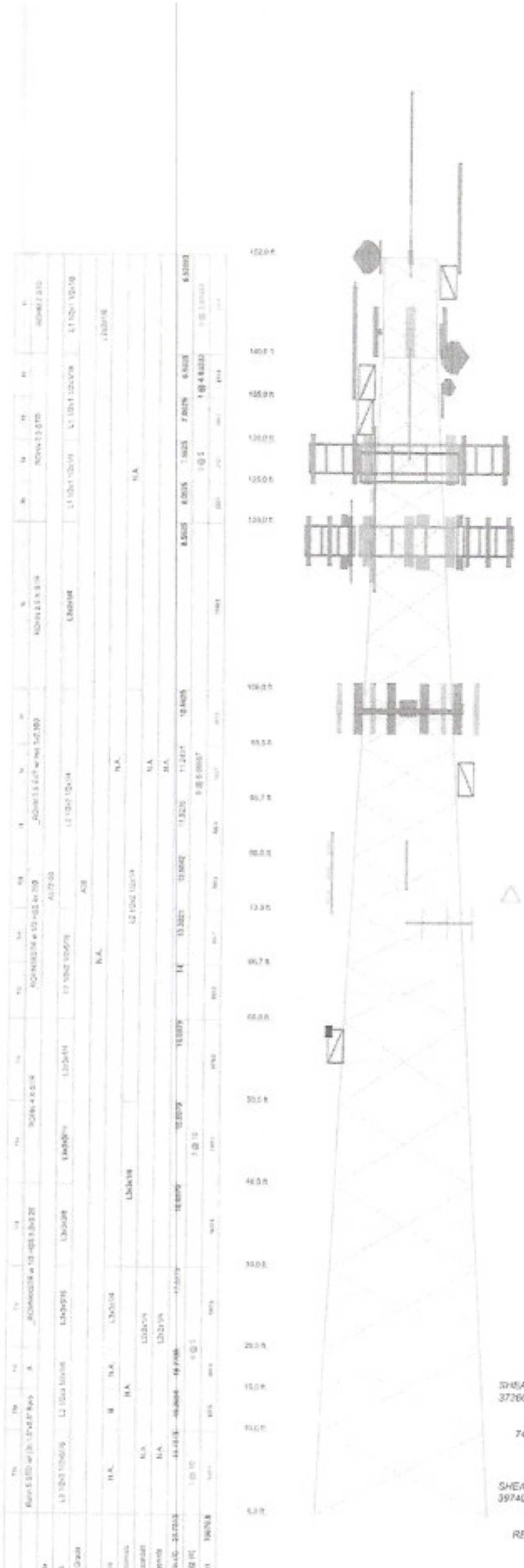
STAMFORD FIRE DEPARTMENT TOWER
SITE ADDRESS: 366 OLD LONG RIDGE ROAD
STAMFORD, CT

REV.	DATE:	DESCRIPTION

Scale: AS NOTED | Date: 06/16/16
Job No. | File No.

Dwg. No. SK-7

TNX INPUT/OUTPUT SUMMARY



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
20' 4-Bay Dipole (Unknown)	152	APX16DWV-16DWV-S-E-ACU w/ Mount (T-Mobile)	118
DS6409F-360-N 10 ft Omni w/ Mount Pipe (Eversource)	152	RRUS-11 (T-Mobile)	118
DB560M-ER (Unknown)	150.701	RRUS-32 (T-Mobile)	118
4'x4' Pipe Mount (Unknown)	152	AIR32 B66Aa/B2a Antenna Panel (T-Mobile)	118
439-94C-09508M 150MHz TTA Unit (Eversource)	152	LNX-6515DS-A-M (T-Mobile)	118
4' w/Radome (Unknown)	152	APX16DWV-16DWV-S-E-ACU w/ Mount (T-Mobile)	118
DB810KE-YP (Unknown)	151.25	RRUS-11 (T-Mobile)	118
3' Sidearm (Unknown)	149	RRUS-32 (T-Mobile)	118
Fiber Box 22"x22"x6" (Unknown)	149	Valmont VFA-10-U V-Frame (T-Mobile)	118
2' Sidearm (Unknown)	148.5	Valmont VFA-10-U V-Frame (T-Mobile)	118
Fiber Box 20"x6"x6" (Unknown)	148.5	Valmont VFA-10-U V-Frame (T-Mobile)	118
12'x2 1/2" STD Pipe Mount (Unknown)	145	DS6F03C360-N 10' Omni (Eversource)	118
12' x 3' Dia Omni (Unknown)	144	3' Sidearm (Eversource)	113
TMA2117F00V1-1 TMA (ATT)	143	HBXX-6517DS-A2M (Verizon-2100MHz)	98
TMA2117F00V1-1 TMA (ATT)	143	RRH_2x60_PCS (Verizon-2100MHz)	98
TMA2117F00V1-1 TMA (ATT)	143	RRH_2x60_PCS (Verizon-2100MHz)	98
SBNHH-1D65A (ATT)	143	RRH_2x60_PCS (Verizon-2100MHz)	98
4'x3' Pipe Mount (ATT)	143	DB-T1-6Z-8AB-0Z Dist. Box (Verizon-2100MHz)	98
SBNHH-1D65A (ATT)	143	LNX-6514DS-A1M (Verizon-700MHz)	98
4'x3' Pipe Mount (ATT)	143	LNX-6514DS-A1M (Verizon-700MHz)	98
SBNHH-1D65A (ATT)	143	RRH_2x40-700U (Verizon-700MHz)	98
4'x3' Pipe Mount (ATT)	143	RRH_2x40-700U (Verizon-700MHz)	98
4'x4' Pipe Mount (Unknown)	142	RRH_2x40-700U (Verizon-700MHz)	98
DB560K-ER (Unknown)	141.701	LNX-6513DS-A1M (Verizon-850MHz)	98
4' w/Radome (Unknown)	140	LNX-6514DS-A1M (Verizon-850MHz)	98
6' x 3' Dia Omni (Unknown)	138	LNX-6514DS-A1M (Verizon-850MHz)	98
4' Side Mount Standoff (1) (Unknown)	137	HBXX-6517DS-A2M (Verizon-1900MHz)	98
3' w/Radome (Unknown)	136.5	HBXX-6517DS-A2M (Verizon-1900MHz)	98
4'x4' Pipe Mount (Unknown)	135	HBXX-6517DS-A2M (Verizon-1900MHz)	98
DB465-A (Unknown)	135	RRH_2x60_PCS (Verizon-1900MHz)	98
3' Sidearm (Unknown)	133.5	RRH_2x60_PCS (Verizon-1900MHz)	98
2' Dia 6' Omni (Unknown)	131	RRH_2x60_PCS (Verizon-1900MHz)	98
4' Side Mount Standoff (1) (Unknown)	131	DB-T1-6Z-8AB-0Z Dist. Box (Verizon-1900MHz)	98
(2) DB980H90E-M (Sprint)	128	PiROD 13' Lightweight T-Frame (Verizon)	98
(2) DB980H90E-M (Sprint)	128	PiROD 13' Lightweight T-Frame (Verizon)	98
(2) DB980H90E-M (Sprint)	128	PiROD 13' Lightweight T-Frame (Verizon)	98
11' Boom Gate w/ 2 3/8" Pipe (Sprint)	127	LNX-6514DS-A1M (Verizon-700MHz)	98
11' Boom Gate w/ 2 3/8" Pipe (Sprint)	127	HBXX-6517DS-A2M (Verizon-2100MHz)	98
11' Boom Gate w/ 2 3/8" Pipe (Sprint)	127	HBXX-6517DS-A2M (Verizon-2100MHz)	98
DB254-A (Unknown)	122	3' Sidearm (Unknown)	80.5
AIR32 B66Aa/B2a Antenna Panel (T-Mobile)	118	4' x 3' Dia Omni (Unknown)	78
LNX-6515DS-A-M (T-Mobile)	118	8' 2-Bay Dipole (Unknown)	76
APX16DWV-16DWV-S-E-ACU w/ Mount (T-Mobile)	118	3' Sidearm (Unknown)	72.5
RRUS-11 (T-Mobile)	118	Scala Yagi w/ Radome (Unknown)	72
RRUS-32 (T-Mobile)	118	GPS (Sprint)	58
AIR32 B66Aa/B2a Antenna Panel (T-Mobile)	118	2' Sidearm (Sprint)	57
LNX-6515DS-A-M (T-Mobile)	118		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN 5 STD w/ 1.0 HSS 8x0.318	B	L2.875x2.875x0.1875

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 74 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 97%

MAX. CORNER REACTIONS AT BASE:
DOWN: 204215 lb
SHEAR: 24235 lb

UPLIFT: -178177 lb
SHEAR: 21494 lb

AXIAL
49272 lb
SHEAR 37266 lb
MOMENT 3324 kip-ft
TORQUE 22 kip-ft
74 mph WIND - 0.500 in ICE

AXIAL
28569 lb
SHEAR 39740 lb
MOMENT 3504 kip-ft
TORQUE 22 kip-ft
REACTIONS - 85 mph WIND

AECOM 500 Enterprise Drive, Suite 3B Rocky Hill, CT Phone: 860-529-8882 FAX: 860-529-3991	Job: ***152' ROHN SSV Tower - MODification Analysis*** Project: ***356 Old Long Ridge Road, Stamford, CT*** Client: T-Mobile, Eversource, VZW - Multicarrier MOD Analysis Drawn by: MCD App'd: Code: TIA/EIA-222-F Date: 06/16/16 Scale: NT Path: Dwg No. E

EXHIBIT C

LEASE AGREEMENT

This agreement made by and between The Long Ridge Fire Company Inc., a Connecticut corporation with it s principal office at 366 Old Long Ridge Road, Stamford, Connecticut, hereinafter Landlord, and T-Mobile Northeast LLC, a Delaware limited liability company, with an office at 4 Sylvan Way, Parsippany, New Jersey 07054, hereinafter Tenant.

PRELIMINARY STATEMENT

Whereas Tenant wishes to lease from Landlord, a portion of the real property described in the attached Exhibit A (the "Property"), sufficient for placement of the Antenna Facilities (as defined below) upon a tower owned or operated by Landlord and upon a portion of ground space , together with all necessary space for utilities and rights of ingress and egress , as generally described and depicted in the attached Exhibit B (collectively referred to hereinafter as the "Premises"). The Premises, located at 366 Old Long Ridge Road, City of Stamford, County of Fairfield, State of Connecticut, comprises approximately 160 square feet.

WHEREAS, TENANT wishes to install, operate and maintain certain communication equipment and other appurtenant facilities on the Premises as set forth in the attached Exhibits.

NOW, THEREFORE, in consideration of the mutual promises and covenants contained herein and in exchange for other good and valuable consideration the receipt of which is hereby acknowledged, the parties hereto agree as follows:

I. ACCESS

(a) Tenant and/or its authorized representative shall have the right to access, ingress and egress on, over and across the Premises herein described at all reasonable and necessary times, provided Landlord or its authorized representative is notified, prior to entry. However, Tenant shall have access to the Premises 24-hours-a-day, 7-days-a-week for the purpose of addressing an emergency ("Emergency Access") or service interruption. Tenant shall provide Landlord with notice of its Emergency Access as soon thereafter as practicable.
(b) As partial consideration for rent paid under this Lease, Landlord hereby grants Tenant non-exclusive rights of access on, under and across the Property for ingress, egress, utilities and access (including access for the purposes described in Section 1) to the Premises adequate to install and maintain utilities, including, but not limited to, the installation of power and telephone service cable, and to service the Premises and the Antenna Facilities at all times during the term of this Lease and any Renewal Term (collectively, the "Rights of Access"). The Rights of Access provided hereunder shall have the same term as this Lease.

II. CONDEMNATION AND CASUALTY

If the Premises or Property is taken in part or whole by any lawful authority such as eminent domain, or destroyed by fire or other casualty, then this Lease shall thereupon terminate and Tenant shall be liable only for the rent up to the date of such termination. If the Premises is only partially taken or destroyed, Tenant shall determine if the remaining portion is suitable for its needs and, at its option, may terminate the Lease immediately upon written notice to Landlord or continue the Lease as set forth herein and pay a rent abated proportionately to the portion of the Premises

(d) Notwithstanding the above, Tenant acknowledges that the primary use of the Property by Landlord is for governmental purposes providing E-911, police, and health and safety services. Upon and after written notice is received from Landlord advising Tenant of a material interference with the governmental operations of Landlord in providing E-911, police, and health and safety services, together with supporting documentation evidencing the existence of such interference, Tenant shall immediately cease such interference, including powering down the Antenna Facilities, as hereinafter defined, if necessary, except for intermittent testing, until such interference is eliminated.

VII. EQUIPMENT/PERMITS/USE

(a) Tenant's equipment installed on the Premises pursuant to this Agreement shall use only those frequencies licensed to Tenant by the FCC. Tenant shall maintain its FCC license in good standing while using the Premises and all of its equipment shall meet the requirements imposed by any federal or state authority, its laws, statutes, rules, ordinances or regulations.

(b) During the term of this Lease, Landlord agrees to cooperate with Tenant in obtaining, at Tenant's expense, all licenses and permits or authorizations required for Tenant's use of the Premises (as defined below) from all applicable government and/or regulatory entities (including, without limitation, zoning and land use authorities, and the Federal Communication Commission ("FCC") ("Governmental Approvals"), including all land use and zoning permit applications, and Landlord agrees to cooperate with and to allow Tenant, at no cost to Landlord, to obtain a title report, zoning approvals and variances, land-use permits. Landlord expressly grants to Tenant a right of access to the Property, which shall not interfere with the use of the Premises by Landlord and any other tenant, licensee or user, to perform any surveys, soil tests, and other engineering procedures or environmental investigations ("Tests") on the Property deemed necessary or appropriate by Tenant to evaluate the suitability of the Property for the uses contemplated under this Lease . During the term of this Lease or any renewal term, Landlord agrees that it will not interfere with Tenant's efforts to secure other licenses and permits or authorizations that relate to other property.

(c) The Premises may be used by Tenant for the transmission and reception of radio communication signals and for the construction, installation, operation, maintenance, repair, removal or replacement of related facilities, including, without limitation, antennas, microwave dishes, equipment shelters and/or cabinets and related activities.

(d) Tenant shall have the right, at its expense, to erect and maintain on the Premises improvements, personal property and facilities necessary to operate its communications system, including, without limitation, radio transmitting and receiving antennas, microwave dishes, equipment shelters and/or cabinets and related cables and utility lines and a location based system, as such location based system may be required by any county, state or federal agency/department, including, without limitation, additional antenna(s), coaxial cable, base units and other associated equipment (collectively, the "Antenna Facilities"). Tenant shall have the right to alter, replace, expand, enhance and upgrade the Antenna Facilities at any time during the term of this Lease. Tenant shall cause all construction to occur lien-free and in compliance with all applicable laws and ordinances. Landlord acknowledges that it shall neither interfere with any aspects of construction nor attempt to direct construction personnel as to the location of or method of installation of the Antenna Facilities and the Easements (as defined below). The Antenna Facilities shall remain the exclusive property of Tenant and shall not be considered fixtures. Tenant shall have the right to remove the Antenna Facilities at any time during and upon the expiration or termination of this Lease.

The effective date of this Lease is the date of execution by the last party to sign (the "Effective Date").

LANDLORD: **The Long Ridge Fire Company Inc.**

By: Robert L. Bennett

Printed Name: ROBERT L. BENNETT

Title: CHIEF

Date: 7/22/10

TENANT: **T-Mobile Northeast LLC**

By:

Printed Name: Chris Hillabrant

Title: Vice President

Date: 7/29/10

EXHIBIT D

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

T-Mobile Existing Facility

Site ID: CTFF056A

Long Ridge Fire House
366 Old Long Ridge Road
Stamford, CT 06903

June 3, 2016

EBI Project Number: 6216002680

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	52.03 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
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June 3, 2016

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

Emissions Analysis for Site: **CTFF056A – Long Ridge Fire House**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **366 Old Long Ridge Road, Stamford, 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 **366 Old Long Ridge Road, Stamford, 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 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.

2) 2 LTE channels (PCS Band – 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

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) 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.

6) For the following calculations the sample point was the top of a 6-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.

7) The antennas used in this modeling are the **Ericsson AIR32 B66Aa/B2A** & **RFS APX16DWV-16DWV-S-E-A20** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **Ericsson AIR32 B66Aa/B2A** has a maximum gain of **15.9 dBd** at its main lobe at 1900 MHz and 2100 MHz. The **RFS APX16DWV-16DWV-S-E-A20** has a maximum gain of **16.3 dBd** at its main lobe at 2100 MHz The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe at 700 MHz. 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.

8) The antenna mounting height centerline of the proposed antennas is **118 feet** above ground level (AGL).

9) 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:	Ericsson AIR32 B66Aa/B2A	Make / Model:	Ericsson AIR32 B66Aa/B2A	Make / Model:	Ericsson AIR32 B66Aa/B2A
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	118	Height (AGL):	118	Height (AGL):	118
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	9,337.08	ERP (W):	9,337.08	ERP (W):	9,337.08
Antenna A1 MPE%	2.68	Antenna B1 MPE%	2.68	Antenna C1 MPE%	2.68
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20	Make / Model:	RFS APX16DWV-16DWV-S-E-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	118	Height (AGL):	118	Height (AGL):	118
Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)	Frequency Bands	2100 MHz (AWS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	60	Total TX Power(W):	60	Total TX Power(W):	60
ERP (W):	2,559.48	ERP (W):	2,559.48	ERP (W):	2,559.48
Antenna A2 MPE%	0.73	Antenna B2 MPE%	0.73	Antenna C2 MPE%	0.73
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):	118	Height (AGL):	118	Height (AGL):	118
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power(W):	30	Total TX Power(W):	30	Total TX Power(W):	30
ERP (W):	865.21	ERP (W):	865.21	ERP (W):	865.21
Antenna A3 MPE%	0.53	Antenna B3 MPE%	0.53	Antenna C3 MPE%	0.53

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**3.94 %**
Nextel	4.03 %
AT&T	14.91 %
Sprint	10.64 %
EMCC	Field Measurements taken for Sprint application show these systems at a composite power density value of 9.55 %
City of Stamford	
City of Stamford	
City of Stamford	
AirTouch	
SkyTel	
Fire Dept.	
Gardella Trans.	
Hoffman Fuel	
Pronet	
Verizon Wireless	8.96
Site Total MPE %:	**52.03 %**

T-Mobile Sector 1 Total:	3.94 %
T-Mobile Sector 2 Total:	3.94 %
T-Mobile Sector 3 Total:	3.94 %
Site Total:	52.03 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

T-Mobile Maximum Power Values per Sector

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	2334.27	118	13.38	2100	1000	1.34 %
T-Mobile 1900 MHz (PCS) LTE	2	2334.27	118	13.38	1900	1000	1.34 %
T-Mobile 2100 MHz (AWS) UMTS	2	1279.74	118	7.34	2100	1000	0.73 %
T-Mobile 700 MHz LTE	1	865.21	118	2.48	700	467	0.53 %
						Total:	3.94 %

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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:	3.94 %
Sector 2:	3.94 %
Sector 3:	3.94 %
T-Mobile Per Sector Maximum:	3.94 %
Site Total:	52.03 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **52.03%** 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.