April 14, 2016

VIA EMAIL AND OVERNIGHT DELIVERY

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

RE: T-Mobile Northeast LLC - CT11414A
Notice of Exempt Modification
Pimpewaug Road, Wilton, CT
LAT: 41.21247 N
LNG: -73.42794 W

Dear Ms. Bachman:

T-Mobile Northeast LLC ("T-Mobile") currently maintains two (2) antennas at the 132' level on the existing 125' lattice transmission tower located at Pimpewaug Road in Wilton, CT. The tower is owned by Eversource Energy. T-Mobile now intends to replace the two (2) existing antennas with two (2) new 700/1900/2100 MHz antennas on a replacement pipe mast. These antennas would be installed at the 132' level of the tower. T-Mobile will also install four (4) new TMA's, remove an existing microwave dish and mounting pipe, install coax cables, reuse an existing coax cable, remove eight (8) existing GMA at grade and install two (2) RRU's at grade on proposed unistruts. See the plans attached as **Exhibit A**. With modifications, the existing facility is structurally capable of supporting T-Mobile's proposed installation as indicated in the structural analysis prepared by Paul J. Ford & Company and attached as **Exhibit B**.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. 16-50j-72(b)(2). In accordance with R.C.S.A. 16-50j-73, a copy of this letter is being sent to First Selectman Lynne Vanderslice, as well as the property owner, Eversource. Please see the engineering letter of approval from Robert Gray at Eversource dated April 6, 2016, 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-72(b)(s).

1. The proposed modifications will not result in an increase in the height of the existing structure. T-Mobile's existing antennas are at a centerline of 132' AGL; the replacement antennas will be installed at the same level. The attached tower drawing confirms that the proposed modification will not increase the height of the tower.

2. The proposed modifications will not require the extension of the site boundary or lease area, as depicted on the attached site plan. T-Mobile's equipment will be located entirely within the existing compound area.

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 replacement 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 1.71%; the combined site operations will result in a total power density of 1.71% as evidenced by the power density calculations attached as **Exhibit D**.

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

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

Respectfully submitted,

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

Attachments

cc: First Selectman Lynne Vanderslice, Town of Wilton
Eversource - as tower and property owner

EXHIBIT A

T-Mobile

NORTHEAST, LLC.

700 MHz MODERNIZATION

SITE I.D. NUMBER:

CT11414A

SITE NAME:

WILTON/CANNONDALE

SITE ADDRESS:

PIMPEWAUG RD. WILTON, CT 06897
TOWER #2983, MAP 46 LOT 21

CODE COMPLIANCE

CODE INFORMATION:

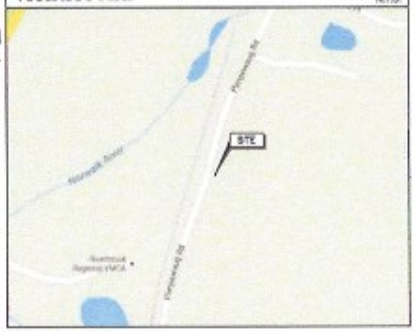
- STATE OF CONNECTICUT BUILDING CODE, LATEST EDITION
- TIA/EIA-222-F
- NATIONAL ELECTRICAL CODE, LATEST EDITION

PROJECT INDEX

SITE NUMBER:	CT11414A
SITE NAME:	WILTON/CANNONDALE ST.
SITE ADDRESS:	PIMPEWAUG RD. TOWER #2983 MAP 46 LOT 21 WILTON, CT 06897
COUNTY:	FAIRFIELD
PROPERTY OWNER:	EVERSOURCE ENERGY
APPLICANT:	T-MOBILE NORTHEAST LLC. 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002
STRUCTURE TYPE:	TRANSMISSION TOWER #2983
LATITUDE: (NAD 83)	41.21347° N
LONGITUDE: (NAD 83)	73.42784° W
GRADE ELEVATION:	126'± AMSL
PROJECT CLIENT:	VERTICAL DEVELOPMENT LLC.
CONTACT:	MATT BANGLE
PHONE:	(508) 843-8801
ENGINEER/ STRUCTURAL ENG:	TECTONIC ENGINEERING CONSULTANTS P.C. 1279 ROUTE 300 NEWBURGH, NY 12550
CONTACT:	JAMES QUICKSELL
PHONE:	(845) 567-4656 EXT. 2835
MUNICIPALITY:	TOWN OF WILTON
ZONING DISTRICT:	R-2
PARCEL ID:	MAP 46, LOT 21

VICINITY MAP

N.T.S.



SITE DIRECTIONS

HEAD NORTHEAST ON GRIFFIN RD S TOWARD W NEWBERRY RD.
TAKE THE 1ST RIGHT ONTO W NEWBERRY RD. TURN LEFT ONTO WOODLAND AVE.
TAKE THE 1ST RIGHT ONTO CT-107 S/SLUE HILLS AVE. TURN LEFT ONTO CT-178 E/E WINTONBURY AVE. CONTINUE TO FOLLOW CT-178 E.
TURN RIGHT TO MERGE ONTO I-91 S TOWARD HARTFORD. TAKE EXIT 17 FOR CT-15 S/W CROSS PKWY.
MERGE ONTO CT-15 S. TAKE EXIT 41 TOWARD CT-33 N/WILTON RD. TURN LEFT ONTO CT-33 N/WILTON RD.
CONTINUE TO FOLLOW CT-33 N. CONTINUE ONTO US-7 N/DANBURY RD. TURN RIGHT ONTO PIMPEWAUG RD. DESTINATION WILL BE ON THE RIGHT.

SHEET INDEX

SHEET NO.	DESCRIPTION	REVISION NO.	REVISION DATE
T-1	TITLE SHEET	1	04/05/16
A-1	SITE & EQUIPMENT PLANS	1	04/05/16
A-2	ELEVATION & ANTENNA PLAN	1	04/05/16
A-3	DETAILS & PLUMBING DIAGRAM	1	04/05/16
A-4	NOTES	1	04/05/16
E-1	ELECTRICAL DIAGRAM & NOTES	1	04/05/16
G-1	GROUNDING DIAGRAM, DETAILS & NOTES	1	04/05/16

DO NOT SCALE DRAWINGS

THESE DRAWINGS ARE FORMATTED FOR 24"X36". OTHER SIZED VERSIONS ARE NOT PRINTED TO THE SCALE SHOWN. CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

CONFIGURATION

704Bu

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

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T-Mobile
NORTHEAST, LLC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

VERTICAL DEVELOPMENT

APPROVALS

LANDLORD _____
RF _____
CONSTRUCTION _____
OPERATIONS _____
SITE ACQ. _____

PROJECT NUMBER	DESIGNED BY
7877.CT11414A	JG

REV.	DATE	DESCRIPTION	DRAWN BY
1	03/03/16	FOR COMMENT	MP
2	04/05/16	PER OWNER COMMENTS	MP

ISSUED BY _____ DATE _____

ORIGINAL SIZE IN INCHES

SITE INFORMATION

CT11414A
WILTON/CANNONDALE ST.
PIMPEWAUG RD. POLE#2983
WILTON, CT 06897

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

NORTH NOTE: NORTH SHOWN HAS BEEN ESTABLISHED USING THE USGS QUADRANGLE 7.5 MINUTE MAPS AND IS APPROXIMATE. VERIFY TRUE NORTH PRIOR TO INSTALLATION OF ANTENNAS.

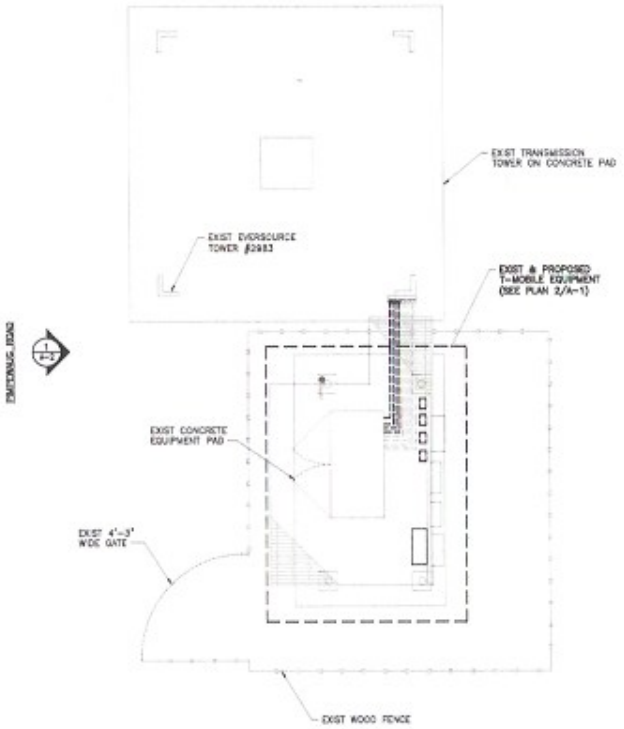
N

MAGNETIC

ANTENNA AND COAXIAL CABLE SCHEDULE

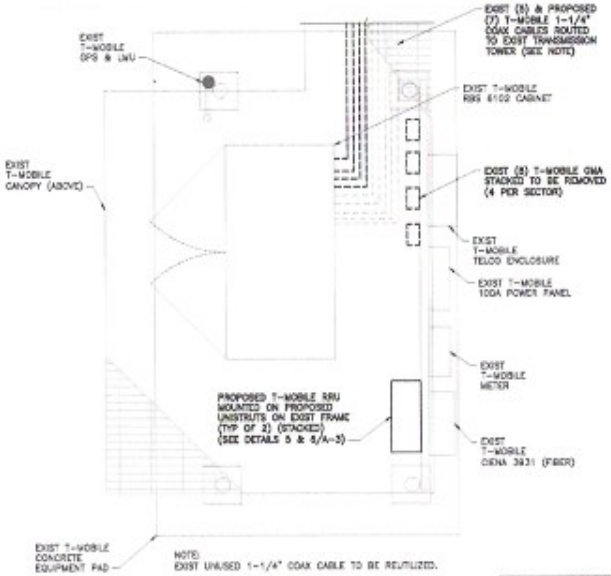
SECTOR MARK	ANTENNA MODEL	AZIMUTH	ELEC. DOWNTILT	MECH. DOWNTILT	ANTENNA CENTERLINE	SECTOR	TMA/RRH	CABLE	JUMPER TYPE	CABLE LENGTH
B-1 GSM/UMTS/LTE	COMMSCOPE SBNHH-1D65A	230°	2°	0°	132'	BETA	2/1	EXIST (2) 1 1/4" COAX REUSED (1) 1 1/4" COAX NEW (3) 1 1/4" COAX	1/2" COAX 1/2" COAX	130'-0" 130'-0"
C-1 GSM/UMTS/LTE	COMMSCOPE SBNHH-1D65A	350°	2°	0°	132'	GAMMA	2/1	EXIST (2) 1 1/4" COAX NEW (4) 1 1/4" COAX	1/2" COAX 1/2" COAX	130'-0" 130'-0"

NOTES:
- INFORMATION BASED ON RFDS REVISION 1, DATED 12/18/15. CHECK WITH RF ENGINEER FOR LATEST RFDS.
- ALL FIELD CONDITIONS AND ANTENNA LOCATIONS WERE VERIFIED PER A SITE VISIT BY TECTONIC ENGINEERING DATED 03/17/16.



NOTES:
1. CONTRACTOR TO MATCH ANTENNA AZIMUTHS AND DOWNTILTS TO EXISTING CONDITION AND NOTIFY RF ENGINEER FOR ANY DISCREPANCY.
2. CONTRACTOR TO RE-VERIFY CABLE LENGTHS PRIOR TO CONSTRUCTION.
3. LOCK & TAG BREAKERS FOR ALL EQUIPMENT BEING TURNED OFF (WHEN APPLICABLE).

1 / A-1 SITE PLAN
SCALE: 1/2" = 1'-0"



NOTE:
EXIST UNUSED 1-1/4" COAX CABLE TO BE REUTILIZED.

2 / A-1 EQUIPMEN PLAN
SCALE: 1" = 1'-0"

CONFIGURATION
704Bu
REFER TO LATEST T-MOBILE RF DATA SHEET FOR FINAL RF DESIGN & BOM.

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T-Mobile
NORTHEAST, LLC.
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

VERTICAL BRIDGE
60 Commerce Dr Brookfield, CT 06804

APPROVALS

LANDLORD	
RF	
CONSTRUCTION	
OPERATIONS	
SITE ACQ.	

PROJECT NUMBER	DESIGNED BY
7877.CT11414A	JG

REV.	DATE	DESCRIPTION	DRAWN BY
1	03/30/16	FOR COMMENT	AP
2	04/06/16	PER OWNER COMMENTS	AP

ISSUED BY | DATE

ORIGINAL SIZE IN INCHES

SITE INFORMATION

CT11414A
WILTON/CANNONDALE ST.
PIMPEWAUG RD. POLE #2983
WILTON, CT 06897

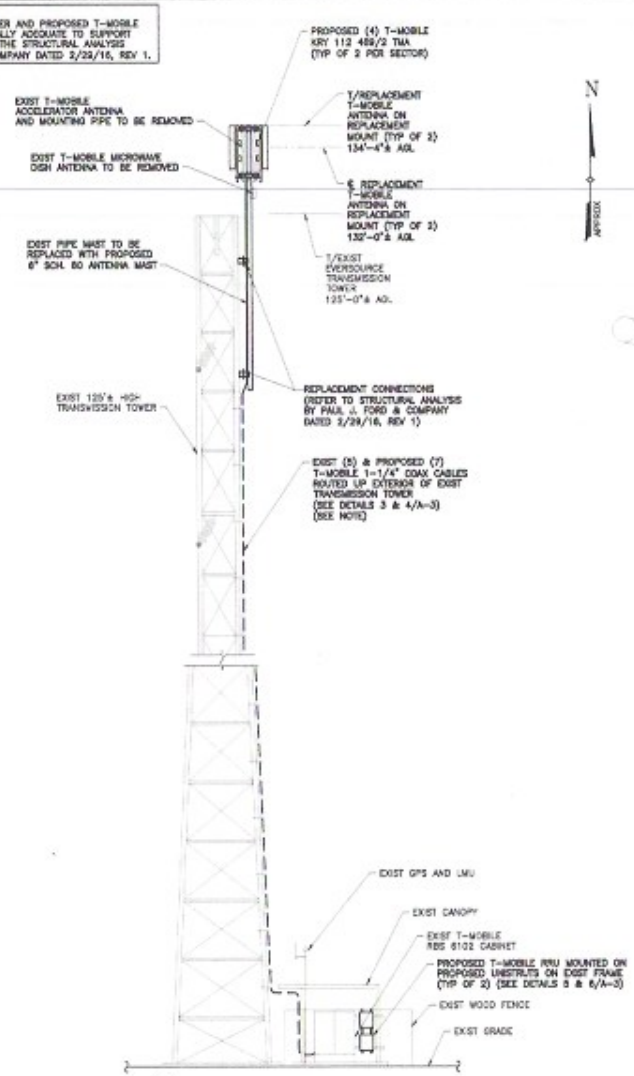
SHEET TITLE

SITE & EQUIPMENT PLANS

SHEET NUMBER

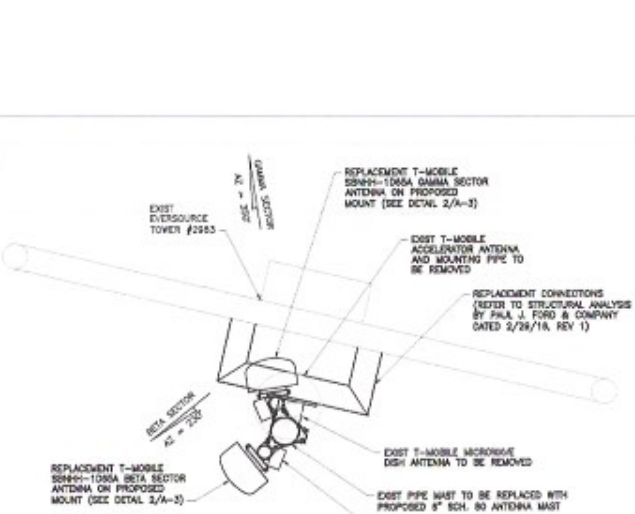
A-1

STRUCTURAL NOTE:
THE EXISTING SELF SUPPORT TOWER AND PROPOSED T-MOBILE ANTENNA MOUNTS ARE STRUCTURALLY ADEQUATE TO SUPPORT THE PROPOSED LOADING AS PER THE STRUCTURAL ANALYSIS REPORT BY PAUL J. FORD & COMPANY DATED 2/29/16, REV 1.



NOTE:
EXIST UNUSED 1-1/4" COAX CABLE TO BE REUTILIZED.

1 A-2 ELEVATION
SCALE: 3/16" = 1'-0"



2 A-2 ANTENNA PLAN
SCALE: 1" = 1'-0"

CONFIGURATION
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BLOOMFIELD, CT 06002

VERTICAL

APPROVALS
LANDLORD
RF
CONSTRUCTION
OPERATIONS
SITE ACQ.

PROJECT NUMBER	DRAWN BY
7877.CT11414A	JG

REV.	DATE	DESCRIPTION	DRAWN BY
1	03/23/18	PER COMMENT	JP
2	04/05/18	PER OWNER COMMENTS	JP

ISSUED BY | DATE

ORIGINAL SIZE IN INCHES

SITE INFORMATION
CT11414A
WILTON/CANNONDALE ST.
PIMPEWAUG RD. POLE#2983
WILTON, CT 06897

SHEET TITLE
ELEVATION & ANTENNA PLANS

SHEET NUMBER
A-2

EXHIBIT B

PAUL J. FORD & COMPANY

EVERSOURCE

Structural Analysis Report

CL&P Tower #2983

Site #CT11414A

Prepared on behalf of:

T-Mobile

35 Griffin Road South
Bloomfield, CT 06002

PJF Project #31216-0003.002.6280

REVISION	DATE	DESCRIPTION	ENGINEER	PJF TRACKING
0	02/05/2016	ORIGINAL ANALYSIS ISSUE DATE	CBH	.001.6000
1	02/29/2016	NEW ANTENNA MAST AND STRUCTURAL ANALYSIS	CBH	.002.6280

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PAUL J. FORD & COMPANY

Report Date:	February 29, 2016
Client:	T-Mobile 35 Griffin Road South Bloomfield, CT 06002
Attention:	Sam Simons 203-482-5156 sam.simons@t-mobile.com
Utility Name:	Eversource
Structure ID:	CL&P Tower #2983
Site Name and/or Reference:	Site #CT11414A
Site Address:	Pimpewaug Road
City, County, State:	Wilton, Fairfield County, Connecticut
Latitude, Longitude:	41.21247, -73.42794
PJF Project:	31216-0003.002.6280

Executive Summary

Paul J. Ford and Company is pleased to submit this "**Structural Analysis Report**". The purpose of this analysis is to determine if the existing structure has sufficient capacity to support the proposed equipment along with the existing wire loads described herein.

Analysis Criteria:

Reference Standards:	IEEE Standards Association, "National Electrical Safety Code" (NESC) C2-2007 ANSI/TIA/EIA-222-F-1996 Standard "Structural Standard for Antenna Supporting Structures and Antennas" ASCE Standard 10-15, "Design of Latticed Steel Transmission Structures"
Utility Specification:	Northeast Utilities OTRM 059.1 (3/12/2014)

Proposed Appurtenance Loads:

The structure was analyzed with the addition of the proposed appurtenance loads shown in Table 1 combined with the existing and reserved loads shown in Tables 2 and 3 of this report.

Summary of Analysis Results:

Existing Structure:	**Pass**
Existing Foundation:	**Pass**
Proposed Antenna Mount	**Pass**

We at Paul J. Ford and Company appreciate the opportunity to provide our professional services to you and T-Mobile. If you have any questions or need further assistance on this or any other projects please feel free to contact us.

Respectfully submitted by:
Paul J. Ford and Company

Chad Hines, P.E., S.E.
Engineering Manager
chines@pjfweb.com

STATE OF CONNECTICUT
DAVID L. SUMMERS
No. 21884
LICENSED
PROFESSIONAL ENGINEER
2/29/2016

TABLE OF CONTENTS

1) INTRODUCTION

The purpose of this analysis is to determine if the existing structure has sufficient capacity to support the proposed equipment along with the existing wire loads described herein. The existing structure is a 124.75' tall double circuit steel tower.

The proposed antenna mounting system consists of a flush mount installed on a proposed antenna mast. Refer to Tables 1 and 2 below and drawings located in Appendix A for further antenna equipment and mount information.

2) ANALYSIS CRITERIA

Reference Standards:	IEEE Standards Association, "National Electrical Safety Code" (NESC) C2-2007 ANSI/TIA/EIA-222-F-1996 Standard "Structural Standard for Antenna Supporting Structures and Antennas" ASCE Standard 10-15, "Design of Latticed Steel Transmission Structures"
Utility Specification:	Northeast Utilities OTRM 059.1 (3/12/2014)

Table 1 – Proposed Antenna and Cable Information[1]

Mounting Level (feet)	Center Line Elevation (feet)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (inches)	Note
132	132	2	Commscope	SBNHH-1D65A	4	1-1/4	2
		2	Commscope	ATSBT-TOP-MF-4G (Bias T)			
		4	Ericsson	KRY 112 489/2 (TMA)			
		1	Generic	Clamp-on Antenna Mount	-	-	-

Notes:
1) See drawing S-1 in "Appendix A – for further details.
2) Coax to be installed on existing coax brackets using stackable snap-ins.

Table 2 – Existing and Reserved Antenna and Cable Information[1]

Mounting Level (feet)	Center Line Elevation (feet)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (inches)	Note
132	132	2	RFS	APX16DWV_16DWVS	8	1-1/4	2

Notes:
1) See drawing S-1 in "Appendix A – for further details.
2) Existing antennas to be removed – coax to remain.

Table 3 – Existing Electrical Utility Wire Information[1,2,3]

Wire Designation	Wire Type	Tension Angle (degrees)	Wind Span		Weight Span	
			Back (feet)	Ahead (feet)	Back (feet)	Ahead (feet)
Shield Wire #1	OPGW – 24 Fiber (0.457"ø)	7°-40'-00"	268	268	341	341
Conductor #1	795 kcmil 26/7 (Drake)	7°-40'-00"	268	268	341	341
Conductor #2	556 kcmil 24/7 (Parakeet)	7°-40'-00"	268	268	341	341

Notes:
1) See "Appendix B – Load Calculations" for further details.
2) Insulator point loads for NESC 250B provided by Eversource based on PLS-CADD output by others. Wire tensions were not provided.
3) PJF determined wire loads for analysis by back-calculating to determine estimated wire tensions for load case 250B and then running SAG10 to determine tensions for 250C load case.

Table 4a – Utility Tower Analysis - Load Case Information[1]

Load Case Name	Radial Ice (inches)	Wind Speed (mph)	Overload Capacity Factors				Note
			Vertical	Wind	Wire Tension		
					Long.	Trans.	
NESC 250B (Heavy)	0.5	39.5	1.5	2.5	1.1	1.65	-
NESC 250C (Extreme Wind)	0	110	1.0	1.0	1.0	1.0	2

Notes:
1) As per the requirements of NU Design Criteria Table, NESC C2-2007 – Construction Grade B, and ASCE 10-15, "Design of Latticed Steel Transmission Structures".
2) Apply a 1.25 X Gust Response Factor to all telecommunication equipment projected above top of tower/pole and a 1.0 x Gust Response Factor to the tower/pole structure as per NU Design Criteria Table.

Table 4b – Antenna Mount Analysis - Load Case Information[1]

Load Case Name	Radial Ice (inches)	Wind Speed (mph)	Note
TIA/EIA – High Wind	0	85	-
TIA/EIA – Wind and Ice	0.5	74	2

Notes:
1) As per the requirements of NU Design Criteria Table, TIA/EIA-222-F and AISC-ASD standards.
2) 75% of 85mph wind pressure

3) ANALYSIS PROCEDURE

Table 5 – Documents Provided

Document	Remarks	Reference	Source
Tower Field Mapping Report	KM Consulting Engineers, Inc., 07/13/1998	-	Eversource
Structure Foundation Drawing	NUSCo, 01/27/1971	01055-60000	Eversource
RF Data Sheet	CT11414A, 12/18/2015	CT114141A_L700_V1	T-Mobile
Modification Drawings	Sheets T-1, N-1, MI-1, S-1	A31216-0003.002.6280	PJF

3.1) Analysis Method

Tower™ is a commercially available analysis software package made by Powerline Systems, Inc. Tower™ was used to create a three-dimensional model of the tower and calculate member stresses for various load cases. Equipment and wire load calculations were completed using MathCAD and applied to the structure model as point loads. Load Calculations are included in Appendix B. Selected output from the analysis is included in Appendix C

Risa-3D is a commercially available analysis software package made by Risa Technologies, LLC. For this analysis, Risa-3D was used to create a three dimensional model of the antenna mast and calculate member stresses and reactions for various load cases. Those reactions were then applied to the tower model as point loads. Equipment and wire load calculations were completed using MathCAD and applied to the antenna mast and tower models as point loads. Load Calculations are included in Appendix B. Select output from the Risa-3D and Tower™ analyses are included in Appendix C.

3.2) Assumptions

1. *Existing tower fabrication drawings were unavailable. The tower was field measured and all tower member sizes, member orientation, bolt sizes and counts were taken from the referenced report.*
2. *Steel material is assumed to be A36 with a yield point of 36ksi.*

3. *5/8"ø and 3/4"ø bolts are assumed to be A394-55T and have ultimate shear capacities of 9.1kips and 13.6 kips respectively.*
4. *The structure was built in accordance with the manufacturer's specifications.*
5. *The structure has been maintained in accordance with the manufacturer's specifications.*
6. *No allowance was made for any damaged, missing, or rusted members. The analysis assumes that no physical deterioration has occurred in any of the structural components and that all members have the same load carrying capacity as the day it was installed.*
7. *All bolts have been torqued to the snug-tight condition as defined by AISC.*
8. *No residual stresses exist due to incorrect tower erection.*
9. *All welds conform to the requirements of AWS D1.1.*
10. *Pipe mast and utility tower will be in plumb condition.*
11. *The configuration of antennas, cables, mounts and other appurtenances are as specified in Tables 1 and 2 of this report and as per the referenced documents in Table 5.*
12. *The wind loads applied to the tower due to the antenna installations are based on the full projected area of all antenna equipment in all directions (i.e. no shielding used).*
13. *Wire tensions estimated/assumed based on limited data provided.*

If any of the above assumptions are found to be inaccurate, invalid or incomplete, Paul J. Ford and Company shall be informed of these discrepancies to determine the validity of the conclusions stated in this report.

4) ANALYSIS RESULTS

The following table provides the maximum usages for each structure element type and the loading condition in which they occur:

Table 6 – Maximum Structure Element Usages[1,2]

Tower – Analysis			
Element Type	**Member Designation**	**Load Case**	**Usage (%)**
Leg Members	25XY	NESC 250C (Extreme Wind)	97
Vertical "X" Bracing / Diagonal Members	73XY	NESC 250C (Extreme Wind)	75
Horizontal Members & Hangers	85X	NESC 250C (Extreme Wind)	76
Tower – Supplemental Analysis – Direct Mount			
Element Type		**Load Case**	**Usage (%)**
Leg Members Supporting Antenna Mounts		NESC 250C (Extreme Wind)	34
		Maximum Structure Element Usage =	**97**
		Structure Result =	**Pass**

Notes:
1) See "Appendix C – Computer Output" for further detailed information.
2) See "Appendix D – Supplemental Calculations" for calculations supporting the % capacity used.

Table 7 – Maximum Structure Foundation Usages[1]

Foundation Analysis		
	Load Case	**Usage (%)**
Bearing Check	NESC 250C (Extreme Wind)	70
Overturning Check	NESC 250C (Extreme Wind)	83
Sliding Check	NESC 250C (Extreme Wind)	30
	Maximum Foundation Usage =	**83**
	Foundation Result =	**Pass**

Notes:
1) See "Appendix D – Supplemental Calculations" for calculations supporting the % capacity used.

Table 8 – Maximum Antenna Mount Usages[1,2]

Antenna Mount – Analysis		
Member	**Load Case**	**Usage (%)**
6" Schedule 80 Mast	TIA/EIA – High Wind	58
HSS Braces	TIA/EIA – High Wind	18
Mast Connection to CL&P Tower[3]	TIA/EIA – High Wind	58
	Maximum Antenna Mount Usage =	**58**
	Antenna Mount Result =	**Pass**

Notes:
1) See "Appendix C – Computer Output" for further detailed information.
2) See "Appendix D – Supplemental Calculations" for calculations supporting the % capacity used.
3) 1/3 increase in allowable stress not used for connection to tower as per OTRM 059.

4.1) Recommendations

Install proposed antenna mount per drawings in Appendix A.

5) CONCLUSION

The existing tower and foundation have **sufficient** capacity to support the proposed equipment along with the existing wire loads described herein. The proposed antenna mount has **sufficient** capacity to support the proposed equipment as described herein.

This analysis is presented based upon the assumptions listed herein and information provided by the utility and the wireless carrier. If the existing conditions are different than those presented here, Paul J. Ford and Company should be contacted to verify the validity of the conclusions presented here.

STANDARD CONDITIONS FOR FURNISHING OF PROFESSIONAL ENGINEERING SERVICES ON EXISTING STRUCTURES BY PAUL J. FORD AND COMPANY

1) It is the responsibility of the client to ensure that the information provided to Paul J. Ford and Company and used in the performance of our engineering services is correct and complete. All engineering services are performed on the basis that the information used is current and correct.

2) Paul J. Ford and Company has not performed a site visit to verify the details regarding structure or the antenna/coax loading. If the existing conditions are not as represented on the referenced drawings and/or documents, we should be contacted immediately to evaluate the significance of the deviation.

3) It is not possible to have all of the detailed information to perform a very thorough analysis of every sub-component of the structure. The structural analysis by Paul J. Ford and Company verifies the adequacy of the main structural members. Paul J. Ford and Company provides a limited scope of service in that we cannot verify the adequacy of every weld, bolt, plate connection, etc.

4) The structural integrity of the existing foundation can only be verified if exact foundation sizes and soil conditions are known. Paul J. Ford and Company will not accept any responsibility for the adequacy of the existing foundations unless the foundation sizes and a soils report are provided.

5) The structure has been analyzed according to the minimum design loads recommended by the codes referenced in this report. We do not imply to meet any other codes or requirements unless explicitly agreed in writing. If the owner or local or state agencies require a higher design wind speed or a higher ice load, Paul J. Ford and Company should be made aware of this requirement prior to the start of the project.

6) This analysis does not imply to meet any serviceability criteria such as deflections, twist, sway, etc. unless expressly agreed to in writing. If the owner or local or state agencies require a higher design wind load or specific serviceability requirements, Paul J. Ford and Company should be made aware of this requirement prior to the start of the project.

7) All Services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Paul J. Ford and Company is not responsible for the conclusion, opinions and/or recommendations made by others based on the information we supply.

APPENDIX A

MODIFICATION DRAWINGS

MODIFIED 124'-9" TRANSMISSION TOWER
CL&P STRUCTURE #2983

T-MOBILE SITE # CT11414A

PIMPEWAUG ROAD
WILTON, FAIRFIELD COUNTY, CONNECTICUT
LAT: 41°12' 45.18"; LONG: 73° 25' 40.24"

PROJECT CONTACTS

STRUCTURE OWNER:
EVERSOURCE
CONTACT: ROBERT GRAY AT ROBERT.GRAY@EVERSOURCE.COM
PH: (860) 728-6125

CARRIER INFO:
T-MOBILE
CONTACT: SAM SIMONS AT SAM.SIMONS@T-MOBILE.COM
PH: (203) 482-5156

ENGINEER OF RECORD:
PJFMOD@PJFWEB.COM

THIS PROJECT INCLUDES THE FOLLOWING ITEMS
NEW ANTENNA MOUNT

SHEET INDEX	
SHEET NUMBER	DESCRIPTION
T-1	TITLE SHEET
N-1	GENERAL NOTES
MI-1	MI CHECKLIST
S-1	TOWER ELEVATION AND DETAILS
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S-8	
S-9	
S-10	

DESIGN DATA - MOUNT	
REFERENCE STANDARD	TIA/EIA-222-F NUSCO OTRM 059.1
LOCAL CODE	2003 IBC
BASIC WIND SPEED (FASTEST-MILE)	85 MPH *
ICE THICKNESS	0.5 IN
ICE WIND SPEED	74 MPH

* PER EXCEPTION IN NUSCO OTRM 059.1

DESIGN DATA - TOWER	
REFERENCE STANDARD	NESC 2007 NUSCO OTRM 059.1
BASIC WIND SPEED (3-SECOND GUST)	110 MPH
ICE THICKNESS	0.5 IN
ICE WIND SPEED	40 MPH

STATE OF CONNECTICUT
DAVID L. SUMMERS
No. 21884
LICENSED PROFESSIONAL ENGINEER
2/29/2016

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T-MOBILE
35 GRIFFIN ROAD SOUTH BLOOMFIELD, CONNECTICUT 06002

CL&P STRUCTURE #2983
PIMPEWAUG ROAD
WILTON, FAIRFIELD COUNTY, CONNECTICUT
SITE # CT11414A

PROJECT No:	31216-0003.002.0280
DRAWN BY:	KAC
DESIGNED BY:	CBH
CHECKED BY:	
DATE:	2-29-2016

TITLE SHEET

T-1
SHEET NO. 1 OF 4

31216-0003.002.0280 (1980)

EVERSOURCE PROJECT: PIMPEWAUG ROAD, WILTON, FAIRFIELD COUNTY, CONNECTICUT
UTILITY PROJECT MASTER NOTES DOCUMENT (REV. 0, 01/7/2016)

1. GENERAL NOTES

1.1. THE STRUCTURAL ANALYSIS ASSUMES THAT ALL TOWER COMPONENTS ARE IN BRAND-NEW CONDITION. NO ALLOWANCE WAS MADE FOR ANY DAMAGED, MISSING OR RUSTED MEMBERS. IF ANY OF THESE CONDITIONS ARE DISCOVERED, THE CONTRACTOR SHALL BRING THEM TO THE ATTENTION OF THE OWNERS REPRESENTATIVE.

1.2. THESE DRAWINGS WERE PREPARED FROM INFORMATION AND DOCUMENTS PROVIDED BY OWNER. THE INFORMATION PROVIDED HAS NOT BEEN FIELD VERIFIED BY THE ENGINEER OF RECORD (EOR) FOR ACCURACY AND THEREFORE DISCREPANCIES BETWEEN THESE DRAWINGS AND ACTUAL SITE CONDITIONS SHOULD BE ANTICIPATED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AND COORDINATE WITH THE AVAILABLE SOURCES OF INFORMATION ABOVE AND WITH THE PROJECT DRAWINGS BEFORE PROCEEDING WITH THE WORK. CONTRACTOR SHALL IMMEDIATELY REPORT ANY AND ALL DISCREPANCIES TO THE EOR AND OWNER FIELD PERSONNEL BEFORE PROCEEDING WITH THE WORK.

1.3. IF MATERIALS, QUANTITIES, STRENGTHS OR SIZES INDICATED BY THE DRAWINGS OR SPECIFICATIONS ARE NOT IN AGREEMENT WITH THESE NOTES, THE BETTER QUALITY AND/OR GREATER QUANTITY, STRENGTH OR SIZE INDICATED, SPECIFIED OR NOTED SHALL BE PROVIDED.

1.4. THIS STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE INSTALLATION OF THE MODIFICATIONS DESCRIBED HEREIN. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO ENSURE THE SAFETY AND STABILITY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF WHATEVER TEMPORARY BRACING, GUYS OR TIE DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER THE COMPLETION OF THE PROJECT.

1.5. ALL CONSTRUCTION MEANS AND METHODS, INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN AND SHALL MEET OSHA AND GENERAL INDUSTRY STANDARDS.

1.6. OBSERVATION VISITS TO THE SITE BY OWNER AND/OR THE EOR SHALL NOT INCLUDE INSPECTIONS OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES.

1.7. ANY SUPPORT SERVICES PERFORMED BY THE EOR DURING CONSTRUCTION ARE SOLELY FOR THE PURPOSE OF ASSISTING IN QUALITY CONTROL AND IN ACHIEVING GENERAL CONFORMANCE WITH CONTRACT DOCUMENTS. THEY DO NOT GUARANTEE CONTRACTOR'S PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF CONSTRUCTION.

1.8. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY AND ALL SUBSTITUTIONS MUST BE PROPERLY APPROVED AND AUTHORIZED IN WRITING BY OWNER AND EOR PRIOR TO INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF MATERIALS AND EQUIPMENT BEING SUBSTITUTED.

1.9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THIS PROJECT AND RELATED WORK COMPLIES WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY CODES AND REGULATIONS GOVERNING THIS WORK AS WELL AS OWNER SAFETY GUIDELINES.

1.10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING AND NEW EQUIPMENT DURING CONSTRUCTION.

1.11. ANY EXISTING ATTACHMENTS AND/OR PROJECTIONS ON THE STRUCTURE THAT MAY INTERFERE WITH THE INSTALLATION OF THE MODIFICATION SYSTEM WILL HAVE TO BE REMOVED AND RELOCATED, REPLACED, OR RE-INSTALLED AS REQUIRED AFTER THE MODIFICATION IS SUCCESSFULLY COMPLETED. THE CONTRACTOR SHALL IDENTIFY AND COORDINATE THESE ITEMS PRIOR TO CONSTRUCTION WITH OWNER, TESTING AGENCY, AND EOR.

1.12. THE CLIMBING FACILITIES, SAFETY CLIMB AND ALL PARTS THEREOF SHALL NOT BE IMPEDED, MODIFIED OR ALTERED WITHOUT THE EXPRESS APPROVAL OF THE EOR.

2. STRUCTURAL STEEL

2.1. SHOP DRAWINGS SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKERS INITIALS BEFORE SUBMITTING TO ENGINEER. CONTRACTOR SHALL REVIEW THE SHOP DRAWINGS FOR GENERAL CONFORMANCE TO THE PLANS PRIOR TO SUBMITTING TO ENGINEER. SHOP DRAWINGS SHALL INCLUDE ERECTION DRAWINGS, ELEVATIONS AND SECTIONS. SHOP DRAWINGS SHALL ALSO INCLUDE SECTION PROFILES, SIZES, CONNECTIONS, ATTACHMENTS, REINFORCING, ANCHORAGE SIZE AND TYPE OF FASTENERS AND ASSEMBLIES.

2.2. STRUCTURAL STEEL MATERIALS, FABRICATION, DETAILING, AND WORKMANSHIP SHALL CONFORM TO THE LATEST EDITION OF THE FOLLOWING REFERENCE STANDARDS:

2.2.1. BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC):

2.2.1.1. "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS."

2.2.1.2. SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM HIGH STRENGTH BOLTS," AS APPROVED BY THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS.

2.2.1.3. "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"

2.2.2. BY THE AMERICAN WELDING SOCIETY (AWS):

2.2.2.1. "STRUCTURAL WELDING CODE – STEEL D1.1,"

2.2.2.2. "STANDARD SYMBOLS FOR WELDING, BRAZING, AND NONDESTRUCTIVE EXAMINATION"

2.2.3. BY THE AMERICAN SOCIETY OF CIVIL ENGINEERS

2.2.3.1. DESIGN OF LATTICED STEEL TRANSMISSION STRUCTURES (ASCE 10-XX)

2.2.3.2. DESIGN OF STEEL TRANSMISSION POLE STRUCTURES (ASCE 48-XX)

2.3. NEW STEEL (UNLESS NOTED OTHERWISE) SHALL CONFORM TO THE REQUIREMENTS OF THE ASTM STANDARD SPECIFICATION FOR STRUCTURAL STEEL AS NOTED BELOW:
M, S, C, MC, L, PLATES & BARS - ASTM A36 (36 KSI YIELD POINT MATERIAL)
W - ASTM A992 (50 KSI YIELD POINT MATERIAL)
HSS RECTANGULAR - ASTM A500, GRADE B (46 KSI YIELD POINT MATERIAL)
HSS ROUND - ASTM A500, GRADE B (42 KSI YIELD POINT MATERIAL)
PIPE - ASTM A53, GRADE B (35 KSI YIELD POINT MATERIAL)

2.4. NEW BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A325, TYPE "X" UNLESS NOTED OTHERWISE. ALL HOLES FOR BOLTS SHALL BE 1/16" LARGER THAN THE BOLT DIAMETER WITH AN EDGE DISTANCE OF AT LEAST 1 3/4 TIMES THE BOLT DIAMETER AND A SPACING OF AT LEAST 3 TIMES THE BOLT DIAMETER UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE PROVIDED WITH LOCK WASHERS, PALNUTS, OR LOCK NUTS.

2.5. ALL STRUCTURAL BOLTS SHALL BE INSTALLED AND TIGHTENED TO A SNUG TIGHT CONDITION ACCORDING TO THE REQUIREMENTS OF THE AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS" UNLESS NOTED OTHERWISE ON DRAWINGS.

2.6. ALL U-BOLTS SHALL BE A307 UNLESS NOTED OTHERWISE.

2.7. ANY MATERIAL OR WORKMANSHIP WHICH IS OBSERVED TO BE DEFECTIVE OR INCONSISTENT WITH THE CONTRACT DOCUMENTS SHALL BE CORRECTED, MODIFIED, OR REPLACED AT THE CONTRACTOR'S EXPENSE.

2.8. WELDED CONNECTIONS SHALL CONFORM TO THE LATEST REVISED CODE OF THE AMERICAN WELDING SOCIETY, AWS D1.1. ALL WELD ELECTRODES SHALL BE E70XX UNLESS NOTED OTHERWISE ON THE DRAWINGS.

2.9. ALL WELDED CONNECTIONS SHALL BE MADE BY WELDERS CERTIFIED BY AWS. CONTRACTOR SHALL SUBMIT WELDERS' CERTIFICATION AND QUALIFICATION DOCUMENTATION TO OWNER'S TESTING AGENCY FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

2.10. ALL SURFACES MUST BE CLEAN AND FREE OF WELD SPATTER. ALL EDGES SHALL BE DEBURRED.

2.11. ALL PARTS ARE TO BE MARKED WITH ITEM NUMBERS USING 3/4" HIGH STEEL STENCILS.

2.12. SHOP SHALL ASSEMBLE AND VERIFY FIT AND GAPS BEFORE BREAKDOWN FOR GALVANIZING.

2.13. NO FIELD WELDING SHALL BE DONE TO THE EXISTING STRUCTURE.

2.14. FIELD CUTTING OF STEEL:

2.14.1. IMPORTANT CUTTING SAFETY GUIDELINES: THE CONTRACTOR SHALL FOLLOW ALL OWNER CUTTING, FIRE PREVENTION AND SAFETY GUIDELINES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN A COPY OF THE CURRENT OWNER GUIDELINES. ANY DAMAGE TO THE COAX CABLES, AND/OR OTHER EQUIPMENT AND/OR THE STRUCTURE, RESULTING FROM THE CONTRACTOR'S ACTIVITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. THE INSPECTION/TESTING AGENCY SHALL CLOSELY AND CONTINUOUSLY MONITOR THIS ACTIVITY.

2.14.2. ALL REQUIRED CUTS SHALL BE CUT WITHIN THE DIMENSIONS SHOWN ON THE DRAWINGS. NO CUTS SHALL EXTEND BEYOND THE OUTLINE OF THE DIMENSIONS SHOWN ON THE DRAWINGS. ALL CUT EDGES SHALL BE GROUND SMOOTH AND DE-BURRED. CONTRACTOR TO AVOID 90 DEGREE CORNERS. IT MAY BE NECESSARY TO DRILL STARTER HOLES AS REQUIRED TO MAKE THE CUTS.

2.14.3. FIELD HOLES SHALL BE PUNCHED OR DRILLED. BURNING OF MEMBERS SHALL NOT BE PERMITTED.

3. BASE PLATE GROUT

3.1. NEW GROUT FOR THE POLE BASE SHALL BE NON-SHRINK, NON-METALLIC, GROUT (NS GROUT BY EUCLID, OR APPROVED EQUAL) WITH A 7500 PSI MINIMUM COMPRESSIVE STRENGTH. CONTRACTOR SHALL SUBMIT PROPOSED GROUT SPECIFICATION INFORMATION TO OWNER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION. CONTRACTOR SHALL FOLLOW GROUT MANUFACTURER'S SPECIFICATIONS FOR COLD WEATHER GROUTING PROCEDURES (IF NECESSARY) AND THE TESTING AGENCY SHALL PREPARE GROUT SAMPLE SPECIMENS FOR COMPRESSIVE STRENGTH TESTING AND VERIFICATION.

3.2. GROUT SHALL BE INSTALLED TIGHT UNDER THE BASE PLATE AND BEARING PLATE REGION WITH NO VOIDS REMAINING BETWEEN THE TOP OF THE EXISTING CONCRETE AND THE UNDERSIDE OF THE EXISTING BASE PLATE AND BEARING PLATE.

3.3. CAULK AROUND ANCHOR RODS WHEN GROUTING.

4. FOUNDATION WORK

4.1. THE CONTRACTOR SHALL PROTECT THE EXISTING STRUCTURE, AS WELL AS ANY OTHER NEARBY EXISTING FOUNDATIONS FOR OTHER STRUCTURES OR EQUIPMENT, FROM LOSS OF SOIL AROUND AND/OR BENEATH FOOTINGS DURING ANY EXCAVATION. THE CONTRACTOR SHALL BRACE THE SITES OF THE OPEN EXCAVATION AS REQUIRED.

4.2. THE EFFECT OF ADDITIONAL EXCAVATION FOR FOUNDATION AUGMENTATION AND REINFORCING, WHERE REQUIRED, MAY HAVE IMPACT ON EXISTING EQUIPMENT AND/OR OTHER EXISTING STRUCTURES NEAR THE EXCAVATION. THIS EOR HAS NOT BEEN PROVIDED WITH ANY SPECIFIC INFORMATION OR DETAILS REGARDING EXISTING EQUIPMENT OR OTHER EXISTING STRUCTURES ON THE SITE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EFFECT THAT ANY EXCAVATION WORK HAS ON EXISTING NEARBY EQUIPMENT AND/OR STRUCTURES. CONTRACTOR SHALL COORDINATE THIS SITE-SPECIFIC INFORMATION WITH OWNER AND THE TESTING AGENCY PRIOR TO CONSTRUCTION AND FOUNDATION WORK. AFTER OBTAINING THE PRIOR WRITTEN PERMISSION OF OWNER, THE CONTRACTOR SHALL ADEQUATELY BRACE, SHORE, AND/OR RELOCATE THE INTERFERING EXISTING NEARBY EQUIPMENT AND/OR STRUCTURES AS NECESSARY.

5. CAST-IN-PLACE CONCRETE

5.1. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.

5.2. CONCRETE EXPOSED TO WEATHER SHALL BE AIR ENTRAINED (6% +/- 1.5%).

5.3. WATER CEMENT RATION = 0.45 (MAXIMUM).

5.4. ALL REINFORCING STEEL SHALL BE NEW DOMESTIC DEFORMED BILLET STEEL CONFORMING TO ASTM A615 GRADE 60.

5.5. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH "THE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" ACI 318, LATEST EDITION. CONTRACTOR SHALL FOLLOW ALL APPLICABLE ACI PROCEDURES FOR COLD WEATHER AND HOT WEATHER CONCRETE PLACEMENT.

5.6. ALL REINFORCING DETAILS SHALL CONFORM TO "DETAILS AND DETAILING OF CONCRETE REINFORCING" ACI 315, LATEST EDITION, UNLESS DETAILED OTHERWISE ON THE DRAWINGS.

5.7. CONTRACTOR SHALL VERIFY LOCATIONS OF ALL OPENINGS, SLEEVES, ANCHOR RODS, INSERTS, ETC., AS REQUIRED BEFORE CONCRETE IS PLACED.

5.8. WHERE BAR LENGTHS ARE GIVEN ON THE DRAWINGS, THE LENGTH OF ANY HOOK, IF REQUIRED, IS NOT INCLUDED.

5.9. CONTRACTOR SHALL PROVIDE SPACERS, CHAIRS, BOLSTERS, ETC., NECESSARY TO SUPPORT REINFORCING STEEL. CHAIRS WHICH BEAR ON EXPOSED CONCRETE SURFACES SHALL HAVE ENDS WHICH ARE PLASTIC TIPPED OR STAINLESS STEEL.

5.10. ALL STRUCTURAL MEMBERS SHALL BE POURED MONOLITHICALLY, EXCEPT FOR REQUIRED CONSTRUCTION JOINTS. CONTRACTOR SHALL SUBMIT PROPOSED CONSTRUCTION JOINT LOCATIONS AND DETAILS TO THE EOR FOR REVIEW.

5.11. CONTRACTOR SHALL PROVIDE ¾-INCH CHAMFER ON ALL EXPOSED CORNERS UNLESS OTHERWISE INDICATED ON THE DRAWINGS. MINIMUM CLEARANCES FOR REINFORCING STEEL SHALL BE MAINTAINED AS SPECIFIED BY ACI.

5.12. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT:
3" ..... CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.
2" ..... CONCRETE EXPOSED TO EARTH OR WEATHER, #6 THROUGH #18 BARS.
1-1/2" ..... CONCRETE EXPOSED TO EARTH OR WEATHER, #5 BAR AND SMALLER.

5.13. FOOTING BARS SHALL BE BENT 1'-6" AROUND CORNERS, OR PROVIDE CORNER BARS WITH A 2'-0" LAP ON EACH LEG.

5.14. TESTING LABORATORY SHALL SUBMIT ONE COPY OF ALL CONCRETE TEST REPORTS DIRECTLY TO THE EOR.

5.15. CONTRACTOR SHALL KEEP A COPY OF "FIELD REFERENCE MANUAL" (ACI PUBLICATION SP-15, LATEST EDITION) AT THE PROJECT FIELD OFFICE.

5.16. FLY ASH SHALL BE PERMITTED. FLY ASH CONTENT SHALL BE A MAXIMUM OF 20% OF CEMENT WEIGHT.

6. EPOXY GROUTED REINFORCING ANCHOR RODS

6.1. UNLESS OTHERWISE NOTED, REINFORCING ANCHOR RODS SHALL BE 150 KSI ALL-THREAD BARS CONFORMING TO ASTM A722. RECOMMENDED MANUFACTURERS/SUPPLIERS OF 150 KSI ALL-THREAD BARS ARE WILLIAMS FORM ENGINEERING CORPORATION AND DYWIDAG SYSTEMS INTERNATIONAL.

6.2. ALL REINFORCING ANCHOR RODS SHALL BE HOT DIP GALVANIZED PER ASTM A123. ALTERNATIVELY, ALL REINFORCING ANCHOR RODS MAY BE EPOXY COATED PER ASTM A775.

6.3. THE CORE-DRILLED HOLES IN THE CONCRETE FOR THE ANCHOR RODS SHALL BE CLEAN AND DRY, AND OTHERWISE PROPERLY PREPARED ACCORDING TO THE ANCHOR ROD AND EPOXY MANUFACTURERS' INSTRUCTIONS, PRIOR TO PLACEMENT OF ANCHOR RODS AND EPOXY. CONTRACTOR SHALL FOLLOW ALL ANCHOR ROD AND EPOXY MANUFACTURER RECOMMENDATIONS REGARDING HANDLING OF RODS, EPOXY, ACCEPTABLE AMBIENT TEMPERATURE RANGE DURING INSTALLATION AND POST-INSTALLATION CURING, THE EFFECT OF TEMPERATURE ON EPOXY CURING TIME, PREPARATION OF HOLE, ETC.

6.4. HILTI HIT RE-500 SD OR ITW RED HEAD EPCON G6 EPOXY SHALL BE USED TO ANCHOR THE BAR IN THE DRILL HOLES. IF THE DESIGNED EMBEDMENT IS GREATER THAN 12 FT, CONTRACTOR HAS THE OPTION TO USE PILE ANCHOR GROUT BY E-CHEM AS AN ALTERNATE. IF CONTRACTOR WISHES TO USE A DIFFERENT EPOXY, A REQUEST INCLUDING THE EPOXY TECHNICAL DATA SHEETS SHALL BE SUBMITTED TO THE EOR FOR RE-VIEW PRIOR TO CONSTRUCTION.

6.5. ONCE THE REINFORCING ANCHOR RODS HAVE BEEN INSTALLED AND ALL EPOXY AND GROUT HAVE CURED (IF BASE PLATE AND/OR BEARING PLATES HAVE BEEN GROUTED PRIOR TO TESTING), ALL REINFORCING ANCHORS SHALL BE LOAD TESTED. REFER TO THE NEW ANCHOR & BRACKET DETAIL ON FOLLOWING SHEETS FOR SPECIFIED ANCHOR ROD TARGET TENSION LOAD.

6.6. ONCE THE REINFORCING ANCHOR RODS HAVE BEEN SUCCESSFULLY LOAD TESTED AND APPROVED THE CONTRACTOR SHALL TIGHTEN ALL HEAVY HEX ANCHOR NUTS TO SNUG TIGHT PLUS 1/8 TURN OF NUT.

7. TOUCH UP OF GALVANIZING

7.1. THE CONTRACTOR SHALL TOUCH UP ANY AND ALL AREAS OF GALVANIZING ON THE EXISTING STRUCTURE OR NEW COMPONENTS THAT ARE DAMAGED OR ABRADED DURING CONSTRUCTION. GALVANIZED SURFACES DAMAGED DURING TRANSPORTATION OR ERECTION AND ASSEMBLY AS WELL AS ANY AND ALL ABRASIONS, CUTS AND FIELD DRILLING SHALL BE TOUCHED UP WITH TWO (2) COATS OF ZRC COLD GALVANIZING COMPOUND. FILM THICKNESS PER COAT SHALL BE: WET 3.0 MILS, DRY 1.5 MILS. APPLY PER ZRC MANUFACTURER'S RECOMMENDED PROCEDURES. CONTACT ZRC AT 1-800-631-3275 FOR PRODUCT INFORMATION.

7.2. OWNER'S TESTING AGENCY SHALL TEST AND VERIFY THE COATING THICKNESS AFTER THE CONTRACTOR HAS APPLIED THE ZRC COLD GALVANIZING COMPOUND AND IT HAS SUFFICIENTLY DRIED. AREAS FOUND TO BE ADEQUATELY COATED, SHALL BE RE-COATED BY THE CONTRACTOR AND RE-TESTED BY THE TESTING AGENCY.

8. HOT-DIP GALVANIZING

8.1. HOT-DIP GALVANIZE ALL STRUCTURAL STEEL MEMBERS AND ALL STEEL ACCESSORIES, BOLTS, WASHERS, ETC. PER ASTM A123, ASTM A386 OR PER ASTM A153, AS APPROPRIATE.

8.2. PROPERLY PREPARE STEEL ITEMS FOR GALVANIZING.

8.3. DRILL OR PUNCH WEEP AND/OR DRAINAGE HOLES WITH EOR APPROVAL OF LOCATIONS.

8.4. ALL GALVANIZING SHALL BE DONE AFTER FABRICATION IS COMPLETED AND PRIOR TO FIELD INSTALLATION.

9. PERPETUAL INSPECTION AND MAINTENANCE BY THE OWNER

9.1. AFTER THE CONTRACTOR HAS SUCCESSFULLY COMPLETED THE INSTALLATION OF THE MODIFICATION SYSTEM AND THE WORK HAS BEEN ACCEPTED BY OWNER, OWNER WILL BE RESPONSIBLE FOR THE LONG TERM AND PERPETUAL INSPECTION AND MAINTENANCE OF THE STRUCTURE AND MODIFICATION SYSTEM.

STATE OF CONNECTICUT
DAVID L. SUMMERS
No. 21884
LICENSED PROFESSIONAL ENGINEER

12/29/2016

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CL&P STRUCTURE #2983
PIMPEWAUG ROAD
WILTON, FAIRFIELD COUNTY, CONNECTICUT
SITE # CT11414A

PROJECT No:	31216-0003.002.6280
DRAWN BY:	KAC
DESIGNED BY:	CBH
CHECKED BY:	
DATE:	2-29-2016

GENERAL NOTES

N-1
SHEET NO. 2 OF 4

31216-0003.002.6280.DWG

MODIFICATION INSPECTION NOTES:

1. **INSPECTION AND TESTING**
   - 1.1. INSPECTION SERVICES WHICH ARE FURNISHED BY OTHERS ARE STILL REQUIRED WHEN THE EOR PERFORMS SUPPORT SERVICES DURING CONSTRUCTION.
   - 1.2. OBSERVED DISCREPANCIES BETWEEN THE WORK AND THE CONTRACT DOCUMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST.
   - 1.3. AN INDEPENDENT QUALIFIED INSPECTION/TESTING AGENCY SHALL BE SELECTED, RETAINED AND PAID FOR BY OWNER FOR THE SOLE PURPOSE OF INSPECTING, TESTING, DOCUMENTING, AND APPROVING ALL WELDING AND FIELD WORK PERFORMED BY THE CONTRACTOR.
     - 1.3.1. ACCESS TO ANY PLACE WHERE WORK IS BEING DONE SHALL BE PERMITTED AT ALL TIMES.
     - 1.3.2. THE INSPECTION AGENCY SHALL SO SCHEDULE THIS WORK AS TO CAUSE A MINIMUM OF INTERRUPTION TO, AND COORDINATE WITH, THE WORK IN PROGRESS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE WORK SCHEDULE WITH THE TESTING AGENCY. THE CONTRACTOR SHALL ALLOW FOR ADEQUATE TIME AND ACCESS FOR THE TESTING AGENCY TO PERFORM THEIR DUTIES.
   - 1.4. **GENERAL**
     - 1.4.1. PERFORM PERIODIC ON-SITE OBSERVATION, INSPECTION, VERIFICATION, AND TESTING DURING THE TIME THE CONTRACTOR IS WORKING ON-SITE. AGENCY SHALL NOTIFY OWNER AND THE EOR IMMEDIATELY WHEN FIELD PROBLEMS OR DISCREPANCIES OCCUR.
   - 1.5. **FOUNDATIONS AND SOIL PREPARATION**
     - 1.5.1. VERIFY MATERIALS AT BOTTOM OF EXCAVATION ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.
     - 1.5.2. VERIFY THAT EXCAVATIONS HAVE EXTENDED TO PROPER DEPTH AND ARE FOUNDED ON PROPER MATERIAL.
     - 1.5.3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS AS SPECIFIED.
     - 1.5.4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.
     - 1.5.5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY SITE HAS BEEN PREPARED PROPERLY.
   - 1.6. **CONCRETE TESTING PER ACI**
     - 1.6.1. INSPECT PLACEMENT OF REINFORCING STEEL.
     - 1.6.2. INSPECT BOLTS TO BE INSTALLED IN CONCRETE PRIOR TO AND DURING PLACEMENT OF CONCRETE.
     - 1.6.3. VERIFY USE OF REQUIRED MIX DESIGN.
     - 1.6.4. AT THE TIME FRESH CONCRETE IS SAMPLED FABRICATE SPECIMENS FOR STRENGTH TEST, PERFORM SLUMP AND AIR CONTENT TEST AND DETERMINE TEMPERATURE OF THE CONCRETE.
     - 1.6.5. INSPECT CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUE.
     - 1.6.6. INSPECT SPECIFIED CURING AND TEMPERATURE TECHNIQUES.
   - 1.7. **STRUCTURAL STEEL**
     - 1.7.1. CHECK STEEL ON THE JOB WITH THE PLANS.
     - 1.7.2. CHECK MILL CERTIFICATIONS. CALL FOR LABORATORY TEST REPORTS WHEN MILL CERTIFICATION IS IN QUESTION.
     - 1.7.3. CHECK GRADE OF STEEL MEMBERS, AND BOLTS FOR CONFORMANCE WITH DRAWINGS.
     - 1.7.4. INSPECT STEEL MEMBERS FOR DISTORTION, EXCESSIVE RUST, FLAWS AND BURNED HOLES.
     - 1.7.5. CHECK STEEL MEMBERS FOR SIZES, SWEEP AND DIMENSIONAL TOLERANCES.
     - 1.7.6. CHECK FOR SURFACE FINISH SPECIFIED: GALVANIZED.
     - 1.7.7. CHECK THAT BOLTS HAVE BEEN TIGHTENED PROPERLY.
     - 1.7.8. PRIOR TO ANY FIELD CUTTING THE CONTRACTOR SHALL MARK THE CUTOUT LINES ON THE STEEL AND THE INSPECTION/TESTING AGENCY SHALL VERIFY PROPOSED LAYOUT, LOCATION, AND DIMENSIONS. THE INSPECTION/TESTING AGENCY SHALL CLOSELY AND CONTINUOUSLY MONITOR THIS ACTIVITY.
   - 1.8. **WELDING:**
     - 1.8.1. VERIFY FIELD WELDING PROCEDURES, WELDERS, AND WELDING OPERATORS, NOT DEEMED PREQUALIFIED, IN ACCORDANCE WITH AWS D1.1.
     - 1.8.2. INSPECT FIELD WELDED CONNECTIONS IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED AND WITH AWS D1.1.
     - 1.8.3. APPROVE FIELD WELDING SEQUENCE.
     - 1.8.4. INSPECT WELDED CONNECTIONS AS FOLLOWS AND IN ACCORDANCE WITH AWS D1.1:
       - 1.8.4.1. INSPECT WELDING EQUIPMENT FOR CAPACITY, MAINTENANCE, AND WORKING CONDITIONS.
       - 1.8.4.2. VERIFY SPECIFIED ELECTRODES AND HANDLING AND STORAGE OF ELECTRODES FOR CONFORMANCE TO SPECIFICATIONS.
       - 1.8.4.3. INSPECT PREHEATING AND INTERPASS TEMPERATURES FOR CONFORMANCE WITH AWS D1.1.
       - 1.8.4.4. VISUALLY INSPECT ALL WELDS AND VERIFY THAT QUALITY OF WELDS MEETS THE REQUIREMENTS OF AWS D1.1. OTHER TESTS MAY ALSO BE PERFORMED ON THE WELDS BY THE TESTING AGENCY IN ORDER FOR THEM TO PERFORM THEIR DUTIES FOR THIS PROJECT.
       - 1.8.4.5. SPOT TEST AT LEAST ONE FILLET WELD OF EACH MEMBER USING MAGNETIC PARTICLE.
       - 1.8.4.6. INSPECT FOR SIZE, SPACING, TYPE AND LOCATION AS PER APPROVED DRAWINGS.
       - 1.8.4.7. VERIFY THAT THE BASE METAL CONFORMS TO THE DRAWINGS.
       - 1.8.4.8. REVIEW THE REPORTS BY TESTING LABS.
       - 1.8.4.9. CHECK TO SEE THAT WELDS ARE CLEAN AND FREE FROM SLAG.
       - 1.8.4.10. INSPECT RUST PROTECTION OF WELDS AS PER SPECIFICATIONS.
       - 1.8.4.11. CHECK THAT DEFECTIVE WELDS ARE CLEARLY MARKED AND HAVE BEEN ADEQUATELY REPAIRED.
       - 1.8.4.12. FULL PENETRATION WELDS IN THE VICINITY OF THE BASE OF THE TOWER ARE REQUIRED TO BE 100% NDE INSPECTED BY UT IN ACCORDANCE WITH AWS D1.1
       - 1.8.4.13. PARTIAL PENETRATION AND FILLET WELDS IN THE VICINITY OF THE BASE OF THE TOWER ARE REQUIRED TO BE 50% NDE INSPECTED BY MP IN ACCORDANCE WITH AWS D1.1.
   - 1.9. **REPORTS:**
     - 1.9.1. COMPILE AND PERIODICALLY SUBMIT DAILY INSPECTION REPORTS TO OWNER.
     - 1.9.2. THE INSPECTION PLAN OUTLINED HEREIN IS INTENDED AS A DESCRIPTION OF GENERAL AND SPECIFIC ITEMS OF CONCERN. IT IS NOT INTENDED TO BE ALL-INCLUSIVE. IT DOES NOT LIMIT THE TESTING AND INSPECTION AGENCY TO THE ITEMS LISTED. ADDITIONAL TESTING, INSPECTION, AND CHECKING MAY BE REQUIRED AND SHOULD BE ANTICIPATED. THE TESTING AGENCY SHALL USE THEIR PROFESSIONAL JUDGMENT AND KNOWLEDGE OF THE JOB SITE CONDITIONS AND THE CONTRACTOR'S PERFORMANCE TO DECIDE WHAT OTHER ITEMS REQUIRE ADDITIONAL ATTENTION. THE TESTING AGENCY'S JUDGMENT MUST PREVAIL ON ITEMS NOT SPECIFICALLY COVERED. ANY DISCREPANCIES OR PROBLEMS SHALL BE BROUGHT IMMEDIATELY TO OWNER'S ATTENTION. RESOLUTIONS ARE NOT TO BE MADE WITHOUT OWNER'S REVIEW AND SPECIFIC WRITTEN CONSENT. OWNER RESERVES THE RIGHT TO DETERMINE WHETHER OR NOT A RESOLUTION IS ACCEPTABLE.
     - 1.9.3. AFTER EACH INSPECTION, THE TESTING AGENCY WILL PREPARE A WRITTEN ACCEPTANCE OR REJECTION WHICH WILL BE GIVEN TO THE CONTRACTOR AND FILED AS DAILY REPORTS TO OWNER. THIS WRITTEN ACTION WILL GIVE THE CONTRACTOR A LIST OF ITEMS TO BE CORRECTED, PRIOR TO CONTINUING CONSTRUCTION, AND/OR LOADING OF STRUCTURAL ITEMS.
     - 1.9.4. THE TESTING AGENCY DOES NOT RELIEVE THE CONTRACTOR'S CONTRACTUAL OR STATUTORY OBLIGATIONS. THE CONTRACTOR HAS THE SOLE RESPONSIBILITY FOR ANY DEVIATIONS FROM THE OFFICIAL CONTRACT DOCUMENTS. THE TESTING AGENCY WILL NOT REPLACE THE CONTRACTOR'S QUALITY CONTROL PERSONNEL.

   - 1.10. **CORRECTION OF FAILING MI'S**
     - 1.10.1. IF THE MODIFICATION INSTALLATION WOULD FAIL THE MI ("FAILED MI"), THE GC SHALL WORK WITH THE OWNER TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:
       - 1.10.1.1. CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT MI.
       - 1.10.1.2. OR, WITH THE OWNERS APPROVAL, THE GC MAY WORK WITH THE EOR TO RE-ANALYZE THE MODIFICATION/REINFORCEMENT USING THE AS-BUILT CONDITION
   - 1.11. **PHOTOGRAPHS**
     - 1.11.1. BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE MI REPORT:
       - 1.11.1.1. PRE-CONSTRUCTION GENERAL SITE CONDITION
       - 1.11.1.2. PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION
         - 1.11.1.2.1. RAW MATERIALS
         - 1.11.1.2.2. PHOTOS OF ALL CRITICAL DETAILS
         - 1.11.1.2.3. FOUNDATION MODIFICATIONS
         - 1.11.1.2.4. WELD PREPARATION
         - 1.11.1.2.5. BOLT INSTALLATION AND TORQUE
         - 1.11.1.2.6. FINAL INSTALLED CONDITION
         - 1.11.1.2.7. SURFACE COATING REPAIR
       - 1.11.1.3. POST CONSTRUCTION PHOTOGRAPHS
         - 1.11.1.3.1. FINAL INFIELD CONDITION
     - 1.11.2. PHOTOS OF ELEVATED MODIFICATIONS TAKEN FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.

POST-MODIFICATION CHECKLIST

REQUIRED	REPORT ITEM	BRIEF DESCRIPTION
		PRE-CONSTRUCTION
X	MI CHECKLIST DRAWING	THIS CHECKLIST SHALL BE INCLUDED IN THE MI REPORT
X	EOR APPROVED SHOP DRAWINGS	FABRICATION DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW. THE CONTRACTOR SHALL PROVIDE THE APPROVED SHOP DRAWINGS TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
NA	FABRICATION INSPECTION	A LETTER FROM THE FABRICATOR, STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
NA	FABRICATOR CERTIFIED WELD INSPECTION	CRITICAL SHOP WELDS THAT REQUIRE TESTING ARE NOTED ON THESE CONTRACT DRAWINGS. A CERTIFIED WELD INSPECTOR SHALL PERFORM NON-DESTRUCTIVE TESTING AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
NA	MATERIAL TEST REPORT (MTR)	MILL CERTIFICATION SHALL BE PROVIDED FOR ALL STEEL WITH A YIELD STRENGTH GREATER THAN 36 KSI AND THIS DOCUMENTATION SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
NA	FABRICATOR NDE INSPECTION	A VISUAL OBSERVATION OF A PORTION OF THE EXISTING STRUCTURE (AS NOTED ON THESE DRAWINGS) IS REQUIRED AND A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
NA	NDE REPORT OF MONOPOLE BASE PLATE (AS REQUIRED)	A VISUAL OBSERVATION OF THE POLE TO BASE PLATE CONNECTION IS REQUIRED AND A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	PACKING SLIPS	THE MATERIAL SHIPPING LIST SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
		CONSTRUCTION
X	CONSTRUCTION INSPECTIONS	A LETTER FROM THE GENERAL CONTRACTOR STATING THAT THE WORKMANSHIP WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THESE CONTRACT DRAWINGS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
NA	FOUNDATION INSPECTIONS	A VISUAL OBSERVATION OF THE EXCAVATION AND REBAR SHALL BE PERFORMED BEFORE PLACING THE CONCRETE. A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
NA	CONCRETE COMP. STRENGTH AND SLUMP TESTS	THE CONCRETE MIX DESIGN, SLUMP TEST, AND COMPRESSIVE STRENGTH TESTS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
NA	POST INSTALLED ANCHOR ROD VERIFICATION	ANCHOR ROD INSTALLATION SHALL INCLUDE VERIFICATION BY LETTER AND PHOTOGRAPHIC DOCUMENTATION.
NA	BASE PLATE GROUT VERIFICATION	A LETTER FROM THE GENERAL CONTRACTOR SHALL BE PROVIDED TO THE MI INSPECTOR THAT CERTIFIES THAT THE GROUT WAS INSTALLED IN ACCORDANCE WITH SPECIFICATIONS FOR INCLUSION IN THE MI REPORT.
NA	CONTRACTOR'S CERTIFIED WELD INSPECTION	A CERTIFIED WELD INSPECTOR SHALL INSPECT AND TEST AS NECESSARY ALL FIELD WELDS AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT. PRE, DURING AND POST WELD INSPECTION IS REQUIRED.
NA	EARTHWORK, LIFT AND DENSITY	FOUNDATION SUB-GRADES SHALL BE INSPECTED AND APPROVED BY A GEOTECHNICAL ENGINEER AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	ON SITE COLD GALVANIZING VERIFICATION	THE GENERAL CONTRACTOR SHALL PROVIDE DOCUMENTATION TO THE MI INSPECTOR VERIFYING THAT ANY ON SITE COLD GALVANIZING WAS APPLIED IN ACCORDANCE WITH SPECIFICATIONS.
NA	GUY WIRE TENSION REPORT	THE GENERAL CONTRACTOR SHALL PROVIDE A REPORT TO THE MI INSPECTOR INDICATING THE TEMPERATURE AND TENSION IN EVERY GUY CABLE FOR INCLUSION IN THE MI REPORT.
X	GC AS-BUILT DOCUMENTS	THE GENERAL CONTRACTOR SHALL SUBMIT A COPY OF THE CONTRACT DRAWINGS EITHER STATING "INSTALLED AS DESIGNED" OR NOTING ANY CHANGES THAT WERE REQUIRED AND APPROVED BY THE ENGINEER OF RECORD DUE TO FIELD CONDITIONS.
NA	MICROPILE / ROCK ANCHOR	THE GENERAL CONTRACTOR SHALL PROVIDE INSTALLER'S DRILLING AND INSTALLATION LOGS AND QA/QC DOCUMENTATION TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
		POST-CONSTRUCTION
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)	THE MI INSPECTOR SHALL OBSERVE AND REPORT ANY DISCREPANCIES BETWEEN THE CONTRACTORS REDLINE DRAWING AND THE ACTUAL COMPLETED INSTALLATION.
NA	POST INSTALLED ANCHOR ROD PULL TESTING	POST INSTALLED ANCHOR RODS SHALL BE TESTED IN ACCORDANCE WITH SPECIFICATIONS AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	PHOTOGRAPHS	PHOTOGRAPHS SHALL BE SUBMITTED TO THE MI WHICH DOCUMENT ALL PHASES OF THE CONSTRUCTION. THE PHOTOS SHALL BE ORGANIZED IN A MANNER THAT EASILY IDENTIFIES THE EXACT LOCATION OF THE PHOTO.
NA	POST INSTALLED MICROPILE / ROCK ANCHOR TESTING	POST INSTALLED ANCHORS SHALL BE TESTED AND INSPECTED IN ACCORDANCE WITH SPECIFICATION STATED ON MICROPILE/ROCK ANCHOR NOTES.

NOTE: X DENOTES A DOCUMENT NEEDED FROM THE CONTRACTOR FOR THE MI REPORT
NA DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE MI REPORT

STATE OF CONNECTICUT
DAVID L. SUMMERS
No. 21984
LICENSED PROFESSIONAL ENGINEER
2/29/2016

PAUL J. FORD & COMPANY
250 E Broad St, Ste 600 · Columbus, OH 43215
Phone 614.221.6679 · www.paulj@pjfad.com

T-MOBILE
35 GRIFFIN ROAD SOUTH BLOOMFIELD, CONNECTICUT 06002

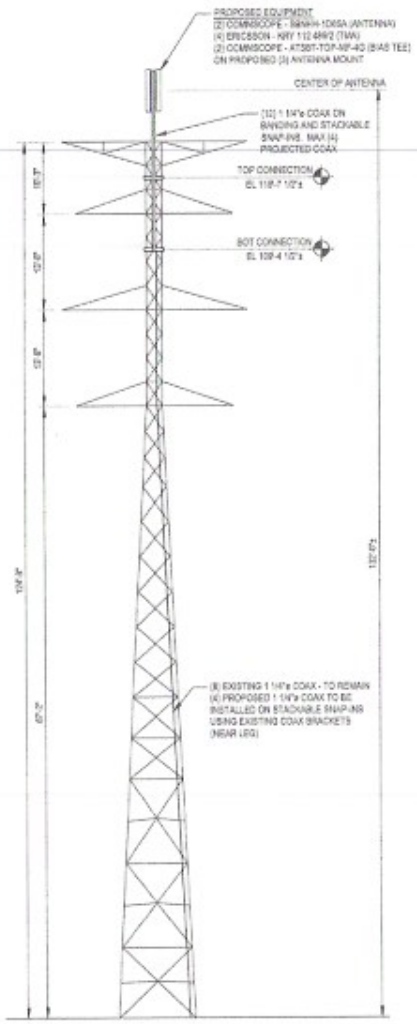
CL&P STRUCTURE #2983
PIMPEWAUG ROAD
WILTON, FAIRFIELD COUNTY, CONNECTICUT
SITE # CT11416A

PROJECT No:	31216-0083 002.0080
DRAWN BY:	NAC
DESIGNED BY:	CBH
CHECKED BY:	JMM
DATE:	2-29-2016

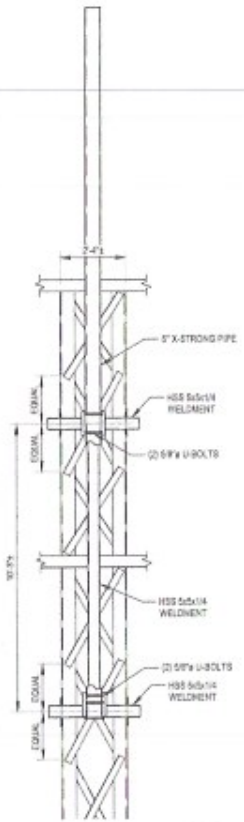
MI CHECKLIST AND NOTES

MI-1

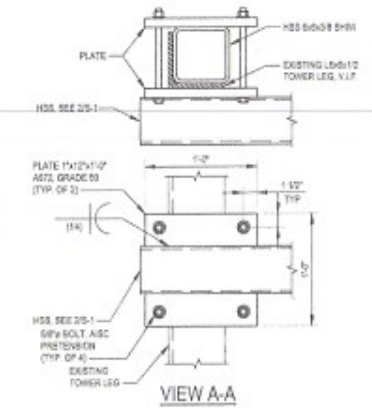
SHEET NO. 3 OF 4



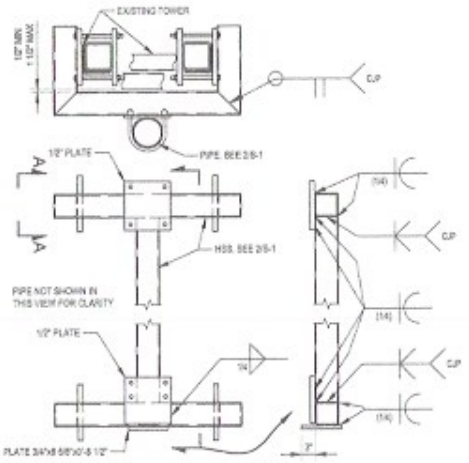
TOWER ELEVATION 1 / S-1



ELEVATION 2 / S-1



VIEW A-A



SQUARE TUBE WELDMENT

CONTRACTOR NOTE:
TOWER HAS BEEN FIELD MAPPED. RE: KM CONSULTING ENGINEERS, INC DATED 7/13/1998
FIELD VERIFY DIMENSIONS AND LAYOUT PRIOR TO STEEL FABRICATION

STATE OF CONNECTICUT
DAVID L. SUMNERS
No. 21884
LICENSED PROFESSIONAL ENGINEER

2/29/2016

PJF PAUL J. FORD & COMPANY
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T-MOBILE
35 GRIFFIN ROAD SOUTH, BLOOMFIELD, CONNECTICUT 06002

CL&P STRUCTURE #2983
PIMPEWAUG ROAD
WILTON, FAIRFIELD COUNTY, CONNECTICUT
SITE # CT11414A

PROJECT No:	312164-0003.002.5250
DRAWN BY:	KAC
DESIGNED BY:	CBH
CHECKED BY:	
DATE:	2-29-2016

TOWER ELEVATIONS AND DETAILS

S-1

SHEET NO. 4 OF 4

EXHIBIT C

EVERSOURCE ENERGY

56 Prospect Street,
Hartford, CT 06103

P.O. Box 270
Hartford, CT 06141-0270
(860) 665-5000

April 6, 2016

Mr. Mark Richard
T-Mobile
35 Griffin Rd.
Bloomfield, CT 06002

RE: T-Mobile Antenna Site, CT-11414A, Pimpewaug Rd., Wilton CT, structure 2983.

Dear Mr. Richard:

Based on our reviews of the site drawings, the structural analysis provided by Paul J Ford and Company (PJF), and the foundation analyses performed by PJF, we have reviewed for acceptance this modification

Since there are no outstanding structural or site related issues to resolve at this time, please contact Hank O'Brien (860-665-6987) to complete the lease amendment issues

Sincerely,

Robert Gray
Transmission Line Engineering

ref: CT11414A-L700-CD-R1.pdf
31216-0003.002.6280 - TMobile CT11414A - Structural Analysis Report.pdf

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: CT11414A

Wilton/ Cannondale
Pimpewaug Road
Wilton, CT 06897

April 14, 2016

EBI Project Number: 6215000109

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	1.71 %

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

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April 14, 2016

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

Emissions Analysis for Site: **CT11414A – Wilton/ Cannondale**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **Pimpewaug Road, Wilton, 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 **Pimpewaug Road, Wilton, 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) 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 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.

7) The antennas used in this modeling are the **Commscope SBNHH-1D65A** for 700 MHz, 1900 MHz (PCS) and 2100 MHz (AWS). This is based on feedback from the carrier with regards to anticipated antenna selection. The **Commscope SBNHH-1D65A** has a maximum gain of **10.95 dBd** at its main lobe for 700 MHz, **14.35 dBd** at its main lobe for 1900 MHz and **14.55 dBd** at its main lobe for 2100 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 **132 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:	B	Sector:	C
Antenna #:	1	Antenna #:	1
Make / Model:	Commscope SBNHH-1D65A	Make / Model:	Commscope SBNHH-1D65A
Gain:	10.95 / 14.35 / 14.55 dBd	Gain:	10.95 / 14.35 / 14.55 dBd
Height (AGL):	132	Height (AGL):	132
Frequency Bands	700 MHz / 1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	700 MHz / 1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	7	# PCS Channels:	7
Total TX Power:	270	# AWS Channels:	270
ERP (W):	7,138.81	ERP (W):	7,138.81
Antenna B1 MPE%	1.71	Antenna C1 MPE%	1.71

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile (Per Sector Max)	**1.71 %**
No Additional Carriers Per CSC Database	NA
Site Total MPE %:	**1.71 %**

T-Mobile Sector 2 Total:	1.71 %
T-Mobile Sector 3 Total:	1.71 %
Site Total:	1.71 %

T-Mobile _Maximum 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	1710.61	132	7.75	2100	1000	0.77 %
T-Mobile 1900 MHz (PCS) GSM/UMTS	2	816.81	132	3.70	1900	1000	0.37 %
T-Mobile 2100 MHz (AWS) UMTS	2	855.31	132	3.87	2100	1000	0.39 %
T-Mobile 700 MHz LTE	1	373.35	132	0.85	700	467	0.18 %
						Total:	2.66%

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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 2:	1.71 %
Sector 3 :	1.71 %
T-Mobile Per Sector Maximum:	1.71 %
Site Total:	1.71 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **1.71%** 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

EBI Consulting
21 B Street
Burlington, MA 01803