

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: siting.council@ct.gov

www.ct.gov/csc

April 19, 2013

Rick Woods
SBA Communications Corporation
33 Boston Post Road West Suite 320
Marlborough, MA 01752

RE: **EM-SPRINT-006-130401** – Sprint Spectrum LP notice of intent to modify an existing telecommunications facility located at 60 Rice Lane, Beacon Falls, Connecticut.

Dear Mr. Woods:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- Prior to antenna installation, the modifications depicted in the Modification Drawings for a 160' Monopole prepared by FDH Engineering and referred to in the Structural Analysis Report prepared by FDH Engineering dated March 26, 2013, and stamped by Christopher Murphy shall be implemented;
- The proposed coax and accessory equipment shall be installed in accordance with the recommendations made in the same Structural Analysis Report prepared by FDH Engineering; and
- Within 45 days following completion of the antenna installation, a signed letter from a Professional Engineer duly licensed in the State of Connecticut shall be submitted to the Council to certify that the recommended modifications have been completed and the structure and foundation do not exceed 100 percent of the post-construction structural rating.
- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated March 28, 2013. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise



levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,



Linda Roberts
Executive Director

LR/CDM/cm

c: The Honorable Gerard F. Smith, First Selectman, Town of Beacon Falls
Douglas R. Bousquet, Zoning Bd. Of Appeals, Chm., Town of Beacon Falls



June 05, 2014

David Martin and
Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Work Complete
60 Rice lane
Beacon Falls, CT 06403
Sprint Site #: NV2.5_CT33XC524

Dear Mr. Martin and Members of the Siting Council:

On behalf of Sprint Spectrum, SBA Communications is hereby notifying the Connecticut Siting Council that work has been completed to the aforementioned telecommunications facility.

Pursuant to the Council's letter of acknowledgement dated April 19, 2013, please find the enclosed Post Modification Inspection Report confirming that the installation meets with the recommendations made in the structural analysis report.

Thank you,

A handwritten signature in blue ink, appearing to read "Peter Nute".

Peter Nute
SBA Communications Corporation
33 Boston Post Road West Suite 320
Marlborough, MA 01752
508-251-0720 x 3804 + T
508-251-1755 + F
pnute@sbsite.com



ENGINEERING INNOVATION

6521 Meridien Drive
Raleigh, NC 27616
(919) 755-1012 P
(919) 755-1031 F

January 31, 2014

Tim Rosa
Regional Site Manager
SBA Network Services
2490 Bruen Lane
Easton, PA 18040

Subject: Modification Inspection Report

SBA Designation: SBA Site Number: CT02049-S
SBA Site Name: Beacon Falls

Inspection Firm Designation: FDH Inc. Project Number: 12-04772

Site Data: 60 Rice Lane, Beacon Falls, CT 06403
Latitude: 41.4557° Longitude: -73.0399°
160' Monopole

FDH Engineering, Inc. is pleased to submit this “**Modification Inspection Report**” (MI Report) to SBA Network Services for the modification/reinforcement to the subject structure. This Modification Inspection (MI) was performed in accordance with Contract Documents and FDH Inspection Standards. The purpose of this MI is to confirm that the modification installation configuration and workmanship are in accordance with the contract document(s) listed in Table 1. The MI is not a review of the adequacy or effectiveness of the modification solution.

Table 1 – General Information

	Company	Contact
MI Inspector	FDH Engineering Inc.	Rakesh Khan, P.E. 919-755-1012
Independent	EOR	Turnkey
Modification Design EOR	FDH Engineering Inc.	919-755-1012
General Contractor	Tower Solutions LLC	Clark Cogan 585-749-4119
Sub to the General Contractor	D&D Welding	Matt David 585-259-4095
Field CWI for the General Contractor	Centek Engineering	Chris Thomas, CWI 203-488-0580
Field NDE for the General Contractor	NA	NA

Table 2 – Design Documents

Document(s)	Remarks	Source
Tower Modification Drawings	FDH Engineering 12-04772E Dated 07-16-2013	FDH Engineering, Inc.

Based on our inspection, FDH Engineering determines this project:

X_PASSING MI

The configuration, materials and/or workmanship of the modifications are installed in accordance with the Contract Documents and no deficiencies were found.

- Issues noted on the MI field notes were approved by the EOR and/or fixed by the GC with approved documentation.

All observations were performed after the construction was complete and that FDH Engineering, Inc. was not present during the construction phase.

We at FDH Engineering, Inc. appreciate the opportunity of providing our continuing professional services to you and SBA Network Services. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted,

Christopher M. Murphy, P.E.
Connecticut License #25842



Project Closeout Information - Table of Contents

	Reference Document
PRE-CONSTRUCTION	
• MI Checklist Drawing	10
• EOR Approved Shop Drawings	N/A
• Fabrication Inspection	N/A
• Fabricator Certified Welding Inspection (CWI)	11
• Material Testing Report (MTR)	12-16
• Fabricator NDE Inspection	NA
• NDE Report of Monopole Base Plate	NA
• Packing Slips	17-18
CONSTRUCTION	
• Construction Inspections	19-23
• Foundation Inspections	N/A
• Concrete Compression Strength and Slump Tests	N/A
• Post Installed Anchor Rod Verification	24-28
• Base Plate Grout Verification	N/A
• Contractor's Certified Weld Inspection	29-33
• Earthwork: Lift and Density	N/A
• Galvanization Verification	34
• Guy Wire Tension Report	N/A
• GC As-Built Documents	35-39
POST-CONSTRUCTION	
• MI Inspector Redline/Record Drawings	40-45
• Post Installed Anchor Rod Pull-out Testing	Waived
• On-Site Inspection Photographs	See Table 3
• Engineer Approval	46-50

Table 3.0 – On-Site Inspection Photographs





PH#01 Site Sign	PH#02 Installation of Modification – Installation of Flat Plate Reinforcement
 A photograph of a white site sign mounted on a chain-link fence. The sign contains the following text: "SBA", "SBA TOWERS", "SITE I.D.#: CT02049", "FCC#: 1233674", "LEASING (800) 487-SITE (7483)", "EMERGENCY (888) 950-SITE (7483)", and "WWW.SBASITE.COM". To the left of the sign, a portion of another sign is visible with the text "DO NOT CLIMB WITHOUT WRITTEN PERMISSION".	 A photograph showing a close-up view of a tower's exterior. It features a vertical metal structure with several horizontal bolts or fasteners. A flat plate reinforcement is being installed, secured with wires and bolts.
PH#03 Installation of Modification – Installation of Flat Plate Reinforcement	PH#04 Installation of Modification – Installation of Flat Plate Reinforcement
 A photograph showing a close-up view of a tower's exterior. It features a vertical metal structure with several horizontal bolts or fasteners. A flat plate reinforcement is being installed, secured with wires and bolts.	 A photograph showing a close-up view of a tower's exterior. It features a vertical metal structure with several horizontal bolts or fasteners. A flat plate reinforcement is being installed, secured with wires and bolts.

Table 3.1 – On-Site Inspection Photographs

PH#05 Installation of Modification –
Installation of Flat Plate Reinforcement



PH#06 Installation of Modification –
Installation of Flat Plate Reinforcement



PH#07 Installation of Modification –
Installation of Flat Plate Reinforcement



PH#08 Installation of Modification –
Installation of Flat Plate Reinforcement

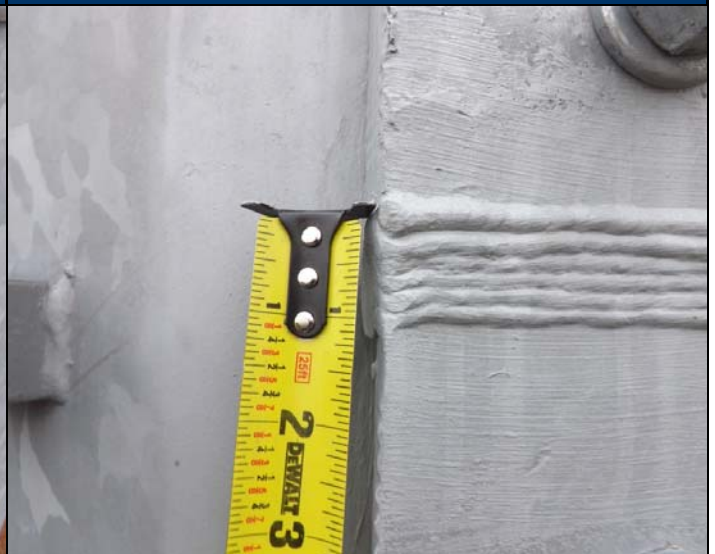


Table 3.2 – On-Site Inspection Photographs

PH#09 Installation of Modification –
Installation of Flat Plate Reinforcement



PH#10 Installation of Modification –
Installation of Flat Plate Reinforcement



PH#11 Installation of Modification –
Installation of New Anchor Rods



PH#12 Installation of Modification –
Installation of New Anchor Rods



Table 3.3 – On-Site Inspection Photographs

PH#13 Installation of Modification –
Installation of New Anchor Rods



PH#14 Installation of Modification –
Installation of New Anchor Rods



PH#15 Installation of Modification –
Installation of New Anchor Rods



PH#16 Installation of Modification –
Installation of New Anchor Rods

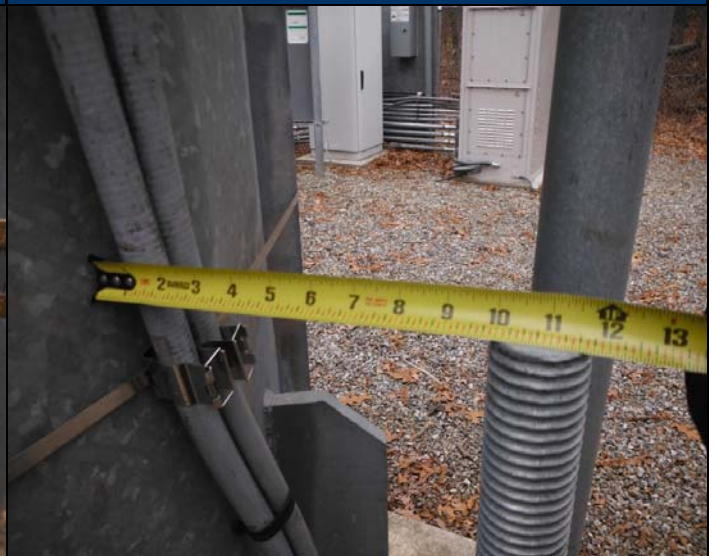


Table 3.4 – On-Site Inspection Photographs

PH#17 Installation of Modification –
Installation of New Anchor Rods



PH#18 Installation of Modification –
Installation of New Anchor Rods



PH#19 Installation of Modification –
Installation of Anchor Rod Transfer Sleeves



PH#20 Installation of Modification –
Installation of Anchor Rod Transfer Sleeves



Table 3.5 – On-Site Inspection Photographs

PH#21 Installation of Modification –
Installation of Anchor Rod Transfer Sleeves



PH#22 Installation of Modification –
Installation of Anchor Rod Transfer Sleeves



PH#23 Installation of Modification –
Installation of Anchor Rod Transfer Sleeves

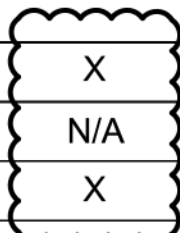


PH#24 Installation of Modification –
Installation of Anchor Rod Transfer Sleeves



PCI CHECKLIST

CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED	REPORT ITEM
PRE-CONSTRUCTION	
X	PCI CHECKLIST DRAWING
N/A	EOR APPROVED SHOP DRAWINGS
N/A	FABRICATION INSPECTION
N/A	FABRICATOR CERTIFIED WELD INSPECTION
X	MATERIAL TEST REPORT (MTR)
N/A	FABRICATOR NDE INSPECTION
N/A	NDE REPORT OF MONOPOLE BASE PLATE (AS REQUIRED)
X	PACKING SLIPS
ADDITIONAL TESTING AND INSPECTIONS:	
CONSTRUCTION	
X	CONSTRUCTION INSPECTIONS
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH AND SLUMP TESTS
X	POST INSTALLED ANCHOR ROD VERIFICATION
N/A	BASE PLATE GROUT VERIFICATION
X	CONTRACTOR'S CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
X	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
X	GC AS-BUILT DOCUMENTS
ADDITIONAL TESTING AND INSPECTIONS:	
POST-CONSTRUCTION	
X	PCI INSPECTOR REDLINE OR RECORD DRAWING(S)
N/A	POST INSTALLED ANCHOR ROD PULL-OUT TESTING
X	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	



NOTE: X DENOTES A DOCUMENT NEEDED FOR THE PCI REPORT
 N/A DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE PCI REPORT

Veteran Welding & Consulting

James M. Claypool, CWI
6935 N. Slocum Rd. - Ontario, NY - 14519
(585) 233-8257

October 21 2013

Reference # VW2013-86

Inspection Site: CT 02949-S

Project Name: Beacon Falls

Contractor Name: Tower Solutions

Client Name: FDH Inc.

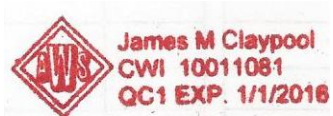
Specific Inspection Area: Tower Retrofit

Weldment Types: Anchor Rods

Welder verified: Yes

Inspection Results:

In shop visual inspection of the 3 anchor rod assemblies with 3/8" welds was acceptable. No obvious weld deficiencies were noted. All weld sizes meet the requirements as noted in the drawings. All welding and Fabrication was to D.1.1.



Re inspection Required: No

Project Status (Continuing/Closed): Closed

Inspection results reported to: Tower Solutions Inc.

James M. Claypool, CWI #10011081



Fabricator/Supplier Material Statement

Form Number: MTR-01

Site Name:	Beacon Falls
Site ID:	CT02049-S
Proposed Carrier:	AT&T
Tower Type:	160' Monopole
Site Address:	60 Rice Lane Beacon Falls, CT 06403

FDH No.:	1303121700
Str. Analysis Date:	7/16/12
Drawing Date:	6/4/13
Drawing Issue:	Construction
Coordinates:	41.4557° -73.0399°

Material Statement
 This statement certifies that all materials and hardware bearing the above listed descriptions were used in this project/order. The attached "mill test reports" (MTR) are specific to the site listed above only. The performing contractor must submit all MTRs in order to receive a passing Post Modification Inspection. Failure to provide these documents could result in nonpayment, PO deductions and/or additional scopes of work.

Material Information

No.	Material Description	Project Use	Vendor	QTY	Heat No.	ASTM Spec
1	1.75" thread bar	anchors	Williams	3		RT1150KSC
2	1.25" plate	reinforcing	Nucor	9	3502106	A572 65
3	1" plate	transfer bracket	Loveman	3	C1530	A572 65
4	3" x x pipe	transfer bracket	US steel	3	FA0803	A53
5	M20 x 95 bolts	attach plates	Ajax	186		

ALL MTRS LISTED ABOVE MUST BE INCLUDED WITH THIS STATEMENT AND HEAT NO. INITIALED. DO NOT INCLUDE NON-APPLICABLE MTRS.

Notary Statement

Tower Solutions LLC
 Subcontractor Company Name

Clark Cogan
 Authorized Signature

8/7/13
 Date

Clark Cogan
 Printed Name

President
 Title

State Of: New York

County Of: Monroe

I, Michael Suss, a Notary Public of Monroe County, NY, certify that Clark Cogan personally appeared before me this day and acknowledged that he/she is the President (title) of Tower Solutions (subcontractor), a NY corporation, and as President (title), being authorized to do so, executed the foregoing instrument on behalf of the corporation. Witness my hand and official stamp or seal, this 7th day of August, 2013.

MICHAEL P. SUSS
 Notary Public, State of New York
 No. 01SU6284219
 Qualified in Monroe County
 Commission Expires June 17, 2017

Michael Suss Michael Suss
 Notary Public Signature and Printed Name

My Commission Expires: June 17th, 2017

(Notary Stamp or Seal)

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P.O.Box 279
Winton, NC 27986
(252) 356-3700

Mill Test Report

Page 8



Issuing Date : 04/12/2013 B/L No. : 354284 Load No. : 356955 Our Order No. : 109674/22 Cust. Order No. : TD050
 Vehicle No: TTPX 811259
 Specification : 1.2500" x 96.000" x 240.000"
 ASTM A572 Grade 65-12 .05 Max Si
 Sold To : LEECO STEEL PRODUCTS
 1011 Warrenville Road
 SUITE 500
 LISLE, IL 60532
 Ship To: LEECO STEEL, LLC
 3845 COUNTY RD 902
 TRACK 1907 (CLEBURNE TX)
 FWWR DELIVERY
 CLEBURNE, TX 76058

Marking : TD050

Heat No	C	Mn	P	S	Si	Cu	Ni	Cr	Mo	Al(tot)	V	Nb	Ti	N	Ca	B	Sn	CEQ	PCM
3502106	0.15	1.41	0.015	0.003	0.04	0.13	0.07	0.08	0.02	0.032	0.061	0.047	0.002		0.0013	0.0002	0.007	0.43	0.25

Plate Serial No	Tensile Test						Charpy Impacts							
	Pieces	Tons	Dir.	(psi) Yield	(psi) Tensile	Elongation % in 2"	Elongation % in 8"	Dir.	1 shear (%)	2 shear (%)	3 shear (%)	Ave. (%)	Temp	Min Ave.
3502106-01	2	8.16	T	73,600	85,000	29.1								
			T	65,500	83,300		17.0							

Manufactured to fully killed fine grain practice by Electric Arc Furnace. Welding or weld repair was not performed on this material. Mercury has not been used in the direct manufacturing of this material. Produced as continuous cast discrete plate as-rolled, unless otherwise noted in Specification.

Yield by 0.5EUL method unless otherwise specified. $C_{eq} = C + (Mn/6) + (Cr + Mo + V)/5 + (Cu + Ni)/15$

$P_{cm} = C + (Si/30) + (Mn/20) + (Cu/20) + (Ni/60) + (Cr/20) + (Mo/15) + (V/10) + 5B$

Melted and manufactured in the USA. ISO 9001:2008 certified (#008063) by SRI Quality System Registrar (#0985-09). PED 97/23/EC 7/2 Annex 1, Para. 4.3 Compliant. DIN 50049 3.1.B/EN 10204 3.1B(2004), DIN EN 10204 3.1(2005) compliant. For ABS grades only, Quality Assurance certificate 09-MMPQA-546

We hereby certify that the contents of this report are accurate and correct. All test results and operations performed by the material manufacturer are in compliance with the applicable specifications, including customer specifications.

T. A. Depretis

T. A. Depretis, Metallurgist

04/15/2013 8:01:06 AM

Customer Name

Customer PO#

Shipper No

Heat Number

3

D & D Welding

450269

C1530

P.O. 60187

SHIP TO: ARCELORMITTAL PLATE LLC
LOVEMAN STL. CORP.
5455 PERKINS ROAD
BEDFORD HEIGHTS OH 44146

TEST CERTIFICATE

PAGE NO: 01 OF 01
FILE NO: 4731-01-01
MILL ORDER NO: 70335-001
MELT NO: C1530
SLAB NO: 1A
DATE: 05/19/12

SOLD TO: LOVEMAN STL. CORP.
P. O. BOX 46430
BEDFORD OH 44146

SEND TO:

01-C

PLATE DIMENSIONS / DESCRIPTION

TOTAL QTY	GAUGE	WIDTH	LENGTH	DESCRIPTION	PIECE WEIGHT
1	1"	72"	480"	RECTANGLE	9801#

CUSTOMER INFORMATION

CUSTOMER PO: 0060187-00

SPECIFICATION (S)

THIS MATERIAL HAS BEEN MANUFACTURED AND TESTED IN ACCORDANCE WITH PURCHASE ORDER REQUIREMENTS AND SPECIFICATION(S).

ASTM A572 YR 07 GR 65 TYPE-2
THE MANAGEMENT SYSTEMS FOR MANUFACTURE OF THIS PRODUCT ARE CERTIFIED TO ISO 9001:2008 (CERTIFICATE NO. 30130) AND ISO 14001 (CERTIFICATE NO. 009496).

CHEMICAL COMPOSITION

MELT: C1530	C	MN	P	S	CU	SI	NI	CR	MO
	.21	1.21	.015	.005	.23	.27	.10	.19	.05
MELT: C1530	V	AL	CB						
	.047	.015	.001						

TENSILE PROPERTIES

SLAB NO.	LOC	DIR	YIELD STRENGTH PSI X 100	TENSILE STRENGTH PSI X 100	ELONGATION GAGE LGTH	%
1A	EOT.	TRANS.	650	863	8.00"	22.0

GENERAL INFORMATION

ALL STEEL HAS BEEN MELTED AND MANUFACTURED IN THE U.S.A. MERCURY OR MERCURY COMPOUNDS ARE NOT USED IN THE MANUFACTURE OF ARCELORMITTAL PLATE LLC PRODUCTS. ACID SOLUBLE ALUMINUM FOR MORE INFORMATION AND PROCESSING GUIDELINES, REFER TO WWW.ARCELORMITTAL.COM/PLATEINFORMATION

B/L #73719 BUTLER TRUCKING CO.

KLEIN STEEL SERVICE CO. - SO# 89186-001
CUST PO# MF5098-OP
PTH A572-65 1.0
HEAT# C1530 - SLAB# 1A
A572-65
QTY-1; 1.0"x48"x96"

WE HEREBY CERTIFY THE ABOVE INFORMATION IS CORRECT:

ARCELORMITTAL PLATE LLC
QUALITY ASSURANCE LABORATORY
139 MODENA ROAD
COATESVILLE, PA 19320

Elinore Zaplitny
SUPERVISOR - TEST REPORTING
ELINORE ZAPLITNY

4

3 Sch. xxx Pipe Smls



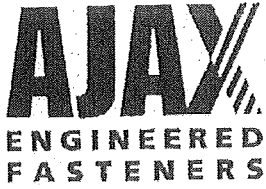
UNITED STATES STEEL

TUBULAR PRODUCTS
 CERTIFIED TEST REPORT
 (IN ACCORDANCE WITH ISO 10474/EN10204/DIN50049 "type 3.1")

DATE: 04/15/11
 TIME: 04:04:05
 SERIAL NO: L0035697

MILL ORDER/ITEM NO DR49406 07		SHIPPER'S NO. R83904		P.O. NUMBER 107497-00		VEHICLE ID NS192042													
SOLD TO ADDRESS TEXAS PIPE & SUPPLY CO INC 2330 HOLMES RD HOUSTON TX 77051-1098				MAIL TO ADDRESS TEXAS PIPE & SUPPLY CO INC 2330 HOLMES RD HOUSTON TX 77051-1098				VENOR USS TUBULAR PRODUCTS 2199 EAST 28TH ST. LORAIN, OH 44055											
SPECIFICATION AND GRADE																			
PIPE CARBON SMLS STD PIPE API 5L-*44TH ED DTD OCT 2007 AND ISO 3183:2007 MOD PSL-1 GRADE B AND GRADE X42 R N OR Q ASTM A53-*07 ASTM A106-*08 GRADE B QUAD STENCIL ASME SA53-*2010 EDITION ASME SA106-*2010 EDITION GRADE B BLK REG MILL COAT PE BEV 30 DEG MEETING ALL THE APPLICABLE REQUIREMENTS OF NACE STANDARD MR-01-75 *-2003/COR.1:2005 AND MR0103-2007																			
MATERIAL COND: AS ROLLED				O.D.: 3.500 (88.900)		I.D. (mm)		WALL: 0.600 (15.240)		W (mm)									
PRODUCT IDENTIFICATION	TENSILE TEST TYPE ORIENTATION	TEST COND.	GAUGE WIDTH IN	YIELD		TENSILE		Y/T	ELONG % (IN 2")	HARDNESS SCALE: HRB	MIN HYDRO PSI	DWELL (SEC)							
				MIN: 42100	EXT % .50	MIN: 70000	MAX:												
FA0803	STRIP/L/B	AR	0.750	54500	.50	80500	0.68	27.0	33.8	B 84.3	2970	S							
		**	END OF DATA THIS SHEET	**							2970	S							
LEGEND: L - LONGITUDINAL U - UPSET T - TRANSVERSE NM - NORMALIZED QT - QUENCH & TEMPERED AR - AS ROLLED B - BODY W - WELD SH - STRESS RELIEVED TR - THERMO MECHANICAL ROLLED																			
PRODUCT IDENTIFICATION	TYPE	C	Mn	P	S	Si	CU	NI	CR	MO	AL	N	V	B	TI	CO	CO	C.E.*	
																			MAX
FA0803	HEAT	.19	1.04	0.10	0.05	.21	.12	.12	.05	.01	.028		.03	0.000	.002	.000			-50
FA0803	PROD	.19	1.03	0.09	0.04	.20	.13	.12	.05	.01	.026		.03	0.003	.001	.002			-40
FA0803	PROD	.19	1.04	0.10	0.05	.20	.12	.12	.05	.01	.025		.03	0.003	.001	.002			-40
		** END OF DATA THIS SHEET **																	
*C.E. IS BASED ON THE FOLLOWING EQUATION(S):													$C.E. = C + (Mn/6) + (CR + MO + V) / 5 + (NI + CU) / 15$						

DECIMAL POSITIONS FOR ELEMENTS ARE INDICATED BY THE LEFT MARGIN, VERTICAL DOTTED LINE OR DECIMAL POINT.



Laboratory Test Certificate

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DATE: 28/08/13
PAGE: 1

CUSTOMER
USA

Lab Test Code 453897

OSB20.95B M20 X 95 ONESIDE BOLT LPS QARN: N0005655/04

Test / Method	Specifications			Test Results			Test Date
	Min	Max	Units	Min	Max	Units	
Wedge Tensile Test AS/NZS4291.1	203.000	0.000	KN	240.000	240.000	KN	28/08/13
Hardness AS1815.1/1817.1	23.000	34.000	HRC	33.000	33.000	HRC	28/08/13

Ajax Ref: 463736

This test certificate relates only to samples tested of the manufacturing batch



NATA Accredited Laboratory No: 1202

Accredited for compliance with ISO/IEC 17025. The results of the tests, calibration and/or measurements included in this document are traceable to Australian/National standards.

This document shall not be reproduced.

Signed by NATA Signatory
AJAX ENGINEERED FASTENERS

1



23-12-1208

Fri 08/24/2012

Clark Cogan
 Tower Solutions LLC
 280 Hemlock Trail
 Webster, New York 14580
 Phone: 585-265-1242 / 585-749-4119 (cell)
 Fax: 585-265-1242
 email: ccogan@rochester.rr.com

John Lohmeyer (G)
 Sales Representative
 Williams Form Engineering Corp.
 41 2nd Ave South Bldg. 1
 Phoenixville, PA 19460
 Phone: 610-415-9910
 Fax: 610-415-9920

RE: Beacon Falls / CT02049-S

As per your request , we are pleased to quote the following quality Williams material .

Part Number	Description	Weight	Qty	Price
R71-14-12600RHGA	R71 - 150 KSI All-Thread Bar 1-3/4" x 10'6" Right Hand Galvanized	285.4	3	\$453.30 Each
R73-14RHGA	R73 - All-Thread-Bar Hex Nut Right Hand Galvanized O.S. for 1-3/4" dia. 150 KSI Bar	28.2	6	\$32.24 Each
R73-14JNRHGA	R73 - All-Thread-Bar Jam Nut Right Hand Galvanized O.S. for 1-3/4" dia. 150 KSI Bar	6.7	6	\$11.33 Each
R9F-16-436GA	R9F - Hardened Washers for 1-3/4" 150KSI Bar Galvanized	2.3	6	\$7.06 Each
Total Weight:		322.5	Total Price: \$1,663.68	

Availability	3-4 Weeks ARO Delivery subject to availability of material at time of order . Actual shipping dates can be determined upon receipt of purchase order .
F.O.B.:	Lithia Springs, GA
Terms:	Net 30 days, no retainage percentage
Certification:	\$50.00 per order, must be requested when placing order .
Testing	Any cost of independent testing will be the responsibility of purchaser .
New Accounts:	Credit information must be provided when placing orders . Above prices are guaranteed for 30 days. Taxes not included. It is the purchasers responsibility to verify the material description and quantities on quotation meet project specifications. /aed:

All Quotes subject to the attached terms and conditions

5

ORDER

*** RELEASE ***
August 29, 2013 9:18 AM

Entered By: JOHN

Order #	00010240-0000
Order Date	08/29/2013
Page	1 of 1
Req Ship Date	08/30/2013

BILL TOWRSOL
TO: TOWER SOLUTIONS LLC
280 HEMLOCK TRAIL

WEBSTER, NY 14580

SHIP 1
TO: D&D WELDING C/O: TWR SOLUTIONS
4710 ROUTE 104

WILLIAMSON, NY 14589

Ordered By:

PrePaid _____ Collect _____ 3rd Party _____

TERMS	Customer PO #	Freight	FOB	Ship Via
PREPAYMENT OF INVOICE		PREPAID ADD CLASS 50	PJS/DALLAS	YELLOW

Order Qty	Ship Qty	B/O Qty	Item # / Description	Customer Part#	U/M	Carton Qty	# of Cartons
288	288	0	463752 M20 X 95 ONESIDE ASSEMBLY		EA	32	9
Unit Weight:				1	Ext Weight:		331
13	13	0	458430 ONESIDE 3' M20 HIGH TENSILE SLEEVE		EA	1	13
Unit Weight:				5	Ext Weight:		70

PLS SHIP ON YRC QUOTE # 99247549. YRC PHONE 1-800-610-6500
PLS PROVIDE AJAX REF #S FOR ALL 9 CARTONS AJAX # 463752
PLS PACK IN HD EXTERNAL BOXES AND STRAP TO PALLET
PLS PUT FOUR (4) "DO NOT STACK" LABELS ON EACH HD BOX
PLS PUT CONTACT ON BOL: CLARK COGAN 585.749.4119
PPA = 164.24

Total Order Weight: 401

FINAL REPORT OF SPECIAL INSPECTIONS

Project: AT&T – CT5416 - Wireless Communications Facility

Location: 60 Rice Lane, Beacon Falls, CT

Owner: SBA Communications – 5900 Broken Pkwy, Boca Raton, FL

Design Professional in Responsible Charge: Chris Murphy, PE (FDH Engineering)

To the best of my information, knowledge and belief, the Special Inspections required for this project, and itemized in the *Statement of Special Inspections* submitted for permit, have been performed all discovered discrepancies have been reported and resolved.

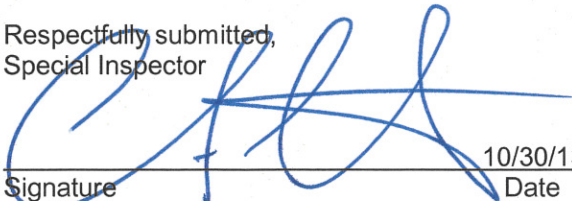
The following discrepancies that were outstanding since the last interim report dated n/a , have been corrected:

No outstanding discrepancies exist.

(Attach 8 1/2 x 11 continuation sheets(s) if required to complete the description of corrections)

Letter of Professional Opinion dated 10/30/13 submitted along with this Final Report form the basis for, and are to be considered an integral part of this Final Report.

Respectfully submitted,
Special Inspector



Signature

10/30/13

Date

Carlo F. Centore, P.E. / CENTEK engineering, Inc.

Type or print name



F I E L D V I S I T R E P O R T

DATE: October 18, 2013

TIME: 9:00 AM

TO: Pinnacle Wireless

PHONE: 774.406.9555

ATTN: Doug Roberts

EMAIL: droberts@pinnaclewireless.com

PREPARED BY: Dan Reid

PHONE: 203.488.0580 ext. 151

EMAIL: dreid@centekeng.com

SUBMITTED BY: Carlo F. Centore, PE

PHONE: 203.488.0580 ext. 122


EMAIL: cfcentore@centekeng.com



CEN TEK NO.: 13014.014




PROJECT NAME: AT&T CT5416 Beacon Falls NE



CC: Clark Cogan (Tower Solutions LLC)

The following was observed, discussed, reviewed and/or resolved at the site, which requires action by the Contractor unless noted otherwise. Items shall remain on this ongoing report until resolved to the satisfaction of this office.

101813. 1	Purpose of field visit was to confirm compliance with the FDH (Project #12-04772E S3) Tower Modification Drawings dated 10/15/2013 Rev-4 for installation of Three (3) post-installed anchor rods.	
101813. 2	Weather conditions were cloudy skies with a morning temperature of 55°F.	
101813. 3	View of the existing monopole structure taken post modifications.	

<p>101813. 4</p>	<p>Tower shaft reinforcement assembly in place from 42'-0"± to 58'-0"± typical @ flats 1, 5, & 9. All splices, bolt spacing and hardware confirmed to be consistent with the FDH (Project #12-04772E S3) Tower Modification Drawings dated 10/15/2013 Rev-4.</p>	 A photograph showing a section of a tall, cylindrical tower shaft under construction. The shaft is covered in a grid of steel reinforcement bars (rebar) that are protruding from the surface. The background is a clear blue sky.
<p>101813. 5</p>	<p>Tower shaft reinforcement assembly in place from 58'-0"± to 78'-0"± typical @ flats 1, 5, & 9. All splices, bolt spacing and hardware confirmed to be consistent with the FDH (Project #12-04772E S3) Tower Modification Drawings dated 10/15/2013 Rev-4.</p>	 A photograph showing a different section of the tower shaft, higher up than the previous image. It shows the same grid of steel reinforcement bars protruding from the shaft's surface against a blue sky.

<p>101813.6</p>	<p>Tower shaft reinforcement assembly in place from 78'-0"± to 98'-0"± typical @ flats 1, 5, & 9. All splices, bolt spacing and hardware confirmed to be consistent with the FDH (Project #12-04772E S3) Tower Modification Drawings dated 10/15/2013 Rev-4.</p>	
<p>101813.7</p>	<p>(See note 101813.6 above) (Photo Provided by Contractor)</p>	
<p>101813.8</p>	<p>(See note 101813.6 above) (Photo Provided by Contractor)</p>	

<p>101813. 9</p>	<p>(See note 101813.6 above)</p> <p>(Photo Provided by Contractor)</p>	
<p>101813. 10</p>	<p>Anchor rods & anchor rod brackets (3 each) installed.</p>	
<p>101813. 11</p>	<p>Installation of all specified tower modifications is confirmed as completed.</p>	

October 30, 2013

Mr. Douglas Roberts
Pinnacle Wireless
800 Phelps Road
Windsor, Connecticut 06095

Re: Post Modification Report
Project: AT&T - CT5416 Beacon Falls NE
60 Rice Lane
Beacon Falls, CT 06403
Owner: SBA Communications
5900 Broken Sound Pkwy, Boca Raton, FL 33487
Engineer: FDH Engineering
6521 Meriden Drive, Raleigh, NC 27616
Contractor: Tower Solutions LLC
280 Hemlock Terrace, Webster, NY 14580

Centek Project No.: 13014.014

Dear Mr. Roberts,

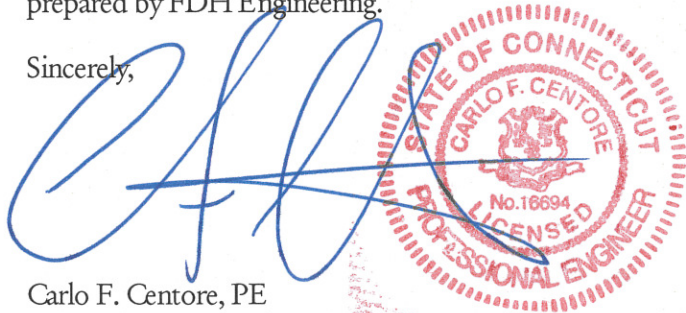
We are providing this "Post Modification Report" with regard to the structural modifications performed at the above referenced project.

The following are the basis for substantiating compliance with the tower modification documents prepared by FDH Engineering, Job No. 12-04772E S3, drawings T-1, N-1, N-2, & S-1 thru S-5 dated 10/15/2013 Rev. 04:

- Observations of post-installed anchor rod installation [refer to FVR dated 10/16/2013].
- Welding inspection report [refer to FVR dated 10/17/2013].
- Field observations of completed site [refer to FVR dated 10/18/13].

The work under this Contract has been reviewed and found, to the Engineer's best knowledge, information and belief, to be completed in general compliance with the above referenced documents prepared by FDH Engineering.

Sincerely,



Carlo F. Centore, PE
Principal - Structural Engineer

Cc: File
Clark Cogan - Tower Solutions (via email)

FIELD VISIT REPORT

DATE: October 16, 2013

TIME: 2:00 PM

TO: Pinnacle Wireless

PHONE: 774.406.9555

ATTN: Doug Roberts

EMAIL: droberts@pinnaclewireless.com

PREPARED BY: Dan Reid

PHONE: 203.488.0580 ext. 151

EMAIL: dreid@centekeng.com

SUBMITTED BY: Carlo F. Centore, PE

PHONE: 203.488.0580 ext. 122

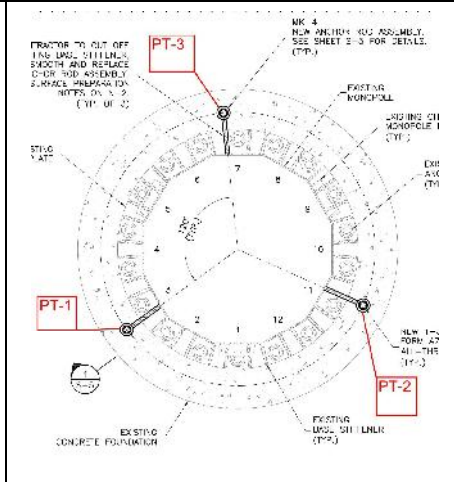
EMAIL: cfcentore@centekeng.com




CEN TEK NO.: 13014.014





PROJECT NAME: AT&T CT5416 Beacon Falls NE



CC: Clark Cogan (Tower Solutions LLC)

The following was observed, discussed, reviewed and/or resolved at the site, which requires action by the Contractor unless noted otherwise. Items shall remain on this ongoing report until resolved to the satisfaction of this office.

<p>101613. 1</p>	<p>Purpose of field visit was to confirm compliance with the FDH (Project #12-04772E S3) Tower Modification Drawing S-4 dated 10/15/2013 Rev-4 for installation of Three (3) post-installed anchor rods.</p>	
<p>101613. 2</p>	<p>Weather conditions were cloudy with an afternoon temperature of 65°F. The Contractor was on site readying the site for tower base modifications and installation of anchor rods.</p>	
<p>101613. 3</p>	<p>Anchor Hole Depths Confirmed:</p> <ul style="list-style-type: none"> ▪ PT-1: 5'-2" @ tower flat #3 ▪ PT-2: 5'-2" @ tower flat #11 ▪ PT-3: 5'-2" @ tower flat #7 <p>Specified Minimum Depth of 5'-0" minimum.</p>	

101613. 4	PT-1 (See note 101613.4 above)	
101613. 5	PT-2 (See note 101613.4 above)	
101613. 6	PT-3 (See note 101613.4 above)	

<p>101613. 7</p>	<p>Typical at all anchor locations: Concrete core diameter verified as minimum of 2¼" Ø.</p>	
<p>101613. 8</p>	<p>Anchor rods confirmed as 1¼" Ø x 9'-7" A772 Grade 150. Contractor was notified to provide Centek with copies of anchor rod material certifications prior to closeout of the project.</p>	
<p>101613. 9</p>	<p>The specified Hilti HIT-RE 500 epoxy adhesive was used to install the anchor rods. Anchor holes were brushed & blown clean prior to filling with adhesive. A Hilti Representative was on site to verify that Hilti's installation recommendations were followed.</p>	
<p>101613. 10</p>	<p>(See note 101613.9 above)</p>	

<p>101613. 11</p>	<p>(See note 101613.9 above)</p>	
<p>101613. 12</p>	<p>(See note 101613.9 above)</p>	
<p>101613. 13</p>	<p>Installation of all three (3) anchor rods confirmed as complete. Based upon a Hilti Representative witnessing the installation of the anchor rods, The Engineer of Record waived the post installed pull-test requirement. Documentation was obtained by this office to confirm this.</p>	

W E L D I N G I N S P E C T I O N R E P O R T

DATE: October 17, 2013

TIME: 8:30 am

TO: Pinnacle Wireless

PHONE: 774.406.9555

ATTN: Doug Roberts

EMAIL: droberts@pinnaclewireless.com

INSPECTED BY: Chris Thomas
CWI 13031271

PHONE: 203.488.0580 ext. 152
EMAIL: cthomas@centekeng.com

SUBMITTED BY: Carlo F. Centore, PE


PHONE: 203.488.0580 ext. 122
EMAIL: cfcentore@centekeng.com





CEN TEK NO.: 13014.014





PROJECT NAME: AT&T – CT5416 – Beacon Falls NE






CC: Clark Cogan (Tower Solutions LLC)



The following was observed, discussed, reviewed and/or resolved at the site, which requires action by the Contractor unless noted otherwise. Items shall remain on this ongoing report until resolved to the satisfaction of this office.

<p>101713. 1</p>	<p>Purpose of field visit was to conduct a visual evaluation of completed welds associated with the newly installed Anchor Rod Assemblies & Flat Plate Reinforcement per sheet S-2 & S-5 of the FDH Engineering, Inc. (P/N: 12-04772E-S3 Dated: 08.21.12) Tower Modification Drawings and the American Welding Society Structural Welding Code D1.1 (2010 Edition).</p>	
<p>101713. 2</p>	<p>Typical preparation work prior to welding at the Pole, Base Plate & Anchor Rod Assemblies.</p>	

101713. 3	See note (101713.2) above.	
101713. 4	See note (101713.2) above.	
101713. 5	See note (101713.2) above.	
101713. 6	See note (101713.2) above.	

<p>101713. 7</p>	<p>Typical preparation work prior to welding at the Flat Plate Reinforcement.</p>	
<p>101713. 8</p>	<p>See note (101713.7) above.</p>	
<p>101713. 9</p>	<p>See note (101713.7) above.</p>	
<p>101713. 10</p>	<p>Typical Groove Weld at the Anchor Rod Assembly to Base Plate connections with 1/2" Cover Fillet Weld.</p>	

<p>101713. 11</p>	<p>See note (101713.10) above.</p>	
<p>101713. 12</p>	<p>Typical 3/8" Fillet Weld for the Anchor Rod Assembly to Pole connections.</p>	
<p>101713. 13</p>	<p>See note (101713.12) above.</p>	
<p>101713. 14</p>	<p>Typical CJP Groove Weld for the Flat Plate Reinforcement Splice connections at the 58' elevation.</p>	
<p>101713. 15</p>	<p>See note (101713.14) above.</p>	

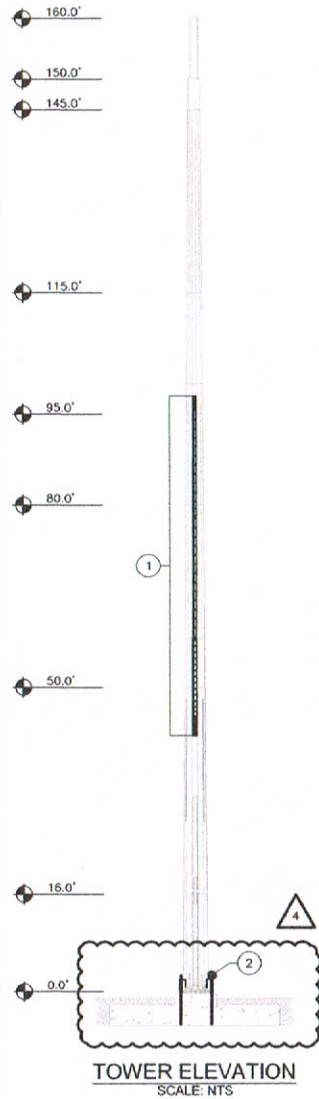
<p>101713. 16</p>	<p>Typical CJP Groove Weld for the Flat Plate Reinforcement Splice connections at the 78' elevation.</p>	
<p>101713. 17</p>	<p>See note (101713.16) above.</p>	
<p>101713. 18</p>	<p>The visual evaluation of the installed Anchor Rod Assemblies & Flat Plate Reinforcement found them to be installed on the Monopole Tower per the contract documents. The welded connections of the modification parts to are in accordance with AWS D1.1 Clause 6, Table 6.1.</p>	

Cold Galvanization Verification



OK Clark Logan 10/22/13

LENGTH (FT)	# OF SIDES	THICKNESS (IN)	SOCKET LENGTH (FT)	TOP DIAMETER (IN)	BOT. DIAMETER (IN)	TOWER FINISH
22.00	12	0.3750	8.00	35.7000	41.1000	GALVANIZED
42.00	12	0.3750	N/A	31.4750	35.7000	GALVANIZED
30.00	12	0.3125	5.00	29.4000	33.0000	GALVANIZED
20.00	12	0.3125	5.00	29.4000	33.0000	GALVANIZED
20.00	12	0.3125	5.00	29.4000	33.0000	GALVANIZED
30.00	12	0.2500	N/A	24.0000	28.4000	GALVANIZED
5.00	1	A 0.2500	N/A	16.0000	16.0000	GALVANIZED
10.00	1	B 16.0000	N/A	16.0000	16.0000	GALVANIZED



- APPURTENANCES MAY INTERFERE WITH PROPOSED MODIFICATIONS.
- ALL MODIFICATIONS TO BE INSTALLED CONTINUOUSLY THROUGH EXISTING EQUIPMENT. ALL EXISTING EQUIPMENT NOT TO BE DAMAGED OR TAKEN OFF AIR DURING INSTALLATION.
- ANTENNA GRAPHICS NOT SHOWN FOR CLARITY. SEE STRUCTURAL ANALYSIS REPORT FOR EXISTING ANTENNA LOADING.

MEMBER SIZE KEY	
MARK	SIZE
A	0.2500
B	24.0000

TOWER MODIFICATION SCHEDULE			
NO.	TYPE OF MODIFICATION	BOTTOM ELEV. (FT)	TOP ELEV. (FT)
1	INSTALLATION OF NEW FLAT PLATE REINFORCEMENT. SEE S-2 & S-3 FOR DETAILS.	42.0±	98.0±
2	INSTALLATION OF NEW ANCHOR RODS. SEE S-4 & S-5 FOR DETAILS.	-5.5±	2.0±

OK

4 OK

PREPARED BY:

6521 MERIDEN DRIVE
RALEIGH, NC 27616
PHONE: 919-755-1012
FAX: 919-755-1031

PREPARED FOR:

5600 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800) 487-SITE

0/15/13
CHRISTOPHER M. MURPHY, P.E.
CONNECTICUT LIC. NO. 25842

DRAWN BY: OP
CHECKED BY: SMN
ENG APP'VD: CMM
PROJECT NO: 12-04772E S3

SUBMITTALS		
DATE	DESCRIPTION	REV
09/21/12	PRELIMINARY/REVIEW	A
09/20/12	PERMIT	1
06/04/13	CONSTRUCTION	2
10/11/13	REVISION	3
10/15/13	REVISION	4

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SITE NAME:
BEACON FALLS

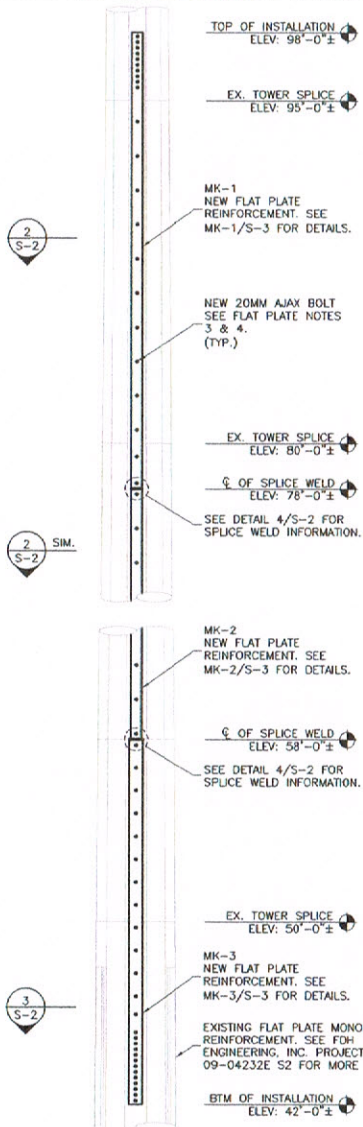
SITE NUMBER:
CT02049-S

SITE ADDRESS:
60 RICE LANE
BEACON FALLS, CT 06403

SHEET TITLE
MODIFICATION
SCHEDULE

SHEET NUMBER
S-1

OK C.C.



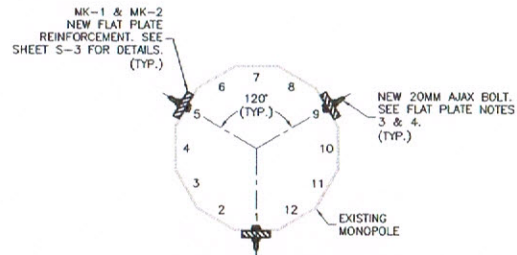
1 ELEVATION
SCALE: 3/16" = 1'-0"
S-2

NEW FLAT PLATE REINFORCEMENT NOTES:

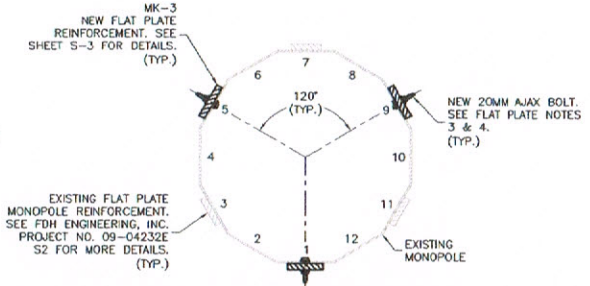
- CONTRACTOR TO FIELD VERIFY PROPOSED LOCATION OF FLAT PLATE TO ENSURE THAT PROPER SPACING CAN BE MET.
- CONTRACTOR TO REPLACE AND/OR RELOCATE ANY CLIMBING PEGS THAT INTERFERE WITH THE INSTALLATION OF FLAT PLATE.
- ALL AJAX CONNECTIONS TO USE HIGH TENSILE SLEEVE PROVIDED BY MANUFACTURER. AJAX BOLT ASSEMBLY TO BE INSTALLED PER MANUFACTURER SPECIFICATIONS. SEE AJAX BOLT ASSEMBLY DETAIL 5/S-2.
- ALL SHEAR SLEEVES TO BE HOT DIPPED GALVANIZED PRIOR TO INSTALLATION.

CONSTRUCTION NOTES:

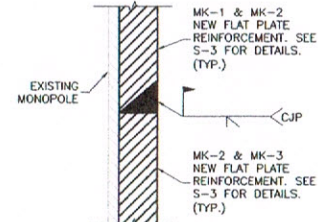
- CONTRACTOR TO FIELD VERIFY PROPOSED FLAT PLATE LAYOUT PRIOR TO CONSTRUCTION. IF ISSUES ARE PRESENT IN THE FIT OF THE FLAT PLATE, CONTRACTOR TO CONTACT ENGINEER OF RECORD OR FDH ENGINEERING PROJECT MANAGER PRIOR TO PROCEEDING WITH PROPOSED MODIFICATION OR FABRICATION.



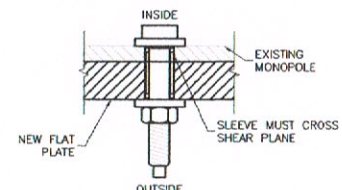
2 SECTION
SCALE: 1/2" = 1'-0"
S-2



3 SECTION
SCALE: 1/2" = 1'-0"
S-2



4 SECTION
NTS
S-2



5 DETAIL
NTS
S-2

FLAT PLATE INSTALLATION SCHEDULE			
PART #	QTY.	DESCRIPTION	ELEVATION
MK-1	3	FLAT PLATE REINFORCEMENT	78'-0"± TO 98'-0"±
MK-2	3	FLAT PLATE REINFORCEMENT	58'-0"± TO 78'-0"±
MK-3	3	FLAT PLATE REINFORCEMENT	42'-0"± TO 58'-0"±
-	186	20MM AJAX BOLTS	VARIES

ALL NEW FLAT PLATE STEEL TO HAVE Fy=65 KSI

PREPARED BY:

 6521 MERIDIAN DRIVE
 RALEIGH, NC 27616
 PHONE: 919-755-1912
 FAX: 919-755-1631

PREPARED FOR:

 3900 BROKEN SOUND PARKWAY, NW
 BOCA RATON, FL 33487
 (800) 487-8172

STATE OF CONNECTICUT

 LICENSED PROFESSIONAL ENGINEER
 No. 25842
 10/15/13
 CHRISTOPHER M. MURPHY, P.E.
 CONNECTICUT LIC. NO. 25842

DRAWN BY: OP
 CHECKED BY: SMN
 ENG APPVD: CMM
 PROJECT NO: 12-04772E S3

SUBMITTALS		
DATE	DESCRIPTION	REV
08/21/12	PRELIMINARY/REVIEW	A
09/20/12	PERMIT	1
08/04/13	CONSTRUCTION	2
10/11/13	REVISION	3
10/15/13	REVISION	4

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SITE NAME:
BEACON FALLS

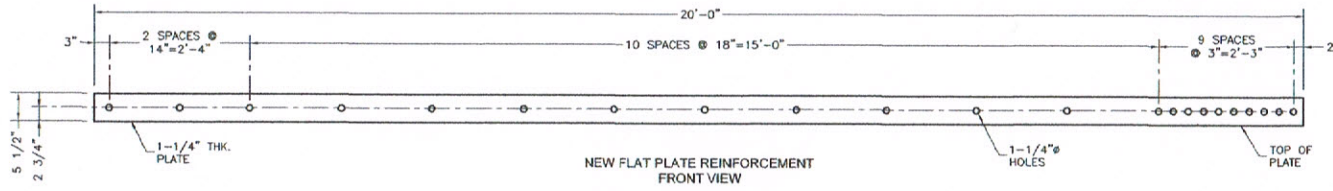
SITE NUMBER:
CT02049-S

SITE ADDRESS:
 60 RICE LANE
 BEACON FALLS, CT 06403

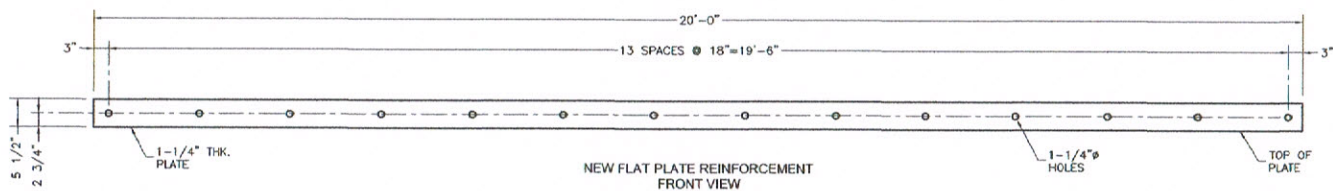
SHEET TITLE
FLAT PLATE REINFORCEMENT DETAILS

SHEET NUMBER
S-2

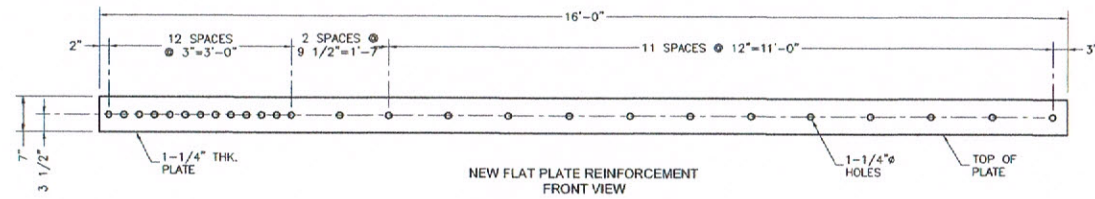
OK C&C



MK-1
S-3
DETAIL
SCALE: 1/2" = 1'-0"




MK-2
S-3
DETAIL
SCALE: 1/2" = 1'-0"



MK-3
S-3
DETAIL
SCALE: 1/2" = 1'-0"

PREPARED BY:
 0521 MERIDEN DRIVE
 RALEIGH, NC 27816
 PHONE: 919-755-1012
 FAX: 919-755-1031
 ENGINEERING INNOVATION

PREPARED FOR:

 5000 BROKEN SOUND PARKWAY, NW
 BOCA RATON, FL 33487
 (561) 497-5100

STATE OF CONNECTICUT
 Professional Engineer
 No. 25842
 LICENSED
 10/15/13
 CHRISTOPHER M. MURPHY, P.E.
 CONNECTICUT LIC. NO. 25842

DRAWN BY: OP
 CHECKED BY: SMN
 ENG APP'D: CMM
 PROJECT NO: 12-04772E S3

SUBMITTALS		
DATE	DESCRIPTION	REV
08/21/12	PRELIMINARY REVIEW	A
09/20/12	PERMIT	1
06/04/13	CONSTRUCTION	2
10/11/13	REVISION	3
10/15/13	REVISION	4

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SITE NAME:
 BEACON FALLS
 SITE NUMBER:
 CT02049-S
 SITE ADDRESS:
 80 RICE LANE
 BEACON FALLS, CT 06403

SHEET TITLE
 FLAT PLATE
 DETAILS

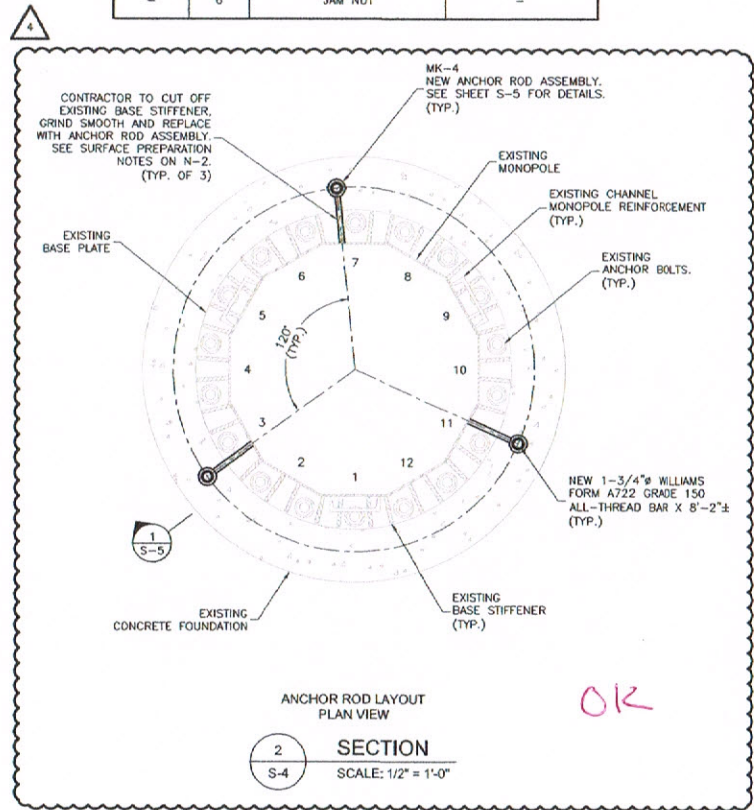
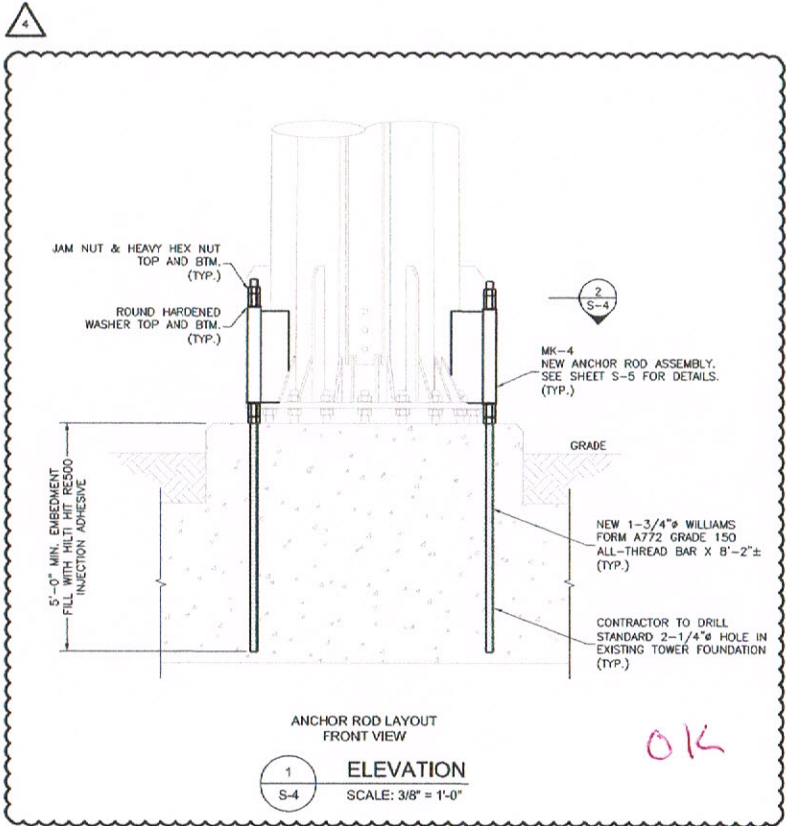
SHEET NUMBER
 S-3

CONTRACTOR TO PROVIDE PHOTOS OF THE ANCHOR ROD HOLES TO FDH CONSTRUCTION MANAGER PRIOR TO INSTALLING NEW ANCHOR RODS. PHOTOS MUST SHOW THE DEPTH AND DIAMETER OF ANCHOR ROD HOLES.

PISTON PLUGS TO BE USED IN ALL INJECTION ADHESIVE APPLICATIONS

ANCHOR ROD MATERIAL LIST

PART. NO	QTY.	DESCRIPTION	ELEVATION
MK-4	3	ANCHOR ROD ASSEMBLY	0'-0"± TO 2'-0"±
-	3	NEW 1-3/4" WILLIAMS FORM A722 GRADE 150 ALL-THREAD BAR X 8'-2"±	-5'-6"± TO 2'-8"±
-	6	ROUND HARDENED WASHER	-
-	6	HEAVY HEX NUT	-
-	6	JAM NUT	-



PREPARED BY:

 6521 MERIDIAN DRIVE
 RALEIGH, NC 27616
 PHONE: 919-755-1012
 FAX: 919-755-1031

PREPARED FOR:

 5900 BROKEN SOUND PARKWAY, NW
 BOCA RATON, FL 33487
 (800) 467-5376

CHRISTOPHER M. MURPHY, P.E.
 CONNECTICUT LIC. NO. 25842

DRAWN BY: OP
 CHECKED BY: SMN
 ENG APP'VD: CMM
 PROJECT NO: 12-0472E S3

SUBMITTALS		
DATE	DESCRIPTION	REV
05/21/12	PRELIMINARY REVIEW	A
06/29/12	PERMIT	1
06/04/13	CONSTRUCTION	2
10/11/13	REVISION	3
10/15/13	REVISION	4

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SITE NAME:
BEACON FALLS

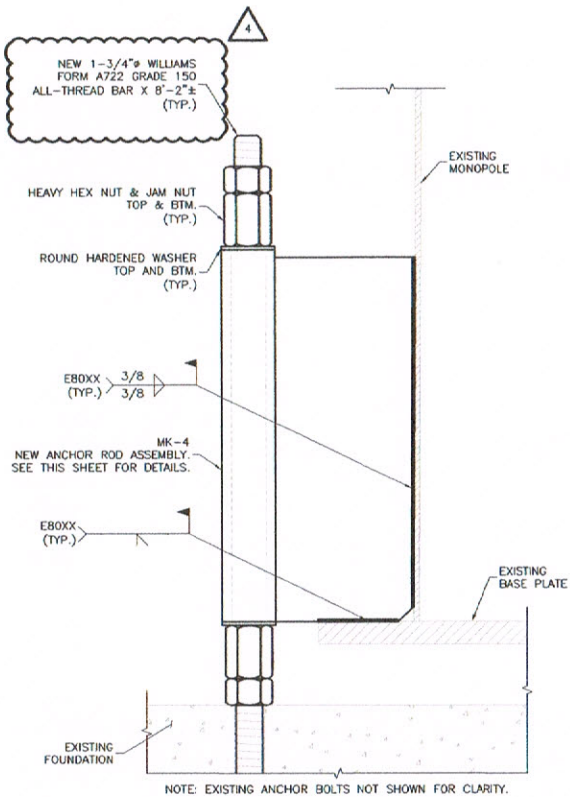
SITE NUMBER:
CT02049-S

SITE ADDRESS:
 60 RICE LANE
 BEACON FALLS, CT 06043

SHEET TITLE
**ANCHOR ROD
 INSTALLATION DETAILS I**

SHEET NUMBER
S-4

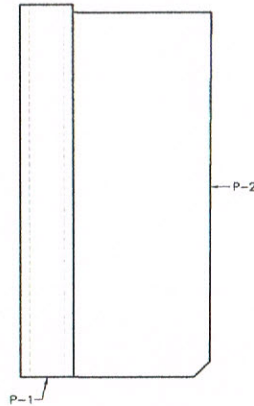
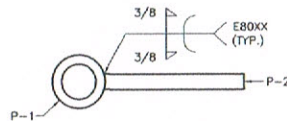
OK C.C.



ANCHOR ROD ASSEMBLY WELD DETAIL ELEVATION VIEW

1 ELEVATION
S-5 SCALE: 1-1/2" = 1'-0"

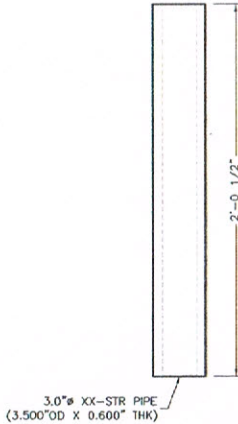
OK



ANCHOR ROD ASSEMBLY TOP & SIDE VIEW

MK-4 SECTION
S-5 SCALE: 1-1/2" = 1'-0"

OK



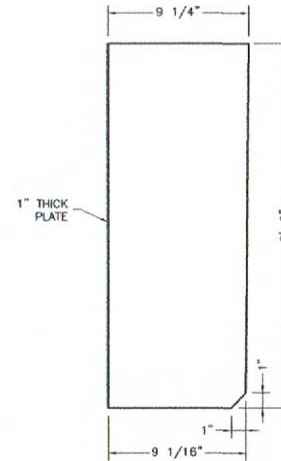
ANCHOR ROD SLEEVE SIDE VIEW

P-1 DETAIL
S-5 SCALE: 1-1/2" = 1'-0"

OK

MATERIAL LIST (MK-4)

PART. NO.	QTY.	DESCRIPTION
P-1	3	ANCHOR ROD SLEEVE
P-2	3	TRANSFER PLATE



TRANSFER PLATE SIDE VIEW

P-2 DETAIL
S-5 SCALE: 1-1/2" = 1'-0"

OK

PREPARED BY:

FDH 6531 MERIDEN DRIVE RALEIGH, NC 27619
PHONE: 919-756-1012 FAX: 919-756-1031

ENGINEERING INNOVATION

PREPARED FOR:

SBA

5900 BROKEN SOUND PARKWAY, NW BOCA RATON, FL 33487
(600) 487-SITE

STATE OF CONNECTICUT
Christopher Michael Murphy
No. 25842
LICENSED PROFESSIONAL ENGINEER
10/15/13

CHRISTOPHER M. MURPHY, P.E.
CONNECTICUT LIC. NO. 25842

DRAWN BY: OP
CHECKED BY: SMN
ENG APP'D: CMM
PROJECT NO: 12-04772E S3

SUBMITTALS

DATE	DESCRIPTION	REV
08/21/12	PRELIMINARY/REVIEW	A
09/25/12	PERMIT	1
09/04/13	CONSTRUCTION	2
10/11/13	REVISION	3
10/15/13	REVISION	4

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SITE NAME:
BEACON FALLS

SITE NUMBER:
CT02049-S

SITE ADDRESS:
60 RICE LANE
BEACON FALLS, CT 08403

SHEET TITLE
ANCHOR ROD
INSTALLATION DETAILS II

SHEET NUMBER
S-5

THE MODIFICATIONS DEPICTED ON THESE DRAWINGS ARE BASED ON THE RECOMMENDATIONS OUTLINED IN THE STRUCTURAL ANALYSIS COMPLETED BY FDH ENGINEERING, INC., PROJECT NO. 12-04772E S2 DATED JULY 16, 2012.

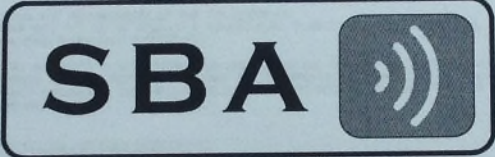
THIS REPORT WAS BASED ON A SPECIFIC ANTENNA AND COAX CONFIGURATION PROVIDED BY THE TOWER OWNER. ANY CHANGE TO THIS INFORMATION MUST BE REVIEWED BY FDH ENGINEERING, INC.

ALL DIMENSIONS, MEASUREMENTS, QUANTITIES, PART NUMBERS AND COAX/ANTENNA PLACEMENTS TO BE FIELD VERIFIED BY CONTRACTOR PRIOR TO MATERIAL ORDERS AND CONSTRUCTION.

MI Rollins 12/8/13

Robert

PROJECT DESCRIPTION:
**MODIFICATION DRAWINGS
 FOR A 160' MONOPOLE**



SITE NAME:
BEACON FALLS

SITE NUMBER:
CT02049-S

SITE ADDRESS:
 60 RICE LANE
 BEACON FALLS, CT 06403

COORDINATES:
 LATITUDE: 41.4557°
 LONGITUDE: -73.0399°

SHEET INDEX	
SHT. NO.	DESCRIPTION
T-1	TITLE SHEET
N-1	POST CONSTRUCTION INSPECTION NOTES
N-2	GENERAL NOTES
S-1	MODIFICATION SCHEDULE
S-2	FLAT PLATE REINFORCEMENT DETAILS
S-3	FLAT PLATE DETAILS
S-4	ANCHOR ROD INSTALLATION DETAILS I
S-5	ANCHOR ROD INSTALLATION DETAILS II

PREPARED BY:
 6371 MERIDEN DRIVE
 RALEIGH, NC 27616
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 FAX: 919-755-1031
 ENGINEERING INNOVATION

PREPARED FOR:
SBA
 5900 BROKEN SOUND PARKWAY, NW
 BOCA RATON, FL 33487
 (800) 487-5ITE

STATE OF CONNECTICUT
 Christopher Michael Murphy
 No. 25842
 LICENSED PROFESSIONAL ENGINEER
 12/15/13
 CHRISTOPHER M. MURPHY, P.E.
 CONNECTICUT LIC. NO. 25842

DRAWN BY:
 CHECKED BY: SMN
 ENG. APP'VD: CMM
 PROJECT NO: 12-04772E S3

SUBMITTALS		
DATE	DESCRIPTION	REV
08/21/12	PRELIMINARY/REVIEW	A
09/20/12	PERMIT	1
09/04/13	CONSTRUCTION	2
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10/15/13	REVISION	4

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SITE NAME:
 BEACON FALLS

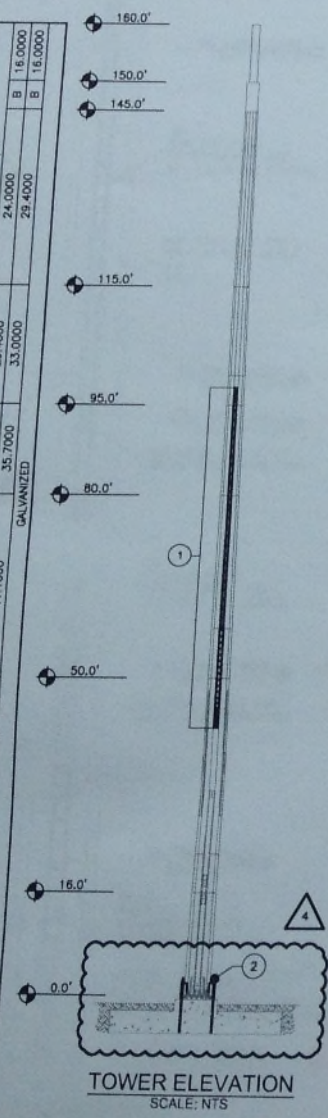
SITE NUMBER:
 CT02049-S

SITE ADDRESS:
 60 RICE LANE
 BEACON FALLS, CT 06403

SHEET TITLE
 TITLE SHEET

SHEET NUMBER
T-1

LENGTH (FT)	22.00	42.00	30.00	12	20.00	20.00	30.00	15.00	10.00
# OF SIDES								1	1
THICKNESS (IN)	0.3750	0.3750	0.3750	8.00	0.3125	0.3125	0.2500	A	0.2500
SOCKET LENGTH (FT)	N/A	N/A	N/A	31.4750	N/A	N/A	N/A	N/A	N/A
TOP DIAMETER (IN)	45.2829	38.9100	35.7000	29.4000	24.0000	29.4000	29.4000	B	16.0000
BOT. DIAMETER (IN)	50.1000	47.2200	41.1000	35.7000	33.0000	29.4000	29.4000	B	16.0000
TOWER FINISH				GALVANIZED					



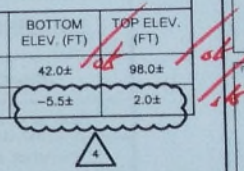
TOWER ELEVATION
SCALE: NTS

- APPURTENANCES MAY INTERFERE WITH PROPOSED MODIFICATIONS.
- ALL MODIFICATIONS TO BE INSTALLED CONTINUOUSLY THROUGH EXISTING EQUIPMENT. ALL EXISTING EQUIPMENT NOT TO BE DAMAGED OR TAKEN OFF AIR DURING INSTALLATION.
- ANTENNA GRAPHICS NOT SHOWN FOR CLARITY. SEE STRUCTURAL ANALYSIS REPORT FOR EXISTING ANTENNA LOADING.

MEMBER SIZE KEY	
MARK	SIZE
A	0.2500
B	24.0000

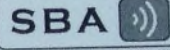
TOWER MODIFICATION SCHEDULE

NO.	TYPE OF MODIFICATION	BOTTOM ELEV. (FT)	TOP ELEV. (FT)
1	INSTALLATION OF NEW FLAT PLATE REINFORCEMENT. SEE S-2 & S-3 FOR DETAILS.	42.0±	98.0±
2	INSTALLATION OF NEW ANCHOR RODS. SEE S-4 & S-5 FOR DETAILS.	-5.5±	2.0±



PREPARED BY:

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 FAX: 919-755-1931
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 (904) 487-9176

STATE OF CONNECTICUT

 No. 25842
 LICENSED
 PROFESSIONAL ENGINEER
 10/15/13
 CHRISTOPHER M. MURPHY, P.E.
 CONNECTICUT LIC. NO. 25842

DRAWN BY: OP
 CHECKED BY: SMN
 ENG. APP'D: CMM
 PROJECT NO: 12-04772E 53

SUBMITTALS		
DATE	DESCRIPTION	REV
08/21/12	PRELIMINARY/REVIEW	A
09/20/12	PERMIT	1
06/04/13	CONSTRUCTION	2
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10/15/13	REVISION	4

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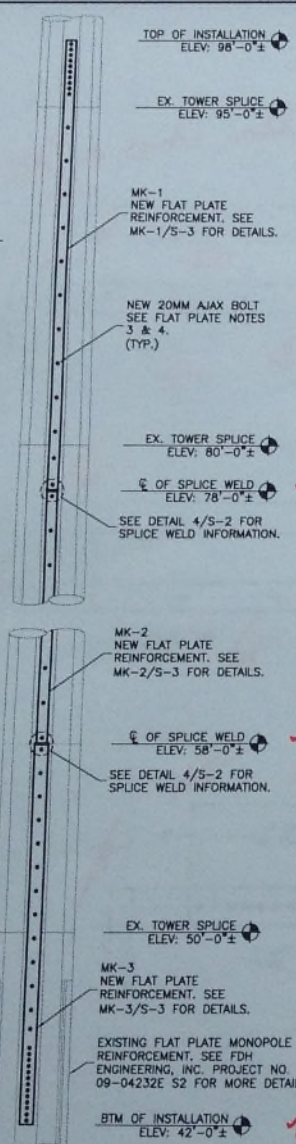
SITE NAME:
BEACON FALLS

SITE NUMBER:
CT02049-S

SITE ADDRESS:
60 RICE LANE
BEACON FALLS, CT 06403

SHEET TITLE
MODIFICATION
SCHEDULE

SHEET NUMBER
S-1



FLAT PLATE REINFORCEMENT LAYOUT
ELEVATION VIEW

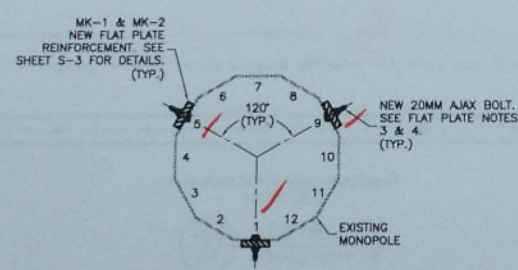
1 ELEVATION
S-2 SCALE: 3/16" = 1'-0"

NEW FLAT PLATE REINFORCEMENT NOTES:

1. CONTRACTOR TO FIELD VERIFY PROPOSED LOCATION OF FLAT PLATE TO ENSURE THAT PROPER SPACING CAN BE MET.
2. CONTRACTOR TO REPLACE AND/OR RELOCATE ANY CLIMBING PEGS THAT INTERFERE WITH THE INSTALLATION OF FLAT PLATE.
3. ALL AJAX CONNECTIONS TO USE HIGH TENSILE SLEEVE PROVIDED BY MANUFACTURER. AJAX BOLT ASSEMBLY TO BE INSTALLED PER MANUFACTURER SPECIFICATIONS. SEE AJAX BOLT ASSEMBLY DETAIL 5/S-2.
4. ALL SHEAR SLEEVES TO BE HOT DIPPED GALVANIZED PRIOR TO INSTALLATION.

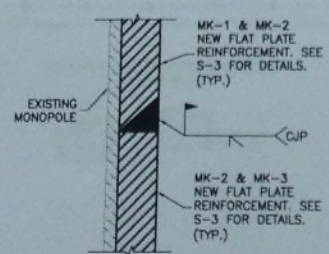
CONSTRUCTION NOTES:

1. CONTRACTOR TO FIELD VERIFY PROPOSED FLAT PLATE LAYOUT PRIOR TO CONSTRUCTION. IF ISSUES ARE PRESENT IN THE FIT OF THE FLAT PLATE, CONTRACTOR TO CONTACT ENGINEER OF RECORD OR FDH ENGINEERING PROJECT MANAGER PRIOR TO PROCEEDING WITH PROPOSED MODIFICATION OR FABRICATION.



NEW FLAT PLATE REINFORCEMENT LAYOUT
SECTION VIEW

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



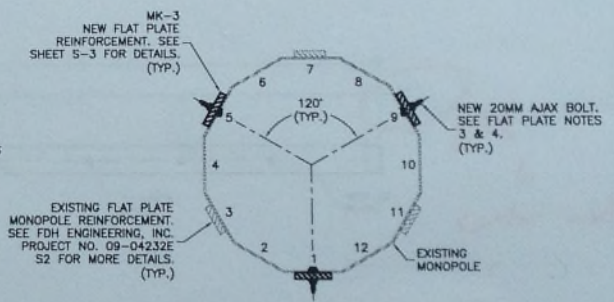
SPULCE WELDING
ELEVATION VIEW

4 SECTION
S-2 NTS

FLAT PLATE INSTALLATION SCHEDULE

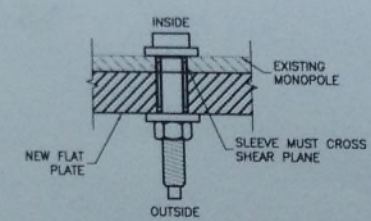
PART #	QTY.	DESCRIPTION	ELEVATION
MK-1	3	FLAT PLATE REINFORCEMENT	78'-0" ± TO 98'-0" ±
MK-2	3	FLAT PLATE REINFORCEMENT	58'-0" ± TO 78'-0" ±
MK-3	3	FLAT PLATE REINFORCEMENT	42'-0" ± TO 58'-0" ±
-	186	20MM AJAX BOLTS	VARIES

ALL NEW FLAT PLATE STEEL TO HAVE Fy=65 KSI



NEW FLAT PLATE REINFORCEMENT LAYOUT
SECTION VIEW

3 SECTION
S-2 SCALE: 1/2" = 1'-0"



AJAX BOLT ASSEMBLY
PLAN VIEW

5 DETAIL
S-2 NTS

PREPARED BY:

881 MERRIDEN DRIVE
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FAX: 919-755-1031

ENGINEERING INNOVATION

PREPARED FOR:

5800 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800) 487-SITE

10/15/13
CHRISTOPHER M. MURPHY, P.E.
CONNECTICUT LIC. NO. 25842

DRAWN BY: OP
CHECKED BY: SMN
ENG APPVD: CMM
PROJECT NO: 12-04772E S3

SUBMITTALS		
DATE	DESCRIPTION	REV
08/21/12	PRELIMINARY/REVIEW	A
09/20/12	PERMIT	1
08/04/13	CONSTRUCTION	2
10/11/13	REVISION	3
10/19/13	REVISION	4

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BEACON FALLS

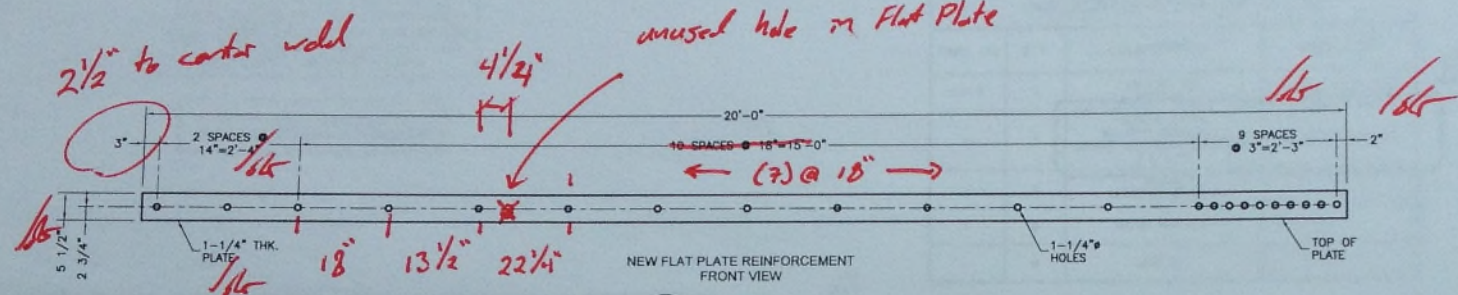
SITE NUMBER:
CT02049-S

SITE ADDRESS:
60 RICE LANE
BEACON FALLS, CT 06403

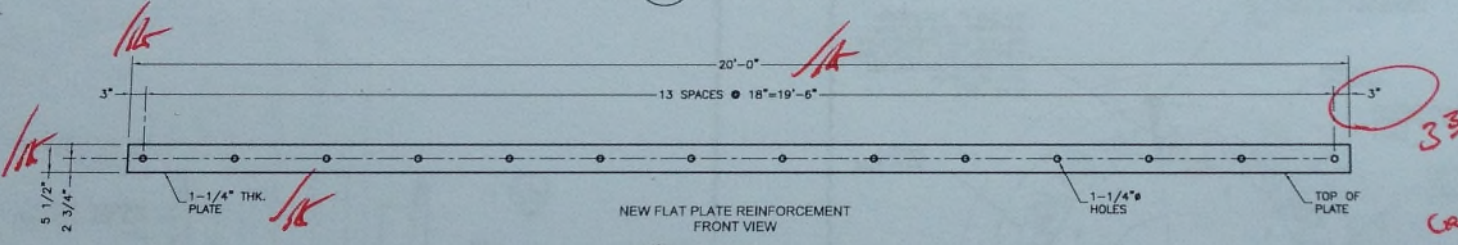
SHEET TITLE
FLAT PLATE REINFORCEMENT
DETAILS

SHEET NUMBER

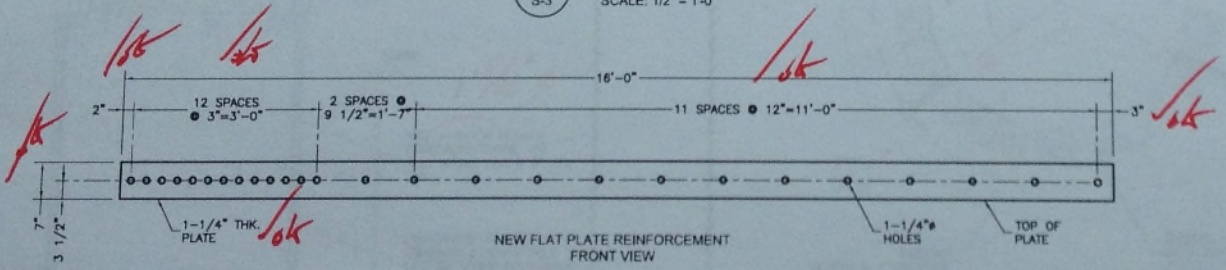
S-2



MK-1
S-3
DETAIL
SCALE: 1/2" = 1'-0"



MK-2
S-3
DETAIL
SCALE: 1/2" = 1'-0"



MK-3
S-3
DETAIL
SCALE: 1/2" = 1'-0"

PREPARED BY:

 2521 MERIDEN DRIVE
 RALEIGH, NC 27814
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 FAX: 919-755-1931
 ENGINEERING INNOVATION

PREPARED FOR:

 2800 BROKEN SOUND PARKWAY, NW
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STATE OF CONNECTICUT

 No. 25842
 LICENSED PROFESSIONAL ENGINEER
 CHRISTOPHER M. MURPHY, P.E.
 CONNECTICUT LIC. NO. 25842

DRAWN BY: OP
 CHECKED BY: SMH
 ENG. APPROV.: CMM
 PROJECT NO.: 12-04772E 53

SUBMITTALS		
DATE	DESCRIPTION	REV
06/21/12	PRELIMINARY/REVIEW	A
08/20/12	PERMIT	1
08/04/13	CONSTRUCTION	2
10/11/13	REVISION	3
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 BEACON FALLS

SITE NUMBER:
 CT02049-S

SITE ADDRESS:
 60 RICE LANE
 BEACON FALLS, CT 06403

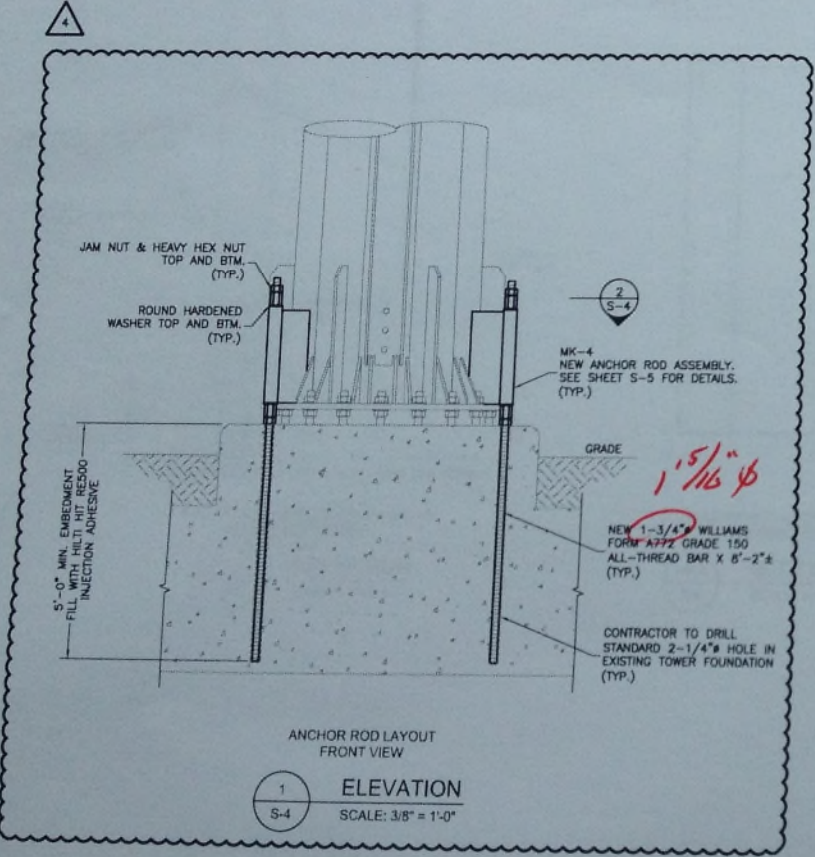
SHEET TITLE
 FLAT PLATE
 DETAILS

SHEET NUMBER
 S-3

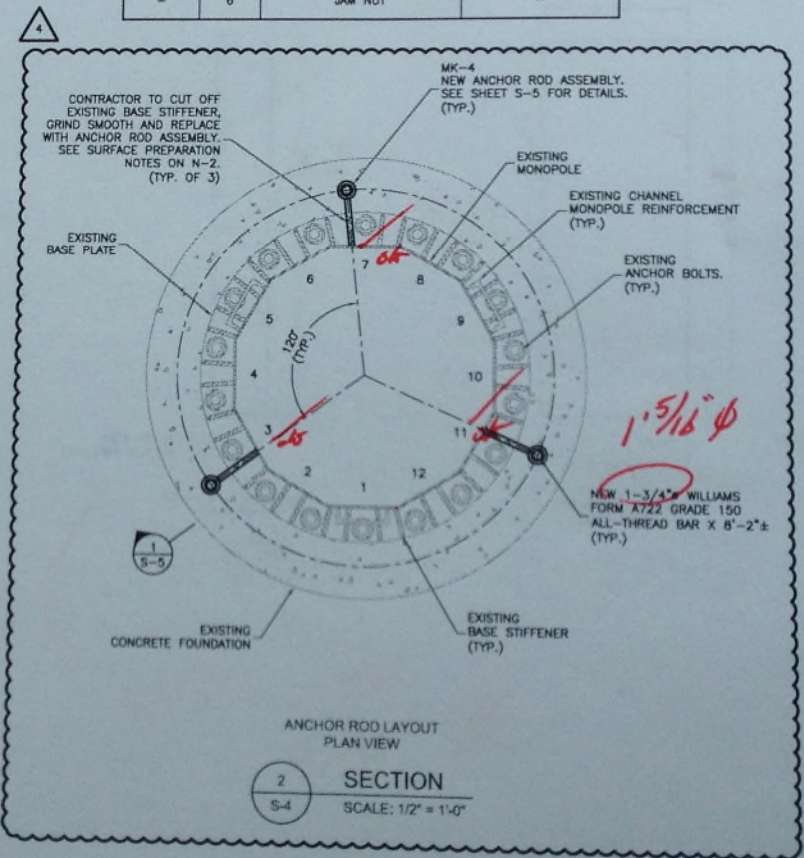
CONTRACTOR TO PROVIDE PHOTOS OF THE ANCHOR ROD HOLES TO FDH CONSTRUCTION MANAGER PRIOR TO INSTALLING NEW ANCHOR RODS. PHOTOS MUST SHOW THE DEPTH AND DIAMETER OF ANCHOR ROD HOLES.

PISTON PLUGS TO BE USED IN ALL INJECTION ADHESIVE APPLICATIONS

ANCHOR ROD MATERIAL LIST			
PART. NO	QTY.	DESCRIPTION	ELEVATION
MK-4	3	ANCHOR ROD ASSEMBLY	0'-0"± TO 2'-0"±
-	3	NEW 1-3/4" WILLIAMS FORM A722 GRADE 150 ALL-THREAD BAR X 8'-2"±	-5'-6"± TO 2'-8"±
-	6	ROUND HARDENED WASHER	-
-	6	HEAVY HEX NUT	-
-	6	JAM NUT	-



ANCHOR ROD LAYOUT FRONT VIEW
 1 ELEVATION
 S-4 SCALE: 3/8" = 1'-0"



ANCHOR ROD LAYOUT PLAN VIEW
 2 SECTION
 S-4 SCALE: 1/2" = 1'-0"

PREPARED BY:
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STATE OF CONNECTICUT
 Christopher Michael Murphy
 No. 25842
 LICENSED PROFESSIONAL ENGINEER
 10/15/13

CHRISTOPHER M. MURPHY, P.E.
 CONNECTICUT LIC. NO. 25842

DRAWN BY: OP
 CHECKED BY: SMN
 ENG. APPROV'D: CMM
 PROJECT NO: 12-04772E S3

SUBMITTALS		
DATE	DESCRIPTION	REV
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10/15/13	REVISION	4

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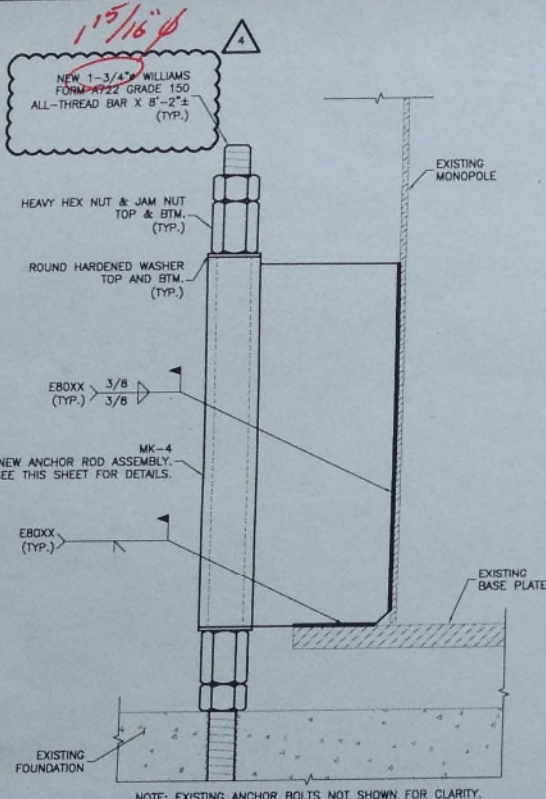
SITE NAME:
BEACON FALLS

SITE NUMBER:
CT02049-S

SITE ADDRESS:
**60 RICE LANE
 BEACON FALLS, CT 06403**

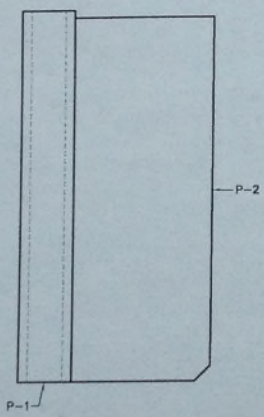
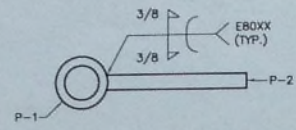
SHEET TITLE
**ANCHOR ROD
 INSTALLATION DETAILS I**

SHEET NUMBER
S-4



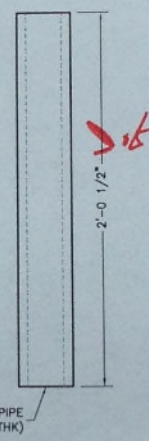
ANCHOR ROD ASSEMBLY WELD DETAIL ELEVATION VIEW

1 / S-5 ELEVATION SCALE: 1-1/2" = 1'-0"



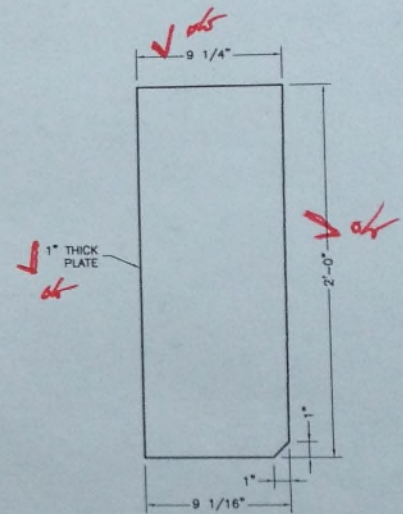
ANCHOR ROD ASSEMBLY TOP & SIDE VIEW

MK-4 / S-5 SECTION SCALE: 1-1/2" = 1'-0"



ANCHOR ROD SLEEVE SIDE VIEW

P-1 / S-5 DETAIL SCALE: 1-1/2" = 1'-0"



TRANSFER PLATE SIDE VIEW

P-2 / S-5 DETAIL SCALE: 1-1/2" = 1'-0"

MATERIAL LIST (MK-4)

PART. NO	QTY.	DESCRIPTION
P-1	3	ANCHOR ROD SLEEVE
P-2	3	TRANSFER PLATE

PREPARED BY:

FDH ENGINEERING INNOVATION

831 MERRICK DRIVE
RALEIGH, NC 27618
PHONE: 919-755-1072
FAX: 919-755-1031

PREPARED FOR:

SBA

3600 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800) 487-SITE

STATE OF CONNECTICUT

Professional Engineer

No. 25842

LICENSED

10/15/13

CHRISTOPHER M. MURPHY, P.E.
CONNECTICUT LIC. NO. 25842

DRAWN BY: OP

CHECKED BY: SMN

ENG APP'D: CMM

PROJECT NO: 12-04772E S3

SUBMITTALS

DATE	DESCRIPTION	REV
08/21/12	PRELIMINARY REVIEW	A
08/20/12	PERMIT	1
08/04/13	CONSTRUCTION	2
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10/15/13	REVISION	4

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SITE NAME:
BEACON FALLS

SITE NUMBER:
CT02049-S

SITE ADDRESS:
60 RICE LANE
BEACON FALLS, CT 06403

SHEET TITLE
ANCHOR ROD
INSTALLATION DETAILS II

SHEET NUMBER
S-5

3.55"φ x 0.599" / S-5
0.597" =

[Handwritten signature] 12/8/13

From: [Jeff Theberge](#)
To: [Steven Strickland](#)
Cc: [Blake Bartok](#); [John Wood](#); [Bradley Newman](#)
Subject: RE: PCI field work complete - Beacon Falls, CT02049-S
Date: Friday, January 24, 2014 4:32:04 PM
Attachments: [image003.png](#)
[image004.gif](#)
[image005.png](#)

Steven,

PCI NCN Issues:

- There was some variation in the spacing of the AJAX bolts in the "MK-1" run of Flat Plate Modifications. The variation was identical on all (3) flats with a maximum spacing of 22-1/4", skipping over an unused drilled-hole. The drilled hole was through the flat plate only & did not penetrate the monopole wall. – Not sure about this. Please see the notes on the PDF. This spacing on MK-1 is acceptable.
- Edge distance from bolt hole to center of splice weld 2.5" instead of 3" at bottom of MK-1; 3.375" instead of 3" at top of MK-2. ? This edge distance will be acceptable.

TIA inspection

- Scrapes & scratches with surface rust through-out tower & mounting hardware. The galvanization in some areas was visibly chipped away & rusted. The rust should be brushed away and galvanization reapplied in those areas.
- Multiple bent climbing pegs.
- Multiple missing climbing pegs (due to mount placement). Damaged and Missing climbing pegs must be removed and reinstalled.
- Multiple safety climb obstructions. The safety climb should be free of obstructions.

Please let me know if you have any further questions. Thank you.

Jeff Theberge, EI
Project Engineer I

FDH Engineering, Inc.
6521 Meridien Drive
Raleigh, NC 27616
Office: 919/755-1012 • Fax: 919/755-1031
Email: jtheberge@fdh-inc.com

www.fdh-inc.com

Raleigh • St. Louis • Baton Rouge • Irvine

From: John Wood
Sent: Friday, January 24, 2014 9:48 AM
To: Jeff Theberge
Cc: Blake Bartok
Subject: FW: PCI field work complete - Beacon Falls, CT02049-S

Jeff, can you look into this today sometime and respond to Steven?

John P. Wood, P.E.
Senior Project Engineer

FDH Engineering, Inc.
6521 Meridien Drive
Raleigh, NC 27616
Office: 919.755.1012
Mobile: 919.610.8489
Fax: 919.755.1031
Email: jwood@fdh-inc.com

www.fdhengineering.com

Raleigh•St. Louis•Baton Rouge•Irvine



From: Blake Bartok
Sent: Friday, January 24, 2014 9:39 AM
To: John Wood
Subject: FW: PCI field work complete - Beacon Falls, CT02049-S

Do you have someone that could look into this

Blake Bartok, PE
Engineering Manager

FDH Engineering, Inc.
6521 Meridien Drive
Raleigh, NC 27616
Office: 919/755-1012 • Direct: 919/367-5012
Mobile: 919/817-1152 • Fax: 919/755-1031
Email: bbartok@fdh-inc.com

www.fdh-inc.com

Raleigh•St. Louis•Baton Rouge•Irvine•Dayton



From: Steven Strickland
Sent: Friday, January 24, 2014 8:21 AM
To: Blake Bartok
Cc: Bradley Newman; John Wood
Subject: RE: PCI field work complete - Beacon Falls, CT02049-S

Blake,

Can you have someone look into these PCI items and get them approved? I would like to get this closed out. Thank you

Steven R. Strickland
Project Manager II - Construction Department

FDH, Inc.
6521 Meridien Drive
Raleigh, NC 27616
Direct: 919.367.5240 • Mobile:336.432.4943
Office : 919.755.1012 • Fax: 919.755.1031
Email: steven@fdh-inc.com

www.fdh-inc.com
Raleigh•St. Louis•Baton Rouge

From: Steven Strickland
Sent: Wednesday, December 11, 2013 3:27 PM
To: Blake Bartok
Cc: Bradley Newman; John Wood
Subject: FW: PCI field work complete - Beacon Falls, CT02049-S

Blake,

This was Stephanie's site. I need you to review the PCI. Thank you.

PCI NCN Issues:

- There was some variation in the spacing of the AJAX bolts in the "MK-1" run of Flat Plate Modifications. The variation was identical on all (3) flats with a maximum spacing of 22-1/4", skipping over an unused drilled-hole. The drilled hole was through the flat plate only & did not penetrate the monopole wall. – Not sure about this. Please see the notes on the PDF.
- Edge distance from bolt hole to center of splice weld 2.5" instead of 3" at bottom of MK-1; 3.375" instead of 3" at top of MK-2. ?

TIA inspection

- Scrapes & scratches with surface rust through-out tower & mounting hardware. The galvanization in some areas was visibly chipped away & rusted.
- Multiple bent climbing pegs.
- Multiple missing climbing pegs (due to mount placement).
- Multiple safety climb obstructions.

[\\fdh-server\Construction\2012 Construction Projects\SBA Construction\4_April\12-04772E Beacon Falls, CT02049-S\Beacon Falls \(S3-AT&T\)-Rebid\PCI\FDH](\\fdh-server\Construction\2012 Construction Projects\SBA Construction\4_April\12-04772E Beacon Falls, CT02049-S\Beacon Falls (S3-AT&T)-Rebid\PCI\FDH)

Steven R. Strickland
Project Manager II - Construction Department

FDH, Inc.
6521 Meridien Drive
Raleigh, NC 27616
Direct: 919.367.5240 • Mobile:336.432.4943
Office : 919.755.1012 • Fax: 919.755.1031
Email: steven@fdh-inc.com

www.fdh-inc.com
Raleigh•St. Louis•Baton Rouge

From: Rakesh Khan
Sent: Tuesday, December 10, 2013 2:02 PM
To: Steven Strickland
Cc: James Mathewson; Lauren James; Joshua Walton; Brandon Grover; Matthew Murphy
Subject: PCI field work complete - Beacon Falls, CT02049-S

Steven,

Beacon Falls PCI was performed on December 8, 2013. Photos are at:
\\fdh-server\Projects\2013 Effective - Client Jobs\FDHINC_FDH Inc\CT\CT02049-S_Beacon Falls\1325221500\NDT

PCI NCN Issues:

- There was some variation in the spacing of the AJAX bolts in the "MK-1" run of Flat Plate Modifications. The variation was identical on all (3) flats with a maximum spacing of 22-1/4", skipping over an unused drilled-hole. The drilled hole was through the flat plate only & did not penetrate the monopole wall.
- Edge distance from bolt hole to center of splice weld 2.5" instead of 3" at bottom of MK-1; 3.375" instead of 3" at top of MK-2.

TIA inspection

- Scrapes & scratches with surface rust through-out tower & mounting hardware. The galvanization in some areas was visibly chipped away & rusted.
- Multiple bent climbing pegs.
- Multiple missing climbing pegs (due to mount placement).
- Multiple safety climb obstructions.

Preliminary MI Document Review issues:

- Documentation of Hilti Rep onsite as required in lieu of pull test

Rakesh Anthony Khan, PE
Project Manager - Engineering Investigative Services

FDH Engineering, Inc.
6521 Meridien Dr.
Raleigh, NC 27616
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Raleigh • St.Louis • Baton Rouge

cid:image003.png@01CDFEF7.F66517D0



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March 28, 2013

David Martin and
Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RECEIVED
APR - 1 2013
CONNECTICUT
SITING COUNCIL
ORIGINAL

RE: Notice of Exempt Modification
60 Rice Lane
Beacon Falls, CT 06403
N 41° 27' 20.48"
W 73° 02' 23.52"

EM-SPRINT-006-150401

Dear Mr. Martin and Members of the Siting Council:

On behalf of Sprint Spectrum, SBA Communications is submitting an exempt modification application to the Connecticut Siting council for modification of existing equipment at a tower facility located at 60 Rice Lane, Beacon Falls, CT.

The 60 Rice Lane facility consists of a 160' MONOPOLE Tower owned and operated by SBA Properties, Inc. In order to accommodate technological changes and enhance system performance in the State of Connecticut, Sprint Spectrum plans to modify the equipment configurations at many of its existing cell sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the chief elected official of the municipality in which the affected cell site is located.

As part of Sprint's Network Vision modification project, Sprint desires to upgrade their equipment to meet the new standards of 4G technology. The new equipment will allow customers to download files and browse the internet at a high rate of speed while also allowing their phones to be compatible with the latest 4G technology.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in Sprint's operations at the site along with the required fee of \$625.

The changes to the facility do not constitute modifications as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be



Sprint Spectrum Equipment Modification

60 Rice Lane, Beacon Falls, CT
Site number CT33XC524

Tower Owner: SBA Properties, Inc.

Equipment Configuration: MONOPOLE Tower

Current and/or approved: Six (6) CDMA Antennas @ 150.4'
One (1) Mod Cell
Two (2) Battery Cabinets
Six (6) lines of 1-5/8" Coax
One (1) GPS Antenna

Planned Modifications: Replace Six (6) CDMA Antennas with Three (3) Network Vision Antennas and Six (6) RRHs
Replace Mod Cell & Booster with One (1) MM-BTS Cabinet and install One (1) Fiber Distribution Box within existing lease area
Replace Battery Cabinet with Two (2) BBU Cabinets
Remove existing CDMA Coax Cables and install Three (3) Hybriflex Cables
Remove GPS Antenna and replace with New GPS Antenna

Structural Information:

The attached structural analysis demonstrates that the tower and foundation will have adequate structural capacity to accommodate the proposed modifications.

Power Density:

The anticipated Maximum Composite contributions from the Sprint facility are 17.905% of the allowable FCC established general public limit. The anticipated composite MPE value for this site assuming all carriers present is 39.965% of the allowable FCC established general public limit sampled at the ground level.

Site Composite MPE %	
Carrier	MPE %
Sprint	17.905%
T-Mobile	3.870%
AT&T	4.400%
Verizon Wireless	10.800%
Clearwire	0.770%
Beacon Hose Co.	2.220%
Total Site MPE %	39.965%

March 28, 2013

COPY

Gerard F. Smith
First Selectman
Town of Beacon Falls
10 Maple Ave.
Beacon Falls, CT 06403

RE: Telecommunications Facility @ 60 Rice Lane, Beacon Falls, CT

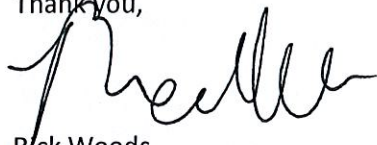
Dear Mr. Smith,

In order to accommodate technological changes and enhance system performance in the State of Connecticut, Sprint Spectrum will be changing its equipment configuration at certain cell sites.

As required by Regulations of Connecticut State Agencies (R.C.S.A.) Section 16-50j-73, the Connecticut Siting Council has been notified of the changes and will review Sprint's proposal. Please accept this letter as notification under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

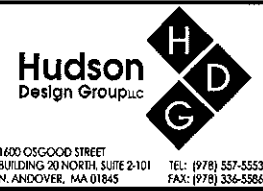
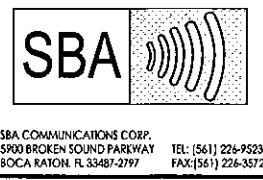
The accompanying letter to the Siting Council fully describes Sprint's proposal for the referenced cell site. However, if you have any questions or require any further information on our plans or the Siting Council's procedures, please call me at (508) 614-0389.

Thank you,



Rick Woods
SBA Communications Company
33 Boston Post Road West Suite 320
Marlborough, MA 01752
508-251-1691 x 319 + T
508-251-1755 + F
508-614-0389 + C
rwoods@sbsite.com

NOTE:
 ADDITIONAL TOWER MAPPING AND STRUCTURAL ANALYSIS ARE REQUIRED, BY OTHERS, PRIOR TO CONSTRUCTION. DRAWINGS ARE SUBJECT TO CHANGE PENDING OUTCOME OF STRUCTURAL ANALYSIS.



Daniel P. Haman

CHECKED BY: KB

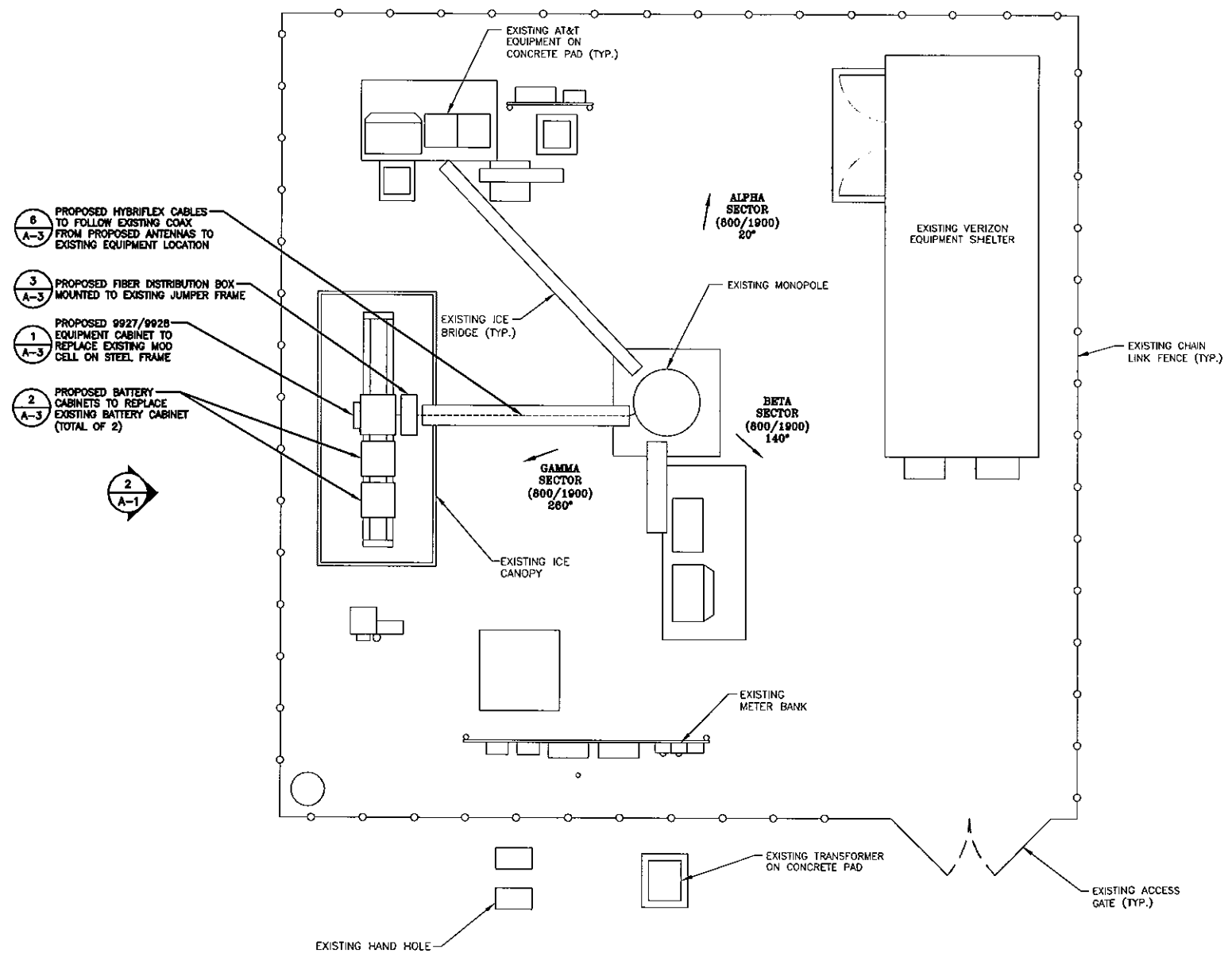
APPROVED BY: DPH

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
1	04/10/12	ISSUED FOR REVIEW	DR

SITE NUMBER:
 CT33XC524
 SITE NAME:
 E. BEACON FALLS/
 EDWARDS PROPERTY
 SITE ADDRESS:
 60 RICE LANE
 BEACON FALLS, CT 06403

SHEET TITLE
 COMPOUND PLAN
 AND ELEVATION

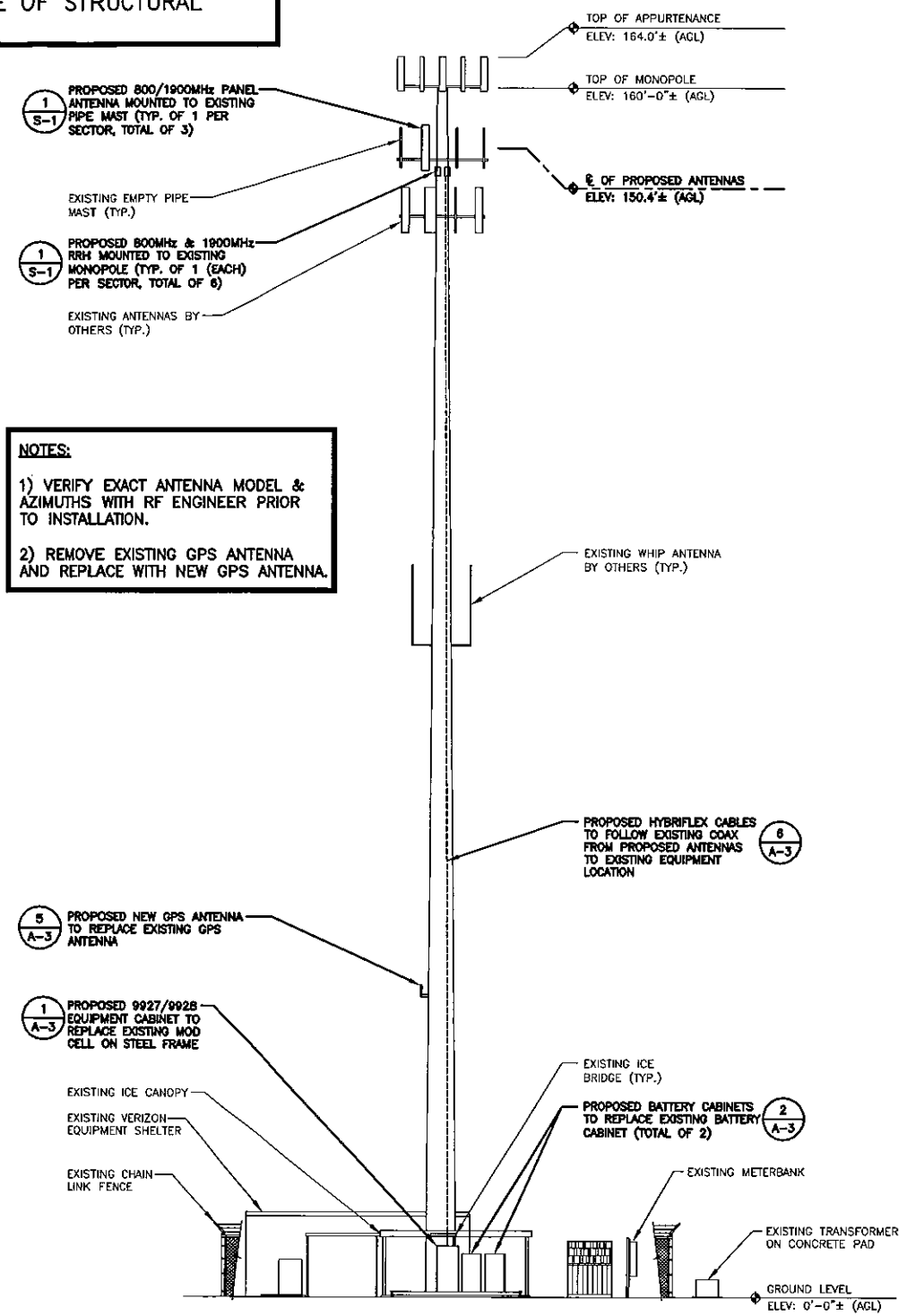
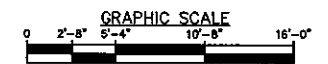
SHEET NUMBER
 A-1



- 6 A-3 PROPOSED HYBRIFLEX CABLES TO FOLLOW EXISTING COAX FROM PROPOSED ANTENNAS TO EXISTING EQUIPMENT LOCATION
- 3 A-3 PROPOSED FIBER DISTRIBUTION BOX MOUNTED TO EXISTING JUMPER FRAME
- 1 A-3 PROPOSED 9927/9928 EQUIPMENT CABINET TO REPLACE EXISTING MOD CELL ON STEEL FRAME
- 2 A-3 PROPOSED BATTERY CABINETS TO REPLACE EXISTING BATTERY CABINET (TOTAL OF 2)



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

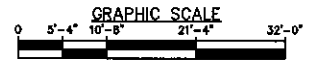


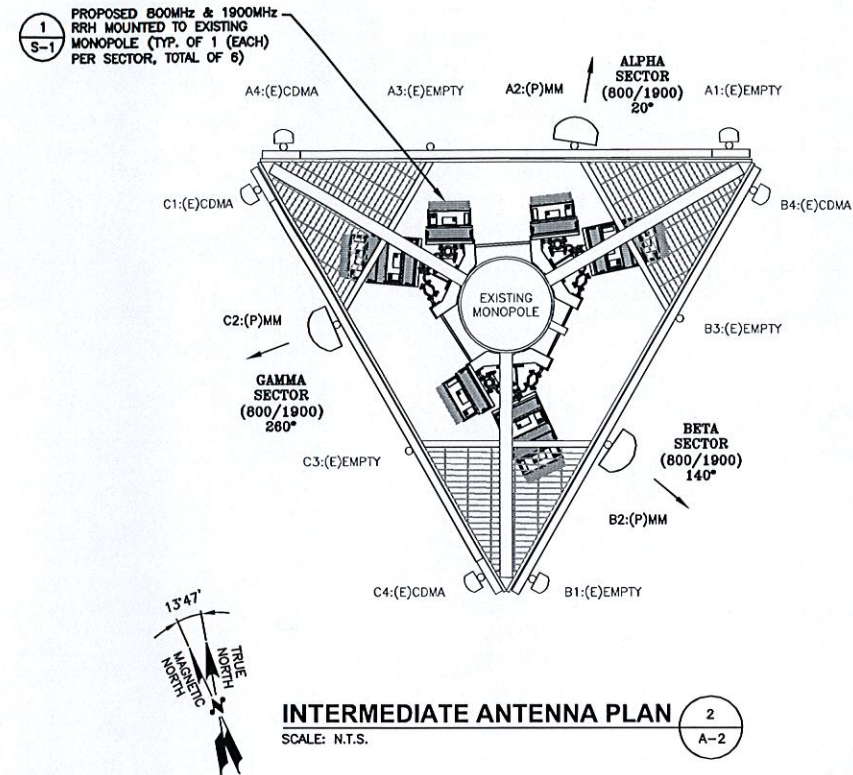
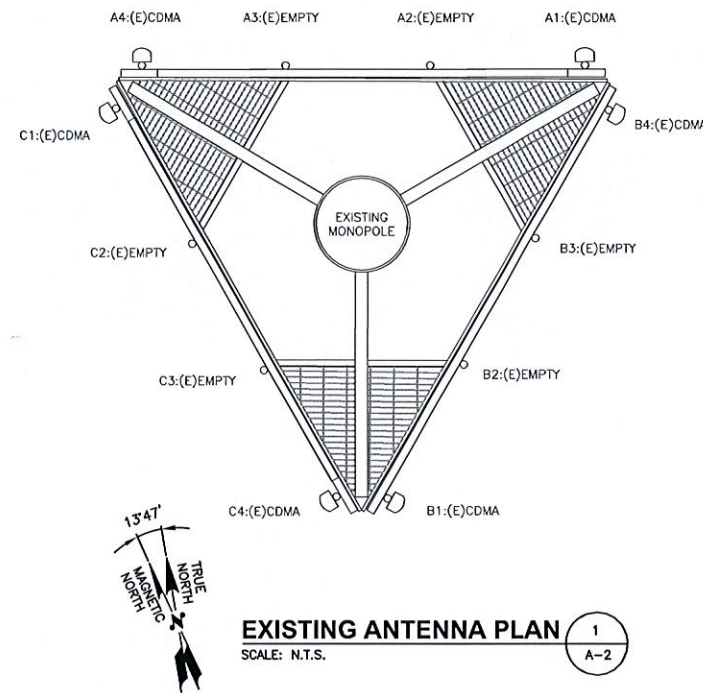
- 1 S-1 PROPOSED 800/1900MHz PANEL ANTENNA MOUNTED TO EXISTING PIPE MAST (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- EXISTING EMPTY PIPE MAST (TYP.)
- 1 S-1 PROPOSED 800MHz & 1900MHz RRH MOUNTED TO EXISTING MONOPOLE (TYP. OF 1 (EACH) PER SECTOR, TOTAL OF 6)
- EXISTING ANTENNAS BY OTHERS (TYP.)

NOTES:
 1) VERIFY EXACT ANTENNA MODEL & AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION.
 2) REMOVE EXISTING GPS ANTENNA AND REPLACE WITH NEW GPS ANTENNA.

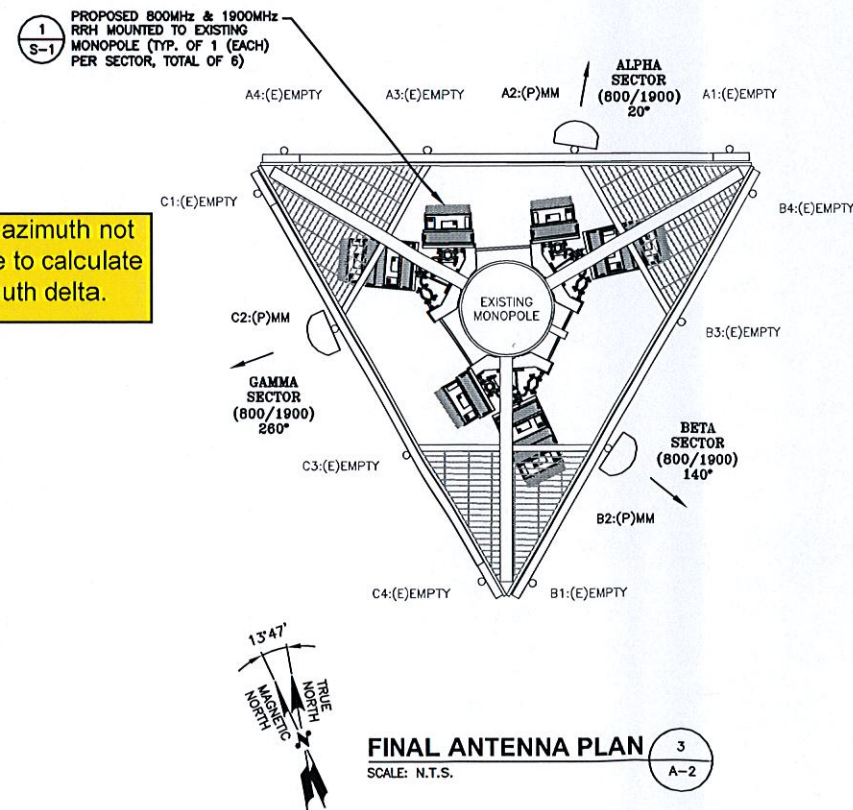
- 5 A-3 PROPOSED NEW GPS ANTENNA TO REPLACE EXISTING GPS ANTENNA
- 1 A-3 PROPOSED 9927/9928 EQUIPMENT CABINET TO REPLACE EXISTING MOD CELL ON STEEL FRAME

WEST ELEVATION
 SCALE: 3/32"=1'-0"



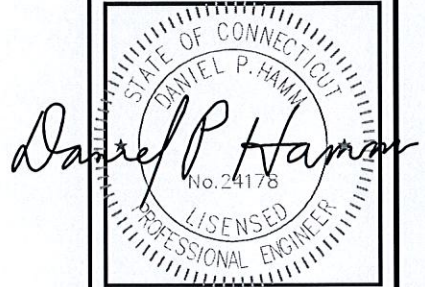
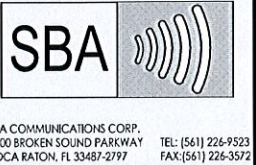


Existing azimuth not available to calculate the azimuth delta.



ANTENNA STATUS LEGEND:

- (E) - EXISTING
- (P) - PROPOSED
- EMPTY - ANTENNA PIPE MAST TO REMAIN
- CDMA - SPRINT ANTENNA
- MM - MULTIMEDIA ANTENNA



CHECKED BY: KB

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	04/10/12	ISSUED FOR REVIEW	DR

SITE NUMBER:
CT33XC524
SITE NAME:
E. BEACON FALLS/
EDWARDS PROPERTY
SITE ADDRESS:
60 RICE LANE
BEACON FALLS, CT 06403

SHEET TITLE
ANTENNA SCENARIO
& EQUIPMENT
LAYOUT

SHEET NUMBER
A-2



FDH Engineering, Inc., 6521 Meridien Drive Raleigh, NC 27616, Ph. 919.755.1012

**Structural Analysis for
SBA Network Services, Inc.**

160' Monopole Tower

**SBA Site Name: Beacon Falls
SBA Site ID: CT02049-S
Sprint Site ID: CT33XC524
Sprint Site Name: E. Beacon Falls/Edwards Property**

FDH Project Number 12-04772E S3

Analysis Results

Tower Components	92.7 %	Sufficient
Foundation	74.5 %	Sufficient

Prepared By:

Joe W. Fulk, EI
Project Engineer

Reviewed By:

Christopher M Murphy, PE
President
CT PE License No. 25842

FDH Engineering, Inc.
6521 Meridien Drive
Raleigh, NC 27616
(919) 755-1012
info@fdh-inc.com



March 26, 2013

Prepared pursuant to TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures & 2005 Connecticut Building Code

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LIMITATIONS 6

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EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Engineering, Inc. performed a structural analysis of the monopole located in Beacon Falls, CT to determine whether the tower is structurally adequate to support both the existing and proposed loads pursuant to the *Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, TIA/EIA-222-F* and the *2005 Connecticut Building Code (CBC)*. Information pertaining to the existing/proposed antenna loading, current tower geometry, soil parameters, foundation dimensions, and member sizes was obtained from:

- Fred A. Nudd Corp. (Project No. 7342) original design drawings dated January 14, 2000
- SEA Consultants, Inc. (Ref. No. 99339.02-A) Geotechnical Investigation Report dated August 2, 1999
- O2 Wireless Solutions (Job No. 2230-022) Monopole Tower Rework Construction Drawings dated May 23, 2002
- FDH, Inc. (Job No. 09-04127T T1) Steel Data Monopole Tower Report dated May 5, 2009
- FDH Engineering, Inc. (Project No. 09-04232E S2) Extension & Modification As-Built Drawings for a 150' Monopole dated November 3, 2009
- FDH Engineering, Inc. (Project No. 09-04232E S2) Post-Construction Inspection Report dated December 28, 2009
- FDH, Inc. (Job No. 09-04127T T2) TIA Inspection Report dated December 29, 2009
- FDH Engineering, Inc. (Project No. 12-04772E S3) Modification Drawings for a 160' Monopole dated August 21, 2012
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and the *2005 CBC* is 85 mph without ice and 38 mph with 3/4" radial ice. Ice is considered to increase in thickness with height.

Conclusions

With the existing and proposed antennas from Sprint in place at 152 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and the *2005 CBC* provided the **Recommendations** listed below are satisfied. Furthermore, provided the foundation was constructed per the original design drawings (see Fred A. Nudd Project No. 7342) and utilizing the soil parameters provided (see SEA Ref. No. 99339.02-A), the foundation should have necessary capacity to support the existing and proposed loading. For a more detailed description of the analysis of the tower, see the **Results** section of this report.

Our structural analysis has been performed assuming all information provided to FDH Engineering, Inc. is accurate (i.e., the steel data, tower layout, existing antenna loading, and proposed antenna loading) and that the tower has been properly erected and maintained per the original design drawings.

Recommendations

To ensure the requirements of the *TIA/EIA-222-F* standards and the *2005 CBC* are met with the existing and proposed loading in place, we have the following recommendations:

1. Proposed coax must be installed inside the monopole shaft.
2. RRU/RRH Stipulation: The proposed equipment may be installed in any arrangement determined by the client.
3. Modification per FDH Engineering, Inc. (Project No. 12-04772E S3) Modification Drawings for a 160' Monopole dated August 21, 2012 must be installed for this analysis to be valid.

APPURTENANCE LISTING

The proposed and existing antennas with their corresponding cables/coax lines are shown in **Table 1**. If the actual layout determined in the field deviates from the layout, FDH Engineering, Inc. should be contacted to perform a revised analysis.

Table 1 - Appurtenance Loading

Existing Loading:

Antenna Elevation (ft)	Description	Coax and Lines ¹	Carrier	Mount Elevation (ft)	Mount Type
162.2	(6) Decibel DB846F65ZAXY (6) Antel LPA-185063/8CF (3) Antel BXA-70063/4CF	(18) 1-5/8"	Verizon	160	(1) 14' Low Profile Platform
155	(3) Horizon Duo ODUs (3) Andrew VHLP2.5 Dishes	(3) 1/2"	Clearwire	148.3	(1) 14' Low Profile Platform
152	(3) Kathrein 840 10054 (3) Samsung 26"x14"x9" RRUs	(12) 1-5/8" (6) 5/16" (3) 1/4"	Sprint		
151.9	(4) Decibel DB980H90E-M (5) Decibel 950F85T2E-M				
143.8	(6) Powerwave LGP13907 TMAs	(18) 1-5/8"	T-Mobile	142.2	(1) 15' Low Profile Platform
142.9 ²	(6) EMS FR90-16-04DP (3) RFS APX16DWV-16DWVS-E-A20 (3) Ericsson KRY 112 144/1 TMAs				
135	(6) Ericsson RRUS-11 RRUs (1) Raycap DC6-48-60-18-8F Surge Arrestor	(6) 1-5/8" (6) 1-1/4" (2) WR-VG122ST-BRDA DC Cables	AT&T	135	(1) Collar Mount (Valmont P/N 801068/527286)
132.5 ³	(3) Kathrein 800-10121 (2) KMW AM-X-CD-16-6500T (1) Andrew SBNH-1D6565C (6) Powerwave LGP21901 Diplexers (6) Powerwave LGP21401 TMAs			132.5	(3) T-Arms (Andrew P/N MC-K12M-B)
94.5	(1) Celwave PD1142-1 Omni			(1) 1/2"	Fire Dept.
94.7	(1) 24" x 6" Trombone	(1) 5/8"			
78.8	(1) 24" x 6" Trombone (Inverted)	(1) 5/8"			
40	(1) GPS	(1) 1/2"	Sprint	39.5	(1) 4' Standoff

1. Coax located inside monopole shaft unless otherwise noted.
2. T-Mobile currently has (6) 1-5/8" coax located on outside of monopole shaft in a single row.
3. The DC cables are installed inside a 3" flex conduit inside of the poles shaft

Proposed Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
152	(3) RFS APXVSP18-C-A20 (3) ALU 1900 MHz RRUs (3) ALU 800 MHz RRUs (3) ALU 800 MHz Filters (4) RFS ACU-A20-N RETs	(3) 1-1/4"	Sprint	148.3	(1) 14' Low Profile Platform

RESULTS

The following yield strength of steel for individual members was used for analysis:

Table 2 - Material Strength

Member Type	Yield Strength
Tower Extension Section	50 ksi
Tower Shaft Sections	45 ksi & 65 ksi
Flange Plates	50 ksi
Flange Bolts	$F_u = 120$ ksi
Base Plate	50 ksi
Anchor Bolts	$F_u = 125$ ksi

Table 3 displays the summary of the ratio (as a percentage) of force in the member to their capacities. Values greater than 100% indicate locations where the maximum force in the member exceeds its capacity. **Table 4** displays the maximum foundation reactions. **Table 5** displays the maximum antenna rotations at service wind speeds.

If the assumptions outlined in this report differ from actual field conditions, FDH Engineering, Inc. should be contacted to perform a revised analysis. Furthermore, as no information pertaining to the allowable twist and sway requirements for the existing or proposed appurtenances was provided, deflection and rotation were not taken into consideration when performing this analysis.

See the **Appendix** for detailed modeling information

Table 3 - Summary of Working Percentage of Structural Components

Section No.	Elevation ft	Component Type	Size	% Capacity*	Pass Fail
L1	160 - 150	Pole	TP16x16x0.25	38.8	Pass
---	150	Flange Bolts	(20) 0.5"Ø on 21" BC	60.6	Pass
---	150	Interior Flange Plate	PL 0.75" thk. x 24"Ø	51.9	Pass
---	150	Exterior Flange Plate	PL 1.25" thk. x 26"Ø	28.8	Pass
L3	150 - 145	Pole	TP24x24x0.25	23.7	Pass
---	145	Flange Bolts	(18) 0.5"Ø. on 27" BC	96.9	Pass
---	145	Flange Plate	PL 0.5" thk. x 30"Ø	67.8	Pass
L4	145 - 115	Pole	TP29.4x24x0.25	80.6	Pass
L5	115 - 95	Pole	TP33x29.4x0.3125	81.6	Pass
L6	95 - 80	Modified Pole	TP35.7x31.475x0.3125 w/ Flat Plate	81.4	Pass
L7	80 - 50	Modified Pole	TP41.1x35.7x0.375 w/ Flat Plate	88.6	Pass
L8	50 - 46	Modified Pole	TP47.22x38.91x0.375 w/ Flat Plate	79.0	Pass
	46 - 16	Modified Pole	TP47.22x38.91x0.375 w/ Flat Plate	88.8	Pass
L9	16 - 0	Modified Pole	TP50.1x45.2829x0.375 w/ Flat Plate	92.7	Pass
		Anchor Bolts	(18) 2"Ø on a 58"Ø BC w/ (3) 1.75"Ø on a 72"Ø BC	81.2	Pass
		Base Plate	PL 1.5" thk. x 63"Ø	68.8	Pass

*Capacities include a 1/3 allowable stress increase for wind.

Table 4 - Maximum Base Reactions

Base Reactions	Current Analysis (TIA/EIA-222-F)*	Original Design (TIA/EIA-222-F)
Axial	45 k	---
Shear	37 k	25 k
Moment	3,893 k-ft	2,374 k-ft

*Foundation determined adequate per independent analysis.

Table 5 - Maximum Antenna Rotations at Service Wind Speeds

Centerline Elevation (ft)	Antenna	Tilt (deg)*	Twist (deg)*
155	(3) Andrew VHLP2.5 Dishes	2.7447	0.0062

*Tilt and Twist values to be reviewed by the carrier.

GENERAL COMMENTS

This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading information) modeled. If there are substantial modifications to be made or the assumptions made in this analysis are not accurate, FDH Engineering, Inc. should be notified immediately to perform a revised analysis.

LIMITATIONS

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of this report. All opinions and conclusions are subject to revision based upon receipt of new or additional/updated information. All services are provided exercising a level of care and diligence equivalent to the standard and care of our profession. No other warranty or guarantee, expressed or implied, is offered. Our services are confidential in nature and we will not release this report to any other party without the client's consent. The use of this engineering work is limited to the express purpose for which it was commissioned and it may not be reused, copied, or distributed for any other purpose without the written consent of FDH Engineering, Inc.

APPENDIX

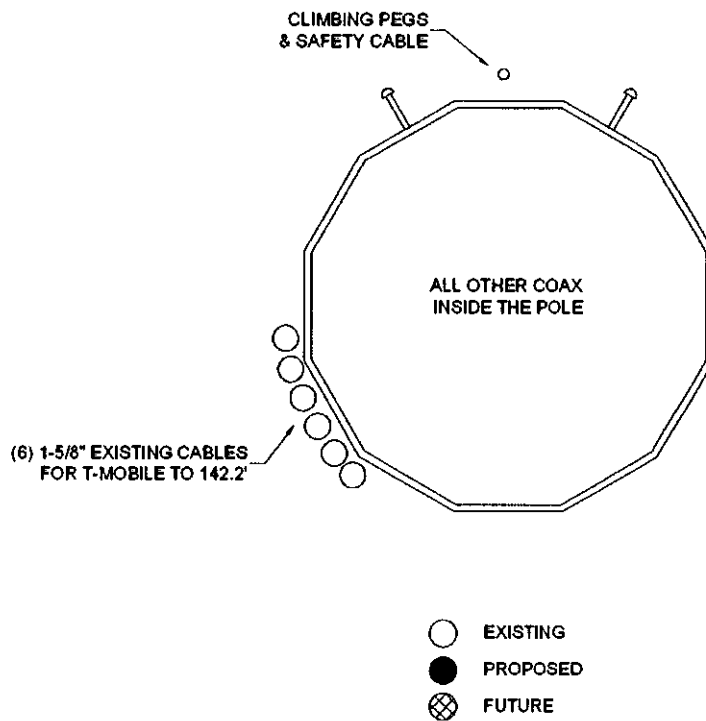
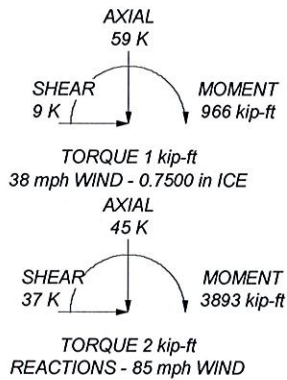
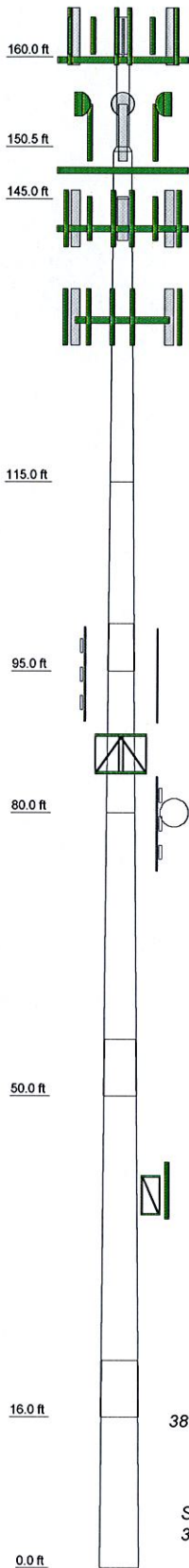


Figure 1 – Assumed Coax Layout

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	9.50	12	0.2500	5.00	30.1382	41.6168	A500-50	0.4
2	12	12	0.2500	5.00	30.1382	41.6168	A500-50	0.4
3	12	12	0.2500	5.00	30.1382	41.6168	A500-50	0.4
4	30.00	12	0.2500	5.00	30.1382	41.6168	A500-50	2.2
5	20.00	12	0.3125	5.00	30.1382	41.6168	A572-50	2.2
6	20.00	12	0.3125	5.00	30.1382	41.6168	A572-50	2.3
7	30.00	12	0.3750	6.00	36.0831	47.3844	A572-50	4.7
8	40.00	12	0.3750	6.00	39.7592	47.3844	A572-50	7.1
9	22.00	12	0.3750	45.4906	50.3750	50.3750	A572-50	4.3
								23.6



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(1) Lightning Rod	160	KRY 112 144/1	142.2
(2) DB846F65ZAXY w/ Mount Pipe	160	KRY 112 144/1	142.2
(2) DB846F65ZAXY w/ Mount Pipe	160	KRY 112 144/1	142.2
(2) DB846F65ZAXY w/ Mount Pipe	160	(2) LGP13907 TMA	142.2
(2) LPA-185063/8CF w/ Mount Pipe	160	(2) LGP13907 TMA	142.2
(2) LPA-185063/8CF w/ Mount Pipe	160	(2) LGP13907 TMA	142.2
(2) LPA-185063/8CF w/ Mount Pipe	160	(1) 15' Low Profile Platform MNT	142.2
BXA-70063/4CF w/ Mount Pipe	160	(2) FR90-16-04DP w/ Mount Pipe	142.2
BXA-70063/4CF w/ Mount Pipe	160	(2) FR90-16-04DP w/ Mount Pipe	142.2
BXA-70063/4CF w/ Mount Pipe	160	(2) FR90-16-04DP w/ Mount Pipe	142.2
(1) 14' Low Profile Platform MNT	160	(2) RRUS-11	135
Horizon Duo ODU	148.3	(2) RRUS-11	135
Horizon Duo ODU	148.3	(2) RRUS-11	135
Horizon Duo ODU	148.3	DC6-48-60-18-8F Surge Arrestor	135
(1) 14' Low Profile Platform MNT	148.3	(1) Collar Mount MNT	135
APXVSP18-C-A20 w/ Mount Pipe	148.3	SBNH-1D6565C w/ Mount Pipe	132.5
APXVSP18-C-A20 w/ Mount Pipe	148.3	AM-X-CD-16-65-00T-RET w/ Mount Pipe	132.5
APXVSP18-C-A20 w/ Mount Pipe	148.3	(2) LGP21401 TMA	132.5
1900 MHz RRU	148.3	(2) LGP21401 TMA	132.5
1900 MHz RRU	148.3	(2) LGP21401 TMA	132.5
1900 MHz RRU	148.3	(2) LGP21901 Diplexer	132.5
800 MHz RRU	148.3	(2) LGP21901 Diplexer	132.5
800 MHz RRU	148.3	(2) LGP21901 Diplexer	132.5
800 MHz Filter	148.3	(3) T-Arms (Andrew MC-K12M-B)	132.5
800 MHz Filter	148.3	AM-X-CD-16-65-00T-RET w/ Mount Pipe	132.5
800 MHz Filter	148.3	800 10121 w/ Mount Pipe	132.5
ACU-A20-N RET	148.3	800 10121 w/ Mount Pipe	132.5
ACU-A20-N RET	148.3	800 10121 w/ Mount Pipe	132.5
(2) ACU-A20-N RET	148.3	24" x 6" Trombone	86.2
Pipe Mount	148.3	10" Pipe Mount	86.2
Pipe Mount	148.3	(1) 6' Standoff MNT	86.2
VHLP2.5	148.3	(1) 6' Standoff MNT	86.2
VHLP2.5	148.3	PD1142-1	86.2
VHLP2.5	148.3	24" x 6" Trombone	86.2
APX16DWW-16DWVS-E-A20 W/Mount Pipe	142.2	10" Pipe Mount	86.2
APX16DWW-16DWVS-E-A20 W/Mount Pipe	142.2	(1) 4' Standoff MNT	39.5
APX16DWW-16DWVS-E-A20 W/Mount Pipe	142.2	GPS	39.5

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A500-50	50 ksi	62 ksi	A572-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in New Haven 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 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.

 Tower Analysis	FDH Engineering, Inc. 6521 Meridian Drive Raleigh, NC 27616 Phone: 919-755-1012 FAX: 919-755-1031		Job: Beacon Falls, CT02049-S Project: 12-04772E S3 Client: SBA Network Services, Inc. Drawn by: Joe Fulk App'd: Code: TIA/EIA-222-F Date: 03/26/13 Scale: NTS Path:	
			Dwg No. E-1	

THE MODIFICATIONS DEPICTED ON THESE DRAWINGS ARE BASED ON THE RECOMMENDATIONS OUTLINED IN THE STRUCTURAL ANALYSIS COMPLETED BY FDH ENGINEERING, INC., PROJECT NO. 12-04772E S2 DATED JULY 16, 2012.

THIS REPORT WAS BASED ON A SPECIFIC ANTENNA AND COAX CONFIGURATION PROVIDED BY THE TOWER OWNER. ANY CHANGE TO THIS INFORMATION MUST BE REVIEWED BY FDH ENGINEERING, INC.

ALL DIMENSIONS, MEASUREMENTS, QUANTITIES, PART NUMBERS AND COAX/ANTENNA PLACEMENTS TO BE FIELD VERIFIED BY CONTRACTOR PRIOR TO MATERIAL ORDERS AND CONSTRUCTION.

PROJECT DESCRIPTION:
**MODIFICATION DRAWINGS
 FOR A 160' MONOPOLE**



SITE NAME:
BEACON FALLS


SITE NUMBER:
CT02049-S

SITE ADDRESS:
 60 RICE LANE
 BEACON FALLS, CT 06403

COORDINATES:
 LATITUDE: 41.4557°
 LONGITUDE: -73.0399°

SHEET INDEX	
SHT. NO.	DESCRIPTION
T-1	TITLE SHEET
N-1	POST CONSTRUCTION INSPECTION NOTES
N-2	GENERAL NOTES
S-1	MODIFICATION SCHEDULE
S-2	FLAT PLATE REINFORCEMENT DETAILS
S-3	FLAT PLATE DETAILS
S-4	ANCHOR ROD INSTALLATION DETAILS I
S-5	ANCHOR ROD INSTALLATION DETAILS II

PREPARED BY:
 6521 MERIDIEN DRIVE
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 FAX: 919-755-1031
 ENGINEERING INNOVATION

PREPARED FOR:

 5900 BROKEN SOUND PARKWAY, NW
 BOCA RATON, FL 33487
 (800) 487-SITE

FOR BID ONLY

CHRISTOPHER M. MURPHY, P.E.
 CONNECTICUT LIC. NO. 25842

DRAWN BY: OP
 CHECKED BY: SMN
 ENG APP'VD: CMM
 PROJECT NO: 12-04772E S3

SUBMITTALS		
DATE	DESCRIPTION	REV
08/21/12	PRELIMINARY/REVIEW	A

THE INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS PROPRIETARY BY NATURE. REPRODUCTION OR CAUSING TO BE REPRODUCED THE WHOLE OR ANY PART OF THESE DRAWINGS WITHOUT THE PERMISSION OF FDH ENGINEERING, INC. IS PROHIBITED.

SITE NAME:
BEACON FALLS

 SITE NUMBER:
CT02049-S

 SITE ADDRESS:
 60 RICE LANE
 BEACON FALLS, CT 06403

SHEET TITLE
 TITLE
 SHEET

SHEET NUMBER
T-1

POST CONSTRUCTION INSPECTION NOTES:

PCI CHECKLIST	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED	REPORT ITEM
PRE-CONSTRUCTION	
X	PCI CHECKLIST DRAWING
N/A	EOR APPROVED SHOP DRAWINGS
N/A	FABRICATION INSPECTION
N/A	FABRICATOR CERTIFIED WELD INSPECTION
X	MATERIAL TEST REPORT (MTR)
N/A	FABRICATOR NDE INSPECTION
N/A	NDE REPORT OF MONOPOLE BASE PLATE (AS REQUIRED)
X	PACKING SLIPS
ADDITIONAL TESTING AND INSPECTIONS:	
CONSTRUCTION	
X	CONSTRUCTION INSPECTIONS
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH AND SLUMP TESTS
X	POST INSTALLED ANCHOR ROD VERIFICATION
N/A	BASE PLATE GROUT VERIFICATION
X	CONTRACTOR'S CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
X	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
X	GC AS-BUILT DOCUMENTS
ADDITIONAL TESTING AND INSPECTIONS:	
POST-CONSTRUCTION	
X	PCI INSPECTOR REDLINE OR RECORD DRAWING(S)
X	POST INSTALLED ANCHOR ROD PULL-OUT TESTING
X	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTE: X DENOTES A DOCUMENT NEEDED FOR THE PCI REPORT
 N/A DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE PCI REPORT

GENERAL

1. THE POST CONSTRUCTION INSPECTION (PCI) IS A VISUAL INSPECTION OF TOWER MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS, AS DESIGNED BY THE ENGINEER OF RECORD (EOR).
2. THE PCI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, NOR DOES THE PCI INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES.
3. ALL PCI'S SHALL BE CONDUCTED BY A PCI INSPECTOR THAT IS APPROVED TO PERFORM ELEVATED WORK FOR FDH ENGINEERING, INC.
4. TO ENSURE THAT THE REQUIREMENTS OF THE PCI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE PCI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PO IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN, CONTACT YOUR FDH POINT OF CONTACT (POC).
5. REFER TO CCR-01 : CONTRACTOR CLOSEOUT REQUIREMENTS FOR FURTHER DETAILS AND REQUIREMENTS.

PCI INSPECTOR

1. THE PCI INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE PCI TO, AT A MINIMUM:
 - REVIEW THE REQUIREMENTS OF THE PCI CHECKLIST
 - WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS
2. THE PCI INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GENERAL CONTRACTOR (GC) INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS, AND SUBMITTING THE PCI REPORT TO FDH.

CORRECTION OF FAILING PCI'S

1. IF THE MODIFICATION INSTALLATION WOULD FAIL THE PCI ("FAILED PCI"), THE GC SHALL WORK WITH FDH TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:
 - CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT PCI.
 - OR, WITH FDH'S APPROVAL, THE GC MAY WORK WITH THE EOR TO RE-ANALYZE THE MODIFICATION/REINFORCEMENT USING THE AS-BUILT CONDITION.

REQUIRED PHOTOS

1. BETWEEN THE GC AND THE PCI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE PCI REPORT:
 - PRE-CONSTRUCTION GENERAL SITE CONDITION
 - PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION
 - RAW MATERIALS
 - PHOTOS OF ALL CRITICAL DETAILS
 - FOUNDATION MODIFICATIONS
 - WELD PREPARATION
 - BOLT INSTALLATION AND TORQUE
 - FINAL INSTALLED CONDITION
 - SURFACE COATING REPAIR
 - POST CONSTRUCTION PHOTOGRAPHS
 - FINAL INFIELD CONDITION
2. PHOTOS OF ELEVATED MODIFICATIONS TAKEN FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.

PREPARED BY:



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ENGINEERING INNOVATION

PREPARED FOR:



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SITE NAME:
 BEACON FALLS

SITE NUMBER:
 CT02049-S

SITE ADDRESS:
 60 RICE LANE
 BEACON FALLS, CT 06403

SHEET TITLE
 POST CONSTRUCTION
 INSPECTION NOTES

SHEET NUMBER

N-1

GENERAL NOTES:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND ORDINANCES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL PERMITS NECESSARY TO COMPLETE THE PROJECT AND ABIDE BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS, ELEVATIONS AND EXISTING CONDITIONS AT THE SITE BEFORE ORDERING ANY MATERIALS OR DOING ANY WORK. NO EXTRA CHARGE OR COMPENSATION SHALL BE ALLOWED DUE TO DIFFERENCE BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS INDICATED ON THE CONSTRUCTION DRAWINGS. ANY SUCH DISCREPANCY IN DIMENSION WHICH MAY BE FOUND SHALL BE SUBMITTED TO FDH ENGINEERING FOR CONSIDERATION BEFORE THE CONTRACTOR PROCEEDS WITH THE WORK IN THE AFFECTED AREAS.
3. INCORRECTLY FABRICATED, DAMAGED, OTHERWISE MISFITTING, OR NON-CONFORMING MATERIALS AND CONDITIONS SHALL BE REPORTED TO FDH ENGINEERING PRIOR TO ANY REMEDIAL OR CORRECTIVE ACTION. ALL ACTIONS SHALL REQUIRE FDH ENGINEERING APPROVAL.
4. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION AND/OR FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF TEMPORARY BRACING, GUYS OR TIE DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AFTER THE COMPLETION OF THE PROJECT.
5. CONTRACTOR SHALL PROMPTLY REMOVE ANY & ALL DEBRIS FROM SITE AND RESTORE AS BEST AS POSSIBLE TO PRECONSTRUCTION CONDITION.

CONTRACTOR QUALIFICATION NOTES:

1. ALL REPAIRS SHALL BE PERFORMED BY A TOWER CONTRACTOR WITH A MINIMUM 5 YEARS EXPERIENCE IN TOWER ERECTION AND RETROFIT AND WITH WORKING KNOWLEDGE OF THE TIA/EIA 222-F "STRUCTURAL STANDARD FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES".
2. CONTRACTOR IS RESPONSIBLE FOR ALL CONSTRUCTION MEANS AND METHODS. SHOULD THE CONTRACTOR REQUIRE DIRECT CONSULTATION, FDH ENGINEERING, INC. IS WILLING TO OFFER SERVICES BASED UPON AN AGREED FEE FOR THE WORK REQUIRED.
3. ALL SUBMITTAL INFORMATION MUST BE SENT TO FDH ENGINEERING, INC. 6521 MERIDIEN DRIVE, RALEIGH NC, 27616, TEL. (919) 755-1012, FAX. (919) 755-1031, E-MAIL INFO@FDH-INC.COM. ANY VARIATION OF THESE SPECIFICATIONS OR DRAWINGS WITHOUT CONSENT FROM FDH ENGINEERING, INC. WILL VOID ANY RESPONSIBILITY OR LIABILITY FOR DAMAGE (MATERIAL OR PHYSICAL) TOWARDS FDH ENGINEERING, INC.

JOB SITE SAFETY & NOTES:

1. NEITHER THE PROFESSIONAL ACTIVITIES OF FDH ENGINEERING, INC. NOR THE PRESENCE OF FDH ENGINEERING, INC. OR EMPLOYEES AND SUB-CONSULTANTS AT THE CONSTRUCTION SITE, SHALL RELIEVE THE GENERAL CONTRACTOR AND OR SUBCONTRACTORS AND ANY OTHER ENTITY OF THEIR OBLIGATIONS, DUTIES AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING OR COORDINATING ALL PORTIONS OF THE WORK OF CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES. THE GENERAL CONTRACTOR AND OR SUBCONTRACTOR IS SOLELY RESPONSIBLE FOR JOB SAFETY, AND WARRANTS THAT THIS INTENT IS EVIDENT BY ACCEPTING THIS WORK.

SUBSTITUTES AND/OR EQUALS:

1. IF CONTRACTOR WISHES TO FURNISH OR USE A SUBSTITUTE ITEM OF MATERIAL OR EQUIPMENT, CONTRACTOR SHALL FIRST MAKE WRITTEN APPLICATION TO ENGINEER OF RECORD FOR ACCEPTANCE THEREOF, CERTIFYING THAT THE PROPOSED SUBSTITUTE WILL PERFORM ADEQUATELY THE FUNCTIONS AND ACHIEVE THE RESULTS CALLED FOR BY THE GENERAL DESIGN, BE SIMILAR IN SUBSTANCE TO THAT SPECIFIED AND SUITED TO THE SAME USE AS THAT SPECIFIED. ALL VARIATIONS OF THE PROPOSED SUBSTITUTE FROM THAT SPECIFIED WILL BE IDENTIFIED IN THE APPLICATION AND AVAILABLE MAINTENANCE, REPAIR AND REPLACEMENT SERVICE WILL BE INDICATED. THE APPLICATION WILL ALSO CONTAIN AN ITEMIZED ESTIMATE OF ALL COSTS OR CREDITS THAT WILL RESULT DIRECTLY OR INDIRECTLY FROM ACCEPTANCE OF SUCH SUBSTITUTE INCLUDING COSTS OF REDESIGN AND CLAIMS OF OTHER CONTRACTORS AFFECTED BY THE RESULTING CHANGE, ALL OF WHICH WILL BE CONSIDERED BY ENGINEER OF RECORD IN EVALUATION OF THE PROPOSED SUBSTITUTE. ENGINEER OF RECORD MAY REQUIRE CONTRACTOR TO FURNISH ADDITIONAL DATA ABOUT THE PROPOSED SUBSTITUTE.

STEEL:

1. ALL STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST AISC CODE AND ASTM SPECIFICATIONS.
*ALL PLATE STEEL SHALL BE ASTM A572-65 (Fy=65KSI) UNLESS OTHERWISE SPECIFIED.
*ALL PIPE STEEL SHALL BE ASTM A500 GR. B (Fy=42KSI) UNLESS OTHERWISE SPECIFIED.
*ALL THREADED ROD SHALL BE WILLIAMS ALL-THREAD BAR ASTM A722 (Fu=150 KSI) UNLESS OTHERWISE SPECIFIED.
2. ALL CONNECTIONS OF STRUCTURAL STEEL MEMBERS SHALL BE MADE USING SPECIFIED WELDS WITH WELDING ELECTRODES E-80XX OR SPECIFIED HIGH STRENGTH BOLTS TO BE ASTM A325N, THREAD INCLUDED WITH SHEAR PLANE (UNLESS OTHERWISE NOTED).
3. ALL BOLTED CONNECTIONS TO BE INSTALLED TO A SNUG-TIGHTENED CONDITION IN ACCORDANCE WITH AISC 13 PART 16.2, "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS", SECTION 8.1, UNLESS OTHERWISE SPECIFIED. WHEN "X" TYPE BOLTS ARE USED, CONTRACTOR MAY BE REQUIRED TO STACK ADDITIONAL WASHERS TO OBTAIN PROPER SNUG TIGHT INSTALLATION. ALL NUTS SHALL BE HEAVY HEX UNLESS OTHERWISE NOTED.
4. ALL STEEL, AFTER FABRICATION, SHALL BE HOT DIPPED GALVANIZED PER ASTM A-123. ALL DAMAGED SURFACES, WELDED AREAS AND AUTHORIZED NON-GALVANIZED MEMBERS OR PARTS (EXISTING OR NEW) SHALL BE PAINTED WITH MULTIPLE COATS OF ZRC COLD GALVANIZING COMPOUND ACHIEVING A MINIMUM OF 4 MILS DRY FILM PER ASTM A 780.
5. ALL SHOP AND FIELD WELDING SHALL BE DONE BY WELDERS QUALIFIED AS DESCRIBED IN THE "AMERICAN WELDING SOCIETY'S STANDARD QUALIFICATION PROCEDURE" TO PERFORM THE TYPE OF WORK REQUIRED. CONTRACTOR IS REQUIRED TO PROVIDE FDH ENGINEERING, INC. WITH A PASSING CERTIFIED WELDING INSPECTION FOR ALL WELDS.
6. STRUCTURAL STEEL MAY NOT BE TORCH CUT FOR FABRICATION. ALL STEEL FABRICATION MUST FOLLOW AISC STANDARDS.

MISC. NOTES:

1. ALL MODIFICATIONS ARE ASSUMED TO BE MADE ON AN EMPTY TOWER. CONTRACTOR IS RESPONSIBLE TO MAKE PROVISIONS TO SUPPORT OR WORK AROUND EXISTING ANTENNAS AND TRANSMISSION LINES. MODIFICATIONS MUST BE CONTINUOUS THROUGH ALL AREAS SHOWN.
2. CONTRACTOR FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.

FABRICATION NOTES:

1. ALL DIMENSIONS ARE PRELIMINARY UNTIL FIELD VERIFIED BY CONTRACTOR. ANY CHANGES MUST BE APPROVED BY ENGINEER OF RECORD IN WRITING PRIOR TO FABRICATION AND INSTALLATION.
2. NEW STEEL MEMBERS MUST HAVE SINGLE DRILLED HOLES. SLOTTED AND DOUBLE DRILLED HOLES ARE NOT ACCEPTABLE MEANS OF FABRICATION.

SURFACE PREPARATION:

1. PREPARE SURFACE TO BE WELDED BY REMOVING PAINT OR GALVANIZATION TO BARE METAL USING POWER WIRE BRUSHING IN ACCORDANCE WITH SSPC-SP11, (STEEL STRUCTURES PAINTING COUNCIL). FOLLOWING POWER WIRE BRUSHING CONTRACTOR SHALL POLISH METAL SURFACE WITH HIGH SPEED GRINDER WITH 400+ GRIT SANDPAPER.
2. AFTER NEW STEEL INSTALLATION CONTRACTOR TO BRUSH PAINT (2) COATS OF ZRC OR ZINGA COLD GALVANIZATION COMPOUND PER MANUFACTURER'S SPECIFICATIONS.

WELDING NOTES:

1. ALL WELDING TO THE EXISTING TOWER SHALL BE PERFORMED BY CERTIFIED WELDERS UTILIZING PROCEDURES QUALIFIED IN ACCORDANCE WITH AWS D1.1 AND AWS C5.4.
2. CONTRACTOR SHALL COMPLY WITH AWS D1.1 FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". CONTRACTOR SHALL SUBMIT CERTIFICATION OF WELDERS TO THE ENGINEER PRIOR TO COMMENCEMENT OF THE WORK.
3. CONTRACTOR RESPONSIBLE FOR TEMPORARY HEAT SHIELDING AS REQUIRED DURING WELDING.
4. CONTRACTOR RESPONSIBLE FOR VIEWING EXISTING TOWER FOR LOOSE AND FLAMMABLE MATERIAL PRIOR TO WELDING FLAT PLATE.
5. ALL WELDS TO BE VISUALLY INSPECTED BY A CERTIFIED WELD INSPECTOR PER AWS D1.1.

EPOXY/HILTI NOTES:

1. EPOXY AGENTS SHOULD BE ALLOWED TO CURE ACCORDING TO MANUFACTURERS RECOMMENDATIONS.
2. ALL HARDWARE ASSEMBLY AND MANUFACTURER'S INSTRUCTIONS SHALL BE FOLLOWED; ANY CONTRADICTION BETWEEN THE MANUFACTURER'S RECOMMENDATIONS AND THESE DRAWINGS ARE TO BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ENGINEER AND OWNER.
3. ANY CONTRACTOR INSTALLING ADHESIVE ANCHORING SYSTEMS SHALL BE TRAINED, IN PERSON BY A MANUFACTURER'S REPRESENTATIVE, ON THE PROPER INSTALLATION TECHNIQUES. THIS TRAINING SHALL INCLUDE PROPER DRILLING, HOLE CLEANING, AND INSTALLATION METHODS FOR THE ADHESIVE ANCHORING SYSTEM AND CONSTRUCTION CONDITIONS ON THIS PROJECT. ALL TRAINING TO BE CONDUCTED PRIOR TO CREWS STEPPING ON SITE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT MANUFACTURER REPRESENTATIVE TO SET UP TRAINING. FDH IS NOT RESPONSIBLE FOR ANY COST OCCURRED FOR OR DURING ADHESIVE ANCHORING SYSTEM TRAINING.

PULLOUT TESTING OF POST INSTALLED ANCHOR RODS:

1. EPOXY AGENTS SHOULD BE ALLOWED TO CURE ACCORDING TO MANUFACTURERS RECOMMENDATIONS.
2. CONTRACTOR SHALL ENSURE THAT CONSTRUCTION DOES NOT GO BEYOND POINT WHERE THE ANCHOR RODS CAN BE EFFECTIVELY TESTED. THE ANCHOR ROD SLEEVES AND TRANSFER PLATES SHOULD BE INSTALLED AFTER PULL-TESTING IS PERFORMED. CONSTRUCTION MAY PROCEED AFTER TESTING IS COMPLETED.
3. 50% OF POST INSTALLED ANCHOR RODS SHALL BE TESTED OR A TOTAL OF 4, WHICHEVER IS GREATER.
4. THE ANCHOR ROD SHALL BE TESTED TO A TARGET TENSION OF 80% OF THE MATERIAL MINIMUM YIELD (Fy) STRENGTH ON THE NET AREA THROUGH THREADS. THE TARGET TENSION FOR THIS PULL TEST IS 265K.
5. MAINTAIN COMPLETE LOAD-DISPLACEMENT RECORDS THROUGHOUT THE TEST. LOAD THE ANCHOR IN INCREMENTS OF UP TO 15% OF THE TARGET TENSION.
6. STATIC LOAD TEST SHALL BE PERFORMED PER ASTM E488-96 (REAPPROVED 2003).
7. IF A DISPLACEMENT GREATER THAN 0.010" REMAINS AFTER THE INITIAL TEST CYCLE, ADDITIONAL TEST SHALL BE PERFORMED UP TO A MAXIMUM OF 4 TEST CYCLES TO DETERMINE IF THE MOVEMENT CONTINUES TO ACCUMULATE. INCREMENTAL RESIDUAL MOVEMENT RECORDED FROM EACH TEST CYCLE MUST BE DECREASING IN VALUE AND STABILIZE TO A VALUE NO MORE THAN 0.010", OTHERWISE THE ANCHOR SHALL BE CONSIDERED TO FAIL THE TEST. TOTAL RESIDUAL MOVEMENT SHALL NOT BE GREATER THAN 0.10" OR THE ANCHOR SHALL BE CONSIDERED TO FAIL THE TEST.
8. THIS INFORMATION SHALL BE DOCUMENTED AND INCLUDED IN THE POST MODIFICATION INSPECTION REPORT.
9. CONTACT FDH ENGINEERING, INC. IF ANY OF THE ANCHORS FAIL THE PULL TEST.


PREPARED BY:



6521 MERIDIEN DRIVE
RALEIGH, NC 27616
PHONE: 919-755-1012
FAX: 919-755-1031

ENGINEERING INNOVATION

PREPARED FOR:



5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800) 487-SITE

FOR BID ONLY

CHRISTOPHER M. MURPHY, P.E.
CONNECTICUT LIC. NO. 25842

DRAWN BY: OP
CHECKED BY: SMN
ENG APP'VD: CMM
PROJECT NO: 12-04772E S3

SUBMITTALS		
DATE	DESCRIPTION	REV
08/21/12	PRELIMINARY/REVIEW	A

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SITE NAME:
BEACON FALLS

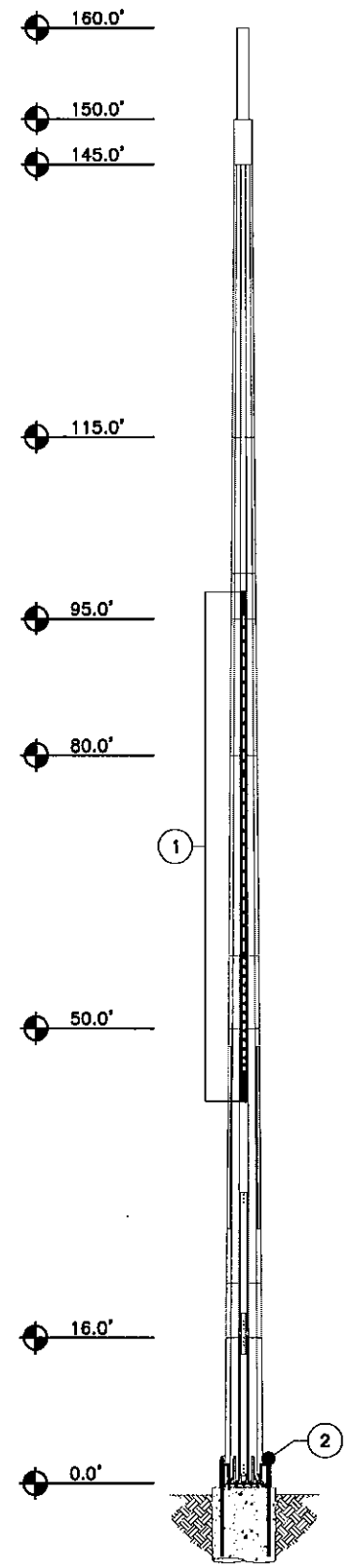
SITE NUMBER:
CT02049-S

SITE ADDRESS:
80 RICE LANE
BEACON FALLS, CT 06403

SHEET TITLE
GENERAL
NOTES

SHEET NUMBER
N-2

LENGTH (FT)	22.00	42.00	30.00	20.00	20.00	20.00	30.00	5.00	10.00
# OF SIDES			12					1	1
THICKNESS (IN)	0.3750	0.3750	0.3750	0.3125	0.3125	0.3125	0.2500	A	0.2500
SOCKET LENGTH (FT)	N/A	6.00	8.00	N/A	N/A	5.00	N/A		
TOP DIAMETER (IN)	45.2829	38.9100	35.7000	31.4750	29.4000	29.4000	24.0000	B	16.0000
BOT. DIAMETER (IN)	50.1000	47.2200	41.1000	35.7000	33.0000	29.4000	29.4000	B	16.0000
TOWER FINISH									



TOWER ELEVATION
SCALE: NTS

- APPURTENANCES MAY INTERFERE WITH PROPOSED MODIFICATIONS.
- ALL MODIFICATIONS TO BE INSTALLED CONTINUOUSLY THROUGH EXISTING EQUIPMENT, ALL EXISTING EQUIPMENT NOT TO BE DAMAGED OR TAKEN OFF AIR DURING INSTALLATION.
- ANTENNA GRAPHICS NOT SHOWN FOR CLARITY. SEE STRUCTURAL ANALYSIS REPORT FOR EXISTING ANTENNA LOADING.

MEMBER SIZE KEY	
MARK	SIZE
A	0.2500
B	24.0000

TOWER MODIFICATION SCHEDULE			
NO.	TYPE OF MODIFICATION	BOTTOM ELEV. (FT)	TOP ELEV. (FT)
1	INSTALLATION OF NEW FLAT PLATE REINFORCEMENT. SEE S-2 & S-3 FOR DETAILS.	42.0±	98.0±
2	INSTALLATION OF NEW ANCHOR RODS. SEE S-4 & S-5 FOR DETAILS.	-7.5±	2.0±

PREPARED BY:



6521 MERIDIEN DRIVE
RALEIGH, NC 27616
PHONE: 919-755-1012
FAX: 919-755-1031

ENGINEERING INNOVATION

PREPARED FOR:



5800 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800) 487-SITE

FOR BID ONLY

CHRISTOPHER M. MURPHY, P.E.
CONNECTICUT LIC. NO. 25842

DRAWN BY: OP
CHECKED BY: SMN
ENG APPVD: CMM
PROJECT NO: 12-04772E S3

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SITE NAME:
BEACON FALLS

SITE NUMBER:
CT02049-S

SITE ADDRESS:
60 RICE LANE
BEACON FALLS, CT 06403

SHEET TITLE
MODIFICATION
SCHEDULE

SHEET NUMBER
S-1

FOR BID ONLY

CHRISTOPHER M. MURPHY, P.E.
 CONNECTICUT LIC. NO. 25842

DRAWN BY: OP
 CHECKED BY: SMN
 ENG APPVD: CMM
 PROJECT NO: 12-04772E S3

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SITE NAME:
BEACON FALLS

SITE NUMBER:
CT02049-S

SITE ADDRESS:
 60 RICE LANE
 BEACON FALLS, CT 06403

SHEET TITLE
FLAT PLATE REINFORCEMENT DETAILS

SHEET NUMBER
S-2

FLAT PLATE INSTALLATION SCHEDULE			
PART #	QTY.	DESCRIPTION	ELEVATION
MK-1	3	FLAT PLATE REINFORCEMENT	78'-0"± TO 98'-0"±
MK-2	3	FLAT PLATE REINFORCEMENT	58'-0"± TO 78'-0"±
MK-3	3	FLAT PLATE REINFORCEMENT	42'-0"± TO 58'-0"±
-	186	20MM AJAX BOLTS	VARIES

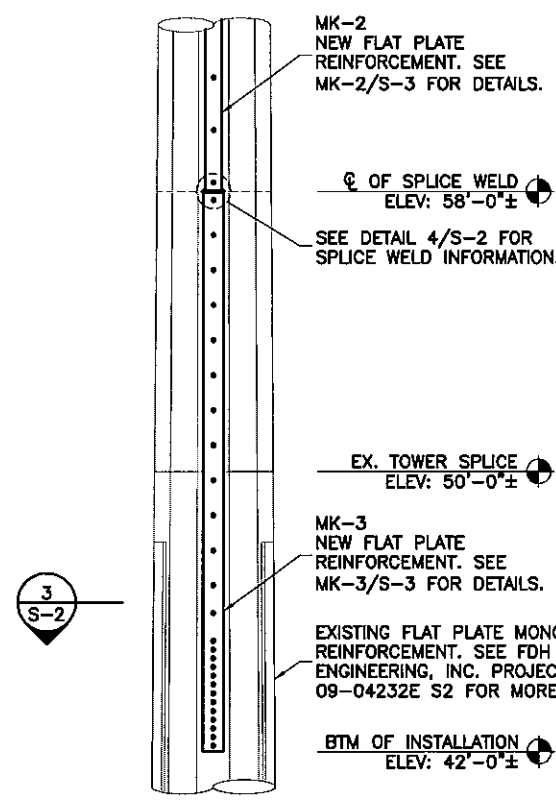
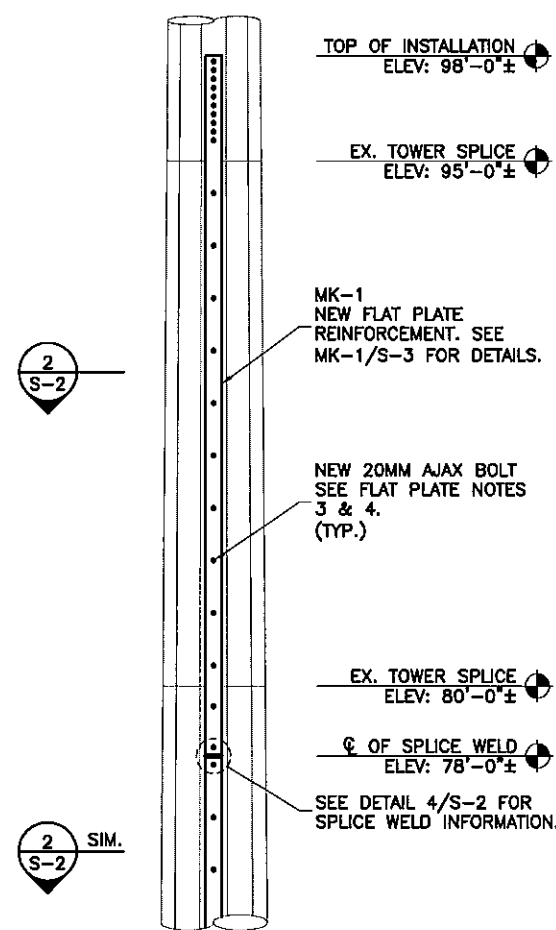
ALL NEW FLAT PLATE STEEL TO HAVE Fy=65 KSI

NEW FLAT PLATE REINFORCEMENT NOTES:

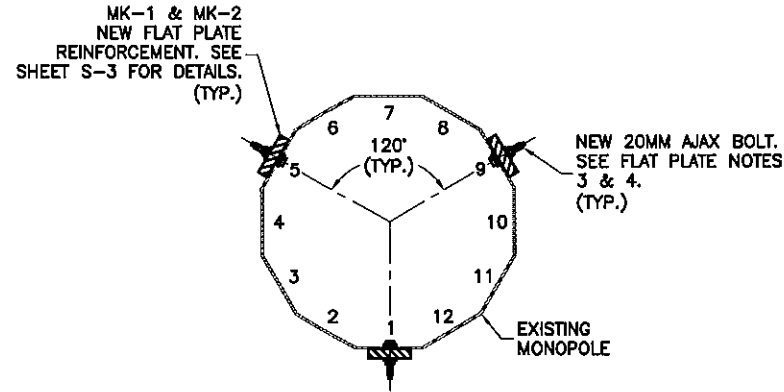
- CONTRACTOR TO FIELD VERIFY PROPOSED LOCATION OF FLAT PLATE TO ENSURE THAT PROPER SPACING CAN BE MET.
- CONTRACTOR TO REPLACE AND/OR RELOCATE ANY CLIMBING PEGS THAT INTERFERE WITH THE INSTALLATION OF FLAT PLATE.
- ALL AJAX CONNECTIONS TO USE HIGH TENSILE SLEEVE PROVIDED BY MANUFACTURER. AJAX BOLT ASSEMBLY TO BE INSTALLED PER MANUFACTURER SPECIFICATIONS. SEE AJAX BOLT ASSEMBLY DETAIL 5/S-2.
- ALL SHEAR SLEEVES TO BE HOT DIPPED GALVANIZED PRIOR TO INSTALLATION.

CONSTRUCTION NOTES:

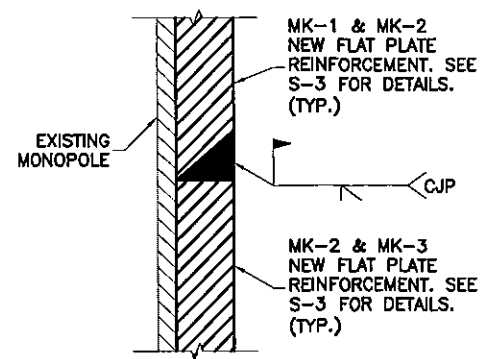
- CONTRACTOR TO FIELD VERIFY PROPOSED FLAT PLATE LAYOUT PRIOR TO CONSTRUCTION. IF ISSUES ARE PRESENT IN THE FIT OF THE FLAT PLATE, CONTRACTOR TO CONTACT ENGINEER OF RECORD OR FDH ENGINEERING PROJECT MANAGER PRIOR TO PROCEEDING WITH PROPOSED MODIFICATION OR FABRICATION.



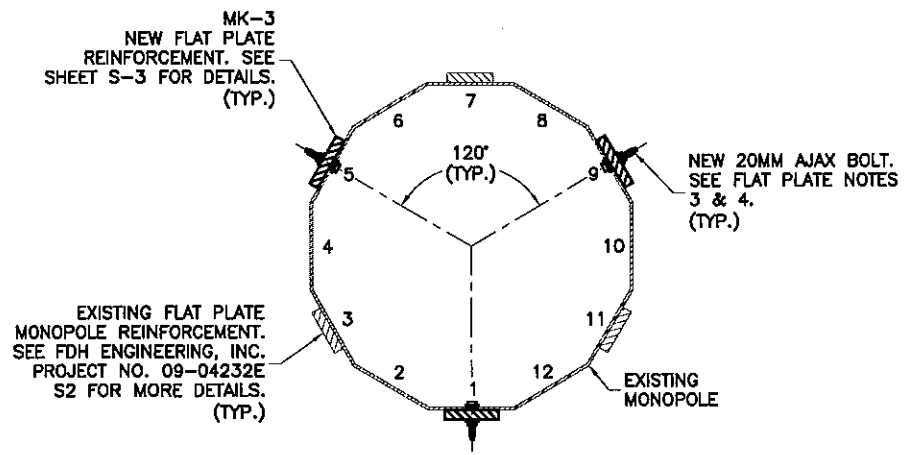
FLAT PLATE REINFORCEMENT LAYOUT
 ELEVATION VIEW
 1
 S-2
 ELEVATION
 SCALE: 3/16" = 1'-0"



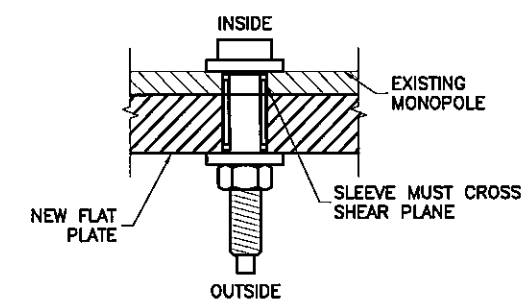
NEW FLAT PLATE REINFORCEMENT LAYOUT
 SECTION VIEW
 2
 S-2
 SECTION
 SCALE: 1/2" = 1'-0"



SPLICE WELDING
 ELEVATION VIEW
 4
 S-2
 SECTION
 NTS



NEW FLAT PLATE REINFORCEMENT LAYOUT
 SECTION VIEW
 3
 S-2
 SECTION
 SCALE: 1/2" = 1'-0"



AJAX BOLT ASSEMBLY
 PLAN VIEW
 5
 S-2
 DETAIL
 NTS

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

FOR BID ONLY

CHRISTOPHER M. MURPHY, P.E.
 CONNECTICUT LIC. NO. 25842

DRAWN BY: OP
 CHECKED BY: SMN
 ENG APP'VD: CMM
 PROJECT NO: 12-04772E S3

SUBMITTALS		
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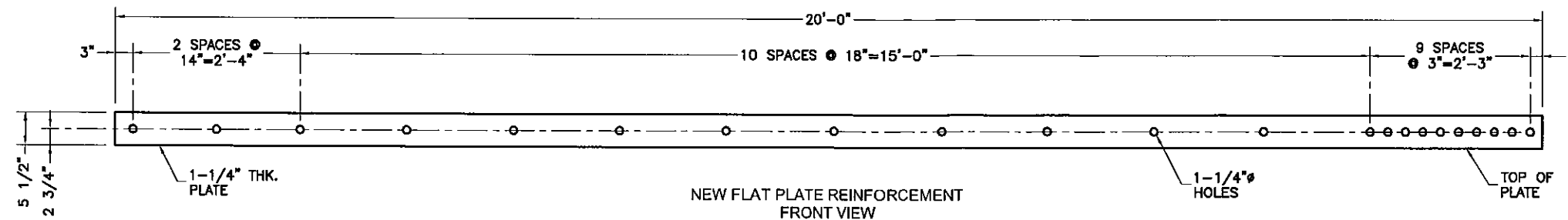
SITE NAME:
 BEACON FALLS

SITE NUMBER:
 CT02049-S

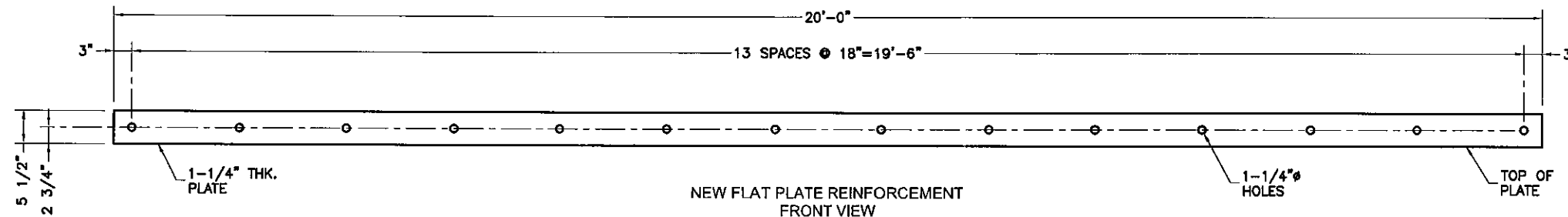
SITE ADDRESS:
 60 RICE LANE
 BEACON FALLS, CT 06403

SHEET TITLE
 FLAT PLATE
 DETAILS

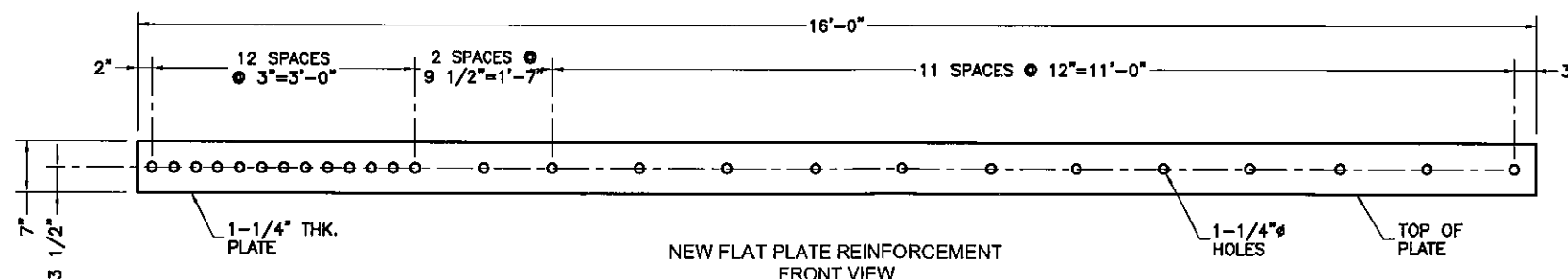
SHEET NUMBER
S-3



MK-1
S-3 **DETAIL**
 SCALE: 1/2" = 1'-0"



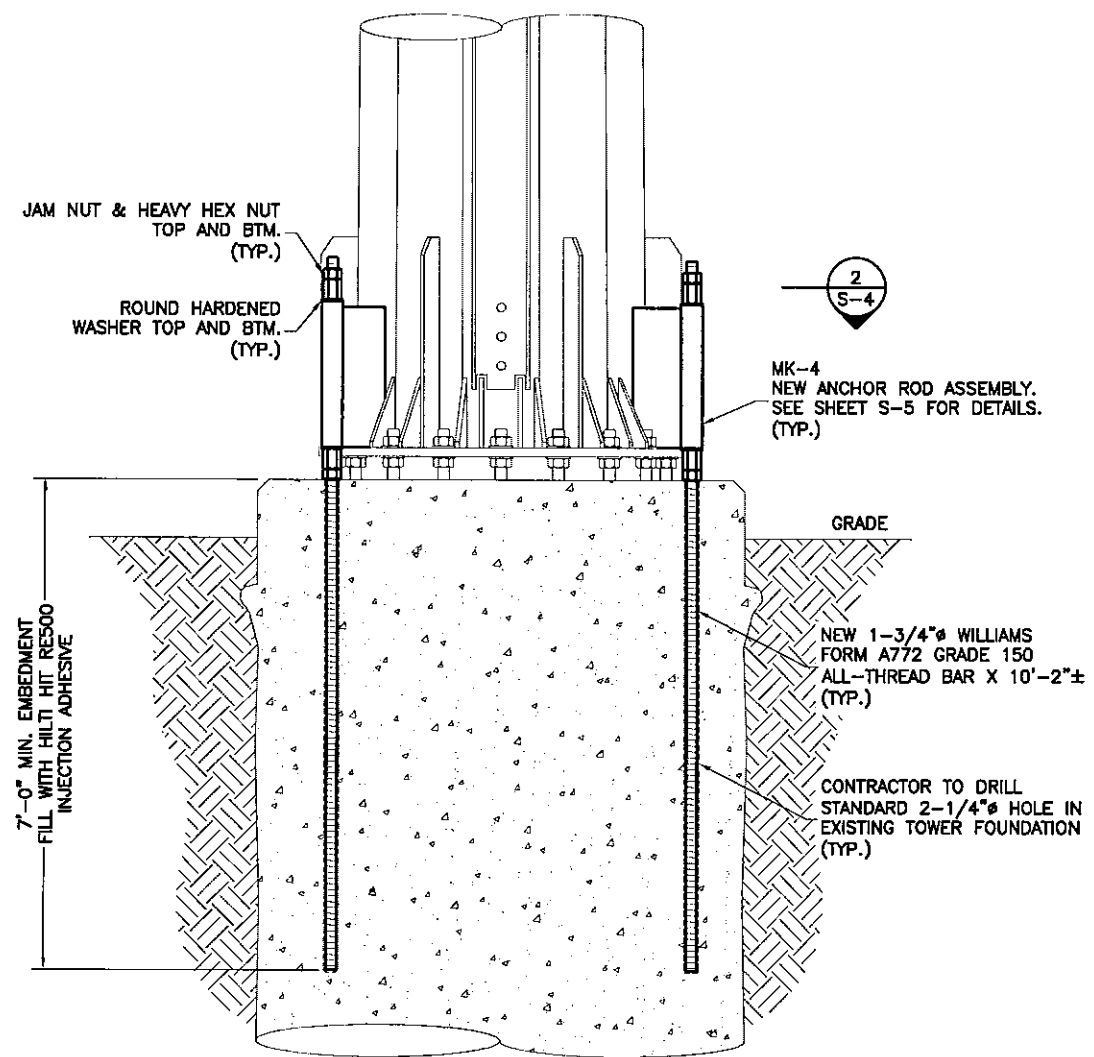
MK-2
S-3 **DETAIL**
 SCALE: 1/2" = 1'-0"



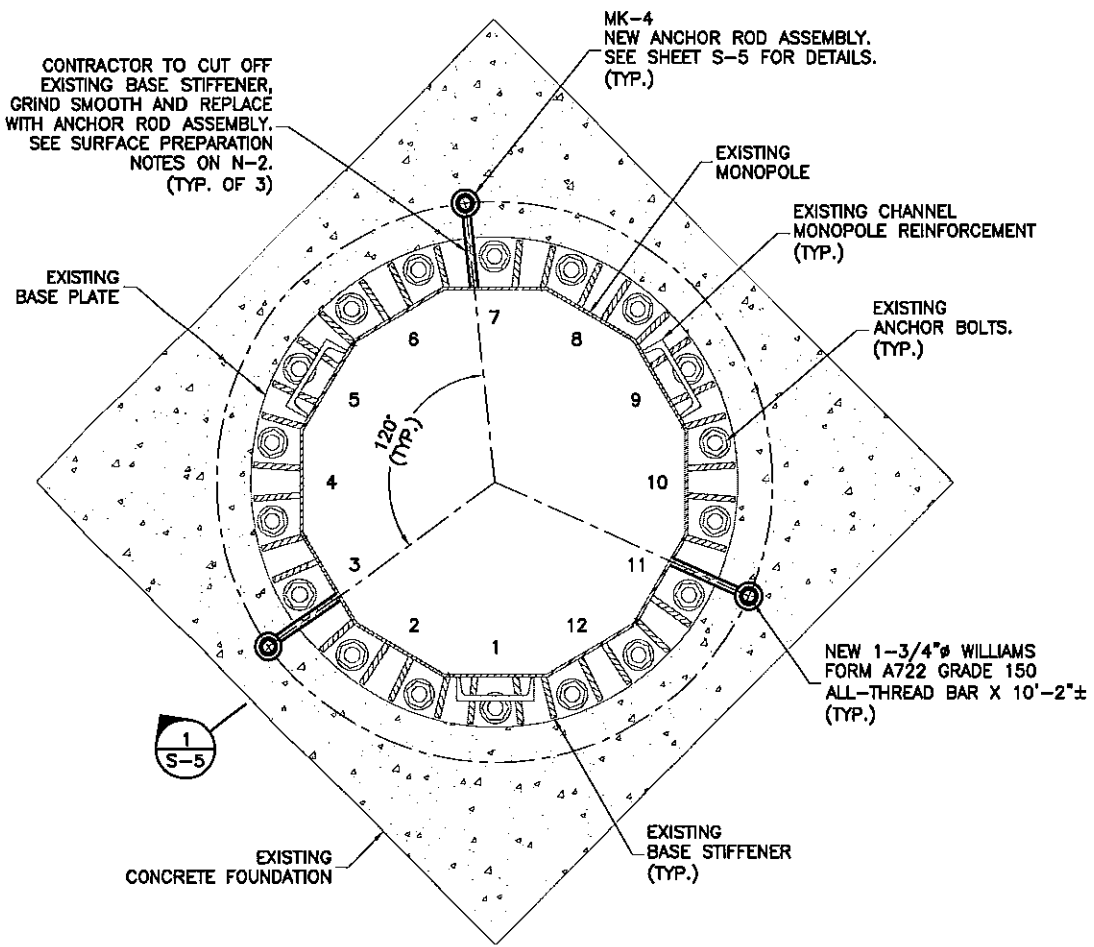
MK-3
S-3 **DETAIL**
 SCALE: 1/2" = 1'-0"

CONTRACTOR TO PROVIDE PHOTOS OF THE ANCHOR ROD HOLES TO FDH CONSTRUCTION MANAGER PRIOR TO INSTALLING NEW ANCHOR RODS. PHOTOS MUST SHOW THE DEPTH AND DIAMETER OF ANCHOR ROD HOLES.

PISTON PLUGS TO BE USED IN ALL INJECTION ADHESIVE APPLICATIONS



ANCHOR ROD LAYOUT FRONT VIEW
 1 ELEVATION
 S-4 SCALE: 3/8" = 1'-0"



ANCHOR ROD LAYOUT PLAN VIEW
 2 SECTION
 S-4 SCALE: 1/2" = 1'-0"

ANCHOR ROD MATERIAL LIST			
PART. NO	QTY.	DESCRIPTION	ELEVATION
MK-4	3	ANCHOR ROD ASSEMBLY	0'-0"± TO 2'-0"±
-	3	NEW 1-3/4" WILLIAMS FORM A772 GRADE 150 ALL-THREAD BAR X 10'-2"±	-7'-6"± TO 2'-8"±
-	6	ROUND HARDENED WASHER	-
-	6	HEAVY HEX NUT	-
-	6	JAM NUT	-

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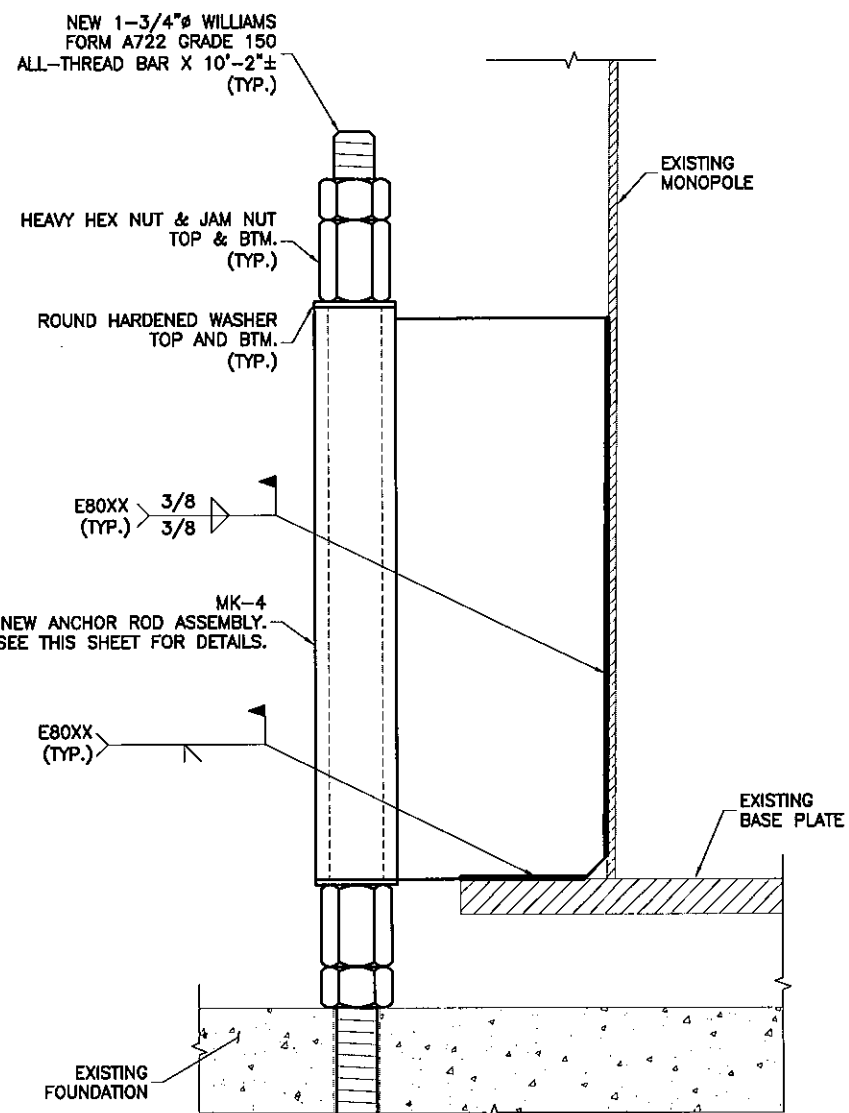
SITE NAME:
BEACON FALLS

SITE NUMBER:
CT02049-S

SITE ADDRESS:
 60 RICE LANE
 BEACON FALLS, CT 06403

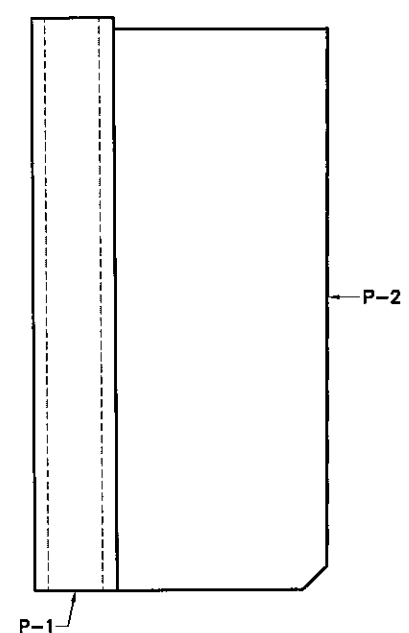
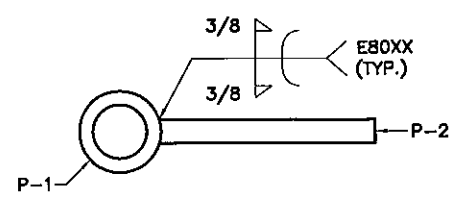
SHEET TITLE
ANCHOR ROD INSTALLATION DETAILS I

SHEET NUMBER
S-4



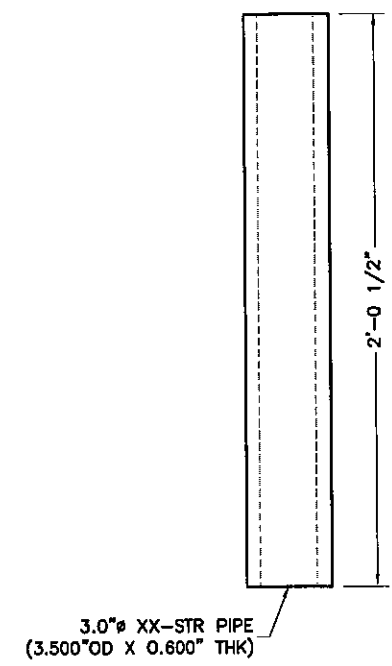
ANCHOR ROD ASSEMBLY WELD DETAIL ELEVATION VIEW

1 ELEVATION
S-5 SCALE: 1-1/2" = 1'-0"



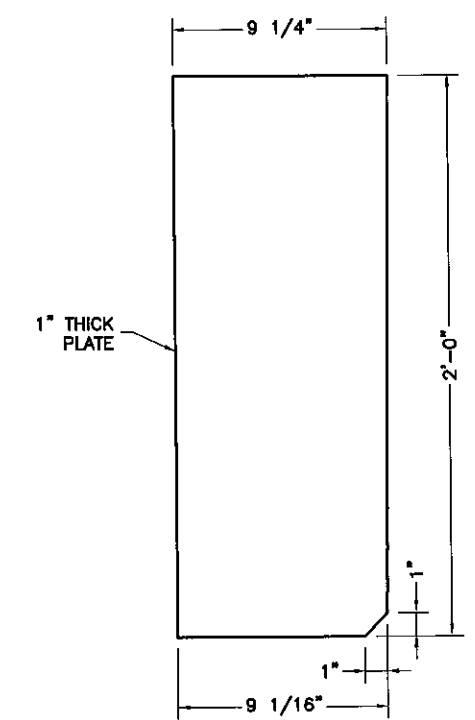
ANCHOR ROD ASSEMBLY TOP & SIDE VIEW

MK-4 SECTION
S-5 SCALE: 1-1/2" = 1'-0"



ANCHOR ROD SLEEVE SIDE VIEW

P-1 DETAIL
S-5 SCALE: 1-1/2" = 1'-0"



TRANSFER PLATE SIDE VIEW

P-2 DETAIL
S-5 SCALE: 1-1/2" = 1'-0"

MATERIAL LIST (MK-4)		
PART. NO.	QTY.	DESCRIPTION
P-1	3	ANCHOR ROD SLEEVE
P-2	3	TRANSFER PLATE

PREPARED BY:

FDH 6521 MERIDIEN DRIVE
RALEIGH, NC 27616
PHONE: 919-755-1012
FAX: 919-755-1031

ENGINEERING INNOVATION

PREPARED FOR:

SBA

5900 BROKEN SOUND PARKWAY, NW
BOCA RATON, FL 33487
(800) 487-SITE

FOR BID ONLY

CHRISTOPHER M. MURPHY, P.E.
CONNECTICUT LIC. NO. 25842

DRAWN BY:	OP
CHECKED BY:	SMN
ENG APPV'D:	CMM
PROJECT NO:	12-04772E S3

SUBMITTALS		
DATE	DESCRIPTION	REV
08/21/12	PRELIMINARY/REVIEW	A

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SITE NAME:
BEACON FALLS

SITE NUMBER:
CT02049-S

SITE ADDRESS:
60 RICE LANE
BEACON FALLS, CT 06403

SHEET TITLE
ANCHOR ROD
INSTALLATION DETAILS II

SHEET NUMBER
S-5

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

Sprint Existing Facility

Site ID: CT33XC524

E. Beacon Falls / Edwards Property
60 Rice Lane
Beacon Falls, CT 06403

August 08, 2012

August 8, 2012

Sprint
Attn: RF Engineering Manager
1 International Boulevard, Suite 800
Mahwah, NJ 07495

Re: Emissions Values for Site **CT33XC524 – E, Beacon Falls / Edwards Property**

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at 60 Rice Lane, Beacon Falls, CT, for the purpose of determining whether the emissions from the proposed Sprint equipment upgrades 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ 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 ($\mu\text{W}/\text{cm}^2$). The general population exposure limit for the cellular band is approximately 567 $\mu\text{W}/\text{cm}^2$, and the general population exposure limit for the PCS band is 1000 $\mu\text{W}/\text{cm}^2$. 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 upgrades to the existing Sprint Wireless antenna facility located at 60 Rice Lane, Beacon Falls, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario. Actual values seen from this site will be dramatically less than those shown in this report. 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 emissions were calculated using the following assumptions:

- 1) 4 CDMA Carriers (1900 MHz) were considered for each sector of the proposed installation.
- 2) 1 CDMA Carrier (850 MHz) was considered for each sector of the proposed installation
- 3) 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.
- 4) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The actual gain in this direction was used per the manufactures supplied specifications.
- 5) The antenna used in this modeling is the RFS APXVSP18-C-A20. This is based on feedback from the carrier with regards to anticipated antenna selection. This antenna has a 15.9 dBd gain value at its main lobe at 1900 MHz and 13.4 dBd at its main lobe for 850 MHz. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario.

- 6) The antenna mounting height centerline of the proposed antennas is **150.4 feet** above ground level (AGL)
- 7) 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 calculation were done with respect to uncontrolled / general public threshold limits

Site ID	CT33XC524 - East Beacon Falls / Edwards Property
Site Address	60 Rice Lane, Beacon Falls, CT 06403
Site Type	Monopole

Sector 1

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	RFS	APXVSP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	4	80	15.9	150.4	144.4	1/2 "	0.5	0	2773.8948	47.82573	4.78257%
1a	RFS	APXVSP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	150.4	144.4	1/2 "	0.5	0	389.96892	6.723596	1.18582%
Sector total Power Density Value:																5.9684%	

Sector 2

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
2a	RFS	APXVSP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	4	80	15.9	150.4	144.4	1/2 "	0.5	0	2773.8948	47.82573	4.78257%
2a	RFS	APXVSP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	150.4	144.4	1/2 "	0.5	0	389.96892	6.723596	1.18582%
Sector total Power Density Value:																5.9684%	

Sector 3

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
3a	RFS	APXVSP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	4	80	15.9	150.4	144.4	1/2 "	0.5	0	2773.8948	47.82573	4.78257%
3a	RFS	APXVSP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	150.4	144.4	1/2 "	0.5	0	389.96892	6.723596	1.18582%
Sector total Power Density Value:																5.9684%	

Site Composite MPE %	
Carrier	MPE %
Sprint	17.905%
T-Mobile	3.870%
AT&T	4.400%
Verizon Wireless	10.800%
Clearwire	0.770%
Beacon Hose Co.	2.220%
Total Site MPE %	39.965%

Summary

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

The anticipated Maximum Composite contributions from the Sprint facility are **17.905% (5.968% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **39.965%** 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



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