

June 3, 2015

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

Re: **EM-VER-086-141211 – Cellco Partnership d/b/a Verizon Wireless
Notice of Intent to Modify an Existing Telecommunications Facility Located at
71 Moxley Road, Montville, Connecticut**

Dear Ms. Bachman:

On December 11, 2014, Cellco Partnership d/b/a Verizon Wireless (“Cellco”) filed a notice of intent to modify its existing wireless facility at 71 Moxley Road in Montville. Attached to that notice was a Structural Analysis dated December 4, 2014, stating that the existing tower and its foundation could support Cellco’s proposed modifications. On January 5, 2015, the Siting Council acknowledged receipt of the Cellco’s notice.

We recently learned that the December 4, 2014 Structural Analysis, prepared by FDH Engineering Inc., included an incorrect reference to the basic design wind speed for the Montville tower location. A revised Structural Analysis, dated April 22, 2015 was prepared using the correct wind speed. The results of the revised Structural Analysis indicate that certain structural modifications will need to be made to the tower to accommodate Cellco’s proposed modifications. A copy of the April 22, 2015 revised Structural Analysis is enclosed for your records. As we have done in the past, once the tower modifications have been completed, Cellco will provide the Council with a letter from a certified professional engineer in the State of Connecticut verifying that the modifications were completed in accordance with the April 22, 2015 Structural Analysis.

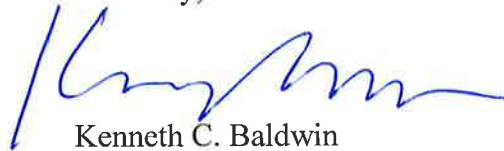
13854456-v1

Robinson+Cole

Melanie A. Bachman
June 3, 2015
Page 2

Please feel free to contact me if you have any questions or need any additional information.

Sincerely,

A handwritten signature in blue ink, appearing to read 'K. Baldwin', written over a light blue horizontal line.

Kenneth C. Baldwin

KCB/kmd
Enclosure
Copy to:
Tim Parks

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

190' Guyed Tower

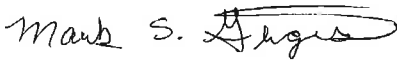
**SBA Site Name: Montville 3
SBA Site ID: CT10016-A-05
Verizon Site ID: Uncasville**

FDH Project Number 15BJIT1400

Analysis Results

Tower Components	97.5%	Sufficient
Foundation	70.1%	Sufficient

Prepared By:



Mark S. Girgis, EI
Project Engineer

Reviewed By:



Dennis D. Abel, PE
Director of Structural Engineering
CT PE License No. 23247

Velocitel, Inc., d.b.a. FDH Velocitel
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April 22, 2015

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EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Velocitel performed a structural analysis of the existing guyed tower located in Uncasville, CT to determine whether the tower is structurally adequate to support both the existing and proposed loads pursuant to *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, the member sizes, geotechnical data, and foundation dimensions was obtained from:

- Rohn, Inc. (Eng. File No. 37183AE001) original design drawings dated April 21, 1998
- FDH, Inc. (Project No. 07-0319T) TIA Inspection Report dated April 13, 2007
- FDH Engineering, Inc. (Project No. 11-02193E G1) Geotechnical Evaluation of Subsurface Conditions dated August 10, 2011
- FDH Engineering, Inc. (Project No. 1465RU1400) Modification Drawings for a 190' Guyed Tower dated May 29, 2014
- FDH, Inc. (Project No. 1466I41700) Modification Inspection Report dated February 25, 2015.
- FDH Velocitel (Project No. 15BJIT1400) Modification Drawings for a 190' Guyed Tower dated April 22, 2015
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and the *2005 CBC* is 95 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 loading from Verizon in place at (see **Table 1**), the tower meets the requirements of the *TIA/EIA-222-F* standards and the *2005 CBC* provided the **Recommendations** listed below are satisfied. Furthermore, given the dimensions of the existing foundations (see Rohn, Inc. Eng. File No. 37183AE001) and utilizing the existing geotechnical data (see FDH Engineering, Inc. Project No. 11-02193E G1), the foundations should have the 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 Velocitel 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. The feed lines should be installed as shown in **Figure 1**.
2. RRU/RRH Stipulation: The equipment may be installed in any arrangement determined by the client.
3. The existing diplexers should be installed directly behind the proposed/existing panel antennas
4. The modifications outlined in FDH Velocitel (Project No. 15BJIT1400) Modification Drawings for a 190' Guyed Tower dated April 22, 2015 must be installed as specified in order for this analysis to be considered 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 Velocitel should be contacted to perform a revised analysis.*

Table 1 - Appurtenance Loading

Existing Loading:

Antenna Elevation (ft)	Description	Feed Lines	Carrier	Mount Elevation (ft)	Mount Type
183	(9) Allgon 7130.16.33.00	(9) 1-5/8"	Nextel ¹	183	(3) 12' T-Frames
175	(6) Kathrein 800 10504 (6) Kathrein 860-10118	(12) 1-5/8" (1) 3/8"	Metro PCS	175	(3) T-Frames (Andrew P/N QT-SF10-2-72)
160	(3) RFS APXVSP18-C-A20 (3) RFS APXVTM14-C-I20 (3) Alcatel Lucent TD-RRH8x20-25 (3) Alcatel Lucent 1900 MHz RRHs (3) Alcatel Lucent 800 MHz RRHs (3) Alcatel Lucent 800 MHz External Notch Filters (4) RFS ACU-A20-N RETs	(4) 1-1/4"	Sprint	159.5	(3) 15.5' T-Frames
150.5	(3) Ericsson AIR 21 B2A/B4P (3) Ericsson AIR 21 B4A/B2P (3) Ericsson KRY 112 144/1	(12) 1-5/8" (1) 1-5/8" Fiber	T-Mobile	150.5	(3) 15' T-Frames
141.5	(3) Antel BXA-70063/6CF-EDIN-0 (6) Ryma AT-41-645TX (3) Ryma MGD5-800T2 (6) RFS FD9R6004/2CL-3CL	(12) 1-5/8"	Verizon	141.5	(3) 13.5' T-Frames
130	(3) Powerwave 7770 (1) KMW AM-X-CD-16-65-00T (1) KMW AM-X-CD-14-65-00T (1) Andrew SBNH 1D6565C (6) Powerwave LGP21401 (6) Ericsson RRUS-11 (1) Raycap DC6-48-60-18-8F	(12) 1-1/4" (2) DC Power (1) Fiber	AT&T	130	(3) 12' T-Frames
76.5	(1) GPS (7.5" x 3")	(1) 1/2"	Verizon	76.5	(1) 38" Standoff

1. Nextel to remove all existing loading prior to the Sprint installation. This loading was not considered in this analysis.

Proposed Carrier Final Loading:

Antenna Elevation (ft)	Description	Feed Lines	Carrier	Mount Elevation (ft)	Mount Type
141	(3) Antel BXA-70063/6CF-EDIN-0 (6) RFS FD9R6004/2CL-3CL (3) Commscope LNX-8513DS-VTM (6) Commscope HBXX-6517DS-A2M (3) Alcatel Lucent RHR 2x60-AWS (1) RFS DB-T1-6Z-8AB-0Z	(12) 1-5/8" (1) 1-5/8" Hybrid Fiber	Verizon	141.5	(3) 13.5' T-Frames
76.5	(1) GPS (7.5" x 3")	(1) 1/2"		76.5	(1) 38" Standoff

RESULTS

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

Table 2 - Material Strength

Member Type	Yield Strength
Legs	50 ksi (assumed)
Bracing	36 ksi (assumed)

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. *Note: Capacities up to 100% are considered acceptable.* **Table 4** displays the maximum foundation reactions.

If the assumptions outlined in this report differ from actual field conditions, FDH Velocitel 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
T1	190 - 170	Leg	ROHN 3 EH	11.3	Pass
T2	170 - 150	Leg	ROHN 3 EH	75.0	Pass
T3	150 - 147.227	Leg	2.875 OD x 0.276 + 180 deg 3.5 OD x 0.3 (v4.03)	65.0	Pass
T4	147.227 - 144.818	Leg	2.875 OD x 0.276 + 180 deg 3.5 OD x 0.3 (v4.03)	68.5	Pass
T5	144.818 - 142.409	Leg	2.875 OD x 0.276 + 180 deg 3.5 OD x 0.3 (v4.03)	71.4	Pass
T6	142.409 - 140	Leg	2.875 OD x 0.276 + 180 deg 3.5 OD x 0.3 (v4.03)	73.8	Pass
T7	140 - 137.591	Leg	2.875 OD x 0.276 + 180 deg 3.5 OD x 0.3 (v4.03)	73.3	Pass
T8	137.591 - 135.182	Leg	2.875 OD x 0.276 + 180 deg 3.5 OD x 0.3 (v4.03)	72.0	Pass
T9	135.182 - 132.773	Leg	2.875 OD x 0.276 + 180 deg 3.5 OD x 0.3 (v4.03)	70.7	Pass
T10	132.773 - 130	Leg	2.875 OD x 0.276 + 180 deg 3.5 OD x 0.3 (v4.03)	68.5	Pass
T11	130 - 110	Leg	2.875 OD x 0.276 + 180 deg 3.5 OD x 0.3 (v4.03)	73.6	Pass
T12	110 - 90	Leg	ROHN 3 EH	76.2	Pass
T13	90 - 87.2266	Leg	ROHN 3 EH	70.7	Pass
T14	87.2266 - 84.8177	Leg	ROHN 3 EH	60.2	Pass
T15	84.8177 - 82.4089	Leg	ROHN 3 EH	54.4	Pass
T16	82.4089 - 80	Leg	ROHN 3 EH	48.9	Pass
T17	80 - 77.5911	Leg	ROHN 3 EH	43.8	Pass
T18	77.5911 - 75.1823	Leg	ROHN 3 EH	43.8	Pass
T19	75.1823 - 72.7734	Leg	ROHN 3 EH	44.2	Pass
T20	72.7734 - 70	Leg	ROHN 3 EH	44.4	Pass
T21	70 - 50	Leg	ROHN 3 EH	61.6	Pass

Structural Analysis Report

SBA Network Services, Inc.

SBA Site ID: CT10016-A-05

April 22, 2015

Section No.	Elevation (ft)	Component Type	Size	% Capacity*	Pass Fail
T22	50 - 35	Leg	ROHN 3 EH	65.4	Pass
T23	35 - 20	Leg	ROHN 3 EH	65.4	Pass
T24	20 - 5	Leg	ROHN 3 EH	58.6	Pass
T25	5 - 0	Leg	ROHN 3 EH	51.0	Pass
T1	190 - 170	Diagonal	L2x2x1/4	11.0 24.1 (b)	Pass
T2	170 - 150	Diagonal	L2x2x1/4	36.3 79.0 (b)	Pass
T3	150 - 147.227	Diagonal	ROHN TS1.5x16 ga	53.0 60.8 (b)	Pass
T4	147.227 - 144.818	Diagonal	ROHN TS1.5x16 ga	40.9 53.1 (b)	Pass
T5	144.818 - 142.409	Diagonal	ROHN TS1.5x16 ga	42.6 49.6 (b)	Pass
T6	142.409 - 140	Diagonal	ROHN TS1.5x16 ga	18.2 23.4 (b)	Pass
T7	140 - 137.591	Diagonal	ROHN TS1.5x16 ga	23.6 27.9 (b)	Pass
T8	137.591 - 135.182	Diagonal	ROHN TS1.5x16 ga	25.2 29.7 (b)	Pass
T9	135.182 - 132.773	Diagonal	ROHN TS1.5x16 ga	26.5 34.6 (b)	Pass
T10	132.773 - 130	Diagonal	ROHN TS1.5x16 ga	39.5 41.6 (b)	Pass
T11	130 - 110	Diagonal	ROHN TS1.5x11 ga	58.5 72.7 (b)	Pass
T12	110 - 90	Diagonal	ROHN TS1.5x11 ga	79.0 97.5 (b)	Pass
T13	90 - 87.2266	Diagonal	L2x2x1/4	25.8 66.8 (b)	Pass
T14	87.2266 - 84.8177	Diagonal	ROHN TS1.5x16 ga	57.1 80.8 (b)	Pass
T15	84.8177 - 82.4089	Diagonal	ROHN TS1.5x16 ga	68.3 83.8 (b)	Pass
T16	82.4089 - 80	Diagonal	ROHN TS1.5x16 ga	62.4 79.5 (b)	Pass
T17	80 - 77.5911	Diagonal	ROHN TS1.5x16 ga	59.1 75.2 (b)	Pass
T18	77.5911 - 75.1823	Diagonal	ROHN TS1.5x16 ga	55.8 69.6 (b)	Pass
T19	75.1823 - 72.7734	Diagonal	ROHN TS1.5x16 ga	48.2 66.7 (b)	Pass
T20	72.7734 - 70	Diagonal	ROHN TS1.5x16 ga	62.7 65.5 (b)	Pass
T21	70 - 50	Diagonal	ROHN TS1.5x11 ga	51.4 62.4 (b)	Pass
T22	50 - 35	Diagonal	ROHN TS1.5x16 ga	35.0	Pass
T23	35 - 20	Diagonal	ROHN TS1.5x16 ga	49.9 54.9 (b)	Pass
T24	20 - 5	Diagonal	ROHN TS1.5x11 ga	37.0 45.0 (b)	Pass
T25	5 - 0	Horizontal	L3x3x1/4	20.3	Pass
T1	190 - 170	Top Girt	L2x2x1/4	0.3	Pass
T2	170 - 150	Top Girt	L2x2x1/4	13.7	Pass
T3	150 - 147.227	Top Girt	ROHN TS1.5x16 ga	2.0	Pass
T11	130 - 110	Top Girt	ROHN TS1.5x11 ga	10.4	Pass
T12	110 - 90	Top Girt	ROHN TS1.5x11 ga	9.2	Pass

Section No.	Elevation (ft)	Component Type	Size	% Capacity*	Pass Fail
T13	90 - 87.2266	Top Girt	ROHN TS1.5x16 ga	9.1	Pass
T21	70 - 50	Top Girt	ROHN TS1.5x11 ga	15.2	Pass
T22	50 - 35	Top Girt	ROHN TS1.5x16 ga	5.2	Pass
T23	35 - 20	Top Girt	ROHN TS1.5x16 ga	4.1	Pass
T24	20 - 5	Top Girt	ROHN TS1.5x11 ga	5.1	Pass
T1	190 - 170	Bottom Girt	L2x2x1/4	6.1	Pass
T2	170 - 150	Bottom Girt	L2x2x1/4	9.8	Pass
T10	132.773 - 130	Bottom Girt	ROHN TS1.5x16 ga	4.1	Pass
T11	130 - 110	Bottom Girt	ROHN TS1.5x11 ga	7.3	Pass
T12	110 - 90	Bottom Girt	ROHN TS1.5x11 ga	13.8	Pass
T20	72.7734 - 70	Bottom Girt	ROHN TS1.5x16 ga	9.2	Pass
T21	70 - 50	Bottom Girt	ROHN TS1.5x11 ga	4.5	Pass
T22	50 - 35	Bottom Girt	ROHN TS1.5x16 ga	3.2	Pass
T23	35 - 20	Bottom Girt	ROHN TS1.5x16 ga	6.2	Pass
T24	20 - 5	Bottom Girt	ROHN TS1.5x11 ga	20.6	Pass
T2	170 - 150	Guy A@167.227	7/8	52.4	Pass
T12	110 - 90	Guy A@92.7734	5/8	82.4	Pass
T2	170 - 150	Guy B@167.227	7/8	52.6	Pass
T12	110 - 90	Guy B@92.7734	5/8	82.4	Pass
T2	170 - 150	Guy C@167.227	7/8	52.6	Pass
T12	110 - 90	Guy C@92.7734	5/8	82.4	Pass
T2	170 - 150	Torque Arm Top@167.227	C15x40	48.7	Pass
T12	110 - 90	Torque Arm Top@92.7734	C15x40	32.5	Pass

*Capacities include a 1/3 allowable stress increase for wind per TIA/EIA-222-F standards.

Table 4 - Maximum Base Reactions

Reaction	Current Analysis* (TIA/EIA-222-F)		Original Design (TIA/EIA-222-F)	
	Horizontal	Vertical	Horizontal	Vertical
Tower Base	3 k	126 k	--	173 k
Anchor	48 k	56 k	66 k	59 k

*Foundation determined to be adequate per independent analysis.

Pre-Modification Installation

FDH Velocitel has considered the acceptability of the tower stress level with the existing and proposed loading prior to the installation of the proposed tower modifications referenced in this report. This opinion is consistent with Section 4.5 of TIA-1019-A-2012, *Structural Standards for Installation, Alteration and Maintenance of Antenna Supporting Structures and Antennas*, using a non-operational, fastest-mile, basic design wind speed of 76 mph. This reduced loading is based upon the reduced statistical risk of a wind speed of that magnitude occurring for durations of up to 6 months.

FDH Velocitel has reviewed the tower and foundation per TIA/EIA-222-F *Structural Standards for Steel Antenna Towers and Antenna Supporting Structures* with the loading listed in this structural analysis report and the specified wind speed with applicable reduction based on duration and has determined that the proposed loading may be installed on the tower prior to the installation of the proposed structural modifications. The proposed modifications must be installed within 6 months of the date of this report. It is the proposed Carrier's responsibility to have appropriate plans in place to install the full structural modifications before the onset of a forecasted wind event or hurricane. FDH Velocitel will not be liable or responsible for damage to the tower or any existing carrier's equipment.

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 Velocitel 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 Velocitel.

APPENDIX

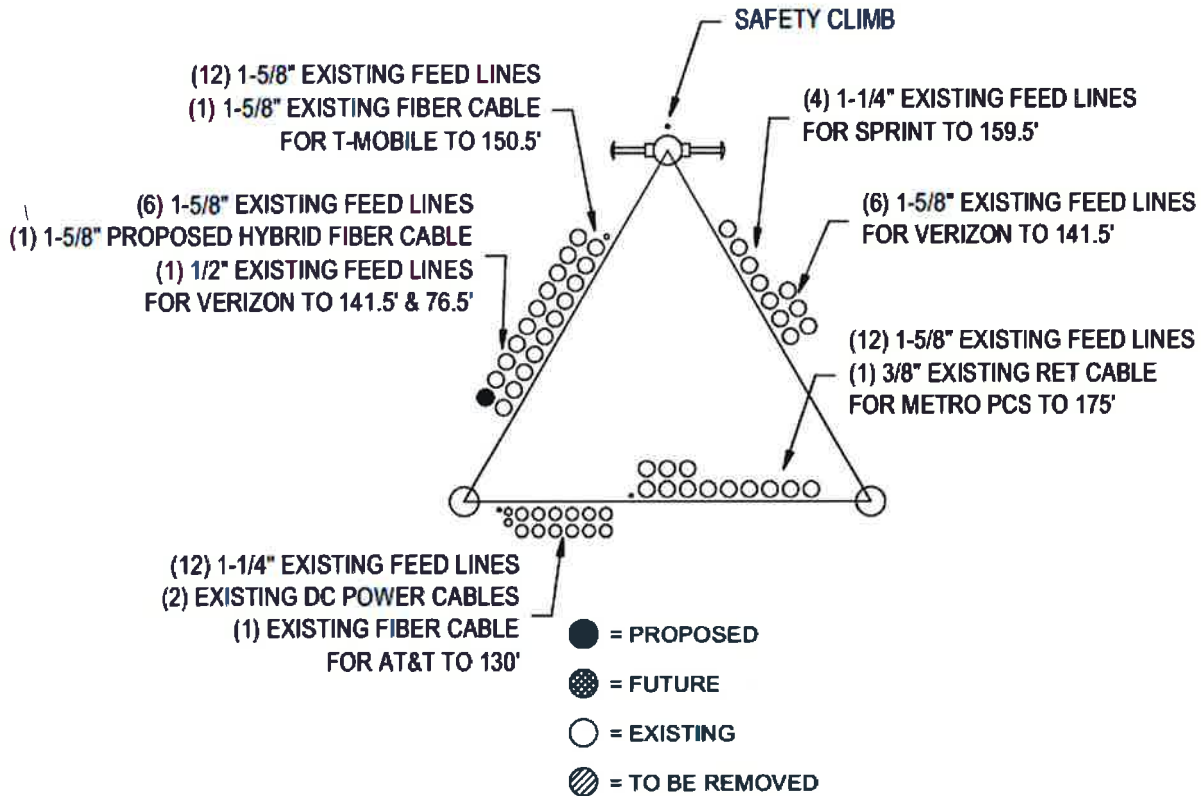


Figure 1 - Feed Line Layout



042215
DENNIS D. ABEL, PE
CONNECTICUT LIC. NO. 23247
DRAWN BY: DRW
CHECKED BY: MSG
ENG APPVD: DDA

SUBMITTALS	
DATE	DESCRIPTION
04/22/15	CONSTRUCTION

THE INFORMATION CONTAINED IN THIS SET OF DRAWINGS IS THE PROPERTY OF FDH VELOCITEL. NO PART OF THESE DRAWINGS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PERMISSION OF FDH VELOCITEL IS PROHIBITED.

FDH PROJECT NUMBER:
15BJT1400

SITE NAME:
MONTVILLE 3, CT
SITE NUMBER:
CT10016-A-05
SITE ADDRESS:
**71 MOXLEY ROAD,
UNCASVILLE, CT 06382**

SHEET TITLE:
**MODIFICATION INSPECTION
CHECKLIST**

SHEET NUMBER:
N-1

MODIFICATION INSPECTION NOTES:

GENERAL:

- THE POST CONSTRUCTION INSPECTION (MI) 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).
- THE MI IS TO CONFER WITH THE EOR, THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR TO REVIEW OF THE MODIFICATION DESIGN (REVIEW) BEFORE THE MI INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES.
- ALL MTS SHALL BE CONDUCTED BY A MI INSPECTOR THAT IS APPROVED TO PERFORM ELEVATED WORK FOR FDH VELOCITEL.
- TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI 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 VELOCITEL POINT OF CONTACT (POC).
- REFER TO CCR-01: CONTRACTOR CLOSEOUT REQUIREMENTS FOR FURTHER DETAILS AND REQUIREMENTS.

MI INSPECTOR:

- THE MI INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE MI TO, AT A MINIMUM:
 - REVIEW THE REQUIREMENTS OF THE MI CHECKLIST
 - WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS
- 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 MI REPORT TO FDH VELOCITEL.

CORRECTION OF FAILING MI'S:

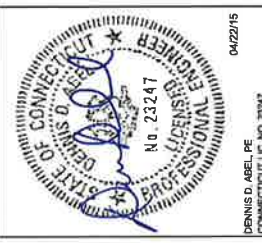
- IF THE MODIFICATION INSTALLATION WOULD FAIL THE MI (FAILED MI), THE GC SHALL WORK WITH FDH VELOCITEL TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:
 - CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT MI.
 - OR, WITH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

REQUIRED PHOTOS:

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

MI CHECKLIST	
INSPECTIONS AND TESTING REQUIRED	REPORT ITEM
PRE-CONSTRUCTION	
X	MI CHECKLIST DRAWING
N/A	EOR APPROVED SHOP DRAWINGS
X	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
X	PACKING SLIPS
ADDITIONAL TESTING AND INSPECTIONS:	
CONSTRUCTION	
X	CONSTRUCTION INSPECTIONS
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMPRESSIVE STRENGTH AND SLUMP TESTS
N/A	POST INSTALLED ANCHOR ROD VERIFICATION
N/A	BASE PLATE GROUT VERIFICATION
X	CONTRACTORS CERTIFIED WELD INSPECTION
N/A	BARTWORK LIFT AND DENSITY
X	ON SITE COLD GALVANIZATIONS
N/A	GUY WIRE TENSION REPORT
X	GC AS BUILT DOCUMENTS
ADDITIONAL TESTING AND INSPECTIONS:	
POST-CONSTRUCTION	
X	MI 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 PMI REPORT
N/A DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE PMI REPORT



DATE: 04/22/15
 DRAWN BY: DEBK
 MSG
 DDA
 ENG APP'D:

DATE	DESCRIPTION	REV
04/22/15	CONSTRUCTION	0

THE INFORMATION CONTAINED IN THIS SET OF DRAWINGS IS THE PROPERTY OF FDH VELOCITY. NO PART OF THIS DRAWING IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT THE WRITTEN PERMISSION OF FDH VELOCITY.

FDH PROJECT NUMBER:
15B-JTT1400

SITE NAME:
MONTVILLE 3, CT

SITE NUMBER:
CT10016-A-05

SITE ADDRESS:
**71 MOXLEY ROAD,
 UNCASVILLE, CT 06382**

SHEET TITLE
 GENERAL NOTES

SHEET NUMBER
N-2

SPLIT-PIPE REINFORCEMENT NOTES:

- CONTRACTOR MUST FIELD VERIFY ALL LENGTHS PRIOR TO CONSTRUCTION.
- 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.

SURFACE PREPARATION:

- PREPARE SURFACE TO BE WELDED BY REMOVING PAINT OR OIL. SURFACE SHALL BE CLEAN, DRY, AND FREE OF OILING 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.
- INTERIOR (SIDE IN CONTACT WITH LEG) OF REINFORCEMENT WITH SILICON GEL TO FORM GASKET BETWEEN CONTACT SURFACE.

SPLIT PIPE WELDING:

- 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.
- 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 PROCEDURE. CONTRACTOR SHALL PROVIDE QUALIFICATION WELDERS TO THE ENGINEER PRIOR TO COMMENCEMENT OF THE WORK.
- CONTRACTOR RESPONSIBLE FOR TEMPORARY HEAT SHIELDING AS REQUIRED DURING WELDING.
- ALL WELDS TO BE VISUALLY INSPECTED BY A CERTIFIED WELD INSPECTOR PER AWS D1.1.
- CONTRACTOR TO BE AWARE THAT EXISTING TOWER LEG THICKNESS IS EXTREMELY THIN. CONTRACTOR TO USE CAUTION WHEN WELDING TO PREVENT LEG BLOW OUT.

COLD GALVANIZATION/SURFACE PREPARATION NOTES:

- CONTRACTOR TO USE ZINCA OR ZRC COLD GALVANIZATION COMPOUNDS OR APPROVED EQUIVALENT.
- PREPARE RUSTED/CORRODED SURFACE FOR TREATMENT ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR TO APPLY (2) COATS OF COLD GALVANIZATION COMPOUND PER MANUFACTURER'S RECOMMENDATION. DRYING AND CURING TIMES MUST BE UTILIZED PER MANUFACTURER'S RECOMMENDATION.
- APPLY ALL COATINGS BY BRUSH IN CALM WIND CONDITIONS. THE USE OF AEROSOL IS NOT PERMITTED.
- IF THE TOWER IS PAINTED, BRUSH PAINT ALL TREATED AREAS TO PREVENT TOWER AFTER COLD GALVANIZATION COMPOUND IS ALLOWED TO CURE.

STEEL:

- ALL STRUCTURAL STEEL SHALL BE FABRICATED AND ERRECTED IN ACCORDANCE WITH THE LATEST AISC CODE AND ASTM SPECIFICATIONS.
- ALL CONNECTIONS OF STRUCTURAL STEEL MEMBERS SHALL BE MADE USING SPECIFIED WELDS WITH WELDING ELECTRODES E 70XX OR SPECIFIED HIGH STRENGTH BOLTS TO BE ASTM A325N, THREAD INCLUDED WITH SHEAR PLANE (UNLESS OTHERWISE NOTED).
- ALL BOLTED CONNECTIONS TO BE INSTALLED TO A SNUG-TIGHTENED CONDITION IN ACCORDANCE WITH AISC 13 PART 10.2. 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 BOLTS TO PROVIDE FULL STRENGTH EVALUATION. ALL NUTS SHALL BE HEAVY HEX UNLESS OTHERWISE NOTED.
- 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 RE-GALVANIZED TO ACHIEVE A MINIMUM OF 4 MILS DRY FILM PER ASTM A 780.
- ALL SHOP AND FIELD WELDING SHALL BE DONE BY WELDERS WHOSE QUALIFICATIONS SHALL BE VERIFIED BY THE ENGINEER OF RECORD. CONTRACTOR IS RESPONSIBLE TO PROVIDE THE TYPE OF WELDING PROCEDURE TO BE USED. CONTRACTOR SHALL PROVIDE THE TYPE OF WELDING PROCEDURE TO BE USED. CONTRACTOR SHALL PROVIDE THE TYPE OF WELDING PROCEDURE TO BE USED. CONTRACTOR SHALL PROVIDE THE TYPE OF WELDING PROCEDURE TO BE USED.
- STRUCTURAL STEEL MAY NOT BE TORCH CUT FOR FABRICATION. ALL STEEL FABRICATION MUST FOLLOW AISC STANDARDS.

MISC. NOTES:

- ALL MODIFICATIONS ARE ASSUMED TO BE MADE ON AN EMPTY TOWER. CONTRACTOR IS RESPONSIBLE TO MAKE PROVISIONS TO SUPPORT EXISTING TRANSMISSION LINES. MODIFICATIONS MUST BE CONTINUOUS THROUGH ALL AREAS SHOWN.
- CONTRACTOR FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.

FABRICATION NOTES:

- 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.
- NEW STEEL MEMBERS MUST HAVE SINGLE DRILLED HOLES, SLOTTED AND DOUBLE DRILLED HOLES ARE NOT ACCEPTABLE MEANS OF FABRICATION.

SUBSTITUTES AND/OR EQUALS:

- IF CONTRACTOR WISHES TO FURNISH OR USE A SUBSTITUTE ITEM OF MATERIAL OR EQUIPMENT, CONTRACTOR SHALL FIRST MAKE SURE THAT THE SUBSTITUTE ITEM IS OF EQUAL OR BETTER QUALITY AND PERFORMANCE. CONTRACTOR SHALL FIRST MAKE SURE THAT THE SUBSTITUTE ITEM IS OF EQUAL OR BETTER QUALITY AND PERFORMANCE. CONTRACTOR SHALL FIRST MAKE SURE THAT THE SUBSTITUTE ITEM IS OF EQUAL OR BETTER QUALITY AND PERFORMANCE. CONTRACTOR SHALL FIRST MAKE SURE THAT THE SUBSTITUTE ITEM IS OF EQUAL OR BETTER QUALITY AND PERFORMANCE.

GENERAL NOTES:

- 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 FOR THE WORK TO BE PERFORMED. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS NECESSARY FOR THE WORK TO BE PERFORMED. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS NECESSARY FOR THE WORK TO BE PERFORMED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS, ELEVATIONS AND EXISTING CONDITIONS AT THE SITE. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS NECESSARY FOR THE WORK TO BE PERFORMED. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS NECESSARY FOR THE WORK TO BE PERFORMED.
- CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS NECESSARY FOR THE WORK TO BE PERFORMED. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS NECESSARY FOR THE WORK TO BE PERFORMED.
- IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE THE ERECTION PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS NECESSARY FOR THE WORK TO BE PERFORMED.
- CONTRACTOR SHALL PROMPTLY REMOVE ANY & ALL DEBRIS FROM THE WORK AREA AS BEST AS POSSIBLE TO RECONSTRUCTION CONDITION.

CONTRACTOR QUALIFICATION NOTES:

- ALL REPAIRS SHALL BE PERFORMED BY A TOWER CONTRACTOR WITH A MINIMUM 5 YEARS EXPERIENCE IN TOWER ERECTION AND RETROFIT WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS NECESSARY FOR THE WORK TO BE PERFORMED.
- CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS NECESSARY FOR THE WORK TO BE PERFORMED.
- ALL SUBMITTAL INFORMATION MUST BE SENT TO FDH ENGINEERING, INC. 8621 MERIDEN DRIVE, RALEIGH NC, 27616, TEL: (919) 785-1012. THESE SPECIFICATIONS OR CHANGES WITHOUT CONSENT FROM FDH ENGINEERING, INC. WILL VOID ANY RESPONSIBILITY OR LIABILITY FOR DAMAGE (MATERIAL OR PHYSICAL) TOWARDS FDH ENGINEERING, INC.
- ALL CONSTRUCTION TO BE IN ACCORDANCE WITH THE TIA-1019-A STANDARD.

JOB SITE SAFETY & NOTES:

- 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 CONTRACTOR OF THEIR OBLIGATIONS, RESPONSIBILITIES AND OTHER OBLIGATIONS INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, PERFORMANCE, SUPERINTENDING OR COORDINATING ALL PORTIONS OF THE WORK OF CONSTRUCTION IN ACCORDANCE WITH THE REQUIREMENTS OF ALL APPLICABLE 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.

STEEL GRADE SCHEDULE

SCOPE	SHAPE	GRADE	YIELD STRENGTH (F _y)	ULTIMATE STRENGTH (F _u)
ALL	PIPE	A500 GR. C	46 KSI	62 KSI
ALL	PLATE	A36	36 KSI	58 KSI
ALL	U-BOLT	A36	36 KSI	58 KSI

PREPARED BY:



ENGINEERING INNOVATION
1000 BROADWAY, SUITE 200
ROSELAND, NJ 07068
PHONE: 973-992-1100
FAX: 973-992-1101

PREPARED FOR:



5900 BROOKER SOUND PARKWAY, NW
ROSA RAYON, FL 32687
(800) 457-SITE



04/22/15
DENNIS D. ABEL, PE
CONNECTICUT LIC. NO. 23247

DRAWN BY: DRW
CHECKED BY: MSB
ENG. APPROV: DDA

SUBMITTALS		
DATE	DESCRIPTION	REV
04/22/15	CONSTRUCTION	0

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FDH PROJECT NUMBER:
15BJT1400

SITE NAME:
MONTVILLE 3, CT

SITE NUMBER:
CT10016-A-05

SITE ADDRESS:
**71 MOXLEY ROAD,
UNCASVILLE, CT 06382**

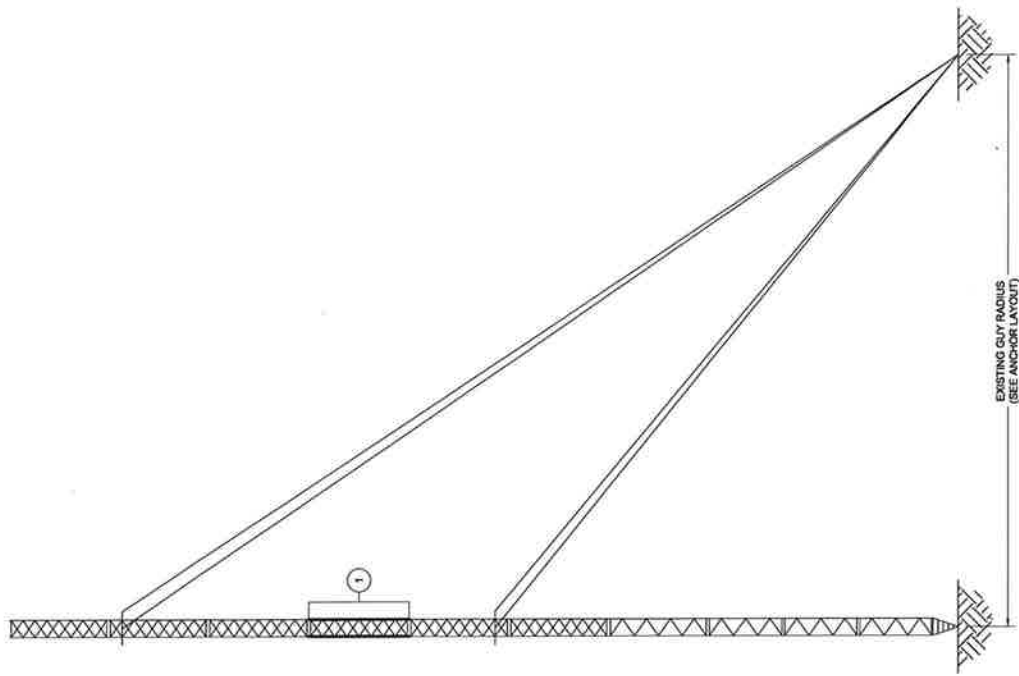
SHEET TITLE:
MODIFICATION SCHEDULE

SHEET NUMBER:
S-1

TOWER MODIFICATION SCHEDULE

NO.	TYPE OF MODIFICATION	BTM. ELEV.	TOP ELEV.	SHEET
1	INSTALLATION OF NEW SPLIT PIPE LEG REINFORCEMENT. TOWER FINISH: GALVANIZED	110.0±	130.0±	S-2

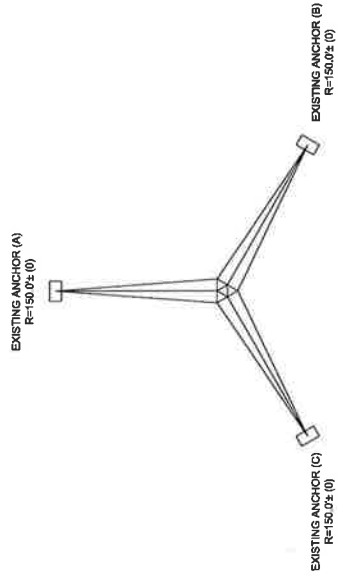
- APPURTENANCES MAY INTERFERE WITH PROPOSED MODIFICATIONS.
- ALL MODIFICATIONS TO BE INSTALLED CONTINUOUSLY THROUGH EXISTING EQUIPMENT. ALL EXISTING EQUIPMENT NOT TO BE DAMAGED OR TAKEN OFF-AIR DURING INSTALLATION.
- ANTENNA GRAPHICS NOT SHOWN FOR CLARITY. SEE STRUCTURAL ANALYSIS REPORT FOR EXISTING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



- 190.0'
- 170.0'
- 150.0'
- 130.0'
- 110.0'
- 90.0'
- 70.0'
- 50.0'
- 35.0'
- 20.0'
- 5.0'
- 0.0'

EXISTING GUY RADIUS
(SEE ANCHOR LAYOUT)

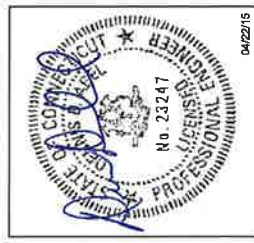
TOWER ELEVATION
SCALE: NTS



ANCHOR LAYOUT
SCALE: NTS

PREPARED BY:
FDH VELOCITEL
 ENGINEERING INNOVATION
 VELOCITY, INC. 400 PAVILION
 ROAD SUITE 200 TOWN HALL PLAZA
 WESTPORT, MA 01886
 PHONE 978-335-7000 FAX 978-335-7171

PREPARED FOR:
SBA
 5800 BROOKFIELD PARKWAY, NW
 BOCA RATON, FL 33487
 (800) 487-5776



DATE: 04/22/15
 DRAWN BY: DRW
 CHECKED BY: MSG
 ENG. APPROV.: DDA

SUBMITTALS	
DATE	DESCRIPTION
	CONSTRUCTION

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FDM PROJECT NUMBER:
15B-JIT1400

SITE NAME:
MONTVILLE 3, CT

SITE NUMBER:
CT10016-A-05

SITE ADDRESS:
**71 MOXLEY ROAD,
 UNCASVILLE, CT 06382**

SHEET TITLE
**SPLIT PIPE LEG REINFORCEMENT
 DETAILS**

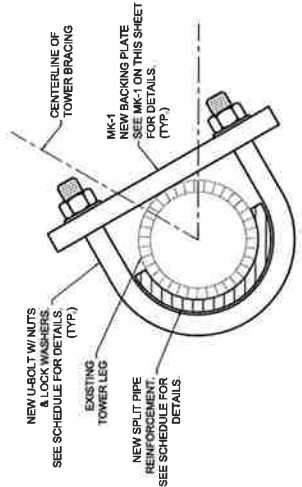
SHEET NUMBER
S-2

SPLIT PIPE LEG REINFORCEMENT INSTALLATION SCHEDULE

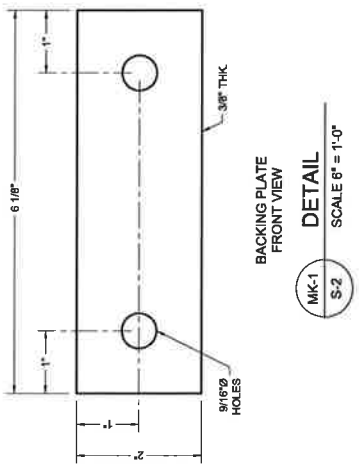
ELEVATION	EXISTING LEG SIZE	NEW SPLIT PIPE	PRELIMINARY LENGTH	BACKING PLATE	U-BOLT W/ NUTS & LOCK WASHERS
110.0± TO 130.0±	P2.5X0.276 (2.875 OD)	(3) 180° P3X0.300 (3.5 OD)	20'-0"±	(69) MK-1	(69) 1729

CONTRACTOR TO INSTALL NEW SPLIT PIPE REINFORCEMENT CONTINUOUSLY THROUGH EXISTING EQUIPMENT.

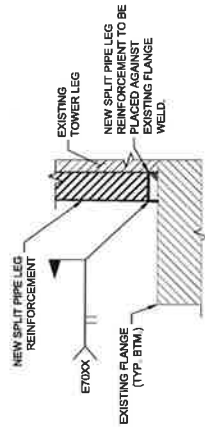
CONTRACTOR TO NOTCH NEW SPLIT PIPE REINFORCEMENT AROUND EXISTING FLANGE BOLTS AS REQUIRED. CONTRACTOR NOT TO REMOVE MORE THAN HALF OF NEW SPLIT PIPE REINFORCEMENT AREA AT FLANGE CONNECTION. (AT LEAST HALF OF THE TOTAL SPLIT PIPE REINFORCEMENT AREA MUST BE WELDED TO BOTTOM FLANGES ONLY.)



2 S-2
 SECTION
 NTS
 SPLIT PIPE LEG REINFORCEMENT PLAN VIEW

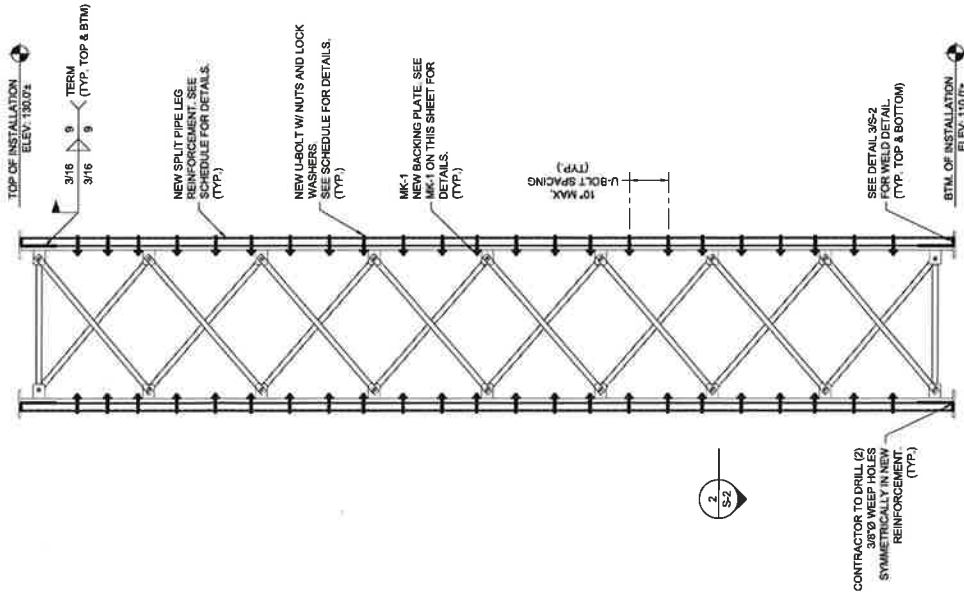


1 MK-1 S-2
 DETAIL
 SCALE 8" = 1'-0"



3 S-2
 DETAIL
 NTS
 TERMINATION WELD DETAIL ELEVATION VIEW

CONTRACTOR TO CONTACT EOR IF MAX. U-BOLT SPACING CANNOT BE MET.



1 S-2
 ELEVATION
 SCALE: 3/8" = 1'-0"
 SPLIT PIPE LEG REINFORCEMENT ELEVATION VIEW

EXISTING FLANGE BOLTS NOT SHOWN FOR CLARITY.