

August 12, 2019

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

**RE: Request of Sigfox NIP LLC for an Order to Approve the Shared Use of an Existing Tower at 93 Old Aminty Road, Bethany, CT 06524**

Dear Ms. Bachman:

Pursuant to Connecticut General Statutes (“C.G.S.”) §16-50aa, as amended, Sigfox NIP LLC (“Sigfox”) hereby requests an order from the Connecticut Siting Council (“Council”) to approve the shared use by Sigfox of an existing telecommunication tower at 93 Old Aminty Road, Bethany, CT 06524(the “Property”). The existing 338-foot self-support tower is owned by American Tower Corp. (“ATC”), the underlying property is also owned by ATC. Sigfox requests that the Council find that the proposed shared use of the ATC tower satisfies the criteria of C.G.S. §16-50aa and issue an order approving the proposed shared use. A copy of this filing is being mailed to the Town of Killingly and ATC.

### **Background**

The existing ATC facility consists of a 338-foot self-support tower located within an approximate 10,000 square foot compound positioned +/- 300-feet east of Old Aminty Road. There are existing carrier antennas located at various elevations throughout the tower (see Sheet C-1 of Exhibit 1 for more information). Equipment associated with these antennas is located at various positions within the tower compound.

Sigfox is licensed by the Federal Communications Commission (“FCC”) to provide wireless services throughout the State of Connecticut. Sigfox and ATC have agreed to the proposed shared use of the 93 Old Aminty Road, Bethany, CT 06524 tower pursuant to mutually acceptable terms and conditions. Likewise, Sigfox and ATC have agreed to the proposed installation of equipment cabinets within an existing adjacent utility building located east of the tower within the compound. ATC has authorized Sigfox to apply for all necessary permits and approvals that may be required to share the existing tower. (See the attached Letter of Authorization).

Sigfox proposes to add one (1) omni antenna, one (1) line of coaxial cable; one (1) filter, and one (1) TMA on the existing tower at 147-feet above ground level. They propose to add one (1) equipment cabinet within the adjacent ATC utility building. There are no batteries included in the SIGFOX cabinet, therefore, there is no back-up option for this site.

**T-SQUARED SITE SERVICES**  
2500 Highland Road | Suite 201  
Hermitage, PA 16148 | 724.308.7855  
[www.t-sqrd.com](http://www.t-sqrd.com)



C.G.S. § 16-50aa(c)(1) provides that, upon written request for approval of a proposed shared use, “if the Council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns, the council shall issue an order approving such a shared use.” Sigfox respectfully submits that the shared use of the tower satisfies these criteria.

**A. Technical Feasibility.** The existing ATC tower is structurally capable of supporting Sigfox’s proposed improvements. The proposed shared use of this tower is, therefore, technically feasible. A Feasibility Structural Analysis Report (“Structural Report”) prepared for this project confirms that this tower can support Sigfox’s proposed loading. A copy of the Structural Report has been included in this application.

**B. Legal Feasibility.** Under C.G.S. § 16-50aa, the Council has been authorized to issue order approving the shared use of an existing tower such as the ATC tower. This authority complements the Council’s prior-existing authority under C.G.S. § 16-50p to issue orders approving the construction of new towers that are subject to the Council’s jurisdiction. In addition, § 16-50x(a) directs the Council to “give such consideration to the other state laws and municipal regulations as it shall deem appropriate” in ruling on requests for the shared use of existing tower facilities. Under the statutory authority vested in the Council, an order by the Council approving the requested shared use would permit the Applicant to obtain a building permit for the proposed installations.

**C. Environmental Feasibility.** The proposed shared use of the ATC tower would have a minimal environmental effect for the following reasons:

1. The proposed installation of one (1) omni antenna, one (1) line of coaxial cable; one (1) filter, and one (1) TMA on the existing tower at 147-feet above ground level, would have no visual impact on the area of the tower. Sigfox’s cabinet will be installed within the facility compound. Sigfox’s shared use of this tower therefore, does not cause any significant change or alteration in the physical or environmental characteristics of the existing site.
2. Operation of Sigfox’s antennas at this site would not exceed the RF emissions standard adopted by the Federal Communications Commission (“FCC”). Included in the EME report of this filing are the approximation tables that demonstrate that Sigfox’s proposed facility will operate well within the FCC RF emissions safety standards.
3. Under ordinary operating conditions, the proposed installation would not require the use of any water or sanitary facilities and would not generate air emissions or discharges to water bodies or sanitary facilities. After construction is complete the proposed installations would not generate any increased traffic to the ATC facility other



than periodic maintenance. The proposed shared use of the ATC tower, would, therefore, have a minimal environmental effect, and is environmentally feasible.

- D. **Economic Feasibility.** As previously mentioned, Sigfox has entered into an agreement with ATC for the shared use of the existing facility subject to mutually agreeable terms. The proposed tower sharing is, therefore, economically feasible. (Please see included authorization.)
  
- E. **Public Safety Concerns.** As discussed above, the tower is structurally capable of supporting Sigfox's full array of one (1) omni antenna, one (1) line of coaxial cable; one (1) filter, and one (1) TMA and all related equipment. Sigfox is not aware of any public safety concerns relative to the proposed sharing of the existing ATC tower.

### **Conclusion**

For the reasons discussed above, the proposed shared use of the existing Crown Castle tower at 93 Old Aminty Road, Bethany, CT 06524 satisfies the criteria state in C.G.S. §16-50aa and advances the Council's goal of preventing the unnecessary proliferation of towers in Connecticut. The Applicant, therefore, respectfully requests that the Council issue an order approving the proposed shared use.

Sincerely,

Craig A. Russo, P.E.  
Engineer  
T-Squared Site Services  
2500 Highland Road, Suite 201  
Hermitage, PA 16148  
724.308.7855  
craig.r@t-sqrd.com

**T-SQUARED SITE SERVICES**  
2500 Highland Road | Suite 201  
Hermitage, PA 16148 | 724.308.7855  
[www.t-sqrd.com](http://www.t-sqrd.com)



Attachments:

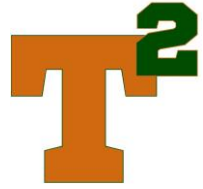
- Exhibit-1: Compound Plan and Elevation Depicting the Planned Changes
- Exhibit-2: Structural Modification Report
- Exhibit-3: General Power Density Table report (RF Emissions Analysis Report)
- Exhibit-4: Letter of Authorization
- Exhibit-5: Proof of Mailing to Land Use & Zoning Departments
- Exhibit-6: Proof of Mailing to Tower Owner/Property Owner
- Exhibit-7: Proof of Mailing to Chief Elected Official

Copies to:

Ms. Isabel Kerns, Land Use Administrator, Zoning Enforcement Officer, Wetlands Enforcement Officer  
Bethany Town Hall  
40 Peck Road  
Bethany, CT 06524-3322

Mr. Jason Hastie  
Account Project Manager, Vertical Markets/Broadcast Repack  
American Tower Corporation  
10 Presidential Way  
Woburn, MA 01801

Ms. Paula Cofrancesco, First Selectman  
Bethany Town Hall  
40 Peck Road  
Bethany, CT 06524-3322



**EXHIBIT 1:**

**Compound Plan and Elevation Depicting the Planned Changes**



# SIGFOX

One network A billion dreams

## SITE NUMBER: CT9122

93 OLD AMINTY ROAD  
BETHANY, CT 06524  
NEW HAVEN COUNTY



Know what's below.  
Call before you dig.



2500 HIGHLAND ROAD, SUITE 201  
HERMITAGE, PA 16148  
www.t-sqrd.com

COPYRIGHT © 2016 T-SQUARED SITE SERVICES, LLC

**SIGFOX**  
One network A billion dreams  
SIGFOX, INC.  
545 BOYLSTON STREET  
10TH FLOOR  
BOSTON, MA 02116

### SITE INFORMATION

SCOPE OF WORK: PROJECT CONSISTS OF INSTALLING THE FOLLOWING:

- (1) PROCOM CXL-900-3LW OMNI ANTENNA
- (1) LNA
- (1) CAVITY FILTER
- (1) 1/2" COAX CABLE
- (1) RG6 CABLE
- (1) EQUIPMENT CABINET FOR BASE STATION

SIGFOX SITE NUMBER: CT9122

911 SITE ADDRESS: 93 OLD AMINTY ROAD  
BETHANY, CT 06524

TOWER OWNER: AMERICAN TOWER CORP.  
ADDRESS: 116 HUNTINGTON AVE. 11TH FLOOR  
BOSTON, MA 02116

OWNER SITE NUMBER: 88008

LATITUDE (NAD 83): 41.40475°  
LONGITUDE (NAD 83): -72.99998°

JURISDICTION: NEW HAVEN COUNTY

PARCEL OWNER: AMERICAN TOWER CORP.  
ADDRESS: 116 HUNTINGTON AVE. 11TH FLOOR  
BOSTON, MA 02116

GROUND ELEVATION: 620' AMSL

STRUCTURE TYPE: SELF SUPPORT

STRUCTURE HEIGHT: 339' (AGL)

### VICINITY MAP



### DRAWING INDEX

T-1	TITLE SHEET	Digitally signed by Gary Clower DN: c=US, st=Pennsylvania, l=Hermitage, o=T-Squared Site Services, cn=Gary Clower, email=gary.c@t-sqrd.com Date: 2019.07.03 14:42:20 -04'00'
C-1	COMPOUND PLAN & ELEVATION	
A-1	ANTENNA PLAN AND DETAILS	
E-1	ELECTRICAL DETAILS	
G-1	GROUNDING DETAILS	

### DO NOT SCALE DRAWINGS

THESE DRAWINGS ARE FORMATTED TO BE FULL-SIZE AT 11"X17". CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE DESIGNER / ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR MATERIAL ORDERS OR BE RESPONSIBLE FOR THE SAME. CONTRACTOR SHALL USE BEST MANAGEMENT PRACTICE TO PREVENT STORM WATER POLLUTION DURING CONSTRUCTION.

### CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING CODES.

- 2015 INTERNATIONAL BUILDING CODE
- 2018 CONNECTICUT BUILDING CODE
- 2017 NATIONAL ELECTRIC CODE
- 2015 INTERNATIONAL ENERGY CONSERVATION CODE
- 2015 INTERNATIONAL EXISTING BUILDING CODE
- 2015 INTERNATIONAL FIRE CODE
- 2015 INTERNATIONAL MECHANICAL CODE
- 2015 INTERNATIONAL RESIDENTIAL CODE

### APPROVAL BLOCK

	DATE	APPROVED	APPROVED AS NOTED	DISAPPROVED REVISE
PROPERTY OWNER		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SITE ACQUISITION		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CONSTRUCTION MANAGER		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ZONING		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RF ENGINEER		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### PROJECT TEAM

APPLICANT: SIGFOX, INC.  
545 BOYLSTON STREET, 10TH FLOOR  
BOSTON, MA 02116

PROJECT MANAGEMENT FIRM: T-SQUARED SITE SERVICES, LLC  
2500 HIGHLAND ROAD, SUITE 201  
HERMITAGE, PA 16148

ENGINEERING FIRM: T-SQUARED SITE SERVICES, LLC  
2500 HIGHLAND ROAD, SUITE 201  
HERMITAGE, PA 16148

### REVISIONS

REVISED CD	DATE	BY	REV
PRELIMINARY	01.25.19	JW	A
	7.3.19	KE	B

### PROFESSIONAL SEAL



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

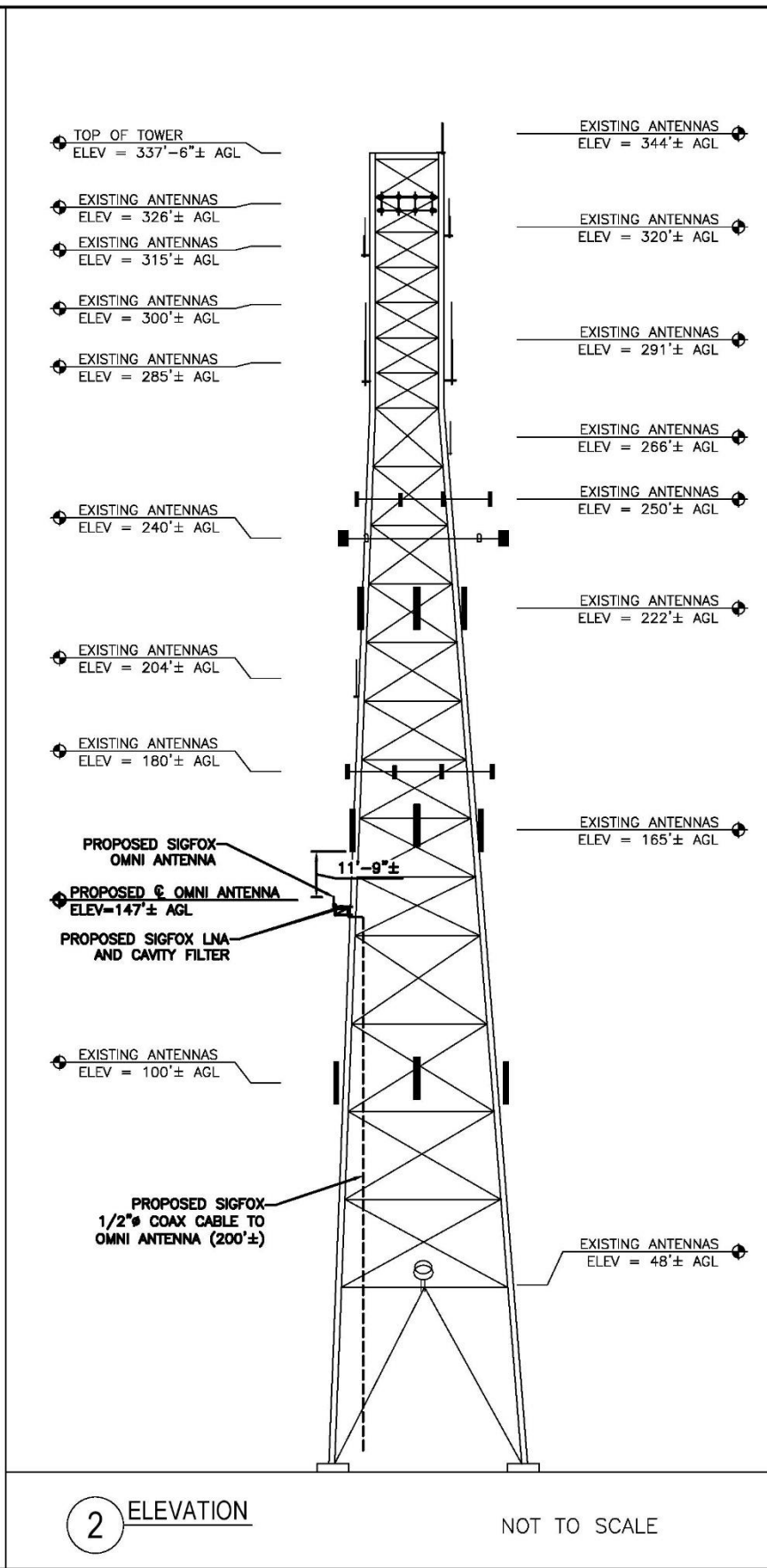
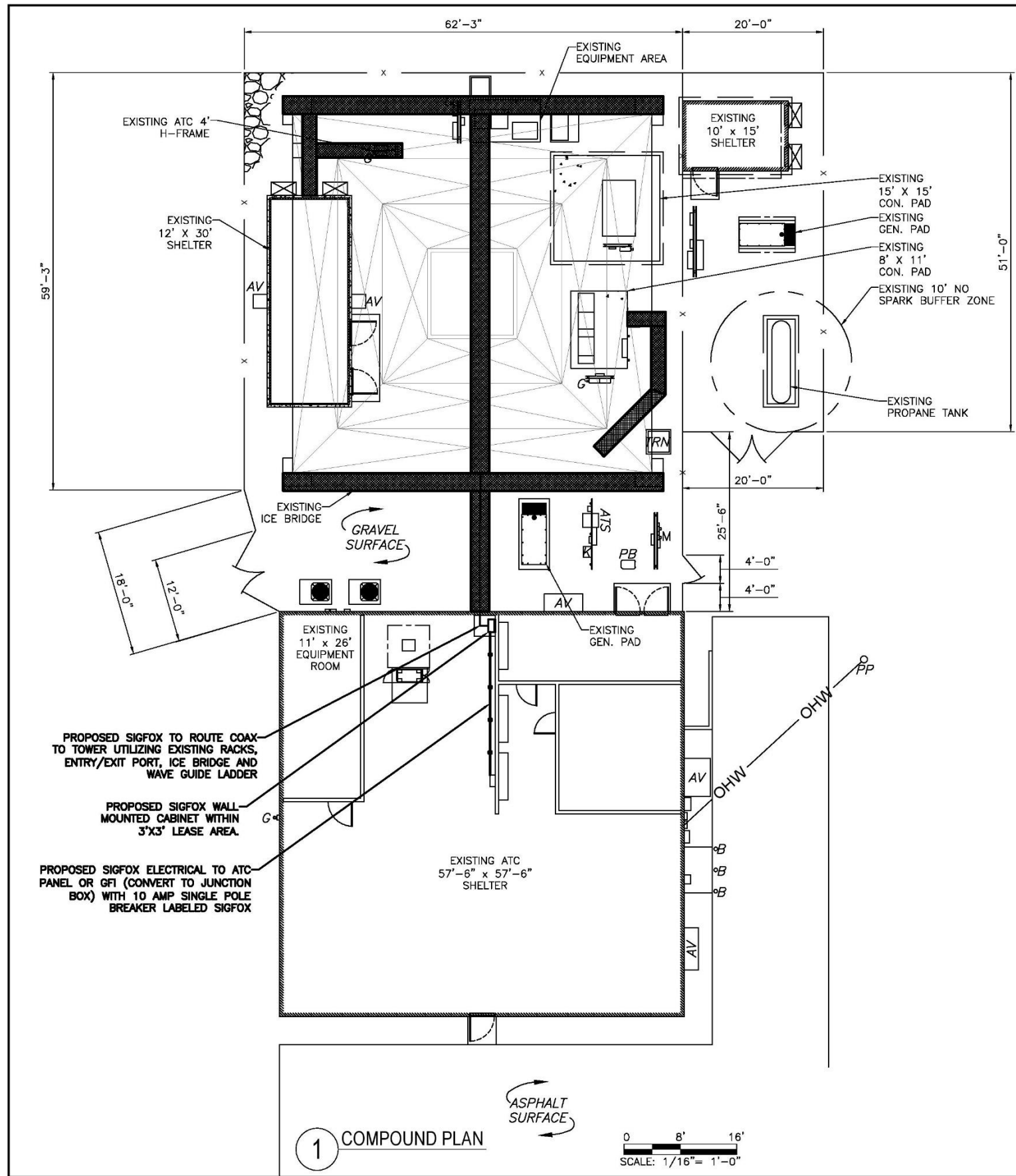
### SITE INFORMATION

CT9122  
93 OLD AMINTY ROAD  
BETHANY, CT 06524  
NEW HAVEN COUNTY

### SHEET TITLE

## TITLE SHEET

SHEET NUMBER	SCALE: AS NOTED
<b>T-1</b>	DRAWN BY: JW
	CHECKED BY: KE
	DATE: 7/2/19



**T<sup>2</sup>**  
**T-SQUARED**  
**SITE SERVICES**  
 2500 HIGHLAND ROAD, SUITE 201  
 HERMITAGE, PA 16148  
 www.t-squared.com  
 COPYRIGHT © 2016 T-SQUARED SITE SERVICES, LLC

**SIGFOX**  
 One network A billion dreams  
 SIGFOX, INC.  
 545 BOYLSTON STREET  
 10TH FLOOR  
 BOSTON, MA. 02116

REVISIONS

NO.	DESCRIPTION	DATE	BY	REV

REVISED CD	DATE	BY	REV
7.3.19	KE	B	
PRELIMINARY	01.25.19	JW	A

PROFESSIONAL SEAL

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE INFORMATION

CT9122  
 93 OLD AMINTY ROAD  
 BETHANY, CT 06524  
 NEW HAVEN COUNTY

SHEET TITLE

**COMPOUND PLAN & ELEVATION**

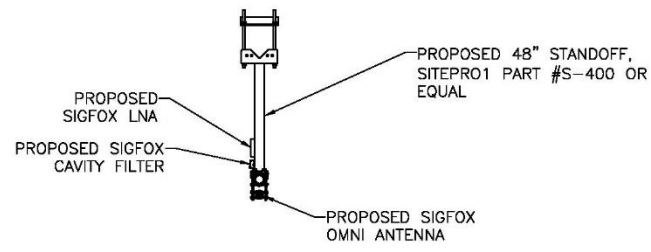
SHEET NUMBER: **C-1**

SCALE: AS NOTED

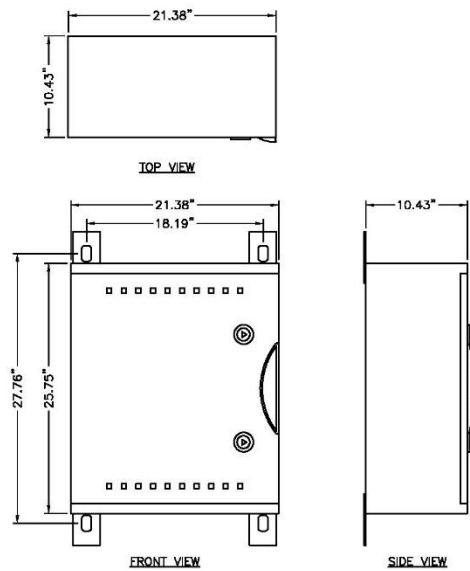
DRAWN BY: JW

CHECKED BY: KE

DATE: 7/2/19

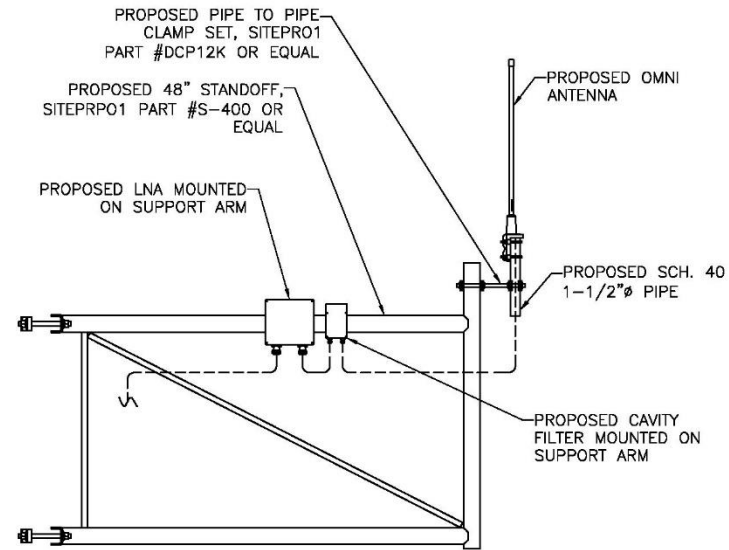


**1** PROPOSED ANTENNA PLAN  
N.T.S. APPROX TRUE NORTH

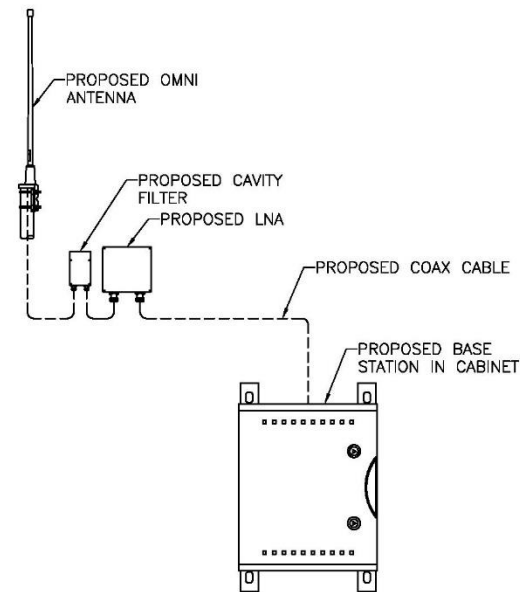


**4** SIGFOX EQUIPMENT CABINET  
N.T.S.

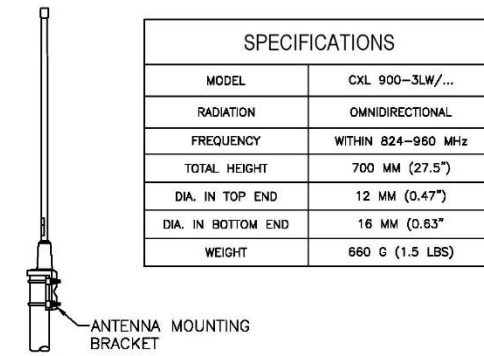
**5** NOT USED  
N.T.S.



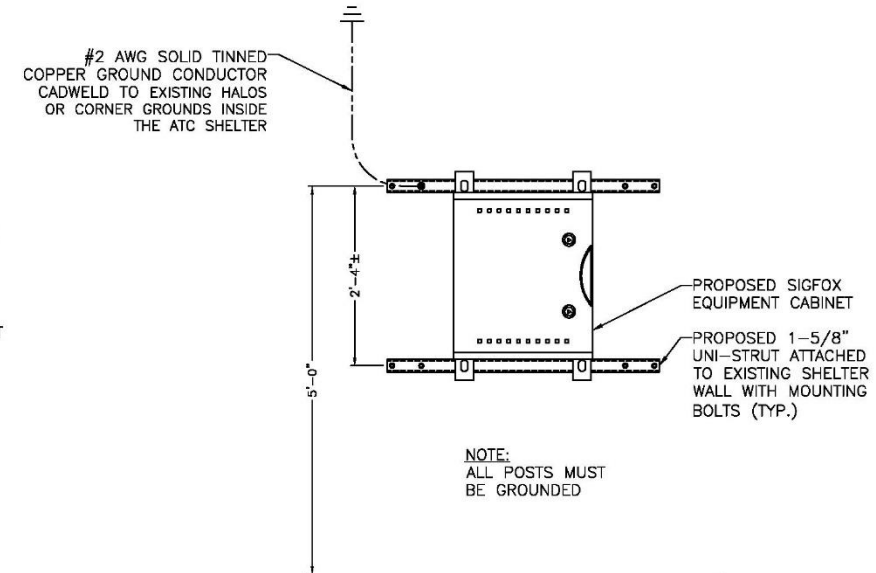
**2** ANTENNA MOUNTING DETAIL  
N.T.S.



**6** EQUIPMENT SCHEMATIC  
N.T.S.



**3** OMNI ANTENNA DETAIL  
N.T.S.



**7** H-FRAME / ICE BRIDGE DETAIL  
N.T.S.



2500 HIGHLAND ROAD, SUITE 201  
HERMITAGE, PA 16148  
www.t-squared.com

**SIGFOX**  
One network A billion dreams  
SIGFOX, INC.  
545 BOYLSTON STREET  
10TH FLOOR  
BOSTON, MA. 02116

REVISIONS

REVISED CD	DATE	BY	REV
7.3.19	KE	B	
01.25.19	JW	A	

PROFESSIONAL SEAL



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE INFORMATION

CT9122  
93 OLD AMINTY ROAD  
BETHANY, CT 06524  
NEW HAVEN COUNTY

SHEET TITLE

**ANTENNA PLAN  
AND DETAILS**

SHEET NUMBER	SCALE: AS NOTED
<b>A-1</b>	DRAWN BY: JW
	CHECKED BY: KE
	DATE: 7/2/19



**ELECTRICAL NOTES**

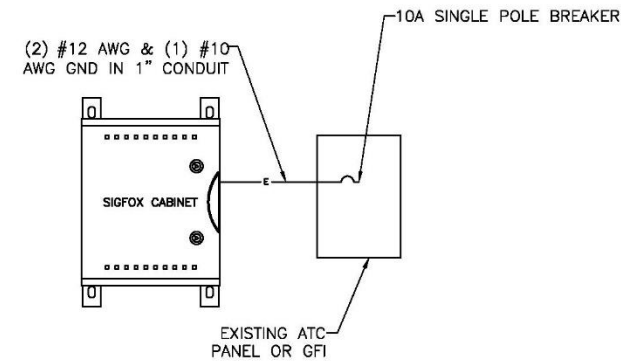
- ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRIC CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
- ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED SPECIFICATION REQUIREMENTS.
- THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
- GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
- ELECTRICAL AND TELCO WIRING AT EXPOSED INDOOR LOCATIONS SHALL BE IN ELECTRICAL METALLIC TUBING OR RIGID NONMETALLIC TUBING (RIGID SCHEDULE 40 PVC OR RIGID SCHEDULE 80 PVC FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) (AS PERMITTED BY CODE).
- ELECTRICAL AND TELCO WIRING AT CONCEALED INDOOR LOCATIONS SHALL BE IN ELECTRICAL METALLIC TUBING, ELECTRICAL NONMETALLIC TUBING, OR RIGID NONMETALLIC TUBING (RIGID SCHEDULE 40 PVC AS PERMITTED BY CODE).
- ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING, ABOVE GRADE AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS (RGS) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
- BURIED CONDUIT SHALL BE RIGID NONMETALLIC CONDUIT (RIGID SCHEDULE 40 PVC); DIRECT BURIED IN AREAS OF OCCASIONAL LIGHT TRAFFIC, ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY TRAFFIC.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT SHALL BE USED INDOORS AND OUTDOORS IN AREAS WHERE VIBRATION OCCURS AND FLEXIBILITY IS NEEDED.
- ELECTRICAL WIRING SHALL BE COPPER WITH TYPE THHN, THWN-2, OR THIN INSULATION.

ELECTRICAL PANEL									
PANEL NAME: N/A		120/240 VOLTS		3 WIRE		1 PHASE		MAIN BREAKER: 100A	
CCT NO	LOAD DESCRIPTION	LOAD (VA)	POLE	AMP	AMP	POLE	LOAD (VA)	LOAD DESCRIPTION	CCT NO
1	SIGFOX BASE UNIT	1440	1	10					2
3									4
5									6
7									8
9									10
11									12
TOTAL CONNECTED LOAD (VA): 1,440 MAXIMUM LOAD CURRENT (A): 6 PANEL CAPACITY (A): 100 SPARE CAPACITY (A): 96									

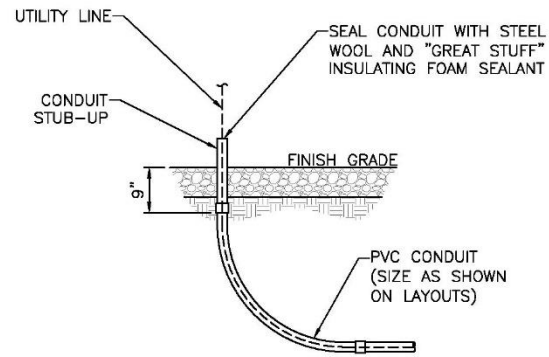
**1 PANEL SCHEDULE**  
N.T.S.

**ELECTRICAL NOTES**

ISOLATION OF SIGFOX POWER MUST BE MAINTAINED USING A 10 AMP SINGLE POLE BREAKER, LABELED SIGFOX, BETWEEN POWER SOURCE AND SIGFOX EQUIPMENT.  
 SUPPLY NEW BREAKER IN EXISTING PANELS AND/OR NEW BREAKERS IN DISCONNECT IF NEEDED.

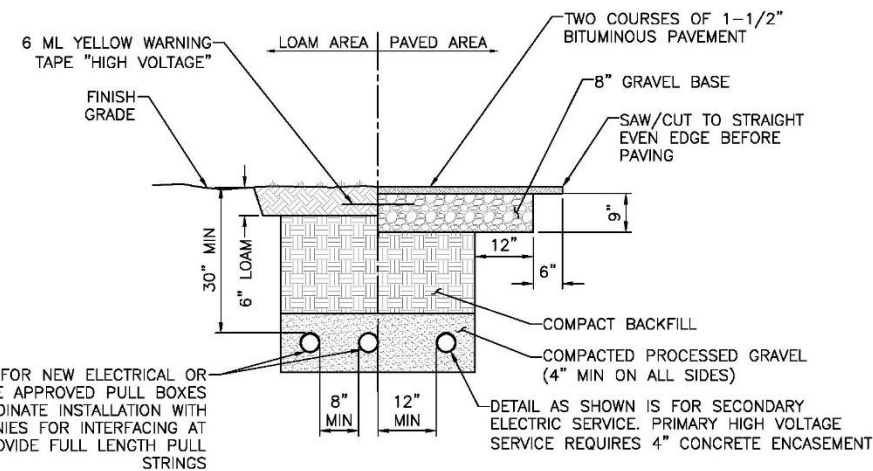


**2 ELECTRICAL ONE-LINE DIAGRAM**  
N.T.S.



NOTE: CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF CONDUIT STUB-UP

**3 CONDUIT STUB-UP DETAIL (IF NEEDED)**  
N.T.S.



SCHEDULE 40 CONDUITS FOR NEW ELECTRICAL OR TELCO SERVICES. PROVIDE APPROVED PULL BOXES AS REQUIRED, AND COORDINATE INSTALLATION WITH ALL UTILITY COMPANIES FOR INTERFACING AT TERMINATION POINTS. PROVIDE FULL LENGTH PULL STRINGS

**4 UTILITY TRENCH DETAIL (IF NEEDED)**  
N.T.S.

**GENERAL NOTES:**

- THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITIES COMPANY OR OTHER PUBLIC AUTHORITIES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY, OR MUNICIPAL AUTHORITIES.
- THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS

- PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR THE OVERALL INTENT OF THESE DRAWINGS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OF THIS FACILITY.
- THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO

- COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- CONTRACTOR SHALL VERIFY ANTENNA ELEVATIONS AND AZIMUTHS WITH RF ENGINEERING PRIOR TO INSTALLATION.
- TRANSMITTER EQUIPMENT AND ANTENNAS ARE DESIGNED TO MEET ANSI/EIA/TIA 222-G (NJ EDITION) REQUIREMENTS.

- ALL STRUCTURAL ELEMENTS SHALL NOT BE DIPPED GALVANIZED STEEL.
- CONTRACTOR SHALL MAKE A UTILITY "ONE CALL" TO LOCATE ALL UTILITIES PRIOR TO EXCAVATING.
- IF ANY UNDERGROUND UTILITIES OR STRUCTURES EXIST BENEATH THE PROJECT AREA, CONTRACTOR MUST LOCATE IT AND CONTACT THE APPLICANT & THE OWNER'S REPRESENTATIVE.
- OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION BY TECHNICIANS APPROXIMATELY 2 TIMES PER MONTH.

- THIS PLAN IS SUBJECT TO ALL EASEMENTS AND RESTRICTIONS OF RECORD.
- THE PROPOSED FACILITY WILL CAUSE ONLY A "DE MINIMIS" INCREASE IN STORMWATER RUNOFF. THEREFORE, NO DRAINAGE STRUCTURES ARE PROPOSED.
- NO SIGNIFICANT NOISE, SMOKE, DUST, OR ODOR WILL RESULT FROM THIS FACILITY.
- THE FACILITY IS UNMANNED AND NOT INTENDED FOR HUMAN HABITATION (NO HANDICAP ACCESS REQUIRED).
- THE FACILITY IS UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SANITARY SEWER SERVICE.

**T<sup>2</sup>**  
**T-SQUARED**  
**SITE SERVICES**  
 2500 HIGHLAND ROAD, SUITE 201  
 HERMITAGE, PA 16148  
 www.t-squared.com  
 COPYRIGHT © 2016 T-SQUARED SITE SERVICES, LLC

**SIGFOX**  
 One network A billion dreams  
 SIGFOX, INC.  
 545 BOYLSTON STREET  
 10TH FLOOR  
 BOSTON, MA. 02116

REVISIONS			

REVISED CD	7.3.19	KE	B
PRELIMINARY	01.25.19	JW	A
DESCRIPTION	DATE	BY	REV

PROFESSIONAL SEAL  
  
 IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE INFORMATION  
 CT9122  
 93 OLD AMINTY ROAD  
 BETHANY, CT 06524  
 NEW HAVEN COUNTY

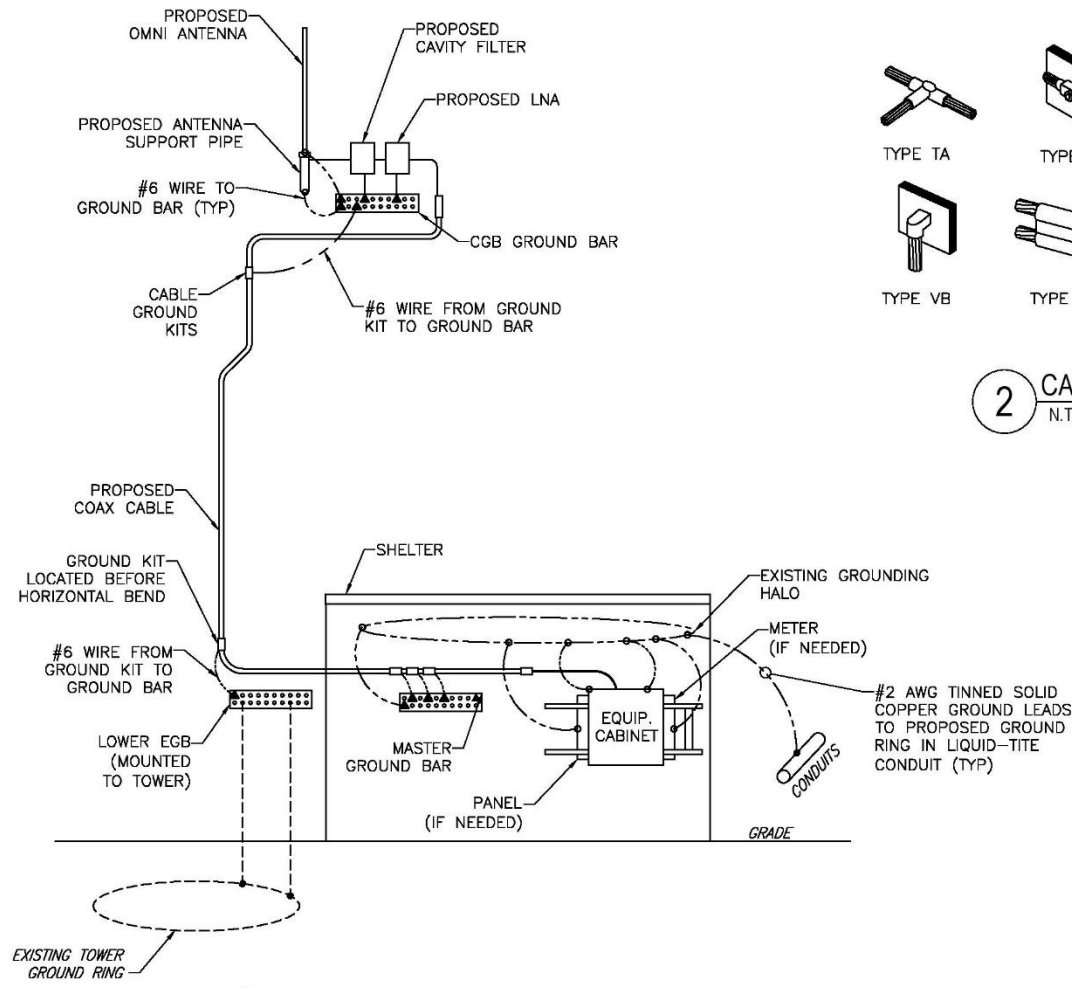
SHEET TITLE  
**ELECTRICAL**  
**DETAILS**

SHEET NUMBER	SCALE: AS NOTED
<b>E-1</b>	DRAWN BY: JW
	CHECKED BY: KE
	DATE: 7/2/19

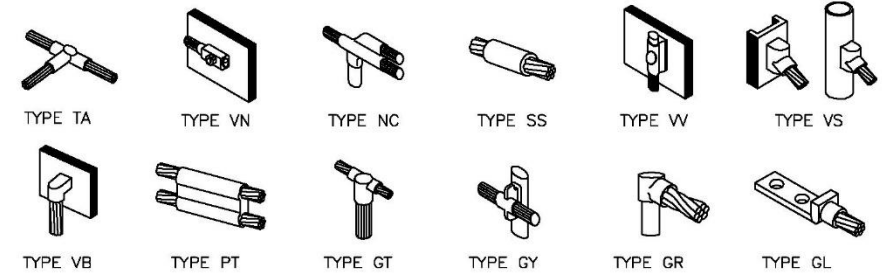
**GROUNDING NOTES**

- GROUNDING SHALL COMPLY WITH BED ART. 250. ADDITIONALLY, GROUNDING, BONDING AND LIGHTING PROTECTION SHALL BE DONE IN ACCORDANCE WITH METRO MOD CELL SITE GROUNDING STANDARDS.
- GROUND CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
- USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING
- ALL POWER AND GROUND CONNECTIONS TO BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND NUTS BY HARGER (OR APPROVED EQUAL) RATED FOR OPERATION AT NO LESS THAN 75°C OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
- ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
- CONNECTIONS TO BE GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
- APPLY OXIDE INHIBITING COMPOUND TO ALL MECHANICAL GROUND CONNECTIONS.
- CONTRACTOR SHALL PROVIDE AND INSTALL OMNI DIRECTIONAL ELECTRONIC MAKER SYSTEM (EMS) CALLS OVER EACH GROUND ROD AND BONDING POINT BETWEEN EXISTING TOWER/ MONOPOLE GROUNDING RING AND EQUIPMENT GROUNDING RING.
- CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMS MINIMUM RESISTANCE REQUIRED.
- CONTRACTOR SHALL CONDUCT ANTENNA, CABLE, AND LNA RETURN-LOSS AND DISTANCE-TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.

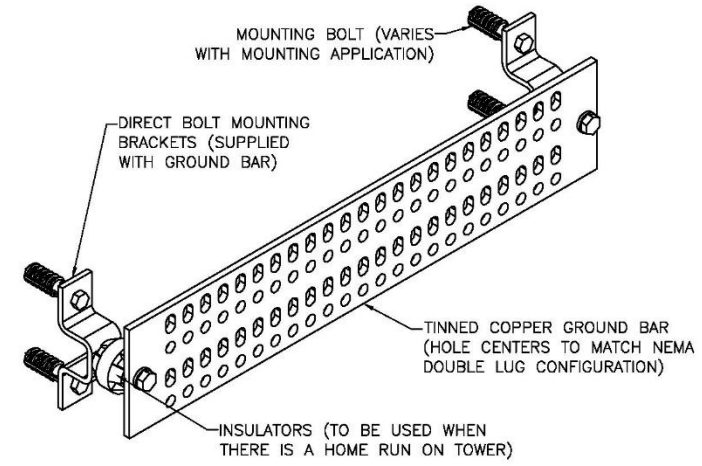
GROUNDING LEGEND	
▲	COMPRESSION FITTING CONNECTION
•	EXOTHERMIC WELD CONNECTION
---	PROPOSED GROUND WIRING
----	EXISTING GROUND WIRING



**1 GROUNDING RISER DIAGRAM**  
N.T.S.



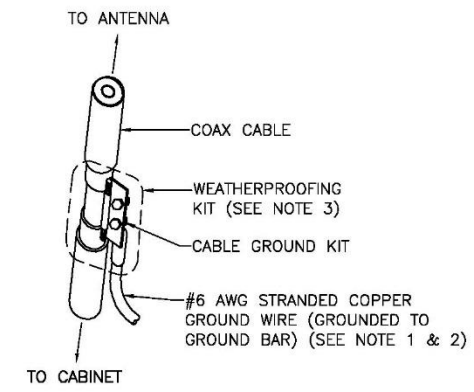
**2 CADWELD GROUNDING CONNECTION DETAILS**  
N.T.S.



GROUND BAR SCHEDULE				
TYPE	QTY	MANUFACTURER	PART NO.	REMARKS
MGB	2	COMMSCOPE	UGBKIT-0120-T	OR EQUAL
CBG	1	COMMSCOPE	UGBKIT-0412	OR EQUAL

**3 GROUND BAR DETAIL**  
N.T.S.

- NOTES**
- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
  - GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
  - WEATHER PROOFING SHALL BE TWO-PART TAPE SUPPLIED WITH KIT. COLD SHRINK SHALL NOT BE USED.



**6 COAXIAL CABLE GROUNDING**  
N.T.S.

**4 NOT USED**  
N.T.S.

**5 NOT USED**  
N.T.S.

**T<sup>2</sup>**  
**T-SQUARED**  
**SITE SERVICES**  
2500 HIGHLAND ROAD, SUITE 201  
HERMITAGE, PA 16148  
www.t-squared.com  
COPYRIGHT © 2016 T-SQUARED SITE SERVICES, LLC

**SIGFOX**  
One network A billion dreams  
SIGFOX, INC.  
545 BOYLSTON STREET  
10TH FLOOR  
BOSTON, MA. 02116

REVISIONS			
NO.	DESCRIPTION	DATE	BY

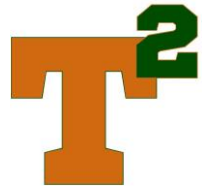
REVISED CD	DATE	BY	REV

PROFESSIONAL SEAL  
STATE OF CONNECTICUT  
GARY W. CLOWER  
No. 27934  
LICENSED PROFESSIONAL ENGINEER  
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SITE INFORMATION  
CT9122  
93 OLD AMINTY ROAD  
BETHANY, CT 06524  
NEW HAVEN COUNTY

SHEET TITLE  
**GROUNDING DETAILS**

SHEET NUMBER  
**G-1**  
SCALE: AS NOTED  
DRAWN BY: JW  
CHECKED BY: KE  
DATE: 12/3/18



**EXHIBIT 2:**

**Structural Modification Report**



**AMERICAN TOWER®**  
CORPORATION

---

## Structural Analysis Report

**Structure** : 337.5 ft Self Supported Tower  
**ATC Site Name** : BETHANY CT, CT  
**ATC Site Number** : 88008  
**Engineering Number** : OAA744465\_C3\_06  
**Proposed Carrier** : Sigfox S.A  
**Carrier Site Name** : CT9122\_ATC\_88008  
**Carrier Site Number** : CT9122  
**Site Location** : 93 Old Amity Road  
Bethany, CT 06524-3400  
41.404800,-73.000000  
**County** : New Haven  
**Date** : April 19, 2019  
**Max Usage** : 98%  
**Result** : Pass

Prepared By:  
Annika A. Venning, E.I.  
Structural Engineer II

Reviewed By:



Authorized by "EOR"  
Apr 19 2019 5:01 PM

COA: PEC.0001553



**Table of Contents**

Introduction .....	1
Supporting Documents .....	1
Analysis .....	1
Conclusion .....	1
Existing and Reserved Equipment .....	2
Equipment to be Removed.....	2
Proposed Equipment .....	3
Structure Usages .....	3
Foundations .....	3
Standard Conditions .....	4
Calculations .....	Attached



## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 337.5 ft self supported tower to reflect the change in loading by Sigfox S.A..

## Supporting Documents

<b>Tower Drawings</b>	CSEI Analysis ATC Engineering #73115244, dated November 18, 2002
<b>Foundation Drawing</b>	Mapping by ETS Project #120302.01, dated June 18, 2012
<b>Geotechnical Report</b>	Geotel Report #E12-221, dated June 5, 2012
<b>Modifications</b>	ATC Job #OAA712592_C6_13, dated August 13, 2018

## Analysis

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

<b>Basic Wind Speed:</b>	97 mph (3-Second Gust, Vasd) / 125 mph (3-Second Gust, Vult)
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
<b>Code:</b>	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
<b>Structure Class:</b>	II
<b>Exposure Category:</b>	B
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Spectral Response:</b>	$S_s = 0.06, S_1 = 0.19$
<b>Site Class:</b>	D - Stiff Soil

## Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at [Engineering@americantower.com](mailto:Engineering@americantower.com). Please include the American Tower site name, site number, and engineering number in the subject line for any questions.



**Existing and Reserved Equipment**

Elev. <sup>1</sup> (ft)	Qty	Antenna	Mount Type	Lines	Carrier
344.0	1	Rohde & Schwarz ADD090	Leg	(2) 7/8" Coax	US DEPT OF HOMELAND SECURITY
326.0	1	Kathrein Scala 750 10074	Platform with Handrails	(1) 1 5/8" Coax	LIGADO NETWORKS LLC
320.0	1	Sinclair SC281-L	Leg	(1) 7/8" Coax	US DEPT OF HOMELAND SECURITY
315.0	1	Sinclair SC381-HL (160")	Leg	(1) 7/8" Coax	
300.0	1	Generic Abandoned Line	Leg	(1) 1/2" Coax	
291.0	2	Generic 8' Omni	Side Arm	-	UNKNOWN
285.0	1	Sinclair SC281-L	Leg	(1) 7/8" Coax	US DEPT OF HOMELAND SECURITY
266.0	1	Generic 8' Omni	Side Arm	-	UNKNOWN
250.0	12	Decibel DB844H90E-XY	Leg	(12) 1 5/8" Coax	SPRINT NEXTEL
240.0	3	Alcatel-Lucent 800 MHz 2X50W RRH w/ Filter	Leg	(4) 1 1/4" Hybriflex Cable	
	3	Alcatel-Lucent 800 MHz 2X50W RRH w/ Filter			
	3	Alcatel-Lucent 1900 MHz 4X45 RRH			
	3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
	3	RFS APXVTM14-ALU-I20			
222.0	6	Remec S20057A1	Platform with Handrails	(12) 1 5/8" Coax (1) 3/8" Coax	T-MOBILE
	6	KMW Smart Bias-T			
	3	RFS APX16PV-16PVL-E-00			
	3	Andrew LNX-6515DS-VTM			
204.0	1	Andrew DB616E-BC	Side Arm	(1) 1 1/4" Coax	US DEPT OF HOMELAND SECURITY
180.0	6	RFS FD9R6004/1C-3L	Low Profile Platform	(12) 1 5/8" Coax	VERIZON WIRELESS
	3	Rymosa MGD3-800TX			
	6	Andrew DB844H90E-XY			
	3	Powerwave Allgon P65-16-XL-2			
165.0	3	Raycap DC2-48-60-0-9E	Sector Frame	(1) 0.39" (10mm) Fiber Trunk (2) 0.78" (19.7mm) 8 AWG 6 (6) 1 5/8" Coax (1) 3" conduit	AT&T MOBILITY
	3	Powerwave Allgon LGP21901			
	6	Powerwave Allgon LGP21401			
	2	Andrew SBNH-1D6565C (60.8 lbs)			
	1	KMW AM-X-CD-16-65-00T-RET			
	1	Raycap FC12-PC6-10E			
	3	Ericsson RRUS 11 (Band 12)			
3	Powerwave Allgon 7770.00				
100.0	3	RFS APXV18-206517S-C	Leg	(6) 1 5/8" Coax	METRO PCS INC
48.0	1	PCTEL GPS-TMG-HR-26N	Leg	(1) 1/2" Coax	SPRINT NEXTEL

**Equipment to be Removed**

Elev. <sup>1</sup> (ft)	Qty	Antenna	Mount Type	Lines	Carrier
No loading was considered as removed as part of this analysis.					



**Proposed Equipment**

Elev. <sup>1</sup> (ft)	Qty	Antenna	Mount Type	Lines	Carrier
147.0	1	Procom CXL 900-3LW	Side Arm	(1) 1/2" Coax	SIGFOX S.A.
	1	Generic 5" x 3" x 2" Cavity Filter			
	1	Generic Low Noise Amplifier			

<sup>1</sup> Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed coax anywhere on the tower.

**Structure Usages**

Structural Component	Controlling Usage	Pass/Fail
Legs	85%	Pass
Diagonals	94%	Pass
Truss Diagonals	98%	Pass
Horizontals	87%	Pass
Truss Horizontals	74%	Pass
Anchor Bolts	45%	Pass

**Foundations**

Reaction Component	Analysis Reactions	% of Usage
Uplift (Kips)	307.7	55%
Axial (Kips)	447.4	3%

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





### **Standard Conditions**

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

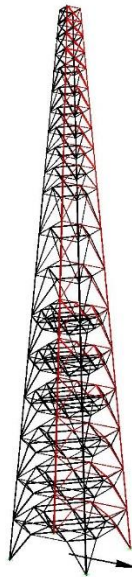
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

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





**Legs**

Site No.:	88008
Engineer:	43574
Date:	01/18/2019
Carrier:	Sigfox

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations (ft)	Type of Shape <sup>[1]</sup>	Diameter or Length (in)	Thickness <sup>[2]</sup> (in)	F <sub>y</sub> (ksi)
1	0.000-25.00	L	8	1.125	36
2	25.00-50.00	L	8	1.125	36
3	50.00-75.00	L	8	1.125	36
4	75.00-100.0	L	8	1.125	36
5	100.0-125.0	L	8	1	36
6	125.0-150.0	L	8	1	36
7	150.0-175.0	L	8	0.875	36
8	175.0-200.0	L	8	0.75	36
9	200.0-225.0	L	8	0.75	36
10	225.0-237.5	L	6	0.875	36
11	237.5-250.0	L	6	0.75	36
12	250.0-262.5	L	6	0.75	36
13	262.5-275.0	L	6	0.5625	36
14	275.0-287.5	L	6	0.5625	36
15	287.5-300.0	L	6	0.4375	36
16	300.0-310.2	L	5	0.4375	36
17	310.2-320.3	L	5	0.4375	36
18	320.3-328.9	L	5	0.3125	36
19	328.9-337.5	L	5	0.3125	36

**Notes:**

<sup>[1]</sup> Type of Leg Shape: R = Round or P = Bent Plate or S = Schifferlized Angle. L = Even Leg

<sup>[2]</sup> For Solid Round Leg Shapes Thickness Equals Zero.

<sup>[3]</sup> Adjust for Bent Plate Leg Shapes.

**Diagonals**

Site No.:	88008
Engineer:	43574
Date:	01/18/2019
Carrier:	Sigfox

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations (ft)	Type of Shape <sup>[1]</sup>	Diameter <sup>[2]</sup> (in)	Web Length <sup>[3]</sup> (in)	Flange Length <sup>[3]</sup> (in)	Thickness (in)	F <sub>y</sub> (ksi)	Is Diag. Tension Only? (Y/N)
1	0.000-25.00	2L		3	4	0.375	36	
2	25.00-50.00	2L		3	4	0.25	36	
3	50.00-75.00	2L		3	4	0.25	36	
4	75.00-100.0	2L		3	3.5	0.25	36	
5	100.0-125.0	2L		3	3.5	0.25	36	
6	125.0-150.0	2L		2.5	3.5	0.25	36	
7	150.0-175.0	2L		3	3	0.375	36	
8	175.0-200.0	2L		2.5	3	0.25	36	
9	200.0-225.0	2L		2.5	3	0.25	36	
10	225.0-237.5	2L		2.5	2.5	0.25	36	
11	237.5-250.0	2L		2.5	2.5	0.25	36	
12	250.0-262.5	2L		2.5	2.5	0.25	36	
13	262.5-275.0	2L		2.5	2	0.25	36	
14	275.0-287.5	2L		2.5	2	0.25	36	
15	287.5-300.0	2L		2.5	2	0.25	36	
16	300.0-310.2	L		3.5	3.5	0.25	36	Y
17	310.2-320.3	L		3.5	3.5	0.25	36	Y
18	320.3-328.9	L		3	3	0.25	36	Y
19	328.9-337.5	L		3	3	0.25	36	Y

**Notes:**

<sup>[1]</sup> Type of Diagonal Shape: R = Round, L = Single-Angle or 2L = Double-Angle.

<sup>[2]</sup> Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

<sup>[3]</sup> Applies to Single-Angle and Double-Angle Shapes only.

<sup>[4]</sup> Applies to Double-Angle Shapes only.

<sup>[5]</sup> Applies to Single-Angle Shapes only.

**Horizontals**

Site No.:	88008
Engineer:	43574
Date:	01/18/2019
Carrier:	Sigfox

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations (ft)	Type of Shape <sup>[1]</sup>	Diameter <sup>[2]</sup> (in)	Web Length <sup>[3]</sup> (in)	Flange Length <sup>[3]</sup> (in)	Thickness (in)	F <sub>y</sub> (ksi)	
1	0.000-25.00	2L		4	3	0.25	36	
2	25.00-50.00	2L		3.5	2.5	0.25	36	
3	50.00-75.00	2L		3	2.5	0.25	36	
4	75.00-100.0	2L		3.5	2.5	0.25	36	
5	100.0-125.0	2L		3.5	2.5	0.25	36	
6	125.0-150.0	2L		3	2.5	0.25	36	
7	150.0-175.0	2L		3	2.5	0.25	36	
8	175.0-200.0	2L		3	2.5	0.25	36	
9	200.0-225.0	2L		2.5	2.5	0.25	36	
10	225.0-237.5	2L		2.5	2.5	0.25	36	
11	237.5-250.0	2L		2.5	2.5	0.25	36	
12	250.0-262.5	2L		2.5	2.5	0.25	36	
13	262.5-275.0	2L		2.5	2.5	0.25	36	
14	275.0-287.5	2L		2.5	2.5	0.25	36	
15	287.5-300.0	2L		2.5	2.5	0.25	36	
16	300.0-310.2	L		3	2.5	0.25	36	
17	310.2-320.3	2L		3	2.5	0.25	36	
18	320.3-328.9	L		3	2.5	0.25	36	
19	328.9-337.5	C		8	11.5		36	

**Notes:**

<sup>[1]</sup> Type of Horizontal Shape: R = Round, L = Single-Angle, 2L = Double-Angle, C = Channel, W = W Shape

<sup>[2]</sup> Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

<sup>[3]</sup> Applies to Single-Angle and Double-Angle Shapes only.

<sup>[4]</sup> Applies to Double-Angle Shapes only.

<sup>[5]</sup> Applies to Single-Angle Shapes only.

**Built-up Diagonals**

Site No.:	88008
Engineer:	43574
Date:	01/18/2019
Carrier:	Sigfox

When inputting thickness values, include all decimal places.  
Input diags. from left to center & from base section upward.

Tower Built-up Diag. #	Section Elevations (ft)	Type of Shape <sup>[1]</sup>	Diameter <sup>[2]</sup> (in)	Web Length <sup>[3]</sup> (in)	Flange Length <sup>[3]</sup> (in)	Thickness (in)	F <sub>y</sub> (ksi)
1	0.000-25.00	2L		3	2.5	0.3125	36
2	0.000-25.00	2L		4	3	0.3125	36
3	25.00-50.00	2L		3	2	0.25	36
4	25.00-50.00	2L		4	3	0.25	36
5	50.00-75.00	2L		2.5	2.5	0.375	36
6	50.00-75.00	2L		3.5	3	0.25	36
7	75.00-100.0	2L		3	3	0.25	36
8	75.00-100.0	2L		2.5	2	0.25	36
9	75.00-100.0	2L		3	2	0.25	36
10	100.0-125.0	2L		2.5	2	0.25	36
11	100.0-125.0	2L		2.5	2	0.25	36
12	100.0-125.0	2L		3	3	0.25	36
13	125.0-150.0	2L		2.5	2	0.25	36
14	125.0-150.0	2L		2.5	2	0.25	36
15	125.0-150.0	2L		2.5	2	0.25	36

**Notes:**

- <sup>[1]</sup> Type of Diagonal Shape: R = Round, L = Single-Angle or 2L = Double-Angle.
- <sup>[2]</sup> Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.
- <sup>[3]</sup> Applies to Single-Angle and Double-Angle Shapes only.
- <sup>[4]</sup> Applies to Double-Angle Shapes only.
- <sup>[5]</sup> Applies to Single-Angle Shapes only.

**Built-up Horizontals**

Site No.:	88008
Engineer:	43574
Date:	01/18/2019
Carrier:	Sigfox

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations (ft)	Type of Shape <sup>[1]</sup>	Diameter <sup>[2]</sup> (in)	Web Length <sup>[3]</sup> (in)	Flange Length <sup>[3]</sup> (in)	Thickness (in)	F <sub>y</sub> (ksi)	Is Horiz. Tension Only? (Y/N)
1	0.000-25.00	2L		2.5	3	0.25	36	Y
2	25.00-50.00	2L		2.5	3	0.25	36	Y
3	50.00-75.00	2L		2.5	3	0.25	36	Y
4	75.00-100.0	2L		3	3	0.375	36	
5	100.0-125.0	2L		2.5	3	0.25	36	
6	125.0-150.0	2L		2.5	3	0.25	36	

**Notes:**

<sup>[1]</sup> Type of Horizontal Shape: R = Round, L = Single-Angle or 2L = Double-Angle.

<sup>[2]</sup> Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

<sup>[3]</sup> Applies to Single-Angle and Double-Angle Shapes only.

<sup>[4]</sup> Applies to Double-Angle Shapes only.

<sup>[5]</sup> Applies to Single-Angle Shapes only.



Site No.:	88008
Engineer:	43574
Date:	01/18/19
Carrier:	Sigfox

Description	From (ft)	To (ft)	Quantity	Shape	Width or Diameter (in)	Perimeter (in)	Unit Weight (lb/ft)	Part of Face Solidity Ratio (Yes/No)	Include in Wind Load (Yes/No)
1 Climbing Ladder	0	337.5	1	Flat	2	8.0	6	Yes	Yes
2 US Dept	0	337.5	2	Round	1.09	3.4	0.33	Yes	Yes
3 US Dept1	0	337.5	1	Round	0.63	2.0	0.15	Yes	Yes
4 Ligado	0	319	1	Round	1.98	6.2	0.82	Yes	Yes
5 US Dept2	0	310	2	Round	1.09	3.4	0.33	Yes	Yes
6 US Dept3	0	275	1	Round	1.09	3.4	0.33	Yes	Yes
7 Sprint1	0	240	3	Round	1.54	4.8	1	Yes	Yes
8 TMO	0	220	1	Flat	6.5025	34.7	9.84	Yes	Yes
9 TMO1	0	220	1	Round	0.44	1.4	0.08	Yes	Yes
10 US Dept4	0	194	1	Round	1.55	4.9	0.63	Yes	No
11 Verizon	0	180	1	Flat	6.5025	34.7	9.84	Yes	Yes
12 ATT	0	165	6	Round	1.98	6.2	0.82	Yes	Yes
13 ATT1	0	165	1	Round	0.39	1.2	0.17	Yes	No
14 ATT2	0	165	2	Round	0.78	2.5	0.59	Yes	No
15 ATT3	0	165	1	Round	3.5	11.0	7.58	Yes	No
16 Metro	0	100	6	Round	1.98	6.2	0.82	Yes	Yes
17 Sprint2	0	48	1	Round	0.63	2.0	0.15	Yes	No
18 Coax Cage	12.5	32.5	2	Flat	12	48.0	25	Yes	Yes
19 Coax Cage2	12.5	32.5	2	Flat	12	48.0	25	Yes	Yes
20 Waive Guide	0	180	1	Flat	1.5	6.0	2	Yes	Yes
21 Waive Guide1	0	165	1	Flat	1.5	6.0	2	Yes	Yes
22 Waive Guide2	0	100	1	Flat	1.5	6.0	2	Yes	Yes
23 Sigfox	0	147	1	Flat	0.63	2.5	0.15	Yes	Yes
24 Sprint	0	204.8	1	Flat	5.955	25.8	4.92	Yes	Yes





Site #: 88008  
Name: Sigfox

Engineer: 43574  
Date: 01/18/19

Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ	
L 1	Leg S1		XY-Symmetry	0P	1P		1	4	0.2812	0.2812	0.2812
L 2	Leg S2		XY-Symmetry	1P	2P		1	4	0.2812	0.2812	0.2812
L 3	Leg S3		XY-Symmetry	2P	3P		1	4	0.2812	0.2812	0.2812
L 4	Leg S4		XY-Symmetry	3P	4P		1	4	0.2812	0.2812	0.2812
L 5	Leg S5		XY-Symmetry	4P	5P		1	4	0.2812	0.2812	0.2812
L 6	Leg S6		XY-Symmetry	5P	6P		1	4	0.2812	0.2812	0.2812
L 7	Leg S7		XY-Symmetry	6P	7P		1	4	0.33333333	0.33333333	0.33333333
L 8	Leg S8		XY-Symmetry	7P	8P		1	4	0.33333333	0.33333333	0.33333333
L 9	Leg S9		XY-Symmetry	8P	9P		1	4	0.33333333	0.33333333	0.33333333
L 10	Leg S10		XY-Symmetry	9P	10P		1	4	0.5	0.5	0.5
L 11	Leg S11		XY-Symmetry	10P	11P		1	4	0.5	0.5	0.5
L 12	Leg S12		XY-Symmetry	11P	12P		1	4	0.5	0.5	0.5
L 13	Leg S13		XY-Symmetry	12P	13P		1	4	0.5	0.5	0.5
L 14	Leg S14		XY-Symmetry	13P	14P		1	4	0.5	0.5	0.5
L 15	Leg S15		XY-Symmetry	14P	15P		1	4	0.5	0.5	0.5
L 16	Leg S16		XY-Symmetry	15P	16P		1	4	0.5	0.5	0.5
L 17	Leg S17		XY-Symmetry	16P	17P		1	4	0.5	0.5	0.5
L 18	Leg S18		XY-Symmetry	17P	18P		1	4	0.5	0.5	0.5
L 19	Leg S19		XY-Symmetry	18P	19P		1	4	0.5	0.5	0.5

D 1	Diag S1		XY-Symmetry	0P	H2P		1	6	0.33333333	0.848	0.33333333
D 2	Diag S1		XY-Symmetry	0P	H1P		1	6	0.33333333	0.848	0.33333333
D 3	Diag S2		XY-Symmetry	1P	H6P		1	6	0.33333333	0.848	0.33333333
D 4	Diag S2		XY-Symmetry	1P	H5P		1	6	0.33333333	0.848	0.33333333
D 5	Diag S3		XY-Symmetry	2P	H10P		1	6	0.33333333	0.848	0.33333333
D 6	Diag S3		XY-Symmetry	2P	H9P		1	6	0.33333333	0.848	0.33333333
D 7	Diag S4		XY-Symmetry	3P	H14P		1	6	0.33333333	0.33333333	0.33333333
D 8	Diag S4		XY-Symmetry	3P	H13P		1	6	0.33333333	0.33333333	0.33333333
D 9	Diag S5		XY-Symmetry	4P	H18P		1	6	0.33333333	0.33333333	0.33333333
D 10	Diag S5		XY-Symmetry	4P	H17P		1	6	0.33333333	0.33333333	0.33333333
D 11	Diag S6		XY-Symmetry	5P	H22P		1	6	0.3	0.848	0.3
D 12	Diag S6		XY-Symmetry	5P	H21P		1	6	0.3	0.848	0.3
D 13	Diag S7		XY-Symmetry	6P	A13P		1	6	0.3	0.6	0.3
D 14	Diag S7		XY-Symmetry	6P	A14P		1	6	0.3	0.6	0.3
D 15	Diag S8		XY-Symmetry	7P	A15P		1	6	0.3	0.6	0.3
D 16	Diag S8		XY-Symmetry	7P	A16P		1	6	0.3	0.6	0.3
D 17	Diag S9		XY-Symmetry	8P	A17P		1	6	0.3	0.6	0.3
D 18	Diag S9		XY-Symmetry	8P	A18P		1	6	0.3	0.6	0.3
D 19	Diag S10		XY-Symmetry	9P	A19P		1	6	0.5	1	0.5
D 20	Diag S10		XY-Symmetry	9P	A20P		1	6	0.5	1	0.5
D 21	Diag S11		XY-Symmetry	10P	A21P		1	6	0.5	1	0.5
D 22	Diag S11		XY-Symmetry	10P	A22P		1	6	0.5	1	0.5
D 23	Diag S12		XY-Symmetry	11P	A23P		1	6	0.5	1	0.5

Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ
D 24	Diag S12		XY-Symmetry	11P	A24P	1	6	0.5	1	0.5
D 25	Diag S13		XY-Symmetry	12P	A25P	1	6	0.5	1	0.5
D 26	Diag S13		XY-Symmetry	12P	A26P	1	6	0.5	1	0.5
D 27	Diag S14		XY-Symmetry	13P	A27P	1	6	0.5	1	0.5
D 28	Diag S14		XY-Symmetry	13P	A28P	1	6	0.5	1	0.5
D 29	Diag S15		XY-Symmetry	14P	A29P	1	6	0.5	1	0.5
D 30	Diag S15		XY-Symmetry	14P	A30P	1	6	0.5	1	0.5
D 31	Diag S16		XY-Symmetry	15P	16Y	2	6	100	100	100
D 32	Diag S16		XY-Symmetry	15P	16X	2	6	100	100	100
D 33	Diag S17		XY-Symmetry	16P	17Y	2	5	100	100	100
D 34	Diag S17		XY-Symmetry	16P	17X	2	5	100	100	100
D 35	Diag S18		XY-Symmetry	17P	18Y	2	5	100	100	100
D 36	Diag S18		XY-Symmetry	17P	18X	2	5	100	100	100
D 37	Diag S19		XY-Symmetry	18P	19Y	2	5	100	100	100
D 38	Diag S19		XY-Symmetry	18P	19X	2	5	100	100	100

H 1	Horiz 1		XY-Symmetry	1P	A1P	1	6	0.5	0.5	0.5
H 2	Horiz 1		XY-Symmetry	1P	A2P	1	6	0.5	0.5	0.5
H 3	Horiz 2		XY-Symmetry	2P	A3P	1	6	0.49	0.49	0.49
H 4	Horiz 2		XY-Symmetry	2P	A4P	1	6	0.49	0.49	0.49
H 5	Horiz 3		XY-Symmetry	3P	A5P	1	6	0.46	0.46	0.46
H 6	Horiz 3		XY-Symmetry	3P	A6P	1	6	0.46	0.46	0.46
H 7	Horiz 4		XY-Symmetry	4P	A7P	1	6	0.9	0.9	0.9
H 8	Horiz 4		XY-Symmetry	4P	A8P	1	6	0.9	0.9	0.9
H 9	Horiz 5		XY-Symmetry	5P	A9P	1	6	1	1	1
H 10	Horiz 5		XY-Symmetry	5P	A10P	1	6	1	1	1

Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ
H 11	Horiz 6		XY-Symmetry	6P	A11P	1	6	0.98	0.98	0.98
H 12	Horiz 6		XY-Symmetry	6P	A12P	1	6	0.98	0.98	0.98
H 13	Horiz 7		XY-Symmetry	7P	A13P	1	6	1	1	1
H 14	Horiz 7		XY-Symmetry	7P	A14P	1	6	1	1	1
H 15	Horiz 8		XY-Symmetry	8P	A15P	1	6	1	1	1
H 16	Horiz 8		XY-Symmetry	8P	A16P	1	6	1	1	1
H 17	Horiz 9		XY-Symmetry	9P	A17P	1	6	1	1	1
H 18	Horiz 9		XY-Symmetry	9P	A18P	1	6	1	1	1
H 19	Horiz 10		XY-Symmetry	10P	A19P	1	6	1	1	1
H 20	Horiz 10		XY-Symmetry	10P	A20P	1	6	1	1	1
H 21	Horiz 11		XY-Symmetry	11P	A21P	1	6	1	1	1
H 22	Horiz 11		XY-Symmetry	11P	A22P	1	6	1	1	1
H 23	Horiz 12		XY-Symmetry	12P	A23P	1	6	1	1	1
H 24	Horiz 12		XY-Symmetry	12P	A24P	1	6	1	1	1
H 25	Horiz 13		XY-Symmetry	13P	A25P	1	6	1	1	1
H 26	Horiz 13		XY-Symmetry	13P	A26P	1	6	1	1	1
H 27	Horiz 14		XY-Symmetry	14P	A27P	1	6	1	1.2	1
H 28	Horiz 14		XY-Symmetry	14P	A28P	1	6	1	1.2	1
H 29	Horiz 15		XY-Symmetry	15P	A29P	1	6	1	1.07	1
H 30	Horiz 15		XY-Symmetry	15P	A30P	1	6	1	1.07	1
H 31	Horiz 16		Y-Symmetry	16P	16X	3	6	0.5	0.52	0.5
H 32	Horiz 16		X-Symmetry	16P	16Y	3	6	0.5	0.52	0.5
H 33	Horiz 17		Y-Symmetry	17P	17X	1	6	0.5	1	0.5
H 34	Horiz 17		X-Symmetry	17P	17Y	1	6	0.5	1	0.5
H 35	Horiz 18		Y-Symmetry	18P	18X	3	6	0.5	1	0.5
H 36	Horiz 18		X-Symmetry	18P	18Y	3	6	0.5	1	0.5
H 37	Horiz 19		Y-Symmetry	19P	19X	3	6	1	1	1
H 38	Horiz 19		X-Symmetry	19P	19Y	3	6	1	1	1

Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ
--------------	-------------	---------------	---------------	--------------	-----------	-----------	------------	-----------	-----------	-----------

H 45	Horiz 4		Y-Symmetry	A7P	A7X		1 6	1	1	1
H 46	Horiz 4		X-Symmetry	A8P	A8Y		1 6	1	1	1
H 47	Horiz 5		Y-Symmetry	A9P	A9X		1 6	1	1	1
H 48	Horiz 5		X-Symmetry	A10P	A10Y		1 6	1	1	1
H 49	Horiz 6		Y-Symmetry	A11P	A11X		1 6	1	1	1
H 50	Horiz 6		X-Symmetry	A12P	A12Y		1 6	1	1	1

LH 1	LH 1		Y-Symmetry	H1P	H1X		1 6	100	100	100
LH 2	LH 1		X-Symmetry	H2P	H2Y		1 6	100	100	100
LH 3	LH 2		Y-Symmetry	H5P	H5X		1 6	100	100	100
LH 4	LH 2		X-Symmetry	H6P	H6Y		1 6	100	100	100
LH 5	LH 3		Y-Symmetry	H9P	H9X		1 6	100	100	100
LH 6	LH 3		X-Symmetry	H10P	H10Y		1 6	100	100	100
LH 7	LH 4		XY-Symmetry	H13P	H15P		1 6	0.94	1.88	0.94
LH 8	LH 4		XY-Symmetry	H14P	H16P		1 6	0.94	1.88	0.94
LH 9	LH 5		XY-Symmetry	H17P	H19P		1 6	0.94	1.88	0.94
LH 10	LH 5		XY-Symmetry	H18P	H20P		1 6	0.94	1.88	0.94
LH 11	LH 6		XY-Symmetry	H21P	H23P		1 6	0.94	1.88	0.94
LH 12	LH 6		XY-Symmetry	H22P	H24P		1 6	0.94	1.88	0.94

LD 1	LD 1		XY-Symmetry	H1P	1P		1 6	0.904	0.904	0.904
LD 2	LD 1		XY-Symmetry	H2P	1P		1 6	0.904	0.904	0.904
LD 3	LD 2		XY-Symmetry	H1P	A1P		1 6	0.904	0.904	0.904

Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ
LD 4	LD 2		XY-Symmetry	H2P	A2P		1 6	0.904	0.904	0.904
LD 7	LD 4		XY-Symmetry	H5P	2P		1 6	0.904	0.904	0.904
LD 8	LD 4		XY-Symmetry	H6P	2P		1 6	0.904	0.904	0.904
LD 9	LD 5		XY-Symmetry	H5P	A3P		1 6	0.904	0.904	0.904
LD 10	LD 5		XY-Symmetry	H6P	A4P		1 6	0.904	0.904	0.904
LD 13	LD 7		XY-Symmetry	H9P	3P		1 6	0.904	0.904	0.904
LD 14	LD 7		XY-Symmetry	H10P	3P		1 6	0.904	0.904	0.904
LD 15	LD 8		XY-Symmetry	H9P	A5P		1 6	0.904	0.904	0.904
LD 16	LD 8		XY-Symmetry	H10P	A6P		1 6	0.904	0.904	0.904
LD 19	LD 10		XY-Symmetry	H13P	4P		1 6	0.83	0.83	0.83
LD 20	LD 10		XY-Symmetry	H14P	4P		1 6	0.83	0.83	0.83
LD 21	LD 11		XY-Symmetry	H13P	A7P		1 6	0.85	0.85	0.85
LD 22	LD 11		XY-Symmetry	H14P	A8P		1 6	0.85	0.85	0.85
LD 23	LD 12		XY-Symmetry	A7P	H15P		1 6	0.86	0.86	0.86
LD 24	LD 12		XY-Symmetry	A8P	H16P		1 6	0.86	0.86	0.86
LD 25	LD 13		XY-Symmetry	H17P	5P		1 6	0.83	0.83	0.83
LD 26	LD 13		XY-Symmetry	H18P	5P		1 6	0.83	0.83	0.83
LD 27	LD 14		XY-Symmetry	H17P	A9P		1 6	0.85	0.85	0.85
LD 28	LD 14		XY-Symmetry	H18P	A10P		1 6	0.85	0.85	0.85
LD 29	LD 15		XY-Symmetry	A9P	H19P		1 6	0.86	0.86	0.86
LD 30	LD 15		XY-Symmetry	A10P	H20P		1 6	0.86	0.86	0.86
LD 31	LD 16		XY-Symmetry	H21P	6P		1 6	0.83	0.83	0.83
LD 32	LD 16		XY-Symmetry	H22P	6P		1 6	0.83	0.83	0.83
LD 33	LD 17		XY-Symmetry	H21P	A11P		1 6	0.85	0.85	0.85
LD 34	LD 17		XY-Symmetry	H22P	A12P		1 6	0.85	0.85	0.85
LD 35	LD 18		XY-Symmetry	A11P	H23P		1 6	0.86	0.86	0.86
LD 36	LD 18		XY-Symmetry	A12P	H24P		1 6	0.86	0.86	0.86



Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ
--------------	-------------	---------------	---------------	--------------	-----------	-----------	------------	-----------	-----------	-----------

BR 1	DUM 1		XY-Symmetry	A1P	A2P		1 4	1	1	1
BR 3	DUM 1		XY-Symmetry	A3P	A4P		1 4	1	1	1
BR 5	DUM 1		XY-Symmetry	A5P	A6P		1 4	1	1	1
BR 7	DUM 1		XY-Symmetry	A7P	A8P		1 4	1	1	1
BR 8	DUM 1		XY-Symmetry	A7P	A8XY		1 4	1	1	1
BR 9	DUM 1		XY-Symmetry	A9P	A10P		1 4	1	1	1
BR 10	DUM 1		XY-Symmetry	A9P	A10XY		1 4	1	1	1
BR 11	DUM 1		XY-Symmetry	A11P	A12P		1 4	1	1	1
BR 12	DUM 1		XY-Symmetry	A11P	A12XY		1 4	1	1	1
BR 13	DUM 1		XY-Symmetry	A13P	A14P		1 4	1	1	1
BR 15	DUM 1		XY-Symmetry	A15P	A16P		1 4	1	1	1
BR 17	DUM 1		XY-Symmetry	A17P	A18P		1 4	1	1	1
BR 19	DUM 1		XY-Symmetry	A19P	A20P		1 4	1	1	1
BR 21	DUM 1		XY-Symmetry	A21P	A22P		1 4	1	1	1
BR 23	DUM 1		XY-Symmetry	A23P	A24P		1 4	1	1	1
BR 25	DUM 1		XY-Symmetry	A25P	A26P		1 4	1	1	1
BR 27	DUM 1		XY-Symmetry	A27P	A28P		1 4	1	1	1
BR 29	DUM 1		XY-Symmetry	A29P	A30P		1 4	1	1	1

Member Label	Group Label	Section Label	Symmetry Code	Origin Joint	End Joint	Ecc. Code	Rest. Code	Ratio RLX	Ratio RLY	Ratio RLZ
--------------	-------------	---------------	---------------	--------------	-----------	-----------	------------	-----------	-----------	-----------

BR 61	DUM 1		XY-Symmetry	H1P	H2P		1 4	1	1	1
BR 62	DUM 1		XY-Symmetry	H1P	H2XY		1 4	1	1	1
BR 64	DUM 1		XY-Symmetry	H5P	H6P		1 4	1	1	1
BR 65	DUM 1		XY-Symmetry	H5P	H6XY		1 4	1	1	1
BR 67	DUM 1		XY-Symmetry	H9P	H10P		1 4	1	1	1
BR 68	DUM 1		XY-Symmetry	H9P	H10XY		1 4	1	1	1
BR 70	DUM 1		XY-Symmetry	H13P	H14P		1 4	1	1	1
BR 71	DUM 1		XY-Symmetry	H13P	H14XY		1 4	1	1	1
BR 72	DUM 1		XY-Symmetry	H15P	H16P		1 4	1	1	1
BR 73	DUM 1		XY-Symmetry	H17P	H18P		1 4	1	1	1
BR 74	DUM 1		XY-Symmetry	H17P	H18XY		1 4	1	1	1
BR 75	DUM 1		XY-Symmetry	H19P	H20P		1 4	1	1	1
BR 76	DUM 1		XY-Symmetry	H21P	H22P		1 4	1	1	1
BR 77	DUM 1		XY-Symmetry	H21P	H22XY		1 4	1	1	1
BR 78	DUM 1		XY-Symmetry	H23P	H24P		1 4	1	1	1





## Foundation

### Design Loads (Factored)

Compression/Leg:	447.43	k
Uplift/Leg:	307.72	k
Shear/Leg:	67.29	k

Face Width @ Top of Pier ( $d_1$ ):	4.00	ft
Face Width @ Bottom of Pier ( $d_2$ ):	7.50	ft
Total Length of Pier (l):	7.25	ft
Height of Pedestal Above Ground (h):	0.50	ft
Width of Pad (W):	21.50	ft
Length of Pad (L):	21.50	ft
Thickness of Pad (t):	2.50	ft
Water Table Depth (w):	99.00	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Soil (Above Water Table):	131.0	pcf
Unit Weight of Soil (Below Water Table):	68.6	pcf
Friction Angle of Uplift (A):	30°	
Ultimate Compressive Bearing Pressure:	48200	psf
Ultimate Skin Friction:	0	psf

Volume Pier (Total):	247.10	ft <sup>3</sup>
Volume Pad (Total):	1155.63	ft <sup>3</sup>
Volume Soil (Total):	4120.07	ft <sup>3</sup>
Volume Pier (Buoyant):	0.00	ft <sup>3</sup>
Volume Pad (Buoyant):	0.00	ft <sup>3</sup>
Volume Soil (Buoyant):	0.00	ft <sup>3</sup>
Weight Pier:	37.07	k
Weight Pad:	173.34	k
Weight Soil:	539.73	k
Uplift Skin Friction:	0.00	k

### Uplift Check

$\phi_s$ Uplift Resistance (k)	Ratio	Result
562.60	0.55	<b>OK</b>

### Axial Check

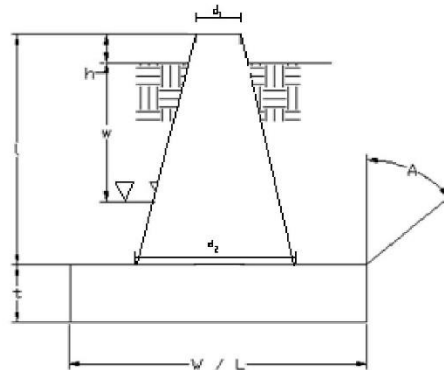
$\phi_s$ Axial Resistance (k)	Ratio	Result
16710.34	0.03	<b>OK</b>

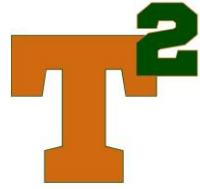
### Anchor Bolt Check

Bolt Diameter (in)	2.25
# of Bolts	6
Steel Grade	A36
Steel Fy	36
Steel Fu	58
Detail Type	B

Usage Ratio	Result
0.45	<b>OK</b>

Site No.:	88008
Engineer:	43574
Date:	01/18/19
Carrier:	Sigfox





**EXHIBIT 3:**

**General Power Density Table report (RF Emissions Analysis Report)**



## RF EMISSIONS COMPLIANCE REPORT

### T-Squared Site Services on behalf of Sigfox S.A.

**ATC Site Name: BETHANY CT**  
**Sigfox S.A. Site Name: CT9122\_ATC\_88008**  
**Sigfox S.A. Site #: CT9122**  
**93 Old Amity Road**  
**Bethany, CT**  
**2/11/2019**

### Report Status:

**Sigfox S.A. Is Compliant**



sealed 12feb2019 mike@h2dc.com  
H2DC PLLC CT CoA#: 0001714

### Prepared By:

**Sitesafe, LLC**

8618 Westwood Center Drive,  
Suite 315

Vienna, VA 22182

Voice 703-276-1100  
Fax 703-276-1169

Engineering Statement in Re:  
Electromagnetic Energy Analysis  
T-Squared Site Services  
Bethany, CT

My signature on the cover of this document indicates:

That I, Michael A McGuire, am currently and actively licensed to provide (in this state/jurisdiction as indicated within the professional electrical engineering seal on the cover of this document) professional electrical engineering services, as an employee of Hurricane Hill Development Company, PLLC, a duly authorized/registered engineering firm (in this state, as applicable) on behalf of SiteSafe, LLC; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission ("the FCC" and "the FCC Rules") both in general and specifically as they apply to the FCC's Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; and

That the technical information serving as the basis for this report was supplied by T-Squared Site Services (See attached Site Summary and Carrier documents), and that Sigfox S.A.'s installations involve communications equipment, antennas and associated technical equipment at a location referred to as the "BETHANY CT" ("the site"); and

That Sigfox S.A. proposes to operate at the site with transmit antennas listed in the carrier summary and with a maximum effective radiated power as specified by Sigfox S.A. and shown on the worksheet, and that worst-case 100% duty cycle have been assumed; and

That this analysis has been performed with the assumption that the ground immediately surrounding the tower is primarily flat or falling; and

That at this time, the FCC requires that certain licensees address specific levels of radio-frequency energy to which workers or members of the public might possibly be exposed (at §1.1307(b) of the FCC Rules); and

That such consideration of possible exposure of humans to radio-frequency radiation must utilize the standards set by the FCC, which is the Federal Agency having jurisdiction over communications facilities; and

That the FCC rules define two tiers of permissible exposure guidelines: 1) "uncontrolled environments," defined as situations in which persons may not be aware of (the "general public"), or may not be able to control their exposure to a transmission facility; and (2) "controlled environments," which defines situations in which persons are aware of their potential for exposure (industry personnel); and

That this statement specifically addresses the uncontrolled environment (which is more conservative than the controlled environment) and the limit set forth in the FCC rules for licensees of Sigfox S.A.'s operating frequency as shown on the attached antenna worksheet; and

That when applying the uncontrolled environment standards, the predicted Maximum Power Density at two meters above ground level from the proposed Sigfox S.A. operation is no more than 0% of the maximum in any accessible area on the ground and



That it is understood per FCC Guidelines and OET65 Appendix A, that regardless of the existent radio-frequency environment, only those licenses whose contributions exceed five percent of the exposure limit pertinent to their operation(s) bear any responsibility for bringing any non-compliant area(s) into compliance; and

That when applying the uncontrolled environment standards, the cumulative predicted energy density from the proposed operation is no more than 2.273% of the maximum in any accessible area up to two meters above the ground per OET-65; and

That the calculations provided in this report are based on data provided by the client and antenna pattern data supplied by the antenna manufacturer, in accordance with FCC guidelines listed in OET-65. Horizontal and vertical antenna patterns are combined for modeling purposes to accurately reflect the energy two meters above ground level where on-axis energy refers to maximum energy two meters above the ground along the azimuth of the antenna and where area energy refers to the maximum energy anywhere two meters above the ground regardless of the antenna azimuth, accounting for cumulative energy from multiple antennas for the carrier and frequency range indicated; and

That the Occupational Safety and Health Administration has policies in place which address worker safety in and around communications sites, thus individual companies will be responsible for their employees' training regarding Radio Frequency Safety.

In summary, it is stated here that the proposed operation at the site would not result in exposure of the Public to excessive levels of radio-frequency energy as defined in the FCC Rules and Regulations, specifically 47 CFR 1.1307 and that Sigfox S.A.'s proposed operation is completely compliant.

Finally, it is stated that access to the tower should be restricted to communication industry professionals, and approved contractor personnel trained in radio-frequency safety; and that the instant analysis addresses exposure levels at two meters above ground level and does not address exposure levels on the tower, or in the immediate proximity of the antennas.

**T-Squared Site Services  
BETHANY CT  
Site Summary**

Carrier	Area Maximum Percentage MPE
AT&T Mobility, LLC	0.376 %
AT&T Mobility, LLC	0.402 %
AT&T Mobility, LLC	0.133 %
Ligado Networks	0.001 %
MetroPCS (Decommissioned)	0 %
Sigfox S.A. (Proposed)	0 %
Sprint	0.05 %
Sprint	0.05 %
Sprint	0.029 %
Sprint	0.029 %
Sprint	0.092 %
T-Mobile	0.052 %
T-Mobile	0.115 %
T-Mobile	0.03 %
US Department of Homeland Security	0.028 %
US Department of Homeland Security	0.006 %
US Department of Homeland Security	0.02 %
US Department of Homeland Security	0 %
Unknown Carrier	0.059 %
Verizon Wireless	0.159 %
Verizon Wireless	0.183 %
Verizon Wireless	0.325 %
Verizon Wireless	0.131 %
<b>Composite Site MPE:</b>	<b>2.273 %</b>

**AT&T Mobility, LLC  
BETHANY CT  
Carrier Summary**

**Frequency:** 1900 MHz  
**Maximum Permissible Exposure (MPE):** 1000  $\mu\text{W}/\text{cm}^2$   
**Maximum power density at ground level:** 3.76407  $\mu\text{W}/\text{cm}^2$   
**Highest percentage of Maximum Permissible Exposure:** 0.37641 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
KMW	AM-X-CD-16-65-00T	158	0	4888	0.877007	0.087701	1.480814	0.148081
ANDREW	SBNH-1D6565C	158	120	6225	2.386373	0.238637	3.658633	0.365863
ANDREW	SBNH-1D6565C	158	240	6225	2.412871	0.241287	3.658633	0.365863

**AT&T Mobility, LLC  
BETHANY CT  
Carrier Summary**

Frequency: 737 MHz  
 Maximum Permissible Exposure (MPE): 491.33  $\mu\text{W}/\text{cm}^2$   
 Maximum power density at ground level: 1.97441  $\mu\text{W}/\text{cm}^2$   
 Highest percentage of Maximum Permissible Exposure: 0.40185 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
KMW	AM-X-CD-16-65-00T	158	0	3305	1.379544	0.280776	1.443331	0.293758
ANDREW	SBNH-1D6565C	158	120	3665	0.847873	0.172566	1.577483	0.321062
ANDREW	SBNH-1D6565C	158	240	3665	0.847572	0.172504	1.577483	0.321062

**AT&T Mobility, LLC  
BETHANY CT  
Carrier Summary**

Frequency: 850 MHz  
 Maximum Permissible Exposure (MPE): 566.67  $\mu\text{W}/\text{cm}^2$   
 Maximum power density at ground level: 0.75553  $\mu\text{W}/\text{cm}^2$   
 Highest percentage of Maximum Permissible Exposure: 0.13333 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
Powerwave	7770_00	158	0	1094	0.416374	0.073478	0.646931	0.114164
Powerwave	7770_00	158	120	1094	0.416905	0.073572	0.646931	0.114164
Powerwave	7770_00	158	240	1094	0.416374	0.073478	0.646931	0.114164

**Ligado Networks  
BETHANY CT  
Carrier Summary**

**Frequency:** 1670 MHz  
**Maximum Permissible Exposure (MPE):** 1000  $\mu\text{W}/\text{cm}^2$   
**Maximum power density at ground level:** 0.0113  $\mu\text{W}/\text{cm}^2$   
**Highest percentage of Maximum Permissible Exposure:** 0.00113 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
Kathrein-Scala	750_10074	326	0	100	0.011295	0.00113	0.011295	0.00113

**MetroPCS (Decommissioned)  
BETHANY CT  
Carrier Summary**

Frequency: 1900 MHz  
 Maximum Permissible Exposure (MPE): 1000  $\mu\text{W}/\text{cm}^2$   
 Maximum power density at ground level: 0  $\mu\text{W}/\text{cm}^2$   
 Highest percentage of Maximum Permissible Exposure: 0 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
RFS	APXV18-206517S-C	103	0	0	0	0	0	0
RFS	APXV18-206517S-C	103	120	0	0	0	0	0
RFS	APXV18-206517S-C	103	240	0	0	0	0	0

**Sigfox S.A. (Proposed)**  
**BETHANY CT**  
**Carrier Summary**

Frequency: 905.2 MHz  
 Maximum Permissible Exposure (MPE): 603.47  $\mu\text{W}/\text{cm}^2$   
 Maximum power density at ground level: 0.00257  $\mu\text{W}/\text{cm}^2$   
 Highest percentage of Maximum Permissible Exposure: 0.00043 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
Procom	CXL 900-3LW	147	0	1.22	0.002568	0.000426	0.002568	0.000426



**Sprint  
BETHANY CT  
Carrier Summary**

**Frequency:** 1990 MHz  
**Maximum Permissible Exposure (MPE):** 1000  $\mu\text{W}/\text{cm}^2$   
**Maximum power density at ground level:** 0.50326  $\mu\text{W}/\text{cm}^2$   
**Highest percentage of Maximum Permissible Exposure:** 0.05033 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
Commscope	NNVV-65B-R4	240	0	2781	0.379624	0.037962	0.498966	0.049897
Commscope	NNVV-65B-R4	240	120	2781	0.378349	0.037835	0.498966	0.049897
Commscope	NNVV-65B-R4	240	240	2781	0.379624	0.037962	0.498966	0.049897

**Sprint  
BETHANY CT  
Carrier Summary**

Frequency: 1900 MHz  
 Maximum Permissible Exposure (MPE): 1000  $\mu\text{W}/\text{cm}^2$   
 Maximum power density at ground level: 0.50326  $\mu\text{W}/\text{cm}^2$   
 Highest percentage of Maximum Permissible Exposure: 0.05033 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
Commscope	NNVV-65B-R4	240	0	2781	0.379624	0.037962	0.498966	0.049897
Commscope	NNVV-65B-R4	240	120	2781	0.378349	0.037835	0.498966	0.049897
Commscope	NNVV-65B-R4	240	240	2781	0.379624	0.037962	0.498966	0.049897

**Sprint  
BETHANY CT  
Carrier Summary**

**Frequency:** 869 MHz  
**Maximum Permissible Exposure (MPE):** 579.33  $\mu\text{W}/\text{cm}^2$   
**Maximum power density at ground level:** 0.16848  $\mu\text{W}/\text{cm}^2$   
**Highest percentage of Maximum Permissible Exposure:** 0.02908 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
Commscope	NNVV-65B-R4	240	0	951	0.149581	0.02582	0.153157	0.026437
Commscope	NNVV-65B-R4	240	120	951	0.149303	0.025772	0.153157	0.026437
Commscope	NNVV-65B-R4	240	240	951	0.149581	0.02582	0.153157	0.026437

**Sprint  
BETHANY CT  
Carrier Summary**

**Frequency:** 862 MHz  
**Maximum Permissible Exposure (MPE):** 574.67  $\mu\text{W}/\text{cm}^2$   
**Maximum power density at ground level:** 0.16848  $\mu\text{W}/\text{cm}^2$   
**Highest percentage of Maximum Permissible Exposure:** 0.02932 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
Commscope	NNVV-65B-R4	240	0	951	0.149581	0.026029	0.153157	0.026651
Commscope	NNVV-65B-R4	240	120	951	0.149303	0.025981	0.153157	0.026651
Commscope	NNVV-65B-R4	240	240	951	0.149581	0.026029	0.153157	0.026651

**Sprint  
BETHANY CT  
Carrier Summary**

Frequency: 2500 MHz  
 Maximum Permissible Exposure (MPE): 1000  $\mu\text{W}/\text{cm}^2$   
 Maximum power density at ground level: 0.91838  $\mu\text{W}/\text{cm}^2$   
 Highest percentage of Maximum Permissible Exposure: 0.09184 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
RFS	APXVTM14-C-120	240	0	6168	0.376046	0.037605	0.710322	0.071032
RFS	APXVTM14-C-120	240	120	6168	0.375855	0.037585	0.710323	0.071032
RFS	APXVTM14-C-120	240	240	6168	0.376046	0.037605	0.710323	0.071032

**T-Mobile  
BETHANY CT  
Carrier Summary**

Frequency: 700 MHz  
 Maximum Permissible Exposure (MPE): 466.67  $\mu\text{W}/\text{cm}^2$   
 Maximum power density at ground level: 0.24452  $\mu\text{W}/\text{cm}^2$   
 Highest percentage of Maximum Permissible Exposure: 0.0524 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
ANDREW	LNx-6515DS-VTM	220	0	1715	0.198739	0.042587	0.20323	0.043549
ANDREW	LNx-6515DS-VTM	220	120	1715	0.198687	0.042576	0.20323	0.043549
ANDREW	LNx-6515DS-VTM	220	240	1715	0.198739	0.042587	0.20323	0.043549

**T-Mobile  
BETHANY CT  
Carrier Summary**

Frequency: 2100 MHz  
 Maximum Permissible Exposure (MPE): 1000  $\mu\text{W}/\text{cm}^2$   
 Maximum power density at ground level: 1.15451  $\mu\text{W}/\text{cm}^2$   
 Highest percentage of Maximum Permissible Exposure: 0.11545 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
RFS	APX16DWV-16DWVS-C-A20	220	0	2536	1.146883	0.114688	1.146883	0.114688
RFS	APX16DWV-16DWVS-C-A20	220	120	2536	1.14662	0.114662	1.146883	0.114688
RFS	APX16DWV-16DWVS-C-A20	220	240	2536	1.146883	0.114688	1.146883	0.114688

**T-Mobile  
BETHANY CT  
Carrier Summary**

Frequency: 1900 MHz  
 Maximum Permissible Exposure (MPE): 1000  $\mu\text{W}/\text{cm}^2$   
 Maximum power density at ground level: 0.30321  $\mu\text{W}/\text{cm}^2$   
 Highest percentage of Maximum Permissible Exposure: 0.03032 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
RFS	APX16DWV-16DWVS-C-A20	220	0	2536	0.230001	0.023	0.276447	0.027645
RFS	APX16DWV-16DWVS-C-A20	220	120	2536	0.230031	0.023003	0.276447	0.027645
RFS	APX16DWV-16DWVS-C-A20	220	240	2536	0.230001	0.023	0.276447	0.027645



**US Department of Homeland Security  
BETHANY CT  
Carrier Summary**

Frequency: 160 MHz  
 Maximum Permissible Exposure (MPE): 200  $\mu\text{W}/\text{cm}^2$   
 Maximum power density at ground level: 0.05643  $\mu\text{W}/\text{cm}^2$   
 Highest percentage of Maximum Permissible Exposure: 0.02821 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
ANDREW	DB616E-BC	213	0	100	0.056427	0.028214	0.056427	0.028214

**US Department of Homeland Security  
BETHANY CT  
Carrier Summary**

Frequency: 450 MHz  
 Maximum Permissible Exposure (MPE): 300  $\mu\text{W}/\text{cm}^2$   
 Maximum power density at ground level: 0.01809  $\mu\text{W}/\text{cm}^2$   
 Highest percentage of Maximum Permissible Exposure: 0.00603 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
SINCLAIR	SC381-HL	314	0	100	0.018089	0.00603	0.018089	0.00603

**US Department of Homeland Security  
BETHANY CT  
Carrier Summary**

Frequency: 150 MHz  
 Maximum Permissible Exposure (MPE): 200  $\mu\text{W}/\text{cm}^2$   
 Maximum power density at ground level: 0.04089  $\mu\text{W}/\text{cm}^2$   
 Highest percentage of Maximum Permissible Exposure: 0.02044 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
SINCLAIR	SC281-L	317	0	100	0.018646	0.009323	0.01908	0.00954
SINCLAIR	SC281-L	283	0	100	0.022672	0.011336	0.023033	0.011517

**US Department of Homeland Security  
BETHANY CT  
Carrier Summary**

Frequency: 23000 MHz  
 Maximum Permissible Exposure (MPE): 1000  $\mu\text{W}/\text{cm}^2$   
 Maximum power density at ground level: 0.00172  $\mu\text{W}/\text{cm}^2$   
 Highest percentage of Maximum Permissible Exposure: 0.00017 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
R&S	ADD090	340	0	4	0.001703	0.00017	0.001717	0.000172

**Unknown Carrier  
BETHANY CT  
Carrier Summary**

**Frequency:** 450 MHz  
**Maximum Permissible Exposure (MPE):** 300  $\mu\text{W}/\text{cm}^2$   
**Maximum power density at ground level:** 0.17775  $\mu\text{W}/\text{cm}^2$   
**Highest percentage of Maximum Permissible Exposure:** 0.05925 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
Generic	Omni	291	0	100	0.084454	0.028151	0.084454	0.028151
Generic	Omni	266	0	100	0.095697	0.031899	0.095697	0.031899

**Verizon Wireless  
BETHANY CT  
Carrier Summary**

Frequency: 1900 MHz  
 Maximum Permissible Exposure (MPE): 1000  $\mu\text{W}/\text{cm}^2$   
 Maximum power density at ground level: 1.5865  $\mu\text{W}/\text{cm}^2$   
 Highest percentage of Maximum Permissible Exposure: 0.15865 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
Powerwave	P65-16-XL-2	184	0	3848	0.877337	0.087734	1.558678	0.155868
Powerwave	P65-16-XL-2	184	120	3848	0.877337	0.087734	1.558678	0.155868
Powerwave	P65-16-XL-2	184	240	3848	0.880697	0.08807	1.558678	0.155868

**Verizon Wireless  
BETHANY CT  
Carrier Summary**

**Frequency:** 751 MHz  
**Maximum Permissible Exposure (MPE):** 500.67  $\mu\text{W}/\text{cm}^2$   
**Maximum power density at ground level:** 0.91417  $\mu\text{W}/\text{cm}^2$   
**Highest percentage of Maximum Permissible Exposure:** 0.18259 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
Powerwave	P65-16-XL-2	184	0	2214	0.504855	0.100836	0.896925	0.179146
Powerwave	P65-16-XL-2	184	120	2214	0.504855	0.100836	0.896925	0.179146
Powerwave	P65-16-XL-2	184	240	2214	0.506789	0.101223	0.896925	0.179146

**Verizon Wireless  
BETHANY CT  
Carrier Summary**

Frequency: 850 MHz  
 Maximum Permissible Exposure (MPE): 566.67  $\mu\text{W}/\text{cm}^2$   
 Maximum power density at ground level: 1.84002  $\mu\text{W}/\text{cm}^2$   
 Highest percentage of Maximum Permissible Exposure: 0.32471 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
ANDREW	DB844H90E-XY	184	0	1268	0.609686	0.107592	0.882153	0.155674
ANDREW	DB844H90E-XY	184	0	1268	0.609686	0.107592	0.882153	0.155674
ANDREW	DB844H90E-XY	184	120	1268	0.610464	0.107729	0.882153	0.155674
ANDREW	DB844H90E-XY	184	120	1268	0.610464	0.107729	0.882153	0.155674
ANDREW	DB844H90E-XY	184	240	1268	0.609686	0.107592	0.882153	0.155674
ANDREW	DB844H90E-XY	184	240	1268	0.609686	0.107592	0.882153	0.155674



**Verizon Wireless  
BETHANY CT  
Carrier Summary**

**Frequency:** 2100 MHz  
**Maximum Permissible Exposure (MPE):** 1000  $\mu\text{W}/\text{cm}^2$   
**Maximum power density at ground level:** 1.30747  $\mu\text{W}/\text{cm}^2$   
**Highest percentage of Maximum Permissible Exposure:** 0.13075 %

Antenna Make	Model	Height (feet)	Orientation (degrees true)	ERP (Watts)	On Axis		Area	
					Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE	Max Power Density ( $\mu\text{W}/\text{cm}^2$ )	Percent of MPE
RYMSA	MG D3-800T0	184	0	4458	0.647299	0.06473	1.221447	0.122145
RYMSA	MG D3-800T0	184	120	4458	0.647299	0.06473	1.221447	0.122145
RYMSA	MG D3-800T0	184	240	4458	0.647299	0.06473	1.221447	0.122145



**EXHIBIT 4:**

**Letter of Authorization**



**LETTER OF AUTHORIZATION**

**SITE NO:** See Site List Below

**SITE NAME:** See Site List Below

**ADDRESS:** See Site List Below

I, Margaret Robinson, Senior Counsel, US Tower Division on behalf of American Tower\*, owner of the tower facility located at the address identified below (the "Tower Facilities"), do hereby authorize SIGFOX NIP LLC dba SIGFOX S.A., its successors and assigns, to act as American Tower's non-exclusive agent for the purpose of filing and securing any zoning, land-use, building permit and/or electrical permit application(s) and approvals of the applicable jurisdiction for and to conduct the construction of the installation of antennas and related telecommunications equipment on the Tower Facility located at the above address. This installation shall not affect adjoining lands and will occur only within the area leased by American Tower.

American Tower understands that the application may be denied, modified or approved with conditions. The above authorization is limited to the acceptance by American Tower of conditions related to American Tower's installation. Any such conditions of approval or modifications will not be effective unless approved in writing by American Tower.

The above authorization does not permit SIGFOX NIP LLC dba SIGFOX S.A to modify or alter any existing permit(s) and/or zoning or land-use conditions or impose any additional conditions unrelated to American Tower's installation of telecommunications equipment without the prior written approval of American Tower.

Sites Authorized (continued on the next page):

CT9000	ATC 302469
CT9001	ATC 88018
CT9081	ATC 88017
CT9122	ATC 88008
CT9123	ATC 88011
CT9184	ATC 88010



Asset Number	Site Name	Site Address	Site City	Site State	Site Zip
302469	Bridgeport CT 2	1069 Connecticut Avenue	Bridgeport	Connecticut	06607-1226
88018	STAMFORD (KATOONA)	168 Catoona Lane	Stamford	Connecticut	06902-4573
88017	SHELTON-TRUMBULL	14 OXFORD DRIVE/BOOTH HILL RD	SHELTON	Connecticut	06484-3455
88008	BETHANY CT	93 Old Amity Road	Bethany	Connecticut	06524-3400
88011	EAST KILLINGLY NORTH	1375 North Road	Killingly	Connecticut	06241-1404
88010	DURHAM CT	373 CHAMBERLAIN HILL RD	Higganum	Connecticut	06441-4062

Signature: \_\_\_\_\_

Margaret Robinson, Senior Counsel  
US Tower Division

**NOTARY BLOCK**

COMMONWEALTH OF MASSACHUSETTS  
County of Middlesex

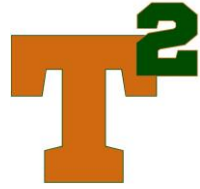
This instrument was acknowledged before me by Margaret Robinson, Senior Counsel of American Tower (Tower Facility owner), personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same.

WITNESS my hand and official seal, this 18<sup>th</sup> day of June, 2019.



Notary Public   
My Commission Expires: March 14, 2025

\* American Tower as used herein is defined as American Tower Corporations and any of its affiliates or subsidiaries.



**EXHIBIT 5:**

**Proof of Mailing to Local Land Use & Zoning Department**

**T-SQUARED SITE SERVICES**  
2500 Highland Road | Suite 201  
Hermitage, PA 16148 | 724.308.7855  
[www.t-sqrd.com](http://www.t-sqrd.com)



8/13/2019

FedEx Ship Manager - Print Your Label(s)

ORIGIN ID: YNSA (724) 308-7855  
 T-SQUARED SITE SERVICES, LLC  
 2500 HIGHLAND RD  
 SUITE 201  
 HERMITAGE, PA 16148  
 UNITED STATES US

SHIP DATE: 13AUG19  
 ACTWGT:  
 CAD: 108881036N/ET4160  
 BILL SENDER

TO  
 MS. ISABEL KERNS  
 BETHANY ZONING DEPARTMENT  
 BETHANY TOWN HALL  
 40 PECK ROAD  
 BETHANY CT 06524  
 (203) 393-2100 REF:

PO: DEPT:

TRK# 7759 7304 4740  
 (0201)  
 FRI - 16 AUG 4:30P  
 EXPRESS SAVER

SE EFBA  
 06524  
 CT-US BDL

7192019802481uz  
 FedEx  
 EXPRESS

567.3.8.E9E7.05.A2

**After printing this label:**

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning:** Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on [fedex.com](http://fedex.com). FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

**T-squared site services**  
 2500 Highland Road | Suite 201  
 Hermitage, PA 16148 | 724.308.7855  
[www.t-sqrd.com](http://www.t-sqrd.com)



8/13/2019

FedEx Ship Manager - Print Your Label(s)

**FedEx.** Shipment Receipt

**Address Information**

**Ship to:**

Ms. Isabel Kerns  
Bethany Zoning Department  
Bethany Town Hall  
40 Peck Road  
BETHANY, CT  
06524-3322  
US  
203-393-2100

**Ship from:**

T-Squared Site Services, LLC  
2500 Highland Rd  
Suite 201  
Hermitage, PA  
16148  
US  
7243087855

**Shipment Information:**

Tracking no.: 775973044740  
Ship date: 08/13/2019  
Estimated shipping charges: 8.65 USD

**Package Information**

Pricing option: FedEx One Rate  
Service type: FedEx Express Saver  
Package type: FedEx Envelope  
Number of packages: 1  
Total weight:  
Declared Value: 0.00 USD  
Special Services:  
Pickup/Drop-off: Drop off package at FedEx location

**Billing Information:**

Bill transportation to: My Account - 350-350  
Your reference:  
P.O. no.:  
Invoice no.:  
Department no.:

Thank you for shipping online with FedEx ShipManager at fedex.com.

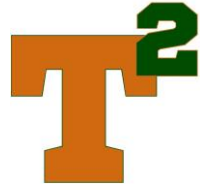
**Please Note**

FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1000, e.g., jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits; Consult the applicable FedEx Service Guide for details. The estimated shipping charge may be different than the actual charges for your shipment. Differences may occur based on actual weight, dimensions, and other factors. Consult the applicable FedEx Service Guide or the FedEx Rate Sheets for details on how shipping charges are calculated.

<https://www.fedex.com/shipping/shipAction.handle?method=doContinue>

2/2

**T-SQUARED SITE SERVICES**  
2500 Highland Road | Suite 201  
Hermitage, PA 16148 | 724.308.7855  
[www.t-sqrd.com](http://www.t-sqrd.com)



**EXHIBIT 6:**

**Proof of Mailing to Tower Owner/Property Owner**

**T-SQUARED SITE SERVICES**  
2500 Highland Road | Suite 201  
Hermitage, PA 16148 | 724.308.7855  
[www.t-sqrd.com](http://www.t-sqrd.com)





8/13/2019

FedEx Ship Manager - Print Your Label(s)

ORIGIN: D'YNGA (724) 308-7855  
T-SQUARED SITE SERVICES, LLC  
2500 HIGHLAND RD  
SUITE 201  
HERMITAGE, PA 16148  
UNITED STATES US

SHIP DATE: 13AUG19  
ACTWGT:  
CAD: 108861036MET4160  
BILL SENDER

TO: MR. JASON HASTIE  
AMERICAN TOWER CORP.  
10 PRESIDENTIAL WAY  
WOBURN MA 01801

(781) 926-7485 REF:  
No./ DEPT:

TRK# 7759 7311 8480  
0201

FRI - 16 AUG 4:30P  
EXPRESS SAVER

SE BEDA  
MA-US 01801  
BOS

567J3E9E705A2

**After printing this label:**

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning:** Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on fedex.com. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our ServiceGuide. Written claims must be filed within strict time limits, see current FedEx Service Guide.

**T-SQUARED SITE SERVICES**  
2500 Highland Road | Suite 201  
Hermitage, PA 16148 | 724.308.7855  
[www.t-sqrd.com](http://www.t-sqrd.com)



8/13/2019

FedEx Ship Manager - Print Your Label(s)



Shipment Receipt

**Address Information**

**Ship to:**

Mr. Jason Hastie  
American Tower Corp.  
10 Presidential Way

WOBURN, MA  
01801  
US  
7819267485

**Ship from:**

T-Squared Site Services, LLC

2500 Highland Rd  
Suite 201  
Hermitage, PA  
16148  
US  
7243087855

**Shipment Information:**

Tracking no.: 775973118480  
Ship date: 08/13/2019  
Estimated shipping charges: 8.65 USD

**Package Information**

Pricing option: FedEx One Rate  
Service type: FedEx Express Saver  
Package type: FedEx Envelope  
Number of packages: 1  
Total weight:  
Declared Value: 0.00 USD  
Special Services:  
Pickup/Drop-off: Drop off package at FedEx location

**Billing Information:**

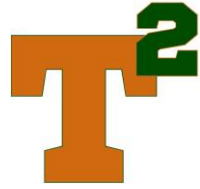
Bill transportation to: My Account - 350-350  
Your reference:  
P.O. no.:  
Invoice no.:  
Department no.:

Thank you for shipping online with FedEx ShipManager at fedex.com.

**Please Note**

FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1000, e.g., jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits. Consult the applicable FedEx Service Guide for details. The estimated shipping charge may be different than the actual charges for your shipment. Differences may occur based on actual weight, dimensions, and other factors. Consult the applicable FedEx Service Guide or the FedEx Rate Sheets for details on how shipping charges are calculated.

**T-SQUARED SITE SERVICES**  
2500 Highland Road | Suite 201  
Hermitage, PA 16148 | 724.308.7855  
[www.t-sqrd.com](http://www.t-sqrd.com)



**EXHIBIT 7:**

**Proof of Mailing to Chief Elected Official**

**T-SQUARED SITE SERVICES**  
2500 Highland Road | Suite 201  
Hermitage, PA 16148 | 724.308.7855  
[www.t-sqrd.com](http://www.t-sqrd.com)



8/13/2019

FedEx Ship Manager - Print Your Label(s)

ORIGIN ID:YNCA (724) 308-7855  
T-SQUARED SITE SERVICES, LLC  
2500 HIGHLAND RD  
SUITE 201  
HERMITAGE, PA 16148  
UNITED STATES US

SHIP DATE: 13AUG19  
ACTIVITY:  
CAD: 108981038/MET14180  
BILL SENDER

TO  
**MS. PAULA COFRANCESCO, FIRST SELECT**  
**TOWN OF BETHANY**  
**BETHANY TOWN HALL**  
**40 PECK ROAD**  
**BETHANY CT 06524**

REF: (203) 393-2100  
NO. DEPT: 567.03E9E705A2

TRK# 7759 7323 0245  
0201

FRI - 16 AUG 4:30P  
EXPRESS SAVER

SE EFBA  
CT-US BDL  
06524





**After printing this label:**

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

**Warning:** Use only the printed original label for shipping. Using a photocopy of this label for shipping purposes is fraudulent and could result in additional billing charges, along with the cancellation of your FedEx account number.

Use of this system constitutes your agreement to the service conditions in the current FedEx Service Guide, available on [fedex.com](http://fedex.com). FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1,000, e.g. jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits, see current FedEx Service Guide.



8/13/2019

FedEx Ship Manager - Print Your Label(s)



Shipment Receipt

**Address Information**

**Ship to:**

Ms. Paula Cofrancesco, First  
Select

Town of Bethany  
Bethany Town Hall  
40 Peck Road  
BETHANY, CT  
06524-3322  
US  
203-393-2100

**Ship from:**

T-Squared Site Services, LLC

2500 Highland Rd  
Suite 201  
Hermitage, PA  
16148  
US  
7243087855

**Shipment Information:**

Tracking no.: 775973230245  
Ship date: 08/13/2019  
Estimated shipping charges: 8.65 USD

**Package Information**

Pricing option: FedEx One Rate  
Service type: FedEx Express Saver  
Package type: FedEx Envelope  
Number of packages: 1  
Total weight:  
Declared Value: 0.00 USD  
Special Services:  
Pickup/Drop-off: Drop off package at FedEx location

**Billing Information:**

Bill transportation to: My Account - 350-350  
Your reference:  
P.O. no.:  
Invoice no.:  
Department no.:

Thank you for shipping online with FedEx ShipManager at fedex.com.

**Please Note**

FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1000, e.g., jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits; Consult the applicable FedEx Service Guide for details. The estimated shipping charge may be different than the actual charges for your shipment. Differences may occur based on actual weight, dimensions, and other factors. Consult the applicable FedEx Service Guide or the FedEx Rate Sheets for details on how shipping charges are calculated.

**T-SQUARED SITE SERVICES**  
2500 Highland Road | Suite 201  
Hermitage, PA 16148 | 724.308.7855  
[www.t-sqrd.com](http://www.t-sqrd.com)