Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

May 11, 2018

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 374 Three Mile Road, Glastonbury, CT 06033**

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 374 Three Mile Road, Glastonbury, CT (the "Property"). The existing 151-foot monopole is owned by Crown Atlantic Company LLC ("Crown Castle"), the underlying property is owned by Josephine and John Flanagan. Sigfox requests that the Council find that the proposed shared use of the Crown Castle tower satisfies the criteria of C.G.S. §16-50aa and issue an order approving the proposed shared us. A copy of this filing is being mailed to the land owner, Richard J. Johnson, Town Manager, and Khara Dodds, Director of Land Use and Planning.

Background

The existing Crown Castle facility consists of a 151-foot monopole tower on a 20,500 square foot lease area south east of the intersection of Hebron Ave and VFW Memorial Hwy. Verizon maintains antennas at the 147-foot level. Equipment associated with the Verizon antennas is located west of the tower. AT&T maintains the 137 foot level. Equipment associated with the AT&T antennas is located southeast of the tower. T-Mobile maintains equipment at the 116-foot level. Equipment associated with the T-Mobile antennas is located north of the tower. Sprint PCS maintains antennas at the 95-foot level. Equipment associated with the Sprint antennas is located northeast of the tower.

Sigfox is licensed by the Federal Communications Commission ("FCC") to provide wireless services throughout the State of Connecticut. Sigfox and Crown Castle have agreed to the proposed shared use of the 300 Governors Highway tower pursuant to mutually acceptable terms and conditions. Likewise, Sigfox and Crown Castle have agreed to the proposed installation of equipment cabinets on the ground on the southeast side of the tower. Crown Castle has authorized Sigfox to apply for all necessary permits and approvals that may be required to share the existing tower. (See Owner's authorization letter).

Sigfox proposes add one (1) omni antenna, one (1) line of coaxial cable; one (1) filter, and one (1) TMA on the existing tower at 124 feet above ground level. They propose to add one (1) equipment cabinet

within the existing ground space. They also propose to remove the abandoned equipment at the 124-foor level. Included in the Construction Drawings are Sigfox's project specifications for locations of all proposed site improvements.

C.G.S. § 16-50aa(c)(1) provides that, upon written request for approval of a proposed shared use, "if the Council finds that het 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 Crown Castle tower is structurally capable of supporting Sigfox's proposed improvements. The prosed 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 Crown Castle 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 Crown Castle 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 124 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 Crown Castle facility other than periodic maintenance. The proposed shared use of the Crown Castle 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 Crown Castle 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 Crown Castle tower.

Conclusion

For the reasons discussed above, the proposed shared use of the existing Crown Castle tower at 300 Governors Highway satisfies the criteria state in C.G.S. §16-50aa and advances the General Assembly's and 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 prosed shared use.

Sincerely,

William Stone
Real Estate Specialist
3 Corporate Park Drive
Suite 101
Clifton Park, NY 12065
518-373-3543
William.stone@crowncastle.com

Attachments:

Tab 1: Exhibit-1: Compound plan and elevation depicting the planned changes
Tab 2: Exhibit-2: Structural Modification Report
Tab 3: Exhibit-3: General Power Density Table report (RF Emissions Analysis Report)

Copies to:

Richard J. Johnson
Town Manager
2155 Main Street
Glastonbury, CT 06033

Khara Dodds
Director of Land Use and Planning
2155 Main Street
Glastonbury, CT 06033

Crown Castle (Tower Owner)
3 Corporate Park Dr, Suite 101
Clifton Park, NY 12065

Josephine and John Flanagan (Land Owner)
366 THREE MILE ROAD
GLASTONBURY, CT 06033

DOCKET NO. 174 - An application of Cellco Partnership d/b/a Bell Atlantic NYNEX Mobile for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a cellular telecommunications facility and associated equipment located within an approximately 30-acre parcel at 366 Three Mile Road, in the East Glastonbury section of the Town of Glastonbury, Connecticut. The proposed alternate one site is located within the same approximately 30-acre parcel at 366 Three Mile Road. The proposed alternate two site is located within an approximately 50-acre parcel at 1952 New London Turnpike, in the East Glastonbury section of the Town of Glastonbury, Connecticut.

Connecticut Siting Council

October 21, 1996

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a cellular telecommunications tower and equipment building at the proposed prime site in Glastonbury, Connecticut, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Bell Atlantic NYNEX Mobile (BANM) for the construction, operation, and maintenance of a cellular telecommunications tower, associated equipment, and building at the proposed prime site, located within a 30-acre parcel at Three Mile Road, Glastonbury, Connecticut. We find the effects on scenic resources and adjacent land uses of the first alternate site and second alternate site to be significant, and therefore deny certification of these sites.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed communications service, sufficient to accommodate the antennas of Springwich Cellular Limited Partnership and the Town of Glastonbury, and not to exceed a height of 150 feet above ground level (AGL).

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include relocation of the tower within the leased parcel to prevent the fall zone of the tower from crossing the nearby Connecticut Light and Power Company transmission lines; plans for the tower foundation; specifications for the placement of all antennas to be attached to this tower; plans for the equipment building and security fence; plans for the access road and utility line installation from Three Mile Road; plans for site clearing and tree trimming; plans for water drainage and erosion and sedimentation controls consistent with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, and plans for the

construction of an architecturally treated gate at the entrance to the access road from Three Mile Road; and plans for the installation of a propane tank to fuel the emergency generator.

3. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

4. The Certificate Holder shall provide the Council a recalculated report of electromagnetic radio frequency power density if and when circumstances in operation cause a change in power density above the levels originally calculated and provided in the application.

5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

6. If the facility does not initially provide, or permanently ceases to provide cellular services following completion of construction, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapplication for any continued or new use shall be made to the Council before any such use is made.

7. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the effective date of this Decision and Order or within three years after all appeals to this Decision and Order have been resolved.

8. The Certificate Holder shall notify the Council upon completion of construction and provide the final cost to construct the facility.

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The Hartford Courant and The Glastonbury Citizen.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

APPLICANT	**ITS REPRESENTATIVE**
Bell Atlantic NYNEX Mobile	Kenneth C. Baldwin, Esq. Brian C. S. Freeman, Esq. Robinson & Cole One Commercial Plaza Hartford, CT 06103-3597 Mr. David S. Malko, P.E. Sandy M. Ranciato, Manager - Real Estate/Zoning Bell Atlantic NYNEX Mobile

	20 Alexander Drive Wallingford, CT 06492
PARTY Town of Glastonbury	**ITS REPRESENTATIVE** William S. Fish, Jr., Esq. Kevin S. Murphy, Esq. Tyler, Cooper & Alcorn CityPlace - 35th Floor Hartford, CT 06103-3488
INTERVENOR Springwich Cellular Limited Partnership	**ITS REPRESENTATIVE** Peter J. Tyrrell, Esq. Springwich Cellular Limited Partnership 500 Enterprise Drive Rocky Hill, CT 06067-3900

Town of Glastonbury GIS Parcel Report

Report Generated 4/18/2018 1:03:02 PM

Owner of Record

GIS ID: 70600374
Owner: FLANAGAN JOSEPHINE I+JOHN R
Co-Owner:
Address: 366 THREE MILE RD
City, State ZIP: GLASTONBURY, CT 06033

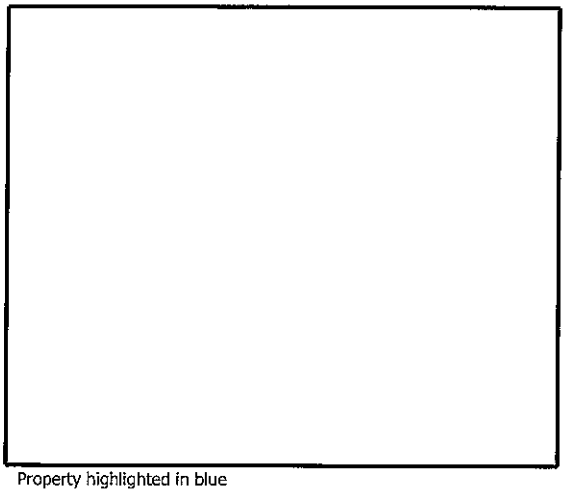
Account Number: 70600374
Property Address: 374 THREE MILE RD

Parcel Information

Map/Street/Lot I8 / 7060 / S0035 **Property ID:** 13664
Developer Lot ID: 72 **Water:** Well
Parcel Acreage: 9.08 **Sewer:** Septic
Zoning Code: RR **Census:** 5204

Valuation Summary

Item	Appraised Value	Assessed Value
Buildings	0	0
Land	1044200	684200
Appurtenances	173300	121300
Total	**1217500**	**805500**



Property highlighted in blue

Building Picture Not Applicable

Owner of Record	Deed / Page	Sale Date	Sale Price
FLANAGAN JOSEPHINE I+JOHN R	2725/0212	12/31/2009	0
FLANAGAN JOSEPHINE I TRUSTEE	2725/0205	12/31/2009	0
FLANAGAN JOSEPHINE I TRUSTEE	2725/ 210	12/31/2009	0
FLANAGAN JOSEPHINE I TRUSTEE	1884/0085	07/30/2003	0
FLANAGAN JOSEPHINE I TR+JOSEPHINE I	1828/0149	06/02/2003	0
FLANAGAN JOSEPHINE I TR+JAMES F	1828/0145	06/02/2003	0
FLANAGAN JOSEPHINE+JAMES F	0251/1107	12/31/1980	0

Building Information

Building ID 0

Year Constructed :
Building Type :
Style :
Occupancy :
Stories :
Building Zone :
Roof Type :
Roof Material :
Est. Gross S.F. :
Est. Living S.F. :

Number of Rooms :
Number of Bedrooms :
Number of Bathrooms :
Number of Half-Baths :
Exterior Wall :
Interior Wall :
Interior Floor :
Interior Floor #2 :
Air Conditioning Type :
Heat Type :
Fuel Type :

Building Sketch Not Applicable

Subarea Type	Est. Gross S.F.	Est. Living S.F.

Outbuilding Type	Est. Gross S.F.	Comments
Cell Shed	924.00	

Town of Glastonbury Public Mobile GIS

HTML5 - SilverLight FREE ZONE

374 three mile

Sign in

I want to...

Default WKID: 102656 Lat/Long ▲

Lat: 41.69378° N
Lon: 72.53810° W

0 150 300ft

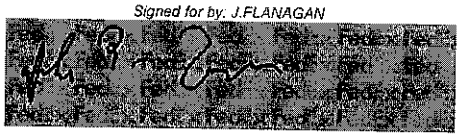
772196043802

Ship date:
Wed 5/09/2018

Crown Castle
Rebecca Alescio
Suite 101
3 Corporate Park Drive
Clifton Park, NY US 12065
518 373-3547

Delivered

Signed for by: J.FLANAGAN



Actual delivery:
Thu 5/10/2018 10:13 am

Josephine and John Flanagan
366 Three Mile Road
GLASTONBURY, CT US 06033
518 373-3543

Travel History

Date/Time	Activity	Location
- 5/10/2018 - Thursday		
10:13 am	Delivered	GLASTONBURY, CT
8:11 am	On FedEx vehicle for delivery	WINDSOR LOCKS, CT
7:48 am	At local FedEx facility	WINDSOR LOCKS, CT
7:00 am	At destination sort facility	EAST GRANBY, CT
3:30 am	Departed FedEx location	NEWARK, NJ
- 5/09/2018 - Wednesday		
11:34 pm	Arrived at FedEx location	NEWARK, NJ
8:39 pm	Left FedEx origin facility	MENANDS, NY
6:18 pm	Picked up	MENANDS, NY
4:01 pm	Shipment information sent to FedEx	

Shipment Facts

Tracking Number	772196043802	**Service**	FedEx Priority Overnight
Weight	1 lbs / 0.45 kgs	**Signature services**	Direct signature required
Delivery attempts	1	**Delivered To**	Residence
Total pieces	1	**Total shipment weight**	1 lbs / 0.45 kgs
Terms	Not Available	**Invoice number**	982898
Shipper reference	1766.668	**Packaging**	FedEx Pak
Special handling section	Deliver Weekday, Residential Delivery, Direct Signature Required	**Standard transit**	5/10/2018 by 10:30 am

772211434180

Ship date:
Fri 5/11/2018

Crown Castle
Rebecca Alescio
Suite 101
3 Corporate Park Drive
Clifton Park, NY US 12065
518 373-3547

Delivered

Signed for by: M.LOGGIA

Actual delivery:
Mon 5/14/2018 10:12 am

Richard Johnson, Town Manager
Glastonbury
2155 Main St
GLASTONBURY, CT US 06033
860 652-7500

Travel History

Date/Time	Activity	Location
- 5/14/2018 - Monday		
10:12 am	Delivered	GLASTONBURY, CT
8:30 am	On FedEx vehicle for delivery	WINDSOR LOCKS, CT
7:32 am	At local FedEx facility	WINDSOR LOCKS, CT
- 5/13/2018 - Sunday		
6:36 pm	At destination sort facility	EAST GRANBY, CT
3:12 pm	Departed FedEx location	MEMPHIS, TN
- 5/11/2018 - Friday		
8:24 pm	Left FedEx origin facility	MENANDS, NY
6:16 pm	Picked up	MENANDS, NY
10:00 am	Shipment information sent to FedEx	

Shipment Facts

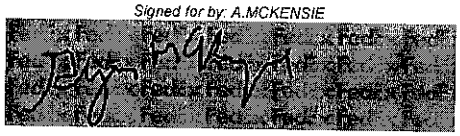
Tracking Number	772211434180	**Service**	FedEx Priority Overnight
Weight	1 lbs / 0.45 kgs	**Signature services**	Direct signature required
Delivery attempts	1	**Delivered To**	Receptionist/Front Desk
Total pieces	1	**Total shipment weight**	1 lbs / 0.45 kgs
Terms	Not Available	**Invoice number**	982896
Shipper reference	1766.668	**Packaging**	FedEx Pak
Special handling section	Deliver Weekday, Direct Signature Required	**Standard transit**	5/14/2018 by 10:30 am

772196023914

Ship date:
Wed 5/09/2018

Crown Castle
Rebecca Alescio
Suite 101
3 Corporate Park Drive
Clifton Park, NY US 12065
518 373-3547

Delivered
Signed for by: A.MCKENSIE



Actual delivery:
Thu 5/10/2018 10:13 am

Khara Dodds, Director of Planning
Glastonbury
2155 Main St
GLASTONBURY, CT US 06033
860 652-7500

Travel History

Date/Time	Activity	Location
- 5/10/2018 - Thursday		
10:13 am	Delivered	GLASTONBURY, CT
8:28 am	On FedEx vehicle for delivery	WINDSOR LOCKS, CT
7:48 am	At local FedEx facility	WINDSOR LOCKS, CT
7:00 am	At destination sort facility	EAST GRANBY, CT
3:30 am	Departed FedEx location	NEWARK, NJ
- 5/09/2018 - Wednesday		
11:34 pm	Arrived at FedEx location	NEWARK, NJ
8:39 pm	Left FedEx origin facility	MENANDS, NY
6:18 pm	Picked up	MENANDS, NY
4:00 pm	Shipment information sent to FedEx	

Shipment Facts

Tracking Number	772196023914	**Service**	FedEx Priority Overnight
Weight	1 lbs / 0.45 kgs	**Signature services**	Direct signature required
Delivery attempts	1	**Delivered To**	Receptionist/Front Desk
Total pieces	1	**Total shipment weight**	1 lbs / 0.45 kgs
Terms	Not Available	**Invoice number**	982896
Shipper reference	1766.668	**Packaging**	FedEx Pak
Special handling section	Deliver Weekday, Direct Signature Required	**Standard transit**	5/10/2018 by 10:30 am

Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277

Crown Castle, does hereby authorize **Sigfox NIP LLC** and its authorized contractors/agents to act as "Applicant" in the processing of all applications, permits, research and other related activities associated with the processing, planning, design review, permitting, entitlement and construction of additional equipment, antennas and site improvements for the Crown Castle existing wireless communications facility described as follows:

Customer Site Name:	**CT8610**	**Crown Castle Site ID Number:**	**806368**
Site Address:	**374 Three Mile Road**	**Crown Castle Site Name:**	**HRT 049B 943215**

This authorization is fully contingent upon **Sigfox NIP LLC** authorized contractors/agents' compliance with the following conditions:

1. Crown Castle must review the application prior to submittal. Crown Castle must be provided all applications, narratives, drawings and attachments at least 72 hours in advance of their submittal to the locality. Use of email and electronic attachments is encouraged. A Crown Castle Zoning Subject Matter Expert (SME) will review and provide written comment to the customer within 48 hours of receipt of a complete set of application materials. If Crown Castle indicates that changes are required, submissions shall be altered in accordance with Crown Castle comments prior to submission to the locality. Verification of corrections should also be accomplished via emails and attachments.
2. In no event may **Sigfox NIP LLC** encourage, suggest, participate in, or permit the imposition of any restrictions or additional obligations whatsoever on the tower site or Crown Castle's current or future use or ability to license space at the tower site as part of or in exchange for obtaining any approval, permit, exception or variance.
3. A copy of the final permit and/or a written summary of the zoning/entitlement decision rendered by the locality and any/all conditions placed on that decision shall be communicated in detail to Crown Castle well within the appeal period provided by the locality (typically 10-15 days).
4. All conditions of approval pertinent to the construction of the proposed project must be included in the construction drawings for the project. The conditions of approval pertinent to the construction of the project shall be copied verbatim from the zoning permit approval language, and shall be present in the drawings prior to submission for building permits and contractor bidding. Crown Castle shall verify the inclusion of appropriate conditions of approval in the construction drawing redline process.
5. Crown Castle will provide a Notice To Proceed (NTP) to construction to the customer upon receipt of the final approved zoning permit and the approved Building Permit.

By Crown Castle:

Signature:

Printed Name: William Stone

Title: Real Estate Specialist – East Area

Date: 5/9/18

SIGFOX
One network A billion dreams

SIGFOX SITE NUMBER: CT8610
SIGFOX SITE NAME: HRT 049B 943215
SITE TYPE: MONOPOLE
TOWER HEIGHT: 145'-0"

BUSINESS UNIT #: 806368
SITE ADDRESS: 374 THREE MILE RD. GLASTONBURY, CT 06033
COUNTY: HARTFORD
JURISDICTION: TOWN OF GLASTONBURY

SIGFOX PHASE 1

SITE INFORMATION

SITE NAME:	HRT 049B 943215
SITE ADDRESS:	374 THREE MILE RD. GLASTONBURY, CT 06033
COUNTY:	HARTFORD
MAP/PARCEL #:	GLAS-047600-000062N
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41° 41' 36.93"
LONGITUDE:	-72° 32' 50.11"
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	476 FT.
CURRENT ZONING:	RR
JURISDICTION:	TOWN OF GLASTONBURY
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	FLANAGAN, JOHN R 366 THREE MILE ROAD GLASTONBURY, CT 06033
TOWER OWNER:	CROWN ATLANTIC COMPANY LLC 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	SIGFOX 545 BOYLSTON STREET - FLOOR 10 BOSTON, MA 02116
CROWN CASTLE USA INC. APPLICATION ID:	426661
ELECTRIC PROVIDER:	CONNECTICUT LIGHT & POWER CO (800) 286-2000
TELCO PROVIDER:	AT&T (866) 620-6900

PROJECT TEAM

A&E FIRM:	CROWN CASTLE USA INC. 2000 CORPORATE DRIVE CANONSBURG, PA 15317 CROWNAE.APPROVAL@CROWNCASTLE.COM
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3 CORPORATE PARK DRIVE, SUITE 101 CLIFTON PARK, NY 12065 BRENT MCPHERSON - PROJECT MANAGER (980) 209-8249 JASON D'AMICO - CONSTRUCTION MANAGER (860) 209-0104 AMANDA CORNWALL - A&E PROJECT MANAGER AMANDA.CORNWALL@CROWNCASTLE.COM (339) 205-7017
SIGFOX CONTACT:	FRANCO CORBO (201) 887-2226

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1	OVERALL SITE PLAN
C-2	TOWER ELEVATION & ANTENNA LAYOUT
C-3	DETAILS
C-4	DETAILS
C-5	BILL OF MATERIALS
E-1	UTILITY ROUTING PLAN
G-1	GROUNDING DETAILS
G-2	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 11x17. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

PROJECT DESCRIPTION

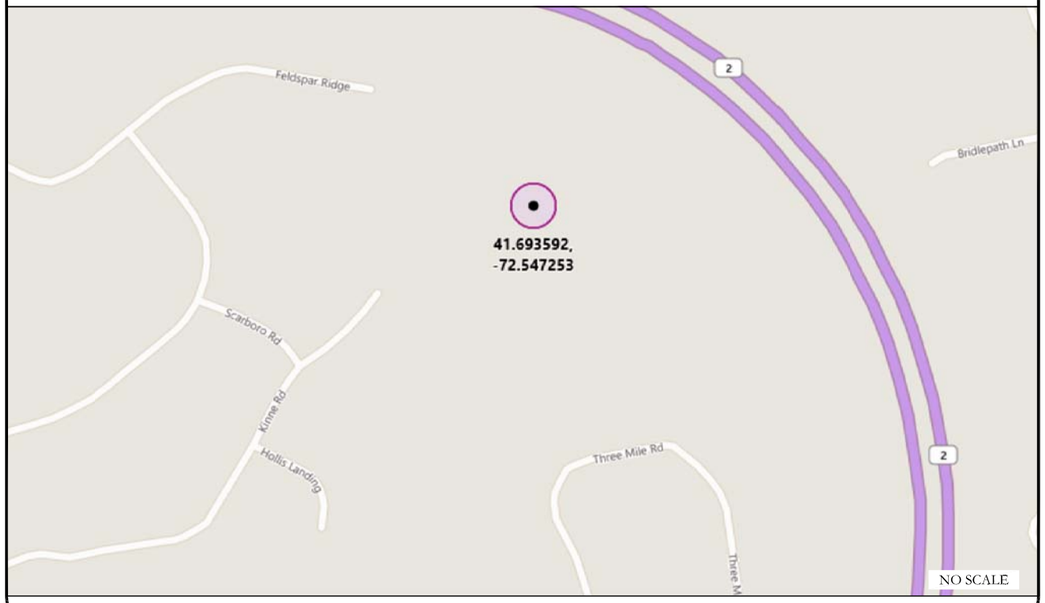
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK
- REMOVE EXISTING EQUIPMENT AT 126'-0" MCL
- INSTALL VALMONT RING MOUNT W/ 2-1/2" SCH 40 PIPE
- INSTALL CONNECT-IT - S4 4'-0" STAND OFF
- INSTALL (1) PROCOM - CXL 900-3LW OMNI ANTENNA W/ MOUNTING CLAMPS
- INSTALL LNA W/ CAVITY FILTER
- INSTALL (1) 1/2" EC4-50 FEEDLINE

GROUND SCOPE OF WORK
- INSTALL BASE STATION, UPS, PRIMARY CONNECTIVITY MODEM, LOAD CENTER & BACKUP CONNECTIVITY GSM USB KEY INSIDE EXISTING SHELTER IN A 3'-0"x3'-0" AREA
- INSTALL POWER TO CABINET

DESIGN PACKAGE BASED ON THE APPLICATION ID: 426661
REVISION: 5

LOCATION MAP



APPLICABLE CODES/REFERENCE DOCUMENTS

ALL WORK SHALL BE PERFORMED AND MATERIALS 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 CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

CODE TYPE	CODE
BUILDING	2016 CT STATE BUILDING CODE/2012 IBC W/ CT AMENDMENTS
MECHANICAL	2016 CT STATE BUILDING CODE/2012 IMC W/ CT AMENDMENTS
ELECTRICAL	2016 CT STATE BUILDING CODE/2014 NEC W/ CT AMENDMENTS

REFERENCE DOCUMENTS:

STRUCTURAL OPINION LETTER: BY CROWN CASTLE DATED MARCH 15, 2018

MOUNT ANALYSIS: BY OTHERS

NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER

CALL CONNECTICUT ONE CALL
(800) 922-4455
CALL 3 WORKING DAYS
BEFORE YOU DIG!

SIGFOX
One network A billion dreams
545 BOYLSTON STREET - FLOOR 10
BOSTON, MA 02116

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

SIGFOX SITE NUMBER: **CT8610**

BU #: **806368**
HRT 049B 943215

374 THREE MILE RD.
GLASTONBURY, CT 06033

EXISTING 145'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/05/18	NJH	PRELIMINARY	LMR
0	04/06/18	LMR	CONSTRUCTION	JPL

DocuSigned by:
Justin Linette
1B4005254704...

STATE OF CONNECTICUT
JUSTIN PETER LINETTE
No. 31965
LICENSED PROFESSIONAL ENGINEER

4/6/2018 10:57:54 AM EDT

Crown Castle USA Inc. Certificate of Registration #PEC.0001101

Justin Peter Linette, P.E.
Professional Engineer License: #31965
Crown Castle USA, Inc. Certificate of Registration #PEC.0001101

SHEET NUMBER: T-1

REVISION: 0

SITE WORK GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION.
3. ALL SITE WORK TO COMPLY WITH QAS-STD-10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE" AND LATEST VERSION OF TIA 1019 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
4. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS.
5. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
6. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, OWNER AND/OR LOCAL UTILITIES.
7. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
8. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
9. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
10. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
11. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE PROJECT SPECIFICATIONS.
12. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
13. NOTICE TO PROCEED– NO WORK TO COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF A PURCHASE ORDER.
14. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN STANDARD CED-STD-10253 INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH THE ANSI/TIA-322 (LATEST EDITION).

STRUCTURAL STEEL NOTES:

1. ALL STEEL WORK SHALL BE PAINTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND IN ACCORDANCE WITH ASTM A36 UNLESS OTHERWISE NOTED.
2. BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE (3/4"ø) CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
3. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8"ø ASTM A307 BOLTS UNLESS NOTED OTHERWISE.
4. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS.

CONCRETE AND REINFORCING STEEL NOTES:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. SLAB FOUNDATION DESIGN ASSUMING ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:

   CONCRETE CAST AGAINST EARTH..................3 IN.
   CONCRETE EXPOSED TO EARTH OR WEATHER:
   #6 AND LARGER..................................2 IN.
   #5 AND SMALLER & WWF..................1 1/2 IN.
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND:
   SLAB AND WALLS................................3/4 IN.
   BEAMS AND COLUMNS........................1 1/2 IN.

5. A CHAMFER 3/4" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE. IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

MASONRY NOTES:

1. HOLLOW CONCRETE MASONRY UNITS SHALL MEET A.S.T.M. SPECIFICATION C90, GRADE N. TYPE 1. THE SPECIFIED DESIGN COMPRESSIVE STRENGTH OF CONCRETE MASONRY (F'm) SHALL BE 1500 PSI.
2. MORTAR SHALL MEET THE PROPERTY SPECIFICATION OF A.S.T.M. C270 TYP. "S" MORTAR AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI.
3. GROUT SHALL MEET A.S.T.M. SPECIFICATION C475 AND HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2000 PSI.
4. CONCRETE MASONRY SHALL BE LAID IN RUNNING (COMMON) BOND.
5. WALL SHALL RECEIVE TEMPORARY BRACING. TEMPORARY BRACING SHALL NOT BE REMOVED UNTIL GROUT IS FULLY CURED.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

   CONTRACTOR– ___________
   SUBCONTRACTOR– GENERAL CONTRACTOR (CONSTRUCTION)
   CARRIER– SIGFOX
   TOWER OWNER– CROWN CASTLE USA INC.
   OEM– ORIGINAL EQUIPMENT MANUFACTURER

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR AND CROWN CASTLE USA INC.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO SCALE AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR AND CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWINGS.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

ABBREVIATIONS AND SYMBOLS:

ABBREVIATIONS:

AGL	ABOVE GRADE LEVEL
BTS	BASE TRANSCEIVER STATION
(E)	EXISTING
MIN.	MINIMUM
REF	REFERENCE
RF	RADIO FREQUENCY
T.B.D.	TO BE DETERMINED
T.B.R.	TO BE RESOLVED
TYP	TYPICAL
REQ	REQUIRED
EGR	EQUIPMENT GROUND RING
AWG	AMERICAN WIRE GAUGE
MGB	MASTER GROUND BAR
EG	EQUIPMENT GROUND
BCW	BARE COPPER WIRE
SIAD	SMART INTEGRATED ACCESS DEVICE
GEN	GENERATOR
IGR	INTERIOR GROUND RING (HALO)
RBS	RADIO BASE STATION

SYMBOLS:

S/G	SOLID GROUND BUS BAR
S/N	SOLID NEUTRAL BUS BAR
	SUPPLEMENTAL GROUND CONDUCTOR
	2-POLE THERMAL-MAGNETIC CIRCUIT BREAKER
	SINGLE-POLE THERMAL-MAGNETIC CIRCUIT BREAKER
	CHEMICAL GROUND ROD
	TEST WELL
	DISCONNECT SWITCH
M	METER
	EXOTHERMIC WELD (CADWELD) (UNLESS OTHERWISE NOTED)
	MECHANICAL CONNECTION
	GROUNDING WIRE

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC. HILTI EPOXY ANCHORS ARE REQUIRED BY CROWN CASTLE USA INC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
5. CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
6. EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH PLASTIC TAPE PER COLOR SCHEDULE. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (I.E. PANEL BOARD AND CIRCUIT ID'S).
8. PANEL BOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
10. POWER, CONTROL AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET & DRY) OPERATION LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED UNLESS OTHERWISE SPECIFIED.
11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION WITH OUTER JACKET LISTED OR LABELED FOR THE LOCATION USED UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E. RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT) OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
21. WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER).
22. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHIN ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
23. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL; SHALL MEET OR EXCEED UL 50 AND RATED NEMA 1 (OR BETTER) INDOORS OR NEMA 3R (OR BETTER) OUTDOORS.
24. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
25. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
26. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
27. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
28. INSTALL PLASTIC LABEL ON THE METER CENTER TO SHOW "SIGFOX".
29. ALL CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 AWG SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 FT. OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS, WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 TINNED SOLID IN 3/4" LIQUID TIGHT CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE LIQUID TIGHT CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).

NEC INSULATOR COLOR CODE

DESCRIPTION	PHASE/CODE LETTER	WIRE COLOR
240/120 1Ø	LEG 1	BLACK
	LEG 2	RED
AC NEUTRAL	N	WHITE
GROUND (EGC)	G	GREEN
VDC POS	+	*RED-POLARITY MARK AT TERMINATION
VDC NEG	–	*BLACK-POLARITY MARK AT TERMINATION
240V OR 208V, 3Ø	PHASE A	BLACK
	PHASE B	RED(ORG. IF HI LEG)
	PHASE C	BLUE
480V, 3Ø	PHASE A	BROWN
	PHASE B	ORANGE
	PHASE C	YELLOW

* SEE NEC 210.5(C)(1) AND (2)

SIGFOX
One network A billion dreams
545 BOYLSTON STREET - FLOOR 10
BOSTON, MA 02116

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

SIGFOX SITE NUMBER: **CT8610**

BU #: **806368**
HRT 049B 943215

374 THREE MILE RD.
GLASTONBURY, CT 06033

EXISTING 145'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/05/18	NJH	PRELIMINARY	LMR
0	04/06/18	LMR	CONSTRUCTION	JPL

DocuSigned by:
Justin Linette
1B4905E5247C41B...

STATE OF CONNECTICUT
JUSTIN PETER LINETTE
No. 31965
LICENSED PROFESSIONAL ENGINEER

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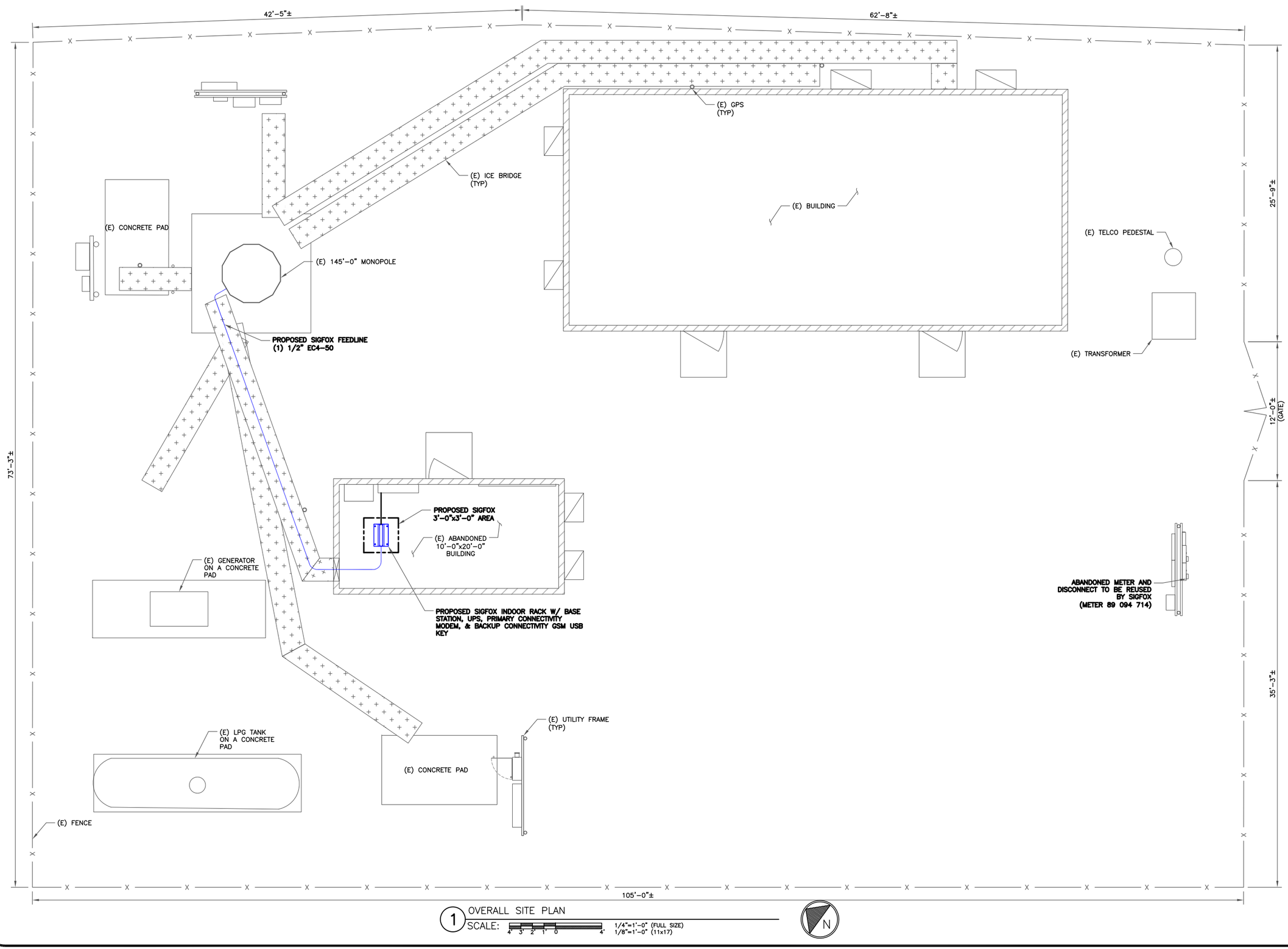
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: T-2

REVISION: 0



1 OVERALL SITE PLAN

SCALE: 4' 3' 2' 1' 0 4' 1/4"=1'-0" (FULL SIZE) 1/8"=1'-0" (11x17)

SIGFOX
One network A billion dreams
545 BOYLSTON STREET - FLOOR 10
BOSTON, MA 02116

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

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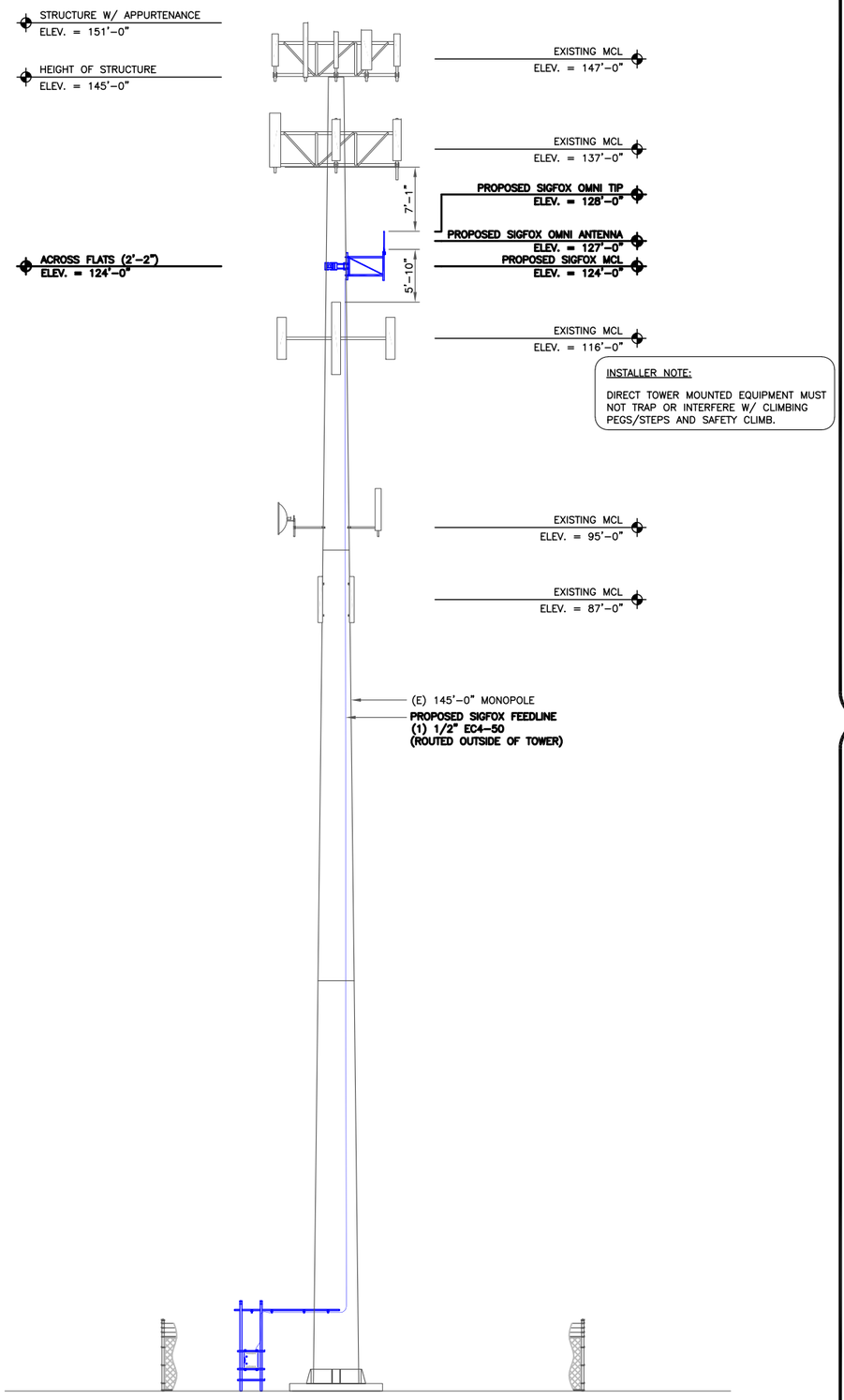
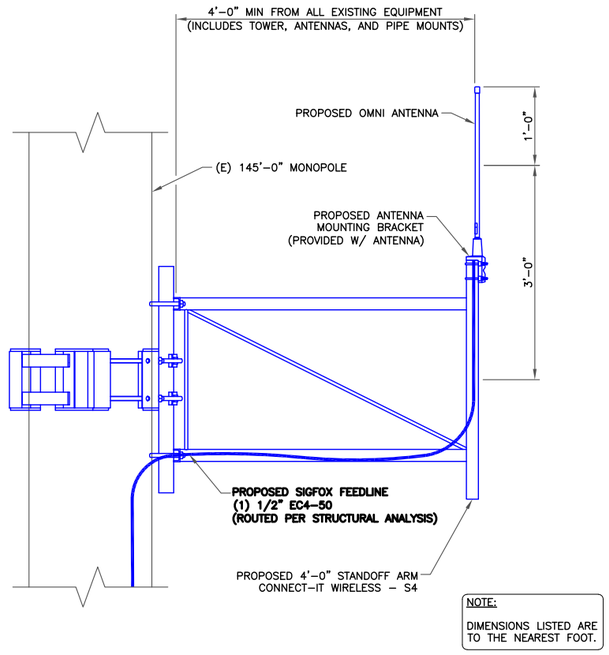
SHEET NUMBER: C-1

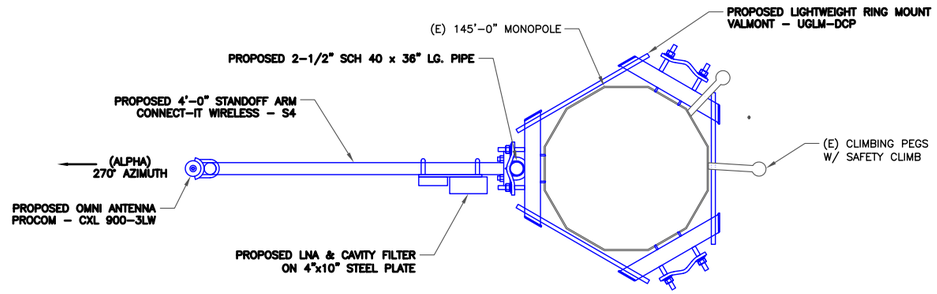
REVISION: 0



1 FINAL ELEVATION
SCALE: NOT TO SCALE



2 TYPICAL MOUNTING DETAIL
SCALE: NOT TO SCALE



3 FINAL ANTENNA LAYOUT
SCALE: NOT TO SCALE

N

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One network A billion dreams
545 BOYLSTON STREET - FLOOR 10
BOSTON, MA 02116

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

SIGFOX SITE NUMBER: **CT8610**

BU #: **806368**
HRT 049B 943215

374 THREE MILE RD.
GLASTONBURY, CT 06033

EXISTING 145'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/05/18	NJH	PRELIMINARY	LMR
0	04/06/18	LMR	CONSTRUCTION	JPL

DocuSigned by:
Justin Linette
IB90052347C4A8...

STATE OF CONNECTICUT
JUSTIN PETER LINETTE
No. 31965
LICENSED PROFESSIONAL ENGINEER

4/6/2018 | 10:57:54 AM EDT

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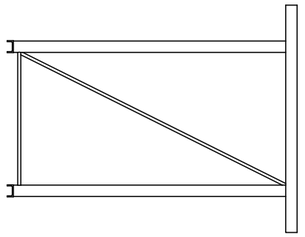
Justin Peter Linette, P.E.
Professional Engineer License: #31965
Crown Castle USA, Inc. Certificate of Registration #PEC.0001101

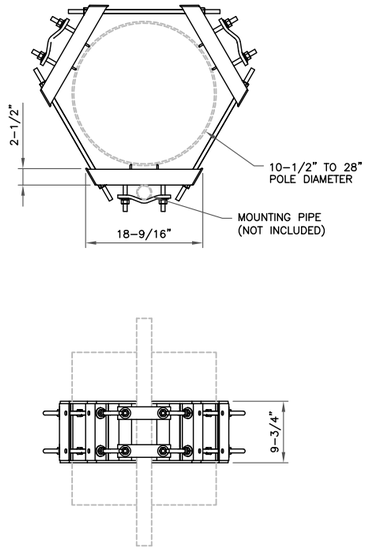
SHEET NUMBER: C-2

REVISION: 0

Product Specifications	
Material	Galvanized Steel, 1-1/2" ID (1.9" OD)
Standoff	4'
End Pipe Length	38"
Horizontal Pipes' Length	46-1/2"
Max Combined Load Weight	90 lbs
Max Combined Load Force (P.A.)	350 lbs
Max Combined Load Area at 140 MPH	1,006 Square Inches (P-0.348 LBS/IN.2)
Max Combined Load Area at 150 MPH	875 Square Inches (P-0.400 LBS/IN.2)
Max Projected Assembly Area	77 Square Inches (EPAT)
Max Normal Projected Assembly Area	275 Square Inches (EPAN)
Weight	42 lbs

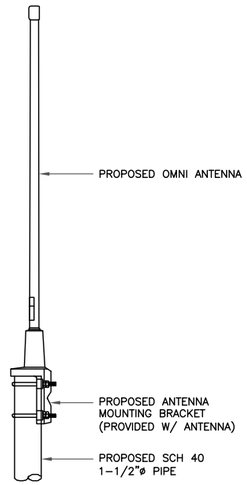


1 CONNECT–IT WIRELESS STANDOFF ARM
SCALE: NOT TO SCALE



2 VALMONT – UGLM–DCP
SCALE: NOT TO SCALE

SPECIFICATIONS	
MODEL	CXL 900–3LW
RADIATION	OMNIDIRECTIONAL
FREQUENCY	824–960 MHz
TOTAL HEIGHT	27.5"
DIA. AT TOP	0.47"
DIA. AT END	0.63"
WEIGHT	1.5 LBS



3 PROCOM – CXL 900–3LW
SCALE: NOT TO SCALE

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SIGFOX SBS-T-902

SIGFOX SBS-T-902 series are ultra wide range, high linearity transceivers and feature first class performance radio and innovative software defined processing, for use in Ultra Narrow Band Machine-To-Machine wireless communication systems. SBS-T-902 variant is targeting M2M applications compliant with FCC regulations. It operates in the band 902-928 MHz. SIGFOX TAP series are indoor units with alumirum chassis, suitable for wall mount, rack mount or desktop installations.

ABOUT SIGFOX TECHNOLOGY

SIGFOX is the first and only operator of a cellular network fully dedicated to low-throughput communication for connected objects. With an extremely cost effective and very low energy consuming out-of-the-box connectivity offer, SIGFOX brings a revolution to the world of Internet of –Things and M2M. The network, which already connects tens of thousands of objects, is being rolled out worldwide.

Key Features

- Ultra Wide Flange Radio transmitter
- Software Defined Radio operation
- -134 dBm receiver sensitivity
- 120dB receiver linearity
- 200kHz monitor spectrum
- Web based management tools
- Remote firmware upgrade

RADIO INTERFERANCE CHARACTERISTICS	
Standard	SIGFOX Ultra Narrow Band Protocol for M2M
Operating Frequency	902.2 to 918.1 MHz -- Rx and Tx
Monitored Spectrum Bandwidth	192 kHz
Radio Mode	Access Point
Receiver Sensitivity	Typ - 134 dBm @ 600bps
Transmit Power	Max 36 dBm e.i.r.p. with specific omnidirectional antenna (8dBa gain) Max 28 dBm conducted power at base station output with specific omnidirectional antenna (8dBi gain)
Date Rate and Modulation	600 bps D-BPSK
Pre-amplifier Filter	NF 2db G=20db/rejection 30db @ +/-10MHz
Antenna Connector	Type N Female
INTERFACES	
Ethernet	1 x 10/100BaseT (RJ45)
USB	2x USB 2.0 ports (optional for 3G key and or external inverter)
Maintenance port	RJ45 socket with specific cable (only for maintenance)
POWER SUPPLY	
Power Consumption	40 W typical, 70W max peak (in transmit mode)
Power Supply	100-240 VAC 50Hz-60Hz -- 120VDC/7A max
MECHANICAL & ENVIROMENTAL	
Product Dimensions	480 x 350 x 85 mm (19"2U standard format)
Product Weight	Cr 8kg (16 lb)
Operating Tensperature	-20 to +50°C
Storage Temperature	-40°C to +85°C
Maximum Altitude Operation	2000m
Pollution Degree	2
Overvoltage Category	II
Casting Material	Aluminum
COMPLIANCE	
Compliance	CE (EMC EN 301 489 radio (N 300 220, safety EN60950-1) FCC ID: 2ACX75BST902 IC ID: 12204A-5BST902

4 SIGFOX – SBS–T–902
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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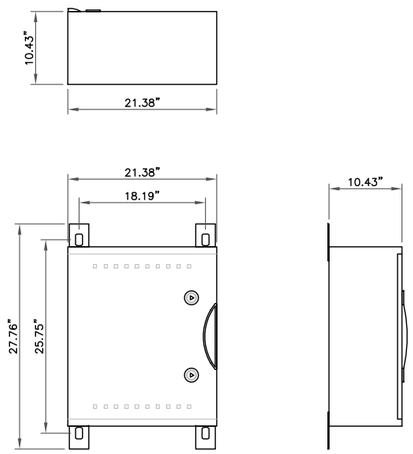
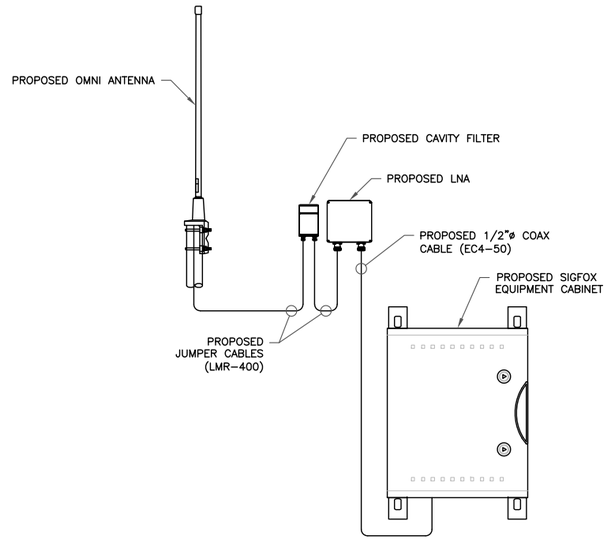
SHEET NUMBER: C-3
REVISION: 0



1 EQUIPMENT CABINET DETAIL
SCALE: NOT TO SCALE

2 NOT USED
SCALE: NOT TO SCALE



3 EQUIPMENT DIAGRAM
SCALE: NOT TO SCALE

4 NOT USED
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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SHEET NUMBER: C-4

REVISION: 0

ANTENNA AND FEEDER

COMPONENT	DESCRIPTION	INDEX	SUPPLIER	QUANTITY
ANTENNA	OMNIDIRECTIONAL ANTENNA (2.1M HIGH MAX)	–	SIGFOX	1
ANTENNA MOUNTING SUPPORT	RING MOUNT (VALMONT UGLM–DCP) STANDOFF ARM (CONNECT–IT S4) 2–1/2" SCH 40 x 36" LG. PIPE	–	CROWN CASTLE	1
LOW NOISE AMPLIFIER	SIGFOX PREAMP 868	–	SIGFOX	1
LNA V2 MOUNTING PLATE	4"x10" STEEL PLATE	–	CROWN CASTLE	1
FEEDER CABLE	1/2" COAXIAL CABLE (< 262'–0") 7/8" COAXIAL CABLE (> 262'–0")	2	CROWN CASTLE	1
	JUMPER CABLE LMR400 : ANT<–>LNA (L=1.5M MAX) CONNECTOR NMALE/NFEMALE	1	CROWN CASTLE	1
	JUMPER CABLE LMR400 : LNA<–>FEEDER (L=1.5M MAX) CONNECTOR NMALE/NFEMALE	7	CROWN CASTLE	1
	JUMPER CABLE LMR400 : FEEDER<–>TAP (L=1.5M MAX) CONNECTOR NMALE/NFEMALE	8	CROWN CASTLE	1 OR 2
CONNECTOR	NMALE FEEDER CONNECTOR	–	CROWN CASTLE	2
SURGE SUPPRESSOR	TELEGARTNER 90V J01028A0034	–	SIGFOX	1
GROUNDING KIT FOR FEEDER	CLICK–ON COAX GROUNDING KIT (SABRE INDUSTRIES C20–114–001)	–	CROWN CASTLE	1
BARREL CUSHION	VALMONT BCU12X FOR 1/2" COAX VALMONT BCU78X FOR 7/8" COAX	–	CROWN CASTLE	TBD
BUTTERFLY HANGER	VALMONT BUG12 FOR 1/2" COAX VALMONT BUG78 FOR 7/8" COAX	–	CROWN CASTLE	TBD
BANDING	VALMONT BA204	–	CROWN CASTLE	TBD
BANDING BUCKLES	VALMONT BU254–25	–	CROWN CASTLE	TBD
STANDOFF	VALMONT LST	–	CROWN CASTLE	TBD

BASE STATION

COMPONENT	DESCRIPTION	INDEX	SUPPLIER	QUANTITY
TAP	TAP–868 V2	–	SIGFOX	1

INTERNET CONNECTION

COMPONENT	DESCRIPTION	INDEX	SUPPLIER	QUANTITY
MODEM	ADSL MODEM + POWER CABLE	–	SIGFOX	TO BE CONFIRMED
ETHERNET CABLE	CABLE RJ45 1M	3	SIGFOX	1
USB 3G KEY	3G KEY SIGFOX APPROVED MODEL : HUAWEI E352/K3806	–	SIGFOX	1
	STANDARD M2M SIM CARD WITHOUT PIN CODE NEITHER PASSWORD	–	SIGFOX	1
	USB CABLE – 50CM	5	SIGFOX	1

ELECTRICAL PANEL

COMPONENT	DESCRIPTION	INDEX	SUPPLIER	QUANTITY
20A, 2–POLE BREAKER	BREAKER TO BE SAME TYPE AND HAVE SAME AIC RATING AS EXISTING BREAKERS	–	CROWN CASTLE	1
#12 STRANDED COPPER WIRE	INSULATED ELECTRICAL CONDUCTORS TYPE THWN–2 OR XHHW–2 (90° C)	–	CROWN CASTLE	TBD
3/4" CONDUIT AND FITTINGS	ELECTRICAL METALLIC TUBING (EMT)	–	CROWN CASTLE	1

POWER SUPPLY

COMPONENT	DESCRIPTION	INDEX	SUPPLIER	QUANTITY
BASE STATION POWER CABLE	POWER CABLE (PLUG TO FEM) TO TAP	11–1	SIGFOX	1

EQUIPMENT RACK

COMPONENT	DESCRIPTION	INDEX	SUPPLIER	QUANTITY
POWER STRIP	TRIPP LITE P/N: RS–0615–F, OR APPROVED EQUIVALENT	–	CROWN CASTLE	1
EQUIPMENT RACK	COOPER B–LINE OPEN ALUMINUM FLOOR RACK, OR APPROVED EQUIVALENT	–	CROWN CASTLE	1
SHELF	COOPER B–LINE HEAVY DUTY SHELF, OR APPROVED EQUIVALENT	–	CROWN CASTLE	1

1 BILL OF MATERIALS
SCALE: NOT TO SCALE

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SIGFOX SITE NUMBER: **CT8610**

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DocuSigned by:
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1B4005254704...

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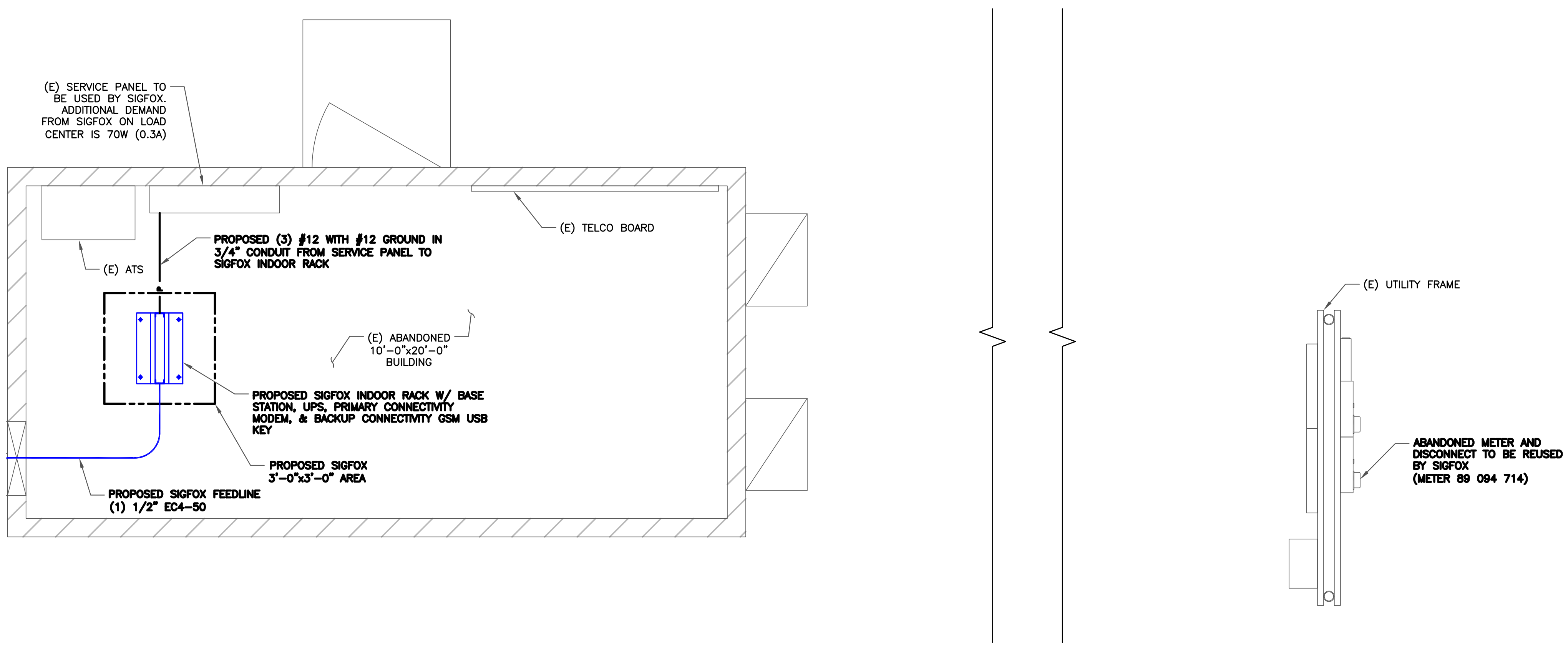
SHEET NUMBER: C-5

REVISION: 0



1 UTILITY ROUTING PLAN
SCALE: 2' 1' 0 2' 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

N

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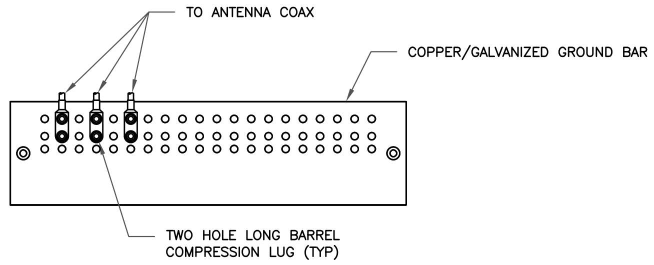
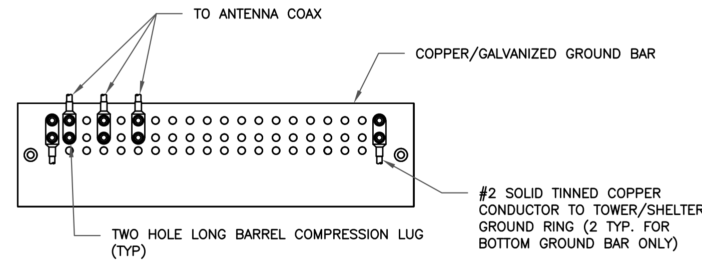
SHEET NUMBER: E-1
REVISION: 0



NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL.

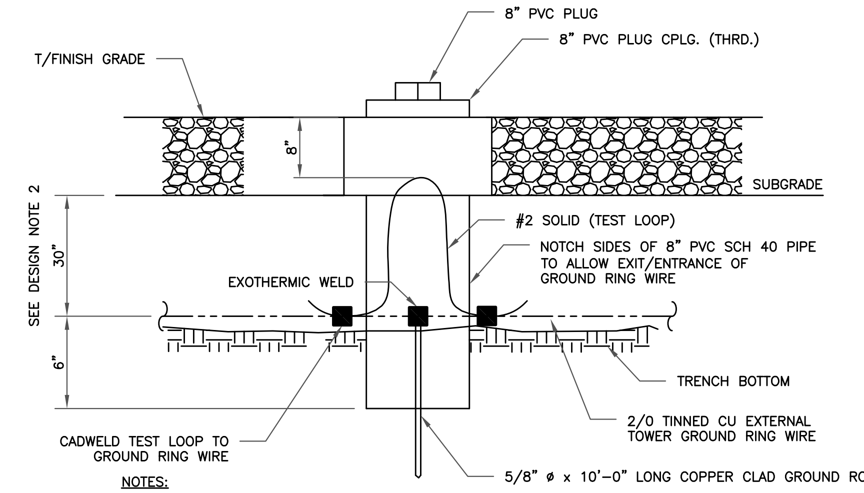
(1) ANTENNA GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

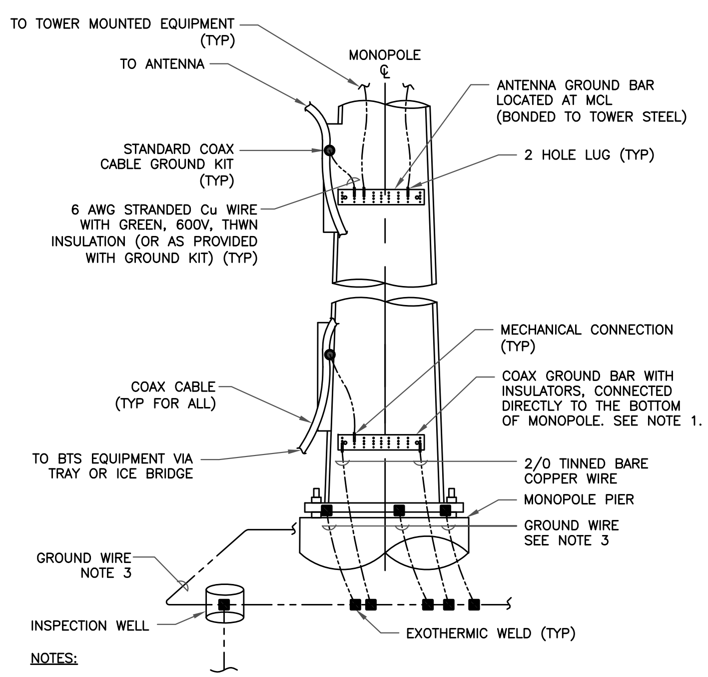
(2) TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

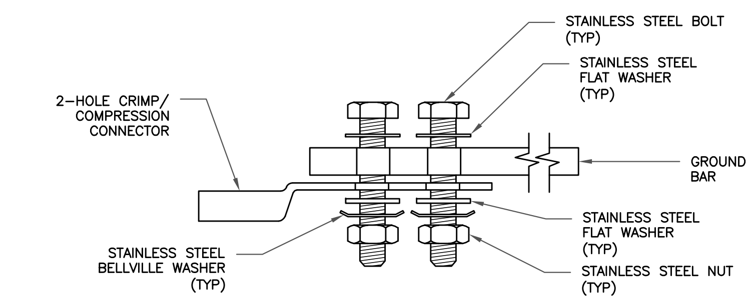
(3) INSPECTION WELL DETAIL
SCALE: NOT TO SCALE



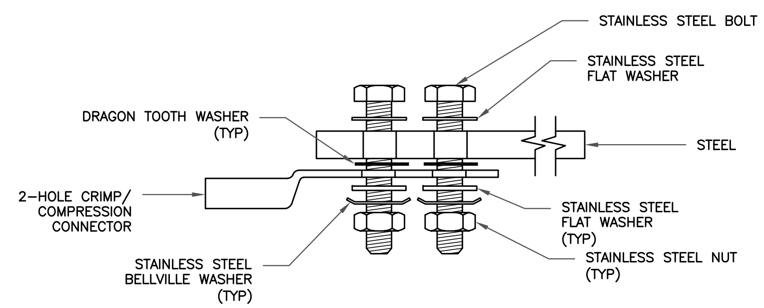
NOTES:

1. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. COAXIAL CABLES EXCEEDING 200 FEET ON THE TOWER SHALL HAVE GROUND KITS AT THE MIDPOINT. PROVIDE AS REQUIRED.
2. ONLY MECHANICAL CONNECTIONS ARE ALLOWED TO BE MADE TO CROWN CASTLE TOWERS. ALL MECHANICAL CONNECTIONS SHALL BE TREATED WITH AN ANTI-OXIDANT COATING.
3. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE RECOGNIZED EDITION OF ANSI/TIA 222 AND NFPA 780.

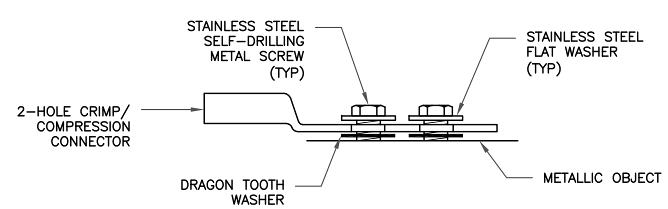
(4) TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

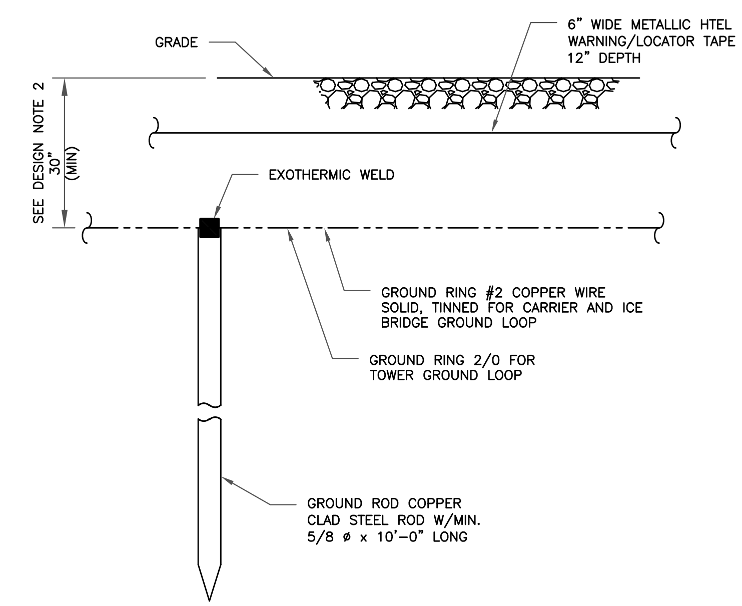


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

(5) HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL
2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D)

(6) GROUND ROD DETAIL
SCALE: NOT TO SCALE

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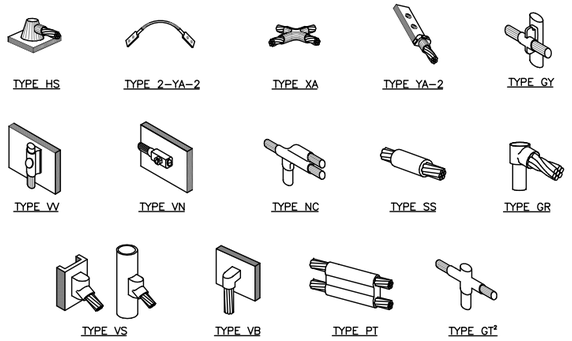
SHEET NUMBER: G-1
REVISION: 0

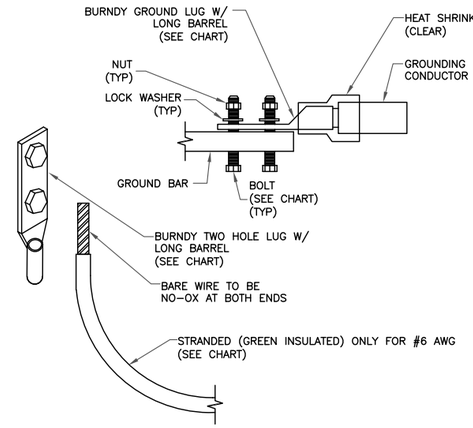


NOTE:

1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE

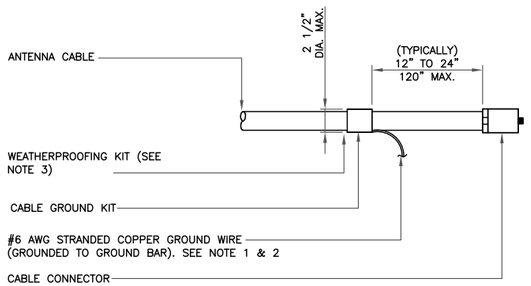
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



NOTES:

1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER,GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

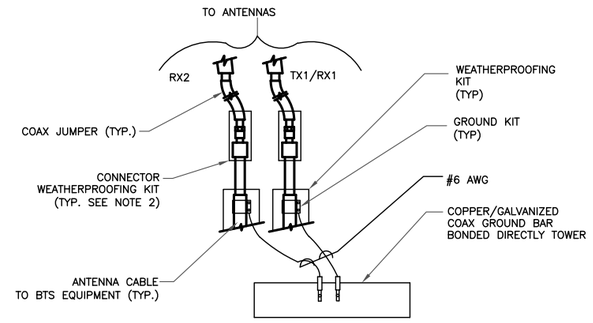
2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



NOTES:

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

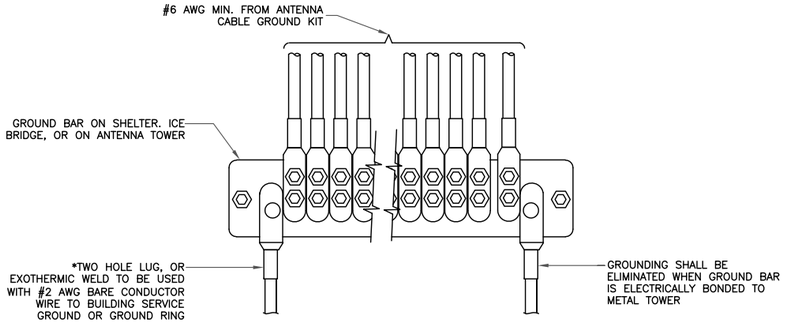
3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



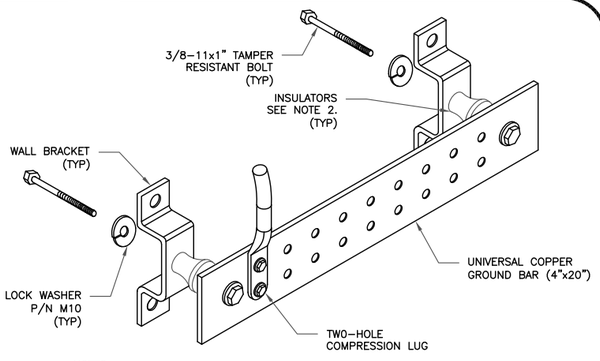
NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



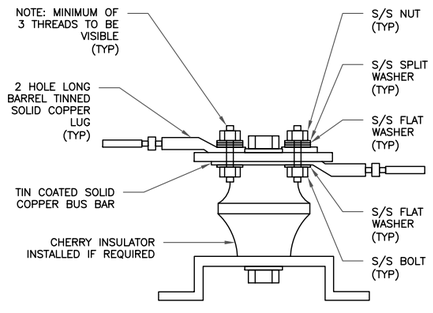
5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



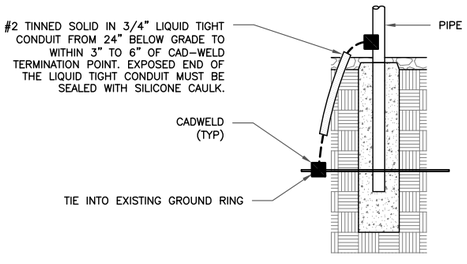
NOTES:

1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

SIGFOX
One network A billion dreams
545 BOYLSTON STREET - FLOOR 10
BOSTON, MA 02116

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

SIGFOX SITE NUMBER: **CT8610**

BU #: **806368**
HRT 049B 943215

374 THREE MILE RD.
GLASTONBURY, CT 06033

EXISTING 145'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	03/05/18	NJH	PRELIMINARY	LMR
0	04/06/18	LMR	CONSTRUCTION	JPL

DocuSigned by:
Justin Linette
1B6905E2547C4E9...

STATE OF CONNECTICUT
JUSTIN PETER LINETTE
No. 31965
LICENSED PROFESSIONAL ENGINEER

4/6/2018 | 10:57:54 AM EDT

Crown Castle USA Inc. Certificate of Registration #PEC.0001101

Justin Peter Linette, P.E.
Professional Engineer License: #31965
Crown Castle USA, Inc. Certificate of Registration #PEC.0001101

SHEET NUMBER: G-2

REVISION: 0

Certificate Of Completion

Envelope Id: 46638A7BA8F0446B82EC6E7EF587EE19
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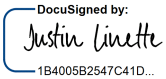
Justin Linette justin.linette@crowncastle.com Crown Castle International Corp. Security Level: Email, Account Authentication (None)	DocuSigned by:  1B4005B2547C41D...	Sent: 4/6/2018 | 10:30:45 AM Viewed: 4/6/2018 | 10:55:40 AM Signed: 4/6/2018 | 10:57:54 AM
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In Person Signer Events	Signature	Timestamp

Editor Delivery Events	Status	Timestamp

Agent Delivery Events	Status	Timestamp

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Certified Delivery Events	Status	Timestamp

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Envelope Summary Events	Status	Timestamps
Envelope Sent	Hashed/Encrypted	4/6/2018 | 10:30:45 AM
Certified Delivered	Security Checked	4/6/2018 | 10:55:40 AM
Signing Complete	Security Checked	4/6/2018 | 10:57:54 AM
Completed	Security Checked	4/6/2018 | 10:57:54 AM

Payment Events	Status	Timestamps

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To contact us by phone call: 724-416-2000
To contact us by email, send messages to: esignature@CrownCastle.com
To contact us by paper mail, send correspondence to
Crown Castle
2000 Corporate Drive
Canonsburg, PA 15317

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Screen Resolution:	800 x 600 minimum
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Date: **April 30, 2018**

Charles McGuirt
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Crown Castle
2000 Corporate Drive
Canonsburg, PA
(724) 416-2000

Subject:	**Structural Analysis Report**	
Carrier Designation:	***SIGFOX SA* Co-Locate** **Carrier Site Number:**	 CT8610
Crown Castle Designation:	**Crown Castle BU Number:** **Crown Castle Site Name:** **Crown Castle JDE Job Number:** **Crown Castle Work Order Number:** **Crown Castle Order Number:**	806368 HRT 049B 943215 485089 1566010 426661 Rev. 5
Engineering Firm Designation:	**Crown Castle Project Number:**	1566010
Site Data:	**374 Three Mile Rd., Glastonbury, Hartford County, CT** **Latitude *41° 41' 36.93"*, Longitude *-72° 32' 50.11"*** **144.813 Foot - Monopole Tower**	

Dear Charles McGuirt,

Crown Castle is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1566010, in accordance with order 426661, revision 5.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 125 mph converted to a nominal 3-second gust wind speed of 97 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B and Risk Category II were used in this analysis.

All modifications and equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at *Crown Castle* appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Mishka Stueber / Shan

Respectfully submitted by:

STATE OF CONNECTICUT
MAHAM BARIMANI
30501
LICENSED
PROFESSIONAL ENGINEER

Maham Barimani, P. E.
Senior Project Engineer

tnxTower Report - version 7.0.5.1

05-03-2018

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 144.813 ft. Monopole tower designed by Engineered Endeavors Incorporated in January of 1997. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-F. The tower has been modified per reinforcement drawings prepared by GPD Associates, in March of 2005. Reinforcement consists of addition of base plate stiffeners. However, we didn't include this modification since the Anchor rod and Base plate are passing without the modification at a lower rate.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a 3-second gust wind speed of 97 mph with no ice, 50 mph with 1 inch ice thickness and 60 mph under service loads, exposure category B.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
124.0	127.0	1	sigfox	CAVITY FILTER	1	1/2	-
		1	sigfox	CXL 900-3LW			
		1	sigfox	LNA			
	124.0	1	tower mounts	Side Arm Mount [SO 306-1]			

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
147.0	148.0	3	alcatel lucent	B66A RRH4X45	2	1-5/8	2
		3	alcatel lucent	RRH2X60-700			
		3	alcatel lucent	RRH2X60-PCS			
		9	andrew	SBNHH-1D65B w/ Mount Pipe			
		1	rfs celwave	DB-T1-6Z-8AB-0Z			
		2	swedcom	SC-E 6014 REV2 w/ Mount Pipe			
		2	antel	LPA-80063/6CF w/ Mount Pipe	12 1	1-5/8 1-1/4	1
		1	rfs celwave	DB-T1-6Z-8AB-0Z			
		2	swedcom	SC-E 6014 REV2 w/ Mount Pipe			
	147.0	1	tower mounts	Platform Mount [LP 1001-1]			
	145.0	6	rfs celwave	FD9R6004/2C-3L			
137.0	138.0	1	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe	12 2 1 1	1-1/4 3/4 1/2 3/8	1
		2	cci antennas	HPA-65R-BUU-H8 w/ Mount Pipe			
		3	communication comp Inc.	DTMABP7819VG12A			
		3	ericsson	RRUS 32 B2			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
		3	ericsson	RRUS-11			
		12	powerwave tech	7020.00			
		4	powerwave tech	7770.00 w/ Mount Pipe			
		2	powerwave tech	P65-17-XLH-RR w/ Mount Pipe			
		3	powerwave tech	TT19-08BP111-001			
		1	raycap	DC6-48-60-18-8F			
	137.0	1	tower mounts	Platform Mount [LP 1001-1]			
126.0	130.0	2	gps	GPS_A	12 2	1-1/4 1/2	4
	128.0	12	decibel	DB844G65ZAXY w/ Mount Pipe			
	126.0	1	tower mounts	Platform Mount [LP 601-1]			
116.0	117.0	3	ericsson	KRY 112 144/1	12 1	1-5/8 1-1/4	1
		3	ericsson	RRUS 11 B12			
	116.0	3	commscope	LNX-6515DS-VTM w/ Mount Pipe			
		3	ericsson	AIR 21 B2A B4P w/ Mount Pipe			
		3	ericsson	AIR 21 B4A B2P w/ Mount Pipe			
		1	tower mounts	Platform Mount [LP 601-1]			
95.0	97.0	1	commscope	HT65A-F-2X2w/ Mount Pipe	1	1-1/8	2
		1	nokia	FWHR			
	96.0	1	repeater tech	DA1900-39	2	1-1/4	1
	95.0	2	tower mounts	Side Arm Mount [SO 701-1]			
87.0	87.0	3	allgon	7250.02 w/ Mount Pipe	6	1-1/4	3
		1	tower mounts	Pipe Mount [PM 601-3]			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Abandoned Equipment; considered in this analysis
4) Abandoned Equipment To Be Removed; not considered in this analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
149.0	149.0	15	swedcom	ALP 9212	-	-
140.0	140.0	15	swedcom	ALP 11011	-	-
130.0	130.0	15	swedcom	ALP 9212	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Dr. Clarence Welti, P.E., P.C.	262197	CCISITES
4-POST-MODIFICATION INSPECTION	GPD Group	1090825	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Engineered Endeavors Incorporated	974245	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Engineered Endeavors Incorporated	262188	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	GPD Associates	1037241	CCISITES

3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	144.81 - 92.31	Pole	TP35.64x20.5x0.3438	1	-19.75	2649.41	47.0	Pass
L2	92.31 - 44.52	Pole	TP48.61x33.5106x0.4375	2	-34.50	4485.00	50.3	Pass
L3	44.52 - 0	Pole	TP60.5x45.8521x0.4688	3	-56.21	5701.25	55.2	Pass
							Summary	
						Pole (L3)	55.2	Pass
						Rating =	55.2	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	52.3	Pass
1	Base Plate	0	57.9	Pass
1, 2	Base Foundation (Compared w/ Design Loads)	0	55.9	Pass
Structure Rating (max from all components) =				**57.9%**

Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.
2) Foundation capacity determined by comparing analysis reactions to original design reactions.

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

RF EMISSIONS COMPLIANCE REPORT

Crown Castle on behalf of SigFox

Crown Castle Site ID: 806368
Crown Castle Site Name: HRT 049B 943215
SigFox Site Number: CT8610
Application ID: 426661
374 Three Mile Rd.
Glastonbury, CT
4/16/2018

Report Status:

SigFox Is Compliant

Klaus Bender
Registered Professional Engineer (Electrical)
Expires December 31, 2018

Prepared By:

Sitesafe, LLC

200 North Glebe Road, Suite 1000 Arlington, VA 22203

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

Engineering Statement in Re:
Electromagnetic Energy Analysis
Crown Castle
Glastonbury, CT

My signature on the cover of this document indicates:

That I am registered as a Professional Engineer in the jurisdiction indicated; and

That I have extensive professional experience in the wireless communications engineering industry; and

That I am an employee of Sitesafe, LLC in Arlington, Virginia; 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 Crown Castle (See attached Site Summary and Carrier documents), and that SigFox's installations involve communications equipment, antennas and associated technical equipment at a location referred to as the "HRT 049B 943215" ("the site"); and

That SigFox 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 and shown on the worksheet, and that worst-case 100% duty cycle have been assumed; and

That in addition to the emitters specified in the worksheet, there are additional collocated point-to-point microwave facilities on this structure and, the antennas used are highly directional oriented at angles at or just below the horizontal and, that the energy present at ground level is typically so low as to be considered insignificant and have not been included in this analysis; 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 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 operation is no more than 0.029% 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 19.886% 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 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.

Crown Castle
HRT 049B 943215
Site Summary

Carrier	Area Maximum Percentage MPE
AT&T Mobility, LLC	0.159 %
AT&T Mobility, LLC	0.505 %
AT&T Mobility, LLC	0.358 %
SigFox (Proposed)	0.029 %
Sprint (Decommissioned)	0 %
T-Mobile	0.137 %
T-Mobile	0.221 %
T-Mobile	0.137 %
Verizon Wireless	0.329 %
Verizon Wireless	0.221 %
Verizon Wireless	17.298 %
Verizon Wireless	0.491 %
Composite Site MPE:	19.886 %

AT&T Mobility, LLC
HRT 049B 943215
Carrier Summary

Frequency:	700	MHz
Maximum Permissible Exposure (MPE):	466.67	µW/cm^2
Maximum power density at ground level:	0.74253	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.15911	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
CCI Antennas	HPA-65R-BUU-H6	138	22	881	0.461726	0.098941	0.703774	0.150809
CCI Antennas	HPA-65R-BUU-H6	138	139	881	0.461726	0.098941	0.703774	0.150809
CCI Antennas	HPA-65R-BUU-H6	138	256	881	0.459947	0.09856	0.703774	0.150809

AT&T Mobility, LLC
HRT 049B 943215
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	5.04828	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.50483	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Powerwave	7770	138	22	2339	0.65809	0.065809	1.377809	0.137781
Powerwave	7770	138	22	2339	0.65809	0.065809	1.377809	0.137781
CCI Antennas	HPA-65R-BUU-H6	138	22	1699	1.898172	0.189817	2.250352	0.225035
Powerwave	7770	138	139	2339	0.65809	0.065809	1.377809	0.137781
Powerwave	7770	138	139	2339	0.65809	0.065809	1.377809	0.137781
CCI Antennas	HPA-65R-BUU-H6	138	139	1699	1.882178	0.188218	2.250352	0.225035
Powerwave	7770	138	256	2339	0.65809	0.065809	1.377809	0.137781
Powerwave	7770	138	256	2339	0.65809	0.065809	1.377809	0.137781
CCI Antennas	HPA-65R-BUU-H6	138	256	1699	1.882178	0.188218	2.250352	0.225035

AT&T Mobility, LLC
HRT 049B 943215
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	µW/cm^2
Maximum power density at ground level:	2.02677	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.35767	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Powerwave	7770	139	22	1094	0.54229	0.095698	0.846235	0.149336
Powerwave	7770	138	22	1094	0.549463	0.096964	0.859442	0.151666
Powerwave	7770	138	139	1094	0.550163	0.097088	0.859442	0.151666
Powerwave	7770	138	139	1094	0.550163	0.097088	0.859442	0.151666
Powerwave	7770	138	256	1094	0.549463	0.096964	0.859442	0.151666
Powerwave	7770	138	256	1094	0.549463	0.096964	0.859442	0.151666

SigFox (Proposed)
HRT 049B 943215
Carrier Summary

Frequency:	902.2	MHz
Maximum Permissible Exposure (MPE):	601.47	µW/cm^2
Maximum power density at ground level:	0.17739	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.02949	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
SigFox	CXL 900-3LW	126	270	61	0.17739	0.029493	0.17739	0.029493

Sprint (Decommissioned)
HRT 049B 943215
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	µW/cm^2
Maximum power density at ground level:	0	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
ANDREW	DB844G65ZAXY	128	0	0	0	0	0	0
ANDREW	DB844G65ZAXY	128	0	0	0	0	0	0
ANDREW	DB844G65ZAXY	128	0	0	0	0	0	0
ANDREW	DB844G65ZAXY	128	0	0	0	0	0	0
ANDREW	DB844G65ZAXY	128	120	0	0	0	0	0
ANDREW	DB844G65ZAXY	128	120	0	0	0	0	0
ANDREW	DB844G65ZAXY	128	120	0	0	0	0	0
ANDREW	DB844G65ZAXY	128	120	0	0	0	0	0
ANDREW	DB844G65ZAXY	128	240	0	0	0	0	0
ANDREW	DB844G65ZAXY	128	240	0	0	0	0	0
ANDREW	DB844G65ZAXY	128	240	0	0	0	0	0
ANDREW	DB844G65ZAXY	128	240	0	0	0	0	0

T-Mobile
HRT 049B 943215
Carrier Summary

Frequency:	2100	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	1.37301	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.1373	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Ericsson	AIR 21 B4A B2P	116	50	2061	0.759772	0.075977	0.868853	0.086885
Ericsson	AIR 21 B4A B2P	116	160	2061	0.759772	0.075977	0.868853	0.086885
Ericsson	AIR 21 B4A B2P	116	300	2061	0.76004	0.076004	0.868853	0.086885

T-Mobile
HRT 049B 943215
Carrier Summary

Frequency:	700	MHz
Maximum Permissible Exposure (MPE):	466.67	µW/cm^2
Maximum power density at ground level:	1.02907	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.22051	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
ANDREW	LNX-6515DS-VTM	116	50	1715	0.708804	0.151887	0.764401	0.1638
ANDREW	LNX-6515DS-VTM	116	160	1715	0.708804	0.151887	0.764401	0.1638
ANDREW	LNX-6515DS-VTM	116	300	1715	0.708804	0.151887	0.764401	0.1638

T-Mobile
HRT 049B 943215
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	1.37301	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.1373	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Ericsson	AIR 21 B2A B4P	116	50	2061	0.759772	0.075977	0.868853	0.086885
Ericsson	AIR 21 B2A B4P	116	160	2061	0.759772	0.075977	0.868853	0.086885
Ericsson	AIR 21 B2A B4P	116	300	2061	0.76004	0.076004	0.868853	0.086885

Verizon Wireless
HRT 049B 943215
Carrier Summary

Frequency:	2100	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	3.29282	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.32928	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Antel	BXA-171063-12CF	148	40	5877	1.358372	0.135837	2.771373	0.277137
Antel	BXA-171063-12CF	148	140	5877	1.348025	0.134803	2.771373	0.277137
Antel	BXA-171063-12CF	148	230	5877	1.348025	0.134803	2.771373	0.277137

Verizon Wireless
HRT 049B 943215
Carrier Summary

Frequency:	1900	MHz
Maximum Permissible Exposure (MPE):	1000	µW/cm^2
Maximum power density at ground level:	2.21013	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.22101	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
Antel	BXA-171063-8CF	148	40	3708	0.95154	0.095154	1.354469	0.135447
Antel	BXA-171063-8CF	148	140	3708	0.950328	0.095033	1.354469	0.135447
Antel	BXA-171063-8CF	148	230	3708	0.950328	0.095033	1.354469	0.135447

Verizon Wireless
HRT 049B 943215
Carrier Summary

Frequency:	700	MHz
Maximum Permissible Exposure (MPE):	466.67	µW/cm^2
Maximum power density at ground level:	80.72467	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	17.29814	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
SWEDCOM	SLCP 2x6015	148	40	2530	45.389378	9.726295	45.389378	9.726295
SWEDCOM	SLCP 2x6015	148	140	2530	45.389378	9.726295	45.389378	9.726295
Antel	BXA-70063-6CF	148	230	2530	0.967709	0.207366	1.142405	0.244801

Verizon Wireless
HRT 049B 943215
Carrier Summary

Frequency:	850	MHz
Maximum Permissible Exposure (MPE):	566.67	µW/cm^2
Maximum power density at ground level:	2.7818	µW/cm^2
Highest percentage of Maximum Permissible Exposure:	0.49091	%

					On Axis		Area	
Antenna Make	**Model**	**Height (feet)**	**Orientation (degrees true)**	**ERP (Watts)**	**Max Power Density (µW/cm^2)**	**Percent of MPE**	**Max Power Density (µW/cm^2)**	**Percent of MPE**
SWEDCOM	SC-E 6014	148	40	2748	1.291736	0.227953	1.338473	0.236201
SWEDCOM	SC-E 6014	148	40	2748	1.291736	0.227953	1.338473	0.236201
SWEDCOM	SC-E 6014	148	140	2748	1.291736	0.227953	1.338473	0.236201
SWEDCOM	SC-E 6014	148	140	2748	1.291736	0.227953	1.338473	0.236201
Antel	LPA-80063	148	230	2255	0.708764	0.125076	0.728243	0.128513
Antel	LPA-80063	148	230	2255	0.708764	0.125076	0.728243	0.128513