



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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

E-Mail: [siting.council@ct.gov](mailto:siting.council@ct.gov)

[www.ct.gov/csc](http://www.ct.gov/csc)

March 1, 2013

Patricia Masterson  
Site Acquisition Manager  
Goodman Networks  
Two Willow Street, Suite 101  
Southborough, MA 01745

RE: **EM-SPRINT-NEXTEL-012-130215** - Sprint Nextel notice of intent to modify an existing telecommunications facility located at 130 Vernon Road, Bolton, Connecticut.

Dear Ms. Masterson:

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

- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Within 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated February 14, 2013. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding



the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

A handwritten signature in black ink that reads "L Roberts". The signature is written in a cursive style with a large, prominent "L" and "R".

Linda Roberts  
Executive Director

LR/CDM/cm

c: The Honorable Robert R. Morra, First Selectman, Town of Bolton  
James Rupert, Zoning Enforcement Officer, Town of Bolton



**Goodman Networks**

Network Knowledge... Delivered.

February 14, 2013

Linda Roberts  
Executive Director  
Connecticut Siting Counsel  
Ten Franklin Square  
New Britain, CT 06051  
Linda Roberts, Executive Director

EMI-SPRINT-NEXTEL-012-150213

**ORIGINAL**

**RECEIVED**  
FEB 15 2013

CONNECTICUT  
SITING COUNCIL

Re: Notice of Exempt Modification – Antenna Swap  
130 Vernon Road, Bolton, Connecticut – Sprint ID CT33XC550

Dear Ms. Roberts:

Sprint Nextel is planning to consolidate multiple network technologies into one seamless network with the goal of increasing efficiency and enhancing network coverage, call quality and data speeds for customers across Connecticut. Pursuant §16-50j-73 to of the Regulations of Connecticut State Agencies (RCSA), please accept this letter and attachments as notification of Sprint's intent to make exempt modifications, under RCSA §16-50j-72(b)(2), to its existing telecommunications facility at 130 Vernon Road, Bolton, Connecticut. In accordance with RCSA §16-50j-73, a copy of this letter was sent to Robert R. Morra, First Selectman, Town of Bolton.

Sprint currently maintains six (6) antennas at 148 feet on the existing 150 foot tower at the address referenced above. Sprint intends to replace its existing six (6) CDMA antennas with three (3) Multimodal antennas at their same current height of 148 feet. Sprint will be replacing its existing six (6) lines of coaxial cable with three (3) smaller lines of Hybriflex cable and installing six (6) RRH's. Sprint will also be swapping two (2) existing ground cabinets with two (2) new cabinets and adding one (1) cabinet and one (1) fiber junction box. This work will result in a net reduction of antennas, from six (6) to three (3), and will not increase the height of the tower or the size of the compound. Please find included with this letter compound, elevation and overhead drawings which depict Sprint's proposed modifications.

Sprint's planned modifications fall squarely within the activities permitted in RCSA §16-50j-72(b)(2) in that:

1. The proposed modifications will not increase the existing tower height;
2. The proposed modifications will not extend the boundaries of the site by any dimension;

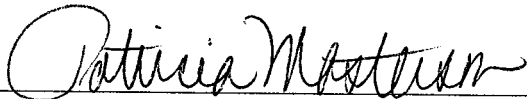
3. The proposed modifications will not increase the noise levels at the existing facility by six (6) decibels or more;
4. The proposed modifications will not increase the total radio frequency electromagnetic radiation power density to or above the standards adopted by the Federal Communications Commission. Please find included with this letter a Radio Frequency Emissions Analysis Report.

Also included with this letter is a Structural Assessment confirming that the foundation and tower are sufficient to support Sprint's proposed modifications.

For the foregoing reasons, Sprint respectfully requests that its proposed modifications to the existing tower located at the address referenced above constitute an exempt modification under RSCA §16-50j-72(b)(2).

Please do not hesitate to contact me should you have any questions. Thank you for your consideration.

Respectfully,



---

Patricia Masterson  
Site Acquisition Manager  
Goodman Networks, *an authorized representative of Sprint Nextel*  
Two Willow Street, Suite 101  
Southborough, MA 01745  
Office: (972) 421-5903  
Mobile: (214) 534-7276

Attachments

Cc: Robert R. Morra, First Selectman, Town of Bolton

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

**Sprint Existing Facility**

**Site ID: CT33XC550**

**West Coventry  
130 Vernon Road  
Bolton, CT 06091**

**October 29, 2012**

October 29, 2012

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

Re: Emissions Values for Site: **CT33XC550 – West Coventry**

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at 130 Vernon Road, Bolton, CT, for the purpose of determining whether the emissions from the proposed Sprint equipment upgrades on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The number of  $\mu\text{W}/\text{cm}^2$  calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limit for the cellular band is approximately 567  $\mu\text{W}/\text{cm}^2$ , and the general population exposure limit for the PCS band is 1000  $\mu\text{W}/\text{cm}^2$ . Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

## **CALCULATIONS**

Calculations were done for the proposed upgrades to the existing Sprint Wireless antenna facility located at 130 Vernon Road, Bolton, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario. Actual values seen from this site will be dramatically less than those shown in this report. For this report the sample point is the top of a 6 foot person standing at the base of the tower.

For all calculations, all emissions were calculated using the following assumptions:

- 1) 3 CDMA Carriers (1900 MHz) were considered for each sector of the proposed installation.
- 2) 1 CDMA Carrier (850 MHz ) was considered for each sector of the proposed installation
- 3) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 4) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The actual gain in this direction was used per the manufactures supplied specifications.
- 5) The antenna used in this modeling is the APXVSPP18-C-A20. This is based on feedback from the carrier with regards to anticipated antenna selection. This antenna has a 15.9 dBd gain value at its main lobe at 1900 MHz and 13.4 dBd at its main lobe for 850 MHz. All calculations were performed assuming the main lobe of the antenna was focused at the base of the tower to present a worst case scenario.

- 6) The antenna mounting height centerline of the proposed antennas is **148 feet** above ground level (AGL)
- 7) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculation were done with respect to uncontrolled / general public threshold limits



Site ID: CT33XCS5D - West Coventry Site Address: 130 Vernon Road, Bolton, CT, 06051 Site Type: Guyed Tower																	
<b>Sector 1</b>																	
Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBi)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP Value	Power Density Value	Power Density Percentage
1a	RFS	APVSP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	3	60	15.9	148	142	1/2"	0.5	0	2080.4211	37.08202	3.70920%
1b	RFS	APVSP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	148	142	1/2"	0.5	0	389.96892	6.952795	1.22624%
														Sector total Power Density Value: 4.9935%			
<b>Sector 2</b>																	
Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBi)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP Value	Power Density Value	Power Density Percentage
2a	RFS	APVSP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	3	60	15.9	148	142	1/2"	0.5	0	2080.4211	37.08202	3.70920%
2b	RFS	APVSP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	148	142	1/2"	0.5	0	389.96892	6.952795	1.22624%
														Sector total Power Density Value: 4.9935%			
<b>Sector 3</b>																	
Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBi)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP Value	Power Density Value	Power Density Percentage
3a	RFS	APVSP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	3	60	15.9	148	142	1/2"	0.5	0	2080.4211	37.08202	3.70920%
3b	RFS	APVSP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	13.4	148	142	1/2"	0.5	0	389.96892	6.952795	1.22624%
														Sector total Power Density Value: 4.9935%			

Site Composite MPE %	
Carrier	MPE %
Sprint	14.865%
AT&T	4.920%
T-Mobile	1.050%
Verizon Wireless	9.880%
Bolton Radio	0.020%
Comcast International	0.430%
Metrocall	1.110%
Pagemart	20.300%
Airtouch	5.640%
Conn Radio	2.090%
Nectel	3.000%
NU	0.400%
<b>Total Site MPE %</b>	<b>63.596%</b>

## Summary

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

The anticipated Maximum Composite contributions from the Sprint facility are **14.806% (4.935% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **63.596%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government



**Scott Heffernan**  
RF Engineering Director

**EBI Consulting**  
21 B Street  
Burlington, MA 01803



**RAMAKER  
& ASSOCIATES, INC.**

**W. COVENTRY (CT33XC550)**

**PREPARED FOR:  
SPRINT**

**PREPARED BY:  
RAMAKER & ASSOCIATES, INC.  
JOB NUMBER: 23012**

**STRUCTURAL ASSESSMENT  
150-FOOT GUYED TOWER**

1120 Dallas Street, Sauk City, WI 53583  
Phone: 608-643-4100 ▲ Fax: 608-643-7999  
[www.ramaker.com](http://www.ramaker.com)

MATCHLINE SEE SHEET C106

**STRUCTURAL ASSESSMENT**

**SITE:** W. Coventry (CT33XC550)  
130 Vernon Road  
Bolton, Tolland County, Connecticut 06091

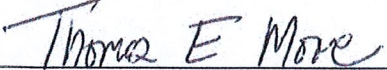
**PREPARED FOR:** Alcatel-Lucent  
600 Mountain Avenue  
Murray Hill, New Jersey 07974

**CONTACT PERSON:** Alcatel-Lucent  
John Szilezy  
Site Acquisition Manager  
john.szilezy@alcatel-lucent.com

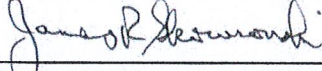
**PREPARED BY:** Ramaker & Associates, Inc.  
1120 Dallas Street  
Sauk City, Wisconsin 53583  
Telephone: (608) 643-4100  
Facsimile: (608) 643-7999

**RAMAKER JOB NUMBER:** 23012

**DATE OF REPORT ISSUANCE:** January 16, 2013

  
\_\_\_\_\_  
Thomas E. Moore  
Structural Engineer

1/16/13  
Date

  
\_\_\_\_\_  
James R. Skowronski, P.E.  
Supervising Engineer

1/16/13  
Date



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**SECTION 1**  
**EXECUTIVE SUMMARY**

This report summarizes the structural analysis conducted by Ramaker & Associates, Inc. (Ramaker & Associates) for Alcatel-Lucent (ALU) on behalf of Sprint, who intends to install additional equipment on an existing 150-foot guyed tower. The tower site is located in Tolland, Tolland County, Connecticut.

ALU is proposing to install three (3) RFS APXVSPP18-C-A20 panel antennas on the existing mounts at a centerline elevation of 148 feet AGL. ALU is also proposing to install three (3) ALU 1900 MHz RRH units and three (3) ALU 800 MHz RRH units on the existing mounts. The proposed equipment shall be fed with three (3) 1-1/4 inch fiber/power hybrid cables. The three existing CDMA panel antennas and coax shall remain during the interim phase and then they shall be removed for the final antenna layout.

Results of our analysis show that the tower will be stressed to a maximum of 69.8 percent of capacity under proposed loading conditions. All model foundation reactions are less than the modified original design reactions. Therefore, it is anticipated that the existing foundations will provide adequate strength under proposed loading conditions.

In summary, the tower will pass the TIA-222-G code requirements under proposed loading conditions.

## **SECTION 2 INTRODUCTION**

### **2.1 PROJECT INFORMATION**

This report summarizes the structural analysis conducted by Ramaker & Associates, Inc. (Ramaker & Associates) for ALU, who intends to install additional equipment on an existing tower.

### **2.2 PURPOSE OF REPORT**

The analysis activities of this report were conducted for the purposes of creating and analyzing a model of the subject structure under the required loading conditions. Base reactions from the resulting model were also determined for tower foundation and support development. Recommendations regarding the analysis results, loading configuration, and structural modifications are also provided.

### **2.3 SCOPE OF SERVICES**

Ramaker & Associates developed a finite element model (FEM) of the tower, using tnxTower, for member force, joint deflection, and structure reaction determinations. Subsequently, this report was drafted to provide our engineering recommendations. All information contained herein is valid only for the described structure configuration and loading conditions. Ramaker & Associates reserves the right to modify our recommendations should alterations to the tower loading occur.

**SECTION 3**  
**MODEL DEVELOPMENT**

**3.1 INTRODUCTION**

Ramaker & Associates, Inc. developed a FEM of the tower superstructure using the tower drawings and site photos. Required static loads consisting of the antenna configuration, wind forces, ice loads, and linear appurtenances (including cable loads) were then applied to the FEM. As a result, all member forces, allowable capacities, and base reactions were computed. Additionally, potentially overstressed members were identified.

**3.2 EXISTING STRUCTURE INFORMATION**

Tower information was gathered from the tower drawings by PiROD, file number A-118677, drawing number A-159234-B, and dated 10/17/01.

**3.3 EXISTING TOWER LOADS**

Ramaker & Associates understands that the existing antenna, cable, and appurtenance configurations are as shown in the following chart:

Elevation	Appurtenance	Mount	Coax
148	** (6) Decibel DB980H90E-M **	(3) T-Frames	** (6) 1-5/8 **
122	(2) 10' Omnis	(3) 4' Standoffs	(2) 1-1/4
115	(3) 5' Panel Antennas	Leg Mounted	(3) 1-1/4
55	10' Omni	4' Standoff	(1) 1-1/4

The three (3) CDMA panel antennas and coax at 148 feet AGL shall remain during the interim phase and then they shall be removed for the final antenna layout.

**3.4 PROPOSED TOWER LOADS**

Ramaker & Associates understands that the total antenna loading for the tower will consist of the aforementioned existing antennas and the following proposed antennas:

Elevation	Appurtenance	Mount	Coax
148	(3) RFS APXVSP18-C-A20	Existing (3) T-Frames	(3) 1-1/4 Fiber/Power
	(3) ALU 1900MHz RRH		
	(3) ALU 800MHz RRH		

The proposed fiber/power cables were assumed to be installed next to the existing Sprint coax.



## **W. COVENTRY (CT33XC550)**

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### **3.5 WIND AND ICE LOAD**

Wind forces used in model development are in compliance with the TIA-222-G Standard. These guidelines call for an analysis to be performed, which assumes a basic wind speed (3-second gust) of 105 miles-per-hour (mph) without ice in Tolland County. The tower is also designed for a 50 mph basic wind speed with 1.00-inch of radial ice. The tower was analyzed using the following parameters: Structure Class II, Topographic Category 3 with crest height of 140 feet, and Exposure Category C.

**SECTION 4**  
**ANALYSIS RESULTS**

**4.1 ANALYSIS RESULTS**

The tower superstructure was analyzed with the combined existing and proposed antenna loading with and without radial ice. The computed maximum tower member stress capacities are as follows:

Component Type	Percent Capacity
Leg	39.9
Diagonal	27.9
Horizontal	34.7
Guy Line	69.8
Bolts	13.1
<b>RATING</b>	<b>69.8</b>

**4.2 BASE REACTIONS**

The computed maximum reactions under the corresponding maximum moment are as follows:

Load Type	Original Design	Original Design * 1.35	Proposed Model
Axial (k)	213.2	287.8	141.27
Shear (k)	4.5	6.1	5.19
Anchor Uplift (k)	88.2	119.1	21.27
Anchor Lateral (k)	100.5	135.7	36.08

All foundation reactions are less than the modified original design reactions. Therefore, it is anticipated that the existing foundations will provide adequate strength under proposed loading conditions.

## **SECTION 5 LIMITATIONS**

The recommendations contained within this report were developed using general project information provided by the owner, tower manufacturer, general field observations, reference information and laboratory testing data, as applicable. All recommendations pertain only to the proposed tower construction, location, and loading as described in this report. Ramaker & Associates assumes no responsibility for failures caused by factors beyond our control. These include but are not limited to the following:

1. Missing, corroding, and/or deteriorating members
2. Improper manufacturing and/or construction
3. Improper maintenance

Ramaker & Associates assumes no responsibility for modifications completed prior to or hereafter in which Ramaker & Associates was not directly involved. These modifications include but are not limited to the following:

1. Replacing or strengthening bracing members
2. Reinforcing or extending vertical members
3. Installing or removing antenna mounting gates or side arms
4. Changing loading configurations

Furthermore, Ramaker & Associates hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations and conclusions are based on the information contained and set forth herein. If you are aware of any information contrary to that contained herein, or if you are aware of any defects arising from the original design, material, fabrication and erection deficiencies, you should disregard this report and immediately contact Ramaker & Associates. Ramaker & Associates isn't liable for any representation, recommendation, or conclusion not expressly stated herein.

The tower owner is responsible for verifying that the existing loading on the tower is consistent with the loading applied to the tower within this report.

**SECTION 6**  
**REFERENCES**

1. 2009 International Building Code.
2. Telecommunications Industries Association, Structural Standard for Antenna Supporting Structures and Antennas, TIA Standard ANSI/TIA-222-G 2005, Washington, D.C.

# CONSTRUCTION DRAWINGS

# Sprint®



W. COVENTRY  
CT33XC550  
130 VERNON ROAD  
BOLTON, CT 06091  
TOLLAND COUNTY  
GUYED TOWER

# Sprint®



6391 Sprint Parkway  
Overland Park, KS 66251

# Alcatel-Lucent



# RAMAKER & ASSOCIATES, INC.

1120 Dallas Street, Sauk City, WI 53583  
Phone: 608-643-4100 Fax: 608-643-7999  
www.Ramaker.com

NETWORK VISION  
MMBTS LAUNCH  
NORTHERN CT MARKET

**Certification & Seal:**

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.



*James R. Skowronski*  
Signature: \_\_\_\_\_ Date: 2/14/2013

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## PROJECT INFORMATION

<b>APPLICANT ID:</b> SITE NAME: W. COVENTRY SITE #: CT33XC550  <b>PROPERTY LANDLORD:</b> MOUNTAINTOP ENTERPRISES, INC. MILTON HATHAWAY PO BOX 9219 BOLTON, CT 06043  <b>SITE ADDRESS:</b> 130 VERNON ROAD BOLTON, CT 06091 TOLLAND COUNTY  <b>SITE DATA:</b> LATITUDE: 41° 48' 09.34" N (41.80259444°) LONGITUDE: 72° 26' 28.25" W (-72.44118056°) GROUND ELEVATION: 807 FT AMSL  <b>POWER COMPANY:</b> CONNECTICUT LIGHT & POWER PH.: (800) 286-2000  <b>TELEPHONE COMPANY:</b> AT&T PH.: (800) 288-2020	<b>HOSPITAL:</b> MANCHESTER MEMORIAL HOSPITAL 71 HAYNES ST. MANCHESTER, CT 06040 PH.: (860) 646-1222  <b>FIRE HOUSE:</b> BOLTON VOLUNTEER FIRE DEPT. 168 BOLTON CENTER ROAD BOLTON, CT 06040 PH.: (860) 649-3910  <b>APPLICANT:</b> SPRINT 6391 SPRINT PARKWAY OVERLAND PARK, KS 66251  <b>PLANS PREPARED BY:</b> RAMAKER & ASSOCIATES, INC. 1120 DALLAS STREET SAUK CITY, WI 53583 CONTACT: KEITH BOHNSACK, P.E., PROJECT MANAGER PH.: (608) 643-4100 FAX: (608) 643-7999
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C	2/14/13	STAMPED PRELIMINARY PERMIT CDS
B	10/25/12	FINAL PRELIMINARY CDS
A	10/05/12	90% CD REVIEW
MARK	DATE	DESCRIPTION
ISSUE PHASE	PRELIM PERMIT	DATE ISSUED 02/14/2013
PROJECT TITLE:		
W. COVENTRY SITE #: CT33XC550		
PROJECT INFORMATION:		
130 VERNON ROAD BOLTON, CT 06091 TOLLAND COUNTY		
SHEET TITLE:		
TITLE SHEET		
SCALE: NONE		
PROJECT NUMBER	23012	
SHEET NUMBER	T-1	

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**Sprint**



6391 Sprint Parkway  
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**Alcatel-Lucent**



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I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Connecticut.



*James R. Skowronski* 2/14/2013  
Signature: Date:

MARK	DATE	DESCRIPTION
C	2/14/13	STAMPED PRELIMINARY PERMIT CD'S
B	10/25/12	FINAL PRELIMINARY CD'S
A	10/05/12	90% CD REVIEW

ISSUE PHASE: PRELIM PERMIT DATE ISSUED: 02/14/2013

PROJECT TITLE:  
**W. COVENTRY  
SITE #: CT33XC550**

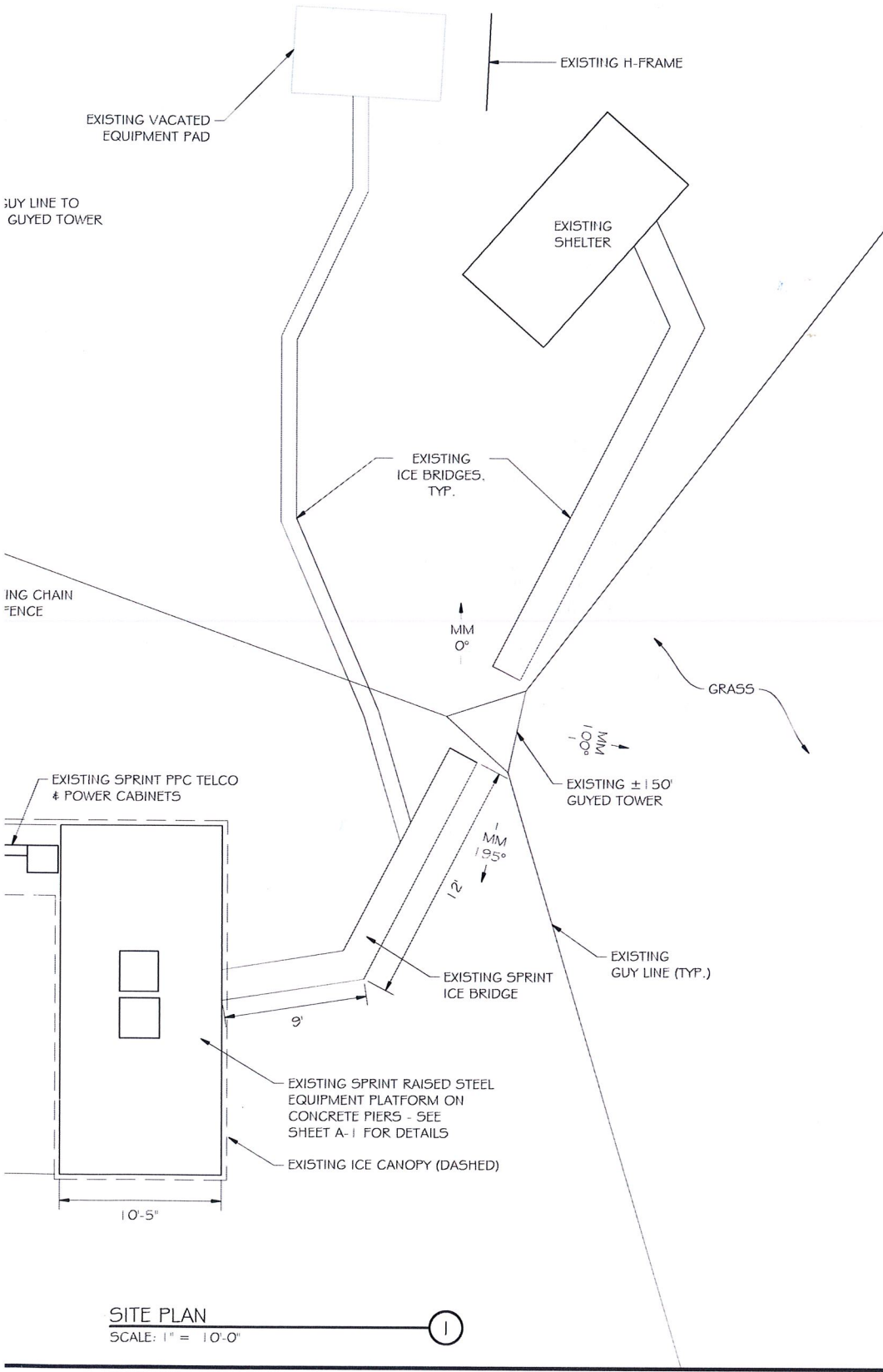
PROJECT INFORMATION:  
130 VERNON ROAD  
BOLTON, CT 06091  
TOLLAND COUNTY

SHEET TITLE:  
**OVERALL SITE PLAN**



1 1/2" x 17" - 1" = 10'  
22" x 34" - 1" = 5'

PROJECT NUMBER: 23012  
SHEET NUMBER: C-1



**SITE PLAN**

SCALE: 1" = 10'-0"



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*James R. Skowronski*  
Signature: \_\_\_\_\_ Date: 2/14/2013

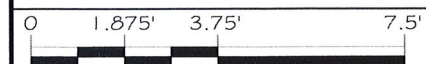
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B	10/25/12	FINAL PRELIMINARY CD'S
A	10/05/12	90% CD REVIEW

ISSUE PHASE	PRELIM PERMIT	DATE ISSUED
		02/14/2013

PROJECT TITLE:  
**W. COVENTRY  
SITE #: CT33XC550**

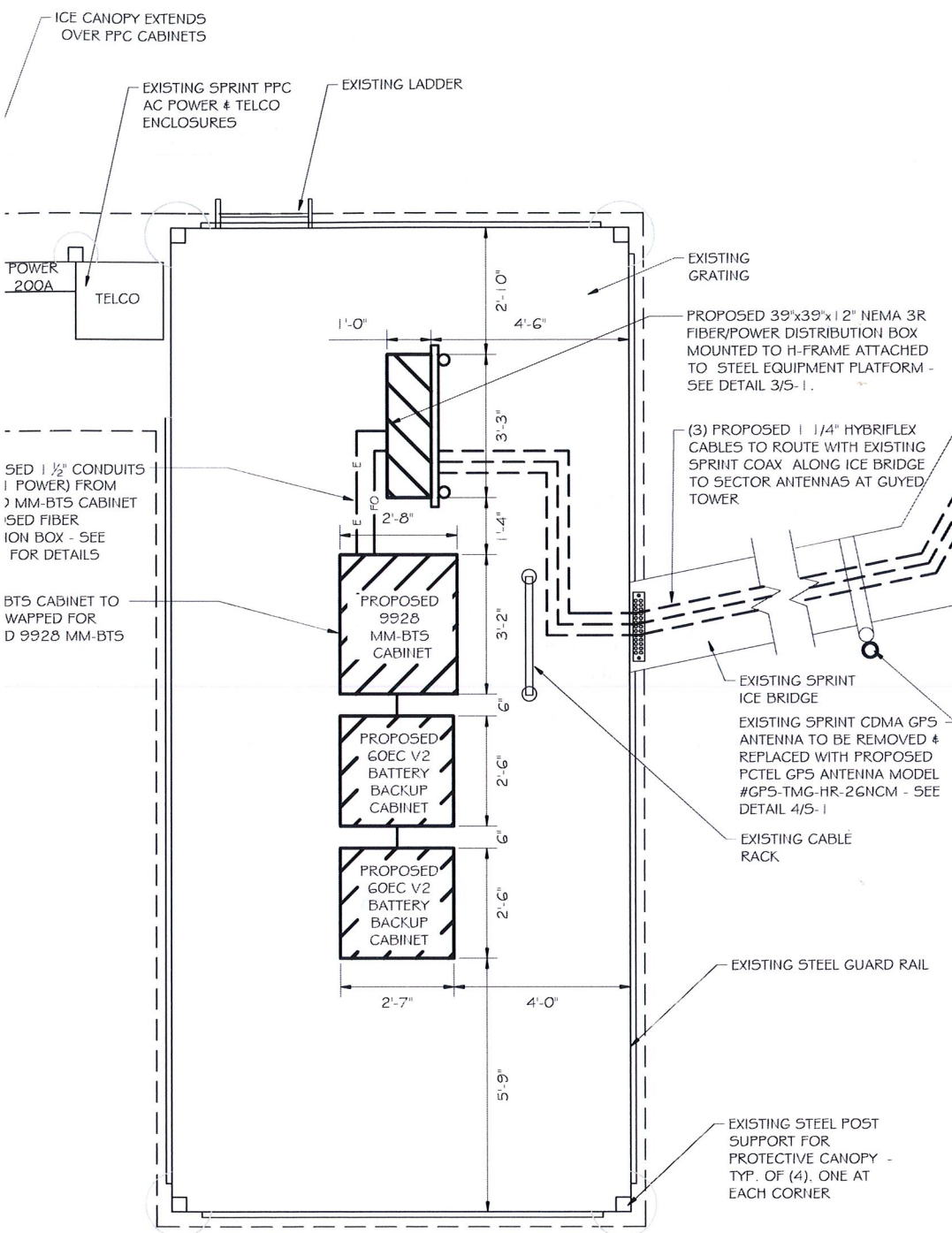
PROJECT INFORMATION:  
130 VERNON ROAD  
BOLTON, CT 06091  
TOLLAND COUNTY

SHEET TITLE:  
**EQUIPMENT PLAN**



11" x 17" - 1" = 3.75'  
22" x 34" - 1" = 1.875'

PROJECT NUMBER: 23012  
SHEET NUMBER: A-1



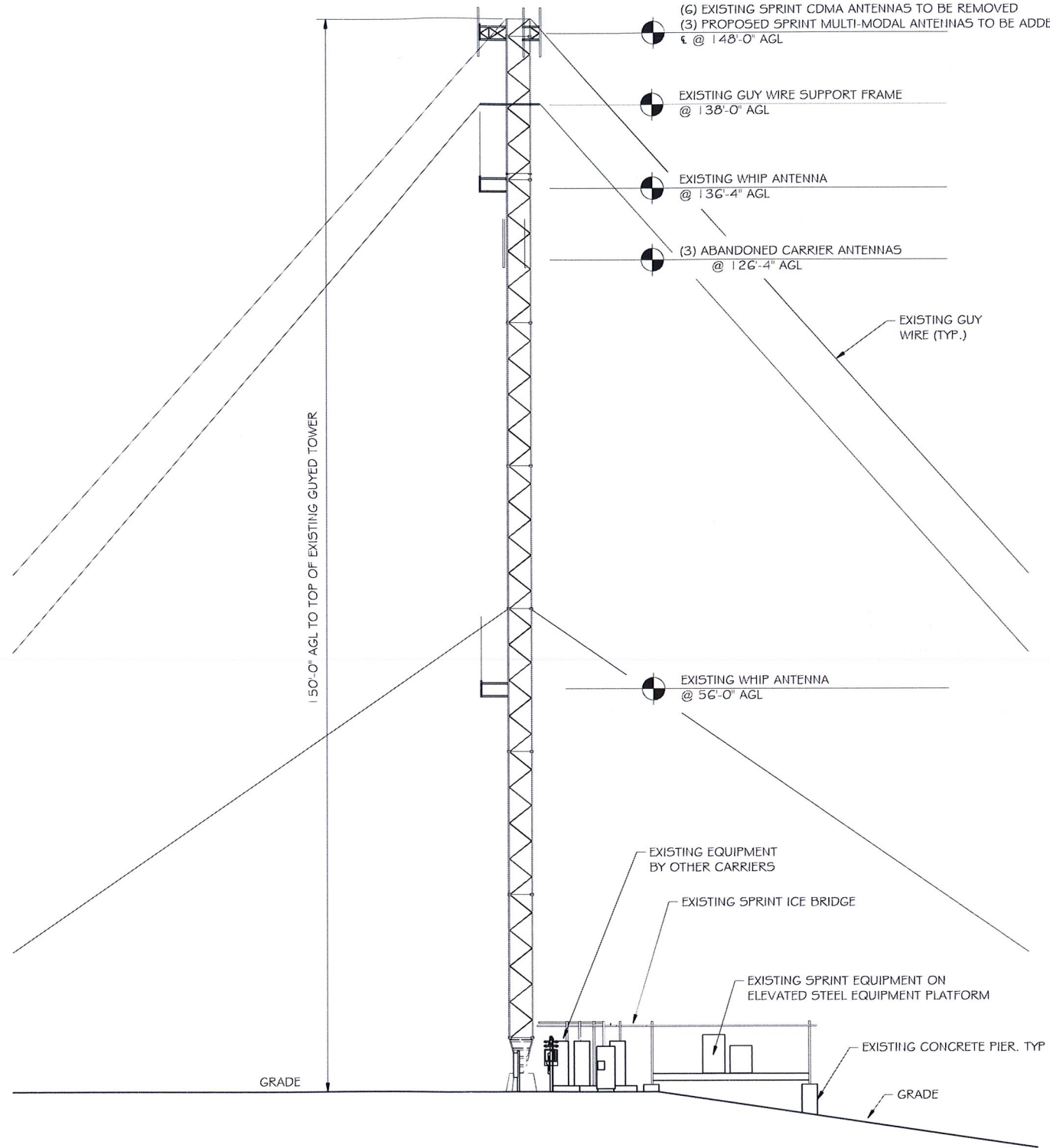
**PROPOSED EQUIPMENT PLAN** ②  
SCALE: 1" = 3.75'

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 CHECKED BY: KAB  
 T. Nelson on Feb 14, 2013 - 11:31 am  
 Printed by: T. Nelson on Feb 14, 2013 - 11:31 am  
 I:\230000\23012\CAD\Telecom\23012 NV\_CDS 2.dwg

**NOTES:**

- I. SCOPE**
- A. THIS SECTION COVERS THE SPECIFICATIONS FOR ANTENNA AND COAXIAL CABLE INSTALLATION OF: ANTENNAS, COAXIAL, CONNECTIONS, AND ICE BRIDGE.
- B. REFERENCE SPRINT STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES FOR GENERAL REQUIREMENTS.
- II. ANTENNAS:**
- A. ANTENNAS SHALL BE PLUMB AND INSTALLED SO THAT THE ENTIRE WHIP EXTENDS ABOVE VERTICAL PIPE MOUNT. DIRECTIONAL ANTENNAS SHALL BE ORIENTED TO PROPER AZIMUTH, PROVIDED ON THE RF SPECIFICATION SHEET. NOTE: THE ANTENNA MAY BE ORIENTED USING THE REFLECTOR AS THE REFERENCE, ADJUSTING ITS AZIMUTH 180 DEGREES FROM MAXIMUM ANTENNA RADIATION.
- B. MICROWAVE ANTENNAS (DISHES) SHALL BE ASSEMBLED PER MANUFACTURER'S DRAWINGS. STIFF ARMS AND RADOMES SHALL BE INSTALLED WITH POLARIZATION PROVIDED BY RF SPECIFICATION SHEET. IF PATH IS NOT READY TO ALIGN, DISH SHOULD BE POINTED TOWARD CALCULATED AZIMUTH, OR DIRECTION OF FIELD STAKE DENOTING OPPOSITE END. 2 STIFF ARMS SHALL BE PROVIDED FOR MICROWAVE DISHES 6'-0" IN DIAMETER OR GREATER.
- C. A TRANSIT SHALL BE USED TO PROPERLY ALIGN CELLULAR AND MICROWAVE ANTENNAS.
- III. COAXIAL CABLE:**
- A. COAXIAL CABLE SHALL BE SUPPORTED WITH SNAP-IN HANGERS. SNAP-IN HANGERS SHOULD BE USED EVERY 3 FEET THE ENTIRE HEIGHT OF THE TOWER. ANGLE ADAPTERS OR ROUND MEMBER ADAPTERS WITH BUTTERFLY CLAMPS SHALL BE USED ELSEWHERE, I.E. SIDEARMS, PLATFORMS, AND MICROWAVE MOUNTS.
- B. COAXIAL CABLE SHALL ALSO BE SUPPORTED WITH HOISTING GRIPS, INSTALLED AT MAXIMUM INTERVALS OF 200 FEET. HOISTING GRIPS SHALL BE ATTACHED WITH SHACKLES, BOLTED IN THE 3/4" HOLE OF WAVEGUIDE LADDER.
- C. ALL JUMPERS USED BETWEEN COAXIAL CABLE AND ANTENNA SHALL BE SUPPORTED WITHIN 18 INCHES OF ANTENNA, USING BUTTERFLY CLAMPS WITH ANGLE ADAPTERS OR ROUND MEMBER ADAPTERS AROUND PIPES. CELLULAR ANTENNAS TYPICALLY USE 6' JUMPERS; MICROWAVE DISHES USE 3' JUMPERS.
- D. COAXIAL CABLE SHALL BE NEATLY BENT WHEN REQUIRED, USING A MINIMUM BENDING RADIUS OF 10 TIMES THE DIAMETER OF THE COAXIAL CABLE. DRIP LOOPS SHOULD BEGIN AT THE ICE BRIDGE. THE END IN THE COAXIAL CABLE SHOULD BE AT A LOWER HEIGHT THAN THE ENTRY PORT.
- E. COAXIAL CABLE SHALL BE SUPPORTED WITH SNAP-IN HANGERS ON THE WAVEGUIDE LADDER UNDER ICE BRIDGE. COAXIAL CABLE SHOULD BE NEATLY CUT 1" INSIDE BUILDING AND TERMINATED AT THE QUARTER WAVE SHORTS.
- F. CONNECTORS WILL NORMALLY BE PROVIDED FIRST OFF REEL FROM FACTORY. CONNECTORS TERMINATED IN BUILDING SHALL BE NEATLY INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
- G. COAXIAL CABLES SHOULD BE LABELED WITH TAGS INSIDE THE BUILDING.
- H. USE 2" WIDE COLORED TAPE TO INDICATE SECTORS. CONTRACTOR TO USE SECTOR COLOR CODING AS INDICATED IN THESE DRAWINGS OR AS PROVIDED BY SPRINT.
- I. ALL EXCEPTIONS NEED TO BE VERIFIED WITH THE PROJECT MANAGER.
- IV. CONNECTORS:**
- A. ALL CONNECTIONS AND GROUNDING KITS SHALL BE WEATHERPROOFED USING COLD SHRINK OR ANDREW APPROVED WEATHER STRIPPING. NOTE: NO PORTION OF CONNECTOR SHALL BE EXPOSED TO THE ELEMENTS.
- B. COAXIAL CABLE SHALL BE GROUNDED USING GROUNDING KITS AT THE TOP (BELOW THE BEND), BOTTOM (ABOVE THE BEND ON TOWER GROUND BAR), AND ON BUILDING GROUND BAR BEFORE ENTRY INTO WAVEGUIDE PORTS. 4" CABLE BOOTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
- C. GROUNDING KITS SHALL BE NEATLY INSTALLED SO THAT THE JUMPER RUNS IN THE SAME DIRECTION AS THE COAXIAL AND GROUND BAR. JUMPER WIRE SHOULD RUN IN A DIRECT PATH TO THE GROUND BAR/TOWER LADDER, BUT HAVE ADEQUATE SLACK FOR EXPANSION, CONTRACTION, AND REPAIR. NON-OXIDE GREASE SHOULD BE APPLIED BETWEEN LUG AND BAR/TOWER.
- D. TOWER GROUND BAR SHALL BE INSTALLED ON THE ANGLE BEHIND THE FIRST DIAGONAL WAVEGUIDE LADDER RUNG, ABOVE 8'-6". GROUND BAR SHALL BE ISOLATED FROM ANGLE USING NEWTON BUSHINGS PROVIDED.



**ELEVATION**  
SCALE: 1" = 20'-0"



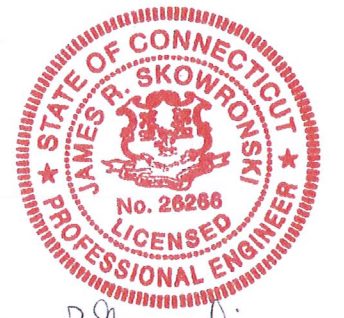
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*James R. Skowronski* 2/14/2013  
Signature Date

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MARK	DATE	DESCRIPTION
ISSUE PHASE	PRELIM PERMIT	DATE ISSUED 02/14/2013

PROJECT TITLE:  
**W. COVENTRY  
SITE #: CT33XC550**

PROJECT INFORMATION:  
130 VERNON ROAD  
BOLTON, CT 06091  
TOLLAND COUNTY

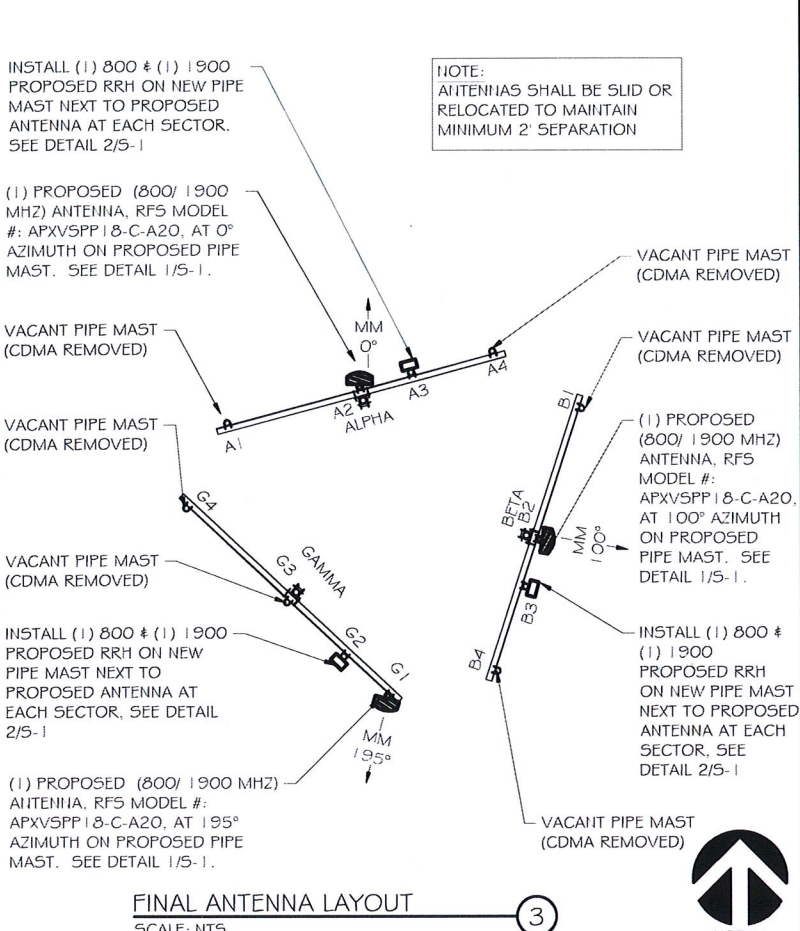
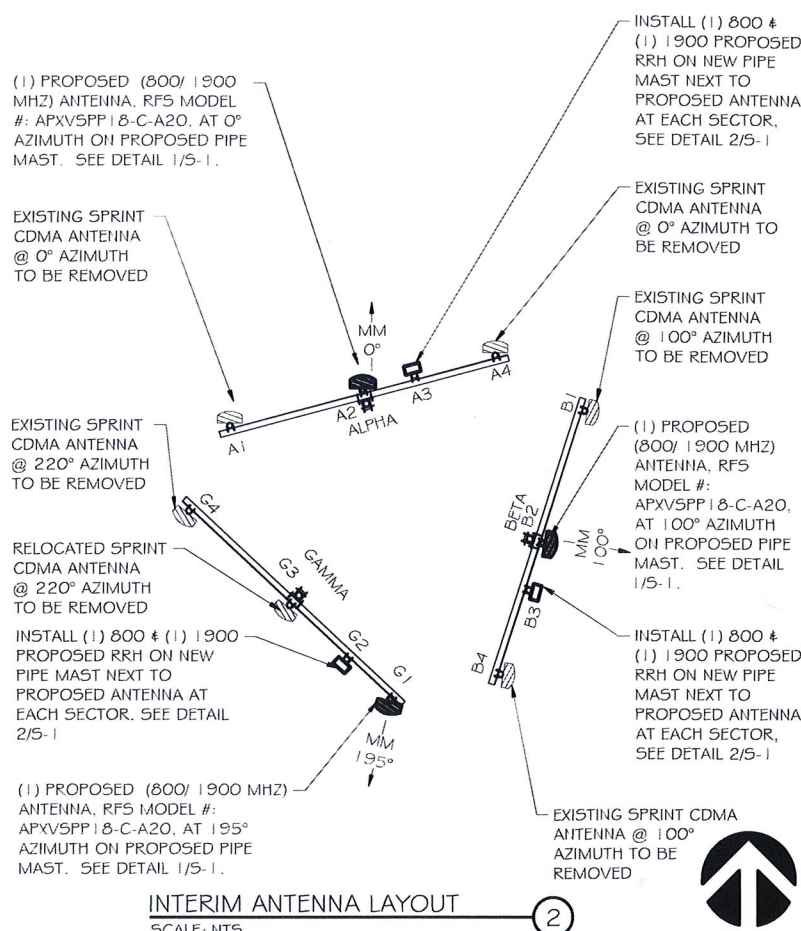
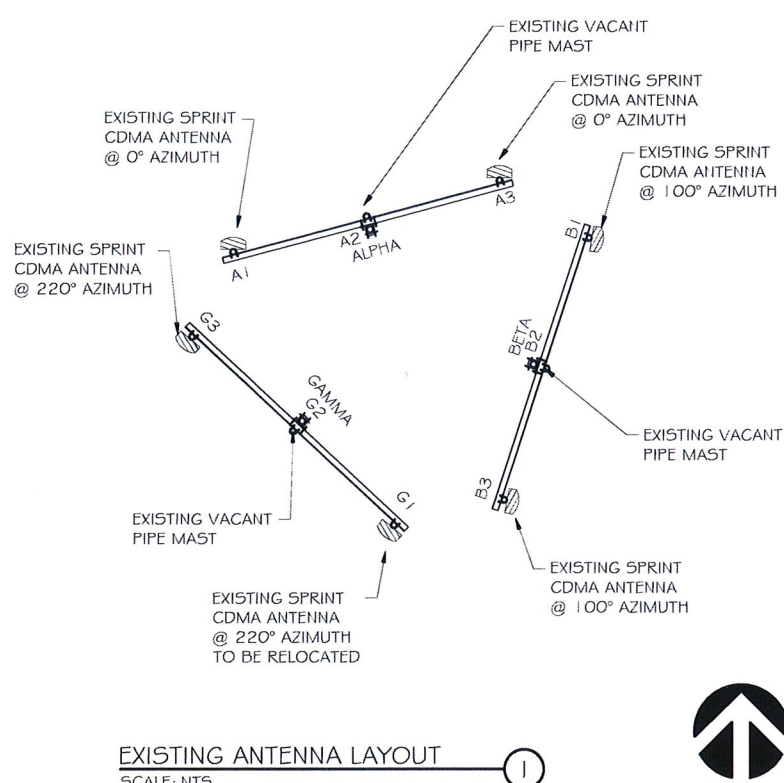
SHEET TITLE:  
**SITE ELEVATION  
& NOTES**

1 1/2" x 17" - 1" = 20'  
22" x 34" - 1" = 10'

PROJECT NUMBER: 23012  
SHEET NUMBER: A-2

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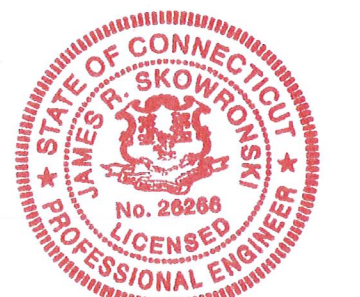
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**W. COVENTRY  
 SITE #: CT33XC550**

PROJECT INFORMATION:  
 130 VERNON ROAD  
 BOLTON, CT 06091  
 TOLLAND COUNTY

SHEET TITLE:  
**ANTENNA DETAILS  
 & COAX SCHEDULE**

SCALE: NONE

PROJECT NUMBER	23012
SHEET NUMBER	A-3

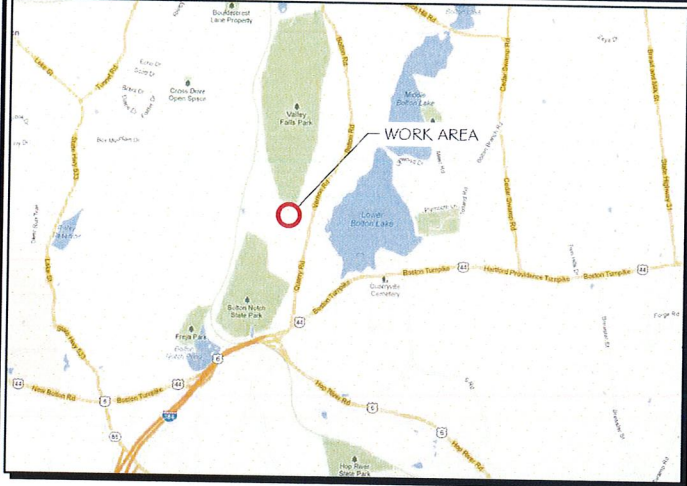
**ANTENNA AND COAXIAL CABLE SCHEDULE**

SECTOR	POS.	AZIMUTH	ANTENNA CENTERLINE	ANTENNA STATUS	TECH.	ANTENNA MAKE/ MODEL	MECH. DOWNTILT (°)	ELEC. DOWNTILT (°)	RRHs	CABLE SIZE	CABLE LENGTH
ALPHA	A-1	0°	148'-0"	EX. TO BE REMOVED	CDMA	-	-	-	-	TO BE REMOVED	-
	A-2	0°	148'-0"	PROPOSED	MULTI-MODAL	RF5 MODEL # APXV5PP18-C-A20	0	-8 (800) -2 (1900)	-	(1) 1/4" HYBRIFLEX HYBRID CABLE RF5 #HB114-1-08U4-M5J	±180'
	A-3	-	148'-0"	PROPOSED	RRH	-	-	-	(1) 1900, (1) 800	-	-
	A-4	0°	148'-0"	EX. TO BE REMOVED	CDMA	-	-	-	-	TO BE REMOVED	-
BETA	B-1	100°	148'-0"	EX. TO BE REMOVED	CDMA	-	-	-	-	TO BE REMOVED	-
	B-2	100°	148'-0"	PROPOSED	MULTI-MODAL	RF5 MODEL # APXV5PP18-C-A20	0	-0 (800) -1 (1900)	-	(1) 1/4" HYBRIFLEX HYBRID CABLE RF5 #HB114-1-08U4-M5J	±180'
	B-3	-	148'-0"	PROPOSED	RRH	-	-	-	(1) 1900, (1) 800	-	-
	B-4	100°	148'-0"	EX. TO BE REMOVED	CDMA	-	-	-	-	TO BE REMOVED	-
GAMMA	G-1	195°	148'-0"	PROPOSED	MULTI-MODAL	RF5 MODEL # APXV5PP18-C-A20	0	-1 (800) -1 (1900)	-	(1) 1/4" HYBRIFLEX HYBRID CABLE RF5 #HB114-1-08U4-M5J	±180'
	G-2	-	148'-0"	PROPOSED	RRH	-	-	-	(1) 1900 (1) 800	-	-
	G-3	220°	148'-0"	EX. TO BE REMOVED	CDMA	RELOCATED FROM POSITION G1	-	-	-	TO BE REMOVED	-
	G-4	220°	148'-0"	EX. TO BE REMOVED	CDMA	-	-	-	-	TO BE REMOVED	-

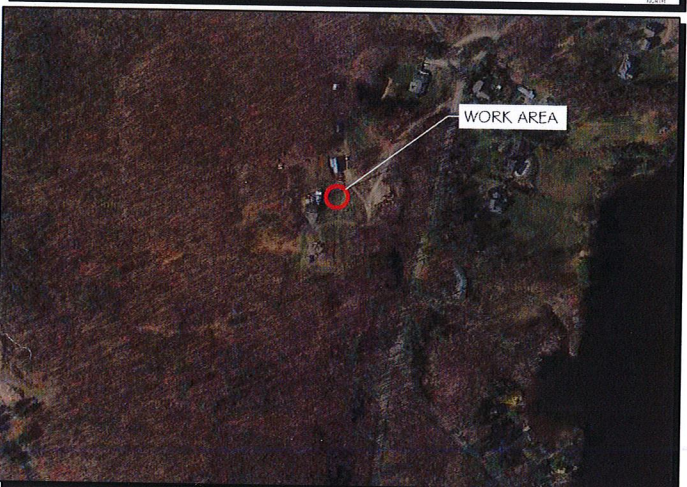
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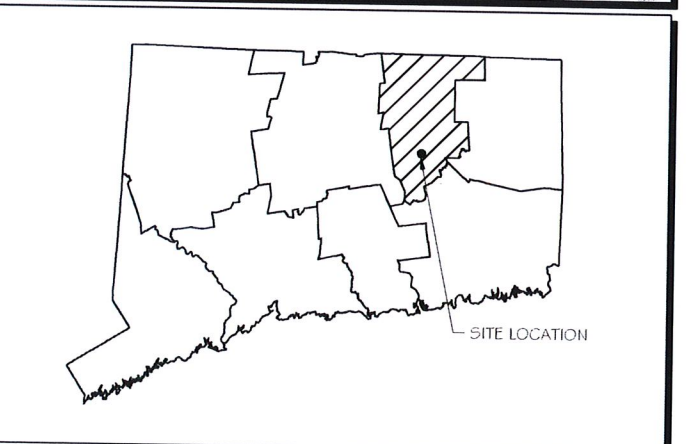
VICINITY MAP



AERIAL VIEW OF SITE



GENERAL LOCATION



**DRIVING DIRECTIONS**  
 FROM HARTFORD, CT: DEPART MAIN ST TOWARD GOLD ST. TURN RIGHT ONTO US-44 E / MORGAN ST S. KEEP STRAIGHT ONTO MORGAN ST S. TAKE RAMP LEFT FOR I-84 E / US-6 E / US-44 E. TAKE RAMP RIGHT FOR I-384 E. ROAD NAME CHANGES TO US-6 E / US-44 E. KEEP LEFT ONTO US-44 E. BEAR LEFT ONTO QUARRY RD. ARRIVE AT 130 VERNON RD, BOLTON, CT 06043

CODE COMPLIANCE

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

- INTERNATIONAL BUILDING CODE 2009
- ACCESSIBILITY CODE IBC 2009, CHAPTER 11 & ICC/ANSI A117.1-2003
- 2008 NATIONAL ELECTRIC CODE
- FIRE/LIFE SAFETY CODE- IFC 2009
- ENERGY CODE IECC 2009

PROJECT NOTES

- THIS IS AN UNMANNED TELECOMMUNICATIONS FACILITY CONSISTING OF BTS EQUIPMENT AND ANTENNAS.
- SIGNALS FROM THE ANTENNA SHALL NOT INTERFERE WITH ANY EXISTING COMMUNICATION SITES. ALL ITEMS SHOWN HEREON ARE EXISTING UNLESS OTHERWISE NOTED.
- THE PROPOSED ANTENNAS ARE ATTACHED TO EITHER BUILDING OR ANTENNA FRAME OR TO BOTH.
- THE PROPOSED WORK WILL HAVE NO EFFECT ON STRUCTURAL STABILITY. ALL WORK SHALL BE PERFORMED IN STRICT ADHERENCE WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION REGULATIONS.
- REFERENCE SPRINT STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES FOR GENERAL REQUIREMENTS.
- THIS IS AN UNMANNED FACILITY. NO SOLID WASTE. THE SITE WILL CREATE NO TRASH, THUS REQUIRES NO DUMPSTER.
- EQUIPMENT IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAP ACCESS IS THEREFORE NOT REQUIRED.
- OWNER & TENANT MAY, FROM TIME TO TIME AT TENANT'S OPTION, REPLACE THIS EXHIBIT WITH AN EXHIBIT SETTING FORTH THE LEGAL DESCRIPTION OF THE SITE, OR WITH ENGINEERED OR AS-BUILT DRAWING DEPICTING THE SITE OR ILLUSTRATING STRUCTURAL MODIFICATIONS OR CONSTRUCTION PLANS OF THE SITE. ANY VISUAL OR TEXTUAL REPRESENTATION OF THE EQUIPMENT LOCATED WITHIN THE SITE CONTAINED IN THESE OTHER DOCUMENTS IS ILLUSTRATIVE ONLY, AND DOES NOT LIMIT THE RIGHTS OF SPRINT AS PROVIDED FOR IN THE AGREEMENT. THE LOCATIONS OF ANY ACCESS AND UTILITY EASEMENTS ARE ILLUSTRATIVE ONLY. ACTUAL LOCATIONS MAY BE DETERMINED BY TENANT AND/OR THE SERVICING UTILITY COMPANY IN COMPLIANCE WITH LOCAL LAWS AND REGULATIONS.

PROJECT DESCRIPTION

APPLICANT PROPOSED TO INSTALL ANTENNAS AND WEATHERPROOF EQUIPMENT CABINETS FOR AN UNMANNED PERSONAL COMMUNICATIONS SYSTEM WIRELESS CALL SITE AT AN EXISTING TELECOMMUNICATIONS FACILITY. PROPOSED FACILITY IS NOT STAFFED AND IS VISITED ONCE A MONTH FOR MAINTENANCE PURPOSES ONLY; THEREFORE, SANITARY, SEWER, GAS, POTABLE WATER AND PLUMBING ARE NOT REQUIRED.

MEMBER  
 TO OBTAIN LOCATION OF PARTICIPANTS' UNDERGROUND FACILITIES BEFORE YOU DIG IN CONNECTICUT  
**CALL BEFORE YOU DIG 811 OR 1-800-922-4455**  
 CONNECTICUT PUBLIC ACT 87-71 REQUIRES MIN. 2 WORKING DAYS NOTICE BEFORE YOU EXCAVATE.

**DO NOT SCALE DRAWINGS:**  
 CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

APPROVALS

CONSTRUCTION PROJECT MANAGER: \_\_\_\_\_

SITE ACQUISITION: \_\_\_\_\_

SPRINT REPRESENTATIVE: \_\_\_\_\_

RF ENGINEER: \_\_\_\_\_

LANDLORD/ OWNER: \_\_\_\_\_

CONSTRUCTION DRAWINGS



W. COVENTRY  
 CT33XC550  
 130 VERNON ROAD  
 BOLTON, CT 06091  
 TOLLAND COUNTY  
 GUYED TOWER

SHEET INDEX

GENERAL:		STRUCTURAL:	
T-1	TITLE SHEET	S-1	STRUCTURAL DETAILS
SP-1	SPECIFICATIONS	UTILITY & GROUNDING:	
SP-2	SPECIFICATIONS	E-1	UTILITY & GROUNDING SITE PLAN & NOTES
SP-3	SPECIFICATIONS	E-2	UTILITY DETAILS
		E-3	GROUNDING DETAILS & NOTES
		E-4	GROUNDING DETAILS
		E-5	GROUNDING DETAILS
C-1	OVERALL SITE PLAN		
A-1	EQUIPMENT PLAN		
A-2	SITE ELEVATION & NOTES		
A-3	ANTENNA DETAILS & COAX SCHEDULE		
A-4	ANTENNA PLUMBING DIAGRAM & SPECIFICATIONS		
A-5	RF INFORMATION & COAX COLOR CODING		
A-6	EQUIPMENT DETAILS & SPECIFICATIONS		
A-7	EQUIPMENT DETAILS & SPECIFICATIONS		

PROJECT INFORMATION

APPLICANT ID:  
 SITE NAME: W. COVENTRY  
 SITE #: CT33XC550

PROPERTY LANDLORD:  
 MOUNTAINTOP ENTERPRISES, INC.  
 MILTON HATHAWAY  
 PO BOX 9219  
 BOLTON, CT 06043

SITE ADDRESS:  
 130 VERNON ROAD  
 BOLTON, CT 06091  
 TOLLAND COUNTY

SITE DATA:  
 LATITUDE: 41° 48' 09.34" N (41.80259444°)  
 LONGITUDE: 72° 26' 28.25" W (-72.44118056°)  
 GROUND ELEVATION: 807 FT AMSL

POWER COMPANY:  
 CONNECTICUT LIGHT & POWER  
 PH.: (800) 286-2000

TELEPHONE COMPANY:  
 AT&T  
 PH.: (800) 288-2020

HOSPITAL:  
 MANCHESTER MEMORIAL HOSPITAL  
 71 HAYNES ST.  
 MANCHESTER, CT 06040  
 PH.: (860) 646-1222

FIRE HOUSE:  
 BOLTON VOLUNTEER FIRE DEPT.  
 168 BOLTON CENTER ROAD  
 BOLTON, CT 06040  
 PH.: (860) 649-3910

APPLICANT:  
 SPRINT  
 6391 SPRINT PARKWAY  
 OVERLAND PARK, KS 66251

PLANS PREPARED BY:  
 RAMAKER & ASSOCIATES, INC.  
 1120 DALLAS STREET  
 SAUK CITY, WI 53583  
 CONTACT: KEITH BOHNSACK, P.E., PROJECT MANAGER  
 PH.: (608) 643-4100  
 FAX: (608) 643-7999



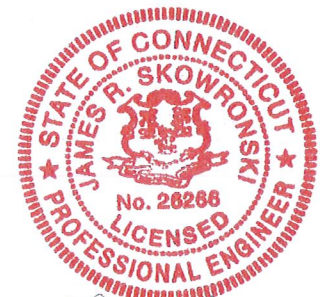
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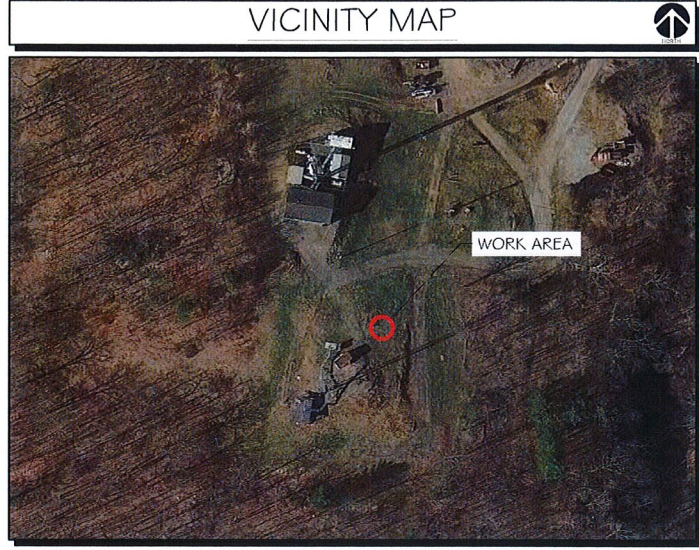
PROJECT INFORMATION:  
 130 VERNON ROAD  
 BOLTON, CT 06091  
 TOLLAND COUNTY

SHEET TITLE:  
 TITLE SHEET

SCALE: NONE

PROJECT NUMBER: 23012  
 SHEET NUMBER: T-1

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**GENERAL NOTES:**

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES ORDINANCES, LAWS, AND REGULATIONS OF ALL MUNICIPALITIES, UTILITIES COMPANY, OR OTHER PUBLIC AUTHORITIES.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY, OR MUNICIPAL AUTHORITIES.
3. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR THE OVERALL INTENT OF THESE DRAWINGS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OF THE FACILITY.
5. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT, AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
6. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
7. CONTRACTOR SHALL VERIFY ANTENNA ELEVATION AND AZIMUTH WITH RF ENGINEERING PRIOR TO INSTALLATION.
8. TRANSMITTER EQUIPMENT AND ANTENNAS ARE DESIGNED TO MEET ANSI/EIA/TIA 222-G REQUIREMENTS.
9. ALL STRUCTURAL ELEMENTS SHALL BE HOT DIPPED GALVANIZED STEEL.
10. CONTRACTOR SHALL MAKE A UTILITY "ONE-CALL" TO LOCATE ALL UTILITIES PRIOR TO EXCAVATING.
11. IF ANY UNDERGROUND UTILITIES OR STRUCTURES EXIST BENEATH THE PROJECT AREA, CONTRACTOR MUST LOCATE IT AND CONTACT THE APPLICANT & THE OWNER'S REPRESENTATIVE.
12. OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION BY TECHNICIANS APPROXIMATELY 2 TIMES PER MONTH.
13. RAMAKER & ASSOCIATES HAS NOT PERFORMED A STRUCTURAL ANALYSIS FOR THIS PROJECT. PRIOR TO THE INSTALLATION OF THE PROPOSED EQUIPMENT OR MODIFICATION OF THE EXISTING STRUCTURE, A STRUCTURAL ANALYSIS SHALL BE PERFORMED BY SPRINT'S AGENT TO CERTIFY THAT THE EXISTING/PROPOSED COMMUNICATION STRUCTURE AND COMPONENTS ARE STRUCTURALLY ADEQUATE TO SUPPORT ALL EXISTING AND PROPOSED ANTENNAS, COAXIAL CABLES, AND OTHER APPURTENANCES.
14. PROPERTY LINE INFORMATION WAS PREPARED USING DEEDS, TAX MAPS, AND PLANS OF RECORD AND SHOULD NOT BE CONSTRUED AS AN ACCURATE BOUNDARY SURVEY.
15. THIS PLAN IS SUBJECT TO ALL EASEMENTS AND RESTRICTIONS OF RECORD.
16. THE PROPOSED FACILITY WILL CAUSE ONLY A "DE MINIMIS" INCREASE IN STORMWATER RUNOFF; THEREFORE, NO DRAINAGE STRUCTURES ARE PROPOSED.
17. NO SIGNIFICANT NOISE, SMOKE, DUST, OR ODOR WILL RESULT FROM THIS FACILITY.
18. THE FACILITY IS UNMANNED AND NOT INTENDED FOR HUMAN HABITATION (NO HANDICAP ACCESS REQUIRED).
19. POWER TO THE FACILITY WILL BE MONITORED BY A SEPARATE METER.



**Sprint**  
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**Alcatel-Lucent**

**RAMAKER & ASSOCIATES, INC.**

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*James R. Skowronski* 2/14/2013  
 Signature Date

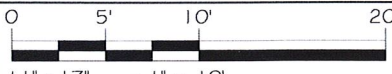
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A	10/05/12	90% CD REVIEW
MARK	DATE	DESCRIPTION

ISSUE PHASE: PRELIM PERMIT DATE ISSUED: 02/14/2013

PROJECT TITLE:  
**W. COVENTRY  
 SITE #: CT33XC550**

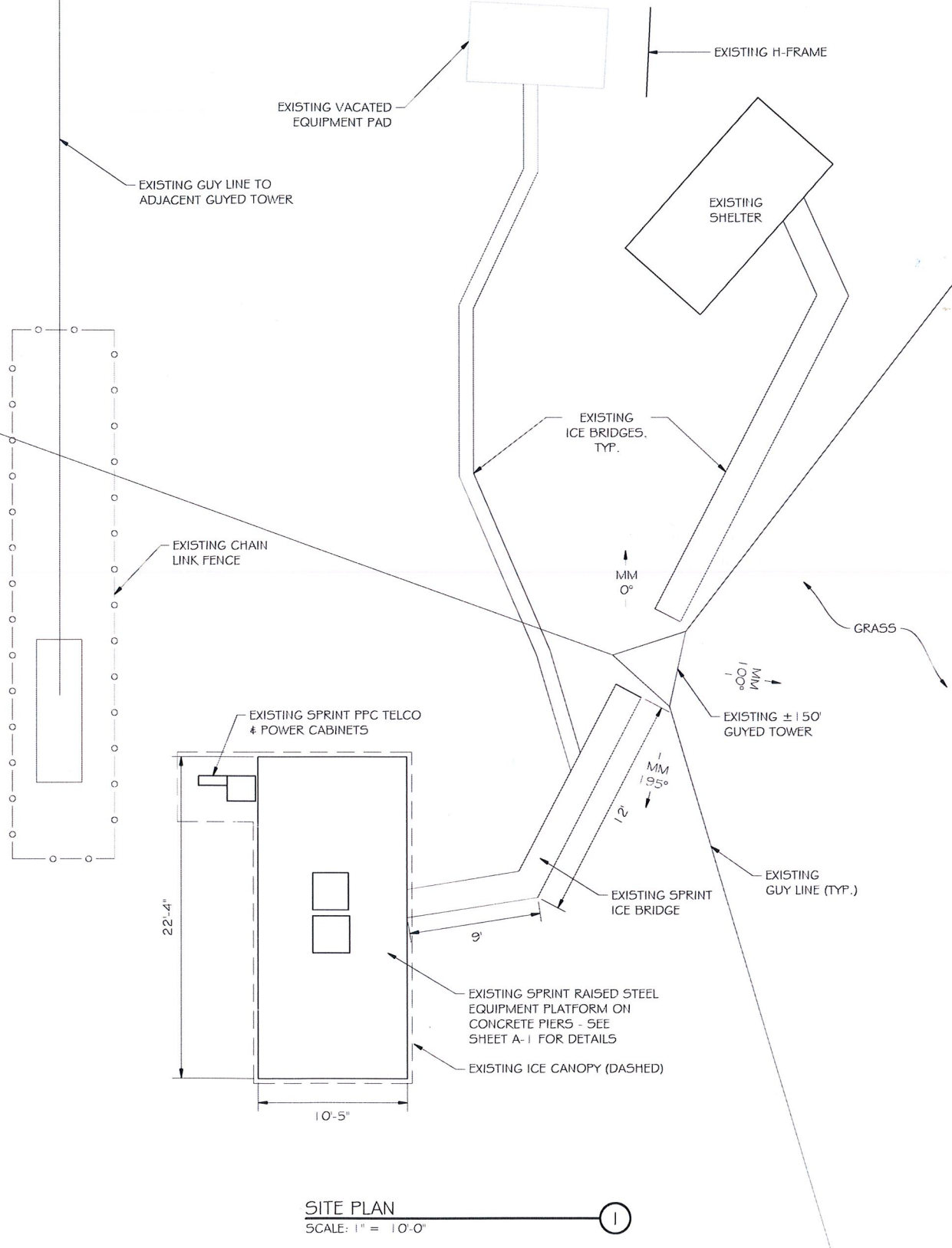
PROJECT INFORMATION:  
 130 VERNON ROAD  
 BOLTON, CT 06091  
 TOLLAND COUNTY

SHEET TITLE:  
**OVERALL SITE PLAN**



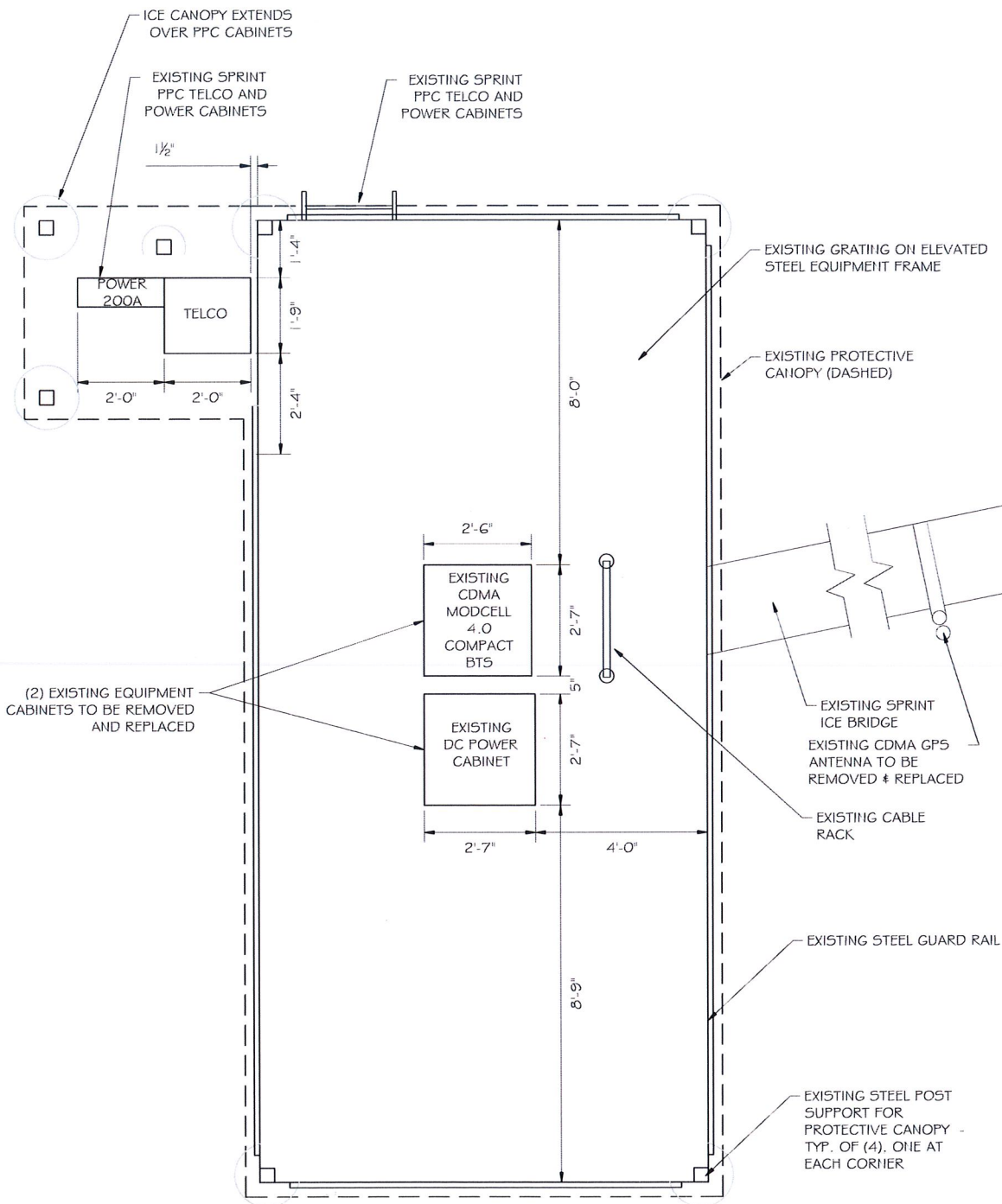
1 1/2" x 17" - 1" = 10'  
 22" x 34" - 1" = 5'

PROJECT NUMBER: 23012  
 SHEET NUMBER: C-1

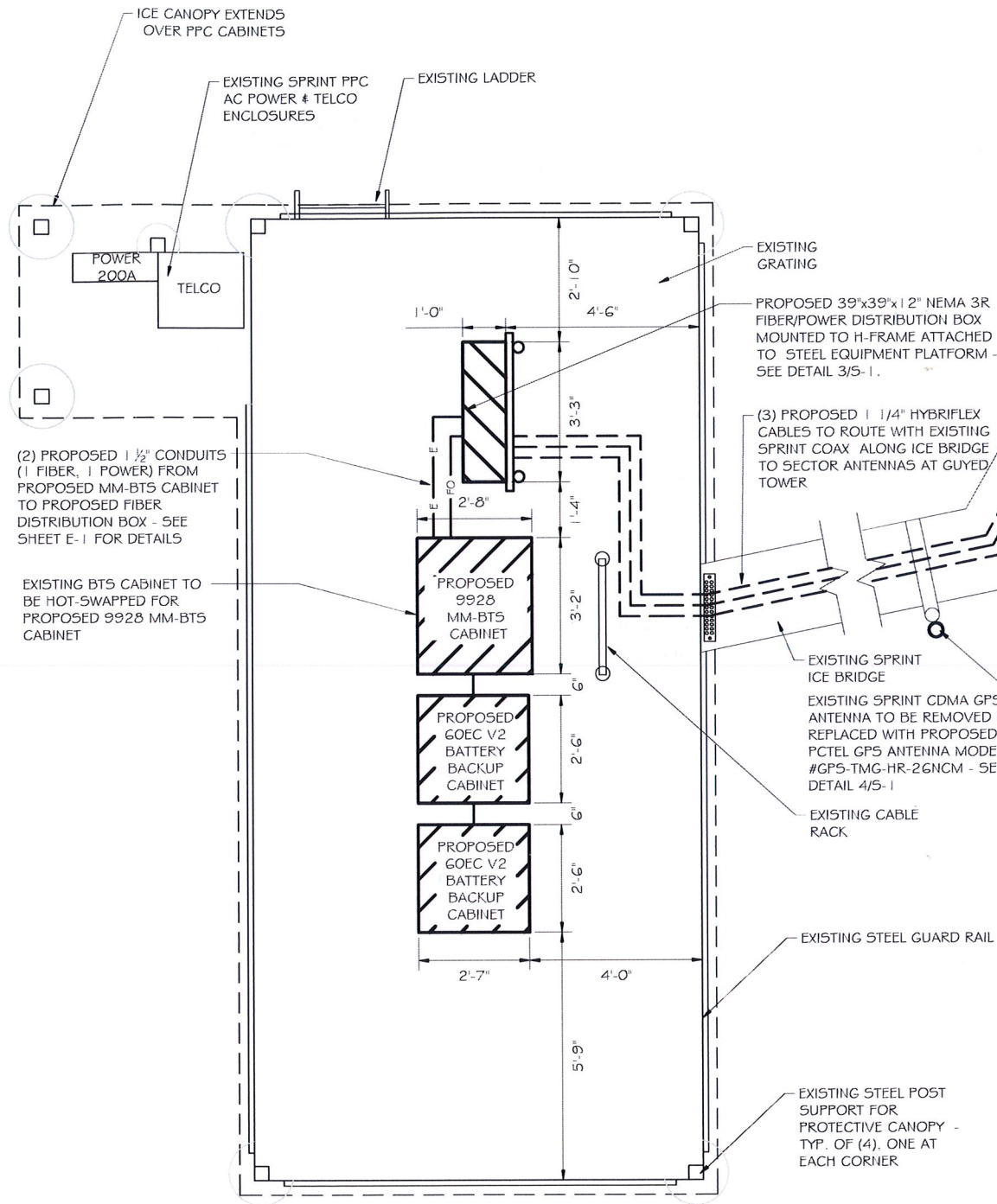


**SITE PLAN**  
 SCALE: 1" = 10'-0"





EXISTING EQUIPMENT PLAN ①  
 SCALE: 1" = 3.75'



PROPOSED EQUIPMENT PLAN ②  
 SCALE: 1" = 3.75'



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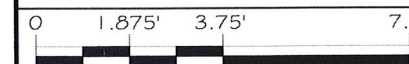
Signature: *James R. Skowronski* Date: 2/14/2013

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PROJECT INFORMATION:  
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 TOLLAND COUNTY

SHEET TITLE:  
**EQUIPMENT PLAN**



11" x 17" - 1" = 3.75'  
 22" x 34" - 1" = 1.875'

PROJECT NUMBER: 23012  
 SHEET NUMBER: A-1

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**NOTES:**

**I. SCOPE**

- A. THIS SECTION COVERS THE SPECIFICATIONS FOR ANTENNA AND COAXIAL CABLE INSTALLATION OF: ANTENNAS, COAXIAL, CONNECTIONS, AND ICE BRIDGE.
- B. REFERENCE SPRINT STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES FOR GENERAL REQUIREMENTS.

**II. ANTENNAS:**

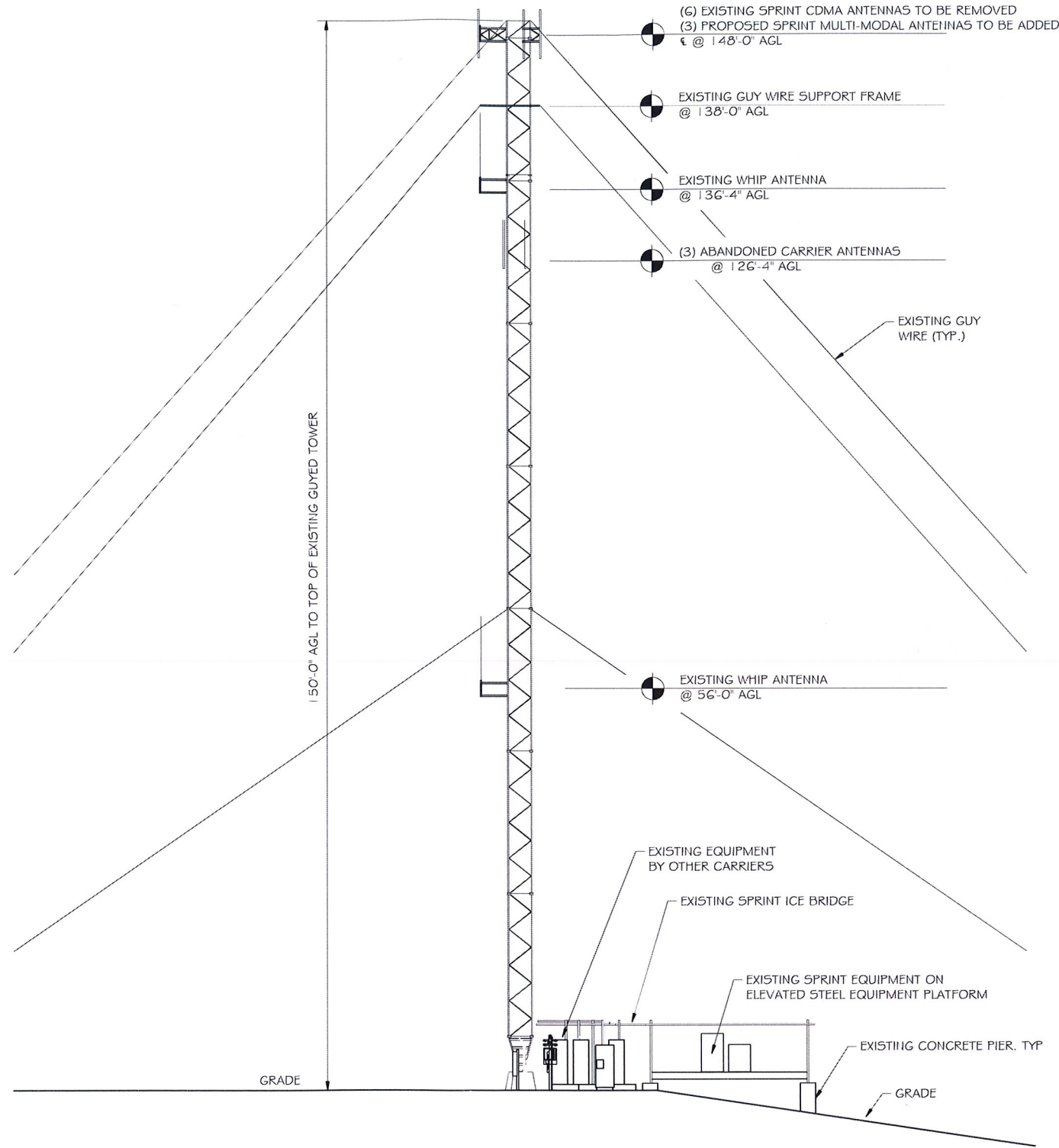
- A. ANTENNAS SHALL BE PLUMB AND INSTALLED SO THAT THE ENTIRE WHIP EXTENDS ABOVE VERTICAL PIPE MOUNT. DIRECTIONAL ANTENNAS SHALL BE ORIENTED TO PROPER AZIMUTH, PROVIDED ON THE RF SPECIFICATION SHEET. NOTE: THE ANTENNA MAY BE ORIENTED USING THE REFLECTOR AS THE REFERENCE. ADJUSTING ITS AZIMUTH 180 DEGREES FROM MAXIMUM ANTENNA RADIATION.
- B. MICROWAVE ANTENNAS (DISHES) SHALL BE ASSEMBLED PER MANUFACTURER'S DRAWINGS. STIFF ARMS AND RADOMES SHALL BE INSTALLED WITH POLARIZATION PROVIDED BY RF SPECIFICATION SHEET. IF PATH IS NOT READY TO ALIGN, DISH SHOULD BE POINTED TOWARD CALCULATED AZIMUTH, OR DIRECTION OF FIELD STAKE DENOTING OPPOSITE END. 2' STIFF ARMS SHALL BE PROVIDED FOR MICROWAVE DISHES 6'-0" IN DIAMETER OR GREATER.
- C. A TRANSIT SHALL BE USED TO PROPERLY ALIGN CELLULAR AND MICROWAVE ANTENNAS.

**III. COAXIAL CABLE:**

- A. COAXIAL CABLE SHALL BE SUPPORTED WITH SNAP-IN HANGERS. SNAP-IN HANGERS SHOULD BE USED EVERY 3 FEET THE ENTIRE HEIGHT OF THE TOWER. ANGLE ADAPTERS OR ROUND MEMBER ADAPTERS WITH BUTTERFLY CLAMPS SHALL BE USED ELSEWHERE, I.E. SIDEARMS, PLATFORMS, AND MICROWAVE MOUNTS.
- B. COAXIAL CABLE SHALL ALSO BE SUPPORTED WITH HOISTING GRIPS, INSTALLED AT MAXIMUM INTERVALS OF 200 FEET. HOISTING GRIPS SHALL BE ATTACHED WITH SHACKLES, BOLTED IN THE 7/8" HOLE OF WAVEGUIDE LADDER.
- C. ALL JUMPERS USED BETWEEN COAXIAL CABLE AND ANTENNA SHALL BE SUPPORTED WITHIN 18 INCHES OF ANTENNA, USING BUTTERFLY CLAMPS WITH ANGLE ADAPTERS OR ROUND MEMBER ADAPTERS AROUND PIPES. CELLULAR ANTENNAS TYPICALLY USE 6' JUMPERS; MICROWAVE DISHES USE 3' JUMPERS.
- D. COAXIAL CABLE SHALL BE NEATLY BENT WHEN REQUIRED, USING A MINIMUM BENDING RADIUS OF 10 TIMES THE DIAMETER OF THE COAXIAL CABLE. DRIP LOOPS SHOULD BEGIN AT THE ICE BRIDGE. THE END IN THE COAXIAL CABLE SHOULD BE AT A LOWER HEIGHT THAN THE ENTRY PORT.
- E. COAXIAL CABLE SHALL BE SUPPORTED WITH SNAP-IN HANGERS ON THE WAVEGUIDE LADDER UNDER ICE BRIDGE. COAXIAL CABLE SHOULD BE NEATLY CUT 1/2" INSIDE BUILDING AND TERMINATED AT THE QUARTER WAVE SHORTS.
- F. CONNECTORS WILL NORMALLY BE PROVIDED FIRST OFF REEL FROM FACTORY. CONNECTORS TERMINATED IN BUILDING SHALL BE NEATLY INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
- G. COAXIAL CABLES SHOULD BE LABELED WITH TAGS INSIDE THE BUILDING.
- H. USE 2" WIDE COLORED TAPE TO INDICATE SECTORS. CONTRACTOR TO USE SECTOR COLOR CODING AS INDICATED IN THESE DRAWINGS OR AS PROVIDED BY SPRINT.
- I. ALL EXCEPTIONS NEED TO BE VERIFIED WITH THE PROJECT MANAGER.

**IV. CONNECTORS:**

- A. ALL CONNECTIONS AND GROUNDING KITS SHALL BE WEATHERPROOFED USING COLD SHRINK OR ANDREW APPROVED WEATHER STRIPPING. NOTE: NO PORTION OF CONNECTOR SHALL BE EXPOSED TO THE ELEMENTS.
- B. COAXIAL CABLE SHALL BE GROUNDED USING GROUNDING KITS AT THE TOP (BELOW THE BEND), BOTTOM (ABOVE THE BEND ON TOWER GROUND BAR), AND ON BUILDING GROUND BAR BEFORE ENTRY INTO WAVEGUIDE PORTS. 4" CABLE BOOTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
- C. GROUNDING KITS SHALL BE NEATLY INSTALLED SO THAT THE JUMPER RUNS IN THE SAME DIRECTION AS THE COAXIAL AND GROUND BAR. JUMPER WIRE SHOULD RUN IN A DIRECT PATH TO THE GROUND BAR/TOWER LADDER, BUT HAVE ADEQUATE SLACK FOR EXPANSION, CONTRACTION, AND REPAIR. NON-OXIDE GREASE SHOULD BE APPLIED BETWEEN LUG AND BAR/TOWER.
- D. TOWER GROUND BAR SHALL BE INSTALLED ON THE ANGLE BEHIND THE FIRST DIAGONAL WAVEGUIDE LADDER RUNG, ABOVE 8'-6". GROUND BAR SHALL BE ISOLATED FROM ANGLE USING NEWTON BUSHINGS PROVIDED.



**ELEVATION**  
 SCALE: 1" = 20'-0" 1



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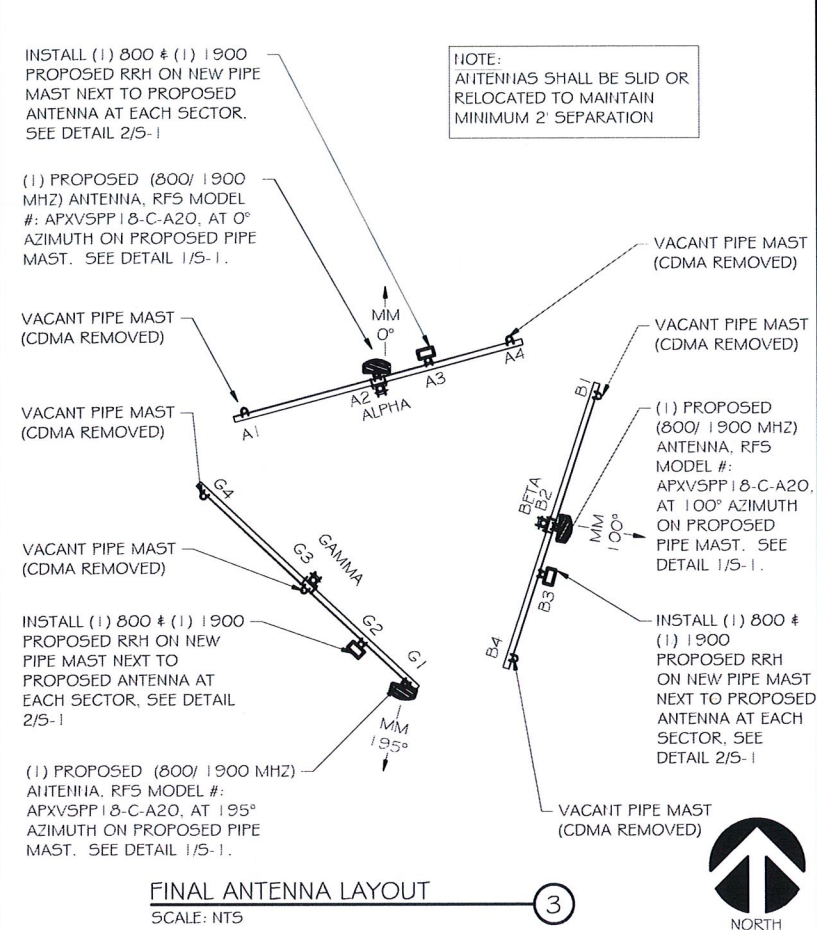
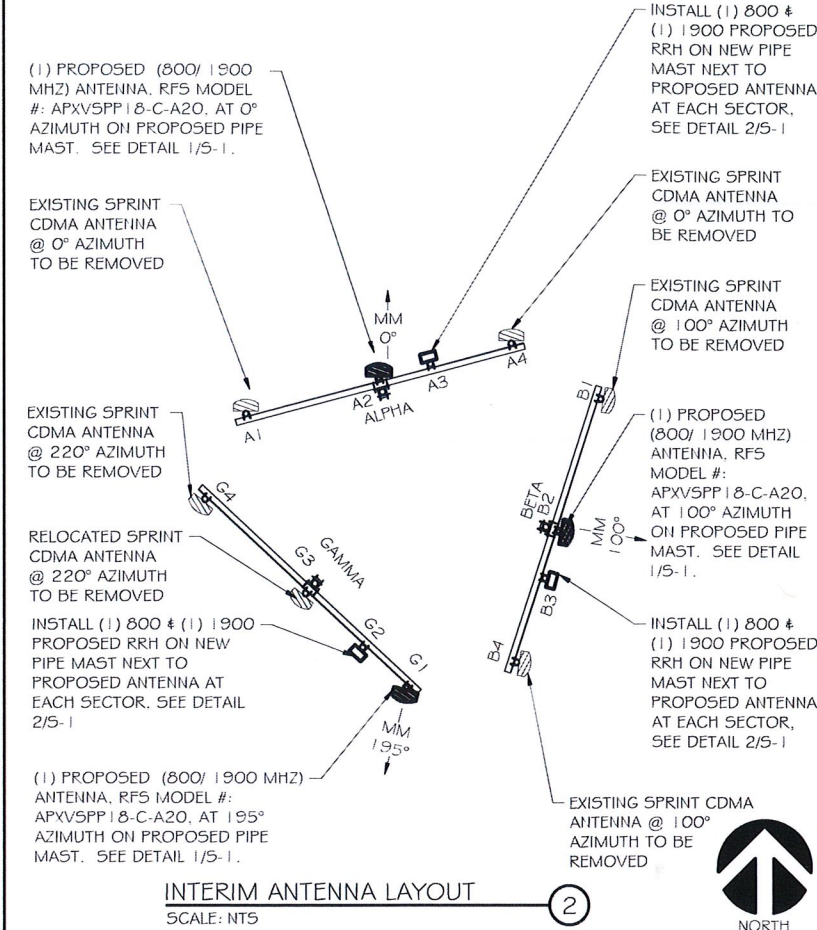
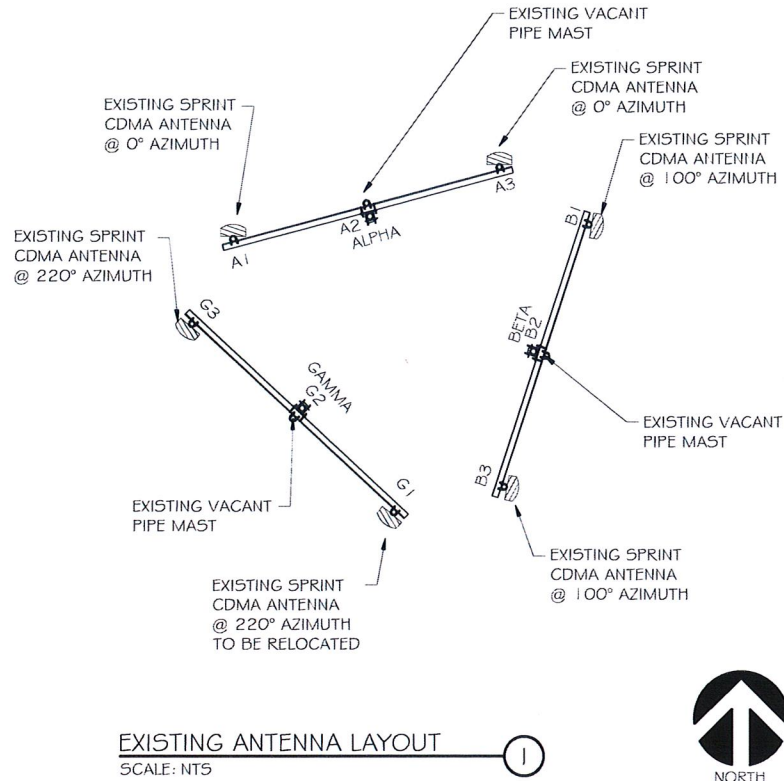
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 130 VERNON ROAD  
 BOLTON, CT 06091  
 TOLLAND COUNTY

SHEET TITLE:  
**SITE ELEVATION  
 & NOTES**

1 1/2" x 17" - 1" = 20'  
 22" x 34" - 1" = 10'

PROJECT NUMBER: 23012  
 SHEET NUMBER: A-2

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ANTENNA AND COAXIAL CABLE SCHEDULE

SECTOR	POS.	AZIMUTH	ANTENNA CENTERLINE	ANTENNA STATUS	TECH.	ANTENNA MAKE/ MODEL	MECH. DOWNTILT (°)	ELEC. DOWNTILT (°)	RRHs	CABLE SIZE	CABLE LENGTH
ALPHA	A-1	0°	148'-0"	EX. TO BE REMOVED	CDMA	-	-	-	-	TO BE REMOVED	-
	A-2	0°	148'-0"	PROPOSED	MULTI-MODAL	RF5 MODEL # APXV5PP18-C-A20	0	-8 (800) -2 (1900)	-	(1) 1/4" HYBRIFLEX HYBRID CABLE RF5 #HB114-1-08U4 - M5J	±180'
	A-3	-	148'-0"	PROPOSED	RRH	-	-	-	(1) 1900, (1) 800	-	-
	A-4	0°	148'-0"	EX. TO BE REMOVED	CDMA	-	-	-	-	TO BE REMOVED	-
BETA	B-1	100°	148'-0"	EX. TO BE REMOVED	CDMA	-	-	-	-	TO BE REMOVED	-
	B-2	100°	148'-0"	PROPOSED	MULTI-MODAL	RF5 MODEL # APXV5PP18-C-A20	0	-0 (800) -1 (1900)	-	(1) 1/4" HYBRIFLEX HYBRID CABLE RF5 #HB114-1-08U4 - M5J	±180'
	B-3	-	148'-0"	PROPOSED	RRH	-	-	-	(1) 1900, (1) 800	-	-
	B-4	100°	148'-0"	EX. TO BE REMOVED	CDMA	-	-	-	-	TO BE REMOVED	-
GAMMA	G-1	195°	148'-0"	PROPOSED	MULTI-MODAL	RF5 MODEL # APXV5PP18-C-A20	0	-1 (800) -1 (1900)	-	(1) 1/4" HYBRIFLEX HYBRID CABLE RF5 #HB114-1-08U4 - M5J	±180'
	G-2	-	148'-0"	PROPOSED	RRH	-	-	-	(1) 1900 (1) 800	-	-
	G-3	220°	148'-0"	EX. TO BE REMOVED	CDMA	RELOCATED FROM POSITION G1	-	-	-	TO BE REMOVED	-
	G-4	220°	148'-0"	EX. TO BE REMOVED	CDMA	-	-	-	-	TO BE REMOVED	-



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 TOLLAND COUNTY

SHEET TITLE:  
**ANTENNA DETAILS  
 & COAX SCHEDULE**

SCALE: NONE

PROJECT NUMBER: 23012  
 SHEET NUMBER: A-3