



April 20th, 2018

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

Re: Notice of Exempt Modification – RAD Change, Antenna and RRU
Add
Property Address: 50 Rockland Rd. Norwalk, CT 06854
Applicant: AT&T Mobility, LLC

Dear Ms. Bachman:

On behalf of AT&T, please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16- 50j-72(b) (2).

AT&T currently maintains a wireless telecommunications facility consisting of nine (9) wireless telecommunication antennas at an antenna center line height of 103-feet on an existing 180-foot lattice tower, owned by Crown Castle at 3 Corporate Park Drive, Suite 101, Clifton Park, NY 12065. AT&T is seeking to relocate their equipment's radiation center from 103' to 163', on the 180' tower, and install three (3) new sector mounts at the new centerline of 163'. AT&T now intends to remove three (3) 4' Powerwave 7770 Panel antennas and three (3) 6' Powerwave P65-16-XLH-RR Panel Antennas from the 103' Rad Center, positions [1] and [3] each sector, respectively. Three (3) existing 6' Quintel QS66512-2 will be relocated to the 163' RAD center, and are to be installed in position [2] each sector. In addition, AT&T is proposing to add two (2) 6' CCI HPA-65R-BUU-H6 and one (1) 4' Andrew SBNHH-1D65A to position [1], each sector, at the new centerline of 163'. Moreover, AT&T will be relocating three (3) RRUS-11, three (3) RRUS-32 and three (3) RRUS-32 B2 from the 103' centerline to the 163' centerline, position [2] all sectors. AT&T is also looking to add three (3) RRUS-32 B66 to the higher centerline, each in position [1], and three (3) RRUS-12, each in position [2]. Also, AT&T will be relocating two (2) existing Raycap Surge Suppressors from the lower centerline of 103' to the higher centerline of 163', and will be adding an additional Raycap Surge Suppressor at the higher centerline. Lastly, AT&T will be removing all cables that go up to the 103' centerline, and will be installing new cables to reach the higher equipment. These include six new (6) 1-5/8" coax cables, six (6) new DC Power Cables, and three (3) new Fiber trunks.

Per the attached Decision and Order, the construction of the aforementioned monopole was approved by the Connecticut Siting Council on March 1st, 1987. Please see the attached Decision and Order for conditions.

Attached is a summary of the planned modifications including power density calculations reflecting the change in AT&T's operations at the site. Also included is documentation of the structural sufficiency of the tower to accommodate the revised antenna configuration.

Please accept this letter pursuant to Regulation of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b) (2). In accordance with R.C.S.A., a copy of this letter is being sent to Steven Kleppin – Director of the Zoning and Planning Department, City of Norwalk, CT at 125 East Ave. Room #223, Norwalk, CT 06856 and Harry W. Rilling – Mayor, City of Norwalk, CT at 125 East Ave. Room #223. A copy of this letter is being sent to the property owner, Crown Atlantic Company LLC at 4017 Washington Rd. PMB 353, McMurray PA 15317. A copy of this letter is also being sent to the tower company, Crown Castle at 3 Corporate Park Drive, Suite 101, Clifton Park, NY 12065.



The following is a list of subsequent decisions by the Connecticut Siting Council:

- **EM-CING-057-103-158-157-144-051004** - New Cingular Wireless PCS, LLC notice of intent to modify existing telecommunications facilities located at 1081 North Street, Greenwich; 50 Rockland Road, **Norwalk**; 20 Post Office Lane, Westport; 56 Norfield Road, Weston; and Indian Ledge Park, Trumbull, Connecticut.
- **EM-CING-103-110330** - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 50 Rockland Road, **Norwalk**, Connecticut.
- **EM-AT&T-103-150414** - AT&T Mobility notice of intent to modify an existing telecommunications facility located at 50 Rockland Road, **Norwalk**, Connecticut.
- **EM-AT&T-103-161005** – AT&T notice of intent to modify an existing telecommunications facility located at 50 Rockland Road, **Norwalk**, Connecticut.

The planned modifications to AT&T's facility fall squarely within those activities explicitly provided for in R.C.S.A. §16-50j-72(b) (2).

1. The proposed modifications will not result in an increase in the height of the existing tower. AT&T's replacement antennas will be installed at the 163-foot level of the 180-foot monopole.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require an extension of the site boundary.
3. The proposed modifications will not increase the noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the RF Emissions Compliance Report, included in [Tab 2](#).
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in [Tab 3](#)).

For the foregoing reasons, AT&T respectfully submits that the proposed modifications to the above referenced telecommunications facility constitutes an exempt modification under R.C.S.A. §16-50j-72(b) (2).

Sincerely,

Romina Kirchmaier

CC w/enclosures:

Steven Kleppin – Director of the Zoning and Planning Department, City of Norwalk, CT
Harry W. Rilling – Mayor, City of Norwalk, CT
Crown Atlantic Company LLC – Property Owner
Crown Castle – Tower Company

AN APPLICATION OF METRO MOBILE CTS OF FAIRFIELD COUNTY, INC., FOR CERTIFICATES OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE, AND OPERATION OF THREE FACILITIES CONSISTING OF TELECOMMUNICATIONS TOWERS AND ASSOCIATED EQUIPMENT FOR THE PURPOSE OF PROVIDING DOMESTIC PUBLIC CELLULAR RADIO TELECOMMUNICATIONS SERVICE IN THE TOWN OF GREENWICH AND IN THE CITIES OF NORWALK AND STAMFORD, CONNECTICUT. : CONNECTICUT SITING COUNCIL : April 1, 1987

D E C I S I O N A N D O R D E R

Pursuant to the foregoing opinion, the Connecticut Siting Council (Council) hereby directs that a Certificate of Environmental Compatibility and Public Need, as provided by Section 16-50k of the General Statutes of Connecticut (CGS), be issued to Metro Mobile CTS of Fairfield County, Inc., for the construction, operation, and maintenance of cellular mobile telecommunications equipment in the Town of Greenwich, and the Cities of Norwalk and Stamford, Connecticut.

The facilities shall be constructed, operated, and maintained as specified in the Council's record on this matter, and subject to the following conditions.

1. The Norwalk tower, including antennas, shall be no taller than necessary to provide the proposed service, and in no event shall exceed 193 feet.
2. A fence not lower than eight feet shall surround the Norwalk tower.
3. Unless necessary to comply with condition number four, below, no lights shall be installed on the Norwalk tower.
4. The facilities shall be constructed in accordance with all applicable federal, state, and municipal laws and regulations.

5. The certificate holder shall prepare a development and management (D&M) plan for the Norwalk site in compliance with sections 16-50j-75 through 16-50j-77 of the Regulations of State Agencies. The D&M plan shall provide for evergreen screening around the perimeter of the fence at this site, and for other landscaping to improve the appearance of the facility.
6. The receive antennas at the Greenwich and Stamford sites shall be mounted below the high points of the facades of their respective buildings to minimize their visibility.
7. No construction activities shall take place outside the hours of 7:00 A.M. to 7:00 P.M., Monday through Saturday.
8. The certificate holder or its successor shall notify the Council if and when directional antennas or any equipment other than that listed in this application is added to these facilities.
9. The certificate holder or its successor shall permit public or private entities to share space on the Norwalk tower, for due consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
10. If these facilities do not provide or permanently cease to provide cellular service following completion of construction, this Decision and Order shall be void, and the tower and all associated equipment in this application shall be dismantled and removed or reapplication for any new use shall be made to the Council before any such new use is made.

11. 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 issuance of this Decision and Order, or within three years of the completion of any appeal taken in this Decision.
12. The certificate holder shall comply with any future radio frequency (RF) standards promulgated by state or federal regulatory agencies. Upon the establishment of any new governmental RF standards, the facilities granted in this Decision shall continue to be in compliance with such standards.

Pursuant to CGS section 16-50p, we hereby direct that a copy of the Decision and Order be served on each person listed below. A notice of the issuance shall be published in the Stamford Advocate, the Greenwich Times, the Norwalk Hour, and the Bridgeport Post.

The parties to the proceeding are:

Mr. Armand Mascioli
General Manager
Metro Mobile CTS of Fairfield
County, Inc.
5 Eversley Avenue
Norwalk, Connecticut 06855

(Applicant)

Howard L. Slater, Esquire
Byrne, Slater, Sandler,
Shulman & Rouse, P.C.
330 Main Street
P.O. Box 3216
Hartford, Connecticut 06103

(its attorney)

Richard Rubin, Esquire
Fleischman and Walsh, P.C.
1725 N Street, N.W.
Washington, D.C. 20036

(its attorney)

Southern New England
Telephone Company


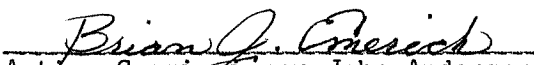

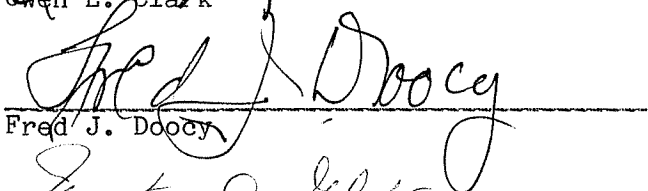

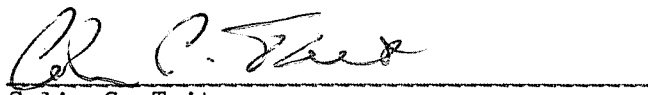
(its attorney)

Mr. Peter J. Tyrrell
Senior Attorney
Southern New England
Telephone Company
227 Church Street
New Haven, Connecticut 06506

C E R T I F I C A T I O N

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case or read the record thereof, and that we voted as follows:

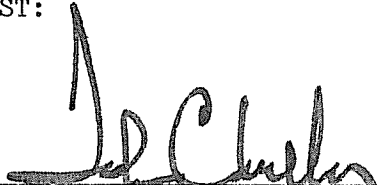
Dated at New Britain, Connecticut, this 1st day of April, 1987.

<u>Council Members</u>	<u>Vote Cast</u>
<i>Gloria Dibble Pond</i>) Gloria Dibble Pond Chairperson	Yes
) Commissioner John Downey Designee: Commissioner Peter G. Boucher	Yes
) Acting Commissioner John Anderson Designee: Brian Emerick	Yes
) Owen L. Clark	Yes
) Fred J. Doocy	Yes
) Mortimer A. Gelston	Yes
_____) James G. Horsfall	Absent
_____) William H. Smith	Absent
) Colin C. Tait	Yes

STATE OF CONNECTICUT)
 :
COUNTY OF HARTFORD) ss. New Britain, April 1, 1987

I hereby certify that the foregoing is a true and correct copy of the decision and order issued by the Connecticut Siting Council, State of Connecticut.

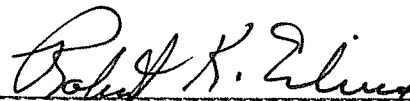
ATTEST:



John C. Kelly
Executive Director
Connecticut Siting Council

I certify that a copy of the opinion and decision and order have been forwarded by mail to all parties of record on April 3, 1987.

ATTEST:



Robert K. Erling
Siting Analyst
Connecticut Siting Council



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

AT&T Existing Facility

Site ID: [CTL02122](#)

Norwalk Rockland Rd
50 Rockland Road
Norwalk, CT 06854

FA: 10035123

USID: 60407

PTN Number: 2051A0D6JV

PACE Numbers:

[MRCTB025352](#)/[MRCTB025368](#)

April 23, 2018

EBI Project Number: 6218002899

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	14.64 %



April 23, 2018

AT&T Mobility – New England
Attn: Cameron Syme, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CTL02122 – Norwalk Rockland Road**

EBI Consulting was directed to analyze the proposed AT&T facility located at **50 Rockland Road, Norwalk, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located 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 limits for the 700 and 850 MHz Bands are approximately $467 \mu\text{W}/\text{cm}^2$ and $567 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands 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 AT&T Wireless antenna facility located at **50 Rockland Road, Norwalk, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. 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 equipment was calculated using the following assumptions:

- 1) 2 UMTS channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 4 LTE channels (2100 MHz (AWS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 3) 2 LTE channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 4) 2 LTE channels (700 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 5) 4 LTE channels (2300 MHz (WCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 6) 4 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.



- 7) 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.
- 8) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antennas used in this modeling are the **CCI HPA-65R-BUU-H6**, **Quintel QS66512-2**, **Commscope SBNHH-1D65A** and the **Quintel QS46512-2** for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS), 2100 MHz and 2300 MHz (WCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 10) The antenna mounting height centerlines of the proposed antennas are **163 feet** above ground level (AGL) for **Sector A**, **163 feet** above ground level (AGL) for **Sector B** and **163 feet** above ground level (AGL) for Sector C.
- 11) 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 calculations were done with respect to uncontrolled / general public threshold limits.



AT&T Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	CCI HPA-65R-BUU-H6	Make / Model:	CCI HPA-65R-BUU-H6	Make / Model:	Commscope SBNHH-1D65A
Gain:	12.65 / 15.05 dBd	Gain:	12.65 / 15.05 dBd	Gain:	10.65 / 14.65 dBd
Height (AGL):	163 feet	Height (AGL):	163 feet	Height (AGL):	163 feet
Frequency Bands	850 MHz / 2100 MHz (AWS)	Frequency Bands	850 MHz / 2100 MHz (AWS)	Frequency Bands	850 MHz / 2100 MHz (AWS)
Channel Count	6	Channel Count	6	Channel Count	6
Total TX Power(W):	300 Watts	Total TX Power(W):	300 Watts	Total TX Power(W):	300 Watts
ERP (W):	8,781.81	ERP (W):	8,781.81	ERP (W):	7,698.69
Antenna A1 MPE%	1.40 %	Antenna B1 MPE%	1.40 %	Antenna C1 MPE%	1.20 %
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Quintel QS66512-2	Make / Model:	Quintel QS66512-2	Make / Model:	Quintel QS46512-2
Gain:	11.35 / 10.85 / 14.85 / 13.85 dBd	Gain:	11.35 / 10.85 / 14.85 / 13.85 dBd	Gain:	10.35 / 10.55 / 14.05 / 13.15 dBd
Height (AGL):	163 feet	Height (AGL):	163 feet	Height (AGL):	163 feet
Frequency Bands	850 MHz / 700 MHz / 2300 MHz (WCS) / 1900 MHz (PCS)	Frequency Bands	850 MHz / 700 MHz / 2300 MHz (WCS) / 1900 MHz (PCS)	Frequency Bands	850 MHz / 700 MHz / 2300 MHz (WCS) / 1900 MHz (PCS)
Channel Count	12	Channel Count	12	Channel Count	12
Total TX Power(W):	440 Watts	Total TX Power(W):	440 Watts	Total TX Power(W):	440 Watts
ERP (W):	9,613.10	ERP (W):	9,613.10	ERP (W):	8,128.93
Antenna A2 MPE%	1.69 %	Antenna B2 MPE%	1.69 %	Antenna C2 MPE%	1.43 %

Site Composite MPE%	
Carrier	MPE%
AT&T – Sectors A & B	3.09 %
MetroPCS	1.56 %
Verizon Wireless	5.01 %
T-Mobile	2.35 %
Sprint	2.63 %
Site Total MPE %:	14.64 %

AT&T Sector A Total:	3.09 %
AT&T Sector B Total:	3.09 %
AT&T Sector C Total:	2.63 %
Site Total:	14.64 %

AT&T Max Values (Sector A & B):

AT&T _ Frequency Band / Technology Max Power Values (Sectors A & B)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	552.23	163	1.61	850 MHz	567	0.28%
AT&T 2100 MHz (AWS) LTE	4	1,919.34	163	11.20	2100 MHz (AWS)	1000	1.12%
AT&T 850 MHz LTE	2	545.83	163	1.59	850 MHz	567	0.28%
AT&T 700 MHz LTE	2	486.47	163	1.42	700 MHz	467	0.30%
AT&T 2300 MHz (WCS) LTE	4	916.48	163	5.35	2300 MHz (WCS)	1000	0.54%
AT&T 1900 MHz (PCS) LTE	4	970.64	163	5.66	1900 MHz (PCS)	1000	0.57%
						Total:	3.09%



Summary

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

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector A:	3.09 %
Sector B:	3.09 %
Sector C:	2.63 %
AT&T Maximum Total (per sector):	3.09 %
Site Total:	14.64 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **14.64 %** 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.

50 ROCKLAND RD

Location 50 ROCKLAND RD

Mblu 5/ 82/ 58/ 0/

Acct# 25665

Owner CROWN ATLANTIC COMPANY
LLC

Assessment \$1,007,240

Appraisal \$1,438,900

PID 25665

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2015	\$991,370	\$447,530	\$1,438,900

Assessment			
Valuation Year	Improvements	Land	Total
2015	\$693,970	\$313,270	\$1,007,240

Owner of Record

Owner CROWN ATLANTIC COMPANY LLC
Co-Owner
Address PMB 353
4017 WASHINGTON RD
McMURRAY, PA 15317-0000

Sale Price \$1,600,000
Certificate
Book & Page 3701/331
Sale Date 04/16/1999

Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
CROWN ATLANTIC COMPANY LLC	\$1,600,000		3701/331	04/16/1999
CELLCO PARTNERSHIP, DEVIVO MARIO + WENCHE	\$1,020,000		3489/348	04/03/1998
	\$0		0/0	

Building Information

Building 1 : Section 1

Year Built: 1987
Living Area: 21,115
Replacement Cost: \$1,084,957
Building Percent Good: 47

Replacement Cost
Less Depreciation: \$509,930

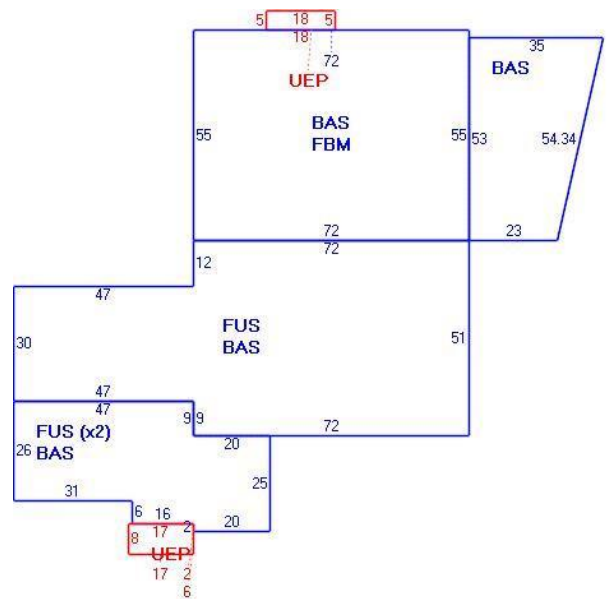
Building Attributes	
Field	Description
STYLE	Light Indust
MODEL	Industrial
Stories:	3.00
Occupancy	1.00
Exterior Wall 1	Concrete
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Rolled Compos
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Carpet
Interior Floor 2	Concrete
Heating Fuel	Gas
Heating Type	Forced Air
AC Percent	60
Heat Percent	100
Bldg Use	Industrial
Total Rooms	0
Bedrooms	0
FBM Area	
Heat/AC	Heat/AC Pkg
Frame	Masonry
Plumbing	Average
Foundation	Slab
Partitions	Average
Wall Height	13.00
% Sprinkler	40.00

Building Photo



(<http://images.vgsi.com/photos/NorwalkCTPhotos//00\00\72\74>).

Building Layout



(ParcelSketch.ashx?pid=25665&bid=25665)

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	12,397	12,397
FUS	Finished Upper Story	8,718	8,718
FBM	Finished Basement	3,960	0
UEP	Utility Enclosed Porch	226	0
		25,301	21,115

Extra Features

Extra Features				Legend
Code	Description	Size	Value	Bldg #
ELV1	Pass Elevator	1.00 UNITS	\$21,150	1

A/C	Air Conditioning	12669.00 S.F.	\$14,890	1
SPR	Sprinklers	8446.00 S.F.	\$7,940	1
ELVS	Elevator per stop	1.00 UNITS	\$3,760	1

Land

Land Use

Use Code 301
Description Industrial
Zone RI
Neighborhood C530

Land Line Valuation

Size (Acres) 0.82
Frontage
Depth
Assessed Value \$313,270
Appraised Value \$447,530

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
PAV1	Paving Asph.			16900.00 S.F.	\$17,750	1
FN6	Fence 6'			450.00 L.F.	\$3,150	1
SHD4	Cell Equip	FR	Frame	128.00 S.F.	\$6,400	1
CEL1	Cell Tower			5.00 UNITS	\$400,000	1
SHD4	Cell Equip	FR	Frame	128.00 S.F.	\$6,400	1

Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2015	\$991,370	\$447,530	\$1,438,900
2014	\$991,370	\$447,530	\$1,438,900
2013	\$991,370	\$447,530	\$1,438,900

Assessment			
Valuation Year	Improvements	Land	Total
2015	\$693,970	\$313,270	\$1,007,240
2014	\$693,970	\$313,270	\$1,007,240
2013	\$693,970	\$313,270	\$1,007,240

Date: **March 28, 2018**

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



Crown Castle
2000 Corporate Dr.
Canonsburg, PA 15317
(724) 416 - 2000

Subject: **Structural Analysis Report**

Carrier Designation: **AT&T Mobility Co-Locate**
Carrier Site Number: CTL02122
Carrier Site Name: NORWALK - ROCKLAND RD

Crown Castle Designation: **Crown Castle BU Number:** 807133
Crown Castle Site Name: BRG 134 943057
Crown Castle JDE Job Number: 492519
Crown Castle Work Order Number: 1545507
Crown Castle Order Number: 431624 Rev. 1

Engineering Firm Designation: **Crown Castle Project Number:** 1545507

Site Data: **50 ROCKLAND ROADNORWALK OFC - MTSO, SO NORWALK, Fairfield County, CT**
Latitude 41° 4' 54.44", Longitude -73° 25' 49.52"
180 Foot - Self Support Tower

Dear Marianne Dunst,

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 1545507, in accordance with order 431624, revision 1.

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 120 mph converted to a nominal 3-second gust wind speed of 93 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 C 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: Vincent D. Larson / MJL

Respectfully submitted by:


Maribel Dentinger, P.E.
Senior Project Engineer

tnxTower Report - version 7.0.5.1



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1) INTRODUCTION

This tower is a 180 ft Self Support tower designed by ROHN in July of 1987. The tower was originally designed for a wind speed of 85 mph per EIA-222-C. The tower was originally designed for a height of 220 ft but only constructed to a height of 180 ft.

This tower has been modified per reinforcement drawings prepared by Vertical Structures, Inc. in November of 2004. The modifications consist of installation of additional diagonal reinforcement to existing diagonal member from 0' to 20' and 60' to 70' and installation of end bolts for diagonal 20' to 40'.

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 93 mph with no ice, 50 mph with 0.75 inch ice thickness and 60 mph under service loads, exposure category C.

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
161.0	161.0	1	andrew	SBNHH-1D65A w/ Mount Pipe	6 6 2	1-5/8 5/8 3/8	-
		2	cci antennas	HPA-65R-BUU-H6 w/ Mount Pipe			
		3	ericsson	RRUS 11			
		3	ericsson	RRUS 12			
		3	ericsson	RRUS 32			
		3	ericsson	RRUS 32 B2			
		3	ericsson	RRUS 4426 B66			
		1	quintel technology	QS46512-2 w/ Mount Pipe			
		2	quintel technology	QS66512-2 w/ Mount Pipe			
		3	raycap	DC6-48-60-18-8F			
		1	tower mounts	Sector Mount [SM 201-3]			

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
178.0	178.0	2	tower mounts	Side Arm Mount [SO 305-1]	-	-	1
170.0	173.0	3	ericsson	AIR -32 B2A/B66AA w/ Mount Pipe	13	1-5/8	1
		3	commscope	LNx-6515DS-VTM w/ Mount Pipe			
		3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe			
		1	ericsson	KRY 112 144/1			
	3	ericsson	RRUS 11 B12				
	172.0	2	ericsson	KRY 112 144/1			
170.0	170.0	1	tower mounts	Sector Mount [SM 702-3]			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note	
157.0	157.0	2	andrew	VHLP2-18	2	7983A	1	
		2	tower mounts	Side Arm Mount [SO 203-1]				
148.0	148.0	3	alcatel lucent	800 EXTERNAL NOTCH FILTER	4	1-1/4	2	
		3	alcatel lucent	800MHZ 2X50W RRH				
		6	alcatel lucent	PCS 1900MHz 4x45W-65MHz				
		3	alcatel lucent	TD-RRH8x20-25				
		9	rfs celwave	ACU-A20-N				
		3	rfs celwave	APXVSP18-C-A20 w/ Mount Pipe				
		3	rfs celwave	APXVTM14-ALU-I20 w/ Mount Pipe				
134.0	136.0	1	andrew	VHLP2-23	6	5/16 1/2 2-1/4 Conduit	1	
	135.0	3	argus technologies	LLPX310R w/ Mount Pipe				
		3	samsung telecommunications	RRH-2WB				
	134.0	1	tower mounts	Sector Mount [SM 504-3]				
126.0	130.0	1	gps	GPS_A	-	-	1	
	128.0	3	alcatel lucent	B13 RRH 4X30	1	1-5/8	2	
		3	alcatel lucent	B25 RRH2x60 PCS				
		3	alcatel lucent	B66A RRH4X45				
		6	commscope	SBNHH-1D65C w/ Mount Pipe				
		1	rfs celwave	DB-T1-6Z-8AB-0Z				
		4	decibel	DB844G65ZAXY w/ Mount Pipe				
	126.0	128.0	2	decibel	DB844H80-XY w/ Mount Pipe	18	1-5/8 1/2	1
			1	rfs celwave	DB-T1-6Z-8AB-0Z			
1			tower mounts	Sector Mount [SM 411-3]				
112.0	112.0	3	kathrein	800 10504 w/ Mount Pipe	6	1-5/8	1	
		1	tower mounts	Sector Mount [SM 104-3]				
102.0	102.0	6	cci antennas	TPX-070821	12	1-5/8 5/8 3/8 Conduit	3	
		3	ericsson	RRUS 11 B2				
		3	ericsson	RRUS 32				
		3	ericsson	RRUS 32 B2				
		3	powerwave technologies	7770.00 w/ Mount Pipe				
		6	powerwave technologies	LGP2140X				
3	powerwave technologies	P65-16-XLH-RR w/ Mount Pipe						

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
12.0	12.0	3	quintel technology	QS66512-2 w/ Mount Pipe	2	1/2	1
		2	raycap	DC6-48-60-18-8F			
		1	tower mounts	Sector Mount [SM 201-3]			
		1	decibel	ASPP2933			
		1	gps	GPS_A			
		1	tower mounts	Side Arm Mount [SO 701-1]			

Notes:

- 1) Existing Equipment
- 2) Reserved Equipment
- 3) 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)
217	217	4	celwave	PD10017	-	-
207	207	6	celwave	PD1132	-	-
180	180	3	generic	8' Dish	-	-
170	170	1	generic	8' Dish	-	-
156	156	1	generic	8' Dish	-	-
150	150	1	generic	8' Dish	-	-
130	130	1	celwave	PD1109	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH Engineering, Inc.	2311843	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Paul J. Ford	821566	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Rohn	392878	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Vertical Structures, Inc.	1257479	CCISITES
4-POST-MODIFICATION INSPECTION	All Points Technology Corp.	4065020	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
T1	180 - 160	Leg	ROHN 3 EH	3	-11.366	110.608	10.3	Pass
T2	160 - 153.333	Leg	ROHN 4 EH	35	-17.712	159.906	11.1	Pass
T3	153.333 - 146.667	Leg	ROHN 4 EH	44	-28.321	159.905	17.7	Pass
T4	146.667 - 140	Leg	ROHN 4 EH	56	-39.132	159.906	24.5	Pass
T5	140 - 120	Leg	ROHN 5 EH	67	-80.002	239.349	33.4	Pass
T6	120 - 100	Leg	ROHN 6 EHS	88	-127.399	274.776	46.4	Pass
T7	100 - 80	Leg	ROHN 6 EH	109	-169.547	303.717	55.8	Pass
T8	80 - 70	Leg	ROHN 8 EHS	124	-191.801	393.689	48.7	Pass
T9	70 - 60	Leg	ROHN 8 EHS	133	-214.470	393.689	54.5	Pass
T10	60 - 40	Leg	ROHN 8 EHS	142	-259.425	393.691	65.9	Pass
T11	40 - 20	Leg	ROHN 8 EH	157	-303.985	505.555	60.1	Pass
T12	20 - 0	Leg	ROHN 8 EH	172	-348.327	505.555	68.9	Pass
T1	180 - 160	Diagonal	L2x2x3/16	13	-2.425	7.579	32.0	Pass
T2	160 - 153.333	Diagonal	L2 1/2x2 1/2x1/4	39	-4.502	14.851	30.3 41.6 (b)	Pass
T3	153.333 - 146.667	Diagonal	L2 1/2x2 1/2x1/4	51	-5.041	13.431	37.5 45.8 (b)	Pass
T4	146.667 - 140	Diagonal	L2 1/2x2 1/2x1/4	63	-6.283	12.187	51.6 58.9 (b)	Pass
T5	140 - 120	Diagonal	L2 1/2x2 1/2x1/4	75	-8.905	9.374	95.0	Pass
T6	120 - 100	Diagonal	L3x3x1/4	96	-10.496	13.187	79.6 89.9 (b)	Pass
T7	100 - 80	Diagonal	L3 1/2x3 1/2x1/4	116	-11.696	14.200	82.4 83.1 (b)	Pass
T8	80 - 70	Diagonal	L3 1/2x3 1/2x1/4	127	-12.349	13.270	93.1	Pass
T9	70 - 60	Diagonal	2L3 1/2x3 1/2x1/4x3/8	136	-13.312	21.280	62.6	Pass
T10	60 - 40	Diagonal	L4x4x1/4	145	-13.981	15.493	90.2 96.8 (b)	Pass
T11	40 - 20	Diagonal	L4x4x5/16	160	-14.796	16.206	91.3	Pass
T12	20 - 0	Diagonal	2L4x4x5/16x3/8	175	-15.942	24.217	65.8	Pass
T1	180 - 160	Top Girt	L2x2x1/8	5	-0.081	3.169	2.6	Pass
T3	153.333 - 146.667	Top Girt	L2 1/2x2 1/2x1/8	48	-0.453	3.051	14.9	Pass
T4	146.667 - 140	Top Girt	L2 1/2x2 1/2x1/8	59	0.369	16.822	2.2 7.1 (b)	Pass
T1	180 - 160	Mid Girt	L2x2x1/8	9	-0.488	2.321	21.0	Pass
							Summary	
						Leg (T12)	68.9	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
						Diagonal (T10)	96.8	Pass
						Top Girt (T3)	14.9	Pass
						Mid Girt (T1)	21.0	Pass
						Bolt Checks	96.8	Pass
						Rating =	96.8	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	63.3	Pass
1	Base Foundation	0	96.9	Pass

Structure Rating (max from all components) =	96.9%
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Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

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



PROJECT: LTE 4C/5C
SITE NUMBER: CTL02122
FA NUMBER: 10035123
PTN NUMBER: 2051A0D6JV
PACE NUMBER: MRCTB025352
CROWN BU#: 807133
SITE NAME: ROCKLAND
SITE ADDRESS: 50 ROCKLAND RD
 NORWALK, CT 06854



PROJECT INFORMATION

SITE NAME: ROCKLAND
SITE NUMBER: CTL02122
SITE ADDRESS: 50 ROCKLAND RD NORWALK, CT 06854
FA NUMBER: 10035123
PTN NUMBER: 2051A0D6JV
PACE NUMBER: MRCTB025352
USID NUMBER: 60407
CROWN BU#: 807133
APPLICANT: AT&T WIRELESS
 550 COCHITUATE ROAD SUITE 550 13 AND 14 FRAMINGHAM, MA 01701
TOWER OWNER: CROWN CASTLE INTERNATIONAL
 12 GILL STREET, SUITE 5800 WOBURN, MA 01801
JURISDICTION: FAIRFIELD COUNTY
COUNTY: FAIRFIELD
SITE COORDINATES FROM (RFDS): LATITUDE: 41.0813811° LONGITUDE: -73.4309431° GROUND ELEV.: 65' PROPOSED USE: TELECOMMUNICATIONS FACILITY
AT&T RF MANAGER: DEEPAK RATHORE (860) 965-3068 dr701e@att.com

SCOPE OF WORK

LTE 850/AWS WILL BE 4C/5C AT THE SITE WITH BRONZE CONFIGURATION. PROPOSED 4C/5C PROJECT SCOPE HEREIN BASED ON RFDS ID # 1977145, VERSION 1.00 LAST UPDATED 10/12/17.

- (3) NEW ANTENNA SECTOR MOUNTS
- (3) NEW ANTENNAS TO REPLACE (6) EXISTING ANTENNAS
- (3) EXISTING ANTENNAS AND (9) RRUS UNITS TO BE RELOCATED TO NEW SECTOR MOUNTS
- (3) NEW RRUS-32 B66 UNITS
- (3) NEW RRUS-12 UNITS
- (1) NEW RAYCAP UNIT AND (2) RAYCAP UNITS TO BE RELOCATED
- (1) FIBER CABLE, (6) DC POWER CABLES AND (6) COAX CABLES
- (2) NEW XMU CARDS

CONTRACTOR SHALL FURNISH ALL MATERIAL WITH THE EXCEPTION OF AT&T SUPPLIED MATERIAL. ALL MATERIAL SHALL BE INSTALLED BY THE CONTRACTOR, UNLESS STATED OTHERWISE.

APPLICABLE BUILDING CODES AND STANDARDS

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES.

BUILDING CODE: 2012 INTERNATIONAL BUILDING CODE
 2016 CONNECTICUT STATE BUILDING CODE SUPPLEMENT

ELECTRICAL CODE: 2014 NATIONAL ELECTRIC CODE

- FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.
- ADA ACCESS REQUIREMENTS ARE NOT REQUIRED.
- THIS FACILITY DOES NOT REQUIRE POTABLE WATER AND WILL NOT PRODUCE ANY SEWAGE

REV	DATE	DESCRIPTION	BY
0	10/27/17	90% REVIEW	KC
1	11/15/17	FOR PERMIT	KC

I HEREBY CERTIFY THAT THESE DRAWINGS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND CONTROL, AND TO THE BEST OF MY KNOWLEDGE AND BELIEF COMPLY WITH THE REQUIREMENTS OF ALL APPLICABLE CODES.

SITE LOCATION MAP



DIRECTIONS

SCAN QR CODE FOR LINK TO SITE LOCATION MAP



DRAWING INDEX

T1	TITLE SHEET
SP1	NOTES AND SPECIFICATIONS
SP2	NOTES AND SPECIFICATIONS
A1	COMPOUND PLAN
A2	EQUIPMENT PLAN
A3	ELEVATIONS
A4	ANTENNA PLANS
A5	EQUIPMENT DETAILS
A6	ANTENNA & CABLE CONFIGURATION
A7	CABLE NOTES AND COLOR CODING
A8	GROUNDING DETAILS

PROJECT CONSULTANTS

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SITE ACQUISITION: SMARTLINK
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 EMAIL: Sharon.Keefe@smartlinkllc.com
ENGINEER/ARCHITECT: FULLERTON ENGINEERING
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 EMAIL: mark.donnely@smartlinkllc.com

SITE NAME
ROCKLAND

SITE NUMBER:
CTL02122

SITE ADDRESS
**50 ROCKLAND RD
NORWALK, CT 06854**

SHEET NAME
TITLE SHEET

SHEET NUMBER
T1



NOTE: DRAWING SCALES ARE FOR 11"x17" SHEETS UNLESS OTHERWISE NOTED

THESE DRAWINGS ARE THE PROPERTY OF FULLERTON ENGINEERING CONSULTANTS, INC. IT IS FOR THE EXCLUSIVE USE OF THIS PROJECT. ANY RE-USE OF THIS DRAWING WITHOUT THE EXPRESSED WRITTEN CONSENT OF FULLERTON ENGINEERING CONSULTANTS, INC. IS PROHIBITED.

GENERAL CONSTRUCTION

- 1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
CONTRACTOR/CM – SMARTLINK
OWNER – AT&T WIRELESS
- 2. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND AT&T PROJECT SPECIFICATIONS.
- 3. GENERAL CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS, DIMENSIONS, AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
- 4. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. GENERAL CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.
- 5. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.
- 6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- 7. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS THE MINIMUM REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF WORK AND PREPARED BY THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
- 8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- 9. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE ENGINEER PRIOR TO PROCEEDING.
- 10. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFIRM TO ALL OSHA REQUIREMENTS AND THE LOCAL JURISDICTION.
- 11. GENERAL CONTRACTOR SHALL COORDINATE WORK AND SCHEDULE WORK ACTIVITIES WITH OTHER DISCIPLINES.
- 12. ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMAN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
- 13. SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH UL LISTED MATERIALS APPROVED BY LOCAL JURISDICTION. CONTRACTOR SHALL KEEP AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS.
- 14. WORK PREVIOUSLY COMPLETED IS REPRESENTED BY LIGHT SHADED LINES AND NOTES. THE SCOPE OF WORK FOR THIS PROJECT IS REPRESENTED BY DARK SHADED LINES AND NOTES. CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR OF ANY EXISTING CONDITIONS THAT DEVIATE FROM THE DRAWINGS PRIOR TO BEGINNING CONSTRUCTION.
- 15. CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
- 16. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
- 17. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
- 18. GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES AND CONTRACTORS TO THE SITE AND/OR BUILDING.
- 19. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.

- 20. THE GENERAL CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES.
- 21. THE GENERAL CONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NOT LESS THAN 2-A OR 2-A:10-B:C AND SHALL BE WITHIN 25 FEET OF TRAVEL DISTANCE TO ALL PORTIONS OF WHERE THE WORK IS BEING COMPLETED DURING CONSTRUCTION.
- 22. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS SHALL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION, B) CONFINED SPACE, C) ELECTRICAL SAFETY, AND D) TRENCHING & EXCAVATION.
- 23. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED, CAPPED, PLUGGED OR OTHERWISE DISCONNECTED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
- 24. THE AREAS OF THE OWNER'S 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.
- 25. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE FEDERAL AND LOCAL JURISDICTION FOR EROSION AND SEDIMENT CONTROL.
- 26. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUNDING. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
- 27. THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH UNIFORM GRADE AND COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY UNDER PAVEMENT AND STRUCTURES AND 80 PERCENT STANDARD PROCTOR DENSITY IN OPEN SPACE. ALL TRENCHES IN PUBLIC RIGHT OF WAY SHALL BE BACKFILLED WITH FLOWABLE FILL OR OTHER MATERIAL PRE-APPROVED BY THE LOCAL JURISDICTION.
- 28. ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
- 29. ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS, AND OTHER DOCUMENTS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR AT COMPLETION OF CONSTRUCTION AND PRIOR TO PAYMENT.
- 30. CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS-BUILT REDLINES TO THE GENERAL CONTRACTOR UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.
- 31. CONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION.
- 32. THE PROPOSED FACILITY WILL BE UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SEWER SERVICE, AND IS NOT FOR HUMAN HABITAT (NO HANDICAP ACCESS REQUIRED).
- 33. OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION, APPROXIMATELY 2 TIMES PER MONTH, BY AT&T TECHNICIANS.
- 34. NO OUTDOOR STORAGE OR SOLID WASTE CONTAINERS ARE PROPOSED.
- 35. ALL MATERIAL SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST REVISION AT&T MOBILITY GROUNDING STANDARD "TECHNICAL SPECIFICATION FOR CONSTRUCTION OF GSM/GPRS WIRELESS SITES" AND "TECHNICAL SPECIFICATION FOR FACILITY GROUNDING". IN CASE OF A CONFLICT BETWEEN THE CONSTRUCTION SPECIFICATION AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.
- 36. CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION, IF CONTRACTOR CANNOT OBTAIN A PERMIT, THEY MUST NOTIFY THE GENERAL CONTRACTOR IMMEDIATELY.
- 37. CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
- 38. INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM SITE VISITS AND/OR DRAWINGS PROVIDED BY THE SITE OWNER. CONTRACTORS SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
- 39. NO WHITE STROBE LIGHTS ARE PERMITTED. LIGHTING IF REQUIRED, WILL MEET FAA STANDARDS AND REQUIREMENTS.

ANTENNA MOUNTING

- 40. DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO CURRENT ANS/TIA-222 OR APPLICABLE LOCAL CODES.

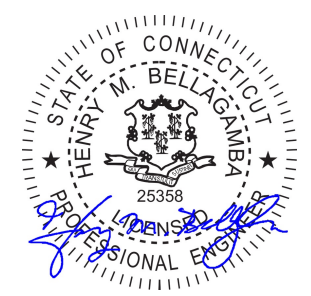
- 41. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS NOTED OTHERWISE.
 - 42. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS NOTED OTHERWISE.
 - 43. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
 - 44. ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO MANUFACTURER'S RECOMMENDATIONS.
 - 45. CONTRACTOR SHALL INSTALL ANTENNA PER MANUFACTURER'S RECOMMENDATION FOR INSTALLATION AND GROUNDING.
 - 46. ALL UNUSED PORTS ON ANY ANTENNAS SHALL BE TERMINATED WITH A 50-OHM LOAD TO ENSURE ANTENNAS PERFORM AS DESIGNED.
 - 47. PRIOR TO SETTING ANTENNA AZIMUTHS AND DOWNTILTS, ANTENNA CONTRACTOR SHALL CHECK THE ANTENNA MOUNT FOR TIGHTNESS AND ENSURE THAT THEY ARE PLUMB. ANTENNA AZIMUTHS SHALL BE SET FROM TRUE NORTH AND BE ORIENTED WITHIN +/- 5% AS DEFINED BY THE RFDS. ANTENNA DOWNTILTS SHALL BE WITHIN +/- 0.5% AS DEFINED BY THE RFDS. REFER TO ND-00246.
 - 48. JUMPERS FROM THE TMA'S MUST TERMINATE TO OPPOSITE POLARIZATION'S IN EACH SECTOR.
 - 49. CONTRACTOR SHALL RECORD THE SERIAL #, SECTOR, AND POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND PROVIDE THE INFORMATION TO AT&T.
 - 50. TMA'S SHALL BE MOUNTED ON PIPE DIRECTLY BEHIND ANTENNAS AS CLOSE TO ANTENNA AS FEASIBLE IN A VERTICAL POSITION.
- TORQUE REQUIREMENTS**
- 51. ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH.
 - 52. ALL RF CONNECTIONS, GROUNDING HARDWARE AND ANTENNA HARDWARE SHALL HAVE A TORQUE MARK INSTALLED IN A CONTINUOUS STRAIGHT LINE FROM BOTH SIDES OF THE CONNECTION.
A. RF CONNECTION BOTH SIDES OF THE CONNECTOR.
B. GROUNDING AND ANTENNA HARDWARE ON THE NUT SIDE STARTING FROM THE THREADS TO THE SOLID SURFACE. EXAMPLE OF SOLID SURFACE: GROUND BAR, ANTENNA BRACKET METAL.
- FIBER & POWER CABLE MOUNTING**
- 53. THE FIBER OPTIC TRUNK CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY. WHEN INSTALLING FIBER OPTIC TRUNK CABLES INTO A CABLE TRAY SYSTEM, THEY SHALL BE INSTALLED INTO AN INTER DUCT AND A PARTITION BARRIER SHALL BE INSTALLED BETWEEN THE 600 VOLT CABLES AND THE INTER DUCT IN ORDER TO SEGREGATE CABLE TYPES. OPTIC FIBER TRUNK CABLES SHALL HAVE APPROVED CABLE RESTRAINTS EVERY (60) SIXTY FEET AND SECURELY FASTENED TO THE CABLE TRAY SYSTEM. NFPA 70 (NEC) ARTICLE 770 RULES SHALL APPLY.
 - 54. THE TYPE TC-ER CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY AND SHALL BE SECURED AT INTERVALS NOT EXCEEDING (6) SIX FEET. AN EXCEPTION; WHERE TYPE TC-ER CABLES ARE NOT SUBJECT TO PHYSICAL DAMAGE, CABLES SHALL BE PERMITTED TO MAKE A TRANSITION BETWEEN CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY WHICH ARE SERVING UTILIZATION EQUIPMENT OR DEVICES, A DISTANCE (6) SIX FEET SHALL NOT BE EXCEEDED WITHOUT CONTINUOUS SUPPORTING. NFPA 70 (NEC) ARTICLES 336 AND 392 RULES SHALL APPLY.
 - 55. WHEN INSTALLING OPTIC FIBER TRUNK CABLES OR TYPE TC-ER CABLES INTO CONDUITS, NFPA 70 (NEC) ARTICLE 300 RULES SHALL APPLY.
- COAXIAL CABLE NOTES**
- 62. TYPES AND SIZES OF THE ANTENNA CABLE ARE BASED ON ESTIMATED LENGTHS. PRIOR TO ORDERING CABLE, CONTRACTOR SHALL VERIFY ACTUAL LENGTH BASED ON CONSTRUCTION LAYOUT AND NOTIFY THE PROJECT MANAGER IF ACTUAL LENGTHS EXCEED ESTIMATED LENGTHS.
 - 63. CONTRACTOR SHALL VERIFY THE DOWN-TILT OF EACH ANTENNA WITH A DIGITAL LEVEL.
 - 64. CONTRACTOR SHALL CONFIRM COAX COLOR CODING PRIOR TO CONSTRUCTION.
 - 65. ALL JUMPERS TO THE ANTENNAS FROM THE MAIN TRANSMISSION LINE SHALL BE 1/2" DIA. LDF AND SHALL NOT EXCEED 6'-0".

- 66. ALL COAXIAL CABLE SHALL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE, IN AN APPROVED MANNER, AT DISTANCES NOT TO EXCEED 4'-0" OC.
 - 67. CONTRACTOR SHALL FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS REGARDING BOTH THE INSTALLATION AND GROUNDING OF ALL COAXIAL CABLES, CONNECTORS, ANTENNAS, AND ALL OTHER EQUIPMENT.
 - 68. CONTRACTOR SHALL GROUND ALL EQUIPMENT. INCLUDING ANTENNAS, RET MOTORS, TMA'S, COAX CABLES, AND RET CONTROL CABLES AS A COMPLETE SYSTEM. GROUNDING SHALL BE EXECUTED BY QUALIFIED WIREMEN IN COMPLIANCE WITH MANUFACTURER'S SPECIFICATION AND RECOMMENDATION.
 - 69. CONTRACTOR SHALL PROVIDE STRAIN-RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES, COAX CABLES, AND RET CONTROL CABLES. CABLE STRAIN-RELIEFS AND CABLE SUPPORTS SHALL BE APPROVED FOR THE PURPOSE. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
 - 70. CONTRACTOR TO VERIFY THAT EXISTING COAX HANGERS ARE STACKABLE SNAP IN HANGERS. IF EXISTING HANGERS ARE NOT STACKABLE SNAP IN HANGERS THE CONTRACTOR SHALL REPLACE EXISTING HANGERS WITH NEW SNAP IN HANGERS IF APPLICABLE.
- GENERAL CABLE AND EQUIPMENT NOTES**
- 71. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ANTENNA, TMAS, DIPLEXERS, AND COAX CONFIGURATION, MAKE AND MODELS PRIOR TO INSTALLATION.
 - 72. ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S RECOMMENDATIONS.
 - 73. CONTRACTOR SHALL REFERENCE THE TOWER STRUCTURAL ANALYSIS/DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION/ROUTING.
 - 74. ALL OUTDOOR RF CONNECTORS/CONNECTIONS SHALL BE WEATHERPROOFED, EXCEPT THE RET CONNECTORS, USING BUTYL TAPE AFTER INSTALLATION AND FINAL CONNECTIONS ARE MADE. BUTYL TAPE SHALL HAVE A MINIMUM OF ONE-HALF TAPE WIDTH OVERLAP ON EACH TURN AND EACH LAYER SHALL BE WRAPPED THREE TIMES. WEATHERPROOFING SHALL BE SMOOTH WITHOUT BUCKLING. BUTYL BLEEDING IS NOT ALLOWED.
 - 75. IF REQUIRED TO PAINT ANTENNAS AND/OR COAX:
A. TEMPERATURE SHALL BE ABOVE 50° F.
B. PAINT COLOR MUST BE APPROVED BY BUILDING OWNER/LANDLORD.
C. FOR REGULATED TOWERS, FAA/FCC APPROVED PAINT IS REQUIRED.
D. DO NOT PAINT OVER COLOR CODING OR ON EQUIPMENT MODEL NUMBERS
 - 76. ALL CABLES SHALL BE GROUNDED WITH COAXIAL CABLE GROUND KITS. FOLLOW THE MANUFACTURER'S RECOMMENDATIONS.
A. GROUNDING AT THE ANTENNA LEVEL.
B. GROUNDING AT MID LEVEL, TOWERS WHICH ARE OVER 200'-0", ADDITIONAL CABLE GROUNDING REQUIRED.
C. GROUNDING AT BASE OF TOWER PRIOR TO TURNING HORIZONTAL.
D. GROUNDING OUTSIDE THE EQUIPMENT SHELTER AT ENTRY PORT.
E. GROUNDING INSIDE THE EQUIPMENT SHELTER AT THE ENTRY PORT.
 - 77. ALL PROPOSED GROUND BAR DOWNLEADS ARE TO BE TERMINATED TO THE EXISTING ADJACENT GROUND BAR DOWNLEADS A MINIMUM DISTANCE OF 4'-0" BELOW GROUND BAR. TERMINATIONS MAY BE EXOTHERMIC OR COMPRESSION.



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SITE NAME
ROCKLAND

SITE NUMBER:
CTL02122

SITE ADDRESS
**50 ROCKLAND RD
NORWALK, CT 06854**

SHEET NAME
**NOTES AND
SPECIFICATIONS**

SHEET NUMBER
SP1

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NOTICE

Beyond This Point you are entering a controlled area where RF emissions *may exceed* the FCC General Population Exposure Limits.

Follow all posted signs and site guidelines for working in a RF environment.

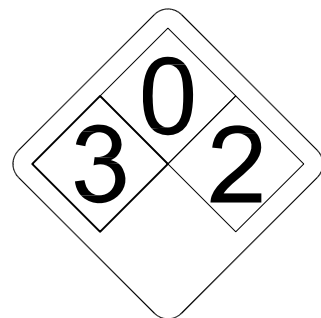
Ref: 47CFR 1.1307(b)

CAUTION

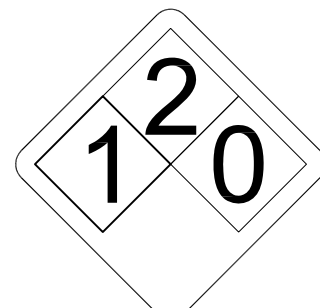
Beyond This Point you are entering a controlled area where RF emissions *may exceed* the FCC Occupational Exposure Limits.

Obey all posted signs and site guidelines for working in a RF environment.

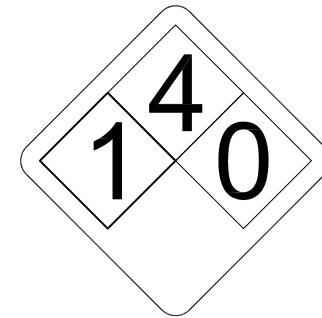
Ref: 47CFR 1.1307(b)



ALERTING SIGN
(FOR CELL SITE BATTERIES)



ALERTING SIGN
(FOR DIESEL FUEL)



ALERTING SIGN
(FOR PROPANE)

550 COCHITUATE ROAD
SUITE 550 13 AND 14
FRAMINGHAM, MA 01701

1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076

FULLERTON
ENGINEERING · DESIGN

1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# PEC.0001444
www.FullertonEngineering.com

ALERTING SIGNS

WARNING!

DANGER DO NOT TOUCH TOWER!

SERIOUS "RF" BURN HAZARD!

MAINTAIN AN ADEQUATE CLEARANCE BETWEEN TOWER SUPPORTS AND GUY WIRES

FAILURE TO OBEY ALL POSTED SIGNS AND SITE GUIDELINES FOR WORKING IN A RADIO FREQUENCY ENVIRONMENT COULD RESULT IN SERIOUS INJURY. CONTACT CURRENT PERMIT EXCEED LIMITS PRESCRIBED IN ANSI, IEEE C95.4-1992 FOR CONTROLLED ENVIRONMENTS.

PROPERTY OF AT&T

AUTHORIZED PERSONNEL ONLY

IN CASE OF EMERGENCY, OR PRIOR TO PERFORMING MAINTENANCE ON THIS SITE, CALL 800-638-2822 AND REFERENCE CELL SITE NUMBER _____

ALERTING SIGN

INFO SIGN #4

GENERAL SIGNAGE GUIDELINES

STRUCTURE TYPE	INFO SIGN #1	INFO SIGN #2	INFO SIGN #3	INFO SIGN #4	STRIPING	NOTICE SIGN	CAUTION SIGN
TOWERS							
MONOPOLE/MONOPINE/MONOPALM	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	CLIMBING SIDE OF THE TOWER	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS			AT THE HEIGHT OF THE FIRST CLIMBING STEP, MIN 9 FT ABOVE GROUND
SEC TOWERS/TOWERS WITH HIGH VOLTAGE	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	CLIMBING SIDE OF THE TOWER	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS			
LIGHT POLES/FLAG POLES	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	ON THE POLE, NO LESS THAN 3FT BELOW THE ANTENNA AND LESS THAN 9FT ABOVE GROUND	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS			
UTILITY WOOD POLES (JPA)	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	ON THE POLE, NO LESS THAN 3FT BELOW THE ANTENNA AND LESS THAN 9FT ABOVE GROUND	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS		IF GP MAX VALUE OF MPE AT ANTENNA LEVEL IS: 0-99%; NOTICE SIGN; OVER 99%; CAUTION SIGN AT NO LESS THAN 3FT BELOW ANTENNA AND 9FT ABOVE GROUND	
MICROCELLS MOUNTED ON NON-JPA POLES	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS	ON THE POLE, NO LESS THAN 3FT BELOW THE ANTENNA AND LESS THAN 9FT ABOVE GROUND	ON BACKSIDE OF ANTENNAS	ENTRANCE GATES, SHELTER DOORS OR ON THE OUTDOOR CABINETS		NOTICE OR CAUTION SIGN AT NO LESS THAN 9FT ABOVE GROUND; ONLY IF THE EXPOSURE EXCEEDS 90% OF THE GENERAL PUBLIC EXPOSURE AT EXPOSURE AT 6FT ABOVE GROUND OR AT OUTSIDE OF SURFACE OF ADJACENT BUILDING	
TOWERS							
AT ALL ACCESS POINTS TO THE ROOF	X			X			
ON ANTENNAS	X		X	X			
CONCEALED ANTENNAS	X	X		X			
ANTENNAS MOUNTED FACING OUTSIDE THE BUILDING	X	X		X			
ANTENNAS ON SUPPORT STRUCTURE	X	X		X			
ROOFVIEW GRAPH							
RADIATION AREA IS WITHIN 3FT FROM ANTENNA	X	ADJACENT TO EACH ANTENNA		X		EITHER NOTICE OR CAUTION SIGN (BASED ON ROOFVIEW RESULTS) AT ANTENNA /BARRIER	
RADIATION AREA IS BEYOND 3FT FROM ANTENNA	X	ADJACENT TO EACH ANTENNA		X	DIAGONAL, YELLOW STRIPING AS TO ROOFVIEW GRAPH		
CHURCH STEEPLES	ACCESS TO STEEPLE	ADJACENT TO ANTENNAS IF ANTENNAS ARE CONCEALED	ON BACKSIDE OF ANTENNAS	ACCESS TO STEEPLE			CAUTION SIGN AT THE ANTENNAS
WATER STATIONS	ACCESS TO LADDER	ADJACENT TO ANTENNAS IF ANTENNAS ARE CONCEALED	ON BACKSIDE OF ANTENNAS	ACCESS TO LADDER			CAUTION SIGN BESIDE INFO SIGN #1, MIN. 9FT ABOVE GROUND

STAY BACK 3 FEET FROM ANTENNA

INFORMATION

AT&T operates telecommunications antennas at this location. Remain at least 3 feet away from any antenna and obey all posted signs.

Contact the owner(s) of the antenna(s) before working closer than 3 feet from the antenna.

Contact AT&T at _____ prior to performing any maintenance or repairs near AT&T antennas. This is Site# _____

Contact the management office if this door/hatch/gate is found unlocked.

INFORMACION

En esta propiedad se ubican antenas de telecomunicaciones operadas por AT&T. Favor mantener una distancia de no menos de 3 pies y obedecer todos los avisos.

Comuníquese con el propietario o los propietarios de las antenas antes de trabajar o caminar a una distancia de menos de 3 pies de la antena.

Comuníquese con AT&T _____ antes de realizar cualquier mantenimiento o reparaciones cerca de la antena de AT&T.

Esta es la estación base maestra. _____

Favor comunicarse con la oficina de la administración del edificio si esta puerta o compuerta se encuentra sin candado.

INFORMATION

ACTIVE ANTENNAS ARE MOUNTED

ON THE OUTSIDE OF THIS BUILDING

BEHIND THIS PANEL

ON THIS STRUCTURE

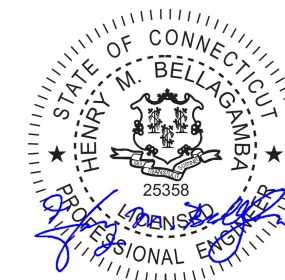
STAY BACK A MINIMUM OF 3 FEET FROM THESE ANTENNAS

Contact AT&T at _____ and follow their instructions prior to performing any maintenance or repairs closer than 3 feet from the antennas.

This is AT&T site# _____

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SITE NAME

ROCKLAND

SITE NUMBER:

CTL02122

SITE ADDRESS

**50 ROCKLAND RD
NORWALK, CT 06854**

SHEET NAME

NOTES AND SPECIFICATIONS

SHEET NUMBER

SP2

INFO SIGN #1

INFO SIGN #2

INFO SIGN #3

SIGNAGE GUIDELINES CHART

NOTES FOR ROOFTOP SITES:

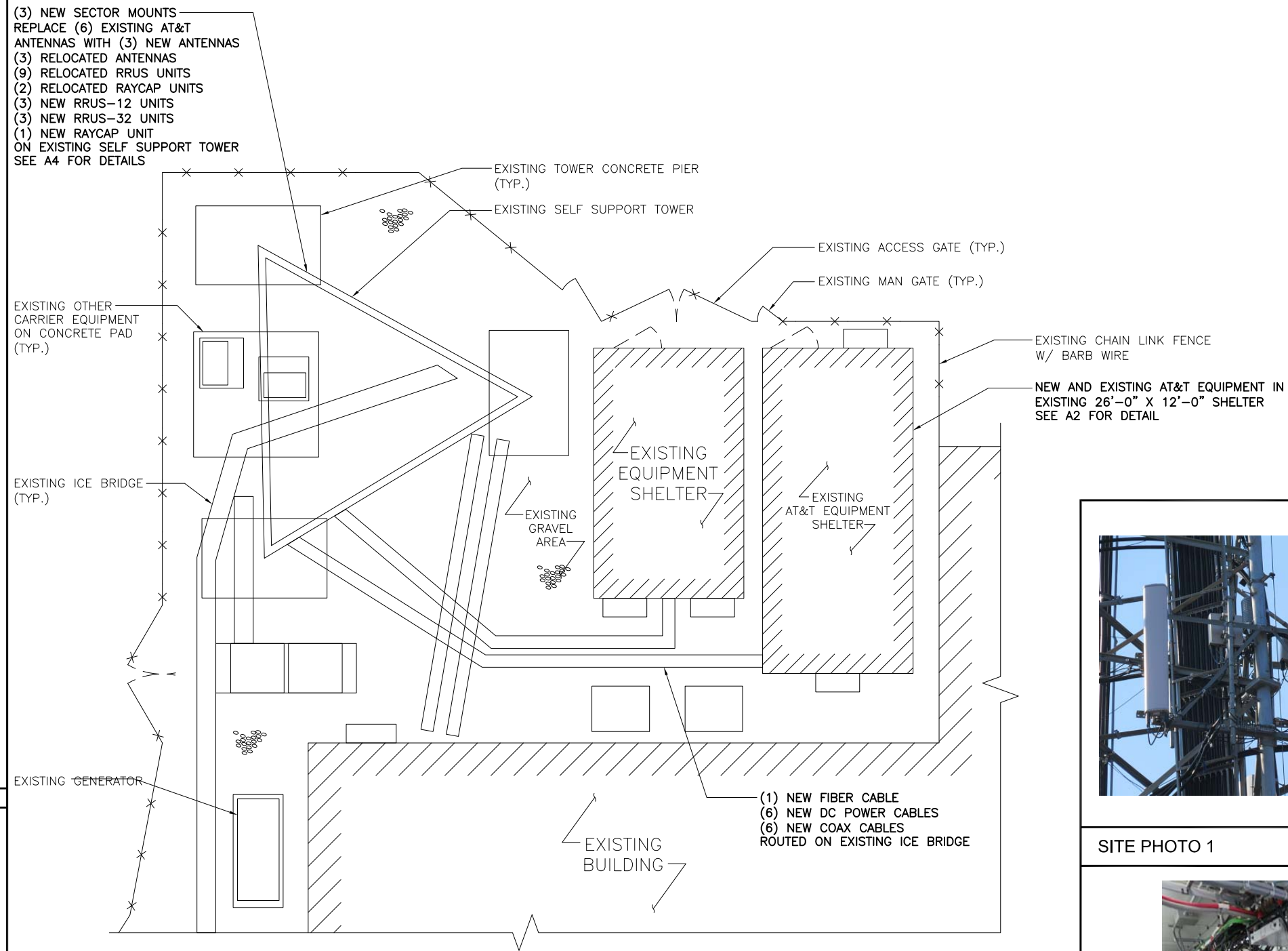
1. EITHER NOTICE OR CAUTION SIGNS NEED TO BE POSTED AT EACH SECTOR AS CLOSE AS POSSIBLE TO: THE OUTER EDGE OF THE STRIPED OFF AREA OR THE OUTER ANTENNAS OF THE SECTOR
2. IF ROOFVIEWS SHOWS: ONLY BLUE = NOTICE SIGN, BLUE AND YELLOW = CAUTION SIGN, ONLY YELLOW = CAUTION SIGN TO BE INSTALLED
3. SHOULD THE REQUIRED STRIPING AREAS INTERFERE WITH ANY STRUCTURE OR EQUIPMENT (A/C, VENTS, ROOF HATCH, DOORS, OTHER ANTENNAS, DISHES, ETC.). PLEASE NOTIFY AT&T TO MODIFY THE STRIPING AREA, PRIOR TO STARTING THE WORK.

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AGL	ABOVE GRADE LEVEL
AMSL	ABOVE MEAN SEA LEVEL
APPROX	APPROXIMATE
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
BTS	BASE TRANSMISSION STATION
¢	CENTERLINE
CLR	CLEAR
COL	COLUMN
CONC	CONCRETE
CND	CONDUIT
DWG	DRAWING
FT	FOOT(FEET)
EGB	EQUIPMENT GROUND BAR
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
ELEV	ELEVATION
EQUIP	EQUIPMENT
(E)	EXISTING
EXT	EXTERIOR
FND	FOUNDATION
F	FIBER
FIF	FACILITY INTERFACE FRAME
GA	GAUGE
GALV	GALVANIZED
GPS	GLOBAL POSITIONING SYSTEM
GND	GROUND
GSM	GLOBAL SYSTEM FOR MOBILE COMMUNICATION
LTE	LONG TERM EVOLUTION
MAX	MAXIMUM
MCPA	MULTI-CARRIER POWER AMPLIFIER
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MTS	MANUAL TRANSFER SWITCH
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
OE/OT	OVERHEAD ELECTRIC/TELCO
PPC	POWER PROTECTION CABINET
PL	PROPERTY LINE
RBS	RADIO BASED STATION
RET	REMOTE ELECTRIC TILT
RRU	REMOTE RADIO UNIT
RGS	RIGID GALVANIZED STEEL
IN	INCH(ES)
INT	INTERIOR
LB(S), #	POUND(S)
SF	SQUARE FOOT
STL	STEEL
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UE/UT	UNDERGROUND ELECTRIC/TELCO
UNO	UNLESS NOTED OTHERWISE
UMTS	UNIVERSAL MOBILE TELE-COMMUNICATION SYSTEM
VIF	VERIFY IN FIELD
W/	WITH
XFMR	TRANSFORMER

SYMBOLS

	REVISION
	WORK POINT
	UTILITY POLE
	COMPRESSED STONE
	BRICK
	CONCRETE
	EARTH
	GRAVEL
	MASONRY
	STEEL
	CENTERLINE
	PROPERTY LINE
	LEASE LINE
	EASEMENT LINE
	CHAIN LINK FENCE
	WOOD FENCE
	BELOW GRADE ELECTRIC
	BELOW GRADE TELEPHONE
	OVERHEAD ELECTRIC/TELEPHONE
	SECTION REFERENCE



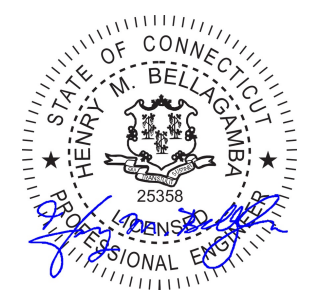
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 SUITE 550 13 AND 14
 FRAMINGHAM, MA 01701

1362 MELLON ROAD
 SUITE 140
 HANOVER, MD 21076

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 SCHAUMBURG, ILLINOIS 60173
 TEL: 847-908-8400
 COA# PEC.0001444
 www.FullertonEngineering.com

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SITE NAME
ROCKLAND

SITE NUMBER:
CTL02122

SITE ADDRESS
 50 ROCKLAND RD
 NORWALK, CT 06854

SHEET NAME
COMPOUND PLAN

SHEET NUMBER
A1

COMPOUND PLAN

SCALE 1" = 10'-0" 1

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SUITE 550 13 AND 14
FRAMINGHAM, MA 01701



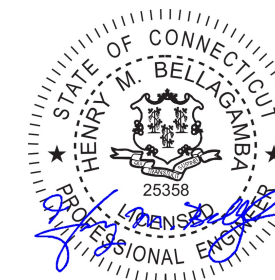
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CTL02122

SITE ADDRESS

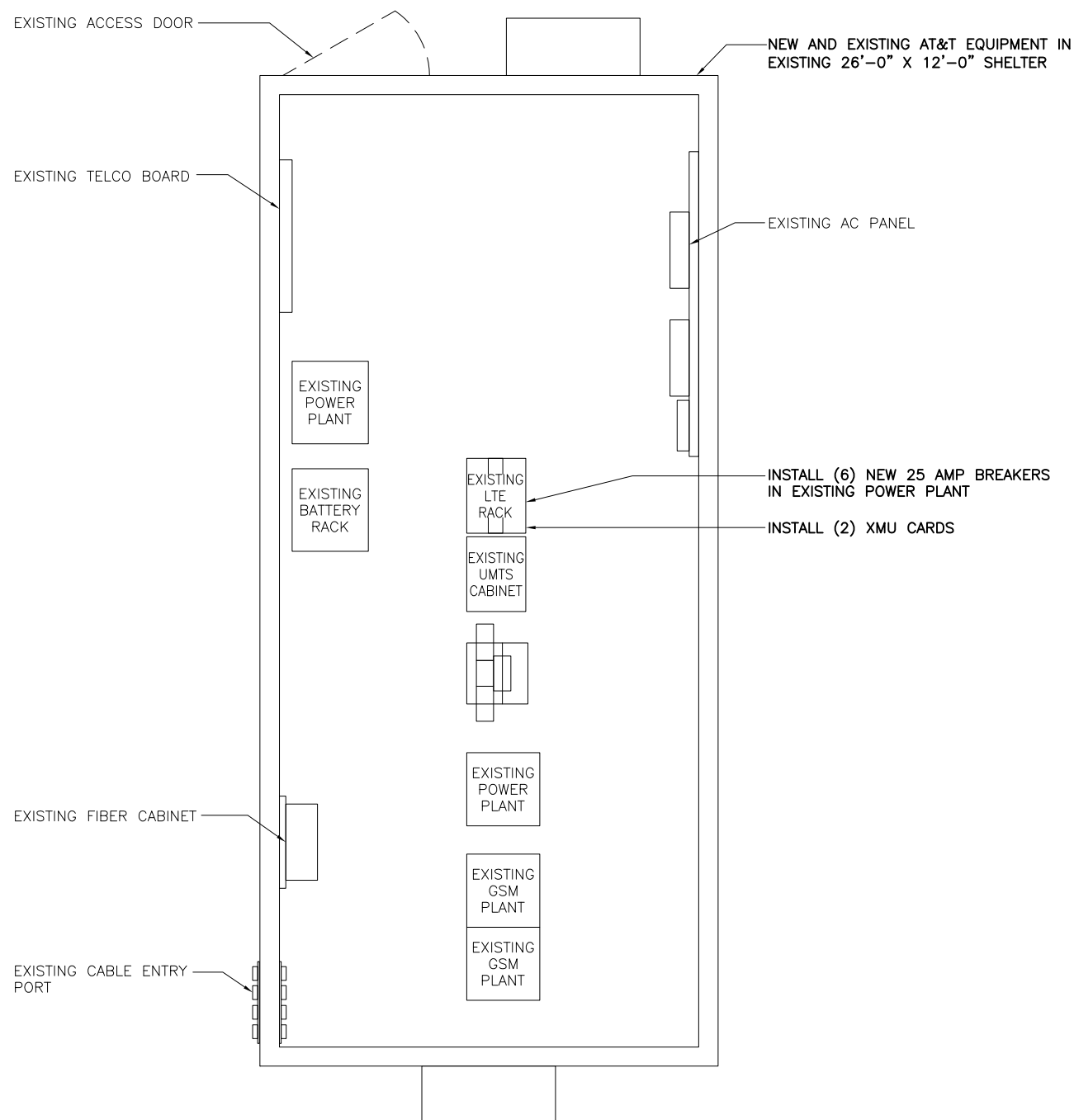
50 ROCKLAND RD
NORWALK, CT 06854

SHEET NAME

**EQUIPMENT
PLAN**

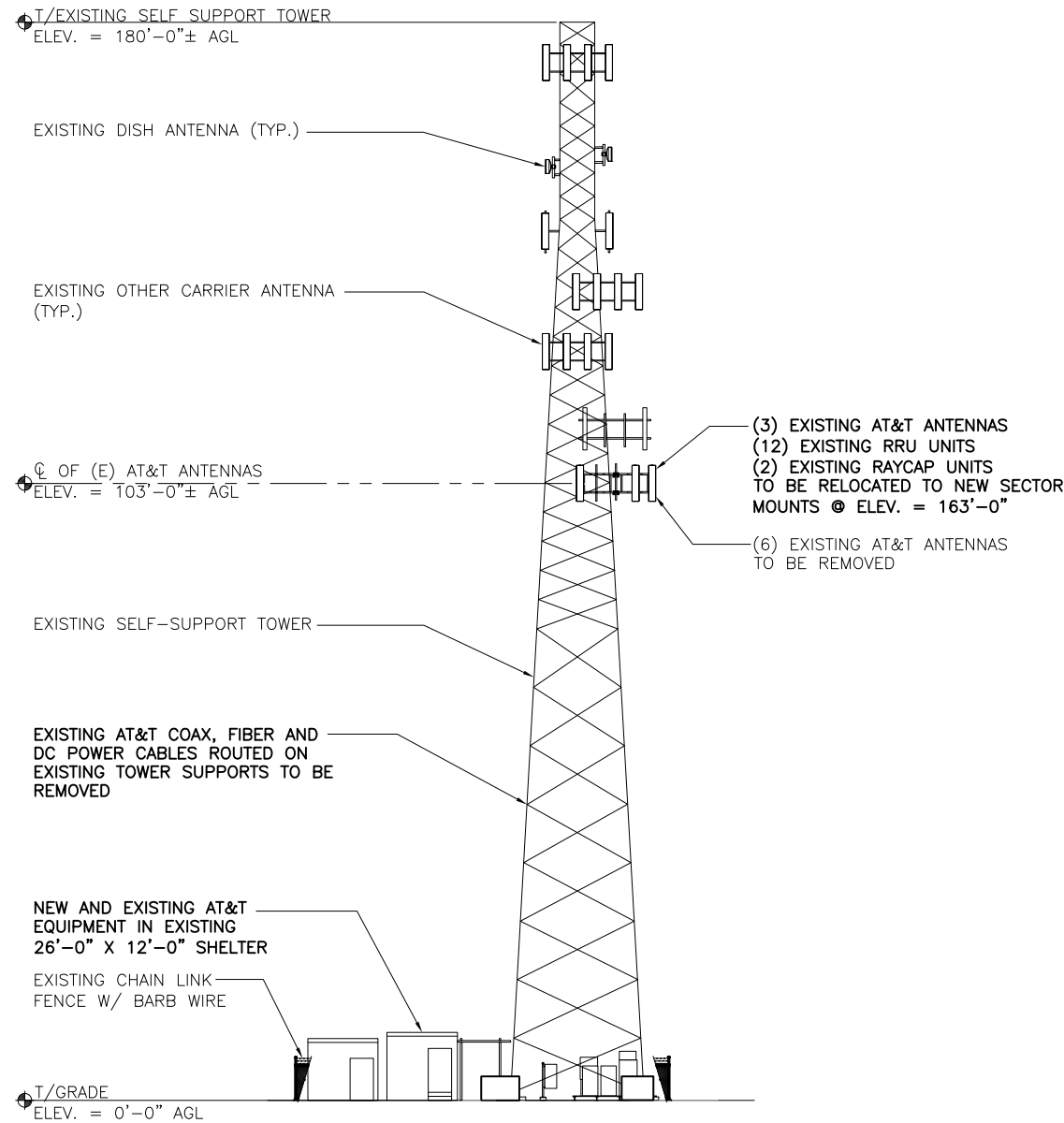
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A2



NOTES:

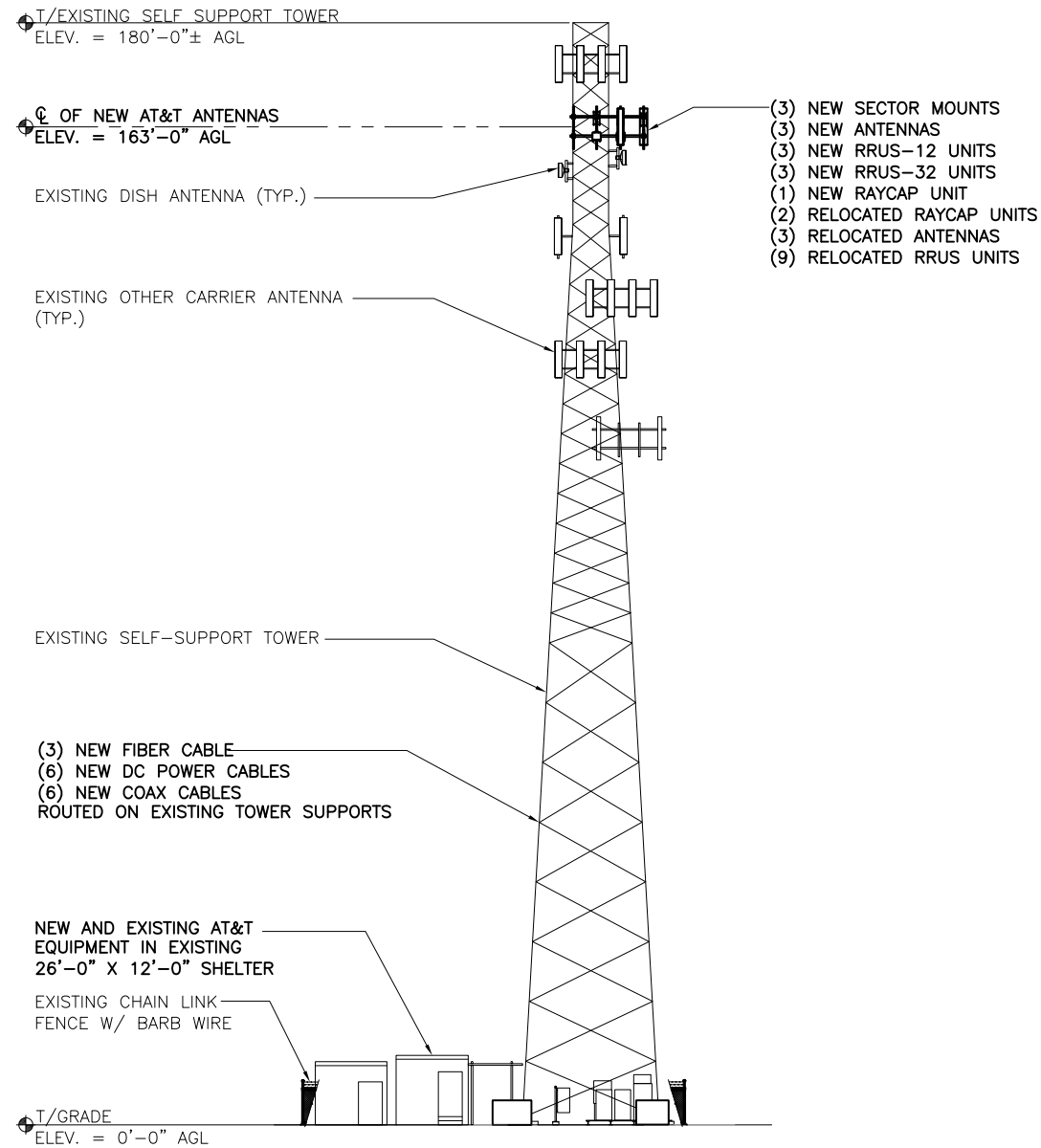
1. CALCULATIONS FOR THE STRUCTURE WERE PREPARED BY OTHERS AND THOSE CALCULATIONS CERTIFY THE CAPACITY OF THE STRUCTURE TO SUPPORT THE NEW EQUIPMENT
2. CALCULATIONS FOR THE ANTENNA MOUNTS WERE PREPARED BY FULLERTON AND THOSE CALCULATIONS CERTIFY THE CAPACITY OF THE STRUCTURE TO SUPPORT THE NEW EQUIPMENT
3. CABLES NOT SHOWN FOR CLARITY



EXISTING ELEVATION

SCALE: 1" = 30'-0"

1



NEW ELEVATION

SCALE: 1" = 30'-0"

2



550 COCHITUATE ROAD
SUITE 550 13 AND 14
FRAMINGHAM, MA 01701



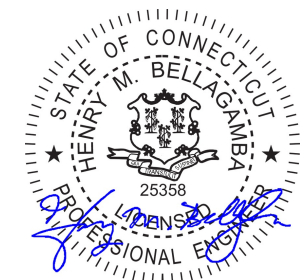
1362 MELLON ROAD
SUITE 140
HANOVER, MD 21076



1100 E. WOODFIELD ROAD, SUITE 500
SCHAUMBURG, ILLINOIS 60173
TEL: 847-908-8400
COA# PEC.0001444
www.FullertonEngineering.com

REV	DATE	DESCRIPTION	BY
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SITE NAME

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SITE NUMBER:

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SITE ADDRESS

50 ROCKLAND RD
NORWALK, CT 06854

SHEET NAME

ELEVATIONS

SHEET NUMBER

A3

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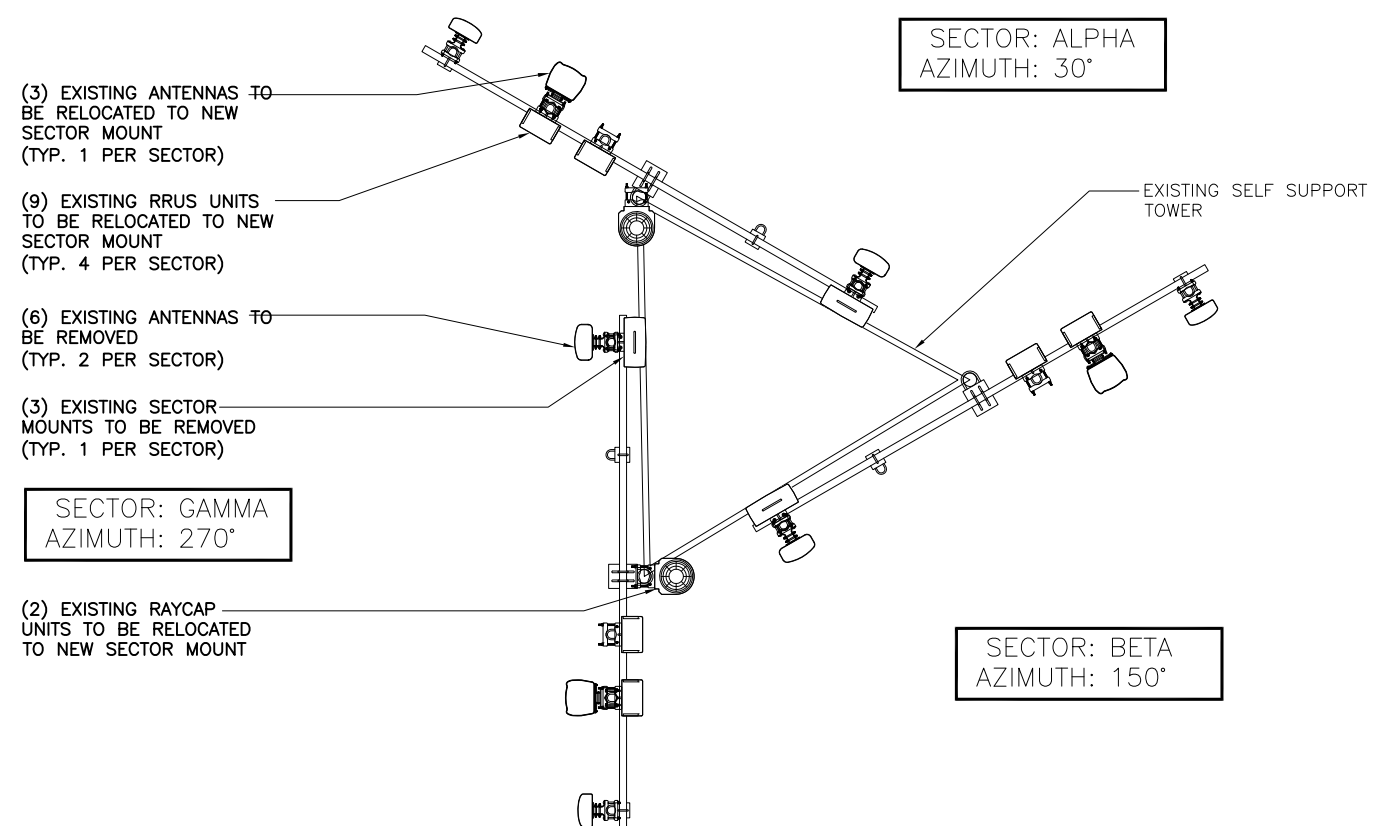
50 ROCKLAND RD
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SHEET NAME

ANTENNA
PLANS

SHEET NUMBER

A4

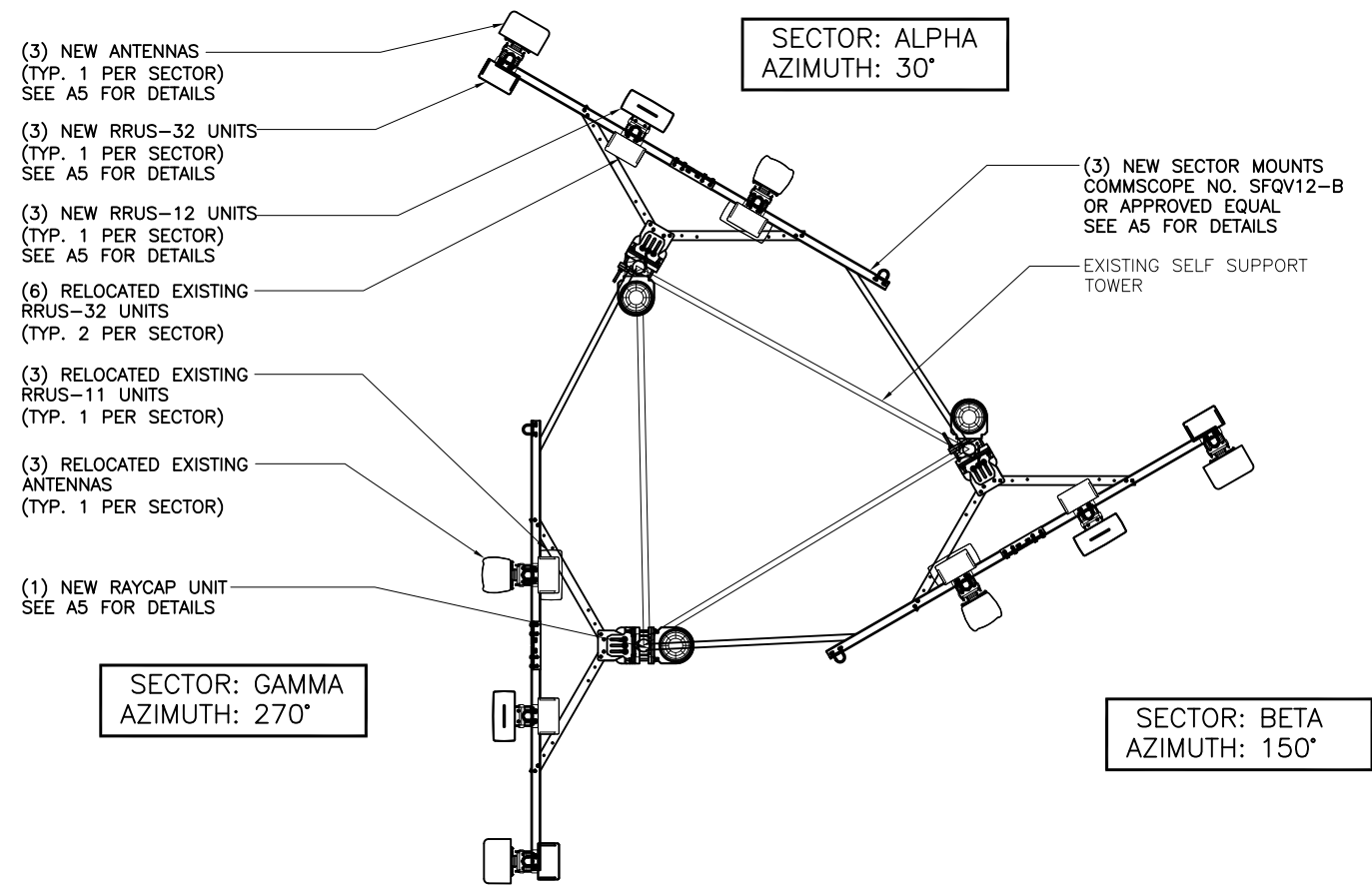


EXISTING ANTENNA PLAN @ ELEV. = 103'-0"

SCALE: 3/16" = 1'-0" | 1

NOTES:

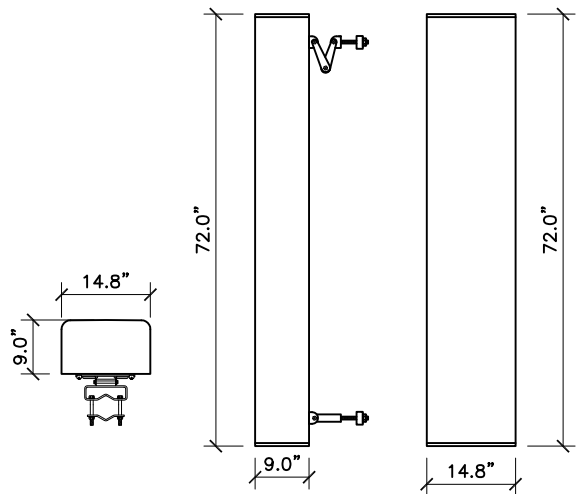
- EXISTING ANTENNA MOUNTING PIPE TO BE REUSED, RELOCATED OR REPLACED AS REQUIRED
- IF REQUIRED INSTALL NEW GALV. MOUNTING PIPE(S) 2.5 STD. (2-7/8" O.D.)



FINAL ANTENNA PLAN @ ELEV. = 163'-0"

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

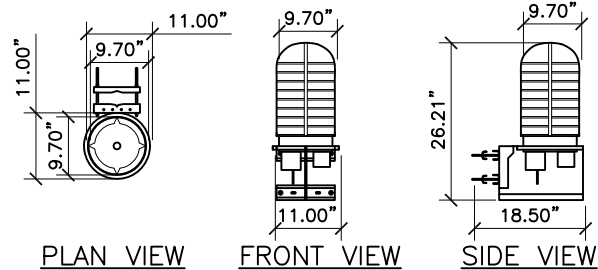
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PLAN VIEW SIDE VIEW FRONT VIEW

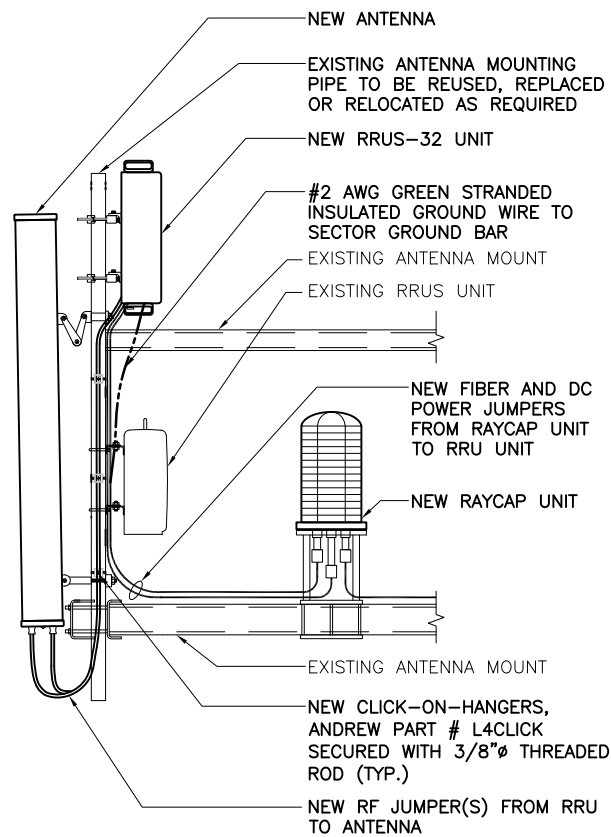
CCI - HPA-65R-BUU-H6

HEXPORT MULTI-BAND ANTENNA
 FREQUENCY RANGE 698-806 MHz
 824-894 MHz
 1850-1990 MHz
 1710-1755/2110-2170 MHz
 2305-2360 MHz
 ANTENNA WITH BRACKET 51 Lbs
 61 Lbs



PLAN VIEW FRONT VIEW SIDE VIEW

RAYCAP - DC6-48-60-18-8F
 TOWER DC OVER VOLTAGE PROTECTION POWER CONNECTION SOLUTION
 UNIT WEIGHT 32.8 Lbs

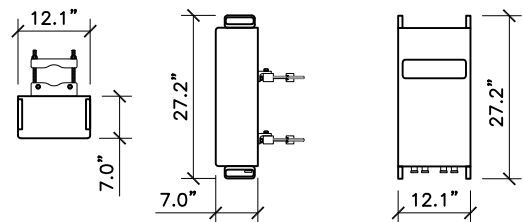


ANTENNA SCHEMATIC

ANTENNA SPEC

RAYCAP SPEC

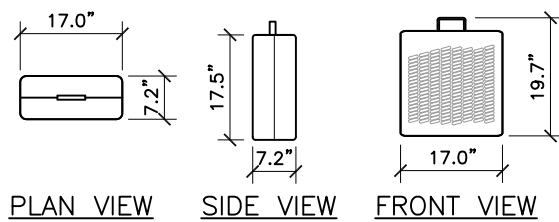
NOT USED



PLAN VIEW SIDE VIEW FRONT VIEW

ERICSSON - RRUS 32 B66

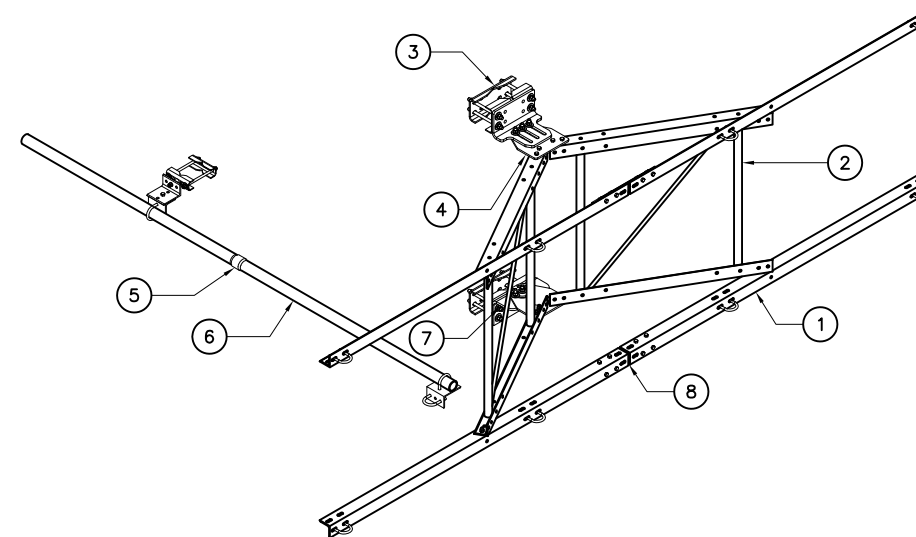
UNIT WEIGHT 60 Lbs



PLAN VIEW SIDE VIEW FRONT VIEW

ERICSSON - RRUS 11
 WITH SOLAR SHIELD

UNIT WEIGHT 50 Lbs



ITEM	PART NO.	DESCRIPTION
1	SFQV12B	QUIK-VEE SECTOR FRAME, 7'-6" FACE
2	SFQV01	SF-QV ARM FRAME WELDMENT
3	SFQV13	SF-QV BACK CLAMP
4	SFQV03	TOP SF-QV MOUNT BRACKET
5	WT-MPTC	2-3/8" O.D. THREADED PIPE COUPLER
6	SAB63.01	2-3/8" O.D. X 64" SCH 40 PIPE NPT 1 END
7	SFQV04	LOWER SF-QV MOUNT BRACKET
8	SFQV10	BRACKET UNION

12'-6" QUIK-VEE SECTOR FRAME
 W/ STIFF ARM
 (COMMSCOPE - SF-QV12-B)

TOTAL WEIGHT: 417 lbs
 (WITHOUT PIPES)

RRU SPEC

RRU SPEC

SECTOR MOUNT SPEC

550 COCHITUATE ROAD
 SUITE 550 13 AND 14
 FRAMINGHAM, MA 01701

1362 MELLON ROAD
 SUITE 140
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ROCKLAND

SITE NUMBER:

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SITE ADDRESS

50 ROCKLAND RD
 NORWALK, CT 06854

SHEET NAME

EQUIPMENT
 DETAILS

SHEET NUMBER

A5

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SITE NAME

ROCKLAND

SITE NUMBER:

CTL02122

SITE ADDRESS

50 ROCKLAND RD
NORWALK, CT 06854

SHEET NAME

**ANTENNA &
CABLE
CONFIGURATION**

SHEET NUMBER

A6

**FINAL ANTENNA CONFIGURATION AND CABLE SCHEDULE
SUPPLIED BY AT&T WIRELESS, FROM RF CONFIG. DATED (10/12/17)**

SECTOR	ANTENNA NUMBER	ANTENNA STATUS & TYPE	ANTENNA MODEL NUMBER	ANTENNA VENDOR	TMA/RRU UNIT	AZIMUTH	ANTENNA CL FROM GROUND	CABLE FEEDER		RAYCAP UNIT
								TYPE	LENGTH	
ALPHA	A-1	(N) UMTS/LTE 5C ANTENNA	HPA-65R-BUU-H6	CCI	(1) NEW RRUS-32 UNIT(S)	30°	163'-0"	(2) NEW 1-5/8"φ LDF7-50A	200'-0"	
	A-2	(E) LTE 1C/2C/3C/4C ANTENNA	QS66512-2	QUINTEL	(1) NEW RRUS-12 UNIT (1) EXISTING RRUS-11 UNIT (1) EXISTING RRUS-32 B2 UNIT (1) EXISTING RRUS-32 UNIT	30°	163'-0"	(1) NEW FIBER CABLE	200'-0"	
	A-3	-	-	-	-	-	-	-	-	
	A-4	-	-	-	-	-	-	-	-	
BETA	B-1	(N) UMTS/LTE 5C ANTENNA	HPA-65R-BUU-H6	CCI	(1) NEW RRUS-32 UNIT(S)	150°	163'-0"	(2) NEW 1-5/8"φ LDF7-50A	200'-0"	
	B-2	(E) LTE 1C/2C/3C/4C ANTENNA	QS66512-2	QUINTEL	(1) NEW RRUS-12 UNIT (1) EXISTING RRUS-11 UNIT (1) EXISTING RRUS-32 B2 UNIT (1) EXISTING RRUS-32 UNIT	150°	163'-0"	(1) NEW FIBER CABLE	200'-0"	
	B-3	-	-	-	-	-	-	-	-	
	B-4	-	-	-	-	-	-	-	-	
GAMMA	C-1	(N) UMTS/LTE 5C ANTENNA	HPA-65R-BUU-H6	CCI	(1) NEW RRUS-32 UNIT(S)	270°	163'-0"	(2) NEW 1-5/8"φ LDF7-50A	200'-0"	
	C-2	(E) LTE 1C/2C/3C/4C ANTENNA	QS66512-2	QUINTEL	(1) NEW RRUS-12 UNIT (1) EXISTING RRUS-11 UNIT (1) EXISTING RRUS-32 B2 UNIT (1) EXISTING RRUS-32 UNIT	270°	163'-0"	(1) NEW FIBER CABLE	200'-0"	
	C-3	-	-	-	-	-	-	-	-	
	C-4	-	-	-	-	-	-	-	-	

(2) (E) DC6-48-60-18-8F UNIT
(1) (N) DC6-48-60-18-8F UNIT

- CONTRACTOR IS TO REFER TO AT&T'S MOST CURRENT RADIO FREQUENCY DATA SHEET (RFDS) PRIOR TO CONSTRUCTION.
- THE SIZE, HEIGHT, AND DIRECTION OF THE ANTENNAS SHALL BE ADJUSTED TO ACHIEVE THE AZIMUTHS SPECIFIED AND LIMIT SHADOWING AND TO MEET THE SYSTEM REQUIREMENTS.
- CONTRACTOR SHALL VERIFY THE HEIGHT OF THE ANTENNA WITH THE AT&T WIRELESS PROJECT MANAGER.
- VERIFY TYPE AND SIZE OF TOWER LEG PRIOR TO ORDERING ANY ANTENNA MOUNT.
- UNLESS NOTED OTHERWISE THE CONTRACTOR MUST PROVIDE ALL MATERIAL NECESSARY.
- ANTENNA AZIMUTHS ARE DEGREES OFF OF TRUE NORTH, BEARING CLOCKWISE, IN WHICH ANTENNA FACE IS DIRECTED. ALL ANTENNAS (AND SUPPORTING STRUCTURES AS PRACTICAL) SHALL BE ACCURATELY ORIENTED IN THE SPECIFIED DIRECTION.
- CONTRACTOR SHALL VERIFY ALL RF INFORMATION PRIOR TO CONSTRUCTION.
- SWEEP TEST SHALL BE PERFORMED BY GENERAL CONTRACTOR AND SUBMITTED TO AT&T WIRELESS CONSTRUCTION SPECIALIST. TEST SHALL BE PERFORMED PER AT&T WIRELESS STANDARDS.
- CABLE LENGTHS WERE DETERMINED BASED ON THE DESIGN DRAWING. CONTRACTOR TO VERIFY ACTUAL LENGTH DURING PRE-CONSTRUCTION WALK.
- CONTRACTOR TO USE ROSENBERGER FIBER LINE HANGER COMPONENTS (OR ENGINEER APPROVED EQUAL).

ANTENNA AND CABLING NOTES

SCALE: N.T.S. 1

RF, DC, & COAX CABLE MARKING LOCATIONS TABLE	
NO	LOCATIONS
1	EACH TOP-JUMPER SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS.
2	EACH MAIN COAX SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS NEAR THE TOP-JUMPER CONNECTION AND WITH (1) SET OF 3/4" WIDE COLOR BANDS JUST PRIOR TO ENTERING THE BTS OR TRANSMITTER BUILDING.
3	CABLE ENTRY PORT ON THE INTERIOR OF THE SHELTER.
4	ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" WIDE BANDS ON EACH END OF THE BOTTOM JUMPER.
5	ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" WIDE BANDS ON EACH END OF THE BOTTOM JUMPER.

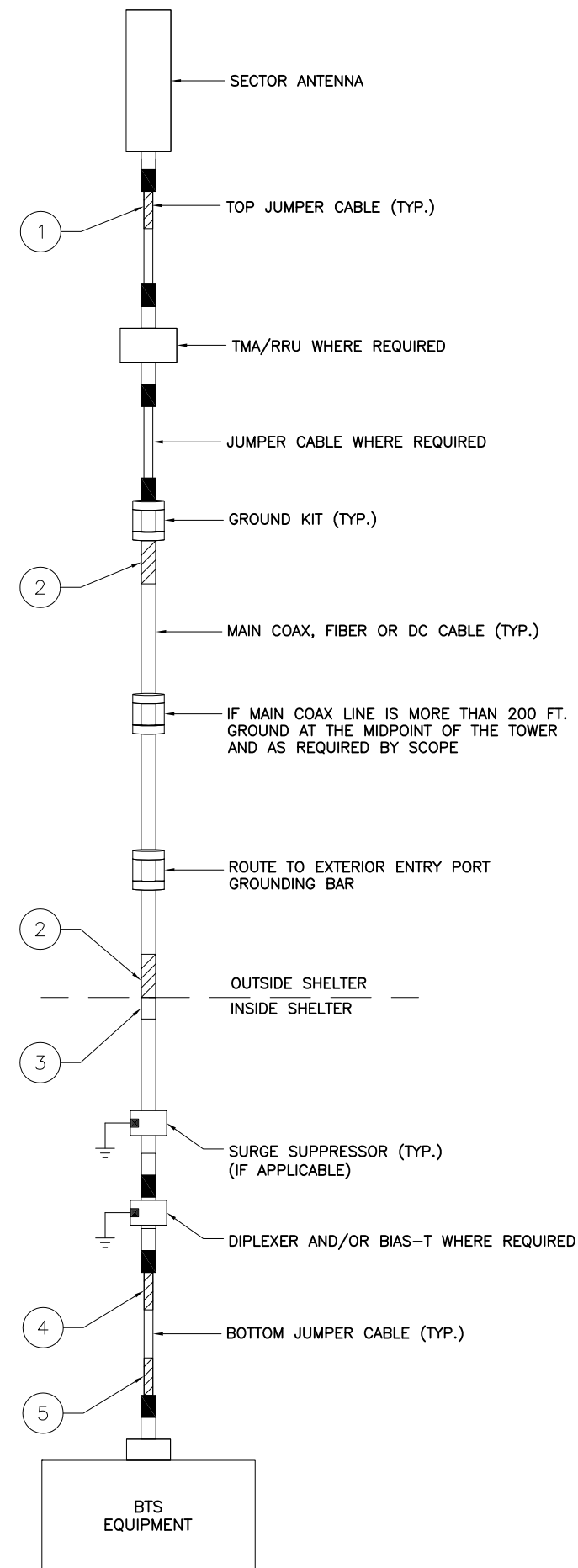
CABLE MARKING DIAGRAM

SCALE: N.T.S. 2

- THE ANTENNA SYSTEM COAX SHALL BE LABELED WITH VINYL TAPE.
- THE STANDARD IS BASED ON EIGHT COLORED TAPES-RED, BLUE, GREEN, YELLOW, ORANGE, BROWN, WHITE, AND VIOLET. THESE TAPES MUST BE 3/4" WIDE & UV RESISTANT SUCH AS SCOTCH 35 VINYL ELECTRICAL COLOR CODING TAPE AND SHOULD BE READILY AVAILABLE TO THE ELECTRICIAN OR CONTRACTOR ON SITE.
- USING COLOR BANDS ON THE CABLES, MARK ALL RF CABLE BY SECTOR AND CABLE NUMBER AS SHOWN ON "CABLE COLOR CHART".
- WHEN AN EXISTING COAXIAL LINE THAT IS INTENDED TO BE A SHARED LINE BETWEEN TECHNOLOGIES IS ENCOUNTERED, THE CONTRACTOR SHALL REMOVE THE EXISTING COLOR CODING SCHEME AND REPLACE IT WITH THE COLOR CODING STANDARD. IN THE ABSENCE OF AN EXISTING COLOR CODING AND TAGGING SCHEME, OR WHEN INSTALLING PROPOSED COAXIAL CABLES, THIS GUIDELINE SHALL BE IMPLEMENTED AT THAT SITE REGARDLESS OF TECHNOLOGY.
- ALL COLOR CODE TAPE SHALL BE 3M-35 AND SHALL BE INSTALLED USING A MINIMUM OF (3) THREE WRAPS OF TAPE AND SHALL BE NEATLY TRIMMED AND SMOOTHED OUT SO AS TO AVOID UNRAVELING.
- ALL COLOR BANDS INSTALLED AT THE TOP OF THE TOWER SHALL BE A MINIMUM OF 3" WIDE, AND SHALL HAVE A MINIMUM OF 3/4" OF SPACE BETWEEN EACH COLOR.
- ALL COLOR CODES SHALL BE INSTALLED SO AS TO ALIGN NEATLY WITH ONE ANOTHER FROM SIDE-TO-SIDE.
- IF EXISTING CABLES AT THE SITE ALREADY HAVE A COLOR CODING SCHEME AND THEY ARE NOT INTENDED TO BE REUSED OR SHARED WITH THE NEW TECHNOLOGY, THE EXISTING COLOR CODING SCHEME SHALL REMAIN UNTOUCHED.

CABLE MARKING NOTES

SCALE: N.T.S. 3



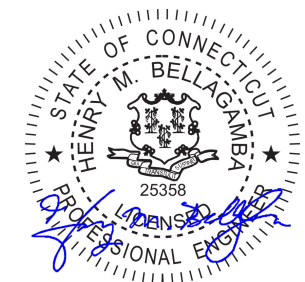
CABLE COLOR CODING DIAGRAM

SCALE: N.T.S. 4



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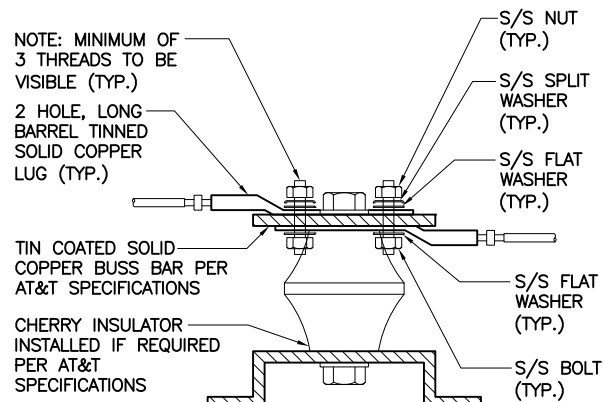
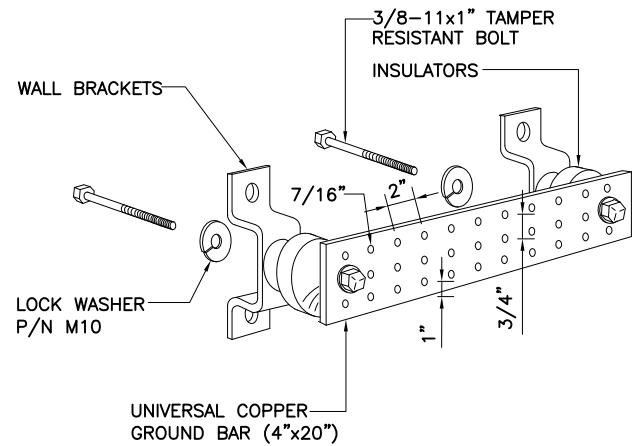
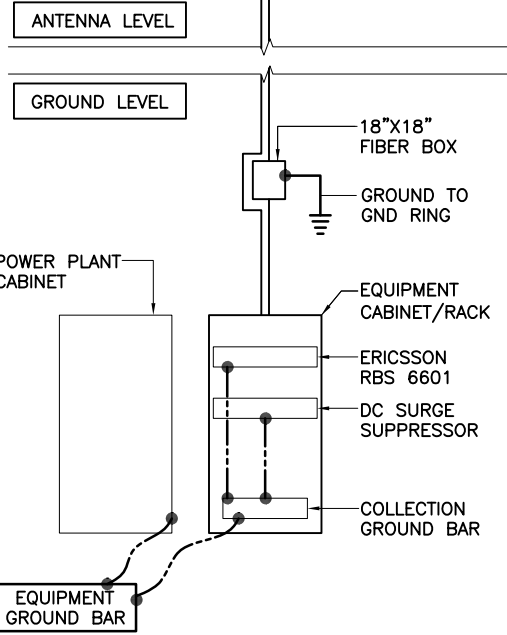
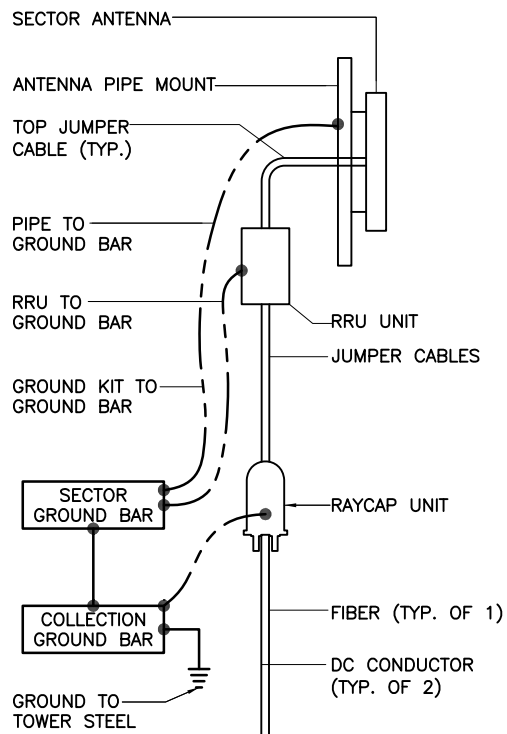
SHEET NAME

CABLE NOTES
AND COLOR
CODING

SHEET NUMBER

A7

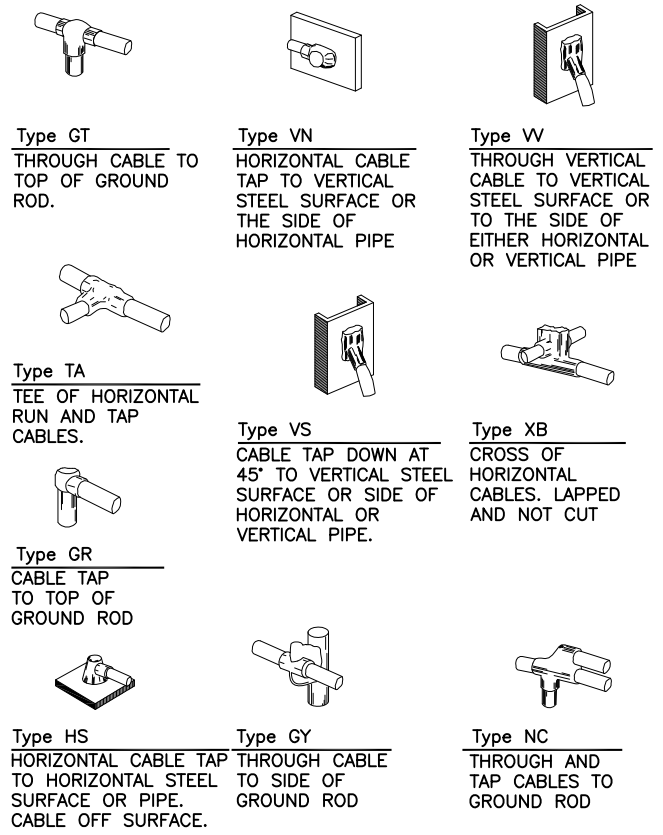
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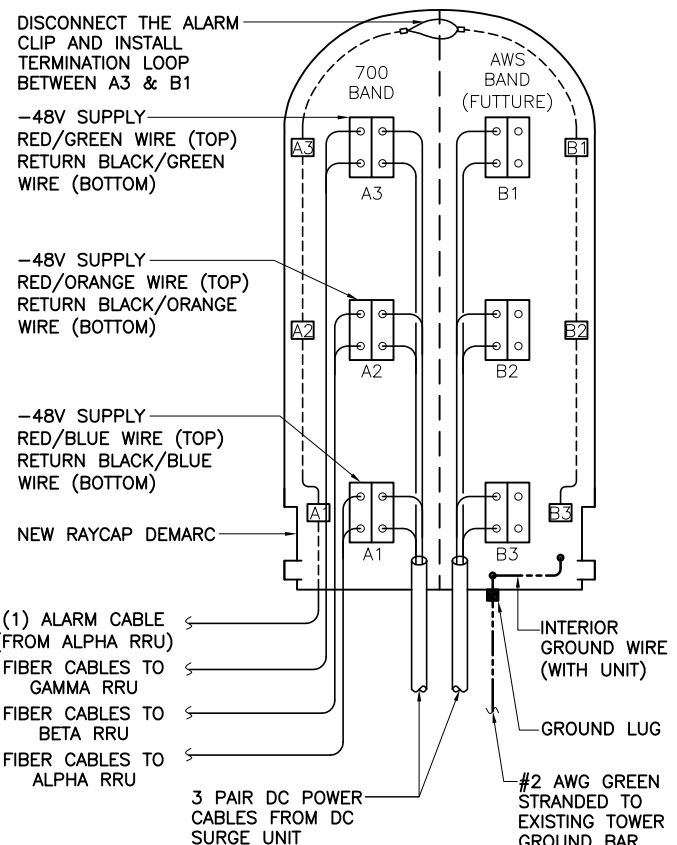
- NOTES:**
1. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING SPLIT WASHERS.
 2. COAT WIRE END WITH ANTI-OXIDATION COMPOUND PRIOR TO INSERTION INTO LUG BARREL AND CRIMPING.
 3. APPLY ANTI-OXIDATION COMPOUND BETWEEN ALL LUGS AND BUSS BARS PRIOR TO MATING AND BOLTING.

GROUND BAR DETAIL SCALE: N.T.S. 2

LUG DETAIL SCALE: N.T.S. 3



EXOTHERMIC WELD DETAILS SCALE: N.T.S. 4



RAYCAP DC POWER AND ALARM DET. SCALE: N.T.S. 5

NOT USED SCALE: N.T.S. 6



550 COCHITUATE ROAD
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FRAMINGHAM, MA 01701



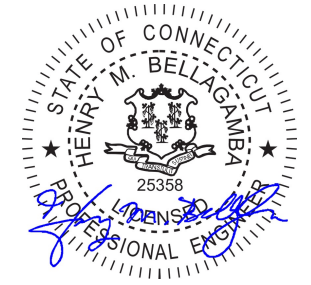
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SITE ADDRESS

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SHEET NAME

GROUNDING
DETAILS

SHEET NUMBER

A8

GROUNDING SCHEMATIC SCALE: N.T.S. 1

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