

March 24, 2014

**VIA E-MAIL AND OVERNIGHT DELIVERY**

Ms. Melanie Bachman  
Executive Director  
Connecticut Siting Council  
Ten Franklin Square  
New Britain, Connecticut 06051



Re: Docket 423  
North Atlantic Towers, LLC and New Cingular Wireless PCS, LLC ("AT&T")  
Certificate of Environmental Compatibility and Public Need  
Route 198, Woodstock, Connecticut  
D&M Revision and  
Request for an Extension of Time for the Facility to Become Operational

Dear Ms. Bachman:

On behalf of AT&T, please accept for review and Council approval this *revised* Development Management Plan ("D&M Plan") filing for the above-captioned Facility as approved in Docket No. 423. This submission is a revision to the D&M Plan approved on September 21, 2012 and includes an update to AT&T's equipment for the provision of LTE (Long Term Evolution) services.

On behalf of AT&T, we also respectfully request that the time for the facility to become operational as part of North Atlantic Towers' Certificate be extended to December 21, 2014.

D&M Revision

Antennas & Other Equipment

Enclosed are fifteen (15) sets of 11"x 17" sized revised construction drawings being filed in accordance with the Siting Council's ("Council") Decision and Order dated June 21, 2012. Two (2) sets of full sized drawings will be forwarded shortly under separate cover.

The revised D&M Plan drawings incorporate revised specifications for AT&T's LTE facility. The revisions include the addition of one panel antenna per sector, for a total of twelve antennas. The revisions also include the addition of Remote Radiohead Units ("RRUs") for a total of twenty-one (21). As shown in the enclosed drawings, the RRUs will be installed behind AT&T's twelve panel antennas on the antenna platform mount at a centerline height of approximately 106' above grade level on the existing 110' tall tower. The enclosed drawings also included updated specifications for AT&T's panel antennas.

Additionally, enclosed is a structural analysis prepared by Michael F. Plahovinsak, P.E. dated February 10, 2014, which confirms that the tower facility can structurally accommodate AT&T's upgraded facility.

Also enclosed is a cumulative power density analysis, which concludes that the worst-case emissions from AT&T's equipment at the Facility will be 13.9% of the Federal Communications Commission's Maximum Permissible Exposure standard for RF emissions.

Required Notifications

The supervisor for all construction related matters for AT&T's facility is Bryon Morawski of SAI. Mr. Morawski is located at 500 Enterprise Drive, Suite 3A, Rocky Hill, CT 06067 and can be reached by telephone at (860) 513-7223.

Extension of Time

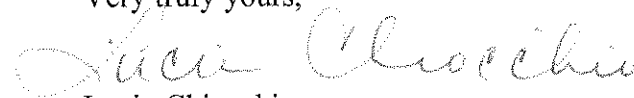
Condition 7 of the Decision and Order dated June 21, 2012 required the approved Facility to be fully constructed and providing wireless services within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order. On September 23, 2013, the Council granted an extension of time for AT&T to make the facility operational to June 21, 2014.

We are advised that current scheduling demands and logistical considerations for AT&T to install its updated facility as detailed in the enclosed materials will require additional time to bring the fully constructed facility on-air. Accordingly, we respectfully request a six month extension of time for the facility to be operational to December 21, 2014.

We respectfully request that this matter be included on the Council's next available agenda for review. Should Council members or Staff have any questions regarding the foregoing please do not hesitate to contact me.

Thank you for your consideration of the enclosed.

Very truly yours,

  
Lucia Chiochio

Enclosures

cc: Allan D. Walker Jr., First Selectman Town of Woodstock  
Michele Briggs, AT&T  
Chris Policinski, Centerline Communications  
Keith Coppins, North Atlantic Towers  
Christopher B. Fisher, Esq.

# Structural Analysis 110-ft Monopole

Prepared For:  
Florida Tower Partners, LLC  
1001 3<sup>rd</sup> Ave. West, Suite 420  
Bradenton, FL 34205

MFP Project #40914-015

Site Location:  
CT1182 Woodstock  
Windham Co., Connecticut  
Lat/Long: 41°56'21.6", -72°4'54.6"

Analysis Type:  
ANSI/TIA-222-G

February 10, 2014



Michael F. Plahovinsak, P.E.  
18301 State Route 161 W, Plain City, OH 43064  
614-398-6250 - mike@mfpeng.com

**Project Summary:**

I have completed a structural analysis of the existing monopole for the following new configuration:

- 105' - AT&T:
  - (12) CCI HPA-65R-BUU-H8 Panel +
  - (9) RRUS-11 + (6) RRUS-12 + (6) RRUS-A2 + (3) RRUS-E2 + (3) RRUS-32
  - (4) Raycap DC6-48-60-18-8F Suppressor
  - (2) 7/16" + (8) 3/4" + (3) 1/2" Cable / Low Profile Platform

The pole has been analyzed in accordance with the requirements of the International Building Code per IBC section 3108.4, and the recommendations of the Telecommunications Industry Association "Structural Standard for Steel Antenna Supporting Structures" ANSI/TIA-222-G.

This analysis may be considered a "Rigorous Structural Analysis" as defined in ANSI/TIA-222-G 15.5.2.

As indicated in the conclusions of this analysis, I have determined that the existing pole and foundation have *sufficient capacity* to support the existing, reserved and proposed antenna loads as detailed herein. Based on the results of my analysis, structural modifications are not required at this time.

**Source of Data:**

Resource	Source	Job Number	Date
Pole and Foundation Drawings	Nello Inc	182019	08/22/12
Geotechnical Report	Berkshire Geo-Tech	n/a	07/16/12

**Analysis Criteria:**

International Building Code (All Versions) Section 3108.4  
Structural Standards for Steel Antenna Supporting Structures ANSI/TIA-222-G 2

- Basic Wind Speed 100 mph (3-Sec Gust)
- Basic Wind Speed w/ 1" Ice 50 mph (3-Sec Gust)
- Operational Wind Speed 60 mph (3-Sec Gust)

Structure Class	Exposure Category	Topographic Category
II (I = 1.0)	B	3 (Crest 150')

Michael F. Plahovinsak, P.E. - 2014

[mike@mfpeng.com](mailto:mike@mfpeng.com)

**Appurtenance Listing:**

Status	Elev.	Antenna / Mounting	Coax	Owner
Proposed	105'	(12) CCI HPA-65R-BUU-H8 Panel + (4) DC6-48-60-18-8F (9) RRUS-11 + (6) RRUS-12 + (6) RRUS-A2 (3) RRUS-E2 + (3) RRUS-32 Low Profile Platform	(2) 7/16" + (8) 3/4" + (3) 1/2"	AT&T

All antenna lines assumed internally mounted, not exposed to the wind.

**Foundation Analysis:**

The existing monopole foundation design was analyzed in conjunction with site specific geotechnical report. The existing foundation has sufficient capacity to support the pole with the proposed antenna configuration.

**Conclusion:**

I have completed a structural analysis of the existing monopole and foundation in accordance with the project specifics outlined above. My analysis indicates that the existing monopole and foundation is stressed to a maximum of 45.7% of its usable capacity when considering the existing plus proposed loading. Please refer to the attached calculations for an itemized listing of all member stress ratios. The existing pole is safe and adequate to support the proposed loads, and no structural reinforcing is required to support the above loading.

If you have any questions about the contents of this structural report or require any additional information, please feel free to contact my office.

Sincerely,

Michael F. Plahovinsak, P.E.



[mike@mfpeng.com](mailto:mike@mfpeng.com) - 614.398-6250

Michael F. Plahovinsak, P.E. - 2014

[mike@mfpeng.com](mailto:mike@mfpeng.com)

**Standard Conditions for Providing Structural Consulting  
Services on Existing Structures**

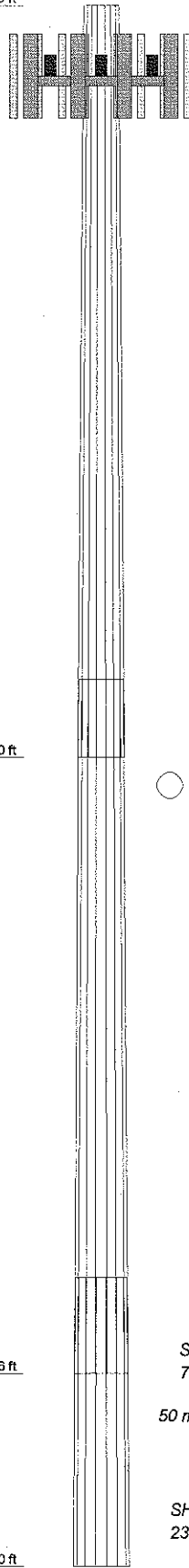
1. The following standard conditions are a general overview of key issues regarding the work product supplied.
2. If the existing conditions are not as represented in this structural report or attached sketches, I should be contacted to evaluate the significance of the deviation and revise the structural assessment accordingly.
3. The structural analysis has been performed assuming that the structure is in "like new" condition. No allowance was made for excessive corrosion, damaged or missing structural members, loose bolts, etc. If there are any known deficiencies in the structure that potentially compromise structural integrity, I should be made aware of the deficiencies. If I am aware of a deficiency that exists in a structure at the time of my analysis, a general explanation of the structural concern due to the deficiency will be included in the structural report, but the deficiency will not be reflected in capacity calculations.
4. The structural analysis provided is an assessment of the primary load carrying capacity of the structure. I provide a limited scope of service in that I have not verified the capacity of every weld, plate, connection detail, etc. In most cases, structural fabrication details are unknown at the time of my analysis, and the detailed field measurement of this information is beyond the scope of my services. In instances where I have not performed connection capacity calculations, it is assumed that existing manufactured connections develop the full capacity of the primary members being connected.
5. The structural integrity of the existing foundation system can only be verified if exact foundation sizes and soils conditions are known. I will not accept any responsibility for the adequacy of the existing foundations unless this site-specific data is supplied.
6. Miscellaneous items such as antenna mounts, coax supports, etc. have not been designed, detailed, or specified as part of my work. It is assumed that material of adequate size and strength will be purchased from a reputable component manufacturer. The attached report and sketches are schematic in nature and should not be used to fabricate or purchase hardware and accessories to be attached to the structure. I recommend field measurement of the structure before fabricating or purchasing new hardware and accessories. I am not responsible for proper fit and clearance of hardware and accessory items in the field.
7. The structural analysis has been performed considering minimum code requirements or recommendations. If alternate wind, ice, or deflection criteria are to be considered, then I shall be made aware of the alternate criteria.

Michael F. Plahovinsak, P.E. - 2014

[mike@mfpeng.com](mailto:mike@mfpeng.com)

TOWER

Length (ft)	53.00	48.89	20.96
Number of Slats	18	18	18
Thickness (in)	0.2500	0.3750	0.3750
Socket Length (ft)	5.50	6.75	44.8751
Top Dia (in)	29.4000	37.8533	48.5000
Bot Dia (in)	38.3900	46.8700	48.5000
Grade		A572-65	
Weight (K)	4.9	8.3	3.8



**DESIGNED APPURTENANCE LOADING**

TYPE	ELEVATION	TYPE	ELEVATION
(4) CCI HPA-65R-BUU-H8 w/ mount pipe (ATT)	105	Ericsson RRUS-E2 (ATT)	105
(3) Ericsson RRUS-11 (ATT)	105	Ericsson RRUS-32 (ATT)	105
(2) Ericsson RRUS 12 (ATT)	105	(4) CCI HPA-65R-BUU-H8 w/ mount pipe (ATT)	105
(2) Ericsson RRUS A2 (ATT)	105	(3) Ericsson RRUS-11 (ATT)	105
Ericsson RRUS-E2 (ATT)	105	(2) Ericsson RRUS 12 (ATT)	105
Ericsson RRUS-32 (ATT)	105	(2) Ericsson RRUS A2 (ATT)	105
(4) CCI HPA-65R-BUU-H8 w/ mount pipe (ATT)	105	Ericsson RRUS-E2 (ATT)	105
(3) Ericsson RRUS-11 (ATT)	105	Ericsson RRUS-32 (ATT)	105
(2) Ericsson RRUS 12 (ATT)	105	(4) Raycap DC6-48-60-18-8F Suppressor (ATT)	105
(2) Ericsson RRUS A2 (ATT)	105	12' Low Profile Platform (ATT)	105

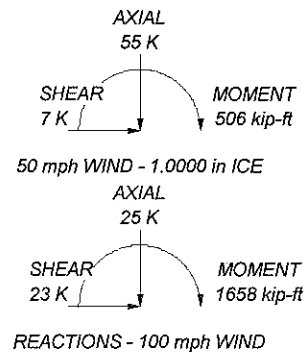
**MATERIAL STRENGTH**

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

**TOWER DESIGN NOTES**

1. Tower is located in Windham County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 100 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 3 with Crest Height of 150.00 ft
8. TOWER RATING: 43%

ALL REACTIONS ARE FACTORED



50 mph WIND - 1.0000 in ICE

<b>Michael F. Plahovinsak, P.E.</b>		Job: <b>110-ft Monopole - MFP #40914-015</b>	
18301 State Route 161 W		Project: <b>CT1182 Woodstock</b>	
Plain City, OH 43064		Client: Florida Tower Partners	Drawn by: Mike
Phone: 614-398-6250		Code: TIA-222-G	Date: 02/10/14
FAX: mike@mfpeng.com		Scale:	
		Path: J:\Projects\409-Misc\40914-015\40914-015.dwg	

<b>tnxTower</b>  <b>Michael F. Plahovinsak, P.E.</b> 18301 State Route 161 W Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com	<b>Job</b> 110-ft Monopole - MFP #40914-015	<b>Page</b> 1 of 6
	<b>Project</b> CT1182 Woodstock	<b>Date</b> 18:44:48 02/10/14
	<b>Client</b> Florida Tower Partners	<b>Designed by</b> Mike

### Tower Input Data

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in Windham County, Connecticut.

Basic wind speed of 100 mph.

Structure Class II.

Exposure Category B.

Topographic Category 3.

Crest Height 150.00 ft.

Nominal ice thickness of 1.0000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

### Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	110.00-57.00	53.00	5.50	18	29.4000	39.3900	0.2500	1.0000	A572-65 (65 ksi)
L2	57.00-13.61	48.89	6.75	18	37.8533	46.8700	0.3750	1.5000	A572-65 (65 ksi)
L3	13.61-0.00	20.36		18	44.8751	48.5000	0.3750	1.5000	A572-65 (65 ksi)

### Tapered Pole Properties

Section	Tip Dia. in	Area in <sup>2</sup>	I in <sup>4</sup>	r in	C in	I/C in <sup>3</sup>	J in <sup>4</sup>	I/Q in <sup>2</sup>	w in	w/t
L1	29.8535	23.1305	2483.1334	10.3483	14.9352	166.2605	4969.5343	11.5675	4.7344	18.938
	39.9977	31.0576	6011.0016	13.8947	20.0101	300.3981	12029.9127	15.5317	6.4926	25.971
L2	39.4673	44.6085	7916.1744	13.3048	19.2295	411.6687	15842.7652	22.3085	6.0022	16.006
	47.5930	55.3407	15114.5213	16.5057	23.8100	634.7983	30248.9306	27.6756	7.5891	20.238
L3	46.7877	52.9663	13251.3117	15.7975	22.7966	581.2857	26520.0598	26.4882	7.2380	19.301
	49.2482	57.2808	16760.5346	17.0844	24.6380	680.2717	33543.1232	28.6458	7.8760	21.003



<b>tnxTower</b>  <b>Michael F. Plahovinsak, P.E.</b> 18301 State Route 161 W Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com	<b>Job</b> 110-ft Monopole - MFP #40914-015	<b>Page</b> 2 of 6
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	<b>Client</b> Florida Tower Partners	<b>Designed by</b> Mike

**Feed Line/Linear Appurtenances - Entered As Area**

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C <sub>A</sub> A <sub>A</sub>		Weight plf
						No Ice	ft <sup>2</sup> /ft	
7/16" (ATT)	C	No	Inside Pole	105.00 - 0.00	2	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
3/4" (ATT)	C	No	Inside Pole	105.00 - 0.00	8	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
1/2" (ATT)	C	No	Inside Pole	105.00 - 0.00	3	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15

**Discrete Tower Loads**

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C <sub>A</sub> A <sub>A</sub>		Weight K
			Horz Lateral ft	Vert ft			Front ft <sup>2</sup>	Side ft <sup>2</sup>	
(4) CCI HPA-65R-BUU-H8 w/ mount pipe (ATT)	A	From Face	3.00	0.0000	105.00	No Ice	13.62	9.18	0.10
						1/2" Ice	14.35	10.58	0.19
						1" Ice	15.09	11.83	0.29
(3) Ericsson RRUS-11 (ATT)	A	From Face	3.00	0.0000	105.00	No Ice	2.55	0.92	0.05
						1/2" Ice	2.77	1.07	0.06
						1" Ice	2.99	1.23	0.08
(2) Ericsson RRUS 12 (ATT)	A	From Face	3.00	0.0000	105.00	No Ice	3.67	1.46	0.06
						1/2" Ice	3.92	1.64	0.08
						1" Ice	4.19	1.84	0.11
(2) Ericsson RRUS A2 (ATT)	A	From Face	3.00	0.0000	105.00	No Ice	1.87	0.50	0.03
						1/2" Ice	2.05	0.62	0.04
						1" Ice	2.24	0.75	0.05
Ericsson RRUS-E2 (ATT)	A	From Face	3.00	0.0000	105.00	No Ice	3.67	1.49	0.06
						1/2" Ice	3.93	1.67	0.08
						1" Ice	4.19	1.87	0.11
Ericsson RRUS-32 (ATT)	A	From Face	3.00	0.0000	105.00	No Ice	3.87	2.76	0.08
						1/2" Ice	4.15	3.02	0.10
						1" Ice	4.44	3.29	0.14
(4) CCI HPA-65R-BUU-H8 w/ mount pipe (ATT)	B	From Face	3.00	0.0000	105.00	No Ice	13.62	9.18	0.10
						1/2" Ice	14.35	10.58	0.19
						1" Ice	15.09	11.83	0.29
(3) Ericsson RRUS-11 (ATT)	B	From Face	3.00	0.0000	105.00	No Ice	2.55	0.92	0.05
						1/2" Ice	2.77	1.07	0.06
						1" Ice	2.99	1.23	0.08
(2) Ericsson RRUS 12 (ATT)	B	From Face	3.00	0.0000	105.00	No Ice	3.67	1.46	0.06
						1/2" Ice	3.92	1.64	0.08
						1" Ice	4.19	1.84	0.11
(2) Ericsson RRUS A2 (ATT)	B	From Face	3.00	0.0000	105.00	No Ice	1.87	0.50	0.03
						1/2" Ice	2.05	0.62	0.04
						1" Ice	2.24	0.75	0.05
Ericsson RRUS-E2 (ATT)	B	From Face	3.00	0.0000	105.00	No Ice	3.67	1.49	0.06
						1/2" Ice	3.93	1.67	0.08
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Ericsson RRUS-32 (ATT)	B	From Face	3.00	0.0000	105.00	No Ice	3.87	2.76	0.08
						1/2" Ice	4.15	3.02	0.10
						1" Ice	4.44	3.29	0.14
(4) CCI HPA-65R-BUU-H8	C	From Face	3.00	0.0000	105.00	No Ice	13.62	9.18	0.10

<b>tnxTower</b>  <b>Michael F. Plahovinsak, P.E.</b> 18301 State Route 161 W Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com	<b>Job</b> 110-ft Monopole - MFP #40914-015	<b>Page</b> 3 of 6
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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C <sub>AA</sub> Front ft <sup>2</sup>	C <sub>AA</sub> Side ft <sup>2</sup>	Weight K
w/ mount pipe (ATT)			0.00			1/2" Ice 14.35	10.58	0.19
(3) Ericsson RRUS-11 (ATT)	C	From Face	0.00	0.0000	105.00	1" Ice 15.09	11.83	0.29
			0.00			No Ice 2.55	0.92	0.05
			0.00			1/2" Ice 2.77	1.07	0.06
			0.00			1" Ice 2.99	1.23	0.08
(2) Ericsson RRUS 12 (ATT)	C	From Face	3.00	0.0000	105.00	No Ice 3.67	1.46	0.06
			0.00			1/2" Ice 3.92	1.64	0.08
			0.00			1" Ice 4.19	1.84	0.11
(2) Ericsson RRUS A2 (ATT)	C	From Face	3.00	0.0000	105.00	No Ice 1.87	0.50	0.03
			0.00			1/2" Ice 2.05	0.62	0.04
			0.00			1" Ice 2.24	0.75	0.05
Ericsson RRUS-E2 (ATT)	C	From Face	3.00	0.0000	105.00	No Ice 3.67	1.49	0.06
			0.00			1/2" Ice 3.93	1.67	0.08
			0.00			1" Ice 4.19	1.87	0.11
Ericsson RRUS-32 (ATT)	C	From Face	3.00	0.0000	105.00	No Ice 3.87	2.76	0.08
			0.00			1/2" Ice 4.15	3.02	0.10
			0.00			1" Ice 4.44	3.29	0.14
(4) Raycap DC6-48-60-18-8F Suppressor (ATT)	C	None		0.0000	105.00	No Ice 1.47	1.47	0.03
						1/2" Ice 1.67	1.67	0.05
						1" Ice 1.88	1.88	0.07
12' Low Profile Platform (ATT)	C	None		0.0000	105.00	No Ice 15.70	15.70	1.10
						1/2" Ice 16.00	16.00	1.70
						1" Ice 18.00	18.00	2.30

**Load Combinations**

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 90 deg - No Ice
5	0.9 Dead+1.6 Wind 90 deg - No Ice
6	1.2 Dead+1.6 Wind 180 deg - No Ice
7	0.9 Dead+1.6 Wind 180 deg - No Ice
8	1.2 Dead+1.0 Ice+1.0 Temp
9	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
10	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
11	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
12	Dead+Wind 0 deg - Service
13	Dead+Wind 90 deg - Service
14	Dead+Wind 180 deg - Service

<b>tnxTower</b>  <b>Michael F. Plahovinsak, P.E.</b> 18301 State Route 161 W Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mpeng.com	<b>Job</b> 110-ft Monopole - MFP #40914-015	<b>Page</b> 4 of 6
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	<b>Client</b> Florida Tower Partners	<b>Designed by</b> Mike

### Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	110 - 57	Pole	Max Tension	6	0.00	0.00	0.00
			Max. Compression	8	-29.21	0.00	0.00
			Max. Mx	4	-9.60	-517.22	0.00
			Max. My	2	-9.60	0.00	517.22
			Max. Vy	4	14.40	-517.22	0.00
			Max. Vx	2	-14.40	0.00	517.22
L2	57 - 13.61	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-44.84	0.00	0.00
			Max. Mx	4	-19.11	-1230.50	0.00
			Max. My	6	-19.11	0.00	-1230.50
			Max. Vy	4	19.55	-1230.50	0.00
			Max. Vx	6	19.55	0.00	-1230.50
L3	13.61 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-54.65	0.00	0.00
			Max. Mx	4	-25.44	-1657.84	0.00
			Max. My	2	-25.44	0.00	1657.84
			Max. Vy	4	22.51	-1657.84	0.00
			Max. Vx	2	-22.51	0.00	1657.84

### Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	110 - 57	5.546	13	0.4080	0.0000
L2	62.5 - 13.61	1.921	13	0.2738	0.0000
L3	20.36 - 0	0.228	13	0.0932	0.0000

### Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
105.00	(4) CCI HPA-65R-BUU-H8 w/ mount pipe	13	5.127	0.3958	0.0000	118992

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	110 - 57	27.616	2	2.0320	0.0000
L2	62.5 - 13.61	9.566	2	1.3635	0.0000
L3	20.36 - 0	1.134	2	0.4640	0.0000

<b>tnxTower</b>  <b>Michael F. Plahovinsak, P.E.</b> 18301 State Route 161 W Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com	<b>Job</b> 110-ft Monopole - MFP #40914-015	<b>Page</b> 5 of 6
	<b>Project</b> CT1182 Woodstock	<b>Date</b> 18:44:48 02/10/14
	<b>Client</b> Florida Tower Partners	<b>Designed by</b> Mike

### Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
105.00	(4) CCI HPA-65R-BUU-H8 w/ mount pipe	2	25.529	1.9713	0.0000	23939

### Pole Design Data

Section No.	Elevation	Size	L	L <sub>u</sub>	KI/r	A	P <sub>u</sub>	φP <sub>n</sub>	Ratio P <sub>u</sub> / φP <sub>n</sub>
	ft		ft	ft		in <sup>2</sup>	K	K	
L1	110 - 57 (1)	TP39.39x29.4x0.25	53.00	0.00	0.0	30.2350	-9.60	1951.42	0.005
L2	57 - 13.61 (2)	TP46.87x37.8533x0.375	48.89	0.00	0.0	53.8589	-19.11	3794.70	0.005
L3	13.61 - 0 (3)	TP48.5x44.8751x0.375	20.36	0.00	0.0	57.2808	-25.44	3953.98	0.006

### Pole Bending Design Data

Section No.	Elevation	Size	M <sub>ux</sub>	φM <sub>ux</sub>	Ratio M <sub>ux</sub> / φM <sub>ux</sub>	M <sub>uy</sub>	φM <sub>uy</sub>	Ratio M <sub>uy</sub> / φM <sub>uy</sub>
	ft		kip-ft	kip-ft		kip-ft	kip-ft	
L1	110 - 57 (1)	TP39.39x29.4x0.25	517.22	1530.97	0.338	0.00	1530.97	0.000
L2	57 - 13.61 (2)	TP46.87x37.8533x0.375	1230.50	3529.43	0.349	0.00	3529.43	0.000
L3	13.61 - 0 (3)	TP48.5x44.8751x0.375	1657.84	3913.15	0.424	0.00	3913.15	0.000

### Pole Shear Design Data

Section No.	Elevation	Size	Actual V <sub>u</sub>	φV <sub>n</sub>	Ratio V <sub>u</sub> / φV <sub>n</sub>	Actual T <sub>u</sub>	φT <sub>n</sub>	Ratio T <sub>u</sub> / φT <sub>n</sub>
	ft		K	K		kip-ft	kip-ft	
L1	110 - 57 (1)	TP39.39x29.4x0.25	14.40	968.89	0.015	0.00	3065.68	0.000
L2	57 - 13.61 (2)	TP46.87x37.8533x0.375	19.55	1886.59	0.010	0.00	7067.50	0.000
L3	13.61 - 0 (3)	TP48.5x44.8751x0.375	22.51	1971.97	0.011	0.00	7835.87	0.000

### Pole Interaction Design Data

Section No.	Elevation	Ratio P <sub>u</sub> / φP <sub>n</sub>	Ratio M <sub>ux</sub> / φM <sub>ux</sub>	Ratio M <sub>uy</sub> / φM <sub>uy</sub>	Ratio V <sub>u</sub> / φV <sub>n</sub>	Ratio T <sub>u</sub> / φT <sub>n</sub>	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	110 - 57 (1)	0.005	0.338	0.000	0.015	0.000	0.343	1.000	4.8.2 ✓
L2	57 - 13.61 (2)	0.005	0.349	0.000	0.010	0.000	0.354	1.000	4.8.2 ✓
L3	13.61 - 0 (3)	0.006	0.424	0.000	0.011	0.000	0.430	1.000	4.8.2 ✓

<b>tnxTower</b>  <b>Michael F. Plahovinsak, P.E.</b> 18301 State Route 161 W Plain City, OH 43064 Phone: 614-398-6250 FAX: mike@mfpeng.com	<b>Job</b> 110-ft Monopole - MFP #40914-015	<b>Page</b> 6 of 6
	<b>Project</b> CT1182 Woodstock	<b>Date</b> 18:44:48 02/10/14
	<b>Client</b> Florida Tower Partners	<b>Designed by</b> Mike

**Section Capacity Table**

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$\phi P_{allow}$ K	% Capacity	Pass Fail
L1	110 - 57	Pole	TP39.39x29.4x0.25	1	-9.60	1951.42	34.3	Pass
L2	57 - 13.61	Pole	TP46.87x37.8533x0.375	2	-19.11	3794.70	35.4	Pass
L3	13.61 - 0	Pole	TP48.5x44.8751x0.375	3	-25.44	3953.98	43.0	Pass
						Summary		
						Pole (L3)	43.0	Pass
						<b>RATING =</b>	<b>43.0</b>	<b>Pass</b>

<b>Michael F. Plahovinsak, P.E.</b> 18301 State Route 161 W Plain City, OH 43064 Phone: 614-398-6250 email: mike@mfpeng.com	<b>Job</b> 110-ft monopole - MFP #40914-015	<b>Page</b> BP-G
	<b>Project</b> CT1182 Woodstock	<b>Date</b> 02/10/2014
	<b>Client</b> FLORIDA TOWER PARTNERS	<b>Designed by</b> Mike

## Anchor Rod and Base Plate Calculation

ANSI/TIA-222-G-2

Factored Base Reactions:	Pole Shape:	Anchor Rods:	Base Plate:
Moment: 1658 ft-kips	18-Sided	(16) 2.25 in. A615 GR. 75	3 in. x 61.5 in. Round
Shear: 23 kips	<b>Pole Dia. (D<sub>p</sub>):</b> 48.50 in	Anchor Rods Evenly Spaced	f <sub>y</sub> = 50 ksi
Axial: 25 kips		On a 55.5 in Bolt Circle	

### Anchor Rod Calculation According to TIA-222-G section 4.9.9

$\phi = 0.80$  TIA 4.9.9  
 $I_{bolts} = 6160.50 \text{ in}^2$  Moment of Inertia  
 $P_u = 90 \text{ kips}$  Tension Force  
 $V_u = 1 \text{ kips}$  Shear Force  
 $R_{nt} = 325.00 \text{ kips}$  Nominal Tensile Strength  
 $\eta = 0.50$  for detail type (d)

The following Interaction Equation Shall Be Satisfied:

$$\left( \frac{P_u + \frac{V_u}{\eta}}{\phi R_{nt}} \right) \leq 1.0$$

$$0.356 \leq 1$$

### Base Plate Calculation According to TIA-222-G

$\phi = 0.90$  TIA 4.7  
 $M_{PL} = 216.6 \text{ in-kip}$  Plate Moment  
 $L = 9.5 \text{ in}$  Section Length  
 $Z = 21.4$  Plastic Section Modulus  
 $M_p = 1071.3 \text{ in-kip}$  Plastic Moment  
 $\phi M_n = 964.2 \text{ in-kip}$  Factored Resistance

Calculated Moment vs Factored Resistance

$$216.56 \text{ in-kip} \leq 964 \text{ in-kip}$$

Anchor Rods Are Adequate	35.6%	<input checked="" type="checkbox"/>
Base Plate is Adequate	22.5%	<input checked="" type="checkbox"/>

## Monopole Spread Footing Calculation

ANSI/TIA-222-G-2

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<b>Factored Base Reactions:</b>	<b>Footing Dimensions:</b>	<b>Concrete:</b>	
Moment: 1658 ft-kips	23 ft x 23 ft	6.5 ft Square Pier	$f_c = 4000$ psi
Shear: 23 kips	x 2.25 ft thick	w/6 in Reveal	Steel $f_y = 60$ ksi
Axial: 25 kips	Bearing 6.5 ft B.G.	51.5 Yd3 Concrete	$f = 0.75$
Soil Backfill 110 pcf	Ultimate Bearing:	6000 psf	Water Table n/a

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### Foundation Weight

Weight of Pole	25.0 kips
Weight of Concrete	208.64063 kips
Weight of Soil	227.55563 kips
Bouyancy of Water	0.0 kips
Total	461.2 kips

### Overturning Resistance:

Overturning Moment ( $M_u$ )	1819 ft-kips	1658 ft-kips + (23 kips x 7 ft)
Resisting Moment ( $R_s$ )	5303.7569 ft-kips	461.19625 kips x 23 ft / 2
$\phi \times R_s > M_u$	$M_{overturning} / f M_{resist}$	45.7% <b>OK</b>

### Soil Bearing Pressure:

Eccentricity (e)	3.94 ft	1819 ft-kips / 461.19625 kips
6(e)	23.7 ft >	23.0 ft 6e > 23
Maximum Soil Bearing	2197.3593 psf	Calculated across corners
Soil Overburden	-715 psf	
Net Soil Bearing	1482.3593 psf	
Resisting Soil Bearing ( $R_s$ )	6000 psf	
Net Soil Bearing < $\phi \times R_s$	Net Bearing / f $R_s$	32.9% <b>OK</b>

### Bending Moment in Pier:

Bending Moment	1767.25 ft-kips	1658 ft-kips + (23 kips x 4.75 ft)
Pier Steel Req'd (Loads)	21.96 in <sup>2</sup>	
Min. Pier Steel	23.9 in <sup>2</sup>	1/2%

### Bending Moment in Footing:

Max Bending Moment	1216.7952 ft-kips	$\Sigma$ Moments about pier face
Min. Footing Steel	0.58 in <sup>2</sup> /ft	0.18%

From: ALECSANDRU, RADU <RA9161@att.com>  
Sent: Friday, February 14, 2014 2:57 PM  
To: Chris Policinski  
Cc: Peter Lamontagne  
Subject: RE: AT&T NSB // CT2067 - Woodstock // Power Density Calcs Request // FA 10141310 // Project 2051002388

As requested...

Transmission Mode	Centerline Ht (feet)	Frequency (MHz)	Number of Channels	Power Per Channel (Watts)	Power Density (mW/cm <sup>2</sup> )	Standard Limits (mW/cm <sup>2</sup> )	Percent of Limit
AT&T UMTS	105	800 Band	2	500	0.0326	0.5867	5.56
AT&T UMTS	105	1900 Band	1	500	0.0163	1.0000	1.63
AT&T LTE	105	700 Band	1	500	0.0163	0.4667	3.49
AT&T LTE	105	1900 Band	1	500	0.0163	1.0000	1.63
AT&T LTE	105	2300 Band	1	500	0.0163	1.0000	1.63
<b>Total</b>							<b>13.9%</b>

Please let me know if there are any questions.

Radu Alecsandru  
RF Engineer  
at&t mobility  
office 860-513-7598  
mobile 860-965-6685





# at&t

**SITE NAME: WOODSTOCK RT 198**  
**SITE NUMBER: CT2067**  
**ADDRESS: ROUTE 198**  
**WOODSTOCK, CT 06282**

**CONSTRUCTION**

**ProTerra**  
DESIGN GROUP, LLC

1 Short Street  
Suite 3  
Northampton, MA 01060  
Ph: (413) 320-4918  
Fax: (413) 320-4917

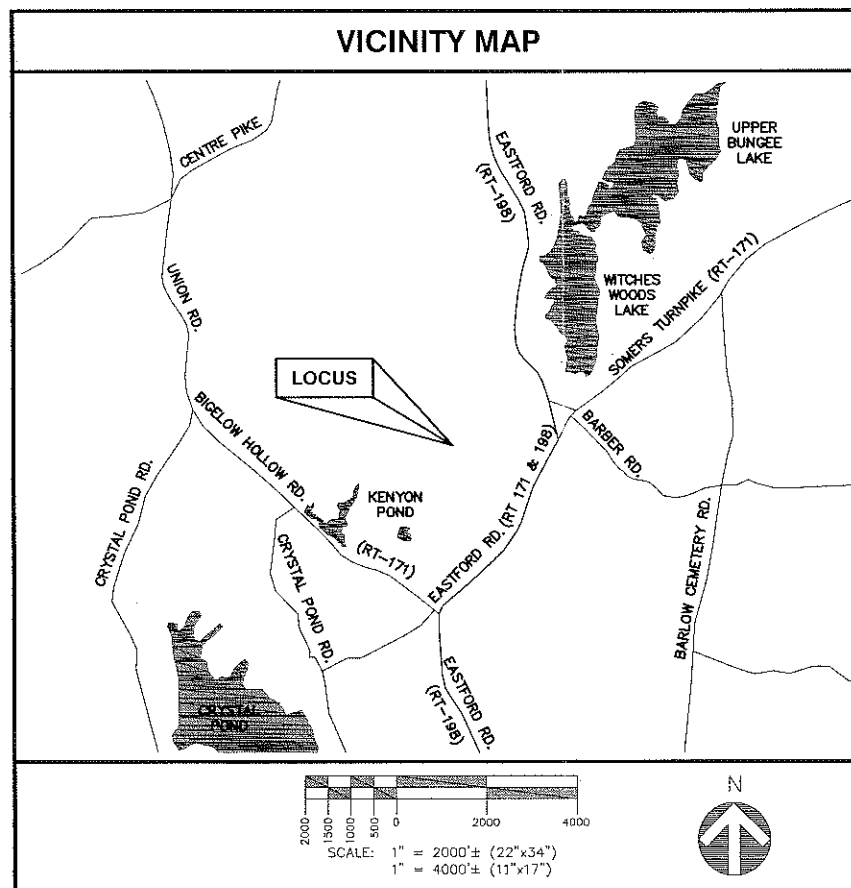
CLIENT:



27 Northwestern Drive  
Salem, NH 03079

NO.	DATE	REVISIONS ISSUED FOR REVIEW
A	2/11/14	

DRAWING INDEX		
SHEET	DESCRIPTION	REVISION
T-1	TITLE SHEET	A
GN-1	GENERAL NOTES	A
A-1	PLOT PLAN & COMPOUND PLAN	A
A-2	ELEVATION & DETAILS	A
D-1	DETAILS	A
S-1	STRUCTURAL DETAILS	A
E-1	ELECTRICAL & GROUNDING DETAILS	A
E-2	GROUNDING DETAILS & NOTES	A
GENERAL NOTES		
<p>1. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER &amp; AT&amp;T REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.</p> <p>2. ALL WORK TO BE PERFORMED IN ACCORDANCE WITH THE LATEST AT&amp;T CONSTRUCTION GUIDELINES.</p> <p>3. ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK. CALL DIG-SAFE (888) 344-7233 72-HOURS PRIOR TO ANY EXCAVATION.</p> <p>4. THIS SHEET SET WAS ORIGINALLY PRINTED TO ANSI D (22"x34") WITH 1" MARGINS. PRINTING TO ANSI B (11"x17") WILL RESULT IN A HALF-SCALE (1:2) SHEET SET WITH 1/2" MARGINS. CONFIRM ALL SCALED DISTANCES WITH GRAPHICAL SCALES SHOWN HEREIN.</p>		



PROJECT INFORMATION	
SITE TYPE:	CO-LOCATION MONDPOLE
SCOPE OF WORK:	PROPOSED PANEL ANTENNAS & RF EQUIPMENT ON SECTOR FRAME MOUNTED ON (E) MONOPOLE. SHELTER & GENERATOR PROPOSED AT GROUND LEVEL.
SITE NAME:	WOODSTOCK RT 198
SITE NUMBER:	CT2067
SITE ADDRESS:	ROUTE 198 WOODSTOCK, CT 06282
ASSESSOR'S TAX ID#:	MAP 5789 BLOCK 37 LOT 24
ZONING DISTRICT:	COMMUNITY DISTRICT
LATITUDE:	41° 56' 21.97" N (RECORD PLANS)
LONGITUDE:	72° 04' 55.26" W (RECORD PLANS)
DATUM:	NAD83
PROPERTY OWNER:	N/F WOODSTOCK TOWER PARTNERS, LLC 35 KENNEDY DRIVE PUTNAM, CT 06260
ENGINEER:	PROTERRA DESIGN GROUP, LLC 1 SHORT STREET, SUITE 3 NORTHAMPTON, MA 01060
DRIVING DIRECTIONS	
DRIVING DIRECTIONS FROM AT&T IN ROCKY HILL, CT: TAKE I-91 NORTH TO EXIT 29, MERGE ONTO CT-15/US-5 NORTH TOWARDS I-84, CONTINUE ONTO CT-15, MERGE ONTO I-84 EAST, TAKE EXIT 73 FOR CT-190 TOWARDS UNION, TURN RIGHT ONTO CT-190 E/BUCKLEY HIGHWAY, TURN RIGHT ONTO CT-171 E/BIGELOW HOLLOW ROAD, TURN LEFT ONTO CT-171 E/ CT-198 N / EASTFORD ROAD, ACCESS ROAD 0.6 MILES ON LEFT.	

SITE NAME: WOODSTOCK RT 198  
 SITE NUMBER: CT2067  
 ADDRESS: ROUTE 198  
 WOODSTOCK, CT 06282

NEW CIRCULAR  
 WIRELESS PCS, LLC  
 "AT&T"  
 500 ENTERPRISE DRIVE  
 ROCKY HILL, CT 08687

APPLICANT:

STAMP:

DATE: 1/8/14  
 DRAWN: TBD  
 CHECK: JMM/TEJ  
 SCALE: SEE PLAN  
 JOB NO.: 13-063  
 SHEET TITLE:

**TITLE SHEET**

**T-1**

**GENERAL NOTES:**

- 1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY: CONTRACTOR - AT&T SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION) OWNER - TOWER SITE OWNER OEM - ORIGINAL EQUIPMENT MANUFACTURER
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL, STATE AND FEDERAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
5. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
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. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER, T1 CABLES AND GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR AND/OR LANDLORD PRIOR TO CONSTRUCTION.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION AND RETURN DISTURBED AREAS TO ORIGINAL CONDITIONS.
13. THE SUBCONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE SUBCONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
14. SUBCONTRACTOR SHALL NOTIFY PROTERRA DESIGN GROUP, LLC 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS AND POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEERING REVIEW.
15. CONSTRUCTION SHALL COMPLY WITH ALL SBA STANDARDS AND SPECIFICATIONS.
16. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
17. THE EXISTING CELL SITES ARE IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
18. IF THE EXISTING CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

**SITE WORK GENERAL NOTES:**

- 1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY ENGINEERS. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION.
3. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
4. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
5. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
6. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
7. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
8. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF ENGINEERING, OWNER AND/OR LOCAL UTILITIES.
9. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
10. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
11. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE SBA SPECIFICATION FOR SITE SIGNAGE.

**CONCRETE & REINFORCING STEEL NOTES:**

- 1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE. A HIGHER STRENGTH (4000PSI) MAY BE USED. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 381 CODE REQUIREMENTS.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A 185 WELDED STEEL WIRE FABRIC UNLESS NOTED OTHERWISE. SPLICES SHALL BE CLASS "B" AND ALL HOOKS SHALL BE STANDARD, UNO.
4. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS: CONCRETE CAST AGAINST EARTH.....3 IN. CONCRETE EXPOSED TO EARTH OR WEATHER: #6 AND LARGER .....2 IN. #5 AND SMALLER & WWF .....1 1/2 IN. CONCRETE NOT EXPOSED TO EARTH OR WEATHER OR NOT CAST AGAINST THE GROUND: SLAB AND WALL .....3/4 IN. BEAMS AND COLUMNS .....1 1/2 IN.
5. A CHAMFER 3/8" SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNO, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
6. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHORS SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO THE MANUFACTURERS RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS. ALL EXPANSION/WEDGE ANCHORS SHALL BE STAINLESS STEEL OR HOT DIPPED GALVANIZED. EXPANSION BOLTS SHALL BE PROVIDED BY SIMPSON OR APPROVED EQUAL.
7. CONCRETE CYLINDER TESTS ARE NOT REQUIRED FOR SLAB ON GRADE WHEN CONCRETE IS LESS THAN 50 CUBIC YARDS (IBC1905.6.2.3) IN THAT EVENT THE FOLLOWING RECORDS SHALL BE PROVIDED BY THE CONCRETE SUPPLIER: (A) RESULTS OF CONCRETE CYLINDER TEST PERFORMED AT THE SUPPLIERS PLANT. (B) CERTIFICATION OF MINIMUM COMPRESSIVE STRENGTH FOR THE CONCRETE CYLINDER SUPPLIED. FOR GREATER THAN 50 CUBIC YARDS THE GC SHALL PERFORM THE CONCRETE CYLINDER TEST.
8. AS AN ALTERNATIVE TO ITEM 7, TEST CYLINDERS SHALL BE TAKEN INITIALLY AND THEREAFTER FOR EVERY 50 YARDS OF CONCRETE FROM EACH DIFFERENT BATCH PLAN.
9. EQUIPMENT SHALL NOT BE PLACED ON NEW PADS FOR SEVEN DAYS AFTER PAD IS POURED, UNLESS IT IS VERIFIED BY CYLINDER TESTS THAT COMPRESSIVE STRENGTH HAS BEEN ATTAINED.

**STRUCTURAL STEEL NOTES:**

- 1. ALL STEEL WORK SHALL BE PAINTED OR GALVANIZED IN ACCORDANCE WITH THE DRAWINGS AND SBA SPECIFICATIONS UNLESS OTHERWISE NOTED. STRUCTURAL STEEL SHALL BE ASTM-A-36 UNLESS OTHERWISE NOTED ON THE SITE SPECIFIC DRAWINGS. STEEL DESIGN, INSTALLATION AND BOLTING SHALL BE IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "MANUAL OF STEEL CONSTRUCTION".
2. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", 9TH EDITION. PAINTED SURFACES SHALL BE TOUCHED UP.
3. BOLTED CONNECTIONS SHALL USE BEARING TYPE ASTM A325 BOLTS (3/4") AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE. ALL BOLTS SHALL BE GALVANIZED OR STAINLESS STEEL.
4. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 3/8" DIA. ASTM A 307 BOLTS (GALV) UNLESS NOTED OTHERWISE.
5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ENGINEER REVIEW & APPROVAL ON PROJECTS REQUIRING STRUCTURAL STEEL.
6. ALL STRUCTURAL STEEL WORK SHALL BE DONE IN ACCORDANCE WITH AISC SPECIFICATIONS.

**SOIL COMPACTION NOTES:**

- 1. EXCAVATE AS REQUIRED TO REMOVE VEGETATION AND TOPSOIL TO EXPOSE NATURAL SUBGRADE AND PLACE CRUSHED STONE AS REQUIRED.
2. COMPACTION CERTIFICATION: AN INSPECTION AND WRITTEN CERTIFICATION BY A QUALIFIED GEOTECHNICAL TECHNICIAN OR ENGINEER IS ACCEPTABLE.
3. AS AN ALTERNATE TO INSPECTION AND WRITTEN CERTIFICATION, THE "UNDISTURBED SOIL" BASE SHALL BE COMPACTED WITH "COMPACTION EQUIPMENT", LISTED BELOW, TO AT LEAST 90% MODIFIED PROCTOR MAXIMUM DENSITY PER ASTM D 1557 METHOD C.
4. COMPACTED SUBBASE SHALL BE UNIFORM AND LEVELED. PROVIDE 6" MINIMUM CRUSHED STONE OR GRAVEL COMPACTED IN 3" LIFTS ABOVE COMPACTED SOIL. GRAVEL SHALL BE NATURAL OR CRUSHED WITH 100% PASSING #1 SIEVE.
5. AS AN ALTERNATE TO ITEMS 2 AND 3, THE SUBGRADE SOILS WITH 5 PASSES OR A MEDIUM SIZED VIBRATORY PLATE COMPACTOR (SUCH AS BOMAG BPR 30/38) OR HAND-OPERATED SINGLE DRUM VIBRATORY ROLLER (SUCH AS BOMAG BW 55E), AND SOFT AREAS THAT ARE ENCOUNTERED SHOULD BE REMOVED AND REPLACED WITH A WELL-GRADED GRANULAR FILL AND COMPACTED AS STATED ABOVE.

**COMPACTION EQUIPMENT NOTES:**

- 1. HAND OPERATED DOUBLE DRUM, VIBRATORY ROLLER, VIBRATORY PLATE COMPACTOR OR JUMPING JACK COMPACTOR.

**CONSTRUCTION NOTES:**

- 1. FIELD VERIFICATION: SUBCONTRACTOR SHALL FIELD VERIFY SCOPE OF WORK, SBA ANTENNA PLATFORM LOCATION AND UTILITY TRENCHWORK.
2. COORDINATION OF WORK: SUBCONTRACTOR SHALL COORDINATE RF WORK AND PROCEDURES WITH CONTRACTOR.
3. CABLE LADDER RACK: SUBCONTRACTOR SHALL FURNISH AND INSTALL CABLE LADDER RACK, CABLE TRAY AND/OR ICE BRIDGE, AND CONDUIT AS REQUIRED TO SUPPORT CABLES TO THE NEW BTS LOCATION.

**ELECTRICAL INSTALLATION NOTES:**

- 1. WIRING, RACEWAY, AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC).
2. SUBCONTRACTOR SHALL MODIFY OR INSTALL CABLE TRAY SYSTEM AS REQUIRED TO SUPPORT RF AND TRANSPORT CABLING TO THE NEW BTS EQUIPMENT. SUBCONTRACTOR SHALL SUBMIT MODIFICATIONS TO CONTRACTOR FOR APPROVAL.
3. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC AND TELCORDIA.
4. CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
5. EACH END OF EVERY POWER, GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA, AND MATCH INSTALLATION REQUIREMENTS.
6. POWER PHASE CONDUCTORS (I.E., HOTS) SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). PHASE CONDUCTOR COLOR CODES SHALL CONFORM WITH THE NEC AND OSHA.
7. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).
8. PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH ENGRAVED LAMACOID PLASTIC LABELS.
9. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
10. POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (#6 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
12. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED OUTDOORS, OR BELOW GRADE, SHALL BE SINGLE CONDUCTOR #2 AWG SOLID TINNED COPPER CABLE, UNLESS OTHERWISE SPECIFIED.
13. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#34 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.
14. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY HARGER (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).
15. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEC AND NEC.
16. NEW RACEWAY OR CABLE TRAY WILL MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
17. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
18. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
19. GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
20. RIGID NONMETALLIC CONDUIT (I.E., RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND, DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.
21. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
22. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.
23. CABINETS, BOXES AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEC AND NEC.
24. CABINETS, BOXES AND WIREWAYS TO MATCH THE EXISTING INSTALLATION WHERE POSSIBLE.
25. WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARD; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
26. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS, OR NEMA 3R (OR BETTER) OUTDOORS.
27. METAL RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED, OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
28. NONMETALLIC RECEPTACLE, SWITCH, AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
29. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
30. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.
31. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES.
32. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.

ProTerra DESIGN GROUP, LLC

1 Short Street Suite 3 Northampton, MA 01080 Ph:(413)320-4918 Fax:(413)320-4917

CLIENT:



27 Northwestern Drive Salem, NH 03079

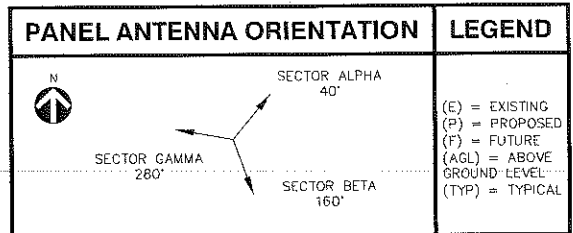
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DATE: 1/8/14 DRAWN: TBD CHECK: JMM/TEJ SCALE: SEE PLAN JOB NO.: 13-063 SHEET TITLE:

GENERAL NOTES GN-1

PLAN REFERENCES
1. TOWN OF WOODSTOCK WEBSITE (ON-LINE REAL ESTATE DATABASE)
2. RECORD PLAN ENTITLED "UPDATED - EXISTING CONDITIONS" BY INFINIGY SURVEYING DATED SEPTEMBER 2013.



**ProTerra**  
 DESIGN GROUP, LLC  
 1 Short Street  
 Suite 3  
 Northampton, MA 01060  
 Ph: (413)320-4918  
 Fax: (413)320-4917

CLIENT:  
  
 27 Northwestern Drive  
 Salem, NH 03079

NO.	DATE	REVISIONS
A	12/11/14	ISSUED FOR REVIEW

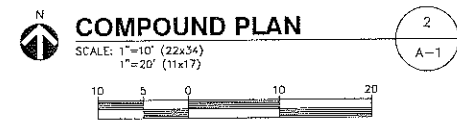
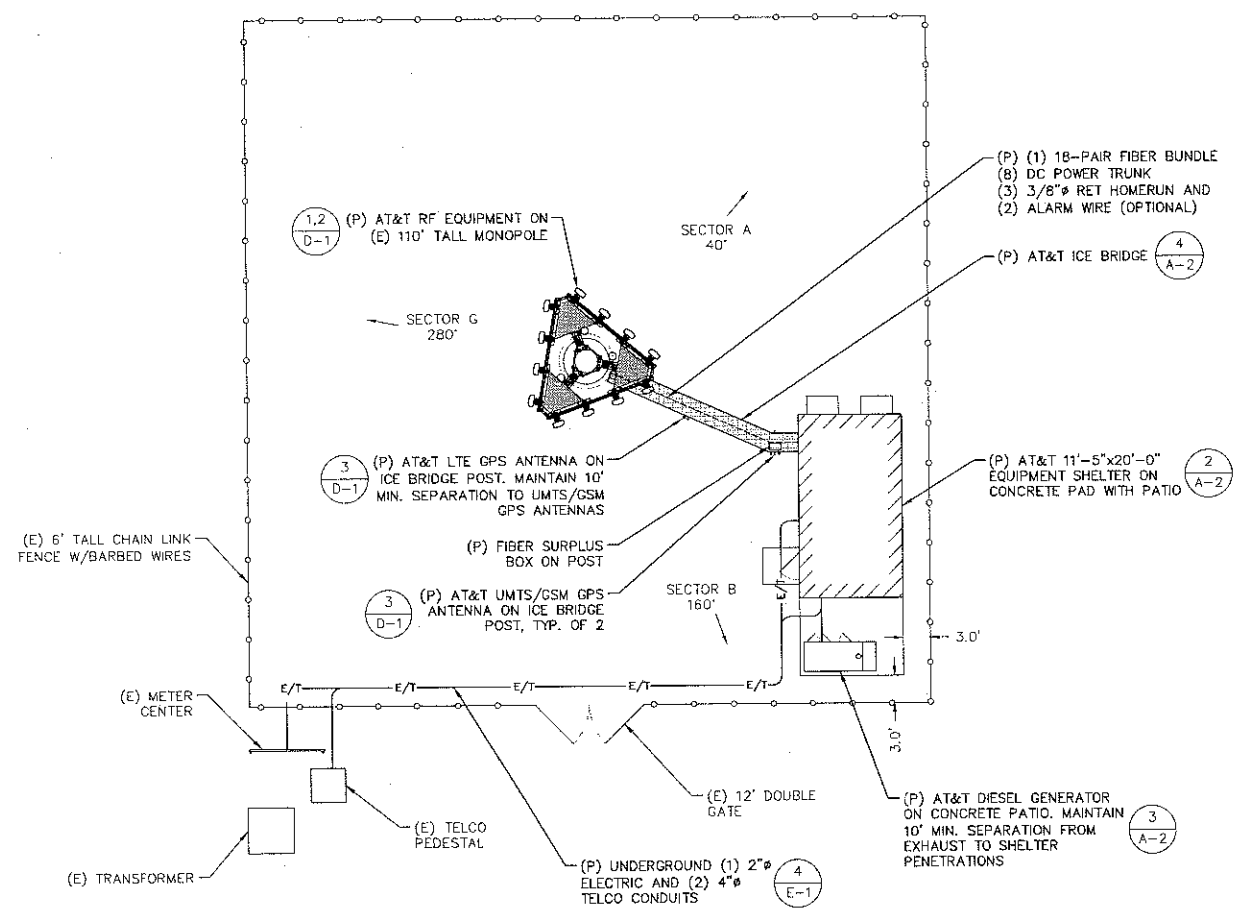
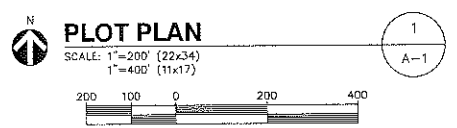
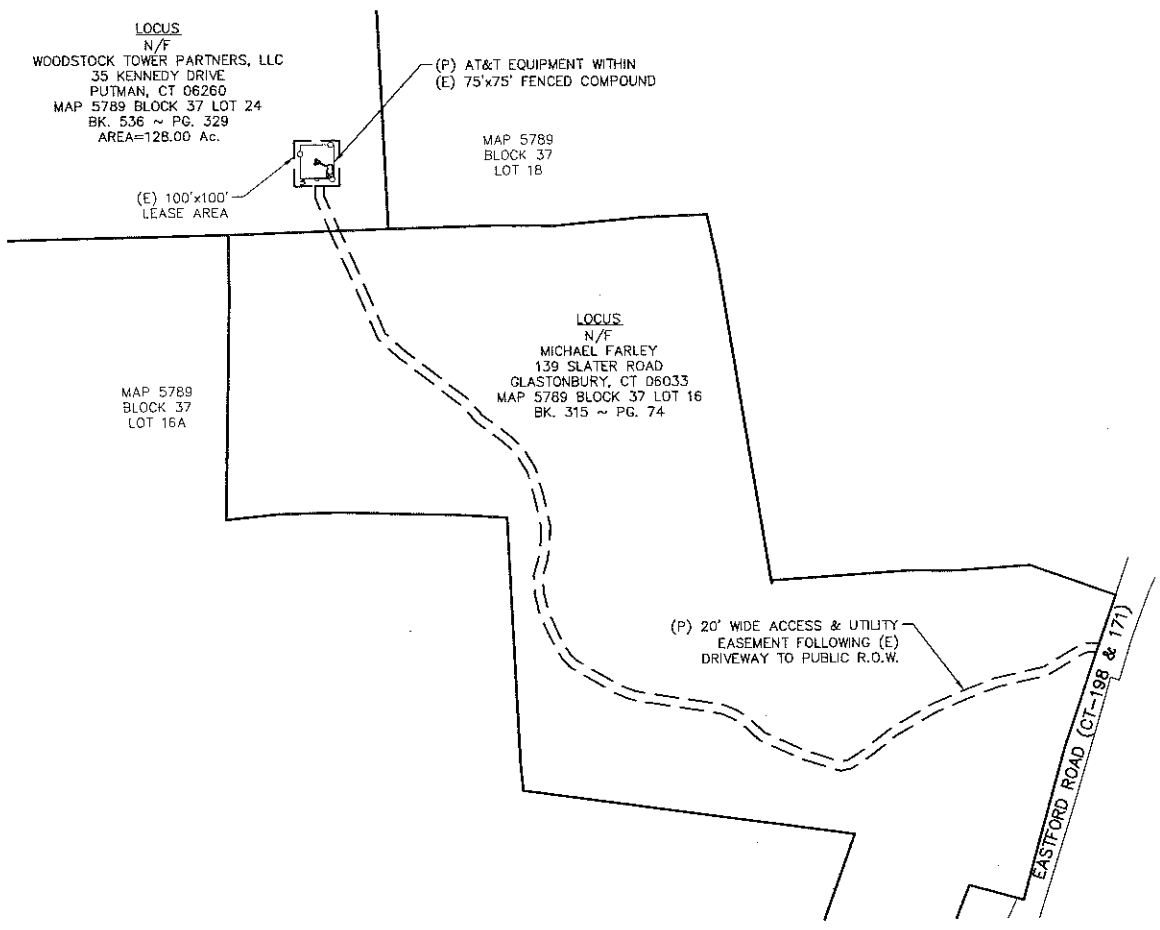
SITE NAME: WOODSTOCK RT 198  
 SITE NUMBER: CT2067  
 ADDRESS: ROUTE 198  
 WOODSTOCK, CT 06282

APPLICANT:  
  
 NEW CIRCULAR  
 WIRELESS PCS, LLC  
 "AT&T"  
 600 ENTERPRISE DRIVE  
 ROCKY HILL, CT 08687

STAMP:

DATE: 1/8/14  
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 CHECK: JMM/TEJ  
 SCALE: SEE PLAN  
 JOB NO.: 13-063

SHEET TITLE:  
**PLOT PLAN & COMPOUND PLAN**  
**A-1**



CLIENT:



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Salem, NH 03079

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SITE NUMBER: CT2067  
ADDRESS: ROUTE 198  
WOODSTOCK, CT 06282

APPLICANT:  
NEW CIRCULAR  
WIRELESS POS. LLC  
"AT&T"  
600 ENTERPRISE DRIVE  
ROCKY HILL, CT 06867



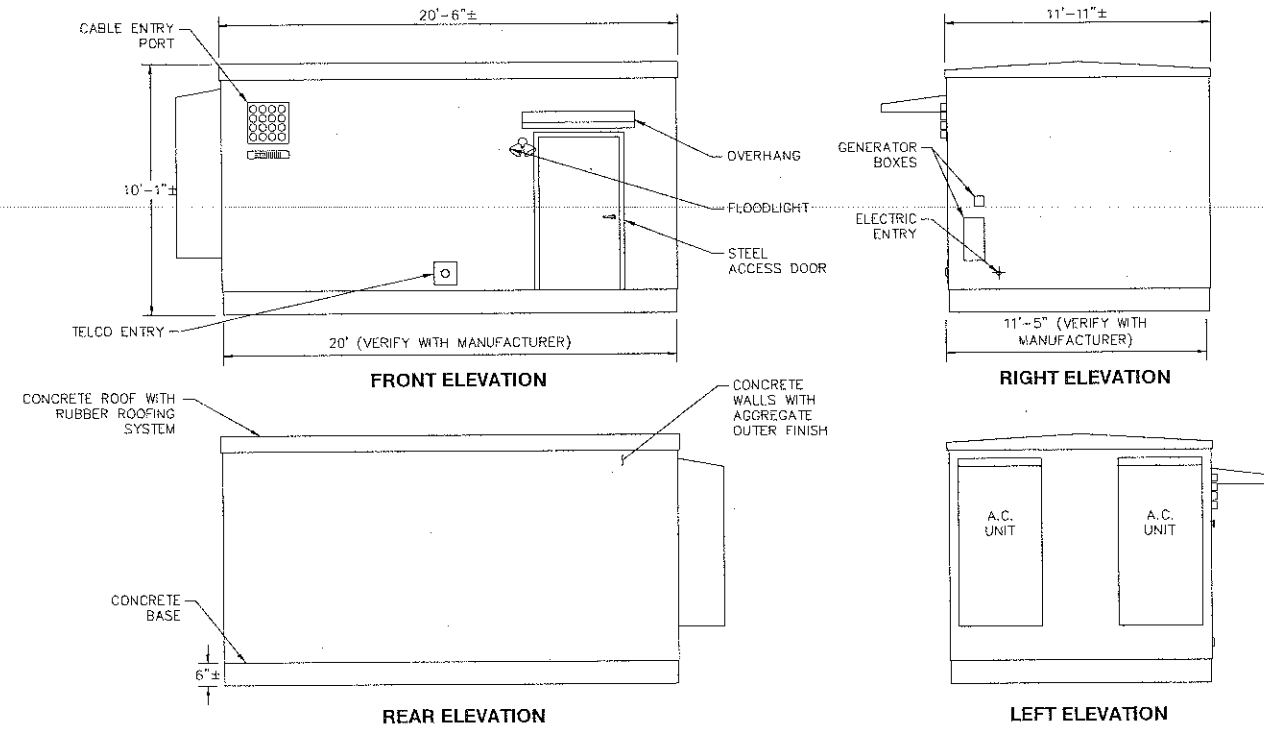
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JOB NO.: 13-063

SHEET TITLE:

**ELEVATION &  
DETAILS**

**A-2**

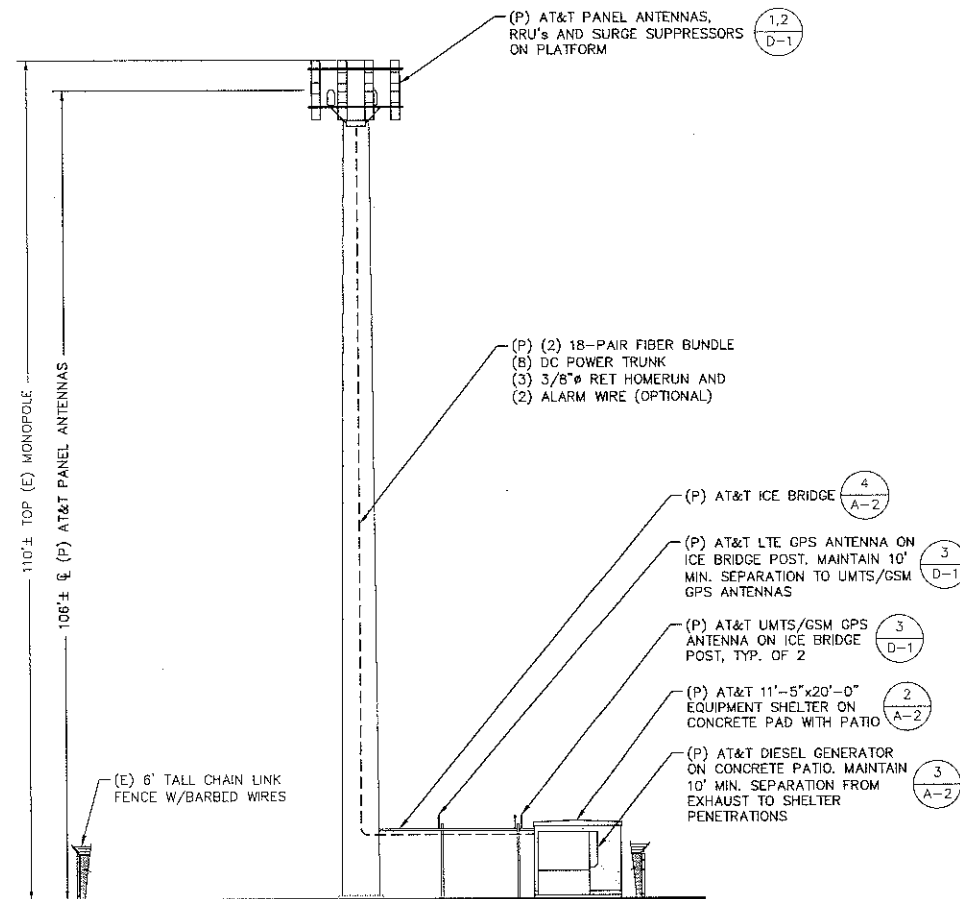


NOTE: CELLXION 11'-5"x20' SHOWN CONTRACTOR TO VERIFY AND PROVIDE CONNECTICUT-SPECIFIC SHELTER DRAWINGS AND APPROVALS TO BUILDING INSPECTOR AS REQUIRED. A MINIMUM OF 1 HR RATING WITH NON COMBUSTIBLE EXTERIOR WALLS REQUIRED.

**PREFABRICATED SHELTER**

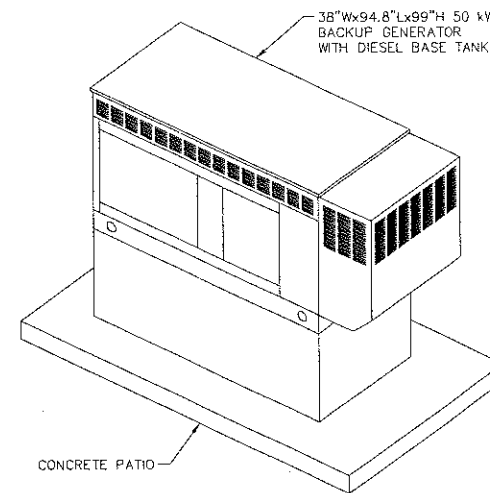
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2  
A-2



**SOUTH ELEVATION**

SCALE: 1"=12' (22x34)  
1"=24' (11x17)

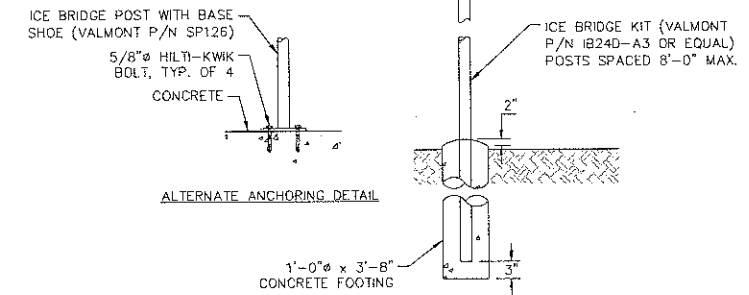


**BACKUP GENERATOR**

SCALE: NONE

3  
A-2

- ALL COMPONENTS SHALL BE INSTALLED PER MANUFACTURERS INSTRUCTIONS.
- CONTRACTOR SHALL DETERMINE REQUIRED QUANTITY OF ALL ICE BRIDGE COMPONENTS.
- SNAP-IN HANGERS, SPLICE KITS, HINGE KITS, EXTENSION KITS, STIFFENERS, AND OTHER MISCELLANEOUS HARDWARE SHALL BE PROVIDED BY THE CONTRACTOR AS REQUIRED.
- ICE BRIDGE SHALL BE ROUTED TO ACCOMMODATE THE MINIMUM BENDING RADIUS OF THE COAXIAL CABLE.
- ICE BRIDGE COMPONENTS SHOWN ARE SCHEMATIC. CONSULT MANUFACTURER FOR EXACT AND CURRENT SPECIFICATIONS.



**ICE BRIDGE**

SCALE: NONE

4  
A-2

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Salem, NH 03079

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WOODSTOCK, CT 06282

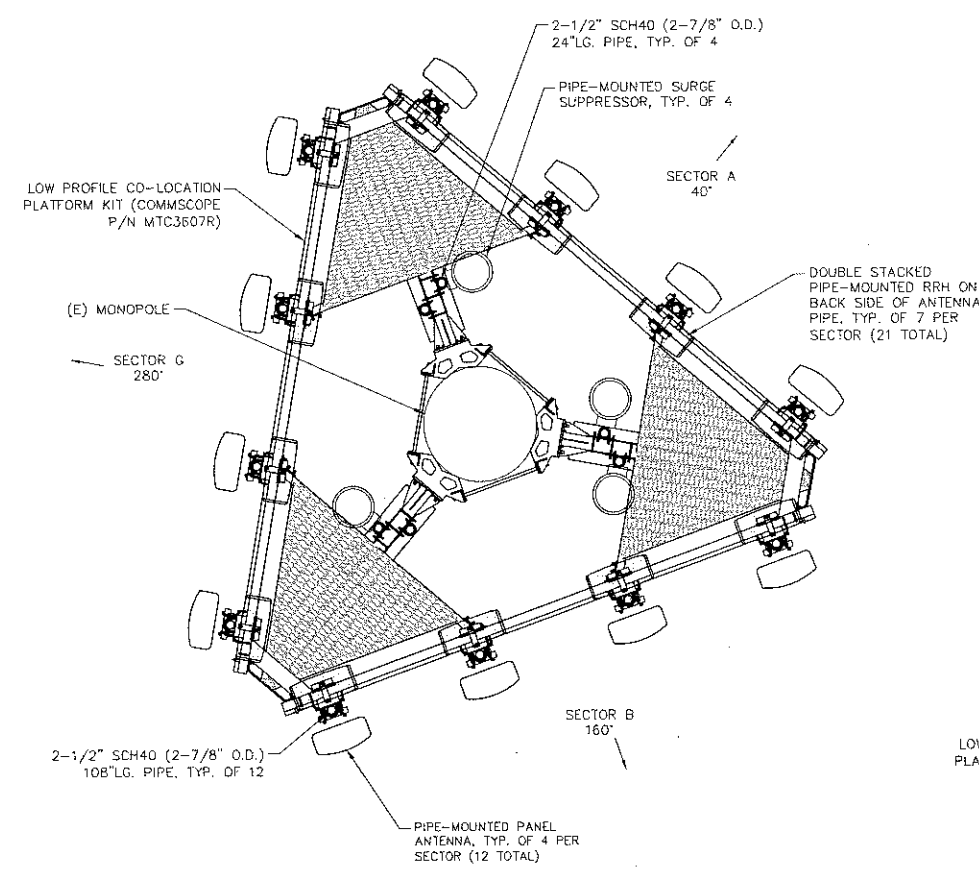
**APPLICANT:**  
NEW CIRCULAR  
WIRELESS PCS, LLC  
"AT&T"  
500 ENTERPRISE DRIVE  
ROCKY HILL, CT 06067

**at&t**

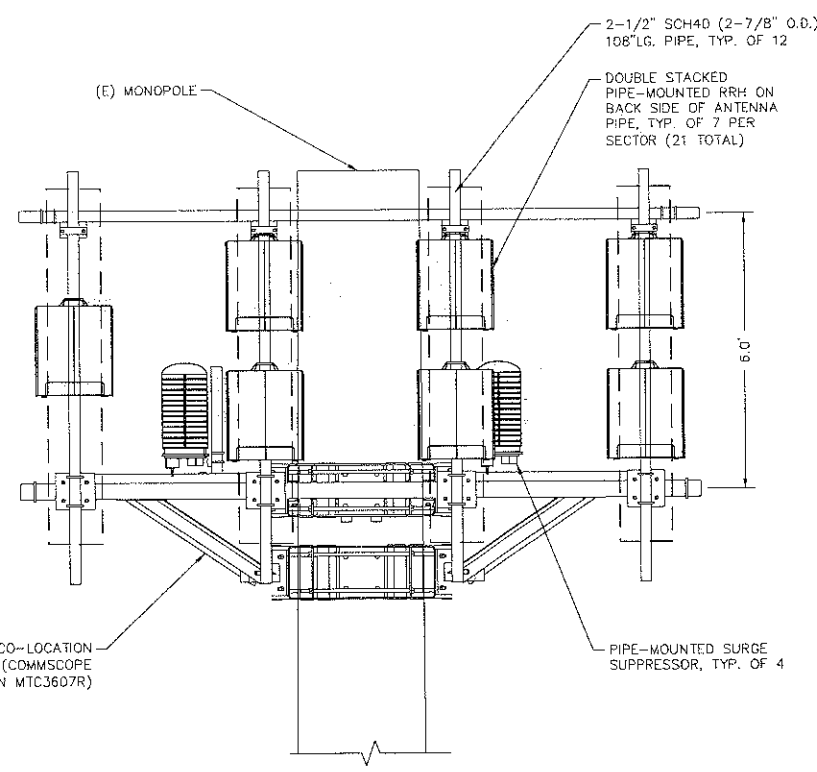
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**SCALE:** SEE PLAN  
**JOB NO.:** 13-063

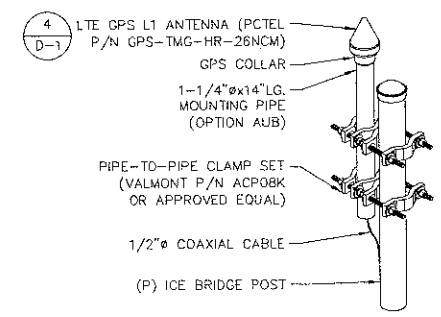
**SHEET TITLE:**  
**DETAILS**  
**D-1**



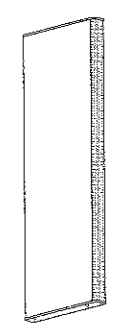
**RF EQUIPMENT PLAN**  
SCALE: 1"=3' (11x17)  
1"=6' (22x34)



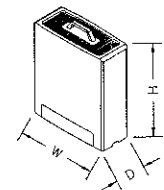
**RF EQUIPMENT ELEVATION**  
SCALE: 1"=3' (11x17)  
1"=6' (22x34)



**GPS ANTENNA**  
SCALE: NONE



**PANEL ANTENNA:**  
93"H x 15"W x 7"D  
4 PER SECTOR (12 TOTAL)



**RRU REMOTE RADIO HEAD:**  
19.69"H x 16.97"W x 7.17"D (RRU-11)  
20.4"H x 18.5"W x 7.5"D (RRU-12)



**SURGE SUPPRESSOR:**  
23.5"H x 9.7"ø



**GPS ANTENNA:**  
5"H x 3.2"D

**ANTENNA EQUIPMENT**  
SCALE: NONE

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Salem, NH 03079

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SITE NUMBER: CT2067  
ADDRESS: ROUTE 198  
WOODSTOCK, CT 06282

NEW CIRCULAR  
WIRELESS PCS, LLC  
"AT&T"  
600 ENTERPRISE DRIVE  
ROCKY HILL, CT 06067



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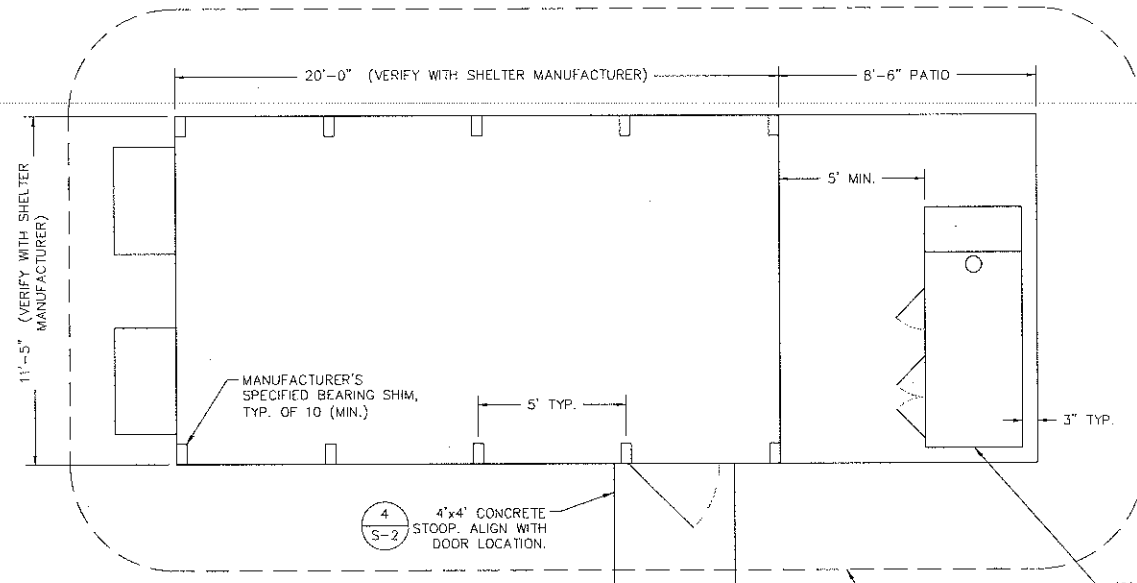
SHEET TITLE:

**STRUCTURAL  
DETAILS**

**S-1**

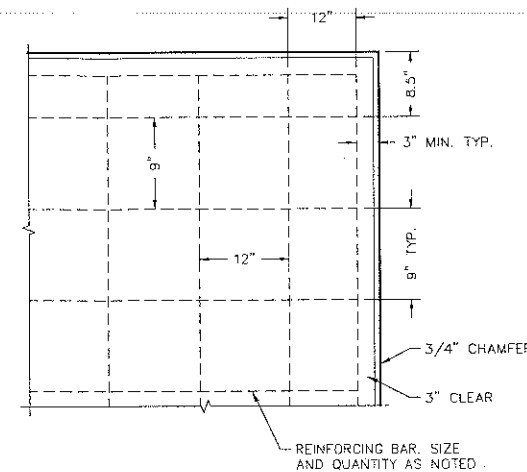
**CONCRETE PAD NOTES**

- FOUNDATIONS TO BE CONSTRUCTED ON UNDISTURBED SUBGRADE WITH MINIMUM BEARING CAPACITY OF 3000 PSF (1.5 TSF).
- BEARING SHIMS, TIE-DOWN PLATES AND ASSOCIATED INSTALLATION ANCHORS PROVIDED BY SHELTER MANUFACTURER. CONTRACTOR SHALL VERIFY ALL SHIM & TIE-DOWN QUANTITIES AND LOCATIONS WITH SHELTER MANUFACTURER PRIOR TO PERFORMING WORK.
- SLAB/TOP OF WALL TOLERANCE IS 1/4"±
- TOP 8" OF FOUNDATION SIDES MUST BE FORMED FLAT TO ACCEPT TIE-DOWN PLATES
- PER NEC REQUIREMENTS, THE REBAR IN FOUNDATION AND FOOTING SHALL BE BONDED TO GROUND RING WITH A #2 AWG SOLID CONDUCTOR USING LISTED AND APPROVED METHODS OR ISOLATED WITH VAPOR BARRIER.
- PROVIDE PVC SLEEVES FOR UTILITY CONDUIT PASSAGE THROUGH FOUNDATION OR CAST CONDUITS IN PLACE. REFER TO ELECTRICAL DRAWINGS FOR CONDUIT SIZES AND QUANTITIES.
- SUBGRADE AND FILL SHALL CONSIST OF CLEAN INORGANIC GRAVEL NO DELETERIOUS MATERIALS OR ORGANICS TO BE USED.
- USE GALVANIZED ANCHORS AS SPECIFIED BY SHELTER MANUFACTURER FOR EQUIPMENT ANCHORAGE.
- FOR SIZE AND LOCATION OF ANCHORS AND OTHER REQUIREMENT, SEE EQUIPMENT VENDOR DRAWINGS.



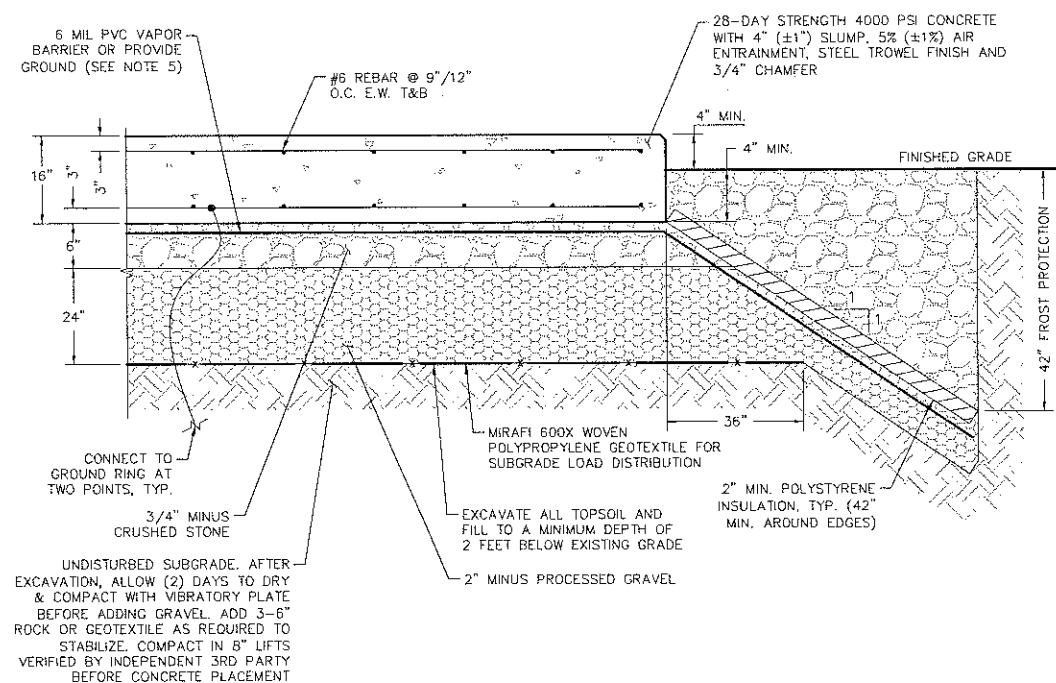
**CONCRETE PAD PLAN**  
SCALE: NONE

1  
S-1



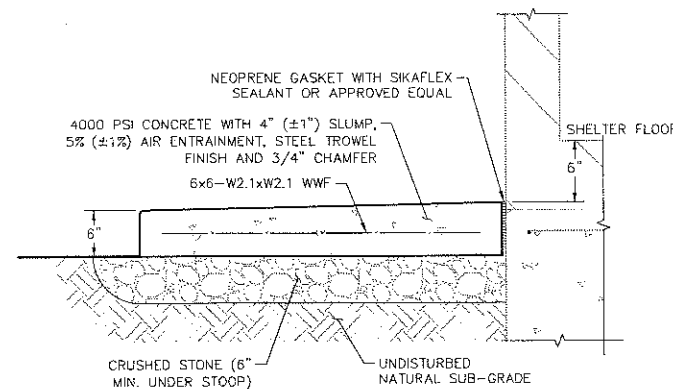
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CORNER DETAIL**  
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2  
S-1



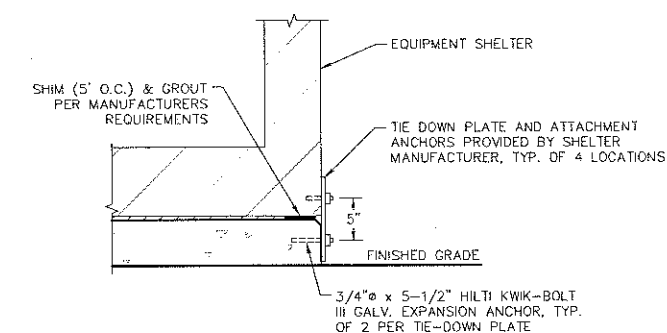
**CONCRETE PAD SECTION**  
SCALE: NONE

3  
S-1



**CONCRETE STOOP**  
SCALE: NONE

4  
S-1



**TIE-DOWN DETAIL**  
SCALE: NONE

5  
S-1

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**SITE NUMBER: CT2067**  
**ADDRESS: ROUTE 198**  
**WOODSTOCK, CT 06282**

**NEW CIRCULAR WIRELESS POS, LLC**  
"AT&T"  
600 ENTERPRISE DRIVE  
ROCKY HILL, CT 06067

APPLICANT: **at&t**

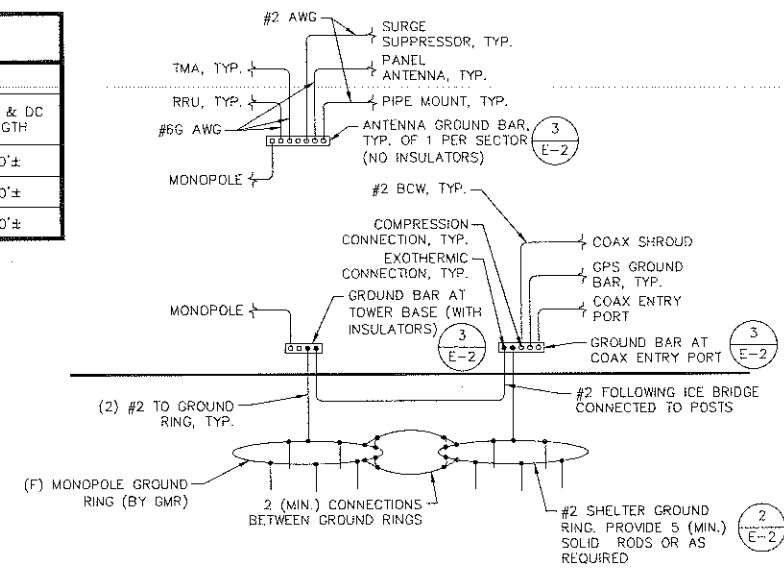
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JOB NO.: 13-063

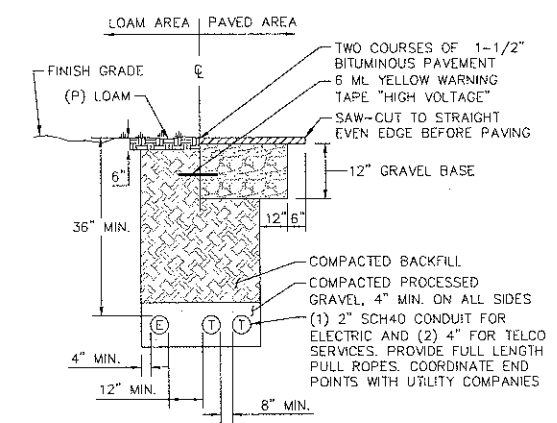
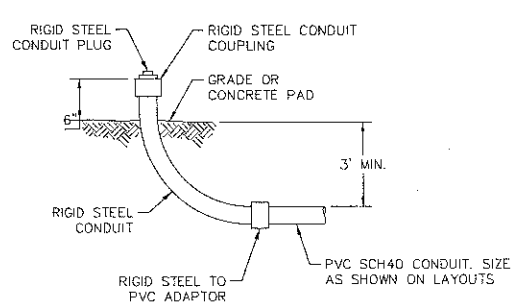
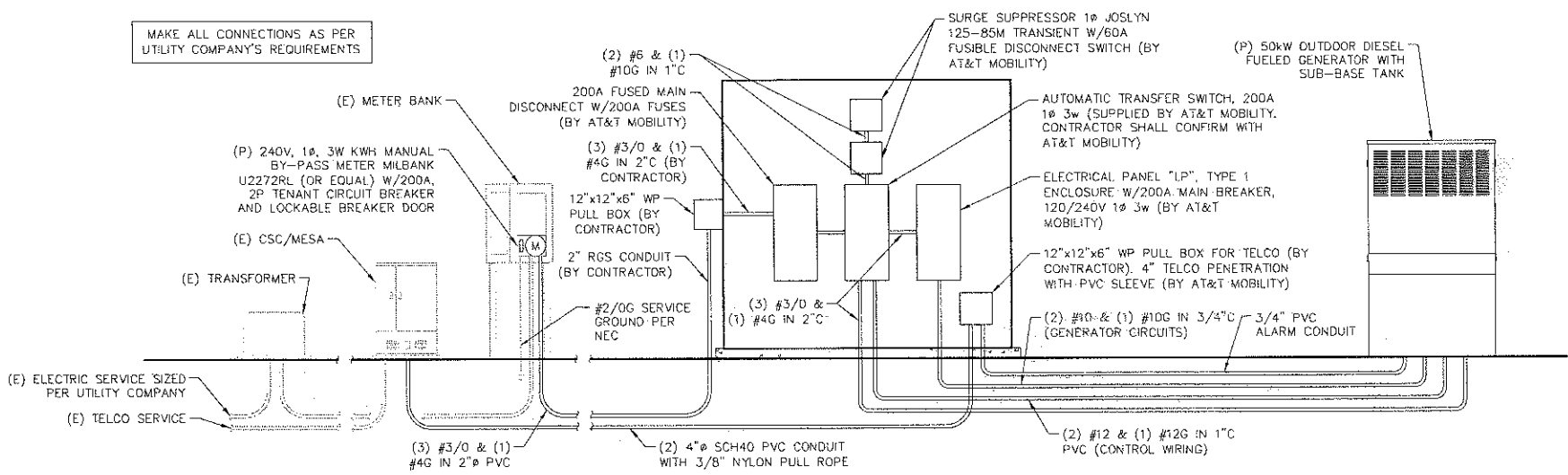
SHEET TITLE:  
**ELECTRICAL & GROUNDING DETAILS**  
**E-1**

BASED UPON RFDS DATED 1/3/2014

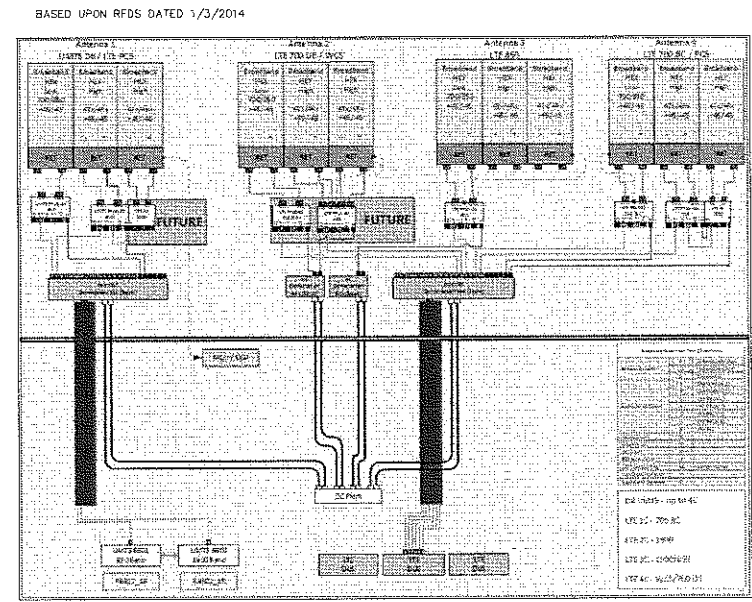
SECTOR	PANEL ANTENNAS					FROM REMOTE RADIO UNIT					REMOTE RADIO UNIT			FROM SURGE SUPPRESSOR			SURGE SUPPRESSOR			FROM SHELTER		
	AZIMUTH	QTY.	MAKE & MODEL	RAD. CENTER (AGL)	DOWNTILT	COAX. QTY.	COAX. SIZE	COAX. LENGTH	RET. QTY.	QTY.	MAKE & MODEL	DC QTY.	DC SIZE	FIBER QTY.	DC & FIBER LENGTH	QUANTITY	DC BUNDLE QTY.	FIBER TRUNK QTY.	FIBER & DC LENGTH			
ALPHA	40°	4	CCI HPA-65R-BUU-H8	106.0'	0°M 2°/2°E	20	1/2" Ø	20'±	4	7	ERICSSON RRUS-11 & 12 & E2	5	6mm <sup>2</sup> PAIR	5	15'±				150'±			
BETA	160°	4	CCI HPA-65R-BUU-H8	106.0'	0°M 2°/2°E	20	1/2" Ø	20'±	4	7	ERICSSON RRUS-11 & 12 & E2	5	6mm <sup>2</sup> PAIR	5	15'±	4	8	2	150'±			
GAMMA	280°	4	CCI HPA-65R-BUU-H8	106.0'	0°M 2°/2°E	20	1/2" Ø	20'±	4	7	ERICSSON RRUS-11 & 12 & E2	5	6mm <sup>2</sup> PAIR	5	15'±				150'±			



MAKE ALL CONNECTIONS AS PER UTILITY COMPANY'S REQUIREMENTS



NOTES:  
1. DETAIL AS SHOWN IS FOR SECONDARY ELECTRIC SERVICE. PRIMARY HIGH VOLTAGE SERVICE REQUIRES 4" CONCRETE ENCASEMENT.  
2. SCH80 PVC MAYBE REQUIRED IN AREAS UNDER THE INFLUENCE OF VEHICULAR TRAFFIC.



CLIENT:



27 Northwestern Drive  
Salem, NH 03079

NO.	DATE	REVISIONS	ISSUED FOR REVIEW
A	2/11/14		

SITE NAME: WOODSTOCK RT 198  
SITE NUMBER: CT2067  
ADDRESS: ROUTE 198  
WOODSTOCK, CT 06282

NEW CIRCULAR  
WIRELESS FCS, LLC  
"AT&T"  
600 ENTERPRISE DRIVE  
ROCKY HILL, CT 06867



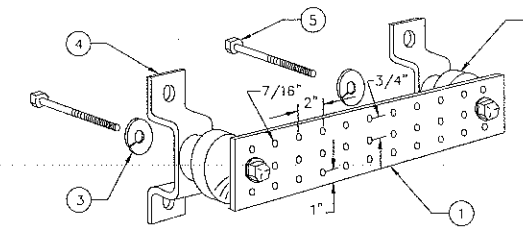
STAMP:

DATE: 1/8/14  
DRAWN: TBD  
CHECK: JAM/TEJ  
SCALE: SEE PLAN  
JOB NO.: 13-063

SHEET TITLE:

**GROUNDING  
DETAILS & NOTES**

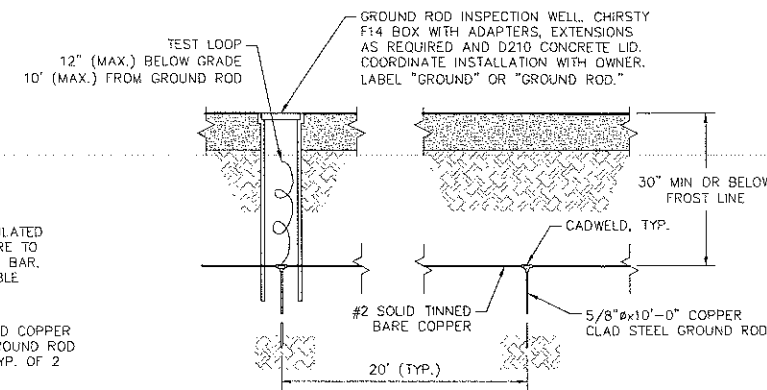
**E-2**



1. COPPER GROUND BAR, 1/4"x4"x24", BY NEWTON INSTRUMENT CO. OR EQUAL. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION. (ACTUAL GROUND BAR SIZE WILL VARY BASED ON NUMBER OF GROUND CONNECTIONS)
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4 OR EQUAL
3. 5/8" LOCKWASHERS OR EQUAL
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-6056 OR EQUAL
5. 5/8-11x1" HHCS BOLTS, NEWTON INSTRUMENT CO. CAT. NO. 3012-1 OR EQUAL
6. INSULATORS SHALL BE ELIMINATED WHEN BONDING DIRECTLY TO TOWER/MONOPINE STRUCTURE. CONNECTION TO TOWER/MONOPINE STRUCTURE SHALL BE PER MANUFACTURERS RECOMMENDATIONS.

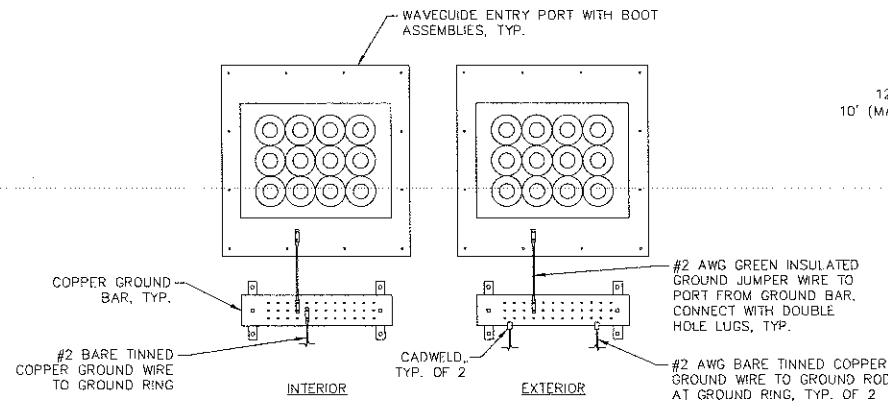
**GROUND BAR DETAIL**

SCALE: NONE



**GROUND ROD**

SCALE: NONE

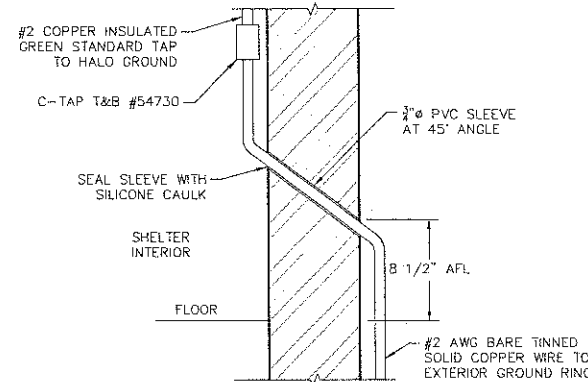


**CABLE PORT GROUNDING**

SCALE: NONE

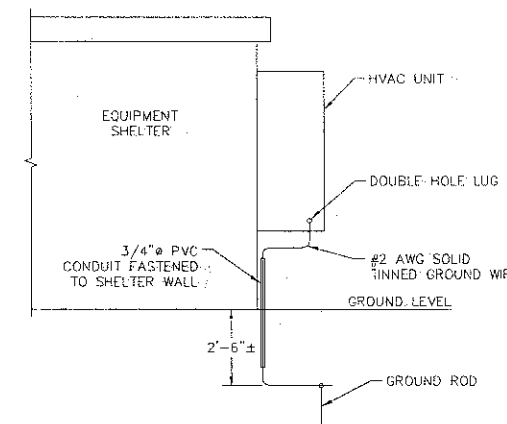


CONTRACTOR SHALL INSTALL AS SHOWN UNLESS GROUND BAR IS PREINSTALLED BY SHELTER MANUFACTURER



**WALL GROUND PENETRATION**

SCALE: NONE



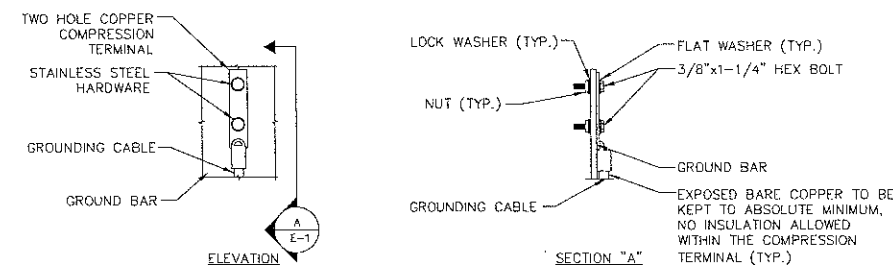
**HVAC UNIT GROUNDING**

SCALE: NONE



**GROUNDING NOTES**

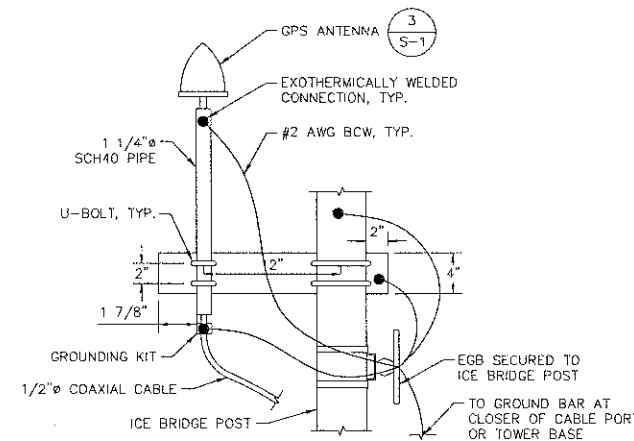
1. GROUNDING SHALL COMPLY WITH ARTICLE (250) OF THE NATIONAL ELECTRIC CODE, MOTOROLA R-56 STANDARDS AND GUIDELINES FOR COMMUNICATIONS SITES, AND APPLICABLE PORTIONS OF TIA-222REV.F.
2. ALL GROUNDING DEVICES SHALL BE U.L. APPROVED OR LISTED FOR THEIR INTENDED USE.
3. GROUND WIRES SHALL BE TINNED #2/0 AWG BARE SOLID COPPER WHERE BELOW GRADE AND WHERE CONNECTED TO THE MASTER GROUND BAR OR #2 AWG BARE SOLID COPPER WHERE OTHERWISE NOTED.
4. GROUNDING CONNECTIONS SHALL BE EXOTHERMIC (CADWELDED) UNLESS OTHERWISE NOTED. CLEAN SURFACES TO SHINY METAL WHERE GROUND WIRES ARE CADWELDED TO GALVANIZED SURFACES. SPRAY CADWELD WITH GALVANIZING PAINT.
5. ROUTE GROUNDING CONNECTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE. BEND GROUNDING LEADS WITH A MINIMUM 8" RADIUS.
6. PRIOR TO INSTALLING LUGS ON GROUND WIRES. APPLY THOMAS & BETTS KOPR-SHIELD OR EQUAL PRIOR TO BOLTING GROUND WIRE LUGS TO GROUND BARS.
7. WHERE BARE COPPER GROUND WIRES ARE ROUTED FROM ANY CONNECTION ABOVE GRADE TO GROUND RING, INSTALL WIRE IN 3/4" PVC SLEEVE, FROM 1"-0" ABOVE GRADE AND SEAL TOP WITH SILICONE MATERIAL OR BOOT.
8. PREPARE ALL BONDING SURFACES FOR GROUNDING CONNECTIONS BY REMOVING ALL PAINT AND CORROSION DOWN TO SHINY METAL FOLLOWING CONNECTION, APPLY APPROPRIATE ANTI-OXIDIZING PAINT.
9. GROUNDING WIRE CONNECTIONS SHALL BE THREE(3) CRIMP STYLE COMPRESSION FIT OR EQUAL. NO SLIP BOLTS ARE ACCEPTABLE.
10. GROUND RODS SHALL BE COPPER CLAD STEEL 5/8"x10" SPACED 20' O.C.
11. CONNECTORS SHALL BE CRIMPED WITH HYDRAULIC CRIMPING TOOLS.
12. SURFACE CONNECTIONS SHALL BE MADE TO BARE METAL. PAINTED SURFACES SHALL BE FILED OR GROUND DOWN TO ENSURE PROPER CONTACT. APPLY NON-OXIDIZING AGENT TO ALL CONNECTIONS.
13. COPPER BUSES SHALL BE CLEANED, POLISHED, AND A NON-OXIDIZING AGENT SHALL BE APPLIED. NO OILS OR FINGERPRINTS THAT WILL DISCOLOR THE COPPER WILL BE PERMITTED.
14. GROUNDING CONNECTORS SHALL BE RUN THROUGH PVC PIPE SLEEVE WHERE PENETRATING WALLS, FLOORS, OR CEILINGS. SEAL BOTH ENDS WITH SILICONE AND BOOTS AS REQUIRED.
15. HARDWARE (I.E. NUTS, BOLTS, WASHERS, ETC.) IS TO BE STAINLESS STEEL.
16. EXOTHERMIC WELDS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
17. THE ENTIRE SYSTEM SHALL BE SOLIDLY GROUNDING USING LOCKNUTS AND BONDING NUTS ON CONDUITS WITH PROPERLY BONDED GROUNDING CONDUCTORS. RECEPTACLES AND EQUIPMENT BRANCH CIRCUITS SHALL BE GROUNDING WITH FULL SIZE CONDUCTORS RUN IN THE CIRCUITS CONDUIT.
18. INSTALL GROUND BUSHINGS ON ALL METALLIC CONDUITS AND BOND TO THE EQUIPMENT GROUND BUS ON THE PANEL BOARD.
19. GROUND BARS (SECTOR, COLLECTOR, MASTER) SHALL BE 3/8" THICK TINNED COPPER LARGE ENOUGH TO ACCOMMODATE THE REQUIRED NUMBER OF GROUND CONNECTIONS AND SUPPLIED BY TESSCO OR EQUAL. THE HARDWARE SECURING THE GROUND BAR SHALL INSULATE IT FROM THE STRUCTURE TO WHICH IT IS FASTENED. APPLY THOMAS & BETTS KOPR-SHIELD OR APPROVED EQUAL PRIOR TO MAKING MECHANICAL CONNECTIONS. CONNECTIONS SHALL BE MADE WITH 3/8" MINIMUM STAINLESS STEEL BOLTS, NUTS, AND LOCK WASHERS. WHERE GALVANIZING HAS BEEN REMOVED, IT SHALL BE TOUCHED UP WITH A GALVANIZING COMPOUND.
20. ALL TERMINATIONS AT EQUIPMENT ENCLOSURES, PANELS, AND FRAMES OF EQUIPMENT AND WHERE EXPOSED FOR GROUNDING CONDUCTOR TERMINATION SHALL BE PERFORMED USING TWO HOLE BOLTED TONGUE COMPRESSION TYPE FITTINGS WITH STAINLESS STEEL HARDWARE.
21. ALL CLAMPS AND SUPPORTS USED TO HOLD THE THE GROUNDING SYSTEM CONDUCTORS AND PVC CONDUITS SHALL BE NON-CONDUCTIVE. DO NOT USE A METAL RING OR BRACKET SUPPORT THAT WOULD FORM A COMPLETE RING AROUND ANY GROUNDING CONDUCTOR.
22. THE CONTRACTOR SHALL ENGAGE AN INDEPENDENT ELECTRICAL TESTING FIRM TO TEST AND VERIFY THAT RESISTANCE TO EARTH DOES NOT EXCEED 5 OHMS. PROVIDE A COPY OF THE TESTING REPORT, INCLUDING THE METHOD AND INSTRUMENTS USED TO VERIFY RESISTANCE TO THE AT&T REPRESENTATIVE.
23. BOND CABINET THROUGH THE MAIN GROUND BAR.
24. THE CONTRACTOR SHALL SECURE A COPY OF ANY SOIL RESISTIVITY AND/OR SITE RESISTANCE TO EARTH TESTING PREVIOUSLY PERFORMED. IF NO RECORDS EXIST THAN A FOUR-POINT SOIL RESISTIVITY TEST SHALL BE PERFORMED TO ASSURE 5 OHMS OR LESS WITH SOIL RESISTIVITY UP TO 50,000 OHMS-CM.
25. WHEN AT&T ANTENNAS EXCEED IN ELEVATION EXISTING LIGHTING RODS, THAT LIGHTING RODS SHALL BE ADDED TO AT&T ANTENNAS AS DETAILED IN SNP-312-203.
26. ALL GROUNDING SYSTEM CONSTRUCTION, MATERIALS, AND COMPONENTS SHALL MEET AT&T GROUNDING STANDARDS.



1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB.

**GROUND BAR CONNECTION**

SCALE: NONE



**GPS ANTENNA GROUNDING**

SCALE: NONE

