STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

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

E-Mail: siting.council@ct.gov

Internet: ct.gov/csc

Daniel F. Caruso

Chairman

January 21, 2011

Eric Kallio
Site Acquisition Specialist
Network Building & Consulting, LLC
13 High Street
Leominster, MA 01453

RE: **TS-CLEARWIRE-086-101203** - Clear Wireless LLC request for an order to approve tower sharing at an existing telecommunications facility located at 57 Cook Drive, Montville, Connecticut.

Dear Mr. Kallio:

At a public meeting held January 20, 2011, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures with the following conditions:

- The tower be reinforced in accordance with recommendations made in the Structural Report prepared by Fullerton Engineering Consultants dated November 9, 2010 and stamped by Henry Bellagamba;
- A foundation analysis be performed prior to the installation of the proposed antennas; and
- Prior to antenna installation, a signed letter from a Professional Engineer duly licensed in the State of Connecticut shall be submitted to the Council to certify that the recommended reinforcements have been completed and the tower and foundation do not exceed 100 percent of the post-construction structural rating.
- Any deviation from the proposed installation as specified in the original tower share request and supporting materials with the Council shall render this decision invalid;
- Any material changes to the proposed installation as specified in the original tower share request and supporting materials filed with the Council shall require an explicit request for modification to the Council pursuant to Connecticut General Statutes § 16-50aa, including all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65;
- Not less than 45 days after completion of the proposed installation, the Council shall be notified in writing that the installation has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration.

This decision is under the exclusive jurisdiction of the Council. This facility has been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without

limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction. Please be advised that the validity of this action shall expire one year from the date of this letter.

The proposed shared use is to be implemented as specified in your letter dated November 12, 2010, including the placement of all necessary equipment and shelters within the tower compound.

Thank you for your attention and cooperation.

Very truly yours,

Daniel F. Caruso

Daniel F. Caruso
Chairman

DFC/CDM/laf

c: The Honorable Joseph W. Jaskiewicz, Mayor, Town of Montville
Marcia Vlaun, Town Planner, Town of Montville
Wireless Solutions

TS-CLEARWIRE-086-101203

NETWORK BUILDING & CONSULTING, LLC

Over 25 years experience

ORIGINAL

November 12, 2010

RECEIVED
DEC - 3 2010
CONNECTICUT SITING COUNCIL

Honorable Daniel F. Caruso, Chairman
And Members of the Connecticut Siting Council
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

RE: Notice of Tower Share-Existing Wireless Facility at 57 Cook Drive, Montville, CT 06382

Dear Chairman Caruso and Members of the Council:

Clear Wireless LLC ("Clearwire") intends to install telecommunications antennas and associated equipment at an existing multicarrier telecommunications tower at 57 Cook Drive, Montville, CT. Clearwire operates under licenses issued by the Federal Communications Commission ("FCC") to provide wireless broadband internet service in New London County, which includes the area to be served by Clearwire's proposed installation.

Please accept this letter as notification to the Council, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an tower share pursuant to R.C.S.A. Section 16-50j-72 (b)(2). In compliance with R.C.S.A Section 16-50j-73, a copy of this letter is being sent to the Office of the Mayor for Montville.

Existing Facility

The Montville facility is located on 57 Cook Drive on the east side of CT Route 2. Site coordinates (NAD83) are N 41 28' 28.999" and W 72 6' 13.000".

The facility is owned by Wireless Solutions

The existing facility consists of a 190-foot self-supporting guyed tower within a 80 ft x780 ft compound surround by a chain link fence.

Proposed Modifications

As shown on the attached drawings and as further described below, Clearwire proposes to install up to three (3) LLPX310R panel antennas, or their functional equivalents, at a centerline height of 120 feet above ground level. Clearwire also proposes to place one (1) 7' x 7' cabinet at the base of the tower within the existing compound. There will be no extension to the existing compound or the height of the existing tower as a result of this application.

Attached to this Notice are the following: a location map, site plans, a tower profile drawing, and a structural analysis report demonstrating that the tower will be structurally capable of supporting the proposed Clearwire telecommunications equipment at the proposed height of 120 feet above ground level.

Statutory Considerations

The changes to the Montville tower facility do not constitute a modification as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i (d) because the general physical characteristics of the facility will not be significantly changed or altered. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b) (2) because they will not result in any substantial adverse environmental effect

1. The height of the overall structure will be unaffected.

2. The proposed changes will not affect the property boundaries. All new construction will take place inside the existing fenced compound.

3. The proposed additions will not increase the noise level at the existing facility by six decibels or more.

4. Operation of Clearwire's antennas will not increase the total radio frequency electromagnetic radiation power density, measured at the tower base, to or above the standard adopted by the State of Connecticut and the FCC. The before and after "worst-case" exposure calculations in accordance with FCC OET Bulletin No. 65 (1997) for a point of interest at the base of the tower in relation to the operation of the proposed antenna array are as follows on page 3.

As the table demonstrates, the cumulative "worst-case" power density would be 100% less of the ANSI/IEEE standard, as calculated for mixed frequency sites. Therefore, power density levels resulting from Clearwire's use of the tower facility would be within applicable standards.

For the foregoing reasons, Clear Wireless LLC respectfully submits that proposed changes at the Montville facility constitute an exempt modification under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me with any questions concerning this notice. The filing fee for the application is attached in the amount of $625. Thank You for your consideration in this matter.

Respectfully yours,

Eric Kallio
Site Acquisition Specialist with Network Building & Consulting, LLC
As Agent for Clear Wireless LLC

Enclosures

Cc: Joseph W. Jaskiewicz, Mayor, Town of Montville

MPE Calculator

This calculator assumes that all carrier ERP's are the same. Enter the number of carriers in the field given and the sum of the " Sites Total Exposure %" will be reflected at the bottom.
Worker and Public percentages are both less than 100% the site is in compliance.
Contact National RF Regulatory with questions.

Site Address:
57 Cook Road
Montville, CT 06382

Latitude: 41.474722
Longitude: -72.103611

Site is compliant

Technology:	Wimax	UMTS	GSM	GSM	IDEN	CDMA	CDMA			CDMA	GSM/UMTS	CDMA	BACKHAUL		Unit
Site Name:	Clearwire	ATT UMTS	ATT GSM1	ATT GSM2	NEXTEL	VERIZON1	VERIZON2	IZON MESSAG	IZON MESSAG	SPRINT	T-MOBILE	METROPCS	Clearwire		
Site Number:	CT-NLDS002												BACKHAUL		
Frequency of Carrier:	2500	880	880	1900	851	880	1900	152	159	1900	1900	2100	2500		MHz
Total # of Carriers:	6.0	3.0	4.0	2	12.0	19.0	3.0	1	1.0	3.0	8.0	3	6.0		Numeric
EIRP per Carrier (in dbm) from Link Budget:	56.7	57.0	61.0	60.0	61.0	63.0	59.0	54.0	51.0	58.0	61.0	61.0	54.0		dBm
ERP per Carrier from Link Budget:	285.76	306.20	769.1304403	610.9420249	769.1304403	1218.99	485.29	153.46	76.91304403	385.4783577	769.1304403	769.13	153.46		Watts
Total ERP	1714.55	918.59	3076.52	1221.88	9229.57	23160.80	1455.87	153.46	76.91	1156.44	6153.04	2307.39	920.77		Watts
Total ERP:	32.3	29.6	34.9	30.9	39.7	43.6	31.6	21.9	18.9	30.6	37.9	33.6	29.6		dBW
RC Height Above Ground [Y]:	250	177	177	177	134	169	169	100	100	160	192	130	163		Feet
Distance Between Tower and Closest Point Worker Would Be* [X1]	4	4	4	4	4	4	4	4	4	4	4	4	4		Feet
Distance Between Tower and Closest Point on Fence Line* [X2]	12	12	12	12	12	12	12	12	12	12	12	12	12		Feet
Radial Distance to Worker Point of Interest [R1]	7621.0	5396.3	5396.3	5396.3	4066.1	5152.6	5152.6	3050.4	3050.4	4878.3	5853.4	3964.3	4969.7		centimeters
Radial Distance to Public Point of Interest [R2]	7628.8	5407.3	5407.3	5407.3	4100.7	5164.1	5164.1	3069.9	3069.9	4890.5	5863.6	3979.2	4981.7		centimeters
Angle from horizon to Worker Point of Interest	89.1	88.7	88.7	88.7	88.3	88.6	88.6	87.7	87.7	88.6	88.8	88.2	88.6		Degrees
Angle from horizon to Closest point on Fence Line	87.3	86.1	86.1	86.1	84.9	85.9	85.9	83.2	83.2	85.7	86.4	84.7	85.8		Degrees
Antenna centerline **mechanical/electrical** downtilt, if any	0	2	2	2	0	2	2	0	0	2	2	6	0		Degrees
Angle between antenna centerline and radial to Worker Point of Interest	89.1	86.7	86.7	86.7	88.3	86.6	86.6	87.7	87.7	86.6	86.8	82.2	88.6		Degrees
Angle between antenna centerline and radial to Closest Point on Fence Line	87.3	84.1	84.1	84.1	84.9	83.9	83.9	83.2	83.2	83.7	84.4	78.7	85.8		Degrees
Difference between maximum antenna gain and and antenna gain along radial to Worker point of interest	45	45	45	45	45	45	45	45	45	45	45	45	45		dB
Difference between maximum antenna gain and and antenna gain along radial to Closest Point on Fence Line	36	36	36	36	36	36	36	36	36	36	36	36	36		dB
ERP at antenna toward Worker Point of Interest	-12.7	-15.4	-10.1	-14.1	-5.3	-1.4	-13.4	-23.1	-26.1	-14.4	-7.1	-11.4	-15.4		dBW
ERP at antenna toward Closest Point on Fence Line	-3.7	-6.4	-1.1	-5.1	3.7	7.6	-4.4	-14.1	-17.1	-5.4	1.9	-2.4	-6.4		dBW
ERP at antenna toward Worker Point of Interest	54.219	29.048	97.288	38.639	291.864	732.409	46.039	4.853	2.432	36.570	194.576	72.966	29.117		milliwatts
ERP at antenna toward Closest Point on Fence Line	430.677	230.739	772.787	306.923	2318.362	5817.731	365.697	38.548	19.320	290.483	1545.575	579.590	231.287		milliwatts
Power Density @ Worker Point of Interest:	0.0000005	0.0000005	0.0000017	0.0000007	0.0000091	0.0000144	0.0000009	0.0000003	0.0000001	0.0000008	0.0000030	0.0000024	0.0000006		mW/cm²
Power Density @ Public Point of Interest:	0.0000005	0.0000005	0.0000017	0.0000007	0.0000091	0.0000143	0.0000009	0.0000003	0.0000001	0.0000008	0.0000030	0.0000024	0.0000006		mW/cm²
ANSI 1992 Standard MPE:															
Controlled Environment (Worker):	5.000	2.933	2.933	2.837	2.837	2.933	5.000	0.508	0.529	5.000	5.000	5.000	5.000		mW/cm²
Uncontrolled Environment (Public):	1.000	0.587	0.587	0.567	0.567	0.587	1.000	0.102	0.106	1.000	1.000	1.000	1.000		mW/cm²

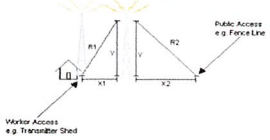
Percentage of Total MPE per Technology:	Wimax-Clearwire	UMTS-ATT UMTS	GSM-ATT GSM1	GSM-ATT GSM2	IDEN-NEXTEL	CDMA-VERIZON	CDMA-VERIZON	RIZON MESSAG	RIZON MESSAG	CDMA-SPRINT	M/UMTS-T-MOB	CDMA-METROPCS	CKHAUL-Clearw		
Controlled Environment (Worker):	0.000010	0.000018	0.000059	0.000024	0.000322	0.000491	0.000018	0.000054	0.000026	0.000016	0.000059	0.000048	0.000012		%
Uncontrolled Environment (Public):	0.000049	0.000088	0.000296	0.000122	0.001597	0.002444	0.000090	0.000264	0.000127	0.000080	0.000295	0.000241	0.000061		%

Backhaul Total (Worker 0.000061
Backhaul Total (Public) 0.000302

Percentage of Total MPE for Cell Site:

Controlled Environment (Worker):	0.001158
Uncontrolled Environment (Public):	0.005755
Clearwire Contribution(Worker)	0.000071
Clearwire Contribution(Public)	0.000350

* X1 refers to the horizontal distance between the base of the tower and the nearest point on the property that a worker would work for any length of time e.g. a transmitter shed.
X2 refers to the horizontal distance between the base of the tower and the nearest point on the property line that the public could walk up to or have access e.g. closest point on fence line.



The equations used in this evaluation are based on the equations found in "OET Bulletin 65, Edition 97-01"

MPE Calculator

This calculator assumes that all carrier ERP's are the same. Enter the number of carriers in the field given and the sum of the " Sites Total Exposure %" will be reflected at the bottom.
Worker and Public percentages are both less than 100% the site is in compliance.
Contact National RF Regulatory with questions.

Instructions: Enter information into shaded fields in GREEN only.

Site Name: Wimax	**Clearwire**	**Technology:**	**Wimax**	**Number: CLWR - Wimax**	**CT-NLDS002**
Other carriers	**ATT UMTS**		**UMTS**	**Other carriers**	
Other carriers	**ATT GSM1**		**GSM**	**Other carriers**	
Other carriers	**ATT GSM2**		**GSM**	**Other carriers**	
Other carriers	**NEXTEL**		**IDEN**	**Other carriers**	
Other carriers	**VERIZON1**		**CDMA**	**Other carriers**	
Other carriers	**VERIZON2**		**CDMA**	**Other carriers**	
Other carriers	**VERIZON MESSAGING1**			**Other carriers**	
Other carriers	**VERIZON MESSAGING2**			**Other carriers**	
Other carriers	**SPRINT**		**CDMA**	**Other carriers**	
Other carriers	**T-MOBILE**		**GSM/UMTS**	**Other carriers**	
Backhaul/Carrier	**METROPCS**		**CDMA**	**Other carriers**	
Backhaul/Carrier	**Clearwire**		**BACKHAUL**	**Other carriers**	**BACKHAUL**
Backhaul/Carrier				**Other carriers**	

Site Address:	**57 COOK ROAD**
City:	**UNCASVILLE**
State:	**CT**
Zip Code:	**6382**

Latitude (NAD83):	**41.474722**	*DD-MM-SS.SS*
Longitude: (NAD83):	**-72.103611**	*DDD-MM-SS.SS*

Technology (Drop-Down List):	Clearwire	ATT UMTS	ATT GSM1	ATT GSM2	NEXTEL	VERIZON1	VERIZON2	IZON MESSAG	IZON MESSAG	SPRINT	T-MOBILE	METROPCS	Clearwire		Unit
Frequency of Carrier (1900 MHz for CDMA, 851 MHZ for iDEN, 2500 for WiMax):	2500	880	880	1900	851	880	1900	152	159	1900	1900	2100	2500		MHz
Total # of carriers	6	3	4	2	12	19	3	1	1	3	8	3	6		Numeric
EIRP per Carrier (in dbm) from Link Budget:	56.7	57	61	60	61	63	59	54	51	58	61	61	54		dBm
RC Height Above Ground [Y]:	250	177	177	177	134	169	169	100	100	160	192	130	163		Feet
Distance Between Tower and Closest Point Worker Would Be* [X1]:	4	4	4	4	4	4	4	4	4	4	4	4	4		Feet
Distance Between Tower and Closest Point on Fence Line* [X2]:	12	12	12	12	12	12	12	12	12	12	12	12	12		Feet
Antenna centerline **mechanical/electrical** downtilt, if any	0	2	2	2	0	2	2	0	0	2	2	6	0		Degrees
Angle from horizon to Worker Point of Interest	89.1	88.7	88.7	88.7	88.3	88.6	88.6	87.7	87.7	88.6	88.8	88.2	88.6		Degrees
Angle from horizon to Closest point on Fence Line	87.3	86.1	86.1	86.1	84.9	85.9	85.9	83.2	83.2	85.7	86.4	84.7	85.8		Degrees
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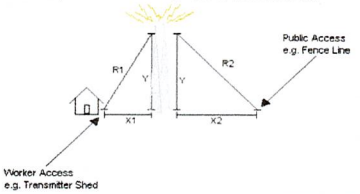
Difference between maximum antenna gain and and antenna gain along radial to Worker point of interest	45	45	45	45	45	45	45	45	45	45	45	45	45		dB
Difference between maximum antenna gain and and antenna gain along radial to Closest Point on Fence Line	36	36	36	36	36	36	36	36	36	36	36	36	36		dB

* X1 refers to the horizontal distance between the base of the tower and the nearest point on the property that a worker would work for any length of time e.g. a transmitter shed. X2 refers to the horizontal distance between the base of the tower and the nearest point on the property line that the public could walk up to or have access e.g. closest point on fence line.



The equations used in this evaluation are based on the equations found in "OET Bulletin 65, Edition 97-01"

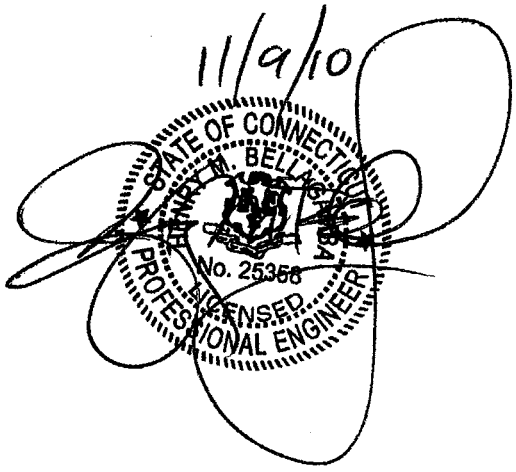
Structural Report

Prepared for: Clearwire

Existing 193 ft. Guyed Tower

Site Number: CT-NLDS002-I
Site Name: Norwich
57 Cook Dr.
Uncasville, CT 06382

November 9, 2010



Henry M. Bellagamba, P.E.
Connecticut PE License No. 25358
Expires 01/31/2011

I certify that this report was prepared by me, or under my direct supervision and control, and, to the best of my knowledge and belief, complies with the requirements of the applicable building code.

Fullerton
Engineering Consultants

9600 West Bryn Mawr Ave, Suite 200, Rosemont, IL 60018
Phone: (847) 292 0200 Fax: (847) 292 0205

Summary

The structural analysis was performed by Fullerton Engineering Consultants, as requested by the client, to determine the compliance of existing structure with the governing building code and the industry standard, TIA/EIA-222-F (Structural Standards for Steel Antenna Towers and Antenna Supporting Structures). The analysis considers the tower properties, existing antennas and proposed antennas and the required loading criteria.

In conclusion, the tower member stresses are in conformance for the loading considered provided the tower is reinforced as described below. Furthermore, no foundation information was available at the time of this analysis. A foundation analysis should be performed prior to construction.

Analysis Criteria

The structural analysis was performed with the following criteria:

Codes & Requirements	International Building Code 2003
	TIA/EIA-222-F (1996)
Basic Wind Speed	85mph (fastest mile) / 100mph (3-second gust), with 1/2" radial ice

Appurtenance Loading Schedule

Elev. (ft.– AGL)	Appurtenance	Transmission Lines
	Proposed	
120'	(3) Argus LLPX310R Panels (3) Samsung RRH TMAs Mounted on T-arms	(1) 2" Conduit
	Existing	
190'	(3) APX16DWV-16DWVS Panels (6) G20057A1 TMAs Mounted on Sector Mounts	(12) 1-5/8" Coaxial
178'	(1) 20' Omni (3) DUO1417-8686 Panels (6) Dual Band TMAs (3) 8" x 8" TMAs Mounted on Sector Mounts	(9) 1-1/4" Coaxial (1) 7/8" Coaxial
167'	(2) 8' Omnis (6) 7130.16.05 Panels (6) DB948F85E-M Panels Mounted on Sector Mounts	(12) 1-5/8" Coaxial (2) 7/8" Coaxial
150'	(5) 1' Yagis (6) DB980F65E-M Panels Mounted on Sector Mounts	(1) 7/8" Coaxial (6) 1-5/8" Coaxial
140'	(12) DB844H90 Panels Mounted on Sector Mounts	(12) 1-1/4" Coaxial
130'	(6) Kathrein 742-351 Panels	(12) 1-5/8" Coaxial

	Mounted on Sector Mounts	
122'	(1) 10' Dipole Mounted on Standoff Mount	(1) 1-1/4" Coaxial
110'	(2) 20' Omnis (1) 3' Dipole Mounted on Standoff Mounts	(3) 7/8" Coaxial

Results

The results of the overstressed structural analysis are summarized as follows:

Tower Mast — The tower members are **overstressed** for new loads, with a maximum stress ratio of 106.1% in the diagonal bolts @ 20.0'-5.0' AGL. The diagonals in that section are also overstressed.

Recommendations

The diagonals in the 20.0'-5.0' AGL section should be removed and replaced with Rohn 11 ga. 1-1/2" tube steel members.

Results

The results of the reinforced structural analysis are summarized as follows:

Tower Mast — The tower members are **adequate** for new loads, with a maximum stress ratio of 98.2% in the diagonals @ 100.0'-80.0' AGL.

Deflection/Tilt/Twist — Design wind speed, with 1/2" radial ice

Max. 3.908" / 0.0299 deg. / 0.2488 deg. @ Elev. 140' AGL

Service Wind Speed (50 mph)

Max. 2.294" / 0.0252 deg. / 0.1838 deg. @ Elev. 140' AGL

Foundation — No foundation information was available at the time of this analysis. A foundation analysis must be performed prior to construction.

Geotechnical — No soils information was available at the time of this analysis. A soils analysis must be performed prior to construction.

Analysis Data

The following is based on information provided by the client, field investigation, and other determination by Fullerton Engineering Consultants or third parties.

Site Location	57 Cook Dr. Uncasville, CT 06382
Configuration	193' guyed tower with a 41" face width and a guy radius of 138'-0".
References	Structural Analysis performed by All-Points Technology Corporation, P.C. job no. CT278140, dated 7/3/09.

Assumptions

This analysis is based on the theoretical capacity of the members and is not a condition assessment of the tower. The analysis is based solely on the information supplied, and the results, in turn, are only as accurate as data extracted from this information. Fullerton has been instructed by the client to assume the information supplied is accurate, and Fullerton has made no independent determination of its accuracy. The following assumptions were made for this structural analysis:

- The tower member sizes and geometry are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and stated in the materials section.
- The existing tower is assumed to have been properly maintained in accordance with the TIA/EIA Standard and/or its original manufacturer's recommendations. The existing tower is assumed to be in good condition with no structural defects and with no deterioration to its member capacities.
- The antenna configuration is as supplied and/or stated in the analysis section. It is assumed to be complete and accurate. All antennas, mounts, coaxial cables and waveguides are assumed to be properly installed and supported as per the manufacturer's requirements.
- The antennas, mounts and lines stated in the appurtenance loading schedule represent Fullerton's understanding of the overall antenna configuration. If the actual configuration is different than above, then this analysis is invalid. Please refer to the Appendix for the projected wind areas used in the calculations for antennas and mounts. If variations or discrepancies are identified, please inform Fullerton.
- Some assumptions are made regarding antenna and mount sizes and their projected areas based on a best interpretation of the data supplied and a best knowledge of antenna type and industry practice.
- The existing foundation is assumed to be in good condition with no structural defects and with no deterioration to its member capacities.
- The soil parameters are as per data supplied, or as assumed, and stated in the calculations.
- All welds and connections are assumed to develop at least the member capacity, unless determined otherwise and explicitly stated in this report.
- All prior structural modifications, if any, are assumed to be as per date supplied/ available, to be properly installed and to be fully effective.

Scope and Limitations

The engineering services rendered by Fullerton Engineering Consultants, Inc. (Fullerton) in connection with this structural analysis are limited to a computer analysis of the tower structure, size and capacity of its members. Fullerton does not analyze the fabrication, including welding and connection capacities, except as included in this Report.

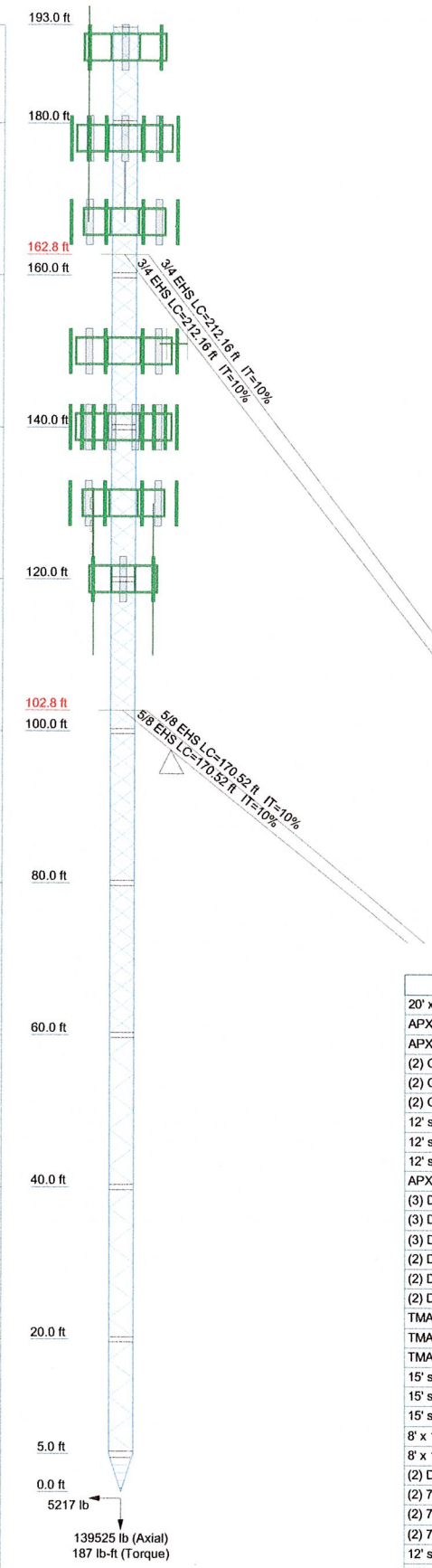
The information and conclusions contained in this report were determined by application of the current "state of the art" engineering and analysis procedures and formulae, and Fullerton assumes no obligation to revise any of the information or conclusions contained in this report in

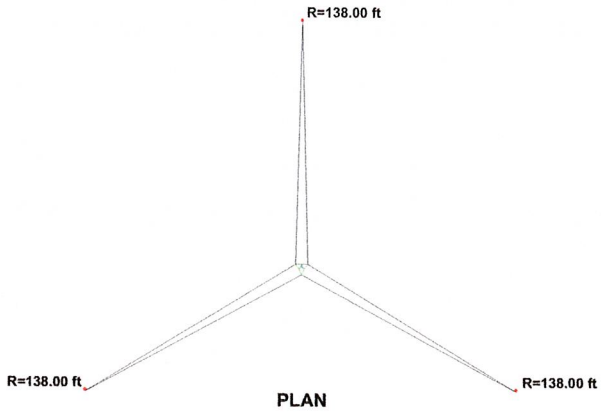
the event such engineering and analysis procedures and formulae are hereafter modified or revised.

Fullerton makes no warranties, expressed or implied in connection with this report and disclaims any liability arising from original design, material, fabrication and erection deficiencies or the "as-built" condition of this tower. Fullerton will not be responsible whatsoever for or on account of consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report.

Installation procedures and loading are not within the scope of this report and should be performed and evaluated by a competent tower erection contractor.

Section	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs		-ROHN 3 EH	3" EH w/ 1-1/4" solid round			-ROHN 3 EH			-ROHN 2.5 EH		
Leg Grade						A572-50					
Diagonals	N.A.		-ROHN TS1.5x16 ga		L1 3/4x1 3/4x3/16	-ROHN TS1.5x16 ga	L2x2x1/4	-ROHN TS1.5x11 ga		L2x2x1/4	
Diagonal Grade	N.A.		A53-B-42		A36	A53-B-42	A36	A53-B-42		A36	
Top Girts	A		-ROHN TS1.5x16 ga		-ROHN TS1.5x11 ga			-ROHN TS1.5x16 ga		-ROHN TS1.5x11 ga	
Bottom Girts	A		-ROHN TS1.5x16 ga		-ROHN TS1.5x11 ga			-ROHN TS1.5x16 ga		-ROHN TS1.5x11 ga	
Horizontals	A				N.A.						
Top Guy Pull-Offs				N.A.			2L2x2x1/4x3/8	N.A.		2L2x2x1/4x3/8	N.A.
Face Width (ft)						64 @ 2.4088					3.4167
# Panels @ (ft)	5 @ 1	6 @ 2.3784									5 @ 2.45408
Weight (lb)	11132.4	334.6	547.1	975.7	893.7	1076.1	831.5	2052.9	833.7	851.6	1697.2	738.2





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
20' x 2.5" omni whip	193 - 178	(2) DB980F65E-M	150
APX16DWV-16DWVS	190	14' sector mount	150
APX16DWV-16DWVS	190	14' sector mount	150
(2) G20057A1 TMA	190	14' sector mount	150
(2) G20057A1 TMA	190	(2) DB980F65E-M	150
(2) G20057A1 TMA	190	(4) DB844H90	140
12' sector mount	190	(4) DB844H90	140
12' sector mount	190	(4) DB844H90	140
12' sector mount	190	14' sector mount	140
APX16DWV-16DWVS	190	14' sector mount	140
(3) DUO1417-8686	178	14' sector mount	140
(3) DUO1417-8686	178	10' 8-bay dipole	132 - 122
(3) DUO1417-8686	178	(2) 742-351 panel	130
(2) Dual Band TMA	178	(2) 742-351 panel	130
(2) Dual Band TMA	178	12' sector mount	130
(2) Dual Band TMA	178	12' sector mount	130
TMA 8" x 8"	178	12' sector mount	130
TMA 8" x 8"	178	(2) 742-351 panel	130
TMA 8" x 8"	178	20' x 2.5" omni whip	130 - 110
15' sector mount	178	20' x 2.5" omni whip	130 - 110
15' sector mount	178	3' sidearm	122
15' sector mount	178	LLPX310R	120
8' x 1" omni whip	176 - 168	LLPX310R	120
8' x 1" omni whip	176 - 168	LLPX310R	120
(2) DB948F85E-M	167	RRH	120
(2) 7130.16.05	167	RRH	120
(2) 7130.16.05	167	RRH	120
(2) 7130.16.05	167	2' Standoff T-Arm (5' face width)	120
12' sector mount	167	2' Standoff T-Arm (5' face width)	120
12' sector mount	167	2' Standoff T-Arm (5' face width)	120
12' sector mount	167	3' sidearm	110
(2) DB948F85E-M	167	3' dipole	110
(2) DB948F85E-M	167	4'x2 3/8" Pipe Mount	110
(5) 1' yagi	156 - 146	3' sidearm	110

lb

Fullerton Engineering Consultants, Inc.
9600 W. Bryn Mawr Ave. Ste. 200
Rosemont, IL 60018
Phone: (847) 292-0200
FAX: (847) 292-0206

SYMBOL LIST er (Overstressed)

Project: *CT-NLDS002-I*			
Client: Clearwire	Drawn by: PK	App'd:	
Code: TIA/EIA-222-F	Date: 11/09/10	Scale: NTS	
Path: P:\Clearwire-License Save\CT-NLDS002-I (NORW\CH)\Structural\Calcs\CT-NLDS002-I overstressed.er		Dwg No. E-1	

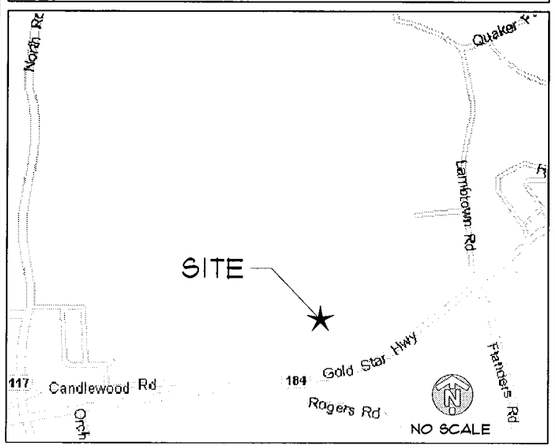
SHEET INDEX

DRIVING DIRECTIONS

DIRECTIONS FROM BRADLEY INTERNATIONAL AIRPORT, CT:

DEPART ON TERMINAL RD (WEST). ROAD NAME CHANGES TO BRADLEY FIELD CONNECTOR. ROAD NAME CHANGES TO SR-20 (BRADLEY FIELD CONNECTOR). TAKE RAMP (RIGHT) ONTO I-91. TAKE RAMP ONTO I-84 (US-44). AT EXIT 55, TAKE RAMP (RIGHT) ONTO SR-2 (VETERANS OF FOREIGN WARS MEMORIAL HWY). AT EXIT 19, KEEP RIGHT ONTO 19. ROAD NAME CHANGES TO SR-11. AT EXIT 4, TURN OFF ONTO RAMP. TURN LEFT (NORTH-EAST) ONTO SR-82 (E HADDAM RD). TURN RIGHT (SOUTH-EAST) ONTO SR-85 (NEW LONDON RD). TAKE RAMP (LEFT) ONTO I-95. AT EXIT 86, TAKE RAMP (LEFT) ONTO SR-184 (GOLD STAR HWY). TURN LEFT (NORTH) ONTO LOCAL ROAD(S). ARRIVE AT SITE.

VICINITY MAP



clearwire®
wireless broadband

SITE NAME

GROTON

SITE NUMBER

CT-NLDS004-C

SITE ADDRESS

1662 GOLD STAR HWY
GROTON, CT 06340

PROJECT TYPE

NEW WIMAX ANTENNAS AND EQUIPMENT CABINET

EQUIPMENT TYPE

GAP

PROJECT TEAM

ERICSSON
ERICSSON, INC.
RESEARCH TRIANGLE PARK,
NORTH CAROLINA
PROJECT MANAGER

NETWORK BUILDING & CONSULTING, LLC
7380 COCA COLA DR.
SUITE 106
HANOVER, MD 21076
TEL: 410-712-7092
FAX: 410-712-4056
REAL ESTATE

Fullerton Engineering Consultants
9600 W. BRYN MAWR AVE.
SUITE 200
ROSEMONT, IL 60018
TEL: (847) 292-0200
FAX: (847) 292-0205
www.FullertonEngineering.com
ENGINEER

- HANDICAP ACCESS REQUIREMENTS ARE NOT REQUIRED
- FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
- FACILITY HAS NO PLUMBING OR REFRIGERANTS
- THIS FACILITY SHALL MEET OR EXCEED ALL FAA AND FCC REGULATORY REQUIREMENTS
- ALL WORK MUST CONFORM TO CLEARWIRE "CLEARWIRE CONSTRUCTION INSTALLATION GUIDE - WiMAX"

SCOPE OF WORK:

- NEW CLEARWIRE 4G ANTENNAS INSTALLED ON EXISTING MONOPOLE
- NEW CLEARWIRE CABINETS ON NEW CONCRETE PAD

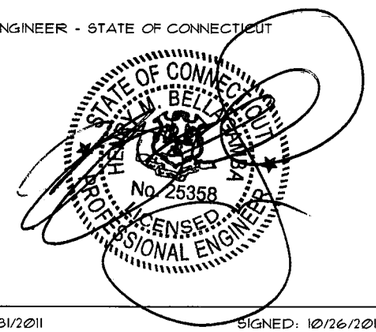
PROJECT SUMMARY

SITE NAME:	GROTON
SITE NO:	CT-NLDS004-C
SUBSTANTIAL SERVICE PROGRAM EQUIPMENT CONFIGURATION:	GAP
SITE ADDRESS:	1662 GOLD STAR HWY GROTON, CT 06340
COUNTY:	NEW LONDON
SITE COORDINATES (FROM CLEARVISION):	
LATITUDE:	N. 41.3868° (NAD 83)
LONGITUDE:	W. 72.0135° (NAD 83)
JURISDICTION:	CITY OF GROTON
APPLICANT:	CLEARWIRE 4400 CARILLON POINT KIRKLAND, WA 98033 (866) 557-6118
TOWER OWNER/LANDLORD:	SBA COMMUNICATIONS, INC. 5900 BROKEN SOUND PARKWAY BOCA RATON, FL 33487 (800) 487-7483
TOWER OWNER SITE NO:	CT13073-A
POWER COMPANY:	NORTHEAST UTILITIES (800) 286-5000
TELCO COMPANY:	SBC (210) 821-4105
BUILDING CODE:	INTERNATIONAL BUILDING CODE 2003 EDITION
ELECTRICAL CODE:	NATIONAL ELECTRIC CODE 2005 EDITION

ENGINEER'S LICENSE

I CERTIFY THAT THESE DRAWING 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 THE INTERNATIONAL BUILDING CODE 2003 EDITION

LICENSED ENGINEER - STATE OF CONNECTICUT



EXPIRES: 1/31/2011 SIGNED: 10/26/2010

APPROVALS

	SIGNATURE	DATE
CONSTRUCTION MGR.		
SITE ACQUISITION		
CLW. RF OPS		
CLW. RF ENG.		
ERICSSON PM.		
LANDLORD		

DRAWING SCALED TO 11"x17"

APPLICANT:
clearwire®
wireless broadband
4400 CARILLON POINT
KIRKLAND, WA 98033
TEL: (866) 557-6118

PREPARED FOR:
ERICSSON
ERICSSON, INC.
RESEARCH TRIANGLE PARK,
NORTH CAROLINA

PREPARED BY:
Fullerton Engineering Consultants
9600 W. BRYN MAWR. AVE.
SUITE 200
ROSEMONT, IL 60018
TEL: (847) 292-0200
FAX: (847) 292-0206
www.FullertonEngineering.com

CHECKED BY:	DS	
APPROVED BY:	MB	
#	DATE	DESCRIPTION	INT.
	10/14/10	90% REVIEW	DM
	10/26/10	FINAL	CJ

SITE NAME
GROTON

SITE NO.
CT-NLDS004-C

SITE ADDRESS
1662 GOLD STAR HWY
GROTON, CT 06340

SHEET NAME
TITLE SHEET

SHEET NUMBER
T-1

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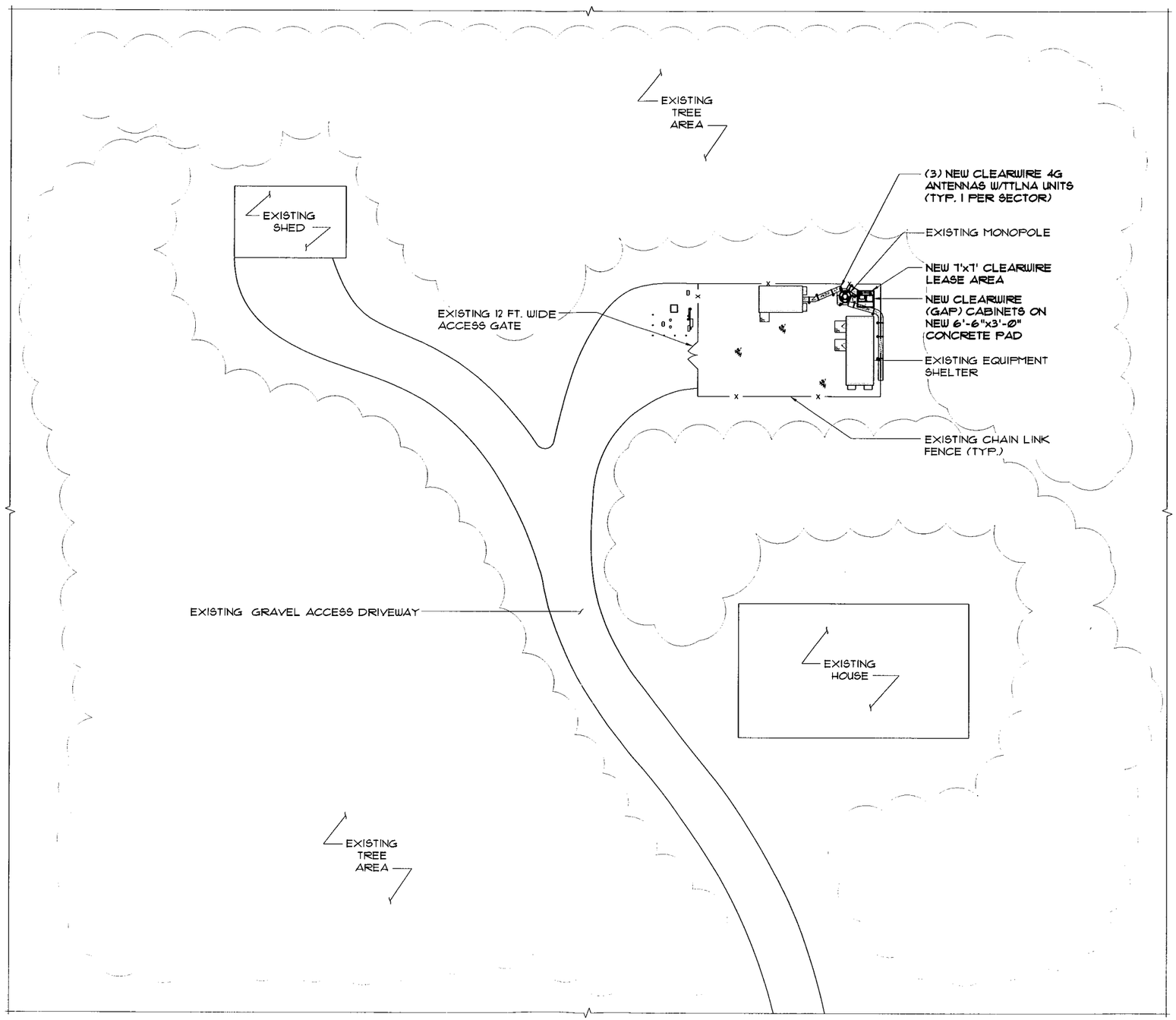
ABBREVIATIONS

A/C	AIR CONDITIONER
AFF	ABOVE FINISHED FLOOR
AGL	ABOVE GRADE LEVEL
AMSL	ABOVE MEAN SEA LEVEL
APPROX	APPROXIMATE
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
BTS	BASE TRANSMISSION STATION
CAB	CABINET
COL	COLUMN
CONC	CONCRETE
CND	CONDUIT
DAP	DIVERSE ACCESS POINT
DWG	DRAWING
FT	FOOT (FEET)
EGB	EQUIPMENT GROUND BAR
ELEC	ELECTRICAL
ELEV	ELEVATION
EMT	ELECTRICAL METALLIC TUBING
EQUIP	EQUIPMENT
(E)	EXISTING
FND	FOUNDATION
GALV	GALVANIZED
GAP	GROUND ACCESS POINT
GND	GROUND
GPS	GLOBAL POSITIONING SYSTEM
IN	INCH(ES)
LB (#)	POUND(S)
MAX	MAXIMUM
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
(N)	NEW
NEC	NATIONAL ELECTRICAL CODE
NOM	NOMINAL
NTS	NOT TO SCALE
OE/OT	OVERHEAD ELECTRIC/TELCO
POS	POSITION
RGS	RIGID GALVANIZED STEEL
SF	SQUARE FOOT
STL	STEEL
T & B	TOP & BOTTOM
T/	TOP
TBD	TO BE DETERMINED
TYP	TYPICAL
UE/UT	UNDERGROUND ELECTRIC/TELCO
UNO	UNLESS NOTED OTHERWISE
VIF	VERIFY IN FIELD
W/	WITH
XFMR	TRANSFORMER

SYMBOLS

- ℄ CENTERLINE
- ℗ PLATE
- REVISION
- WORK POINT
- UTILITY POLE
- BRICK
- COMPRESSED STONE
- CONCRETE
- EARTH
- GRAVEL
- MASONRY
- STEEL
- CENTERLINE
- PROPERTY LINE
- LEASE LINE
- EASEMENT LINE
- CHAIN LINK FENCE
- WOOD FENCE
- UE — BELOW GRADE ELECTRIC
- UT — BELOW GRADE TELEPHONE
- OE/OT — OVERHEAD ELECTRIC/TELEPHONE
- SECTION REFERENCE (A / S-1, A)



SITE PLAN

SCALE: 1" = 60'-0"

1

APPLICANT:
clearwire
wireless broadband
4400 CARILLON POINT
KIRKLAND, WA 98033
TEL: (866) 557-6118

PREPARED FOR:
ERICSSON
ERICSSON, INC.
RESEARCH TRIANGLE PARK,
NORTH CAROLINA

PREPARED BY:
FEC
Fullerton Engineering Consultants
9600 W. BRYN MAWR. AVE.
SUITE 200
ROSEMONT, IL 60018
TEL: (847) 292-0200
FAX: (847) 292-0206
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CHECKED BY:	DS
APPROVED BY:	MB

#	DATE	DESCRIPTION	INT.
	10/14/10	90% REVIEW	DM
	10/26/10	FINAL	CJ

STATE OF CONNECTICUT
HENRY M. BELTRAMINI
No. 25358
LICENSED PROFESSIONAL ENGINEER

SITE NAME
GROTON

SITE NO.
CT-NLDS004-C

SITE ADDRESS
1662 GOLD STAR HWY
GROTON, CT 06340

SHEET NAME
SITE PLAN

SHEET NUMBER
C-1

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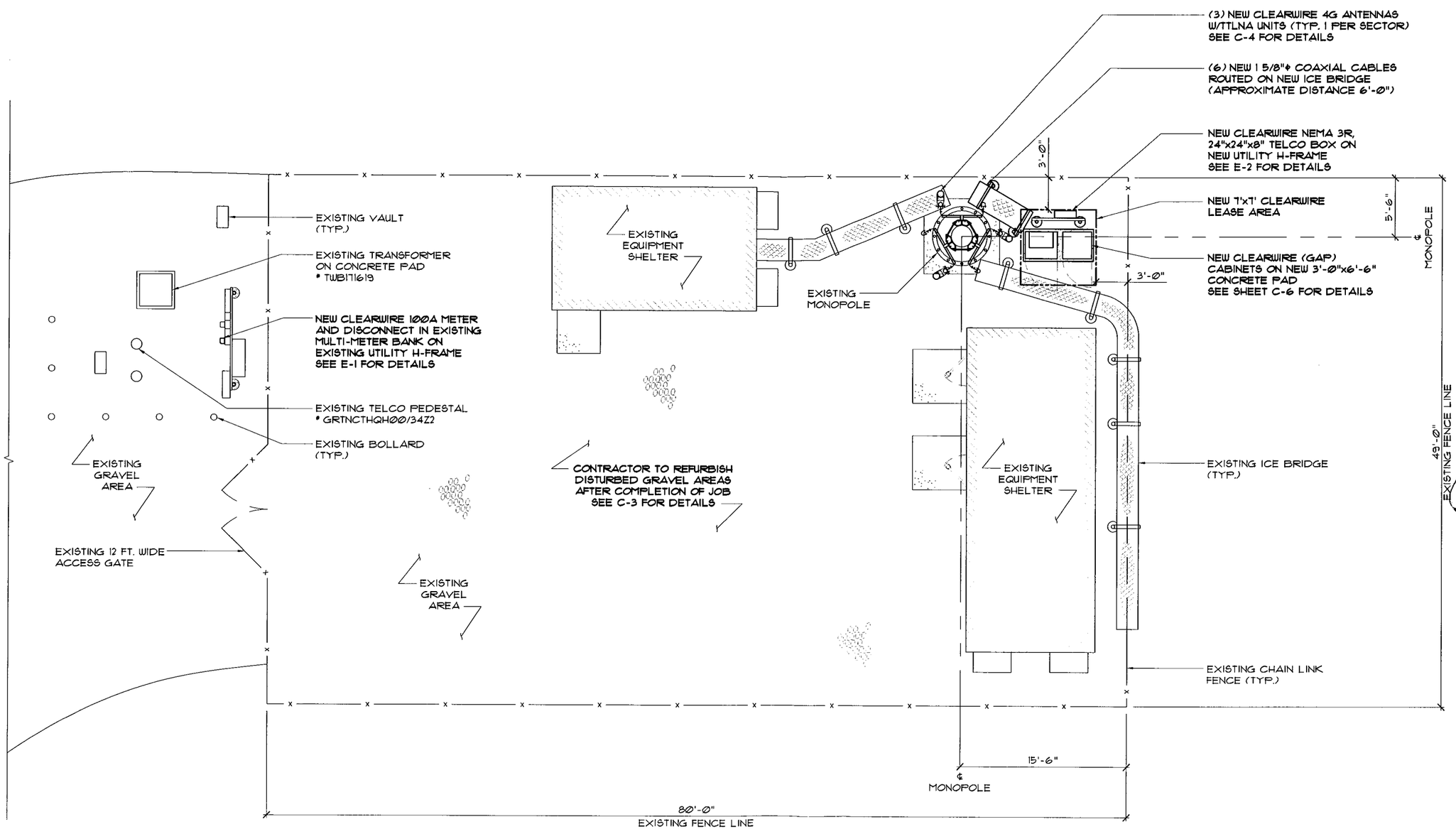

ENLARGED SITE PLAN

SCALE: 1" = 10'-0"

1

APPLICANT:
clearwire
wireless broadband
4400 CARILLON POINT
KIRKLAND, WA 98033
TEL: (866) 557-6118

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ERICSSON, INC.
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Fullerton Engineering Consultants
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	10/14/10	90% REVIEW	DM
	10/26/10	FINAL	CJ

STATE OF CONNECTICUT
HOWARD WESLEY BELL JAMES
No. 25358
LICENSED PROFESSIONAL ENGINEER

SITE NAME
GROTON

SITE NO.
CT-NLDS004-C

SITE ADDRESS
1662 GOLD STAR HWY
GROTON, CT 06340

SHEET NAME
ENLARGED SITE PLAN

SHEET NUMBER
C-2

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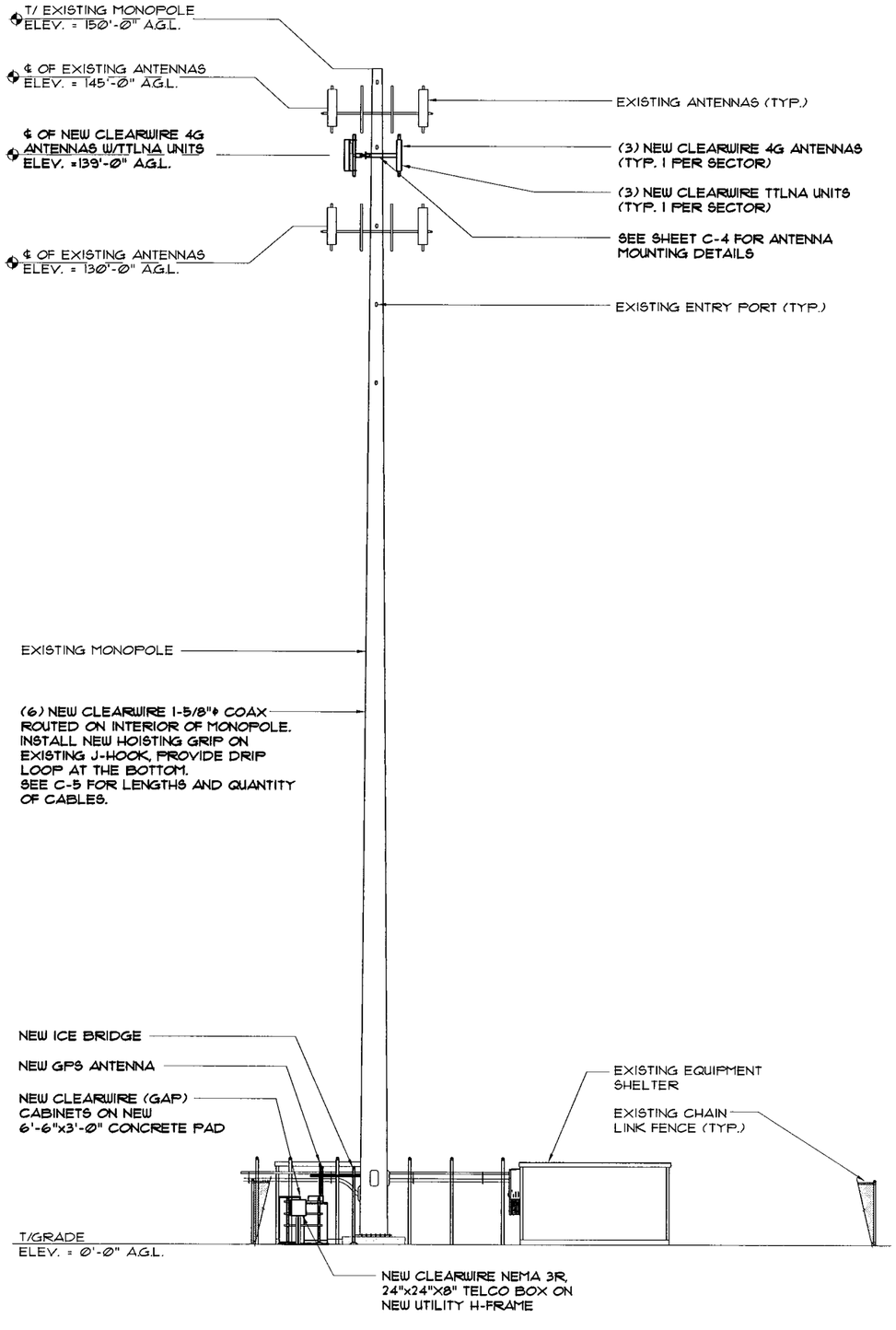


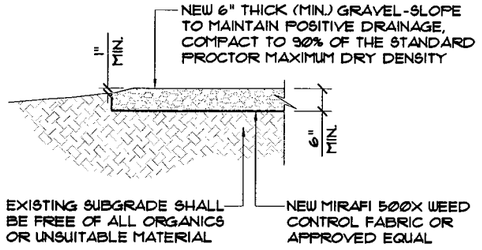
ELEVATION — SCALE: N.T.S. | 1

ANTENNA NOTES:

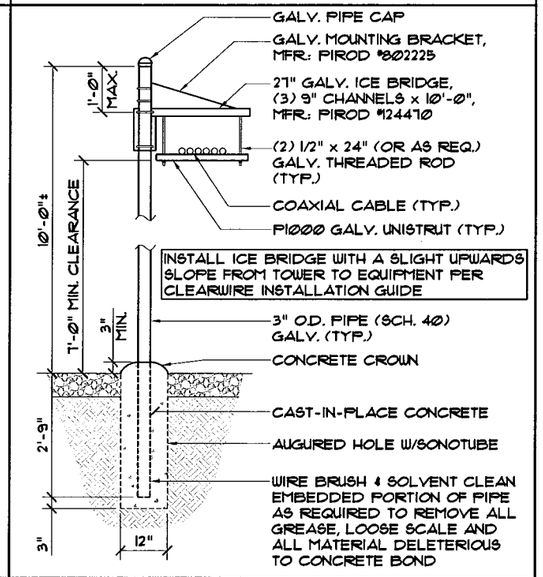
1. THE SIZE, HEIGHT, AND DIRECTION OF THE ANTENNA SHALL BE ADJUSTED TO MEET SYSTEM REQUIREMENTS.
2. CONTRACTOR SHALL VERIFY HEIGHT OF ANTENNA WITH ERICSSON REPRESENTATIVE.
3. ALL ANTENNA AZIMUTH TO BE FROM TRUE NORTH.

STRUCTURAL NOTES:

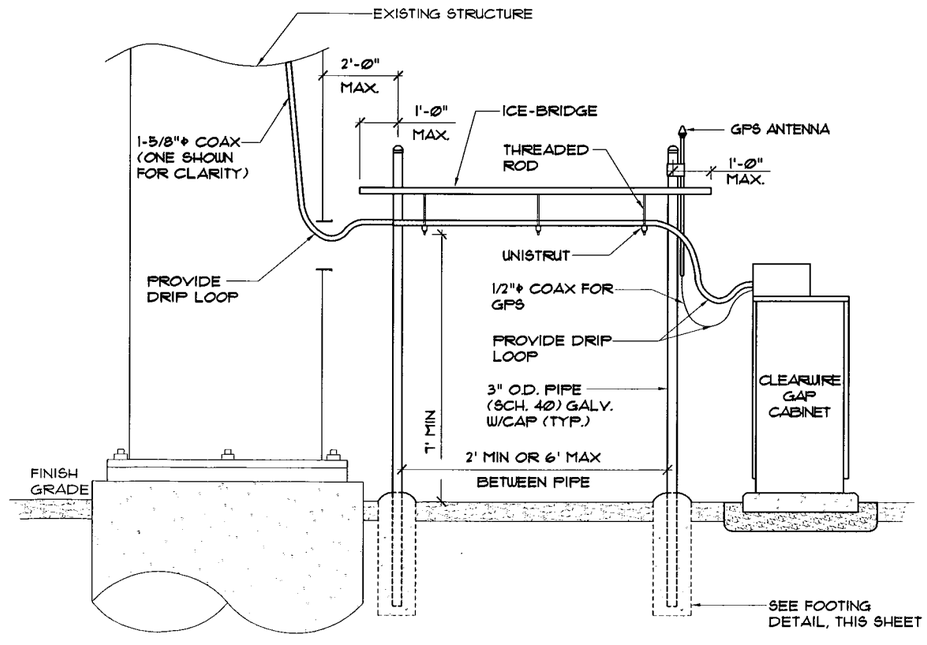
1. STRUCTURAL CALCULATION PREPARED BY OTHERS. CONTRACTOR TO COORDINATE WITH ERICSSON REPRESENTATIVE TO OBTAIN A COPY.
2. CONTRACTOR TO REFER TO TOWER STRUCTURAL CALCULATIONS FOR ADDITIONAL LOADS. NO ERECTION OR MODIFICATION OF TOWER SHALL BE MADE WITHOUT APPROVAL OF STRUCTURAL ENGINEER.



YARD DETAIL — SCALE: N.T.S. | 2



FOOTING DETAIL — SCALE: N.T.S. | 3



TYPICAL ICE BRIDGE DETAIL — SCALE: N.T.S. | 4

APPLICANT:
clearwire
wireless broadband
4400 CARILLON POINT
KIRKLAND, WA 98033
TEL: (866) 551-6118

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ERICSSON, INC.
RESEARCH TRIANGLE PARK,
NORTH CAROLINA

PREPARED BY:
FEC
Fullerton Engineering Consultants
9600 W. BRYN MAWR. AVE.
SUITE 200
ROSEMONT, IL 60018
TEL: (847) 292-0200
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#	DATE	DESCRIPTION	INT.
	10/14/10	90% REVIEW	DM
	10/26/10	FINAL	CJ

STATE OF CONNECTICUT — HENRY M. BETTENCOURT — No. 25358 — LICENSED PROFESSIONAL ENGINEER

SITE NAME
GROTON

SITE NO.
CT-NLDS004-C

SITE ADDRESS
1662 GOLD STAR HWY
GROTON, CT 06340

SHEET NAME
ELEVATIONS AND DETAILS

SHEET NUMBER
C-3

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NOTE:
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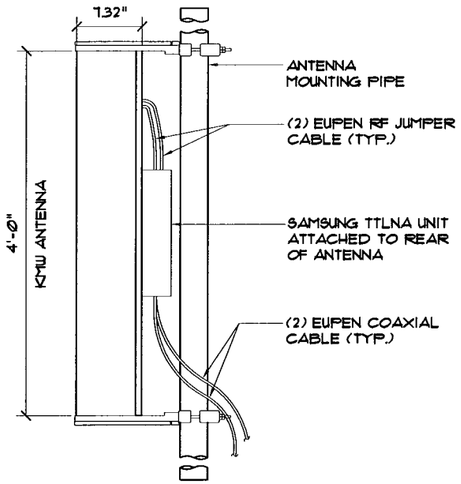
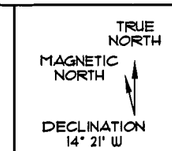
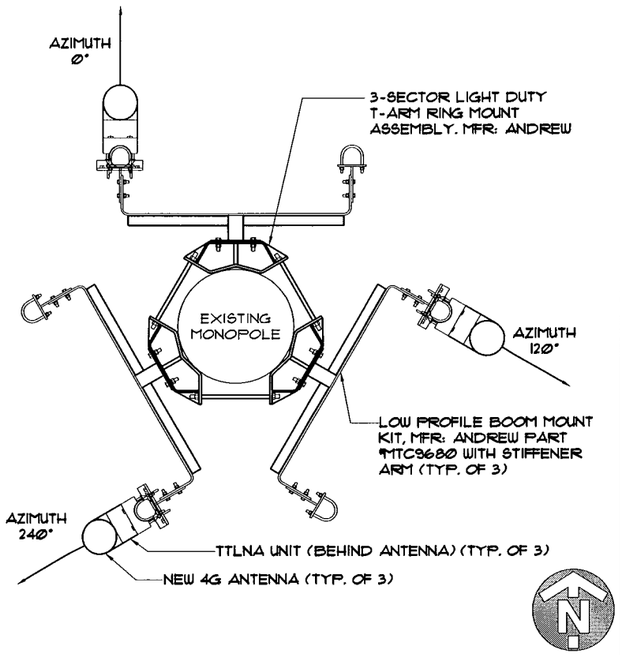


KMW ANTENNA WITH TTLNA — SCALE: N.T.S. — 1

NOT USED — 2



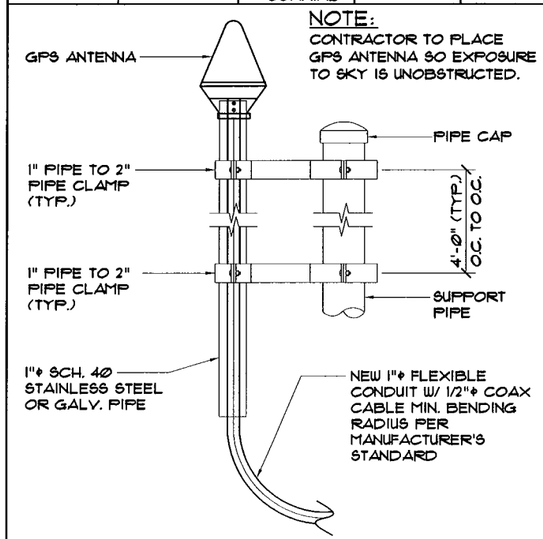
STIFFENER ARMS NOT SHOWN FOR CLARITY



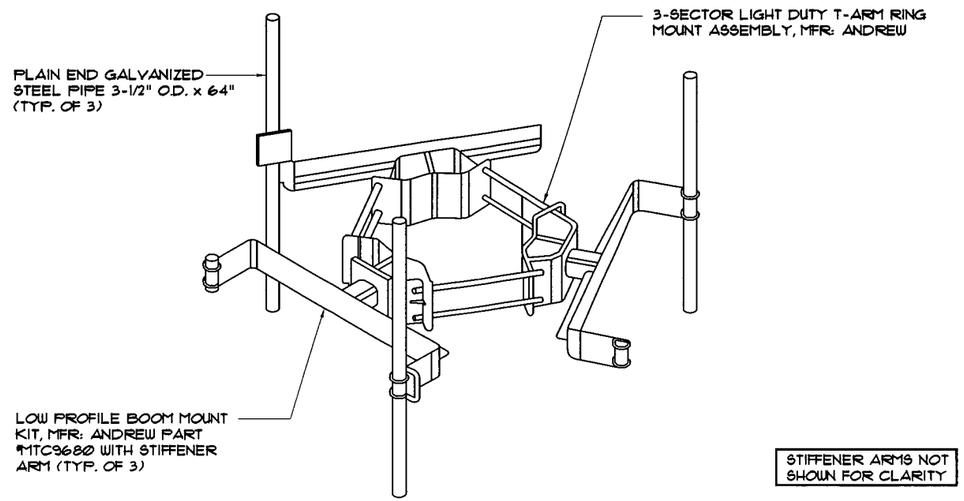
NEW ANTENNA LAYOUT — SCALE: N.T.S. — 3

GPS ANTENNA SCHEDULE

ANTENNA MFR.	MODEL NUMBER	CABLE TYPE	CABLE SIZE	CABLE LENGTH
MOTOROLA	TIMING 2000	50 Ω COAXIAL	1/2"ϕ	10'-0"



GPS DETAIL — SCALE: N.T.S. — 4



STIFFENER ARMS NOT SHOWN FOR CLARITY

TYPICAL ISOMETRIC MOUNTING DETAIL — SCALE: N.T.S. — 5

APPLICANT:
clearwire
wireless broadband
4400 CARILLON POINT
KIRKLAND, WA 98033
TEL: (866) 557-6118

PREPARED FOR:
ERICSSON
ERICSSON, INC.
RESEARCH TRIANGLE PARK,
NORTH CAROLINA

PREPARED BY:
Fullerton Engineering Consultants
9600 W. BRYN MAWR. AVE.
SUITE 200
ROSEMONT, IL 60018
TEL: (847) 292-0200
FAX: (847) 292-0206
www.FullertonEngineering.com

CHECKED BY:	DS	
APPROVED BY:	MB	
#	DATE	DESCRIPTION	INT.
	10/14/10	90% REVIEW	DM
	10/26/10	FINAL	CJ

STATE OF CONNECTICUT — GARY M. BELLINGHAM — No. 25328 — LICENSED PROFESSIONAL ENGINEER

SITE NAME
GROTON

SITE NO.
CT-NLDS004-C

SITE ADDRESS
1662 GOLD STAR HWY
GROTON, CT 06340

SHEET NAME
ANTENNA DETAILS

SHEET NUMBER
C-4

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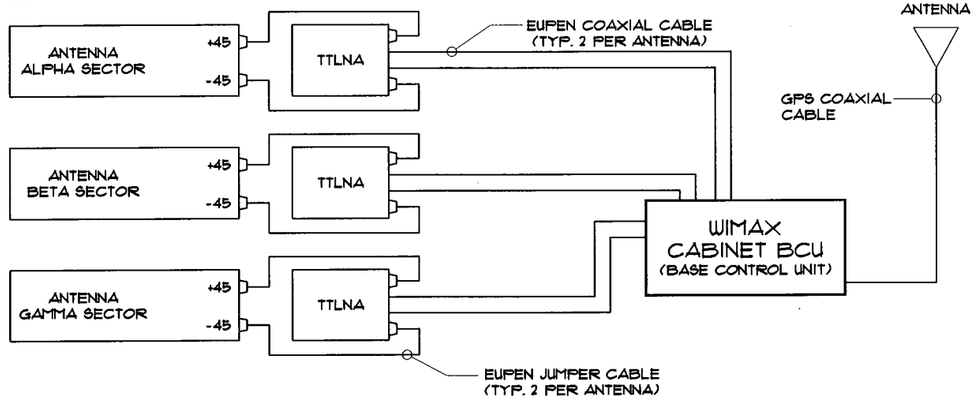
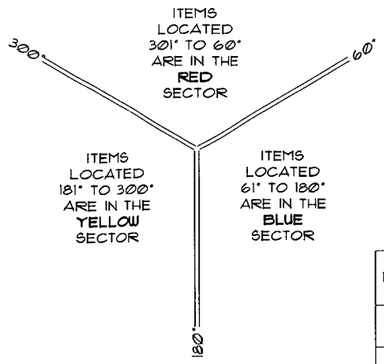
NOTE:
ALL UNUSED, UNEQUIPPED CABLE PORTS SHALL HAVE A 50 OHM TERMINATION LOAD INSTALLED AS SOON AS ANY EQUIPMENT (ANTENNA OR RADIO HEAD) IS INSTALLED ON THE TOWER



TYPICAL ANTENNA W/GAP SINGLE LINE — SCALE: N.T.S. | 1



COLOR CODING NOTES:

1. THE EQUIPAGE OF THE RFUS (DAP HEADS) MUST FOLLOW THE CLEARWIRE COLOR ASSIGNMENT OF RED/BLUE/YELLOW REGARDLESS OF THE ACTUAL ANTENNA ORIENTATION. (FOR EXAMPLE, THE FIRST EQUIPPED SECTOR IS RED, BUT IN A SITUATION WHERE THE RED SECTOR IS NOT EQUIPPED WITH AN RFU, THE FIRST RFU (DAP HEAD) MUST BE LABELED RED EVEN IF IT LIES WITHIN THE BLUE SECTOR BASED ON ANTENNA ORIENTATION.
2. THE CONTRACTOR SHALL USE SECTOR APPROPRIATE COLORED TAPE TO DENOTE THE ANTENNAS. TAPE SHOULD BE WRAPPED AROUND THE TOP AND BOTTOM OF THE SUPPORT PIPE AS DEPICTED IN THE TABLE BELOW.

No.	SECTOR DEGREE RANGE	MARKING METHOD COLOR BANDS	MARKING METHOD NUMBER OF BANDS
1	301°-60°	RED	SMALLEST NUMBER WILL BE LABELED "R1". THE NEXT LARGER NUMBER WILL BE LABELED "R2"
2	61°-180°	BLUE	SMALLEST NUMBER WILL BE LABELED "B1". THE NEXT LARGER NUMBER WILL BE LABELED "B2"
3	181°-300°	YELLOW	SMALLEST NUMBER WILL BE LABELED "Y1". THE NEXT LARGER NUMBER WILL BE LABELED "Y2"

ANTENNA COLOR CODING NOTES — SCALE: N.T.S. | 2

PANEL ANTENNA SCHEDULE / CABLE SCHEDULE

SECTOR	AZIMUTH (DEG.)	¢ OF ANTENNA HT (FT)	ANTENNA MFR	ANTENNA MODEL	SIZE (NOM) (IN) HxDIA.	TTLNA MFR.	SIZE (NOM) (IN) HxWxD	COAX CABLE MODEL	COAX CABLE MODEL	EST. LENGTH (FT.)	TYP. CABLE SIZE (DIA.)
1	0	139	KMW	HB-X-WM-17-65-00T	48x7.32¢	SAMSUNG	15.95"x7.32"x3.70"	EUPEN EC7-50-A	EUPEN EC7-50-A	165	1-5/8"¢
2	120	139	KMW	HB-X-WM-17-65-00T	48x7.32¢	SAMSUNG	15.95"x7.32"x3.70"	EUPEN EC7-50-A	EUPEN EC7-50-A	165	1-5/8"¢
3	240	139	KMW	HB-X-WM-17-65-00T	48x7.32¢	SAMSUNG	15.95"x7.32"x3.70"	EUPEN EC7-50-A	EUPEN EC7-50-A	165	1-5/8"¢

ANTENNA & CABLE SCHEDULE — SCALE: N.T.S. | 3

APPLICANT:
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STATE OF CONNECTICUT — HENRY L. BERTRAM — No. 25358 — LICENSED PROFESSIONAL ENGINEER

SITE NAME
GROTON

SITE NO.
CT-NLD5004-C

SITE ADDRESS
1662 GOLD STAR HWY
GROTON, CT 06340

SHEET NAME
ANTENNA AND CABLE SCHEDULE

SHEET NUMBER
C-5

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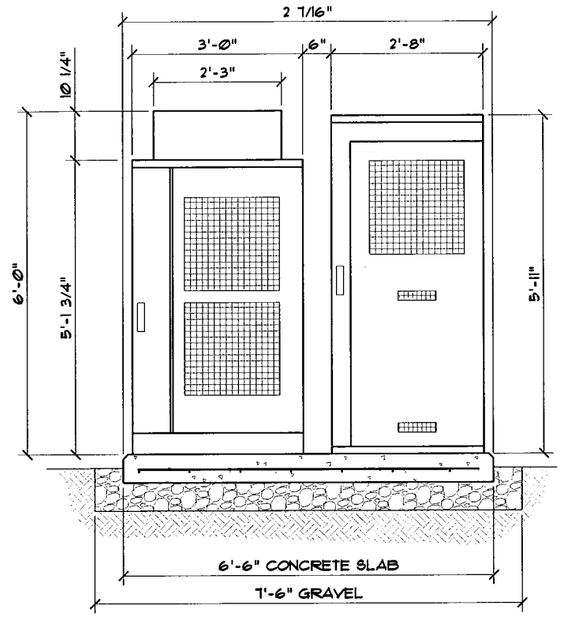
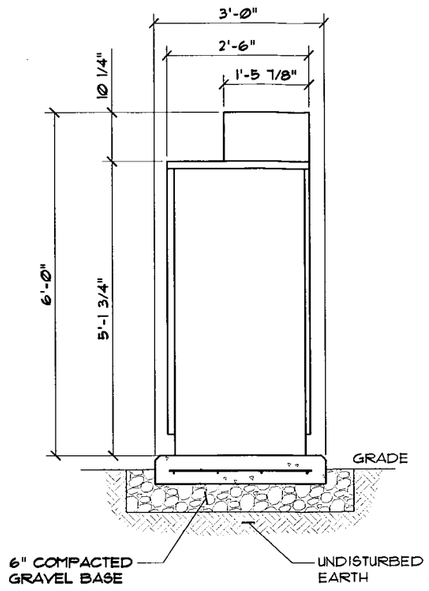
CABINET ELEVATION DETAILS

SCALE: 1'-0" = 3/8" | 1

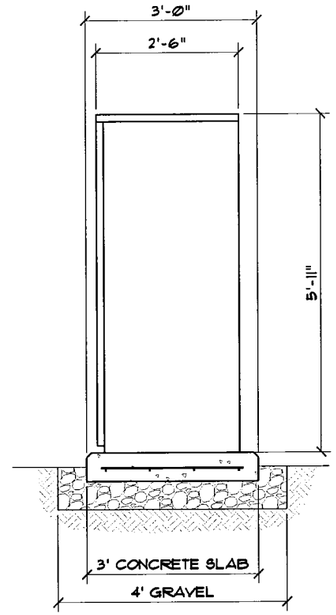
FRONT VIEW



SIDE VIEW GAP CABINET

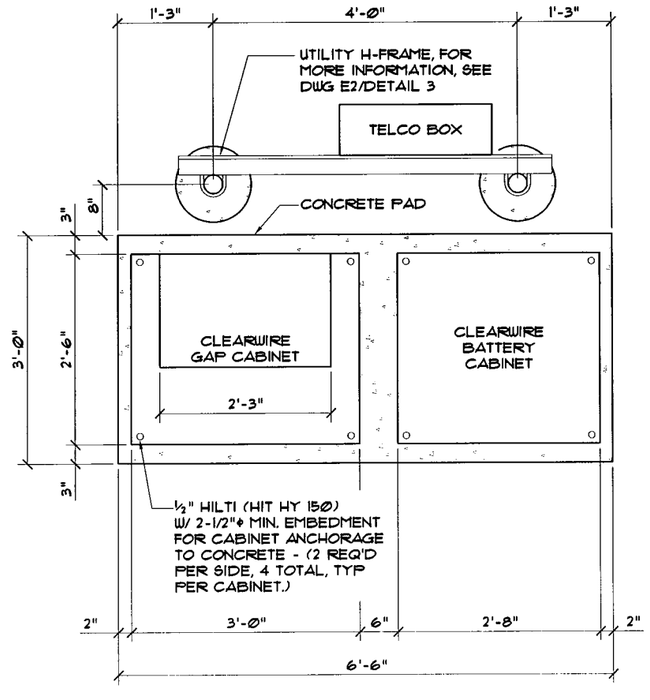


SIDE VIEW BATTERY CABINET



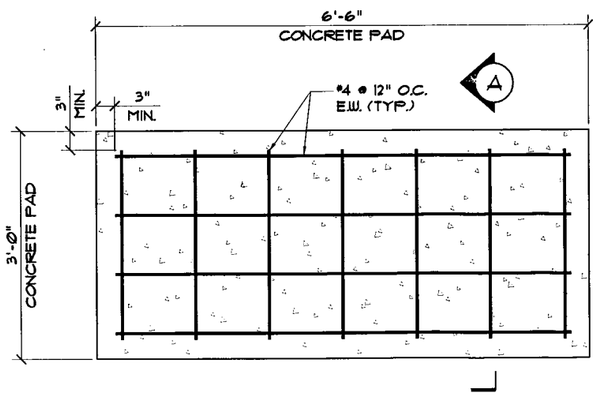
EQUIPMENT PLAN

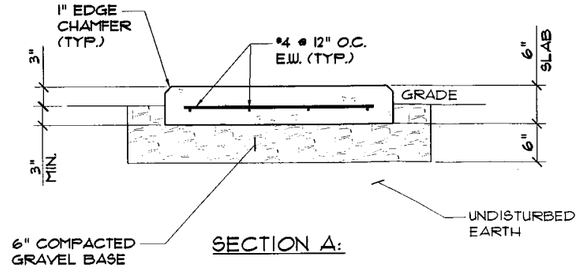
SCALE: 1/2" = 1'-0" | 2



EQUIPMENT SLAB DETAIL

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





SECTION A:

STRUCTURAL NOTES:

10 DESIGN LOADS:
- DEAD LOADS:
  CLEARWIRE GAP CABINET WEIGHT = 904 LBS,
  CLEARWIRE GAP CABINET SIZE: 71.5"x35.5"x37.5" (HxDxW)
  CLEARWIRE BBU CABINET WEIGHT = 2510 LBS,
  CLEARWIRE BBU CABINET SIZE: 60.25"x30.5"x30" (HxDxW)
- SLAB LIVE LOAD: 100 PSF
- SNOW LOAD: 25 PSF
- DESIGN WIND SPEED: 75 MPH (FASTEST MILE)/ 90 MPH (3-SEC GUST)
- DESIGN WIND PRESSURE: 25 PSF MIN.

CONCRETE NOTES:

1. MEET OR EXCEED THE FOLLOWING CODES AND STANDARDS
   CEMENT.....ASTM C 150, TYPE I
   DESIGN.....ACI 318 AND 360
   CONSTRUCTION.....ACI 301
   DETAILING.....CRSI MANUAL OF STANDARD PRACTICE USE CLASS "B" FOR SPLICES UNLESS NOTED
   REINF. STEEL.....ASTM A 615 GRADE 60, DEFORMED
   MIXING.....ASTM C 94. READY MIX CONCRETE
   AIR ENTRAINMENT.....ACI 318 AND ASTM C-260
   AGGREGATE.....ASTM C 33
2. CONCRETE STRENGTH AT 28 DAYS SHALL BE 4000 PSI MINIMUM.
3. DO NOT FIELD BEND OR WELD TO GRADE 60 REINFORCING STEEL.
4. PROVIDE AIR ENTRAINED CONCRETE WITH AIR CONTENT OF 5% TO 7% FOR ALL CONCRETE EXPOSED TO EARTH OR WEATHER
5. MAXIMUM AGGREGATE SIZE: 3/4" FOR FOOTINGS, WALLS, BEAMS, SLABS.
6. DO NOT USE IN ADMIXTURE, WATER OR OTHER CONSTITUENTS OF CONCRETE WHICH HAS CALCIUM CHLORIDE.
7. MINIMUM COVER FOR REINFORCEMENT STEEL UNLESS INCREASED COVER NECESSARY TO MEET FIRE RATING INDICATED:
   CAST AGAINST AND EXPOSED TO EARTH.....3"
   EXPOSED TO EARTH AND WEATHER, #11 TO #6 BARS.....2"
   EXPOSED TO EARTH AND WEATHER, #5 AND SMALLER.....1-½"
   INTERIOR EXPOSURE, BEAMS AND COLUMNS .....1-½"
   INTERIOR EXPOSURE, SLABS, WALLS AND JOISTS.....¾"
8. SLAB SURFACE FLATNESS MAXIMUM TOLERANCE SHALL BE Ø.2" OVER 7'8". CHECK FLOOR LEVEL ALONG THE THREE AXIS: DEPTH, WIDTH & DIAGONAL.

APPLICANT:
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KIRKLAND, WA 98033
TEL: (866) 557-6118

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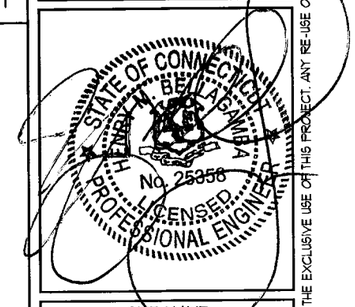

SITE NAME
GROTON

SITE NO.
CT-NLD5004-C

SITE ADDRESS
1662 GOLD STAR HWY
GROTON, CT 06340

SHEET NAME
CABINET AND CONCRETE SLAB DETAILS

SHEET NUMBER
C-6

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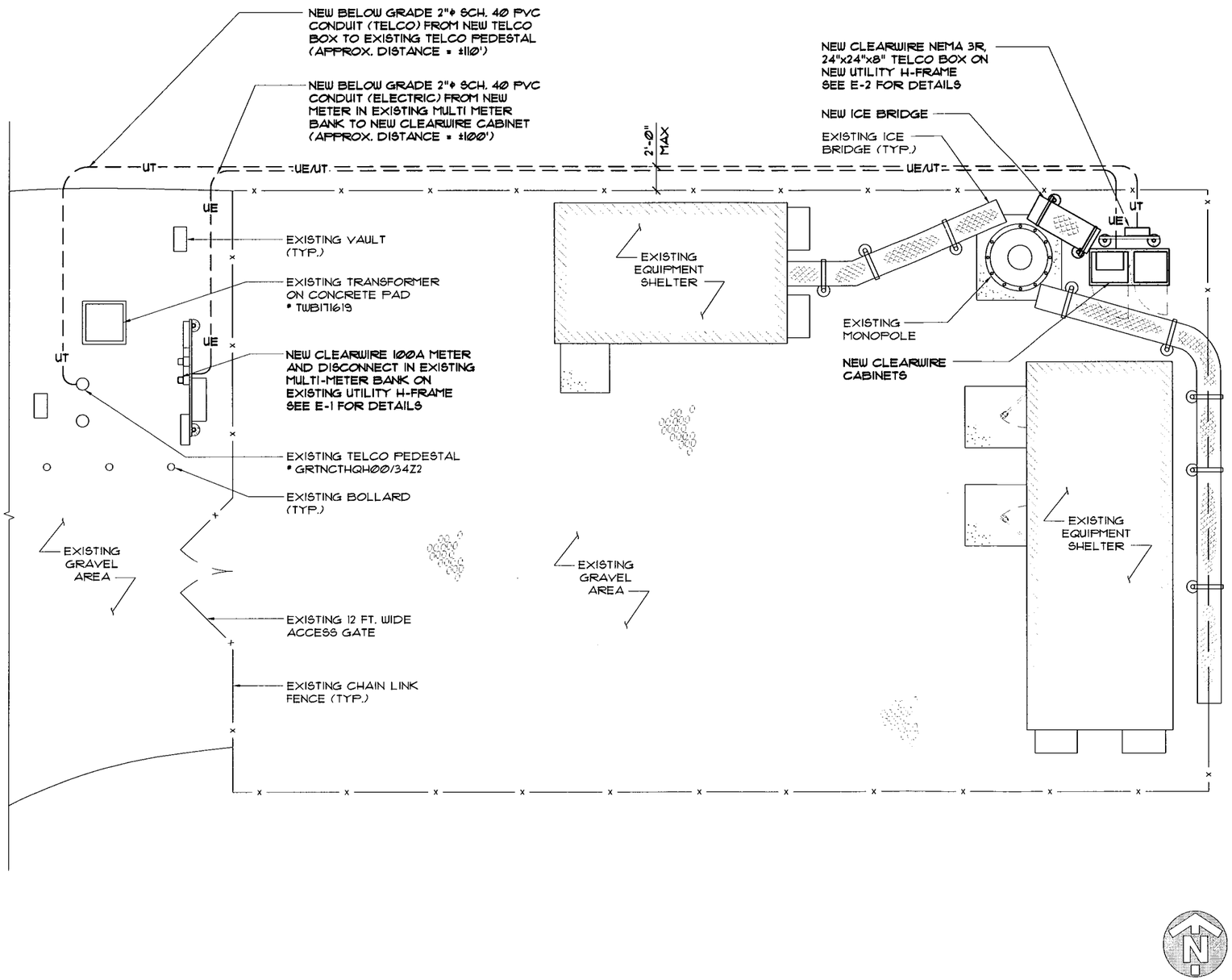
NOTE:

1. FINAL LOCATION OF UTILITY SERVICE CONNECTION POINT SHALL BE PROVIDED BY CONTRACTOR
2. LOCATION OF PROPERTY LINES AND ANY EXISTING EASEMENTS ARE NOT VERIFIED ON PLANS. CONTRACTOR SHALL COORDINATE WITH PROPERTY OWNER/ERICSSON CONSTRUCTION MANAGER PRIOR TO ANY CONSTRUCTION OUTSIDE OF EXISTING FENCED COMPOUND TO ENSURE THAT NO WORK IS DONE ON INCORRECT PROPERTY OR WITHIN ANY EXISTING EXCLUSIVE EASEMENTS.

811 Know what's below. Call before you dig.



UTILITY PLAN — SCALE: 1" = 10'-0" | 1

UTILITY NOTES:

1. WIRING DEVICES AND EQUIPMENT SHALL BE UL LISTED SPECIFICATIONS GRADE.
2. MATERIALS SHALL BE NEW AND CONFORM TO THE APPLICABLE STANDARDS ESTABLISHED FOR EACH ITEM BY THE ORGANIZATIONS LISTED BELOW.
   - AMERICAN SOCIETY FOR TESTING MATERIALS (ASTM)
   - UNDERWRITER'S LABORATORY (UL)
   - NATIONAL ELECTRICAL MANUFACTURING ASSOCIATION (NEMA)
   - AMERICAN STANDARDS ASSOCIATION (ASA)
   - NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
3. INSTALLATION OF MATERIALS SHALL COMPLY WITH REGULATIONS OF:
   - THE NATIONAL ELECTRIC CODE (NFPA 70)
   - THE NATIONAL ELECTRICAL SAFETY CODE (ANSI C-2)
   - THE LIFE SAFETY CODE (NFPA 101)
   - LOCAL BUILDING CODES
   - CLEARWIRE INSTALLATION GUIDE, LATEST VERSION
4. THE ENTIRE SYSTEM SHALL BE SOLIDLY GROUNDED USING LOCKOUTS AND BONDING NUTS ON CONDUITS AND PROPERLY BONDED GROUND CONDUCTOR. RECEPTACLES AND EQUIPMENT BRANCH CIRCUITS SHALL BE GROUNDED WITH A FULL-SIZED EQUIPMENT GROUNDING CONDUCTOR RUN IN THE CIRCUITS CONDUIT.
5. OUTLET AND JUNCTION BOXES SHALL BE ZINC-COATED OR CADMIUM PLATED STEEL NOT LESS THAN 4" SQUARE AND SUITABLE FOR THE TYPE SERVICE AND OUTLET. OUTLET AND JUNCTION BOXES SHALL BE SURFACE MOUNTED AND LABELED WITH BRANCH CIRCUIT BREAKER NUMBER.
6. LABEL ALL EQUIPMENT SERVED FROM CLEARWIRE PANELBOARD WITH PHENOLIC LABELS SIZED IN RELATION TO USAGE.
7. OUTDOOR CONDUCTORS SHALL BE INSTALLED IN RIGID GALVANIZED STEEL UNLESS NOTED OTHERWISE. WHERE EMT IS USED, IT SHALL ONLY BE USED WITH LISTED COMPRESSION FITTINGS. NO SET SCREW FITTINGS SHALL BE ALLOWED.
8. CONTRACTOR TO PROVIDE AND INSTALL ENGRAVED LABEL ON THE CLEARWIRE METER SOCKET ENCLOSURE.
9. ALL WIRING SHALL BE COPPER WITH THHN/THWN DUAL RATED 600 VOLTS INSULATION.
10. PRIOR TO INSTALLATION OF FINAL ELECTRICAL CONNECTION TO UTILITY SERVICE, THE CONTRACTOR SHALL VERIFY THAT THE AVAILABLE FAULT CURRENT DOES NOT EXCEED 10 kAIC. CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY IF THIS REQUIREMENT IS NOT MET FOR ADDITIONAL ENGINEERING REVIEW AND DESIGN.

UTILITY NOTES — SCALE: N.T.S. | 2

APPLICANT:
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	10/26/10	FINAL	CJ

STATE OF CONNECTICUT — HENRY M. BELL — No. 25358 — LICENSED PROFESSIONAL ENGINEER

SITE NAME
GROTON

SITE NO.
CT-NLD5004-C

SITE ADDRESS
1662 GOLD STAR HWY
GROTON, CT 06340

SHEET NAME
UTILITY PLAN AND DETAILS

SHEET NUMBER
E-1

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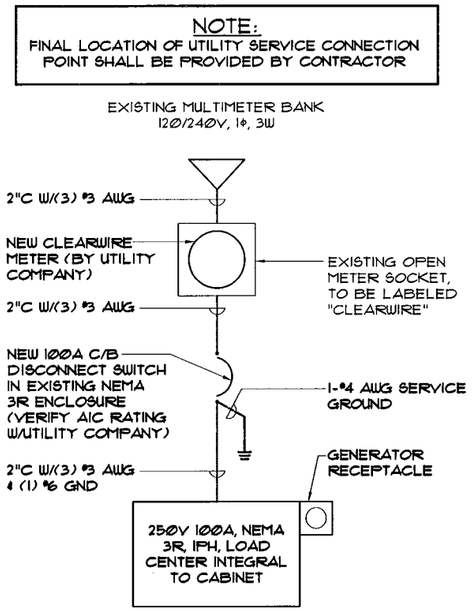
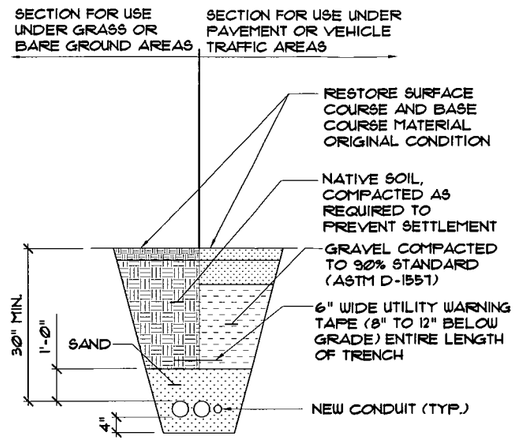
NOTE:
FINAL LOCATION OF UTILITY SERVICE CONNECTION POINT SHALL BE PROVIDED BY CONTRACTOR



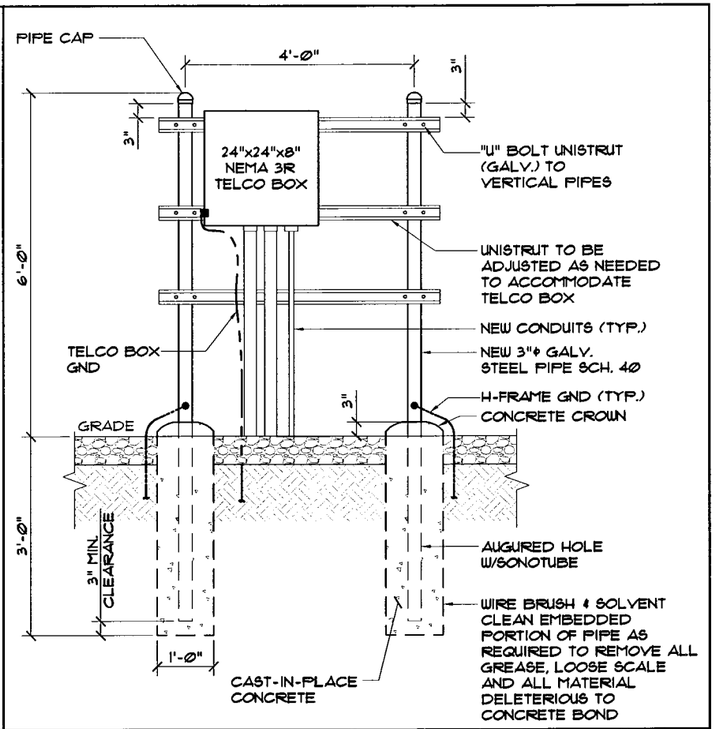
SINGLE LINE DIAGRAM — SCALE: N.T.S. — 1



NOTES:

1. CONTRACTOR TO VERIFY LOCAL UTILITY REQUIREMENTS FOR DEPTH, SIZE & SEPARATION OF CONDUITS PRIOR TO INSTALLATION. NOTIFY CONSTRUCTION MANAGER IMMEDIATELY OF ANY DISCREPANCIES.
2. CONTRACTOR TO CALL 811, 72 HRS PRIOR TO EXCAVATING FOR UNDERGROUND UTILITY LOCATIONS. LOCATION SURROUNDING EXCAVATED AREA MUST BE PRIVATELY LOCATED FOR NON-PUBLIC UTILITIES.

TRENCH DETAIL — SCALE: N.T.S. — 2



H-FRAME DETAIL — SCALE: N.T.S. — 3

NOT USED — 4

APPLICANT:
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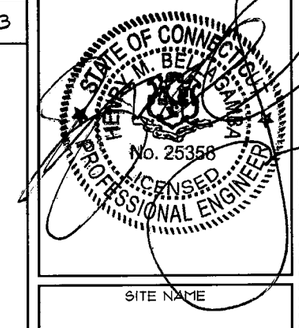

SITE NAME
GROTON

SITE NO.
CT-NLDS004-C

SITE ADDRESS
1662 GOLD STAR HWY
GROTON, CT 06340

SHEET NAME
UTILITY DETAILS

SHEET NUMBER
E-2

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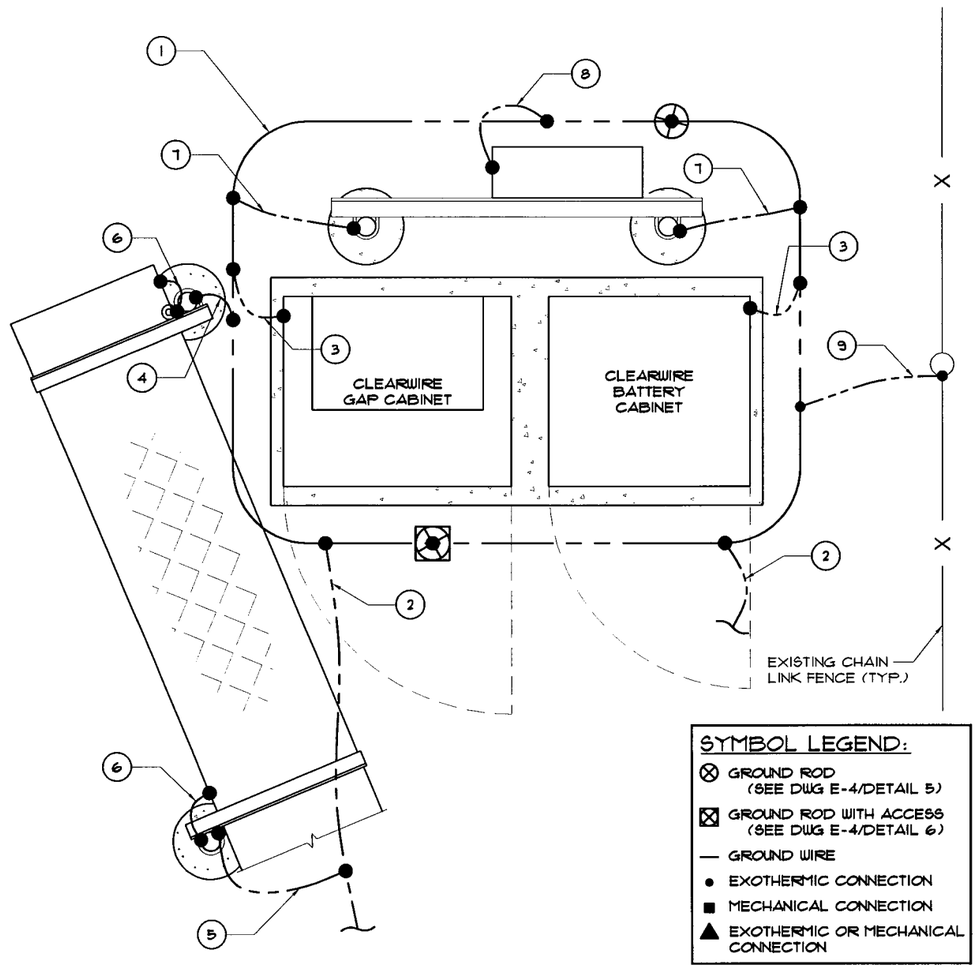


SYMBOL LEGEND:

- ⊗ GROUND ROD (SEE DWG E-4/DETAIL 5)
- ⊠ GROUND ROD WITH ACCESS (SEE DWG E-4/DETAIL 6)
- — GROUND WIRE
- • EXOTHERMIC CONNECTION
- ■ MECHANICAL CONNECTION
- ▲ EXOTHERMIC OR MECHANICAL CONNECTION

LEGEND:

1. NEW GROUND RING CONSTRUCTED OF #2 SOLID TINNED BARE COPPER WIRE IN ONE CONTINUOUS PIECE.
2. #2 SOLID TINNED BARE COPPER GROUND WIRE FOR CONNECTION TO EXISTING TOWER GROUND RING IN (2) LOCATIONS, MINIMUM 6 FT. APART (APPLIES IF THERE IS AN EXISTING TOWER GROUND RING).
3. #2 SOLID TINNED BARE COPPER GROUND WIRE CONNECTED TO THE GROUND CABLE CONNECTOR AT CLEARWIRE CABINET (TYP.).
4. #2 SOLID TINNED BARE COPPER GROUND WIRE FOR ICE BRIDGE POST, CONNECTED TO NEW GROUND RING..
5. #2 SOLID TINNED BARE COPPER GROUND WIRE FOR ICE BRIDGE POST CONNECTED TO GROUND LEAD FROM THE NEW GROUND RING TO THE EXISTING TOWER GROUND.
6. #2 SOLID TINNED BARE COPPER GROUND WIRE FOR ICE BRIDGE POST CONNECTED TO ICE BRIDGE (TYP.).
7. #2 SOLID TINNED BARE COPPER GROUND WIRE FOR H-FRAME POST. (2) PLACES (TYP).
8. #2 SOLID TINNED BARE COPPER GROUND WIRE FOR TELCO BOX.
9. #2 SOLID TINNED BARE COPPER GROUND WIRE FOR FENCE POST.

NOTE:

NEW METER LOCATED AT EXISTING MULTI-METER BANK NOT SHOWN. IF THERE IS NOT A CURRENT MASTER GROUND BUSS WITHIN THE MULTI-METER: A NEW SERVICE GROUND CONDUCTOR AND GROUND ROD ELECTRODE SHALL BE INSTALLED WITH AN EXOTHERMIC WELD.

TYPICAL GROUNDING PLAN — SCALE: 1/2" = 1'-0" | 1

GROUND RING INSTALLATION:

1. GROUNDING SHALL COMPLY WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE.
2. THE TRENCH FOR THE GROUND RING SHALL BE A MINIMUM OF 36" DEEP.
3. THE TRENCH SHALL BE INSTALLED AROUND THE CLEARWIRE EQUIPMENT PLATFORM AND TO THE TOWER WHERE THE BOTTOM BUSS BAR WILL BE INSTALLED.
4. ONCE ALL THE DIRT IS REMOVED FROM THE TRENCH, THE GROUND RODS WILL BE SPACED AT A MINIMUM OF 6' APART FROM EACH OTHER. THE GROUND RODS WILL BE DRIVEN INTO THE GROUND TO A MAXIMUM OF 6" ABOVE THE GROUND AT TRENCH LEVEL, THE TOP OF THE GROUND ROD MUST BE 30" BELOW GRADE.
5. AFTER THE GROUND RODS HAVE BEEN INSTALLED, MAKE A MEASUREMENT AND CUT FOR THE #2 WIRE TO BE INSTALLED FOR THE GROUND RING, ENSURE THE #2 WIRE IS LONG ENOUGH TO MAKE A CONTINUOUS RUN FOR THE GROUND RING.
6. THE GROUND RING MUST BE ONE WIRE AND SHOULD ONLY BE EXOTHERMICALLY WELDED AT THE END OF THE GROUND RING.
7. START AT ONE OF THE GROUND RODS PREVIOUSLY INSTALLED AND MAKE AN EXOTHERMIC WELD CONNECTION BETWEEN THE GROUND ROD AND THE #2 WIRE. CONTINUE THIS STEP UNTIL ALL GROUND RODS HAVE BE EXOTHERMICALLY CONNECTED TO THE #2 WIRE FOR THE GROUND RING.
8. ONCE YOU HAVE MADE A CONTINUOUS RUN WITH THE #2 WIRE FROM EACH GROUND ROD AND BACK TO WHERE YOU MADE THE FIRST CONNECTION OF THE GROUND ROD, OVERLAP THE #2 WIRE BY 12" AND SPLICE THE #2 WIRE TO ITSELF WITH A 2 TO 2 EXOTHERMIC WELD MOLD. THIS SHOULD BE THE ONLY SPLICE MADE WITHIN THE GROUND RING.
9. AFTER THE GROUND RING HAS BEEN INSTALLED YOU WILL NEED TO MAKE ADDITIONAL MEASUREMENT FOR THE STINGERS (LEADS) THAT WILL BE CONNECTED TO THE GROUND RING AND BROUGHT OUT ABOVE GRADE.
10. CONTRACTOR SHALL PERFORM PRE AND POST-CONSTRUCTION THREE POINT FALL OF POTENTIAL GROUND RESISTANCE TESTING PER CLEARWIRE INSTALLATION GUIDE. PRE-CONSTRUCTION TEST REPORT INCLUDING TEST EQUIPMENT SERIAL NUMBER AND LAST CALIBRATION DATE. SHALL BE SUBMITTED WITHIN 24 HOURS TO ERICSSON. POST-CONSTRUCTION TEST REPORT INCLUDING TEST EQUIPMENT SERIAL NUMBER AND LAST CALIBRATION DATE, SHALL CONFIRM A GROUND RESISTANCE VALUE OF 5.0 OHMS OR LESS. BOTH TEST REPORTS AND CORRESPONDING PHOTOS SHALL BE SUBMITTED TO ERICCSON, AS PART OF THE CLOSEOUT PACKAGE

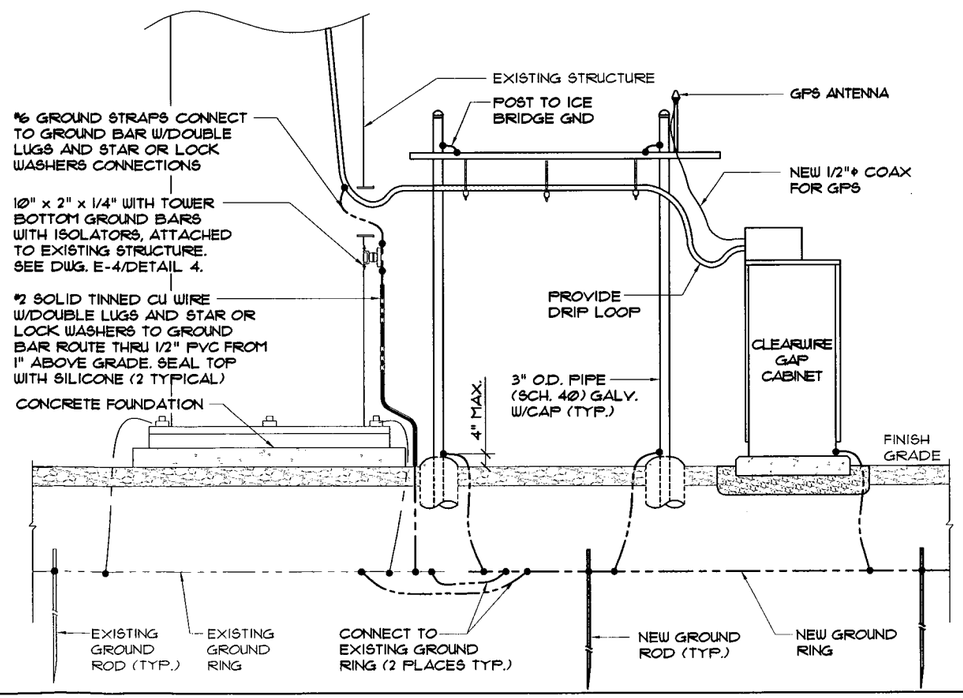
GROUND RING LEAD CONNECTIONS:

1. ALL CONDUCTORS USED IN THE GROUND RING AND GROUND RING STUBS SHALL BE #2 SOLID TINNED BARE COPPER WIRE. ALL STUBS SHALL BE CONNECTED TO THE GROUND RING USING EXOTHERMIC WELDS WITH TAC 2 BY 2 MOLDS AND #90 WELD METAL.
2. FOR SURFACE CONNECTIONS REMOVE ALL PAINT AND CORROSION DOWN TO SHINY METAL, TREAT ALL EXOTHERMIC WELDS WITH GALVANIZING PAINT OR TOUCH UP WITH GALVANOX OR EQUIVALENT.
3. WHERE BARE COPPER WIRES ARE ROUTED FOR CONNECTION ABOVE GRADE, INSTALL WIRE IN 1/2' PVC SLEEVE, FROM 1" ABOVE GRADE AND SEAL TOP WITH SILICONE MATERIAL.
4. MECHANICAL CONNECTIONS SHALL BE MADE WITH STAINLESS STEEL BOLTS, NUTS AND LOCK WASHERS, 3/8"ø MINIMUM.
5. USE NOALOX OR APPROVED EQUAL CONNECTIVE MATERIAL FOR ALL MECHANICAL CONNECTIONS.

DIRECT BURIAL PIPE GROUND:

1. ALL DIRECT BURIAL PIPES SHALL BE GROUNDED USING (1) #2 SOLID TINNED BARE COPPER GROUND WIRE
2. THESE PIPES SHALL BE CONNECTED TO THE GROUND RING WITH #2 SOLID TINNED BARE COPPER GROUND WIRE AND INTERMEDIATE GROUND RODS IF THE DISTANCE FROM THE PIPE EXCEEDS (6) FEET. EXOTHERMIC WELD TO THE SITE GROUND RING.

SCALE: N.T.S. | 2



TYPICAL TOWER GROUNDING — SCALE: N.T.S. | 3

APPLICANT:
clearwire
wireless broadband
4400 CARILLON POINT
KIRKLAND, WA 98033
TEL: (866) 557-6118

PREPARED FOR:
ERICSSON
ERICSSON, INC.
RESEARCH TRIANGLE PARK,
NORTH CAROLINA

PREPARED BY:
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9600 W. BRYN MAWR. AVE.
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ROSEMONT, IL 60018
TEL: (847) 292-0200
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www.FullertonEngineering.com

CHECKED BY:	DS
APPROVED BY:	MB

#	DATE	DESCRIPTION	INT.
	10/14/10	90% REVIEW	DM
	10/26/10	FINAL	CJ

STATE OF CONNECTICUT
HENRY M. BELTRAMBA
No. 25858
LICENSED
PROFESSIONAL ENGINEER

SITE NAME
GROTON

SITE NO.
CT-NLDS004-C

SITE ADDRESS
1662 GOLD STAR HWY
GROTON, CT 06340

SHEET NAME
GROUNDING PLAN AND DETAILS

SHEET NUMBER
E-3

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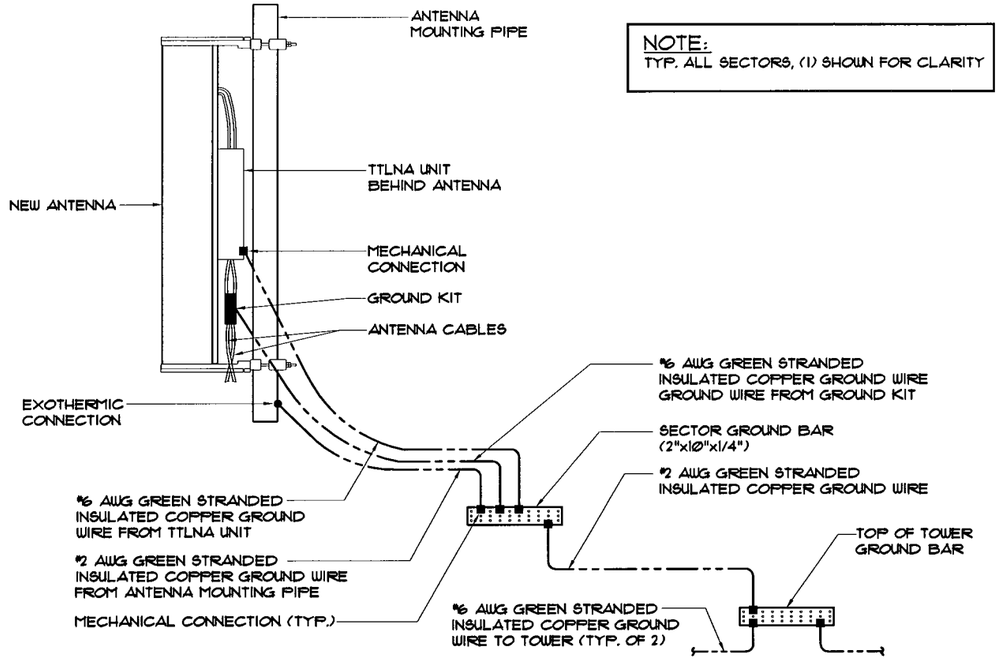


NOTE:
TYP. ALL SECTORS, (1) SHOWN FOR CLARITY

TYPICAL ANTENNA GROUNDING

SCALE: N.T.S. | 1

NOT USED

2

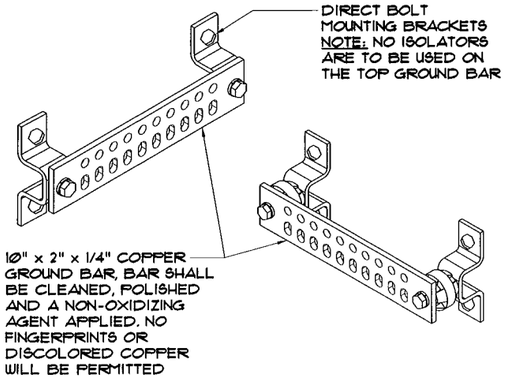
INSTALL THE FOLLOWING GROUND LEADS:

TOWER TOP GROUND BAR (W/O ISOLATORS)

1. RF CABLE GROUND KITS
2. ANTENNA MOUNTING PIPES
3. GROUND TO TOWER (TYP. OF 2)

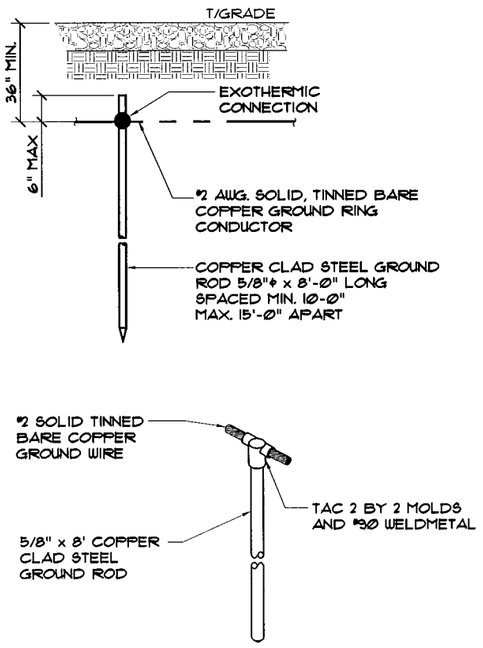
TOWER BOTTOM GROUND BAR (W/ ISOLATORS)

1. RF CABLE GROUND KITS
2. GROUND TO GROUND RING (TYP. OF 2)



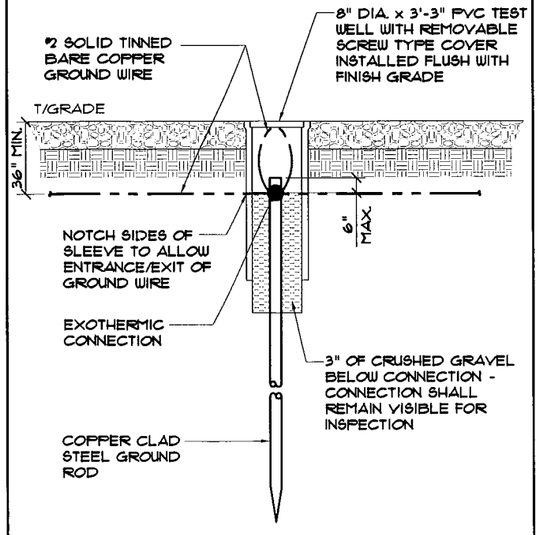
GROUND BAR DETAIL

3



GROUND ROD DETAIL

4



GROUND TEST WELL DETAIL

5

NOT USED

6

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clearwire
wireless broadband
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KIRKLAND, WA 98033
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#	DATE	DESCRIPTION	INT.
	10/14/10	90% REVIEW	DM
	10/26/10	FINAL	CJ

STATE OF CONNECTICUT
HENRY M. BELTRAN
No. 25358
LICENSED PROFESSIONAL ENGINEER

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SITE NO.
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GROTON, CT 06340

SHEET NAME
GROUNDING DETAILS

SHEET NUMBER
E-4

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