



RECEIVED

AUG 04 2008

PUBLIC SERVICE  
COMMISSION

July 31, 2008

Kentucky Public Service Commission  
P.O. Box 615  
211 Sower Blvd.  
Frankfort, KY 40602-0615

RE: KY-00-0821 GREENBO LAKE

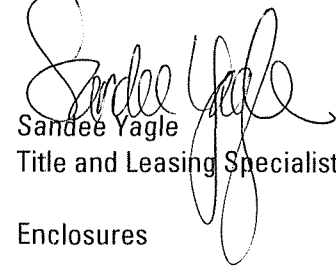
Dear Public Service Commission;

2008-258

Please accept the attached application for a Certificate of Public Convenience and Necessity for a cellular communications tower at 72 Harris Hollow Road, Argillite, KY 41121.

Please find enclosed, one(1) original and five (5) copies of the entire application. Should you have any questions, please feel free to contact me at (231) 929-4555, ext. 28 or via email at [syagle@cellere.us](mailto:syagle@cellere.us).

Sincerely,



Sandee Yagle  
Title and Leasing Specialist

Enclosures

KY-00-0821 GREENBO LAKE

TEL 231.929.4555  
FAX 231.929.0099  
WWW.cellere.us  
info@cellere.us  
4110 Copper Ridge Drive, Suite 204, Traverse City, MI 49684

COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

RECEIVED

AUG 04 2008

PUBLIC SERVICE  
COMMISSION  
Case No. 2008-00258

In the Matter of:

Application of Central States Tower Holdings, LLC for Issuance  
of a Certificate of Public Convenience and Necessity to Construct  
a Cell Site (KY-00-0821 GREENBO LAKE) in Argillite, Kentucky

APPLICATION FOR A CERTIFICATE OF  
PUBLIC CONVENIENCE AND NECESSITY

Cellere, LLC ("Cellere") as agent for Central States Tower Holdings, LLC ("Central States"), pursuant to KRS 278.020 and 278.040, hereby submits this application for a certificate of public convenience and necessity to construct a cell site to be known as the KY-00-0821 GREENBO LAKE ("GREENBO LAKE") cell site in Argillite, Kentucky, namely the county of Greenup, Kentucky.

1. As required by 807 KAR 5:001 Sections 8(1) and (3), and 807 KAR 5:063, Cellere states that it is a Michigan limited liability company who is acting as agent for Central States Tower Holdings, LLC, who is a Delaware limited liability company and whose full name and address are: Cellere, LLC, 4110 Copper Ridge Drive, Suite 204, Traverse City, Michigan 49684. Central States Tower Holdings, LLC, whose address is: 323 S. Hale Street, Suite #100, Wheaton, IL 60187.
2. Pursuant to 807 KAR §1(1)(b), a copy of the applicant's applications to and approval from the Federal Aviation Administration and Kentucky Airport Zoning Commission are submitted as Exhibit "A".
3. Pursuant to 807 KAR 5:063 § 1(1)(d), applicant is submitting as Exhibit "B", a geotechnical investigation report, signed and sealed by a professional engineer registered in Kentucky, that includes boring logs and foundation design recommendations; and as Exhibit "E", a map that outlines the finding as to the susceptibility of the area surrounding the proposed site to flood hazard.
4. Pursuant to 807 KAR 5:063 § 1(1)(e), clear directions from the county seat to the proposed site, including highway numbers and street names, if applicable, with the telephone number of the person who prepared the directions are submitted as Exhibit "C".
5. Pursuant to 807 KAR § 1(1)(f), a copy of the lease for the property on which the cell tower is proposed to be located is submitted as Exhibit "D".

6. Pursuant to 807 KAR § 1(1)(g), experienced personnel will manage and operate the GREENBO LAKE cell site. The Vice President of Construction for Cellere, LLC., Chuck Norris, is ultimately responsible for all construction of the cell tower. Mr. Norris has over 15 years of experience. Arthur J. Krueger, Licensed Professional Engineer of Wilcox Professional Services, is responsible for the design specifications of the proposed tower (identified in Exhibit "B"). S.M. Naeem Akhter, Licensed Professional Engineer of Glenmartin, is responsible for the foundation design of the proposed tower (identified in Exhibit "B"). Central States Tower Holdings, LLC, is responsible for the operations of the tower, once constructed. Central States operates cellular communications towers in 19 states with the principals having 35+ years of experience.

7. Pursuant to 807 KAR 5:063 § 1(1)(h), a site development plan or survey, signed and sealed by a professional engineer registered in Kentucky, that shows the proposed location of the tower and all easements and existing structures within 500 feet of the proposed site on the property on which the tower will be located, and all easements and existing structures within 200 feet of the access drive, including the intersection with the public street system, is submitted as Exhibit "E"

8. Pursuant to 807 KAR 5:063 § 1(1)(i), a vertical profile sketch of the tower, signed and sealed by a professional engineer registered in Kentucky, indicating the height of the tower and the placement of all antennae is submitted as Exhibit "B".

9. Pursuant to 807 KAR 5:063 § 1(1)(j), the tower and foundation design plans and a description of the standard according to which the tower was designed, signed and sealed by a professional engineer registered in Kentucky, is submitted as Exhibit "B".

10. Pursuant to 807 KAR 5:063 § 1(1)(k), a map, drawn to a scale no less than one (1) inch equals 200 feet, that identifies every structure and every owner of real estate within 500 feet of the proposed tower, is submitted as Exhibit "E".

11. Pursuant to 807 KAR 5:063 § 1(1)(l), applicant hereby affirms that every person who owns property within 500 feet of the proposed tower has been: (i) notified by certified mail, return receipt requested, of the proposed construction, (ii) given the commission docket number under which the applications will be processed; and (iii) informed of his or her right to request intervention.

12. Pursuant to KRS 278.665 (2), applicant hereby affirms that every person who, according to the records of the property valuation administrator, owns property contiguous to the property where the proposed cellular tower will be located has been: (i) notified by certified mail, return receipt requested, of the proposed construction; (ii) given the commission docket number under which the application will be processed; and (iii) informed of his or her right to request intervention.

13. Pursuant to 807 KAR 5:063 § 1(1)(m), a list of the property owners who received the notice together with copies of the certified letters sent to listed property owners, is submitted as Exhibit "F".

14. Pursuant to 807 KAR 5:063 § 1(1)(n), applicant hereby affirms that the Office of Greenup County Judge Executive has been: (i) notified by certified mail, return receipt requested, of the proposed construction; (ii) given the commission docket number under which the application will be processed; and (iii) informed of its right to request intervention.

15. Pursuant to 807 KAR 5:063 § 1(1)(o), a copy of the notice sent to the Greenup County Judge Executive is submitted as Exhibit "G".

16. Pursuant to 807 KAR 5:063 § 1(1)(p), applicant hereby affirms that (i) two written notices meeting subsection two (2) of this section have been posted, one in a visible location on the proposed site and one on the nearest public road; and (ii) the notices shall remain posted for at least two weeks after the application has been filed.

17. Pursuant to 807 KAR 5:063 § 1(2)(a), applicant affirms that:

(a) A written notice, of durable material at least two (2) feet by four (4) feet in size, stating that "Central States Tower Holdings, LLC proposes to construct a telecommunications tower on this site", including the addresses and telephone numbers of the applicant and the Kentucky Public Service Commission, has been posted and shall remain in a visible location on the proposed site until final disposition of the application; and

(b) A written notice, of durable material at least two (2) feet by four (4) feet in size, stating that "Central States Tower Holdings, LLC, proposes to construct a telecommunications tower near this site", including the addresses and telephone numbers of the applicant and the Kentucky Public Service Commission, has been posted on the public road nearest the site.

A Copy of each sign is attached as Exhibit "H".

18. Pursuant to 807 KAR 5:063 § 1(1)(q), a statement that notice of the location of the proposed construction has been published in a newspaper of general circulation in the county in which the construction is proposed, a copy of which is submitted as Exhibit "I".

19. Pursuant to 807 KAR 5:063 § 1(1)(r), the cell site, which has been selected, is in a relatively undeveloped area in Argillite, in Greenup County, Kentucky.

20. Pursuant to 807 KAR 5:063 § 1(1)(s), Central States, LLC, has considered the likely effects of the installation on nearby land uses and values and has concluded that there is no more suitable location reasonably available from which adequate service to the area can be provided, and that there is no reasonably available opportunity to co-locate. Central States, LLC, has attempted to co-locate on towers



designed to host multiple wireless service provider's facilities or existing structures, such as a telecommunications tower, or another suitable structure capable of supporting the utility's facilities.

21. Pursuant to 807 KAR 5:063 § 1(1)(t), a map of the area in which the tower is proposed to be located, that is drawn to scale and that clearly depicts the search area in which a site should, pursuant to radio frequency requirements, be located is submitted as Exhibit "J".

22. Pursuant to KRS 100.987 (2)(a), a grid map, that is drawn to scale, that shows the location of all existing cellular antenna towers and that indicates the general position of proposed construction sites for new cellular antenna towers is submitted as Exhibit "K".

23. No reasonably available telecommunications tower, or other suitable structure capable of supporting the cellular facilities of Central States, LLC and which would provide adequate service to the area exists.

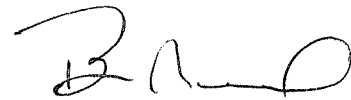
24. Correspondence and communication with regard to this application should be addressed to:

Benjamin Meredith  
Cellere, LLC  
4110 Copper Ridge Drive, Suite 204  
Traverse City, MI 49684  
(231) 929-4555  
(fax) 929-0099  
[bmeredith@cellere.us](mailto:bmeredith@cellere.us)

WHEREFORE, Cellere, LLC, as agent for Central States Tower Holdings, LLC, requests the Commission to enter and order:

1. Granting a certificate of public convenience and necessity to construct the GREENBO LAKE cell site; and
2. Granting all other relief as appropriate.

Respectfully submitted,



Benjamin Meredith  
Cellere, LLC  
4110 Copper Ridge Drive, Suite 204  
Traverse City, MI 49684  
(231) 929-4555  
(fax) 929-0099  
[bmeredith@cellere.us](mailto:bmeredith@cellere.us)

Index to Exhibits

- EXH. A FAA Application and Determination; Kentucky Airport Zoning Commission Application and Approval
- EXH. B Geotechnical Report; Survey; Tower Design; Tower Foundation Design
- EXH. C Directions to Site from County Seat
- EXH. D Memorandum of Lease
- EXH. E Site Plan- 500' Radius Map with Flood Plain Information
- EXH. F Affidavit of Notification of Adjacent Property Owners and Owners within 500 feet.
- EXH. G Certified Letter to Judge Executive
- EXH. H Public Notice Signs (photos)
- EXH. I Affidavit of Publication of Public Notice
- EXH. J Map of Search Area
- EXH. K Map of Existing and Proposed Towers

**EXHIBIT A**

**FAA Application and Determination  
And  
Kentucky Airport Zoning Commission  
Application and Approval**



Federal Aviation Administration  
 Air Traffic Airspace Branch, ASW-520  
 2601 Meacham Blvd.  
 Fort Worth, TX 76137-0520

Aeronautical Study No.  
 2008-ASO-1846-OE

Issued Date: 05/19/2008

Brian Meier  
 Central States Tower Holdings, LLC  
 323 South Hale Street Suite 100  
 Wheaton, IL 60187

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Tower KY-00-0821A GREENBO LAKE  
 Location: Argillite, KY  
 Latitude: 38-29-48.73N NAD 83  
 Longitude: 82-51-17.42W  
 Heights: 300 feet above ground level (AGL)  
 1129 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, a med-dual system - Chapters 4,8(M-Dual),&12.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part I)
- Within 5 days after the construction reaches its greatest height (7460-2, Part II)

See attachment for additional condition(s) or information.

This determination expires on 11/19/2009 unless:

- (a) extended, revised or terminated by the issuing office.
- (b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Communications Commission if the structure is subject to their licensing authority.

If we can be of further assistance, please contact our office at (817) 838-1994. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-ASO-1846-OE.

**Signature Control No: 569642-102132164**

Linda Steele  
Technician

(DNE)

Attachment(s)  
Additional Information

**Additional information for ASN 2008-ASO-1846-OE**

It should be noted that no transmitted frequencies were submitted or approved for this tower at this time.

A separate study is required for any transmitting frequency(ies) on this antenna tower.

**Notice of Proposed Construction or Alteration - Off Airport**

<b>Project Name:</b> CENTR-000091826-08	<b>Sponsor:</b> Central States Tower Holdings, LLC
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**Details for Case : KY-00-0821A GREENBO LAKE**

[Show Project Summary](#)

<b>Case Status</b>		<b>Date Accepted:</b> 04/02/2008	
<b>ASN:</b> 2008-ASO-1846-OE		<b>Date Determined:</b>	
<b>Status:</b> Accepted		<b>Letters:</b> None	
<b>Construction / Alteration Information</b>		<b>Structure Summary</b>	
<b>Notice Of:</b> Construction		<b>Structure Type:</b> Antenna Tower	
<b>Duration:</b> Permanent		<b>Structure Name:</b> KY-00-0821A GREENBO LAKE	
<b>if Temporary :</b> Months: Days:		<b>FCC Number:</b>	
<b>Work Schedule - Start:</b>		<b>Prior ASN:</b>	
<b>Work Schedule - End:</b>			
<b>State Filing:</b> Not filed with State			
<b>Structure Details</b>		<b>Common Frequency Bands</b>	
<b>Latitude:</b> 38° 29' 48.73" N		<b>Low Freq</b>	<b>High Freq</b> <b>Freq Unit</b> <b>ERP</b> <b>ERP Unit</b>
<b>Longitude:</b> 82° 51' 17.42" W			
<b>Horizontal Datum:</b> NAD83		<b>Specific Frequencies</b>	
<b>Site Elevation (SE):</b> 829 (nearest foot)			
<b>Structure Height (AGL):</b> 300 (nearest foot)			
<b>Marking/Lighting:</b> Dual-red and medium intensity			
<b>Other :</b>			
<b>Nearest City:</b> Argillite			
<b>Nearest State:</b> Kentucky			
<b>Description of Location:</b> Vacant field			
<b>Description of Proposal:</b> Tower only			



Ky-00-0821 Greenbo lake

**KENTUCKY AIRPORT ZONING COMMISSION**

**Steven L. Beshear**  
Governor

90 Airport Road 502-564-4480  
Frankfort, Kentucky 40601 fax: 502-564-7953  
<http://transportation.ky.gov/aviation/kyzoning.htm>  
502-564-4480 No.: AS-045-DWU-08-088

July 23, 2008

**APPROVAL OF APPLICATION**

**APPLICANT:**

Central States Tower, Inc.  
323 South Hale Street, Suite 100  
Wheaton, IL 60187

**SUBJECT:** AS-045-DWU-08-088

**STRUCTURE:** Antenna Tower  
**LOCATION:** Argillite, KY  
**COORDINATES:** 38-29-48.73 N / 82-51-17.42 W  
**HEIGHT:** 300' AGL / 1129' AMSL

The Kentucky Airport Zoning Commission has approved your application for a permit to construct 300' AGL / 1129' AMSL Antenna Tower near, Argillite, KY 38-29-48.73 N / 82-51-17.42 W.

This permit is valid for a period of 18 months from its date of issuance. If construction is not completed within this period, this permit shall lapse and be void, and no work shall be performed without a new application being approved by the commission.

A copy of the approved application is enclosed for your files.

M-Dual Obstruction lighting is required

John Houlihan, Administrator



An Equal Opportunity Employer M/F/D





**KENTUCKY AIRPORT ZONING COMMISSION**

**Steven L. Beshear**  
Governor

90 Airport Road  
Frankfort, Kentucky 40601  
<http://transportation.ky.gov/aviation/kyzoning.htm>  
502-564-4480

502-564-4480  
fax: 502-564-7953  
No.: AS-045-DWU-08-088

**CONSTRUCTION/ALTERATION STATUS REPORT**

July 23, 2008

AERONAUTICAL STUDY NUMBER: AS-045-DWU-08-088

Central States Tower, Inc  
323 South Hale Street, Suite 100  
Wheaton, IL 60187

This concerns the permit which was issued to you by the Kentucky Airport Zoning Commission on July 10, 2008. This permit is valid for a period of 18 months from the date of issuance. If construction is not completed within this period, this permit shall lapse and be void, and no work shall be performed without a new application being approved by the commission. When appropriate, please indicate the status of the project in the place below and return this letter to John Houlihan, Administrator, Kentucky Airport Zoning Commission, 90 Airport Road, Building 400 Frankfort, KY 40601. (502) 564-4480.

STRUCTURE: Antenna Tower  
LOCATION: Argillite, KY  
COORDINATES: 38-29-48.73 N / 82-51-17.42 W  
HEIGHT: 300' AGL/1129' AMSL

**CONSTRUCTION/ALTERATION STATUS**

1. The project ( ) is abandoned. ( ) is not abandoned

2. Construction status is as follows:  
Structure reached its greatest height of \_\_\_\_\_ ft. AGL  
\_\_\_\_\_ ft. AMSL on \_\_\_\_\_ (date).

Date construction was completed. \_\_\_\_\_

Type of obstruction marking/painting. \_\_\_\_\_

Type of obstruction lighting. \_\_\_\_\_

As built coordinates. \_\_\_\_\_

Miscellaneous Information: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

DATE \_\_\_\_\_

SIGNATURE/TITLE \_\_\_\_\_



Kentucky Transportation Cabinet, Kentucky Airport Zoning Commission, 200 Mero Street, Frankfort, KY 40622  
**APPLICATION FOR PERMIT TO CONSTRUCT OR ALTER A STRUCTURE**  
 INSTRUCTIONS INCLUDED

Kentucky Aeronautical Study Number  
AS-045 DWU-08-088

1. APPLICANT - Name, Address, Telephone, Fax, etc.  
Central States Tower, Inc.  
323 South Hale Street, Suite 100  
Wheaton, IL 60187  
(630) 221-8500

9. Latitude: 38° 29' 48" 73"  
 10. Longitude: 82° 51' 17" 42"  
 11. Datum:  NAD83  NAD27  Other \_\_\_\_\_  
 12. Nearest Kentucky City: Argillite County Greenup

2. Representative of Applicant - Name, Address, Telephone, Fax  
Cellere  
4110 Copper Ridge Dr, Ste. 204  
Traverse City, MI 49684  
(231) 929-4555

13. Nearest Kentucky public use or Military airport:  
Fleming Mason  
 14. Distance from #13 to Structure: +/- 48 miles  
 15. Direction from #13 to Structure: East

3. Application for:  New Construction  Alteration  Existing  
 4. Duration:  Permanent  Temporary (Months \_\_\_\_\_ Days \_\_\_\_\_)  
 5. Work Schedule: Start \_\_\_\_\_ End \_\_\_\_\_  
 6. Type:  Antenna Tower  Crane  Building  Power Line  
 Landfill  Water Tank  Other \_\_\_\_\_

16. Site Elevation (AMSL): 829 Feet  
 17. Total Structure Height (AGL): 300 Feet  
 18. Overall Height (#16 + #17) (AMSL): 1129 Feet  
 19. Previous FAA and/or Kentucky Aeronautical Study Number(s): \_\_\_\_\_

7. Marking/Painting and/or Lighting Preferred:  
 Red Lights and Paint  Dual - Red & Medium Intensity White  
 White - Medium Intensity  Dual - Red & High Intensity White  
 White - High Intensity  Other \_\_\_\_\_  
 8. FAA Aeronautical Study Number 2008-ASO-1846-0E

20. Description of Location: (Attach USGS 7.5 minute Quadrangle Map or an Airport layout Drawing with the precise site marked and any certified survey)  
See attached map

21. Description of Proposal:  
Tower only

22. Has a "NOTICE OF CONSTRUCTION OR ALTERATION" (FAA Form 7460-1) been filed with the Federal Aviation Administration?  
 No  Yes, When 4/2/08

CERTIFICATION: I hereby certify that all the above statements made by me are true, complete and correct to the best of my knowledge and belief.  
Braxton Dougherty  
VP Construction, Cellere Braxton Dougherty 4/4/08  
 Printed Name and Title Signature Date

PENALTIES: Persons failing to comply with Kentucky Revised Statutes (KRS 183.881 through 183.890) and Kentucky Administrative Regulations (802 KAR 050-Series) are liable for fines and/or imprisonment as set forth in KRS 183.890(3). Non-compliance with Federal Aviation Administration Regulations may result in further penalties.

Commission Action:  Chairman, KAZC  Administrator, KAZC  
 Approved  Disapproved  
 Date 7-23-08

April 2, 2008

Administrator  
Kentucky Airport Zoning Commission  
Department of Aviation  
200 Metro Street  
Frankfort, KY 40622

RE: Form TC 56-50E – Application for New Construction

Hello,

Enclosed please find Form TC-56-50-E for your review and approval for the construction of a new 300' telecommunications tower proposed in Argillite, Greenup County, Kentucky. I have enclosed a copy of the FAA Form 7460-1, a quad map showing the location of the proposed tower and a copy of the 1A Certification.

If you have any questions or require any additional information please don't hesitate to contact our office.

Thank you,

Joann Wendels  
Cellere, Agent for Central States Tower, Inc.



Kentucky Transportation Cabinet, Kentucky Airport Zoning Commission, 200 Mero Street, Frankfort, KY 40622 <b>APPLICATION FOR PERMIT TO CONSTRUCT OR ALTER A STRUCTURE</b> INSTRUCTIONS INCLUDED	Kentucky Aeronautical Study Number
1. APPLICANT - Name, Address, Telephone, Fax, etc. Central States Tower, Inc. 323 South Hale Street, Suite 100 Wheaton, IL 60187 (630) 221-8500	9. Latitude: <u>38° 29' 48.73" N</u> 10. Longitude: <u>82° 51' 17.42" W</u> 11. Datum: <input checked="" type="checkbox"/> NAD83 <input type="checkbox"/> NAD27 <input type="checkbox"/> Other _____ 12. Nearest Kentucky City: <u>Argillite</u> County <u>Greenup</u> 13. Nearest Kentucky public use or Military airport: <u>Fleming Mason</u> 14. Distance from #13 to Structure: <u>+/- 48 miles</u> 15. Direction from #13 to Structure: <u>Ely</u> 16. Site Elevation (AMSL): <u>829</u> Feet 17. Total Structure Height (AGL): <u>300</u> Feet 18. Overall Height (#16 + #17) (AMSL): <u>1129</u> Feet 19. Previous FAA and/or Kentucky Aeronautical Study Number(s): <u>None</u> 20. Description of Location: (Attach USGS 7.5 minute Quadrangle Map or an Airport layout Drawing with the precise site marked and any certified survey) <u>See attached 7.5 minute Quad map and IA Certification</u>
2. Representative of Applicant - Name, Address, Telephone, Fax Cellere 4110 Copper Ridge Drive, Suite 204 Traverse City, MI 49684	
3. Application for: <input checked="" type="checkbox"/> New Construction <input type="checkbox"/> Alteration <input type="checkbox"/> Existing 4. Duration: <input checked="" type="checkbox"/> Permanent <input type="checkbox"/> Temporary (Months _____ Days _____) 5. Work Schedule: Start _____ End _____ 6. Type: <input checked="" type="checkbox"/> Antenna Tower <input type="checkbox"/> Crane <input type="checkbox"/> Building <input type="checkbox"/> Power Lines <input type="checkbox"/> Landfill <input type="checkbox"/> Water Tank <input type="checkbox"/> Other _____ 7. Marking/Painting and/or Lighting Preferred: <input type="checkbox"/> Red Lights and Paint <input checked="" type="checkbox"/> Dual - Red & Medium Intensity White <input type="checkbox"/> White - Medium Intensity <input type="checkbox"/> Dual - Red & High Intensity White <input type="checkbox"/> White - High Intensity <input type="checkbox"/> Other _____ 8. FAA Aeronautical Study Number: <u>2008-ASO-1846-0E</u>	
21. Description of Proposal: <u>Tower Only</u>	
22. Has a "NOTICE OF CONSTRUCTION OR ALTERATION" (FAA Form 7460-1) been filed with the Federal Aviation Administration? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes, When <u>4/2/08</u>	
CERTIFICATION: I hereby certify that all the above statements made by me are true, complete and correct to the best of my knowledge and belief.	
Printed Name and Title _____ Signature _____	Date <u>4/4/08</u>
PENALTIES: Persons failing to comply with Kentucky Revised Statutes (KRS 183.881 through 183.990) and Kentucky Administrative Regulations (802 KAR 050:Series) are liable for fines and/or imprisonment as set forth in KRS 183.990(3). Non-compliance with Federal Aviation Administration Regulations may result in further penalties.	
<b>Commission Action:</b> <input type="checkbox"/> Chairman, KAZC <input type="checkbox"/> Administrator, KAZC <input type="checkbox"/> Approved _____ <input type="checkbox"/> Disapproved _____ Date _____	

Notice of Proposed Construction or Alteration - Off Airport

Project Name: CENTR-000091826-08 Sponsor: Central States Tower Holdings, LLC

Details for Case : KY-00-0821A GREENBO LAKE

Show Project Summary

<b>Case Status</b>		<b>Structure Summary</b>	
ASN: 2008-ASO-1846-OE	Date Accepted: 04/02/2008	Structure Type: Antenna Tower	
Status: Work In Progress	Date Determined:	Structure Name: KY-00-0821A GREENBO LAKE	
	Letters: None	FCC Number:	
<b>Construction / Alteration Information</b>		<b>Prior ASN:</b>	
Notice Of: Construction			
Duration: Permanent			
<i>If Temporary:</i> Months: Days:			
Work Schedule - Start:			
Work Schedule - End:			
State Filing: Not filed with State			
<b>Structure Details</b>		<b>Common Frequency Bands</b>	
Latitude: 38° 29' 48.73" N		Low Freq	High Freq Freq Unit ERP ERP Unit
Longitude: 82° 51' 17.42" W			
Horizontal Datum: NAD83		<b>Specific Frequencies</b>	
Site Elevation (SE): 829 (nearest foot)			
Structure Height (AGL): 300 (nearest foot)			
Marking/Lighting: Dual-red and medium intensity			
<i>Other:</i>			
Nearest City: Argillite			
Nearest State: Kentucky			
Description of Location: Vacant field			
Description of Proposal: Tower only			

Close Print

KY-00-0821 Greenbo Lake





**engineering & surveying**

705-F Lakeview Plaza Blvd.  
Worthington, Ohio 43085  
Phone: (614) 841-0053  
Fax: (614) 841-0170  
E-mail: hlg@geoinno.com

**Date:** April 01, 2008

**Applicant:** Central States Tower, Inc.  
323 South Hale Street, Suite 100  
Wheaton, IL 60187

**Site Number/Name:** KY-00-0821 Greenbo Lake

**County:** Greenup

**Site Address:** +/- 72 Harris Hollow Rd.; Argillite, Ky; 41121

**Center of Tower:** LATITUDE: N38°29' 48.73"

LONGITUDE: W82°51' 17.42"

HORIZONTAL DATUM: NAD 83

GROUND ELEVATION: 829 Feet

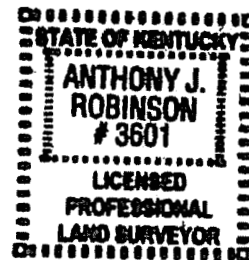
VERTICAL DATUM: NAVD 88

**CERTIFICATION**

I herby certify that the survey of this tower site was performed under my direct supervision, and to the best of my knowledge, the location of the center of the site, as shown in geographic coordinates above, has an horizontal accuracy within +/- 20 feet and a vertical accuracy within +/- 3 feet.

HLG Engineering & Surveying, Inc.

ANTHONY J. ROBINSON, P.S. # 3601, KENTUCKY  
JOB# 1011.030



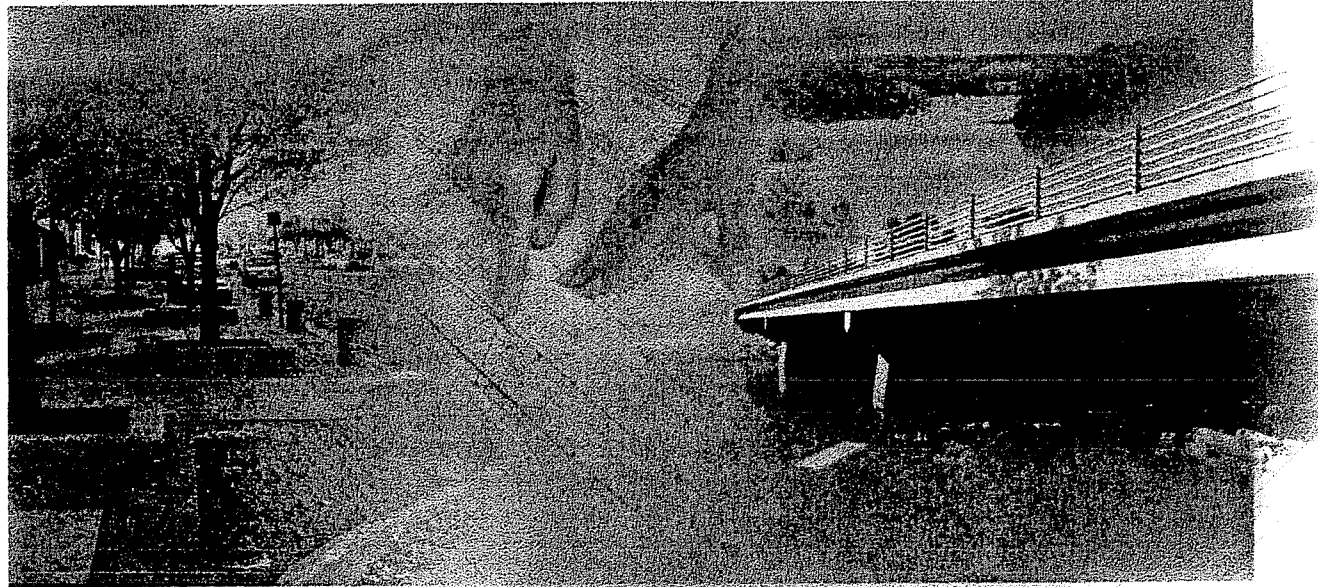
4-1-08

DATE

## **EXHIBIT B**

**Geotechnical Report; Survey; Tower Design  
Tower Foundation Design**





**SOIL BORING AND  
ROCK CORING INVESTIGATION REPORT**

***CST SITE NO. KY-00-0821***  
**GREENBO LAKE**

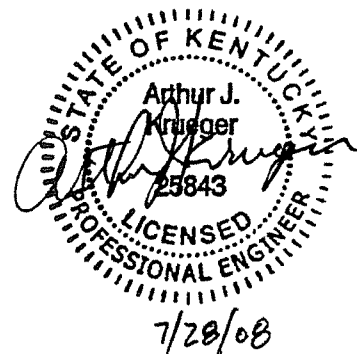
**Argillite, Greenup County, Kentucky**

Prepared for:  
**CST Holdings, LLC**  
323 South Hale Street, Suite 100  
Wheaton, Illinois 60187

Prepared by:  
**Wilcox Professional Services, LLC**  
One Madison Avenue  
Cadillac, MI 49601  
Wilcox Project No. 25036.00004.11

**Applied Geotechnical Services, Inc.**

June 9, 2008



### EXECUTIVE SUMMARY

The proposed tower area is reportedly situated within a former strip mine. Approximately 27 to 29 feet of apparent uncontrolled silty clay fill containing occasional shale fragments was encountered at the boring locations. Below these depths, gray shale was encountered to the explored depths of the borings that ranged from 29½ to 46 feet.

The driller reported each of the borings to be dry both during drilling and upon completion of the borings.

We understand Central States Tower is planning the construction of a 300-foot self-supporting tower at the site. At the time of our investigation, no information was available to us as to the tower manufacturer or loads. These loads vary considerably depending on the tower characteristics and the number of carriers. Estimated tower loads, based on our experience with similar towers, are presented in Section 1.1 of this report.

In consideration of the presence of apparent uncontrolled fill at the boring locations extending to depths ranging from approximately 27 to 29 feet, we recommend the tower be supported on a drilled pier type foundation system bearing on the medium hard shale bedrock. We recommend an appropriately large diameter drilled pier shaft be selected to avoid coring through the shale bedrock encountered at approximate depths of 27 to 29 feet at the boring locations. We estimate a drilled pier with a diameter of approximately 8 feet will likely be required. The tower design will likely be controlled by uplift load considerations. The uplift loads are resisted by the allowable side shear along the perimeter of the shaft, together with the factored weight of the drilled pier concrete. We recommend an allowable side shear value to resist the uplift loads of 415 pounds per square foot (psf) within the very stiff to hard silty clay fill. The above side shear values can be used for the full depth of the drilled pier shaft for resisting uplift loads.

The compression loads are supported by end-bearing together with the allowable side shear values to a depth above the drilled pier tip equal to the shaft diameter. We recommend a maximum net allowable end-bearing pressure of 12,000 psf bearing on the weathered shale encountered at approximate depths of 27 to 29 feet below the existing ground surface. We recommend the allowable side shear values presented above for resisting uplift loads also be used for resisting the compression loads. As indicated previously, the above side shear values should be used to a depth above the drilled pier tip equal to the shaft diameter, to resist the compression loads. We estimate tower foundation settlement may be in the range of ½ inch or less.

We recommend the allowable side shear be neglected to a depth of 5 feet for resisting both uplift and compression loads.

**EXECUTIVE SUMMARY, Page 2 of 2**

Do not consider this summary separate from the entire text of this report, with all the conclusions and qualifications mentioned herein. Details of our analysis and recommendations are discussed in the following sections and in the appendix of this report.

**REPORT PREPARED BY:**

Applied Geotechnical Services, Inc.

Handwritten signature of Jeffrey T. Anagnostou in black ink.

Jefferey T. Anagnostou, P.E., C.P.G.  
Project Consultant

**REPORT REVIEWED BY:**

Wilcox Professional Services, LLC

Handwritten signature of Arthur J. Krueger in black ink.

Arthur J. Krueger, P.E.  
Project Manager

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## 1. INTRODUCTION

We have completed the Soil Boring Investigation for the proposed Central States Tower Site No. KY-00-0821 – Greenbo Lake self-supporting lattice tower to be located in Argillite, Greenup County, Kentucky. Cellere, Inc. retained **Wilcox Professional Services, LLC** to perform this investigation. Subsequently, Wilcox has retained Applied Geotechnical Services, Inc. for laboratory testing and assistance with preparing the engineering report. This report presents the results of the soil boring investigation and our estimated soil and rock parameters to be used in the design of the tower foundation.

### 1.1 Project Description

We understand Central States Tower is planning to construct a 300-foot high, self-supporting lattice type tower at the site. The tower will have three legs on an equilateral triangle. We estimate the tower base width may be approximately 26 feet. At the time this investigation was completed, the tower loads were not yet available. Based on estimated tower loads for a multi-carrier co-locate site, we estimate the tower may impose a compression load per leg of approximately 450 to 500 kips, an uplift load per leg of approximately 400 to 450 kips, and total shear load in the range of 60 to 75 kips.

We estimate the tower base plate elevation may be slightly above the existing grade.

### 1.2 Scope of Services

Our scope of services for this project is as follows.

- A) Performing one soil boring at the center of the tower to auger refusal on bedrock and performing soil borings extending to auger refusal on bedrock at locations 25 feet west and 25 feet east of the tower center;

- B) Performing appropriate laboratory testing including visual engineering classification, natural moisture content, unconfined compressive strength estimates on representative cohesive samples, performing resistivity, pH, chloride, and sulfate testing of a composite soil sample obtained between depths of 1 to 10 feet; and
  
- C) Preparing an engineering report providing our recommendations for the tower foundation design and construction. The written report includes recommendations regarding the allowable soil bearing capacity, estimated settlement, and construction considerations related to foundation construction.

The field drilling operations were performed by Triad Engineering, Inc. of Scott Depot, West Virginia with coordination by Wilcox Professional Services, LLC. The laboratory testing and engineering report preparation were performed under the direction and supervision of a registered professional engineer according to generally accepted standards and procedures in the practice of geotechnical engineering. If changes occur in the design, location, or concept of the project, the conclusions and recommendations contained in this report are not valid unless Wilcox Professional Services, LLC reviews the changes. *Wilcox Professional Services, LLC will then provide any necessary changes in writing.* Our conclusions and recommendations are based on the soil borings performed by Triad Engineering, Inc. and project information provided by Cellere, Inc.

## 2. FIELD AND LABORATORY PROGRAM

### 2.1 Field Program

Cellere, Inc. selected the depth and location of the borings in consultation with Wilcox Professional Services, Inc. As shown on the Schematic Soil Boring Location Plan, a total of three (3) soil borings were performed for the project. The approximate ground surface elevation at the soil rock core boring locations were estimated based on the ground surface elevation contour lines shown on the Survey Plan prepared by HLG Engineering and Surveying, Inc. and are presented in Table 1.

<b>Soil Boring No.</b>	<b>Approximate Ground Surface Elevation (ft)</b>
B-1	828 +/-
B-2	829+/-
B-3	829 +/-

A truck mounted rotary drill rig was used to perform the soil boring. Standard split-spoon samplers were used to obtain the soil samples by the Standard Penetration Test (SPT) method in general conformance with ASTM Standard D1586. The number of blows required to drive the sampler 12 inches, after an initial seating of 6 inches, with a 140-pound hammer falling 30 inches is termed the Standard Penetration Resistance, N-value. A graphical representation of the N-values is given on the boring logs appended to this report.

During the field operations, the drill crew maintained a log of the subsurface conditions, including changes in stratigraphy and observed groundwater levels. After completion of the drilling operations, the boreholes were backfilled with drill cuttings and bentonite crumbles.

## 2.2 Laboratory Testing

The soil samples were placed in sealed containers in the field and brought to the laboratory for testing and classification. A geotechnical engineer classified the samples in general conformance with the Unified Soil Classification System.

Laboratory testing of the soil samples included estimating the unconfined compressive strength of the split-spoon samples with a calibrated hand penetrometer. With a hand penetrometer, the unconfined compressive strength of a soil sample is estimated by measuring the resistance of the soil sample to the penetration of a small, calibrated spring-loaded cylinder. The penetrometer can measure a maximum unconfined compressive strength of 4½ tons per square foot (tsf).

We will hold the soil and rock core samples for 60 days from the date of this report. If you would like the samples, please contact us within this time frame.

## 2.3 Laboratory Soil Box Resistivity Test Results

Estimated earth resistivity values of the subsoil below the proposed development area were obtained by performing laboratory resistivity testing using the Miller Soil Box Resistivity instrument. The testing was performed on selected composite split-spoon samples from Soil Borings B-1 through B-3. The composite samples were prepared by thoroughly mixing prior to placement in the soil box instrument. The following estimated earth resistivity values are presented based on the Miller Soil Box Resistivity test results and may be used with judgment in the design of the lightning protection grounding system:

<b>Table 1. Miller Soil Box Resistivity Results</b>			
<b>Boring Numbers</b>	<b>Sample Numbers</b>	<b>Represented Depth Below Ground Surface (ft)</b>	<b>Resistivity (Ohm-feet)</b>
B-1-B-3	S1 – S4	1 to 9	30



### **3. SITE AND SUBSURFACE CONDITIONS**

#### **3.1 Site Conditions**

The subject site is located at +/- 72 Harris Hollow Road Greenup Township, Greenup County, Kentucky. Based on our review of the Survey Plan prepared by HLG Engineering and Surveying, Inc. of Worthington, Ohio and the Central States Tower site Candidate Package, it appears the site is situated within a vacant, grass-covered field east of a wooded area. Within the tower compound area, the ground surface sloped relatively gently downwards towards the southwest direction.

Based on information provided by Cellere, Inc. we understand the proposed tower compound is situated within a former strip mine.

#### **3.2 Soil and Rock Conditions**

Approximately 27 to 29 feet of apparent uncontrolled silty clay fill containing occasional shale fragments was encountered at the boring locations. Below these depths, gray shale was encountered to the explored depths of the borings that ranged from 29½ to 46 feet.

The silty clay fill was very stiff to hard with calibrated hand penetrometer unconfined compressive strengths of 2 to in excess of 4½ tsf and field moisture contents of approximately 8 to 18 percent. The driller reported the underlying bedrock consisted of medium hard gray shale. Due to the depth of the bedrock, no rock coring was performed.

The stratification depths shown on the soil boring log represent the soil and rock conditions at the boring location. Variations may occur at locations away from the boring. Additionally, the stratigraphic lines represent the approximate boundary between soil and rock types; the transition may be more gradual than what is shown. The boring log was prepared on the basis of laboratory classification and testing as well as the field logs of the explored soils and bedrock.

The soil boring logs are presented in the appendix. The soil and rock profile described above is a generalized description of the conditions encountered at the boring location. Please consult the boring logs for more specific information.

### **3.3 Groundwater Level Observations**

The driller looked for indications of groundwater during and after the performance of the soil boring. Groundwater seepage was not encountered during drilling or upon completion of the borings. Based on the available information, we estimate the groundwater level may be located below the explored depth of the borings.

Expect the prevailing groundwater level to vary due to changes in precipitation, evaporation, surface run-off, and other factors. The groundwater levels discussed herein and shown on the boring logs represent the conditions at the time of the measurements.

#### **4. RESULTS & RECOMMENDATIONS**

##### **4.1 Drilled Pier Foundation Recommendations**

In consideration of the presence of apparent uncontrolled fill at the boring locations extending to depths ranging from approximately 27 to 29 feet, we recommend the tower be supported on a drilled pier type foundation system bearing on the medium hard shale bedrock. We recommend an appropriately large diameter drilled pier shaft be selected to avoid coring through the shale bedrock encountered at approximate depths of 27 to 29 feet at the boring locations. We estimate a drilled pier with a diameter of approximately 8 feet will likely be required. The tower design will likely be controlled by uplift load considerations. The uplift loads are resisted by the allowable side shear along the perimeter of the shaft, together with the factored weight of the drilled pier concrete. We recommend an allowable side shear value to resist the uplift loads of 415 pounds per square foot (psf) within the very stiff to hard silty clay fill. The above side shear values can be used for the full depth of the drilled pier shaft for resisting uplift loads.

The compression loads are supported by end-bearing together with the allowable side shear values to a depth above the drilled pier tip equal to the shaft diameter. We recommend a maximum net allowable end-bearing pressure of 12,000 psf bearing on the weathered shale encountered at approximate depths of 27 to 29 feet below the existing ground surface. We recommend the allowable side shear values presented above for resisting uplift loads also be used for resisting the compression loads. As indicated previously, the above side shear values should be used to a depth above the drilled pier tip equal to the shaft diameter, to resist the compression loads. We estimate tower foundation settlement may be in the range of ½ inch or less.

We recommend the allowable side shear be neglected to a depth of 5 feet for resisting both uplift and compression loads.

***Once the tower loads are known, Wilcox Professional Services, LLC should be notified so we can re-evaluate our design recommendations in the light of the actual loads.***

We recommend all foundation construction be performed under the supervision of a qualified geotechnical engineer. The appropriate type and number of field tests and observations should be performed to verify the foundation bearing material is suitable.

#### **4.2 Engineered Fill Placement**

Any fill beneath on-grade structures should be an approved, environmentally clean material. The fill should also be free of organic matter, frozen soil, clods, or other harmful material. Spread the fill in level lifts, not exceeding 9 inches in loose thickness, and compact the soil to a minimum of 95 percent of the maximum dry density. Determine the maximum dry density according to ASTM Standard D1557 (Modified Proctor). All engineered fill should be placed at or near the optimum moisture content.

#### **4.3 General Comments**

The purpose of this report is to aid in the tower foundation. If changes occur in the design, location, or concept of the project, the recommendations contained in this report are not valid. The changes must be reviewed by **WILCOX PROFESSIONAL SERVICES, LLC** with the recommendations of this report modified or affirmed in writing by **WILCOX PROFESSIONAL SERVICES, LLC**.

We base the estimated soil parameters presented in this report upon the data from the soil borings performed at the approximate locations shown on the Schematic Soil Boring Location Plan. This report does not reflect variations that may occur away from the boring location. The nature and extent of any such variations may not become clear until

Central States Tower No. KY-00-0821 – Greenbo Lake  
Wilcox Project No. 25036.00004.11

the time of construction. If significant variations then become evident, it may be necessary for us to re-evaluate our report recommendations.

We recommend **WILCOX PROFESSIONAL SERVICES, LLC** be given the opportunity to review the final design plans and specifications as they relate to the recommendations presented in this report. The review is necessary to verify that the report conclusions and recommendations have been interpreted according to our intent and are properly incorporated into the design. Further, the review will verify that subsequent changes to the project have not affected our recommendations. Without this review, we cannot be held responsible for misinterpretation of our data, analysis, and/or our recommendations or how these are incorporated in the final design.

We also recommend a qualified geotechnical engineer supervise all geotechnical related work, including foundation construction, subgrade preparation, and engineered fill placement. The geotechnical engineer should perform the appropriate testing to confirm the geotechnical conditions given in the report are found during construction.

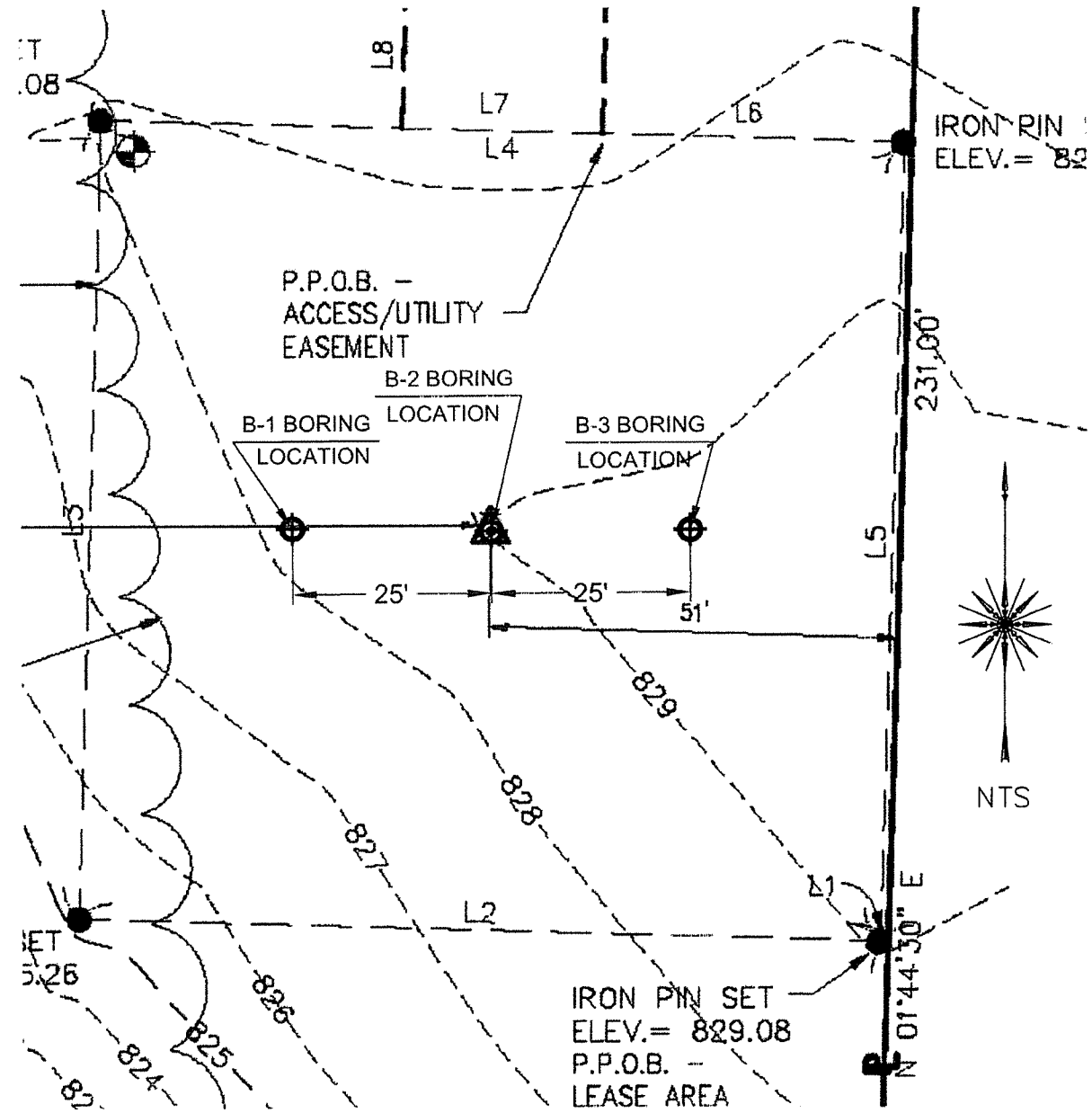
The contract specifications should include the following:

“The contractor will, upon becoming aware of subsurface or latent physical conditions differing from those disclosed by the original soil investigation work, promptly notify the owner verbally to permit verification of the conditions, and in writing, as to the nature of the differing conditions. No claim by the contractor for any conditions differing from those anticipated in the plans and specifications and disclosed by the soil studies will be allowed unless the contractor has so notified the owner, verbally and in writing, as required above, of such differing subsurface conditions.”

## **APPENDIX**

1. SCHEMATIC SOIL BORING LOCATION PLAN
2. GENERAL NOTES
3. SOIL BORING LOGS (B-1 to B-3)
4. UNIFIED SOIL CLASSIFICATION SYSTEM

# KY-00-0821 GREENBO LAKE



SURVEYOR: HLG, ENGINEERING & SURVEYING, INC.

KY-00-0821 GREENBO LAKE SCHEMATIC SOIL BORING LOCATION PLAN	DATE 4-25-08			
	DRN AJK			
	CHD AJK			
CLIENT: CELLERE / CENTRAL STATE TOWERS	SCALE N/A	F.B. PG	SHEET 1 OF 1	WILCOX JOB NO 25036 00004 11

## GENERAL NOTES

### Drilling & Sampling Symbols

SS – Split Spoon (1 <sup>3</sup> / <sub>8</sub> " I.D., 2" O.D., except where noted)	HA – Hand Auger Boring
ST – Shelby Tube (3" O.D., except where noted)	BS – Bag Sample
PA – Power Auger	RC – Rock Core with diamond bit, NX size, except where noted
PS – Piston Sample (3" diameter)	RB – Roller Bit
WB – Wash Boring	N/A – Not applicable or available
WS – Wash Sample	

Standard Penetration Test "N" Value – Blows per foot after an initial 6-inch seating of a 140-pound hammer falling 30 inches on a 2-inch O.D. split spoon, except where noted.

### Water Level Measurement Notation

First—	When noted during drilling or sampling process.
Completion—	After all drilling tools are removed from borehole.
HR—	Number of hours after completion.
N/R—	Not recorded.
Dry—	No measurable water level found in borehole.

### Particle Sizes

Boulders—	Greater than 6" (152 mm)
Cobbles –	3" to 6" (76 to 152 mm)
Gravel –	<i>Coarse:</i> ¼ to 3" (19 to 76 mm) <i>Fine:</i> No.4 to ¾" (4.75 to 19 mm)
Sand –	<i>Coarse:</i> No.10 to No.4 (2 to 4.75 mm) <i>Medium:</i> No.40 to No.10 (.425 to 2 mm) <i>Fine:</i> No.200 to No.40 (.074 mm to .425mm)
Silt –	Minus No.200 (.005 mm to .074 mm)
Clay –	Less than .005 mm

Water levels indicated on the boring logs are the levels measured in the boring at the time indicated. The accurate determination of groundwater levels may not be possible with short term observations, especially in impervious soils. The level shown may fluctuate throughout the year with variations in precipitation, evaporation, runoff, and other hydrogeologic features.

## CLASSIFICATION

### Cohesionless Soil

<u>Relative Density</u>	<u>"N" Value (Blows/ft)</u>
Very Loose	0 to 4
Loose	5 to 9
Medium Dense	10 to 29
Dense	30 to 49
Very Dense	50 to 79
Extremely Dense	Over 80

### Cohesive Soil

<u>Unconfined Compressive Strength (tons per ft<sup>2</sup>)</u>	<u>Consistency</u>
Less than 0.25	Very Soft
0.25 to 0.49	Soft
0.49 to 0.99	Medium
1.00 to 1.99	Stiff
2.00 to 3.99	Very Stiff
Greater than 4.00	Hard

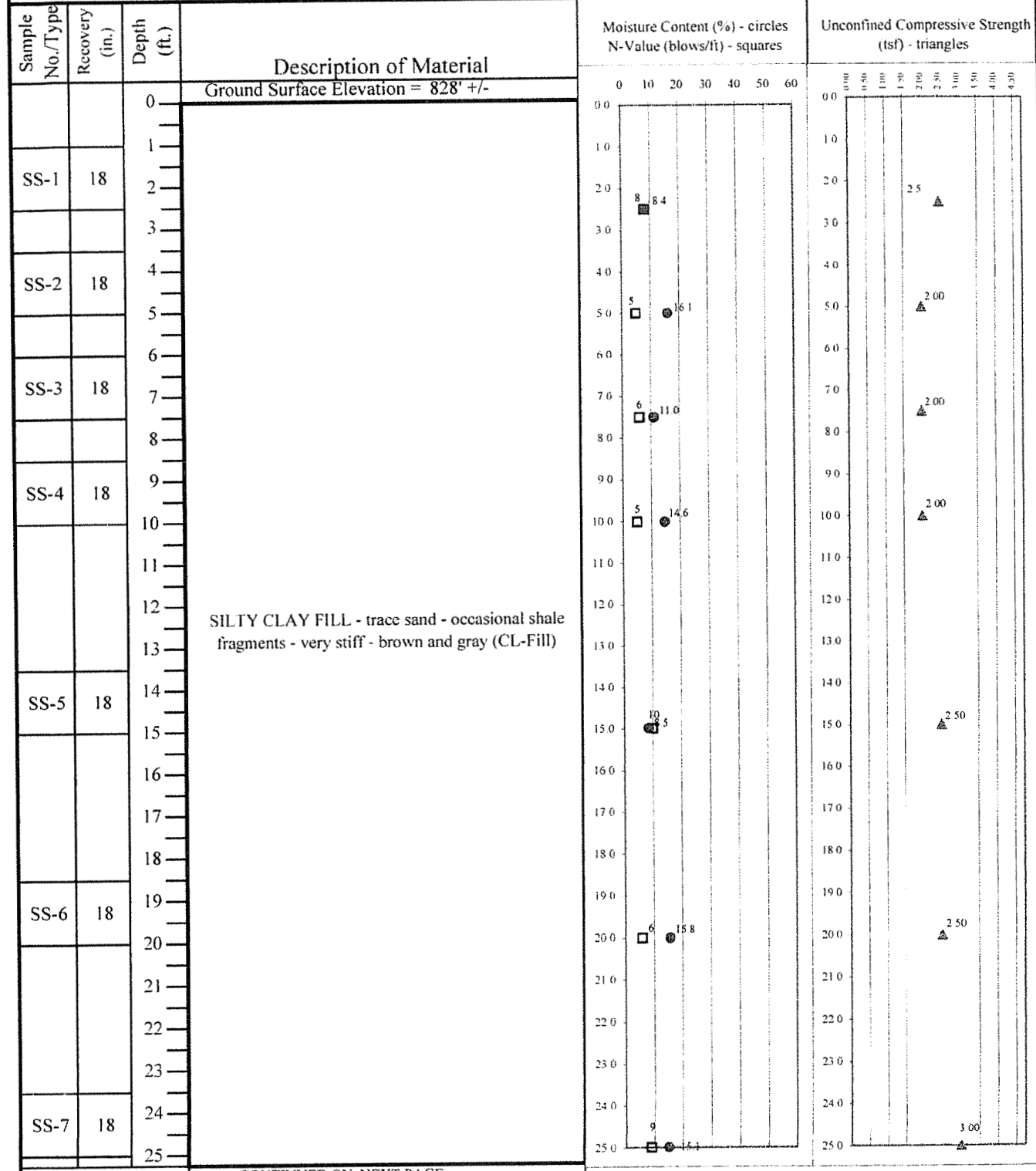
### Soil Constituents

"Trace"	Less than 10%
"Trace to Some"	10% to 19%
"Some"	20% to 34%
"And"	35% to 50%

If clay content is sufficient so that clay dominates soil properties, then clay becomes the primary noun with other major soil constituent as modifier, i.e. silty clay. Other minor soil constituents may be added according to estimates of soil constituents present, i.e. silty clay, trace to some sand, trace gravel.



Project: CST Site No. KY-00-0821 - Greenbo Lake	AGS, Inc.
Client: Cellere, Inc.	37637 Five Mile Road #224
Location: Greenup Twp., Greenup Co., Kentucky	Livonia, MI 48154
Project #: 08-1014      Boring Log #: B-1	Tel/Fax: (734) 293-5077



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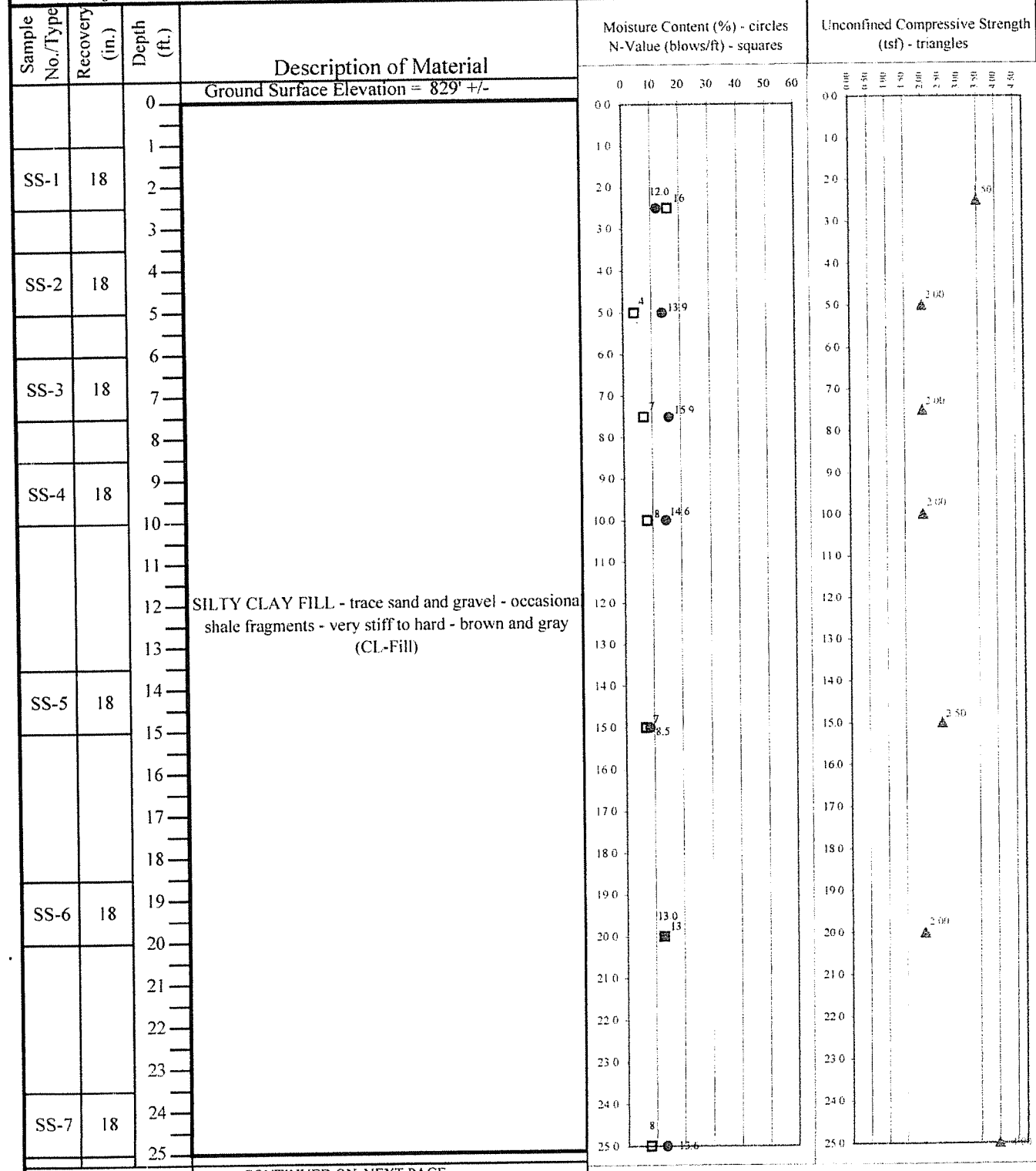
<b>Water Level Observations:</b> While Drilling: Dry At Completion: Dry Cave-In At:	<b>Boring Started:</b> 4/10/08 <b>Boring Completed:</b> 4/10/08 <b>Rig:</b> Rotary <b>Driller:</b> Triad Engineering	<b>Remarks:</b>	<b>Approved:</b> Drawn By: JTA
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<b>Project:</b> CST Site No. KY-00-0821 - Greenbo Lake	<b>AGS, Inc.</b>
<b>Client:</b> Cellere, Inc.	37637 Five Mile Road #224
<b>Location:</b> Greenup Twp., Greenup Co., Kentucky	Livonia, MI
<b>Project #:</b> 08-1014	<b>Boring Log #:</b> B-1 (cont.)
	<b>Tel/Fax:</b> (734) 293-5077

Sample No./Typ	Recovery (in.)	Depth (ft.)	Description of Material	Moisture Content (%) - circles	N-Value (blows/ft) - squares	Unconfined Compressive Strength (tsf) - triangles
				0 10 20 30 40 50 60	0 10 20 30 40 50	0 10 20 30 40 50
		26.0	SILTY CLAY FILL - trace sand - occasional shale fragments - very stiff - brown and gray (CL-Fill)			
		27.0				
		28.0				
		29.0				
SS-8	18	29.0	Driller Reported Medium Hard Gray Shale			
		30.0				
		31.0	Driller Reported Auger Refusal @ 30'			
		32.0				
		33.0				
		34.0				
		35.0				
		36.0				
		37.0				
		38.0				
		39.0				
		40.0				
		41.0				
		42.0				
		43.0				
		44.0				
		45.0				
		46.0				
		47.0				
		48.0				
		49.0				
		50.0				

<b>Water Level Observations:</b>	<b>Boring Started:</b> 4/10/08	<b>Approved:</b>
<b>While Drilling:</b> Dry	<b>Boring Completed:</b> 4/10/08	<b>Drawn By:</b> JTA
<b>At Completion:</b> Dry	<b>Rig:</b> Rotary	<b>Remarks:</b>
<b>Cave-In At:</b>	<b>Driller:</b> Triad Engineering	

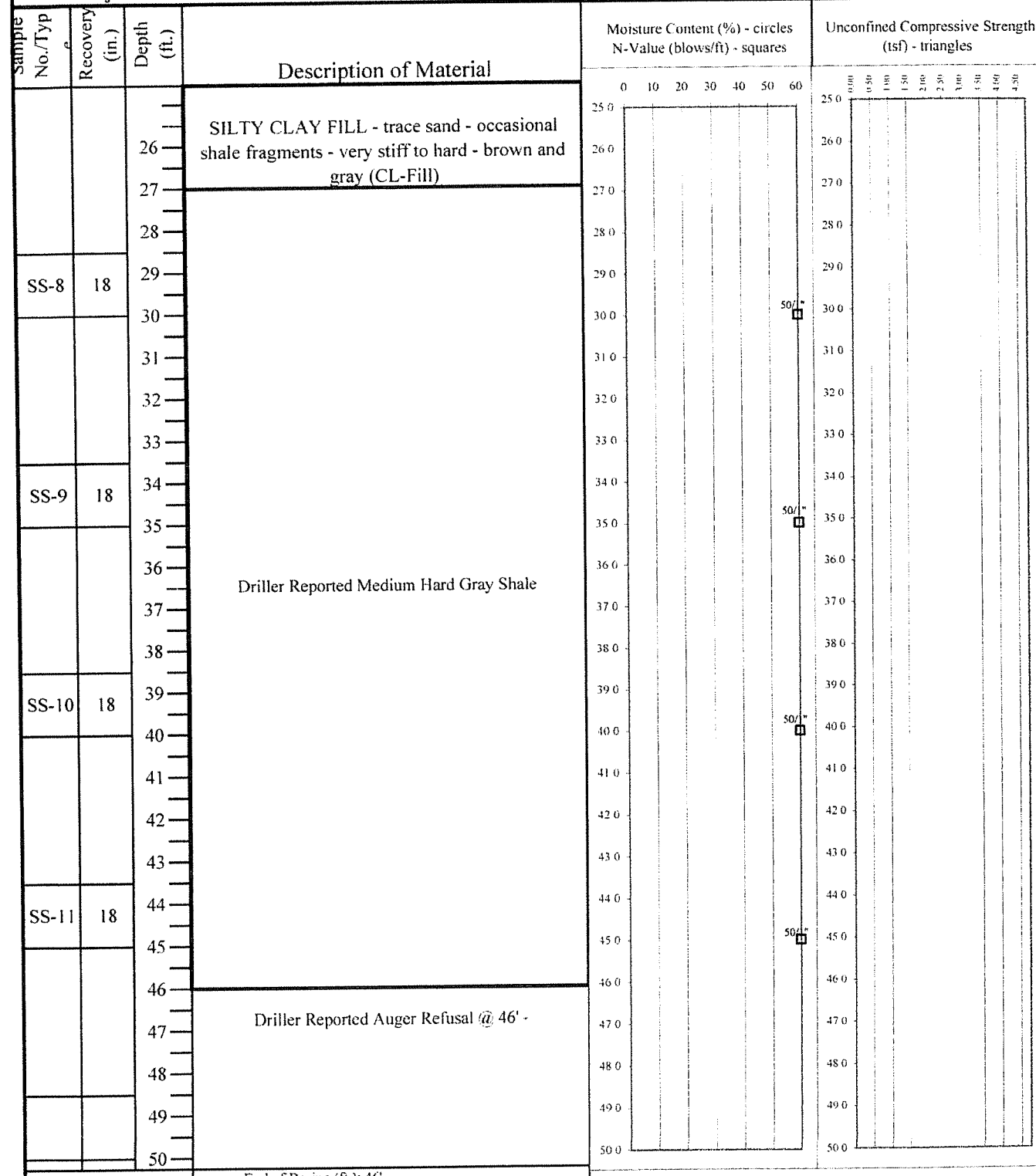
<b>Project:</b> CST Site No. KY-00-0821 - Greenbo Lake	<b>AGS, Inc.</b>
<b>Client:</b> Cellere, Inc.	37637 Five Mile Road #224
<b>Location:</b> Greenup Twp., Greenup Co., Kentucky	Livonia, MI 48154
<b>Project #:</b> 08-1014	<b>Boring Log #:</b> B-2
	Tel/Fax: (734) 293-5077



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<b>Water Level Observations:</b>	<b>Boring Started:</b> 4/10/08	<b>Approved:</b>	
<b>While Drilling:</b> Dry	<b>Boring Completed:</b> 4/10/08	<b>Drawn By:</b> JTA	
<b>At Completion:</b> Dry	<b>Rig:</b> Rotary		
<b>Cave-In At:</b>	<b>Driller:</b> Triad Engineering		
<b>Remarks:</b>			

<b>Project:</b> CST Site No. KY-00-0821 - Greenbo Lake	<b>AGS, Inc.</b> 37637 Five Mile Road #224 Livonia, MI Tel/Fax: (734) 293-5077
<b>Client:</b> Cellere, Inc.	
<b>Location:</b> Greenup Twp., Greenup Co., Kentucky	
<b>Project #:</b> 08-1014 <b>Boring Log #:</b> B-2 (cont.)	



End of Boring (ft.): 46'

<b>Water Level Observations:</b> While Drilling: Dry At Completion: Dry Cave-In At:	<b>Boring Started:</b> 4/10/08 <b>Boring Completed:</b> 4/10/08 <b>Rig:</b> Rotary <b>Driller:</b> Triad Engineering	<b>Remarks:</b>	<b>Approved:</b> Drawn By: JTA
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Project: CST Site No. KY-00-0821 - Greenbo Lake  
 Client: Cellere, Inc.  
 Location: Greenup Twp., Greenup Co., Kentucky  
 Project #: 08-1014 Boring Log #: B-3

AGS, Inc.  
 37637 Five Mile Road #224  
 Livonia, MI 48154  
 Tel/Fax: (734) 293-5077

Sample No./Type	Recovery (in.)	Depth (ft.)	Description of Material	Moisture Content (%) - circles N-Value (blows/ft) - squares	Unconfined Compressive Strength (tsf) - triangles
		0	Ground Surface Elevation = 829' +/-		
SS-1	18	1	SILTY CLAY FILL - trace sand - occasional shale fragments - very stiff to hard - brown and gray (CL-Fill)		
		2			
SS-2	18	4			
		5			
SS-3	18	7			
		8			
SS-4	18	9			
		10			
		11			
		12			
		13			
SS-5	18	14			
		15			
		16			
		17			
		18			
SS-6	18	19			
		20			
		21			
		22			
		23			
SS-7	18	24			
		25			

CONTINUED ON NEXT PAGE

Water Level Observations:  
 While Drilling: Dry  
 At Completion: Dry  
 Cave-In At:

Boring Started: 4/10/08  
 Boring Completed: 4/10/08  
 Rig: Rotary  
 Driller: Triad Engineering

Remarks:

Approved:  
 Drawn By: JTA

<b>Project: CST Site No. KY-00-0821 - Greenbo Lake</b>	<b>AGS, Inc.</b>
<b>Client: Cellere, Inc.</b>	<b>37637 Five Mile Road #224</b>
<b>Location: Greenup Twp., Greenup Co., Kentucky</b>	<b>Livonia, MI 48154</b>
<b>Project #: 08-1014</b>	<b>Boring Log #: B-3 (cont.)</b>
	<b>Tel/Fax: (734) 293-5077</b>

Sample No./Typ	Recovery (in.)	Depth (ft.)	Description of Material	Moisture Content (%) - circles N-Value (blows/ft) - squares		Unconfined Compressive Strength (tsf) - triangles													
				0	10	20	30	40	50	60	0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	4.50
		26.0	SILTY CLAY FILL - trace sand - occasional shale fragments - very stiff to hard - brown and gray (CL-Fill)																
		27.0																	
SS-8	18	29.0	Note 1																
		30.0																	
		31.0	Note 1: Driller Reported Shale Bedrock Between 29' and 29.5' and Auger Refusal @ 29.5'																
		32.0																	
		33.0																	
		34.0																	
		35.0																	
		36.0																	
		37.0																	
		38.0																	
		39.0																	
		40.0																	
		41.0																	
		42.0																	
		43.0																	
		44.0																	
		45.0																	
		46.0																	
		47.0																	
		48.0																	
		49.0																	
		50.0																	

End of Boring (ft.): 29.5'

<b>Water Level Observations:</b>	<b>Boring Started:</b> 4/10/08	<b>Approved:</b>	
<b>While Drilling:</b> Dry	<b>Boring Completed:</b> 4/10/08	<b>Drawn By:</b> JTA	
<b>At Completion:</b> Dry	<b>Rig:</b> Rotary		
<b>Cave-In At:</b>	<b>Driller:</b> Triad Engineering		
	<b>Remarks:</b>		

# Unified Soil Classification

Major Divisions		Symbol	Typical Names	Laboratory Classification Criteria					
Coarse Grained Soils (More than half of material > No. 200 sieve)	Gravels (More than half of coarse fraction is larger than No. 4 sieve)	Clean Gravels (little or no fines)	GW	Well graded gravels, gravel-sand mixtures, little or no fines	$C_u = D_{60}/D_{10}$ greater than 4; $C_c = (D_{30})^2 / (D_{10} \times D_{30})$ between 1 and 3				
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines					
		Gravels with appreciable amount of fines	GM	d	Silty gravels, gravel-sand-silt mixtures	Not meeting all gradation requirements for GW  Atterberg Limits below "A" line or PI less than 4  Atterberg Limits above "A" line with PI greater than 7			
				u	Clayey gravels, gravel-sand-clay mixtures				
	Sands (More than half of coarse fraction is smaller than No. 4 sieve)	Clean Sands (little or no fines)	SW	Well graded sands, gravelly sands, little or no fines	$C_u = D_{60}/D_{10}$ greater than 6; $C_c = (D_{30})^2 / (D_{10} \times D_{30})$ between 1 and 3				
			SP	Poorly graded sands, little or no fines					
		Sands with appreciable amount of fines	SM	d	Silty sands, sand-silt mixtures	Not meeting all gradation requirements for SW  Atterberg Limits below "A" line or PI less than 4  Atterberg Limits above "A" line with PI greater than 7			
				u	Clayey sands, sand-clay mixtures				
			SC	d	Silty sands, sand-silt mixtures			Liquid Limits plotting between 10 and 30 with PI between 4 and 7 is a borderline case requiring dual symbols (CL-ML)	
				u	Clayey sands, sand-clay mixtures				
Fine Grained Soils (more than half of material < No. 200 sieve)	Silts and Clays (Liquid Limit < 50)	ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity	<div style="text-align: center;"> <b>PLASTICITY CHART</b> </div>					
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, and lean clays						
		OL	Organic silts and silty clays of low plasticity						
	Silts and Clays (Liquid Limit > 50)	MH	Inorganic silts, micaceous or diamaceous fine sandy or silty soils, elastic silts						
		CH	Inorganic clays of high plasticity, fat clays						
		OH	Organic clays of medium to high plasticity, organic silts						
	Highly Organic Soils	Pt	Peat and other highly organic soils						



An ISO 9001:2000  
Certified Company

One Madison Ave  
Cadillac, MI 49601  
231-775-7755  
Fax: 231-775-3135  
www.wilcox.us

Built on Quality -  
continuously improving our  
quality of service to meet  
and exceed our  
clients' expectations.

July 29, 2008

Mr. Brian Meier  
CST Holdings, LLC  
323 South Hale Street, Suite 100  
Wheaton, Illinois 60187

**Re: Soil Boring & Rock Coring Investigation  
Central States Tower Site No. KY-00-0821 – Greenbo Lake  
+/- 72 Harris Hollow Road  
Argillite, Greenup County, Kentucky  
Wilcox Project No. 25036.00004.11**


Dear Mr. Meier:

We have completed the Soil Boring & Rock Coring Investigation for the proposed Central States Tower, Inc. 300-foot self support tower in Argillite Township, Greenup County, Kentucky. This report presents the results of our soil boring/rock coring investigation and estimated soil and rock parameters to be used as a guideline in the design of the tower foundations.

This letter also presents the results of the analytical testing for the chloride and sulfide in the soil samples. The pH, Chloride, and sulfide analytical testing was performed on a composite sample formed by mixing portions of split spoon samples S-1 through S-4 from Borings 1 through 3. The composite sample was prepared by thoroughly mixing prior to testing. The pH testing was performed by AGS using a Cole-Parmer Model 05985-80 Digi-Sense pH meter. Chloride and sulfide analytical testing was performed by EQL Laboratories, Inc. of Sterling Heights, Michigan. The test results indicate the soil sample possessed a pH of 7.7, a chloride content of 40 parts per million (ppm) and a sulfide content below the laboratory detection level. A copy of the test results is appended to this letter.

We appreciate the opportunity to assist you and the design team on this project. If there are any questions, please do not hesitate to contact me at 231-775-7755.

Respectfully,  
**WILCOX PROFESSIONAL SERVICES, LLC**

  
Arthur J. Krueger, P.E.  
Project Manager

Enclosure



CLIENT NAME: APPLIED GEOTECHNICAL SERVICES, INC. PROJECT NAME/NO.: 08-1014  
37637 FIVE MILE RD, #224  
LIVONIA, MI 48154

DATE RECEIVED: 06/11/08 DATE ANALYZED: 06/18/08 DATE REPORTED: 06/20/08

ANALYZED BY: JL ALL RESULTS REPORTED IN ppmILLION

LAB NO./DESCRIPTION	1312
	SOIL
	CST SITE
	KY-00-0821
	08-1014
	B-1-B-3
	S-1-4
	1-9'
COMPOUND NAME	
SULFIDE 4500-S2-F	20 ND
CHLORIDE 4500-CL-C	10 40

NOTE: "ND" DENOTES THAT ANALYTE RESULT IS BELOW THE REPORTED REGULATORY DERIVED TARGET  
LIMIT OF DETECTION.

THOMAS S. MEGNA, PRESIDENT

ALA GAJDA, LAB SUPERVISOR

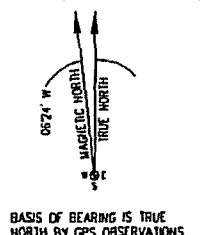
REFERENCES: 40 CFR PART 136. CURRENT EDITION. las

THE TOWER LOCATION, AS SHOWN IN THE COORDINATES BELOW, HAVE A HORIZONTAL ACCURACY WITHIN ± 20 FEET AND A VERTICAL ACCURACY WITHIN ± 3 FEET.

LATITUDE: 38° 29' 48.73" N  
 LONGITUDE: 82° 51' 17.42" W  
 (NAD 83)

GROUND ELEVATION: 829 FEET  
 (NAVD 88)

**TOWER COORDINATES**



**CERTIFICATION:**

THIS SURVEY PLAN IS NOT THE RESULT OF A FULL BOUNDARY SURVEY. IT IS THE RESULT OF COMPILATION OF RECORD INFORMATION AND LOCATION OF AVAILABLE MONUMENTATION.

*Anthony J. Robinson* 4-15-08  
 ANTHONY J. ROBINSON, P.S. No. 3601 DATE  
 BEARING BASIS: TRUE NORTH AS DETERMINED BY GPS OBSERVATION

**FLOOD PLAIN INFORMATION**

SITE LIES WITHIN FLOOD ZONE "X" WHICH IS AN AREA OUTSIDE THE 0.2% ANNUAL CHANCE AS DETERMINED FROM THE NATIONAL FLOOD INSURANCE PROGRAM, COMMUNITY PANEL NUMBER 21089 0301 C 6, EFFECTIVE DATE SEPTEMBER 16, 2004.

**PROPERTY OWNERS:**

LEONARD DARBY  
 72 HARRIS HOLLOW  
 ARGILLITE, KENTUCKY 41121

**PARENT PARCEL LEGAL DESCRIPTION**

THE LAND REFERRED TO IN THIS COMMITMENT IS DESCRIBED AS FOLLOWS: CERTAIN LAND LYING IN GREENUP COUNTY, KENTUCKY, AND DESCRIBED AS FOLLOWS: FIRST TRACT: A PART OF THE ARGILLITE MILL TRACT - BEGINNING AT A STONE BY THE COUNTY ROAD LEADING FROM ARGILLITE TO RACCOON FURNACE CORNER OF LANDS SOLD ELIZABETH EVANS MARCH 20, 1880; THENCE WITH ROAD N.22W. 103 POLES TO A STAKE CORNER OF JOHN PRATT; THENCE WITH PRATTS LINE S.84W. 68 POLES TO FOUR WHITE OAKS N.86W. 40 POLES CORNER TO WM. NICHOLS SURVEY N.77W. 117 POLES TO A BLACK OAK STUMP AND STONES N.85W. 88 POLES TO A WHITE OAK BUSH STANDING N.13E. 2 POLES FROM POPLAR CORNER OF J. RILEY AND RACCOON FURNACE LANDS; THENCE S.13W. 18 POLES TO A HICKORY, WHITE OAK AND BLACK OAK ON TOP OF POINT IN JOE RILEY'S LINE; THENCE S.58E. 62 POLES TO 3 PINES AND A GUM ON TOP OF RIDGE S.80E. 116 POLES TO A RED OAK AND HICKORY N.64E. 26 POLES A LARGE WHITE OAK S.78E. 22 POLES TO DOGWOOD AND BLACK OAK N.74E. 30 POLES A STAKE S.20E. 20 POLES TO EVANS CORNER STAKE AND STONE BY A BRANCH; THENCE WITH EVANS LINE N.56E. 75 POLES TO THE BEGINNING, CONTAINING 83 1/2 ACRES, MORE OR LESS.

SECOND TRACT: BEING A PART OF THE PENNSYLVANIA FURNACE TRACT OF LAND LYING WEST OF ARGILLITE, KENTUCKY, BEGINNING AT A GUM AND 3 PINES ON A RIDGE CORNER OF PRATTS; THENCE S.16W. 16 POLES TO A STONE AT AN ORE DUMP S.58W. 10 POLES TO A PINE S.18W. 9 1/2 POLES S.13E. 24 POLES TO 2 GUMS S.32E. 9 1/2 POLES TO 3 WHITE OAKS S.54E. 10 1/2 POLES TO CHESTNUT OAK AND BLACK OAK S.43E. 22 POLES TO SMALL CHESTNUT OAK AND DOGWOOD N.86E. 13 POLES TO SMALL PINE N.34E. 13 POLES TO 3 BLACK OAKS FROM ONE ROOT N.75E. 19 POLES TO 2 BLACK OAKS FROM ONE ROOT N.48E. 13 POLES TO PINE AND WHITE OAK N.12E. 14 POLES TO PINE CORNER OF WM. THOMPSON; THENCE N. 14 POLES TO A PINE N.43E. 21 POLES TO A STAKE AND STONE ON ORE BANK; THENCE WITH PRATTS LINE N.80W. 82 POLES TO THE BEGINNING, CONTAINING 32 1/2 ACRES, MORE OR LESS.

**GENERAL NOTES:**

NO PROPOSED MUNICIPAL SEWER OR WATER UTILITIES ARE REQUIRED FOR THIS SITE.

FINISHED GRADE WILL MATCH EXISTING CONTOUR.

THERE WILL BE NO CHANGE IN DRAINAGE PATTERN DUE TO THE PROPOSED INSTALLATION.

NO SIGNIFICANT RUNOFF IS GENERATED BY THE PROPOSED INSTALLATION.

NO HAZARDOUS MATERIALS WILL BE USED, PROCESSED OR STORED AT THE SITE.

TOWER LIGHTING SHALL CONFORM TO FAA STANDARDS AS REQUIRED.

ALL WORK SHALL CONFORM TO FAA & FCC REGULATIONS.

**ZONING INFORMATION:**

SUBJECT PARCEL ZONING: NO ZONING (PER SITE PACKAGE)

ADJACENT ZONING: NONE PROVIDED

TOWER SETBACKS: (PER SITE PACKAGE)

FRONT: N/A

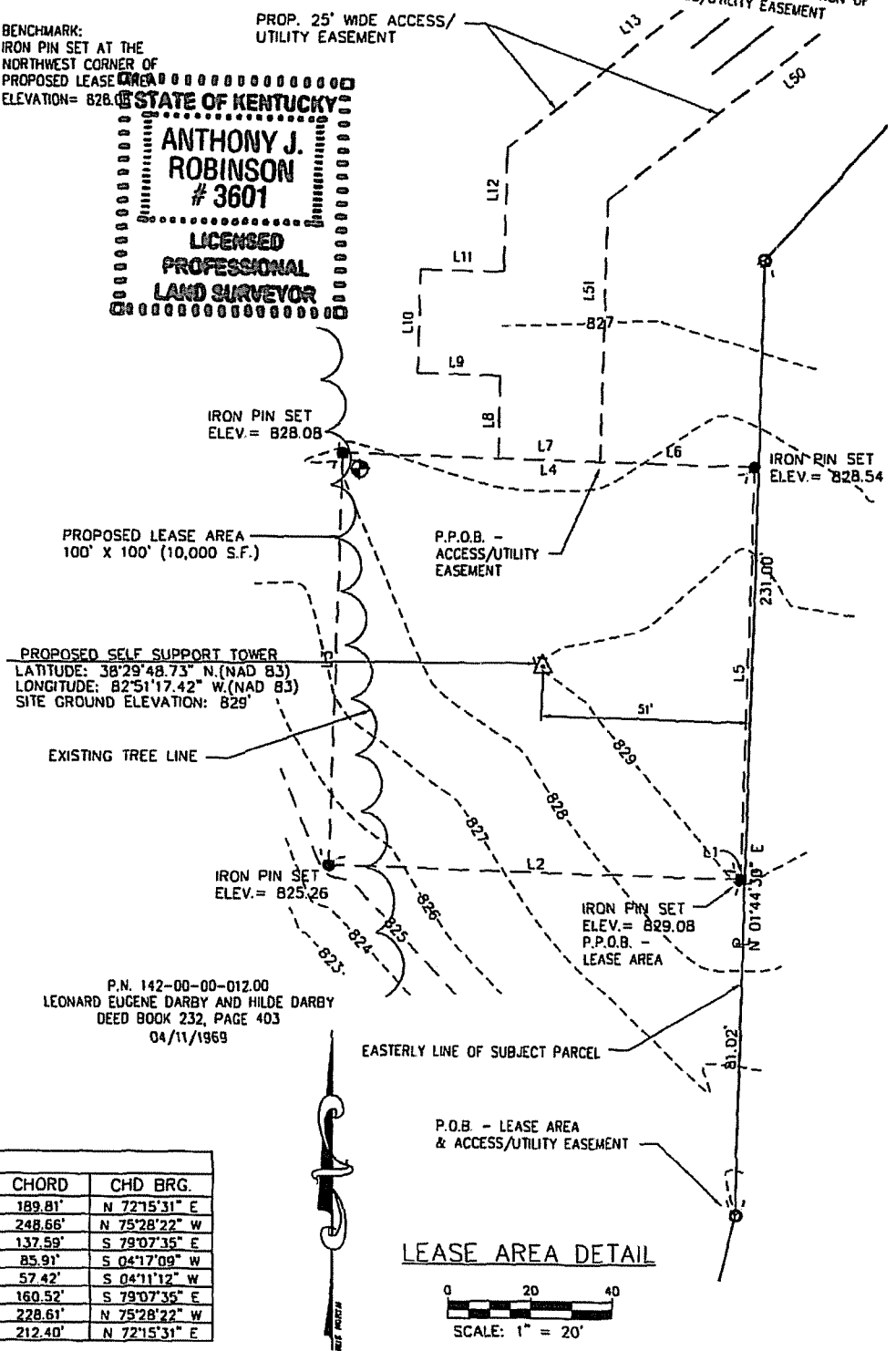
REAR: N/A

SIDES: N/A

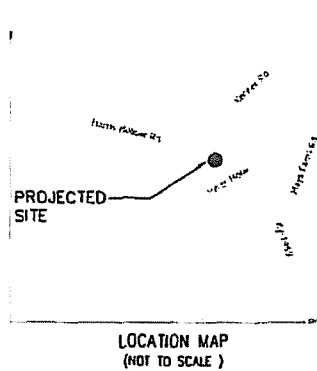
**NOTIFY UTILITY COMPANIES BEFORE DIGGING**

THE LOCATION OF THE EXISTING UTILITIES, AS SHOWN ON THIS PLAN, ARE APPROXIMATE ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ACTUAL LOCATION AND DEPTH OF ALL EXISTING UTILITIES. THE OWNER AND THE SURVEYOR SHALL NOT BE RESPONSIBLE FOR ANY OMISSION OR VARIATION FROM THE LOCATION SHOWN. THE CONTRACTOR SHALL NOTIFY "KENTUCKY UNDERGROUND PROTECTION, INC." AT 1-800-752-6007 THREE (3) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION.

CURVE	LENGTH	RADIUS	TANGENT	DELTA	CHORD	CHD BRG.
C1	196.94'	210.00'	106.39'	53°44'02"	189.81'	N 72°15'31" E
C2	255.86'	310.00'	135.73'	47°17'24"	248.66'	N 75°28'22" W
C3	142.94'	150.00'	77.42'	54°35'51"	137.59'	S 79°07'35" E
C4	91.48'	75.00'	52.40'	69°53'06"	85.91'	S 04°17'09" W
C5	61.16'	50.00'	35.06'	70°05'00"	57.42'	S 04°11'12" W
C6	166.76'	175.00'	90.32'	54°35'51"	160.52'	S 79°07'35" E
C7	235.23'	285.00'	124.78'	47°17'24"	228.61'	N 75°28'22" W
C8	220.39'	235.00'	119.05'	53°44'02"	212.40'	N 72°15'31" E



LINE	LENGTH	BEARING
L1	1.00'	N 88°15'30" W
L2	100.00'	N 88°15'30" W
L3	100.00'	N 01°44'30" E
L4	100.00'	S 88°15'30" E
L5	100.00'	S 01°44'30" W
L6	37.50'	N 88°15'30" W
L7	25.00'	N 88°15'30" W
L8	20.00'	N 01°44'30" E
L9	20.00'	N 88°15'30" W
L10	25.00'	N 01°44'30" E
L11	20.00'	S 88°15'30" E
L12	29.97'	N 01°44'30" E
L13	121.27'	N 51°57'58" E
L14	93.08'	N 43°10'06" E
L15	108.42'	N 48°07'21" E
L16	39.50'	N 11°49'14" W
L17	67.64'	N 71°21'08" E
L18	230.29'	S 80°52'28" E
L19	37.18'	S 87°06'31" E
L20	62.09'	S 77°08'47" E
L21	115.41'	S 80°52'28" E
L22	239.68'	N 45°23'30" E
L23	84.68'	N 51°22'52" E
L24	78.28'	N 80°52'56" E
L25	105.34'	N 73°34'30" E
L26	176.23'	N 40°01'26" E
L27	102.29'	N 12°53'29" E
L28	77.00'	N 04°48'22" W
L29	42.61'	N 30°39'24" W
L30	38.13'	N 39°13'42" E
L31	53.53'	N 04°36'18" E
L32	25.00'	S 85°23'42" E
L33	61.32'	S 04°36'18" W
L34	45.92'	S 39°13'42" W
L35	48.18'	S 30°39'24" E
L36	86.63'	S 04°48'22" E
L37	112.22'	S 12°53'29" W
L38	189.80'	S 40°01'26" W
L39	112.88'	S 73°34'30" W
L40	71.69'	S 80°52'56" W
L41	76.79'	S 51°22'52" W
L42	238.37'	S 45°23'30" W
L43	116.22'	N 80°52'28" W
L44	60.72'	N 77°08'47" W
L45	36.36'	N 87°06'31" W
L46	218.13'	N 80°52'28" W
L47	61.97'	S 42°19'08" W
L48	116.70'	S 48°07'21" W
L49	93.92'	S 43°10'06" W
L50	111.48'	S 51°57'58" W
L51	63.25'	S 01°44'30" W

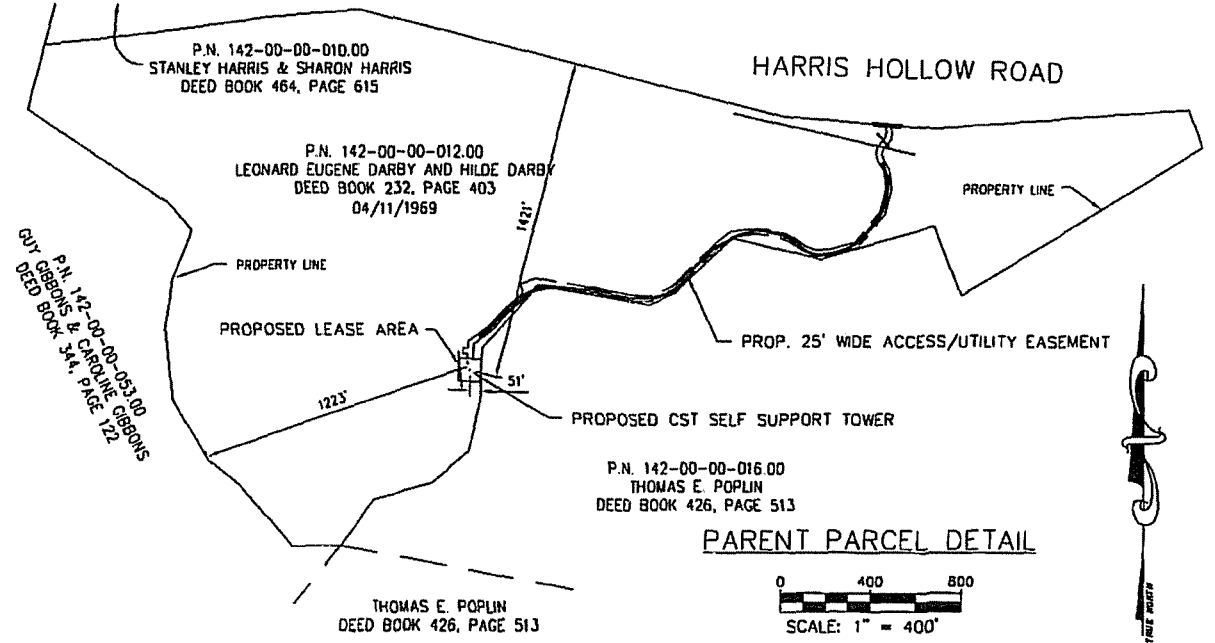


- Schedule B - Section II Exceptions:  
 Commitment No. BI-43006
- 10.) Agreement between Leonard E. Darby and Hilde Darby, his wife, and Cloxon Energies, Inc. dated December 24, 1974, as recorded in Misc. Book 17, Page 249. Blanket Mining Agreement for Coal - Unable to plot.
  - 11.) Oil and Gas Lease between Theodore Poplin and Jim Gason Oil Co., dated May 27, 1954, as recorded in Misc. Book 9, Page 535. Blanket Lease for Oil and Gas - Unable to plot.
  - 12.) Memorandum of Lease between Central States Tower Holdings, LLC, and Leonard Eugene Darby, dated February 7, 2008, as recorded in Misc. Book 49, Page 397. For subject parcel - Nothing to plot.
  - 13.) Right of Way and Easement granted from Leonard Eugene Darby and Mary Elizabeth Darby, his wife, to City of Greenup, dated April 10, 1997, as recorded in Deed Book 455, Page 707. 20' Waterline easement - Insufficient information to plot easement location.
  - 14.) Easement granted to Eskel Carter and Grace Carter, his wife, from Theodore Poplin, unmarried, dated July 13, 1966, as recorded in Deed Book 220, Page 268. 20' Right of Way for better access to existing road - unable to plot.
  - 15.) Easement granted to Lester Harris and Imogene Harris, his wife, from Theodore Poplin, unmarried, dated June 17, 1967 as recorded in Deed Book 221, Page 484. 20' Right of Way for better access to existing road - unable to plot.

**LEGEND**

- EXISTING TRANSFORMER
- EXISTING TREE
- BENCHMARK
- IRON PIN SET
- IRON PIN FOUND
- EXISTING WATER VALVE
- EXISTING FIRE HYDRANT
- EXISTING WATER MANHOLE
- EXISTING WATER METER
- EXISTING PARKING METER
- EXISTING STREET SIGN
- EXISTING BILLBOARD & LARGE SIGNS
- EXISTING GUARDRAIL
- EXISTING LIGHT POLE
- EXISTING UTILITY POLE
- EXISTING UTILITY POLE WITH STREET LIGHT
- EXISTING GROUND GUY WIRE
- EXISTING GAS VALVE
- EXISTING TRAFFIC SIGNAL POLE
- EXISTING SANITARY MANHOLE
- EXISTING STORM MANHOLE
- EXISTING ELEC. OR TELE. MH
- EXISTING INLET
- EXISTING TRENCH DRAIN
- EXISTING STORM DRAIN
- EXISTING SANITARY
- EXISTING WATER MAIN
- EXISTING ELECTRIC WIRE
- EXISTING FENCE
- EXISTING CONCRETE
- EXISTING BUILDING
- PROPOSED
- EXISTING
- PROPOSED ELEVATION MARK
- MONUMENT BOX /IRON PIN
- IRON PIPE FOUND

ALL UTILITIES AS SHOWN ARE APPROXIMATE LOCATIONS DERIVED FROM ACTUAL MEASUREMENTS AND AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATION NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THE AREA.



**MAX ENGINEERING, LLC**

9000 SW FREEWAY, Ste # 410  
 Houston, Texas 77074  
 Phone (713) 773-2525  
 Fax (713) 773-2558

**CST**

CENTRAL STATES TOWER, INC.

323 SOUTH HALE STREET  
 SUITE 100  
 WHEATON, IL 60187

**SITE NAME: GREENBO LAKE**  
**SITE NO.: KY-00-0821**

SITE ADDRESS: 72 HARRIS HOLLOW ROAD  
 ARGILLITE, KENTUCKY, 41121

- PLAN PREPARED BY -

**H.L.G. ENGINEERING AND SURVEYING, INC.**

705-F LAKEVIEW PLAZA BLVD.  
 WORTHINGTON, OH 43085  
 (614) 841-0053 (PHONE)  
 (614) 841-0170 (FAX)

NO.	DATE	REVISIONS	BY	CHK	APP'D
C.	04/11/08	TITLE COMMENTS	DAP	AR	
B.	04/10/08	ADDED NORTH ARROW	DAP	AR	
A.	04/08/08	FINAL SURVEY	DAP	AR	

SCALE AS SHOWN CHECKED BY: DAP DRAWN: PRE

JOB NO. 50469 DWG. NO. 50469\_Master REV C

SHEET 5-1

**SURVEY PLAN**

Legal Description for a Access/Utility Easement  
 Project No. 50,469  
 April 8, 2008

Situated in the Argillite Mill Tract, County of Greenup, State of Kentucky and known as being a part lands conveyed to Leonard Eugene Darby and Hilde Darby, by deed dated April 11, 1969 as recorded in Deed Book 232, Page 403 of the Greenup County Clerk Records, further bounded and described as follows:

Commencing at an iron pin found at an angle point in an Easterly line of said lands conveyed to Leonard Eugene Darby and Hilde Darby, said iron pin being referenced as bearing South 01°44'30" West, a distance of 231.00 feet from an iron pin found on said Easterly line;

Thence along said Easterly line, bearing North 01°44'30" East, a distance of 81.02 feet to a point thereon;

Thence leaving said Easterly line at a right angle, bearing North 88°15'30" West, a distance of 1.00 feet to an iron pin set at a proposed Tower Lease Area;

Thence at a right angle and parallel with said Easterly line, bearing North 01°44'30" East, a distance of 100.00 feet to an iron pin set at the Northeastly corner of said Lease Area;

Thence at a right angle and along the Northerly line of said Lease Area, bearing North 88°15'30" West, a distance of 37.50 feet to a point thereon and being the PRINCIPAL PLACE OF BEGINNING of the Access/Utility Easement herein described;

Thence continuing along said Lease Area line, bearing North 88°15'30" West, a distance of 25.00 feet to a point thereon;

Thence leaving said Lease Area line at a right angle, bearing North 01°44'30" East, a distance of 20.00 feet to a point;

Thence at a right angle, bearing North 88°15'30" West, a distance of 20.00 feet to a point;

Thence at a right angle, bearing North 01°44'30" East, a distance of 25.00 feet to a point;

Thence at a right angle, bearing South 88°15'30" East, a distance of 20.00 feet to a point;

Thence at a right angle, bearing North 01°44'30" East, a distance of 29.97 feet to a point;

Thence, bearing North 51°57'58" East, a distance of 121.27 feet to a point;

Thence, bearing North 43°10'06" East, a distance of 93.08 feet to a point;

Thence, bearing North 48°07'21" East, a distance of 108.42 feet to a point;

Thence, bearing North 11°49'14" West, a distance of 39.50 feet to a point;

Thence, bearing North 71°21'08" East, a distance of 67.64 feet to a point;

Thence, bearing South 80°52'28" West, a distance of 230.29 feet to a point;

Thence, bearing South 87°06'31" East, a distance of 37.18 feet to a point;

Thence, bearing South 77°08'47" East, a distance of 62.09 feet to a point;

Thence, bearing South 80°52'28" East, a distance of 115.41 feet to a point of curvature;

Thence, along the arc of a curve deflecting to the left, having a radius of 210.00 feet and having a chord which bears North 72°15'31" East for a distance of 189.81 feet and having an arc length of 196.94 feet to a point;

Thence, bearing North 45°23'30" East, a distance of 239.68 feet to a point;

Thence, bearing North 51°22'52" East, a distance of 84.68 feet to a point;

Thence, bearing North 80°52'56" East, a distance of 78.28 feet to a point of curvature;

Thence, along the arc of a curve deflecting to the right, having a radius of 310.00 feet and having a chord which bears South 75°28'22" East for a distance of 248.66 feet and having an arc length of 255.86 feet to a point on a compound curve;

Thence continuing along the arc of a curve deflecting to the left, having a radius of 150.00 feet and having a chord which bears South 79°07'35" East for a distance of 137.59 feet and having an arc length of 142.94 feet to a point;

Legal - Access/Utility Easement (Cont'd.)

Thence, bearing North 73°34'30" East, a distance of 105.34 feet to a point;

Thence, bearing North 40°12'26" East, a distance of 176.23 feet to a point;

Thence, bearing North 12°53'29" East, a distance of 102.29 feet to a point;

Thence, bearing North 04°48'22" West, a distance of 77.00 feet to a point;

Thence, bearing North 30°39'24" West, a distance of 42.61 feet to a point of curvature;

Thence, along the arc of a curve deflecting to the right, having a radius of 75.00 feet and having a chord which bears North 04°17'09" East for a distance of 85.91 feet and having an arc length of 91.48 feet to a point;

Thence, bearing North 39°13'42" East, a distance of 38.13 feet to a point;

Thence, bearing North 04°36'18" East, a distance of 53.53 feet to a point on the Northerly line of said lands conveyed to Leonard Eugene Darby and Hilde Darby, said point also being within the Right-of-Way of Harris Hollow Road;

Thence along said Northerly line, bearing South 85°23'42" East, a distance of 25.00 feet to a point thereon;

Thence leaving said Northerly line, bearing South 04°36'18" West, a distance of 61.32 feet to a point;

Thence, bearing South 39°13'42" West, a distance of 45.92 feet to a point of curvature;

Thence, along the arc of a curve deflecting to the left, having a radius of 50.00 feet and having a chord which bears South 04°11'12" West for a distance of 57.42 feet and having an arc length of 61.16 feet to a point;

Thence, bearing South 30°39'24" East, a distance of 48.18 feet to a point;

Thence, bearing South 04°48'22" East, a distance of 86.63 feet to a point;

Thence, bearing South 12°53'29" West, a distance of 112.22 feet to a point;

Thence, bearing South 40°12'26" West, a distance of 189.80 feet to a point;

Thence, bearing South 73°34'30" West, a distance of 112.88 feet to a point of curvature;

Thence, along the arc of a curve deflecting to the right, having a radius of 175.00 feet and having a chord which bears North 78°07'35" West for a distance of 160.52 feet and having an arc length of 166.76 feet to a point on a reverse curve;

Thence, along the arc of a curve deflecting to the left, having a radius of 285.00 feet and having a chord which bears North 75°28'22" West for a distance of 228.61 feet and having an arc length of 235.23 feet to a point;

Legal - Access/Utility Easement (Cont'd.)

Thence, bearing South 80°52'56" West, a distance of 71.69 feet to a point;

Thence, bearing South 51°22'52" West, a distance of 76.79 feet to a point;

Thence, bearing South 45°23'30" West, a distance of 238.37 feet to a point of curvature;

Thence, along the arc of a curve deflecting to the right, having a radius of 235.00 feet and having a chord which bears South 72°15'31" West for a distance of 212.40 feet and having an arc length of 220.39 feet to a point;

Thence, bearing North 80°52'28" West, a distance of 116.22 feet to a point;

Thence, bearing North 77°08'47" West, a distance of 60.72 feet to a point;

Thence, bearing North 87°06'31" West, a distance of 36.36 feet to a point;

Thence, bearing North 80°52'28" West, a distance of 218.13 feet to a point;

Thence, bearing South 42°19'08" West, a distance of 61.97 feet to a point;

Thence, bearing South 48°07'21" West, a distance of 116.70 feet to a point;

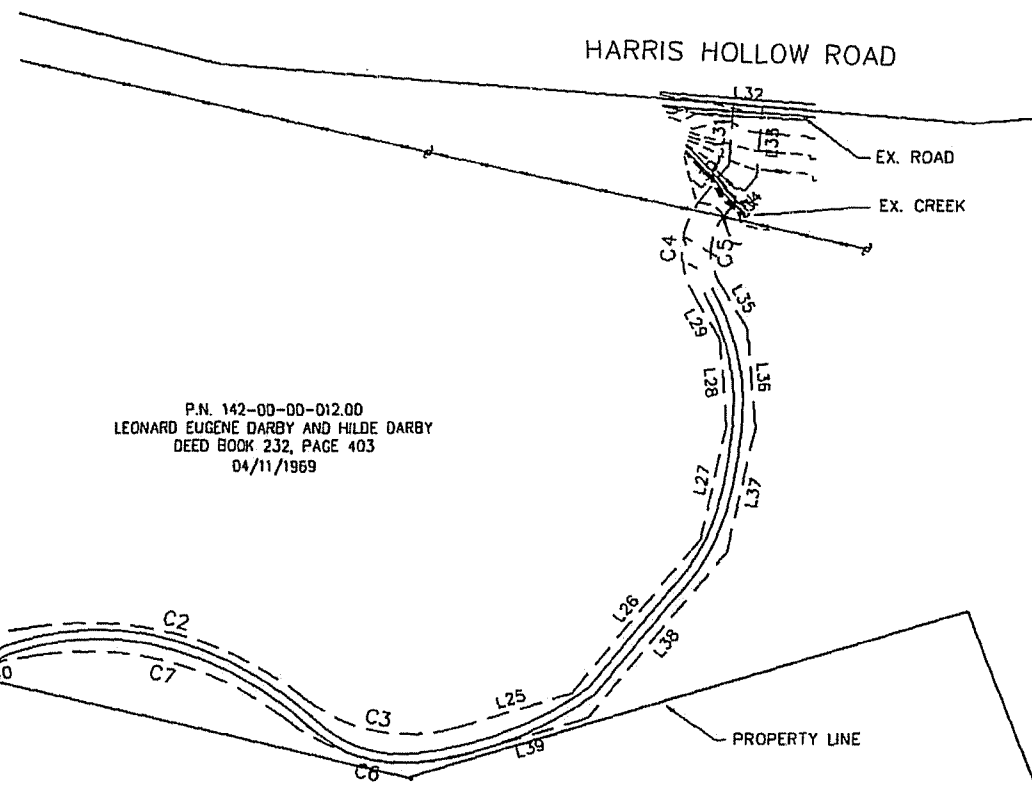
Thence, bearing South 43°10'06" West, a distance of 93.92 feet to a point;

Thence, bearing South 51°57'58" West, a distance of 111.48 feet to a point;

Thence, bearing South 01°44'30" West, a distance of 63.25 feet to the PRINCIPAL PLACE OF BEGINNING, intending to be a 25-foot wide strip of land for ingress/egress and utility purposes and subject to all legal highways and all covenants and agreements of record.

Bearings are based on True North as determined by GPS observation and are used herein to indicate angles only.

This legal description was prepared based on a survey under the supervision of Anthony J. Robinson, P.S. No. 3601 by HLG Engineering and Surveying, Inc. in March 2008.



P.N. 142-00-00-012.00  
 LEONARD EUGENE DARBY AND HILDE DARBY  
 DEED BOOK 232, PAGE 403  
 04/11/1969

PROP. 25' WIDE ACCESS/  
 UTILITY EASEMENT

EX. DRIVE

P.N. 142-00-00-016.00  
 THOMAS E. POPLIN  
 DEED BOOK 426, PAGE 513

Legal Description for a Lease Area  
 Project No. 50,469  
 April 8, 2008

Situated in the Argillite Mill Tract, County of Greenup, State of Kentucky and known as being a part lands conveyed to Leonard Eugene Darby and Hilde Darby, by deed dated April 11, 1969 as recorded in Deed Book 232, Page 403 of the Greenup County Clerk Records, further bounded and described as follows:

Commencing at an iron pin found at an angle point in an Easterly line of said lands conveyed to Leonard Eugene Darby and Hilde Darby, said iron pin being referenced as bearing South 01°44'30" West, a distance of 231.00 feet from an iron pin found on said Easterly line;

Thence along said Easterly line, bearing North 01°44'30" East, a distance of 81.02 feet to a point thereon;

Thence leaving said Easterly line at a right angle, bearing North 88°15'30" West, a distance of 1.00 feet to an iron pin set and being the PRINCIPAL PLACE OF BEGINNING of the Lease Area herein described;

Thence, bearing North 88°15'30" West, a distance of 100.00 feet to an iron pin set;

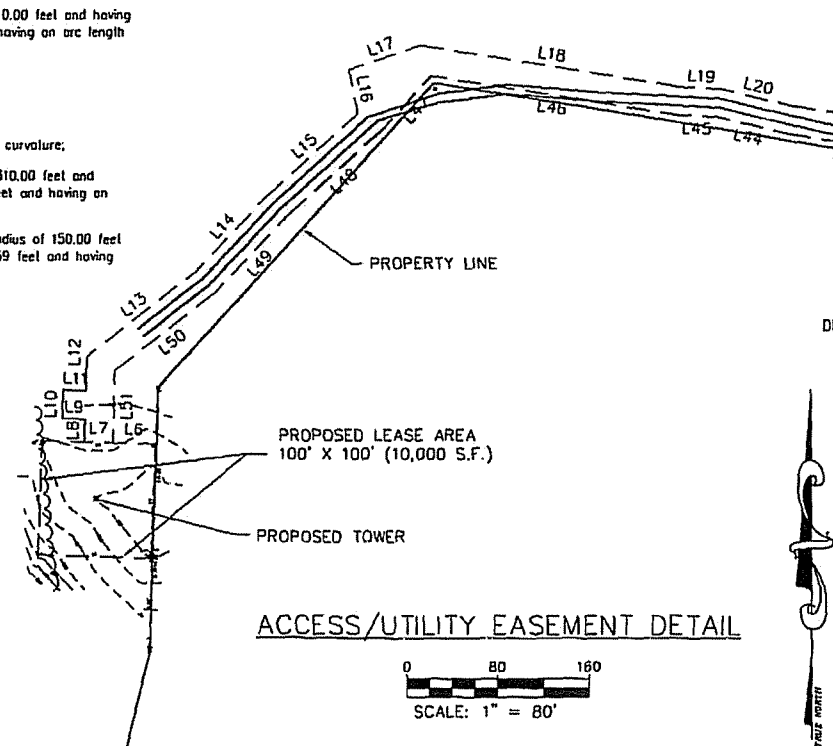
Thence at a right angle, bearing North 01°44'30" East, a distance of 100.00 feet to an iron pin set;

Thence at a right angle, bearing South 88°15'30" East, a distance of 100.00 feet to an iron pin set;

Thence at a right angle, bearing South 01°44'30" West, a distance of 100.00 feet to the PRINCIPAL PLACE OF BEGINNING, containing 10,000 square feet or 0.2296 acres of land, more or less but subject to all legal highways and all covenants and agreements of record.

Bearings are based on True North as determined by GPS observation and are used herein to indicate angles only.

This legal description was prepared based on a survey under the supervision of Anthony J. Robinson, P.S. No. 3601 by HLG Engineering and Surveying, Inc. in March 2008.



ACCESS/UTILITY EASEMENT DETAIL

SCALE: 1" = 80'



**MAX ENGINEERING, LLC**  
 9000 SW FREEWAY, Ste # 410  
 Houston, Texas 77074  
 Phone (713) 773-2525  
 Fax (713) 773-2558



**CENTRAL STATES TOWER, INC.**  
 323 SOUTH HALE STREET  
 SUITE 100  
 WHEATON, IL 60187

**SITE NAME: GREENBO LAKE**  
**SITE NO.: KY-00-0821**  
 SITE ADDRESS: 72 HARRIS HOLLOW ROAD  
 ARGILLITE, KENTUCKY, 41121

- PLAN PREPARED BY -  
**HLG, ENGINEERING AND SURVEYING, INC.**  
 705-F LAKEVIEW PLAZA BLVD.  
 WORTHINGTON, OH 43085  
 (614) 841-0053 (PHONE)  
 (614) 841-0170 (FAX)

NO.	DATE	REVISIONS	BY	CHK	APP'D
C.	04/11/08	TITLE COMMENTS	DP	AR	
B.	04/08/08	ADDED NORTH ARROW	DP	AR	
A.	04/08/08	FINAL SURVEY SUBMITTED	DP	AR	

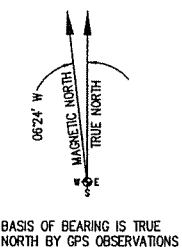
SHEET S-2		
SURVEY PLAN		
JOB NO. 50469	DWG. NO. 50469_Master	REV C

THE TOWER LOCATION, AS SHOWN IN THE COORDINATES BELOW, HAVE A HORIZONTAL ACCURACY WITHIN ± 20 FEET AND A VERTICAL ACCURACY WITHIN ± 3 FEET.

LATITUDE: 38° 29' 48.73" N  
LONGITUDE: 82° 51' 17.42" W  
(NAD 83)

GROUND ELEVATION: 829 FEET  
(NAVD 88)

**TOWER COORDINATES**



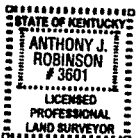
**CERTIFICATION:**

THIS SURVEY PLAN IS NOT THE RESULT OF A FULL BOUNDARY SURVEY. IT IS THE RESULT OF COMPILATION OF RECORD INFORMATION AND LOCATION OF AVAILABLE MONUMENTATION.

ANTHONY J. ROBINSON, P.S. No. 3601  
DATE: 4-11-08  
BEARING BASIS: TRUE NORTH AS DETERMINED BY GPS OBSERVATION.

**FLOOD PLAIN INFORMATION**

SITE LIES WITHIN FLOOD ZONE "X" WHICH IS AN AREA OUTSIDE THE 0.2% ANNUAL CHANCE AS DETERMINED FROM THE NATIONAL FLOOD INSURANCE PROGRAM. COMMUNITY PANEL NUMBER 21089 0301 C B, EFFECTIVE DATE SEPTEMBER 16, 2004.



**PROPERTY OWNERS:**  
LEONARD DARBY  
72 HARRIS HOLLOW  
ARGILLITE, KENTUCKY 41121

**PARENT PARCEL LEGAL DESCRIPTION**

THE LAND REFERRED TO IN THIS COMMITMENT IS DESCRIBED AS FOLLOWS: CERTAIN LAND LYING IN GREENUP COUNTY, KENTUCKY, AND DESCRIBED AS FOLLOWS: FIRST TRACT: A PART OF THE ARGILLITE MILL TRACT - BEGINNING AT A STONE BY THE COUNTY ROAD LEADING FROM ARGILLITE TO RACCOON FURNACE CORNER OF LANDS SOLD ELIZABETH EVANS MARCH 20, 1880; THENCE WITH ROAD N.22W. 103 POLES TO A STAKE CORNER OF JOHN PRATT; THENCE WITH PRATTS LINE S.842W. 68 POLES TO FOUR WHITE OAKS N.862W. 403 POLES CORNER TO WM. NICHOLS SURVEY N.77W. 117 POLES TO A BLACK OAK STUMP AND STONES N.85W. 88 POLES TO A WHITE OAK BUSH STANDING N.13E. 2 POLES FROM POPLAR CORNER OF J. RILEY AND RACCOON FURNACE LANDS; THENCE S.13W. 18 POLES TO A HICKORY, WHITE OAK AND BLACK OAK ON TOP OF POINT IN JOE RILEY'S LINE; THENCE S.58E. 62 POLES TO 3 PINES AND A GUM ON TOP OF RIDGE S.80E. 116 POLES TO A RED OAK AND HICKORY N.64E. 26 POLES A LARGE WHITE OAK S.78E. 22 POLES TO DOGWOOD AND BLACK OAK N.74E. 30 POLES A STAKE S.20E. 20 POLES TO EVANS CORNER STAKE AND STONE BY A BRANCH; THENCE WITH EVANS LINE N.56E. 75 POLES TO THE BEGINNING, CONTAINING 83 1/2 ACRES, MORE OR LESS.

SECOND TRACT: BEING A PART OF THE PENNSYLVANIA FURNACE TRACT OF LAND LYING WEST OF ARGILLITE, KENTUCKY, BEGINNING AT A GUM AND 3 PINES ON A DUMP CORNER OF PRATTS; THENCE S.16W. 16 POLES TO A STONE AT AN ORE DUMP S.58W. 10 POLES TO A PINE S.18W. 9 1/2 POLES S.13E. 24 POLES TO 2 GUMS S.32E. 9 1/2 POLES TO 3 WHITE OAKS S.54E. 10 1/2 POLES TO CHESTNUT OAK AND BLACK OAK S.43E. 22 POLES TO SMALL CHESTNUT OAK AND DOGWOOD N.86E. 13 POLES TO SMALL PINE N.34E. 13 POLES TO 3 BLACK OAKS FROM ONE ROOT N.75E. 19 POLES TO 2 BLACK OAKS FROM ONE ROOT N.48E. 13 POLES TO PINE AND WHITE OAK N.12E. 14 POLES TO PINE CORNER OF WM. THOMPSON; THENCE N. 14 POLES TO A PINE N.43E 21 POLES TO A STAKE AND STONE ON ORE BANK; THENCE WITH PRATTS LINE N.80W. 82 POLES TO THE BEGINNING, CONTAINING 32 1/2 ACRES, MORE OR LESS.

**GENERAL NOTES:**

NO PROPOSED MUNICIPAL SEWER OR WATER UTILITIES ARE REQUIRED FOR THIS SITE.  
FINISHED GRADE WILL MATCH EXISTING CONTOUR.  
THERE WILL BE NO CHANGE IN DRAINAGE PATTERN DUE TO THE PROPOSED INSTALLATION.  
NO SIGNIFICANT RUNOFF IS GENERATED BY THE PROPOSED INSTALLATION.  
NO HAZARDOUS MATERIALS WILL BE USED, PROCESSED OR STORED AT THE SITE.  
TOWER LIGHTING SHALL CONFORM TO FAA STANDARDS AS REQUIRED.  
ALL WORK SHALL CONFORM TO FAA & FCC REGULATIONS.

**ZONING INFORMATION:**

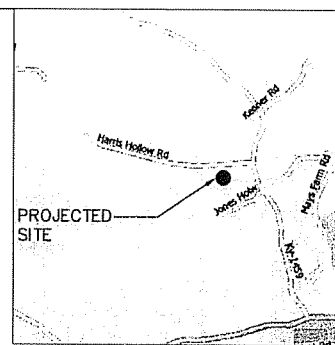
SUBJECT PARCEL ZONING: NO ZONING (PER SITE PACKAGE)  
ADJACENT ZONING: NONE PROVIDED  
TOWER SETBACKS: (PER SITE PACKAGE)  
FRONT: N/A  
REAR: N/A  
SIDES: N/A

**NOTIFY UTILITY COMPANIES BEFORE DIGGING**

THE LOCATION OF THE EXISTING UTILITIES, AS SHOWN ON THIS PLAN, ARE APPROXIMATE ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ACTUAL LOCATION AND DEPTH OF ALL EXISTING UTILITIES. THE OWNER AND THE SURVEYOR SHALL NOT BE RESPONSIBLE FOR ANY OMISSION OR VARIATION FROM THE LOCATION SHOWN. THE CONTRACTOR SHALL NOTIFY "KENTUCKY UNDERGROUND PROTECTION, INC." AT 1-800-752-6007 THREE (3) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION.

CURVE	LENGTH	RADIUS	TANGENT	DELTA	CHORD	CHD BRG.
C1	196.94'	210.00'	106.39'	53°44'02"	189.81'	N 72°15'31" E
C2	255.86'	310.00'	135.73'	47°17'24"	248.66'	N 75°28'22" W
C3	142.94'	150.00'	77.42'	54°35'51"	137.59'	S 79°07'35" E
C4	91.48'	75.00'	52.40'	69°53'06"	85.91'	S 04°11'09" W
C5	61.16'	50.00'	35.06'	70°05'00"	57.42'	S 04°11'12" W
C6	166.76'	175.00'	90.32'	54°35'51"	160.52'	S 79°07'35" E
C7	235.23'	285.00'	124.78'	47°17'24"	228.61'	N 75°28'22" W
C8	220.39'	235.00'	119.05'	53°44'02"	212.40'	N 72°15'31" E

LINE	LENGTH	BEARING
L1	1.00'	N 88°15'30" W
L2	100.00'	N 88°15'30" W
L3	100.00'	N 01°44'30" E
L4	100.00'	S 88°15'30" E
L5	100.00'	S 01°44'30" W
L6	37.50'	N 88°15'30" W
L7	25.00'	N 88°15'30" W
L8	20.00'	N 01°44'30" E
L9	20.00'	N 88°15'30" W
L10	25.00'	N 01°44'30" E
L11	20.00'	S 88°15'30" E
L12	29.97'	N 01°44'30" E
L13	121.27'	N 51°57'58" E
L14	93.08'	N 43°10'06" E
L15	108.42'	N 48°07'21" E
L16	39.50'	N 11°49'14" W
L17	67.64'	N 71°21'08" E
L18	230.29'	S 80°52'28" E
L19	37.18'	S 87°06'31" E
L20	62.09'	S 77°08'47" E
L21	115.41'	S 80°52'28" E
L22	239.68'	N 45°23'30" E
L23	84.68'	N 51°22'52" E
L24	78.28'	N 80°52'56" E
L25	105.34'	N 73°34'30" E
L26	176.23'	N 40°01'26" E
L27	102.29'	N 12°53'29" E
L28	77.00'	N 04°48'22" W
L29	42.61'	N 30°39'24" W
L30	38.13'	N 39°13'42" E
L31	53.53'	N 04°36'18" E
L32	25.00'	S 85°23'42" E
L33	61.32'	S 04°36'18" W
L34	45.92'	S 39°13'42" W
L35	48.18'	S 30°39'24" E
L36	86.63'	S 04°48'22" E
L37	112.22'	S 12°53'29" W
L38	189.80'	S 40°01'26" W
L39	112.88'	S 73°34'30" W
L40	71.69'	S 80°52'56" W
L41	76.79'	S 51°22'52" W
L42	238.37'	S 45°23'30" W
L43	116.22'	N 80°52'28" W
L44	60.72'	N 77°08'47" W
L45	36.36'	N 87°06'31" W
L46	218.13'	N 80°52'28" W
L47	61.97'	S 42°19'08" W
L48	116.70'	S 48°07'21" W
L49	93.92'	S 43°10'06" W
L50	111.48'	S 51°57'58" W
L51	63.25'	S 01°44'30" W



LOCATION MAP  
(NOT TO SCALE)

Schedule B - Section II Exceptions:  
Commitment No. BT-43006

10.) Agreement between Leonard E. Darby and Hilde Darby, his wife, and Claxton Energies, Inc. dated December 24, 1974, as recorded in Misc. Book 17, Page 249.  
Blanket Mining Agreement for Coal - Unable to plot.

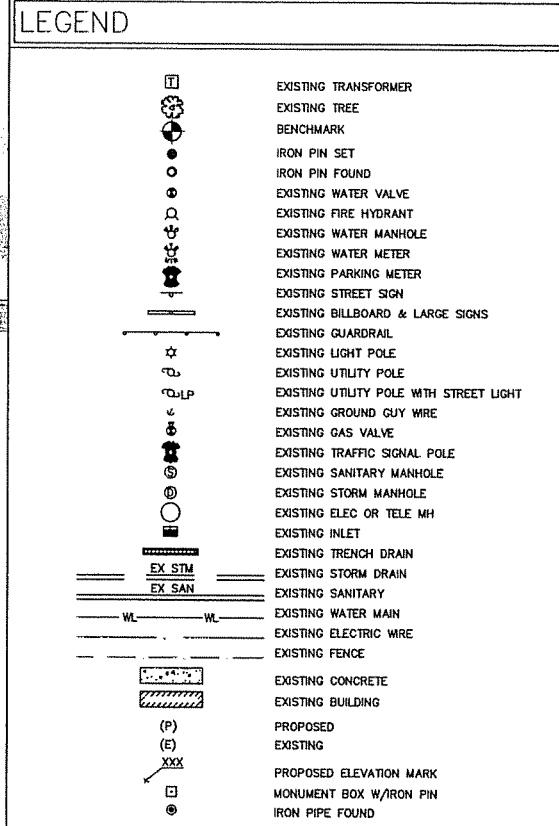
11.) Oil and Gas Lease between Theodore Poplin and Jim Gibson Oil Co., dated May 27, 1964, as recorded in Misc. Book 9, Page 535.  
Blanket Lease for Oil and Gas - Unable to plot.

12.) Memorandum of Lease between Central States Tower Holdings, LLC, and Leonard Eugene Darby, dated February 7, 2008, as recorded in Misc. Book 49, Page 397.  
For subject parcel - Nothing to plot.

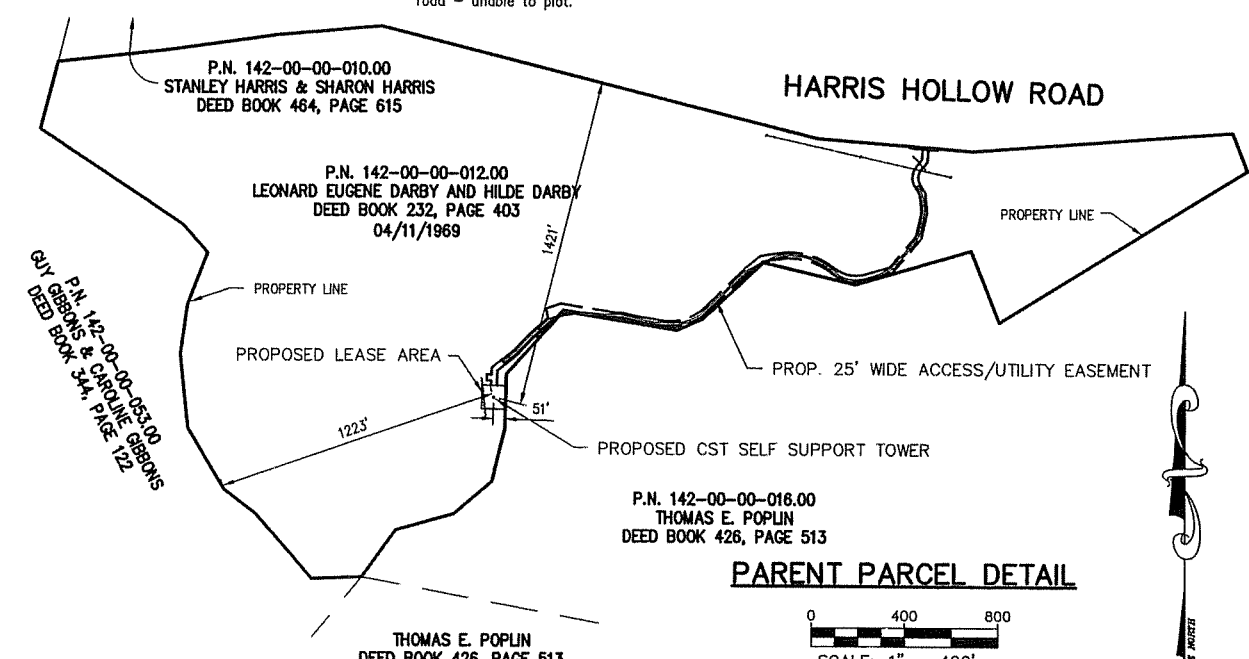
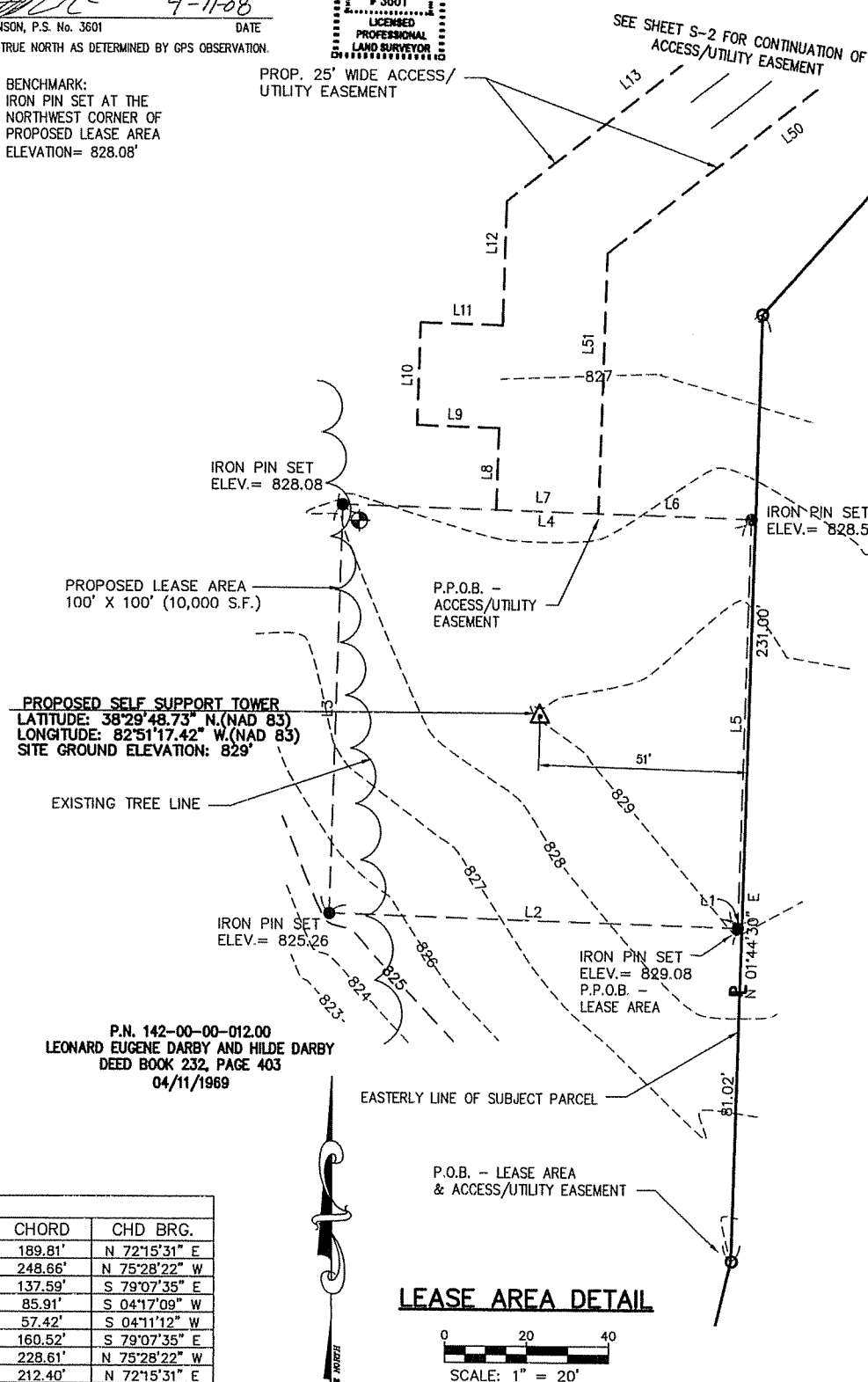
13.) Right of Way and Easement granted from Leonard Eugene Darby and Mary Elizabeth Darby, his wife, to City of Greenup, dated April 10, 1997, as recorded in Deed Book 455, Page 707.  
20' Waterline easement - Insufficient information to plot easement location.

14.) Easement granted to Eskel Carter and Grace Carter, his wife, from Theodore Poplin, unmarried, dated July 13, 1966, as recorded in Deed Book 220, Page 268.  
20' Right of Way for better access to existing road - unable to plot.

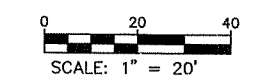
15.) Easement granted to Lester Harris and Imogene Harris, his wife, from Theodore Poplin, unmarried, dated June 17, 1967 as recorded in Deed Book 221, Page 484.  
20' Right of Way for better access to existing road - unable to plot.



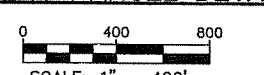
ALL UTILITIES AS SHOWN ARE APPROXIMATE LOCATIONS DERIVED FROM ACTUAL MEASUREMENTS AND AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATION NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THE AREA.



**LEASE AREA DETAIL**



**PARENT PARCEL DETAIL**



**MAX ENGINEERING, LLC**  
9000 SW FREEWAY, Ste # 410  
Houston, Texas 77074  
Phone (713) 773-2525  
Fax (713) 773-2558

**CST** CENTRAL STATES TOWER, INC.  
323 SOUTH HALE STREET  
SUITE 100  
WHEATON, IL 60187

**SITE NAME: GREENBO LAKE**  
**SITE NO.: KY-00-0821**  
SITE ADDRESS: 72 HARRIS HOLLOW ROAD  
ARGILLITE, KENTUCKY, 41121

- PLAN PREPARED BY -  
**HLG, ENGINEERING AND SURVEYING, INC.**  
705-F LAKEVIEW PLAZA BLVD.  
WORTHINGTON, OH 43085  
(614) 841-0053 (PHONE)  
(614) 841-0170 (FAX)

NO.	DATE	REVISIONS	BY	CHK	APP'D
C.	04/11/08	TITLE COMMENTS	DAP	AR	
B.	04/10/08	ADDED NORTH ARROW	DAP	AR	
A.	04/08/08	FINAL SURVEY	DAP	AR	

SCALE AS SHOWN CHECKED BY: DAP DRAWN: PRE

JOB NO.	DWG. NO.	REV
50469	50469_Master	C

Legal Description for a Access/Utility Easement  
 Project No. 50,469  
 April 8, 2008

Situate in the Argillite Mill Tract, County of Greenup, State of Kentucky and known as being a part lands conveyed to Leonard Eugene Darby and Hilde Darby, by deed dated April 11, 1969 as recorded in Deed Book 232, Page 403 of the Greenup County Clerk Records, further bounded and described as follows:

Commencing at an iron pin found at an angle point in an Easterly line of said lands conveyed to Leonard Eugene Darby and Hilde Darby, said iron pin being referenced as bearing South 01°44'30" West, a distance of 231.00 feet from an iron pin found on said Easterly line;

Thence along said Easterly line, bearing North 01°44'30" East, a distance of 81.02 feet to a point thereon;

Thence leaving said Easterly line at a right angle, bearing North 88°15'30" West, a distance of 1.00 feet to an iron pin set at a proposed Tower Lease Area;

Thence at a right angle and parallel with said Easterly line, bearing North 01°44'30" East, a distance of 100.00 feet to an iron pin set at the Northeastly corner of said Lease Area;

Thence at a right angle and along the Northerly line of said Lease Area, bearing North 88°15'30" West, a distance of 37.50 feet to a point thereon and being the PRINCIPAL PLACE OF BEGINNING of the Access/Utility Easement herein described;

Thence continuing along said Lease Area line, bearing North 88°15'30" West, a distance of 25.00 feet to a point thereon;

Thence leaving said Lease Area line at a right angle, bearing North 01°44'30" East, a distance of 20.00 feet to a point;

Thence at a right angle, bearing North 88°15'30" West, a distance of 20.00 feet to a point;

Thence at a right angle, bearing North 01°44'30" East, a distance of 25.00 feet to a point;

Thence at a right angle, bearing South 88°15'30" East, a distance of 20.00 feet to a point;

Thence at a right angle, bearing North 01°44'30" East, a distance of 29.97 feet to a point;

Thence, bearing North 51°57'58" East, a distance of 121.27 feet to a point;

Thence, bearing North 43°10'06" East, a distance of 93.08 feet to a point;

Thence, bearing North 48°07'21" East, a distance of 108.42 feet to a point;

Thence, bearing North 11°49'14" West, a distance of 39.50 feet to a point;

Thence, bearing North 71°21'08" East, a distance of 67.84 feet to a point;

Thence, bearing South 80°52'28" East, a distance of 230.29 feet to a point;

Thence, bearing South 87°05'31" East, a distance of 37.18 feet to a point;

Thence, bearing South 77°08'47" East, a distance of 62.09 feet to a point;

Thence, bearing South 80°52'28" East, a distance of 115.41 feet to a point of curvature;

Thence, along the arc of a curve deflecting to the left, having a radius of 210.00 feet and having a chord which bears North 72°15'31" East for a distance of 189.81 feet and having an arc length of 196.94 feet to a point;

Thence, bearing North 45°23'30" East, a distance of 239.68 feet to a point;

Thence, bearing North 51°22'52" East, a distance of 84.68 feet to a point;

Thence, bearing North 80°52'56" East, a distance of 78.28 feet to a point of curvature;

Thence, along the arc of a curve deflecting to the right, having a radius of 310.00 feet and having a chord which bears South 75°28'22" East for a distance of 248.66 feet and having an arc length of 255.86 feet to a point on a compound curve;

Thence continuing along the arc of a curve deflecting to the left, having a radius of 150.00 feet and having a chord which bears South 79°07'35" East for a distance of 137.59 feet and having an arc length of 142.94 feet to a point;

Legal - Access/Utility Easement (Cont'd.)

Thence, bearing North 73°34'30" East, a distance of 105.34 feet to a point;

Thence, bearing North 40°01'26" East, a distance of 176.23 feet to a point;

Thence, bearing North 12°53'29" East, a distance of 102.29 feet to a point;

Thence, bearing North 04°48'22" West, a distance of 77.00 feet to a point;

Thence, bearing North 30°39'24" West, a distance of 42.61 feet to a point of curvature;

Thence, along the arc of a curve deflecting to the right, having a radius of 75.00 feet and having a chord which bears North 04°17'09" East for a distance of 85.91 feet and having an arc length of 91.48 feet to a point;

Thence, bearing North 39°13'42" East, a distance of 38.13 feet to a point;

Thence, bearing North 04°36'18" East, a distance of 53.53 feet to a point on the Northerly line of said lands conveyed to Leonard Eugene Darby and Hilde Darby, said point also being within the Right-of-Way of Harris Hollow Road;

Thence along said Northerly line, bearing South 85°23'42" East, a distance of 25.00 feet to a point thereon;

Thence leaving said Northerly line, bearing South 04°36'18" West, a distance of 61.32 feet to a point;

Thence, bearing South 39°13'42" West, a distance of 45.92 feet to a point of curvature;

Thence, along the arc of a curve deflecting to the left, having a radius of 50.00 feet and having a chord which bears South 04°11'12" West for a distance of 57.42 feet and having an arc length of 61.16 feet to a point;

Thence, bearing South 30°39'24" East, a distance of 48.18 feet to a point;

Thence, bearing South 04°48'22" East, a distance of 86.63 feet to a point;

Thence, bearing South 12°53'29" West, a distance of 112.22 feet to a point;

Thence, bearing South 40°01'26" West, a distance of 189.80 feet to a point;

Thence, bearing South 73°34'30" West, a distance of 112.88 feet to a point of curvature;

Thence, along the arc of a curve deflecting to the right, having a radius of 175.00 feet and having a chord which bears North 79°07'35" West for a distance of 160.52 feet and having an arc length of 166.76 feet to a point on a reverse curve;

Thence, along the arc of a curve deflecting to the left, having a radius of 285.00 feet and having a chord which bears North 75°28'22" West for a distance of 228.61 feet and having an arc length of 235.23 feet to a point;

Legal - Access/Utility Easement (Cont'd.)

Thence, bearing South 80°52'56" West, a distance of 71.69 feet to a point;

Thence, bearing South 51°22'52" West, a distance of 76.79 feet to a point;

Thence, bearing South 45°23'30" West, a distance of 238.37 feet to a point of curvature;

Thence, along the arc of a curve deflecting to the right, having a radius of 235.00 feet and having a chord which bears South 72°15'31" West for a distance of 212.40 feet and having an arc length of 220.39 feet to a point;

Thence, bearing North 80°52'28" West, a distance of 116.22 feet to a point;

Thence, bearing North 77°08'47" West, a distance of 60.72 feet to a point;

Thence, bearing North 87°06'31" West, a distance of 36.36 feet to a point;

Thence, bearing North 80°52'28" West, a distance of 218.13 feet to a point;

Thence, bearing South 42°19'08" West, a distance of 61.97 feet to a point;

Thence, bearing South 48°07'21" West, a distance of 116.70 feet to a point;

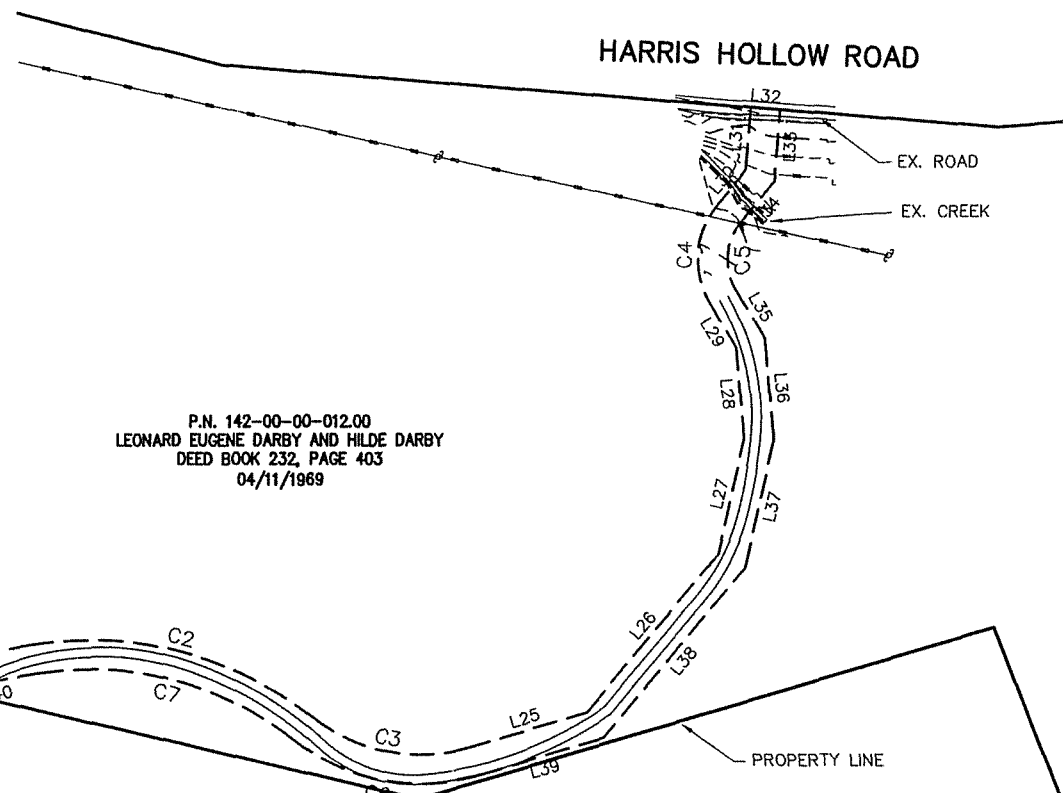
Thence, bearing South 43°10'06" West, a distance of 93.92 feet to a point;

Thence, bearing South 51°57'58" West, a distance of 111.48 feet to a point;

Thence, bearing South 01°44'30" West, a distance of 63.25 feet to the PRINCIPAL PLACE OF BEGINNING, intending to be a 25-foot wide strip of land for ingress/egress and utility purposes and subject to all legal highways and all covenants and agreements of record.

Bearings are based on True North as determined by GPS observation and are used herein to indicate angles only.

This legal description was prepared based on a survey under the supervision of Anthony J. Robinson, P.S. No. 3601 by HLG Engineering and Surveying, Inc. in March 2008.



P.N. 142-00-00-012.00  
 LEONARD EUGENE DARBY AND HILDE DARBY  
 DEED BOOK 232, PAGE 403  
 04/11/1969

PROP. 25' WIDE ACCESS/  
 UTILITY EASEMENT

EX. DRIVE

P.N. 142-00-00-016.00  
 THOMAS E. POPLIN  
 DEED BOOK 426, PAGE 513

Legal Description for a Lease Area  
 Project No. 50,469  
 April 8, 2008

Situated in the Argillite Mill Tract, County of Greenup, State of Kentucky and known as being a part lands conveyed to Leonard Eugene Darby and Hilde Darby, by deed dated April 11, 1969 as recorded in Deed Book 232, Page 403 of the Greenup County Clerk Records, further bounded and described as follows:

Commencing at an iron pin found at an angle point in an Easterly line of said lands conveyed to Leonard Eugene Darby and Hilde Darby, said iron pin being referenced as bearing South 01°44'30" West, a distance of 231.00 feet from an iron pin found on said Easterly line;

Thence along said Easterly line, bearing North 01°44'30" East, a distance of 81.02 feet to a point thereon;

Thence leaving said Easterly line at a right angle, bearing North 88°15'30" West, a distance of 1.00 feet to an iron pin set and being the PRINCIPAL PLACE OF BEGINNING of the Lease Area herein described;

Thence, bearing North 88°15'30" West, a distance of 100.00 feet to an iron pin set;

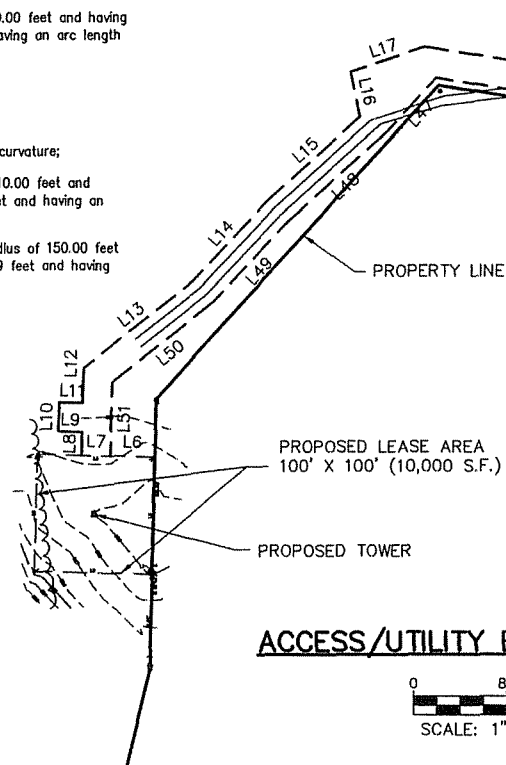
Thence at a right angle, bearing North 01°44'30" East, a distance of 100.00 feet to an iron pin set;

Thence at a right angle, bearing South 88°15'30" East, a distance of 100.00 feet to an iron pin set;

Thence at a right angle, bearing South 01°44'30" West, a distance of 100.00 feet to the PRINCIPAL PLACE OF BEGINNING, containing 10,000 square feet or 0.2296 acres of land, more or less but subject to all legal highways and all covenants and agreements of record.

Bearings are based on True North as determined by GPS observation and are used herein to indicate angles only.

This legal description was prepared based on a survey under the supervision of Anthony J. Robinson, P.S. No. 3601 by HLG Engineering and Surveying, Inc. in March 2008.



ACCESS/UTILITY EASEMENT DETAIL

0 80 160  
 SCALE: 1" = 80'



**MAX ENGINEERING, LLC**  
 9000 SW FREEWAY, Ste # 410  
 Houston, Texas 77074  
 Phone (713) 773-2525  
 Fax (713) 773-2558

**CST** CENTRAL STATES TOWER, INC.  
 323 SOUTH HALE STREET  
 SUITE 100  
 WHEATON, IL 60187

**SITE NAME: GREENBO LAKE**  
**SITE NO.: KY-00-0821**  
 SITE ADDRESS: 72 HARRIS HOLLOW ROAD  
 ARGILLITE, KENTUCKY, 41121

- PLAN PREPARED BY -  
**HLG, ENGINEERING AND SURVEYING, INC.**  
 705-F LAKEVIEW PLAZA BLVD.  
 WORTHINGTON, OH 43085  
 (614) 841-0053 (PHONE)  
 (614) 841-0170 (FAX)

NO.	DATE	REVISIONS	BY	CHK	APP'D
C.	04/11/08	TITLE COMMENTS		DP	AR
B.	04/08/08	ADDED NORTH ARROW		DP	AR
A.	04/08/08	FINAL SURVEY SUBMITTED		DP	AR

SHEET S-2	
<b>SURVEY PLAN</b>	
JOB NO. 50469	DWG. NO. 50469_Master
SCALE AS SHOWN	CHECKED BY: DAP
DRAWN: PRE	REV C





SITE No: KY-00-0821  
SITE NAME: GREENBO LAKE

AT&T Site No: WV685A  
AT&T Site Name: CST-GREENBO LAKE

DRAWING INDEX		REV	ARCHITECT/ENGINEER:	SURVEYOR:	PROJECT INFORMATION						
T-1	TITLE SHEET	1	MAX ENGINEERING, LLC 9000 SW FREEWAY, STE # 410 HOUSTON, TX 77074 PHONE: (713) 773-2525 FAX (713) 773-2558	HLG, ENGINEERING AND SURVEYING, INC. 705-F LAKEVIEW PLAZA BLVD., WORTHINGTON, OH 43085 PHONE: (614) 841-0353 FAX: (614) 841-0170	<b>SCOPE OF WORK:</b> UNMANNED TELECOMMUNICATIONS FACILITY						
S-1 & S-2	SURVEY (BY OTHERS) 2 SHEETS	1	<b>VICINITY MAP</b>								
P-1	ENLARGED SITE PLAN	1									
C-1	TOWER ELEVATION & DETAILS	1	<b>DIRECTIONS:</b> FROM US-23 IN PORTSMOUTH, OH FOLLOW US-23 SOUTH APPROXIMATELY 18 MILES TO HWY. 1 IN GREENUP. TAKE HWY. 1 SOUTH APPROXIMATELY 6 MILES TO HWY. 1459. TAKE HWY. 1459 RIGHT APPROXIMATELY 0.75 MILE TO HARRIS HOLLOW RD. TAKE HARRIS HOLLOW RD LEFT APPROXIMATELY 0.5 MILE TO PROPOSED SITE ENTRANCE ON THE LEFT.								
C-2	FOUNDATION PLAN & DETAILS	1									
C-3	ICE BRIDGE & FENCE DETAILS	1									
C-4	GENERAL NOTES	0									
E-1	ELECTRICAL NOTES AND DETAILS	1									
E-2	SINGLE LINE DIAGRAM & DETAILS	1									
E-2A	RF CONFIGURATION & COLOR CODE	0									
E-2B	COAX COLOR CODING	0									
E-3	SINGLE LINE DIAGRAM & DETAILS	1									
E-4	GROUNDING & ELEVATION DETAILS	1									
E-5	GROUNDING PLAN AND NOTES	1									
REF	CANOPY (DESIGN BY OTHER)	-									
<b>NOTES</b>						<b>SCOPE OF WORK:</b> UNMANNED TELECOMMUNICATIONS FACILITY  <b>TYPE OF CONSTRUCTION:</b> PROPOSED 295' SELF-SUPPORTING TOWER  <b>SITE ADDRESS:</b> 72 HARRIS HOLLOW ROAD ARGILLITE, KY 41121  <b>TOWER LOCATION:</b> LATITUDE: N 38° 29' 48.73" (NAD 83) (FROM SURVEY DRAWING BY HLG, LONGITUDE: W 82° 51' 17.42" (NAD 83) ENGINEERING AND SURVEYING, LLC. GROUND ELEVATION (AMSL) 829' (NAVD 85) DRAWING No. 50469)  <b>SQUARE FOOTAGE:</b> PROPOSED LEASE AREA 10,000 SQ. FT.  <b>PROPERTY OWNER:</b> LEONARD AND MARY DARBY 72 HARRIS HOLLOW RD. ARGILLITE, KY 41121  <b>PARCEL NUMBER (TAX ID)</b> 142-CJ-CJ-012 00  <b>OCCUPANT LOAD</b> UNOCCUPIED  <b>PARKING REQUIREMENTS:</b> ADDITIONAL PARKING REQUIRED: NONE EXISTING PARKING MODIFICATIONS: NONE REQUIRED					
<b>AT&amp;T COMPLIANCE:</b> SIGNATURE: _____ DATE: _____  <b>AT&amp;T CONSTRUCTION:</b> SIGNATURE: _____ DATE: _____  <b>AT&amp;T RF ENGINEER:</b> SIGNATURE: _____ DATE: _____  <b>TURKEY CONTRUCTION:</b> SIGNATURE: _____ DATE: _____									<b>NOTES</b>		
									CONCRETE AND REINFORCING STEEL NOTES..... (SEE PAGE C-4) APPLICABLE BUILDING CODES AND STANDARDS ..... (SEE PAGE C-4) SITE WORK GENERAL NOTES..... (SEE PAGE C-4) STRUCTURAL STEEL NOTES..... (SEE PAGE C-4) GROUNDING NOTES..... (SEE PAGE E-4) ELECTRICAL INSTALLATION NOTES..... (SEE PAGE E-1) GENERAL NOTES..... (SEE PAGE C-4)		

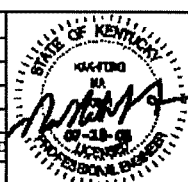
MAX ENGINEERING, LLC  
9000 SW FREEWAY, Ste # 410  
Houston, Texas 77074  
Phone (713) 773-2525  
Fax (713) 773-2558

**(CST)** CENTRAL STATES TOWER, INC.  
323 SOUTH HALE STREET  
SUITE 100  
WHEATON, IL 60157

SITE No: KY-00-0821  
SITE NAME: GREENBO LAKE  
72 HARRIS HOLLOW RD.  
ARGILLITE, KY 41121

NO.	DATE	REVISIONS	BY	C-K	APPR
1	07/23/09	FOR CLIENT'S RECOMMENDATIONS	HLG	VD	HLG
0	03/06/09	FOR CONSTRUCTION	PT	VD	HLG
A	04/23/09	FOR REVIEW	PT	VD	HLG

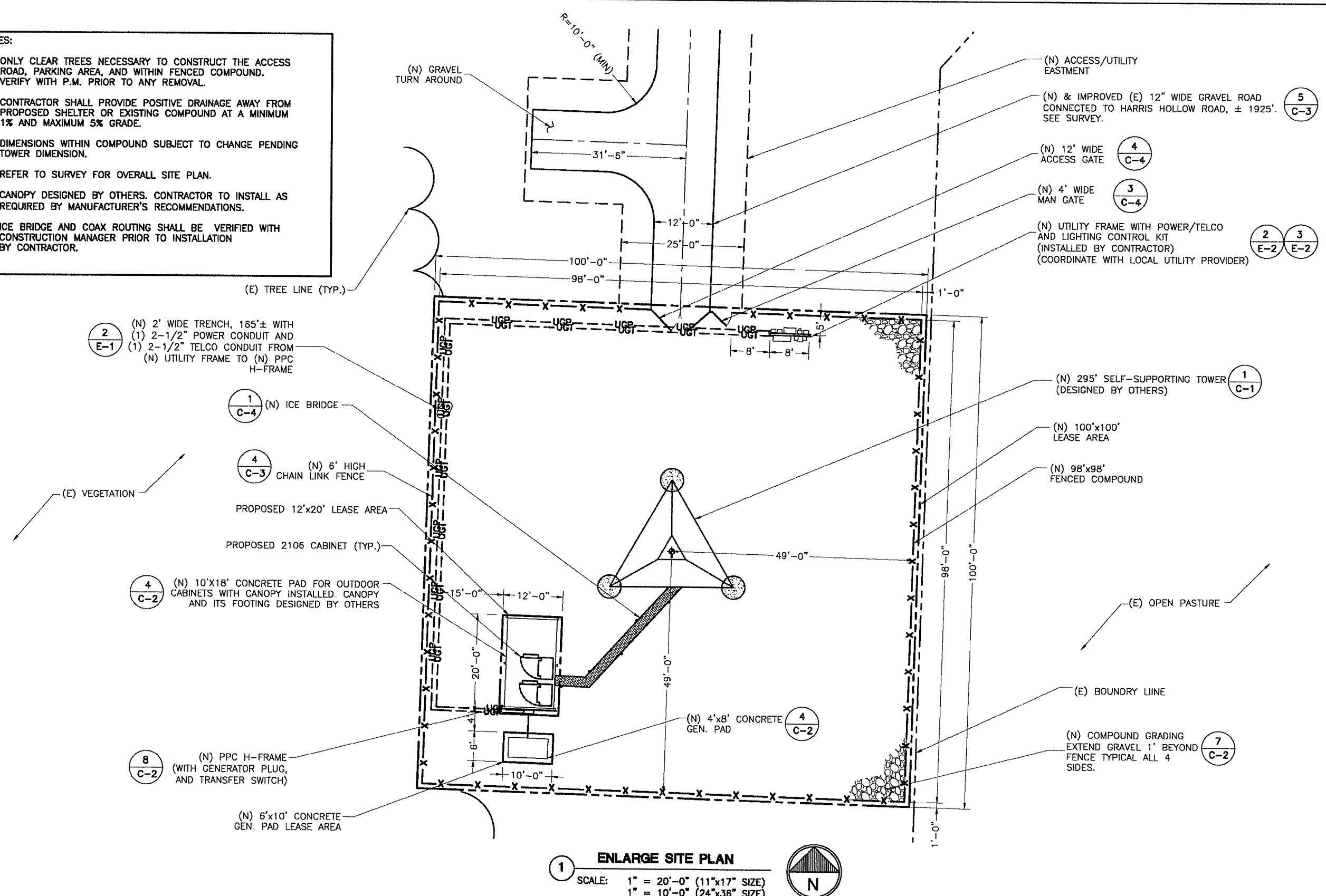
SCALE: AS SHOWN    DESIGNED BY: PT    DRAWN BY: PT



SHEET TITLE  
**TITLE SHEET**  
SHEET NUMBER  
**T-1**

**NOTES:**

1. ONLY CLEAR TREES NECESSARY TO CONSTRUCT THE ACCESS ROAD, PARKING AREA, AND WITHIN FENCED COMPOUND. VERIFY WITH P.M. PRIOR TO ANY REMOVAL.
2. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM PROPOSED SHELTER OR EXISTING COMPOUND AT A MINIMUM 1% AND MAXIMUM 5% GRADE.
3. DIMENSIONS WITHIN COMPOUND SUBJECT TO CHANGE PENDING TOWER DIMENSION.
4. REFER TO SURVEY FOR OVERALL SITE PLAN.
5. CANOPY DESIGNED BY OTHERS. CONTRACTOR TO INSTALL AS REQUIRED BY MANUFACTURER'S RECOMMENDATIONS.
6. ICE BRIDGE AND COAX ROUTING SHALL BE VERIFIED WITH CONSTRUCTION MANAGER PRIOR TO INSTALLATION BY CONTRACTOR.



**1 ENLARGE SITE PLAN**  
 SCALE: 1" = 20'-0" (11"x17" SIZE)  
 1" = 10'-0" (24"x36" SIZE)

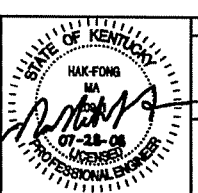
**MAX ENGINEERING, LLC**  
 9000 SW FREEWAY, Ste # 410  
 Houston, Texas 77074  
 Phone (713) 773-2525  
 Fax (713) 773-2558

**(CST) CENTRAL STATES TOWER, INC.**  
 323 SOUTH HALE STREET  
 SUITE 100  
 WHEATON, IL 60187

**SITE No: KY-00-0821**  
**SITE NAME: GREENBO LAKE**  
 72 HARRIS HOLLOW RD.  
 ARGILLITE, KY 41121

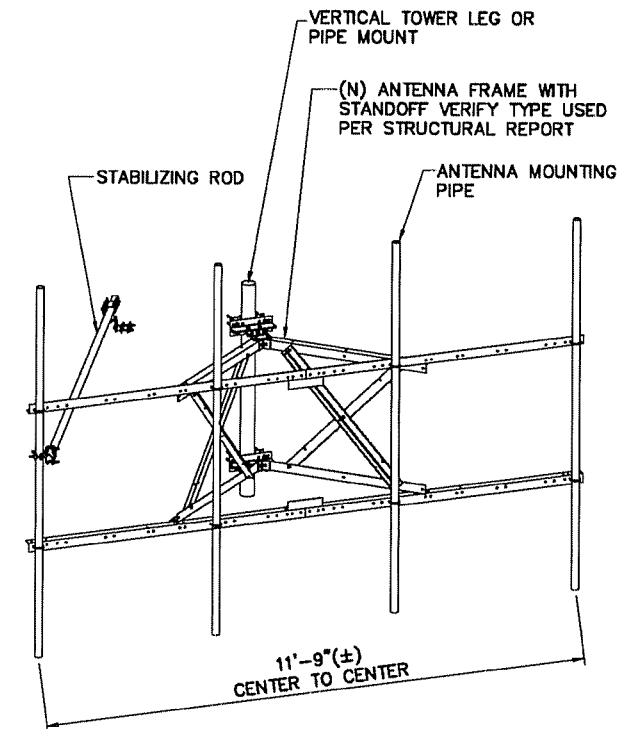
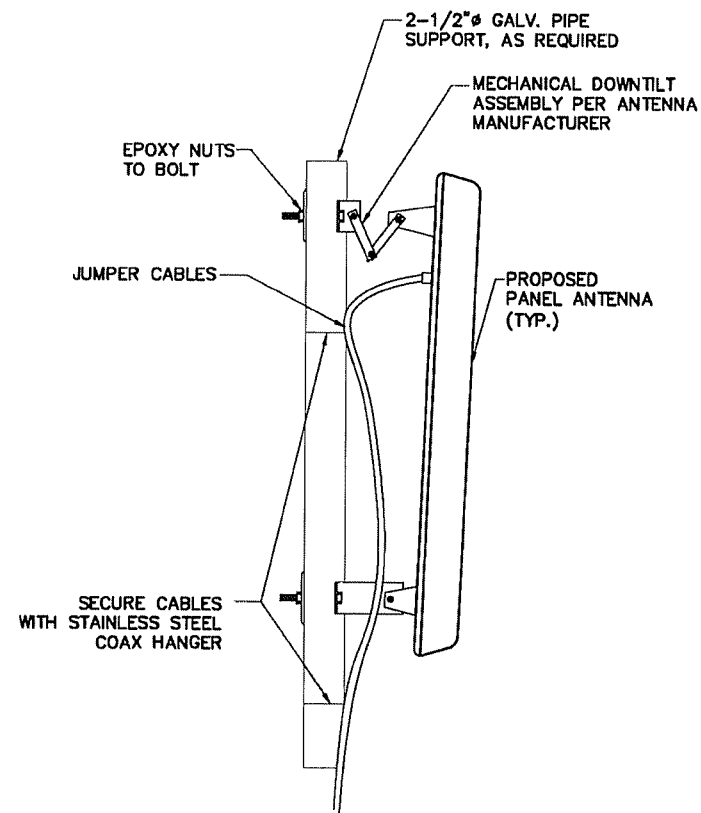
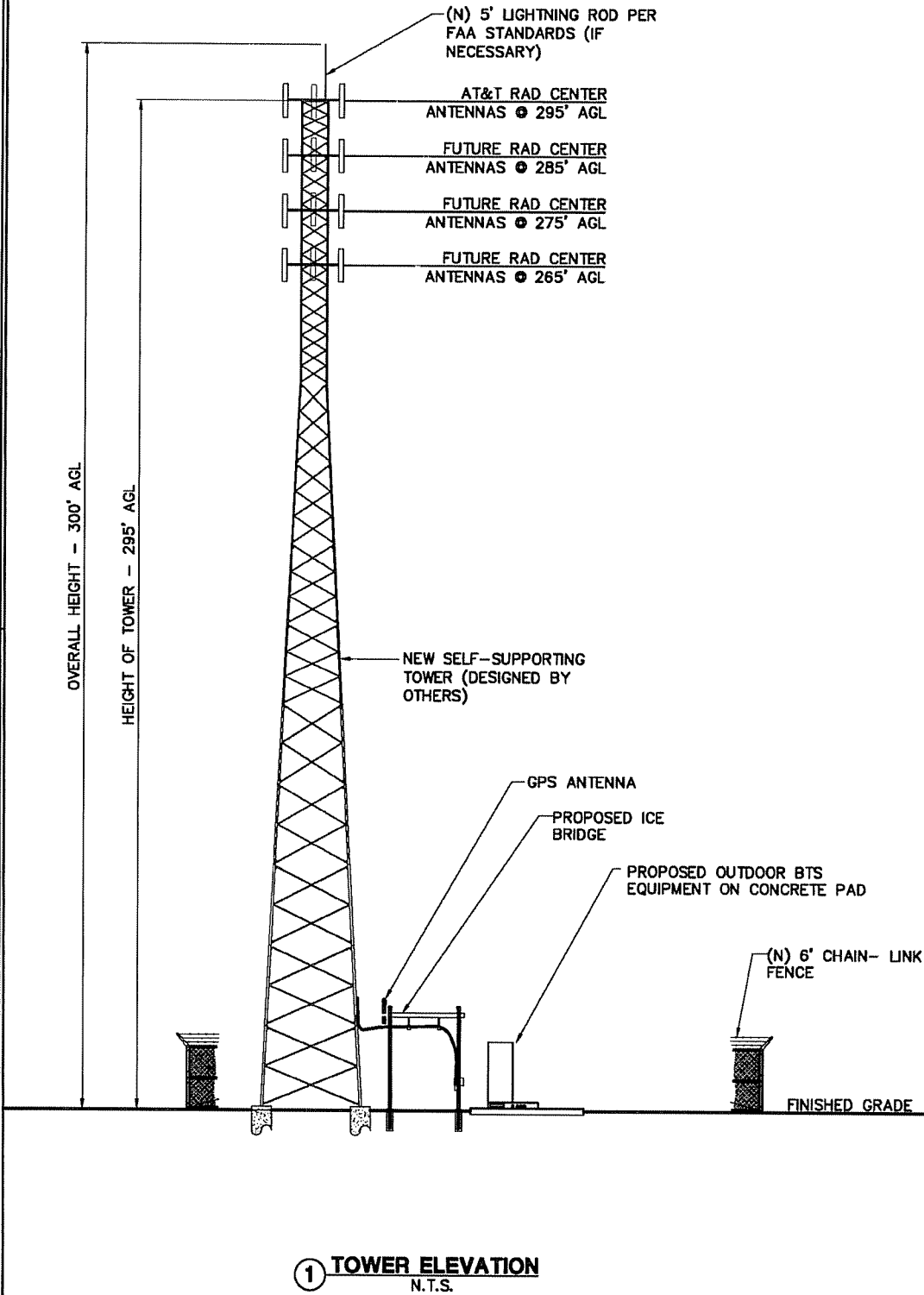
NO.	DATE	REVISIONS	BY	CHK	APP'D
1	07/23/08	PER CLIENT'S RECOMMENDATIONS	HD	VD	HM
0	05/06/08	FOR CONSTRUCTION	PT	VD	HM
A	04/23/08	FOR REVIEW	PT	VD	HM

SCALE: AS SHOWN    DESIGNED BY: PT    DRAWN BY: PT

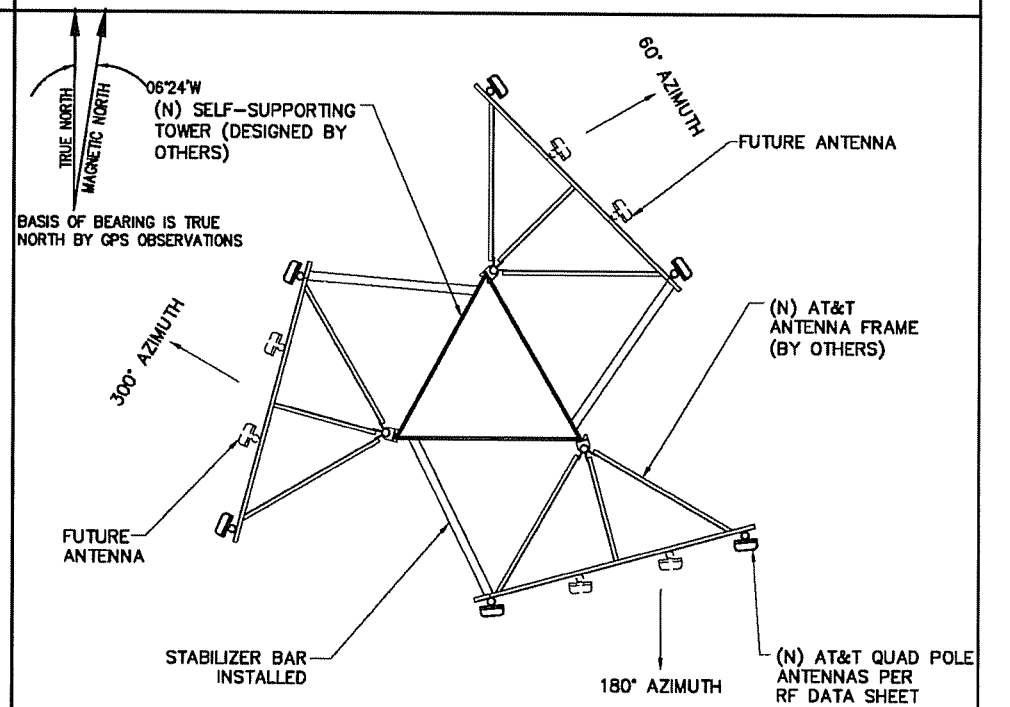
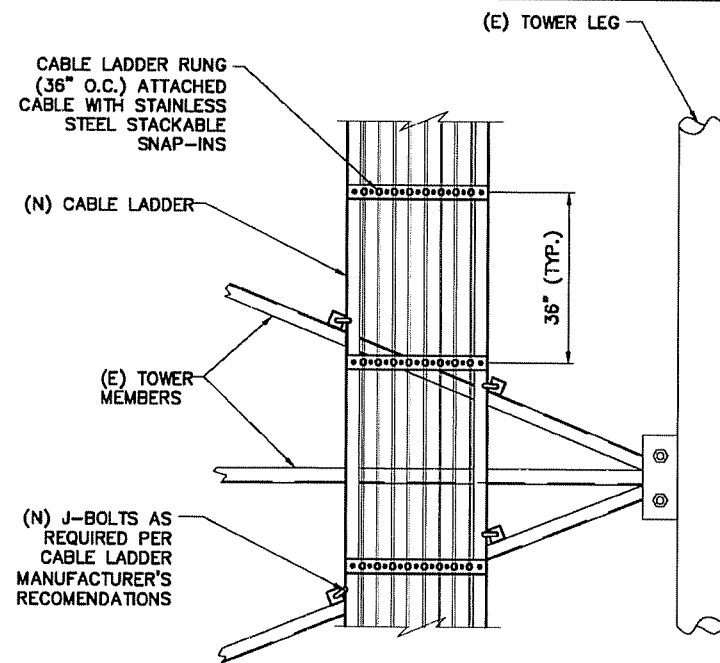


SHEET TITLE  
**ENLARGE SITE PLAN**  
 SHEET NUMBER  
**P-1**

ANALYSIS AND DESIGN OF TOWER AND FOUNDATION BY OTHERS. REFER TO APPROPRIATE SHEETS FOR MORE INFORMATION. NO ERECTION OR MODIFICATION OF TOWER AND FOUNDATION SHALL BE MADE WITHOUT APPROVAL OF STRUCTURAL ENGINEER



NOTE:  
CONTRACTOR TO INSTALL APPROVED ANTENNA MOUNTS PER STRUCTURAL ANALYSIS (DONE BY OTHERS).



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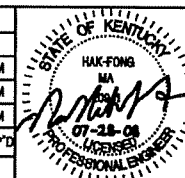


CENTRAL STATES TOWER, INC.  
323 SOUTH HALE STREET  
SUITE 100  
WHEATON, IL 60187

SITE No: KY-00-0821  
SITE NAME: GREENBO LAKE  
72 HARRIS HOLLOW RD.  
ARGILLITE, KY 41121

NO.	DATE	REVISIONS	BY	CHK	APP'D
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0	05/06/08	FOR CONSTRUCTION	PT	VD	HM
A	04/23/08	FOR REVIEW	PT	VD	HM

SCALE: AS SHOWN    DESIGNED BY: PT    DRAWN BY: PT



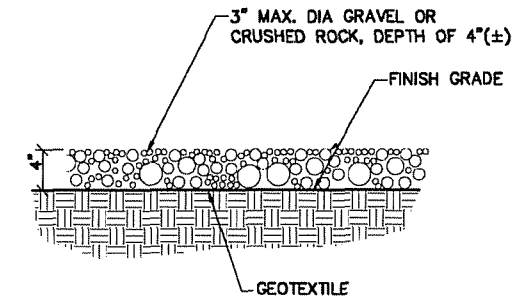
SHEET TITLE  
**TOWER ELEVATION & DETAILS**

SHEET NUMBER  
**C-1**

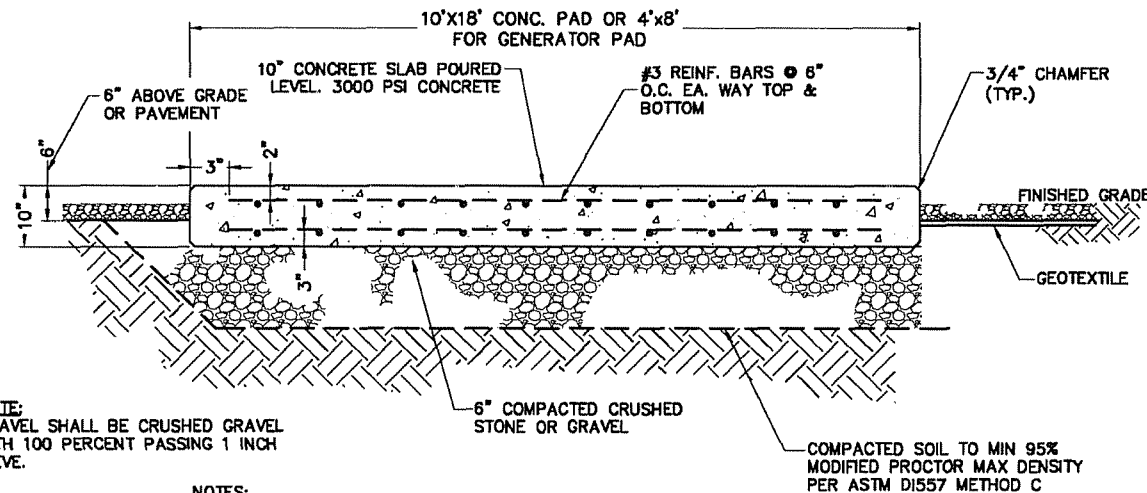


**CONCRETE AND REINFORCING STEEL NOTES:**

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 335, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE.
3. SLAB FOUNDATION DESIGN ASSUMING ALLOWABLE SOIL BEARING PRESSURE OF 2000 PSF.
4. 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.
5. A CHAMFER 3/4" 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 ANCHOR SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWING. NO REBAR SHALL BE CUT WITHOUT PRIOR ENGINEERING APPROVAL WHEN DRILLING HOLES IN CONCRETE. EXPANSION BOLTS SHALL BE PROVIDED BY RAMSET/REDHEAD OR APPROVED EQUAL.



**7 COMPOUND GRADE**  
N.T.S.

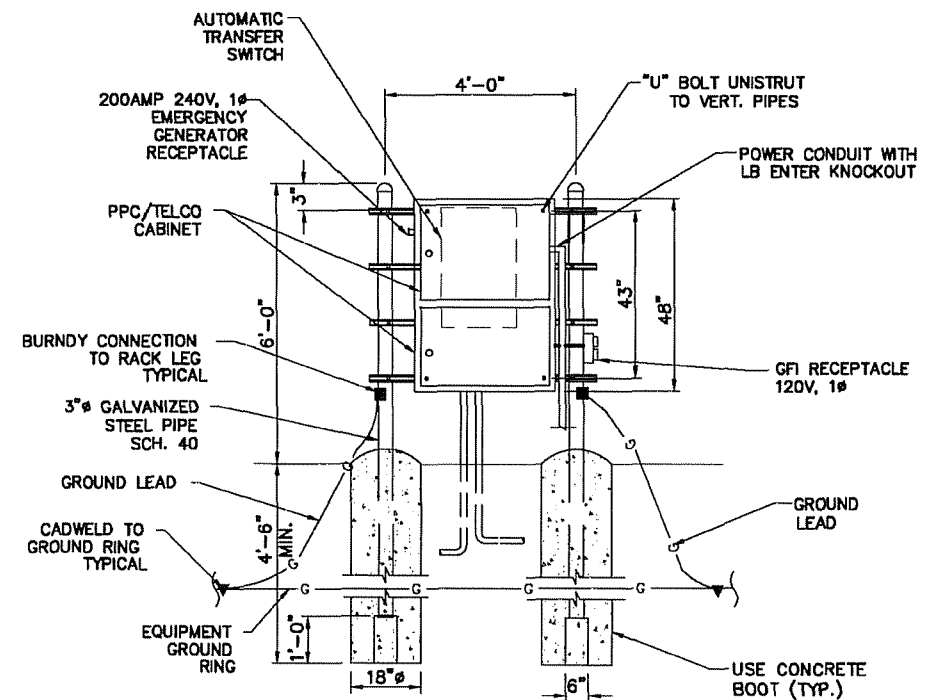


NOTE:  
GRAVEL SHALL BE CRUSHED GRAVEL WITH 100 PERCENT PASSING 1 INCH SIEVE.

**NOTES:**

1. CONCRETE FINISH TO BE CLASS "A" TOLERANCE.
2. TEST FOR 3000 PSI AT 7, 14, & 28 DAYS PER POUR BY INDEPENDENT LAB.
3. ALL CONCRETE TO BE SIX SACK MIX.
4. PERFORM CONCRETE SLUMP TEST (4" MAX). NO WATER TO BE ADDED TO CONCRETE MIX AFTER 4" SLUMP HAS BEEN ESTABLISHED BY INDEPENDENT LAB.

**4 CONCRETE BTS PAD / GEN. PAD SECTION**  
N.T.S.



**8 4' H-FRAME DETAIL**  
N.T.S.

**MAX ENGINEERING, LLC**  
9000 SW FREEWAY, Ste # 410  
Houston, Texas 77074  
Phone (713) 773-2525  
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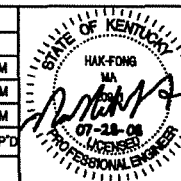


**CENTRAL STATES TOWER, INC.**  
323 SOUTH HALE STREET  
SUITE 100  
WHEATON, IL 60187

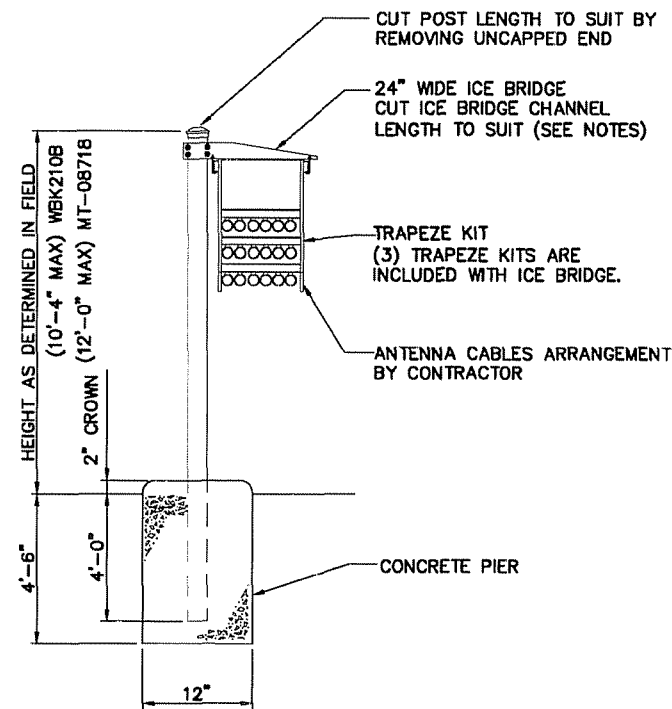
**SITE No: KY-00-0821**  
**SITE NAME: GREENBO LAKE**  
72 HARRIS HOLLOW RD.  
ARGILLITE, KY 41121

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	07/23/08	PER CLIENT'S RECOMMENDATIONS	HD	VD	HM
0	05/08/08	FOR CONSTRUCTION	PT	VD	HM
A	04/23/08	FOR REVIEW	PT	VD	HM

SCALE: AS SHOWN    DESIGNED BY: PT    DRAWN BY: PT

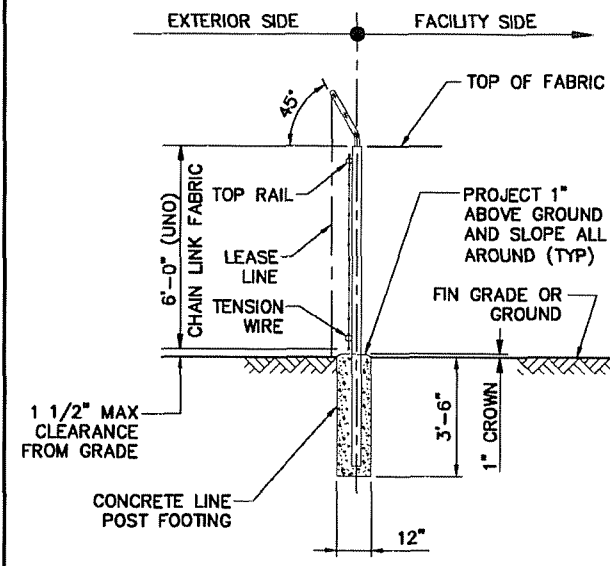


SHEET TITLE	<b>FOUNDATION PLAN &amp; DETAILS</b>
SHEET NUMBER	<b>C-2</b>

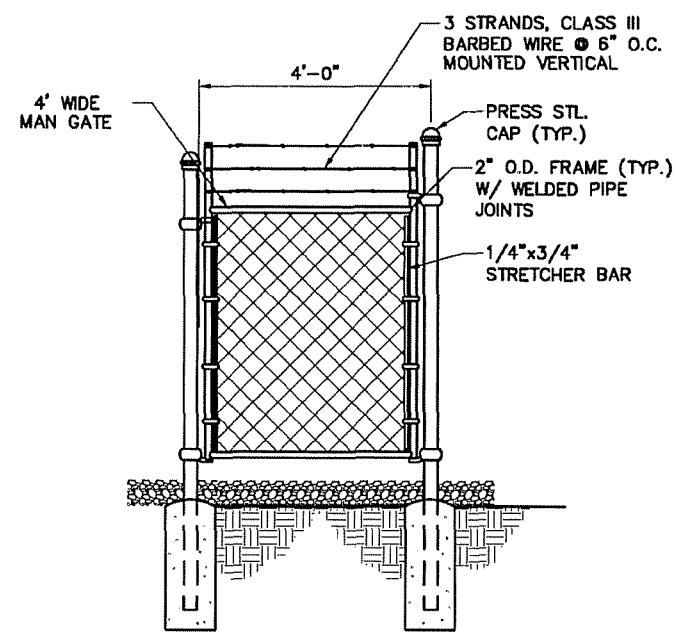


**1 ICE BRIDGE SUPPORT POST FOUNDATION**  
N.T.S.

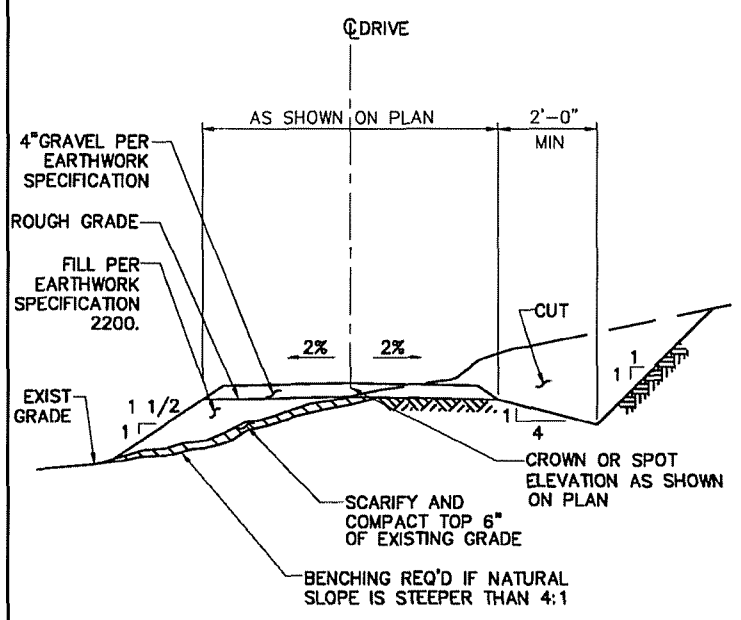
- NOTES:**
1. WHEN USING COMPONENTS AS SHOWN IN STANDARD DETAILS, MAXIMUM ALLOWABLE SPAN BETWEEN SUPPORTS ON A CONTINUOUS SINGLE SECTION OF BRIDGE CHANNEL SHALL BE 9 FEET FOR 10 FEET BRIDGE CHANNEL.
  2. WHEN USING COMPONENTS FOR SPLICING BRIDGE CHANNEL SECTIONS, THE SPLICE SHOULD BE PROVIDED AT THE SUPPORT, IF POSSIBLE, OR AT A MAXIMUM OF 2 FEET FROM THE SUPPORT.
  3. WHEN USING BRIDGES, SUPPORT SHOULD BE PROVIDED AS CLOSE AS POSSIBLE TO THE ENDS OF ICE BRIDGES, WITH A MAXIMUM CANTILEVER DISTANCE OF 2 FEET FROM THE SUPPORT TO THE FREE END OF THE ICE BRIDGE.
  4. CUT BRIDGE CHANNEL SECTIONS SHALL HAVE RAW EDGES SPRAYED WITH COLD GALVANIZE. SOFTENERS WILL BE ADDED TO PROTECT THE FEEDLINES.
  5. ICE BRIDGES MAY BE CONSTRUCTED WITH COMPONENTS FROM OTHER MANUFACTURERS, PROVIDED THE MANUFACTURER'S INSTALLATION GUIDELINES ARE FOLLOWED.
  6. DEVIATIONS FROM STANDARDS FOR COMPONENT INSTALLATIONS ARE PERMITTED WITH THE RESPECTIVE MANUFACTURER'S APPROVAL.
  7. DEVIATIONS FROM ICE BRIDGE FOUNDATIONS REQUIRE ENGINEERING APPROVAL.
  8. THE DESIGN IS BASED ON ASCE 7-98, 3 SECOND GUST WIND SPEED OF 110 MPH, EXPOSURE C, ELEVATION AT GRADE.
  9. THIS DESIGN IS BASED ON 24" WIDE ICE BRIDGE AND (18) 1 5/8" DIA COAX CABLES AND MAX. POST SUPPORT SPACING OF 10'-0".



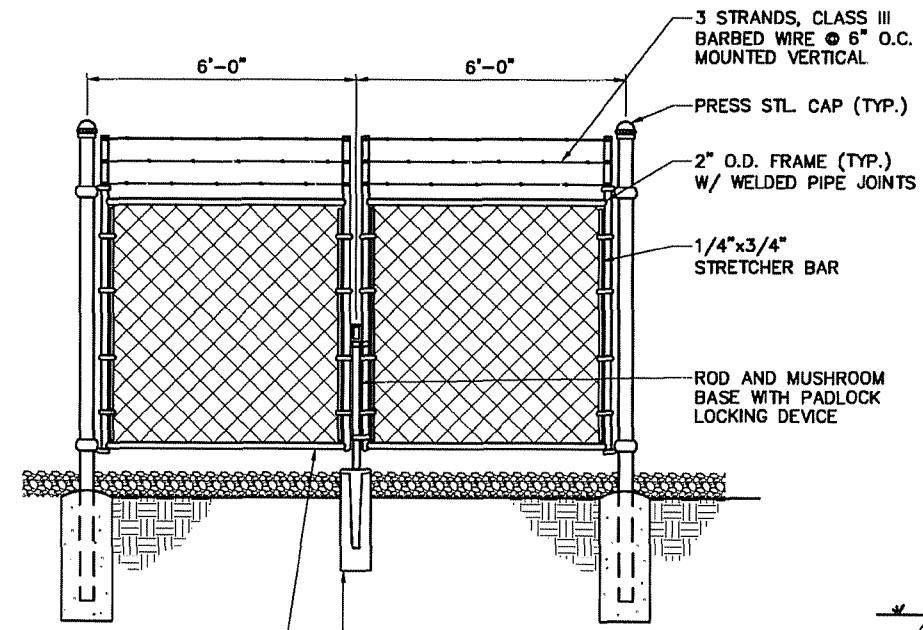
**2 FENCE/BARBED WIRE ARM DETAIL**  
N.T.S.



**3 4' MAN GATE DETAIL**  
N.T.S.

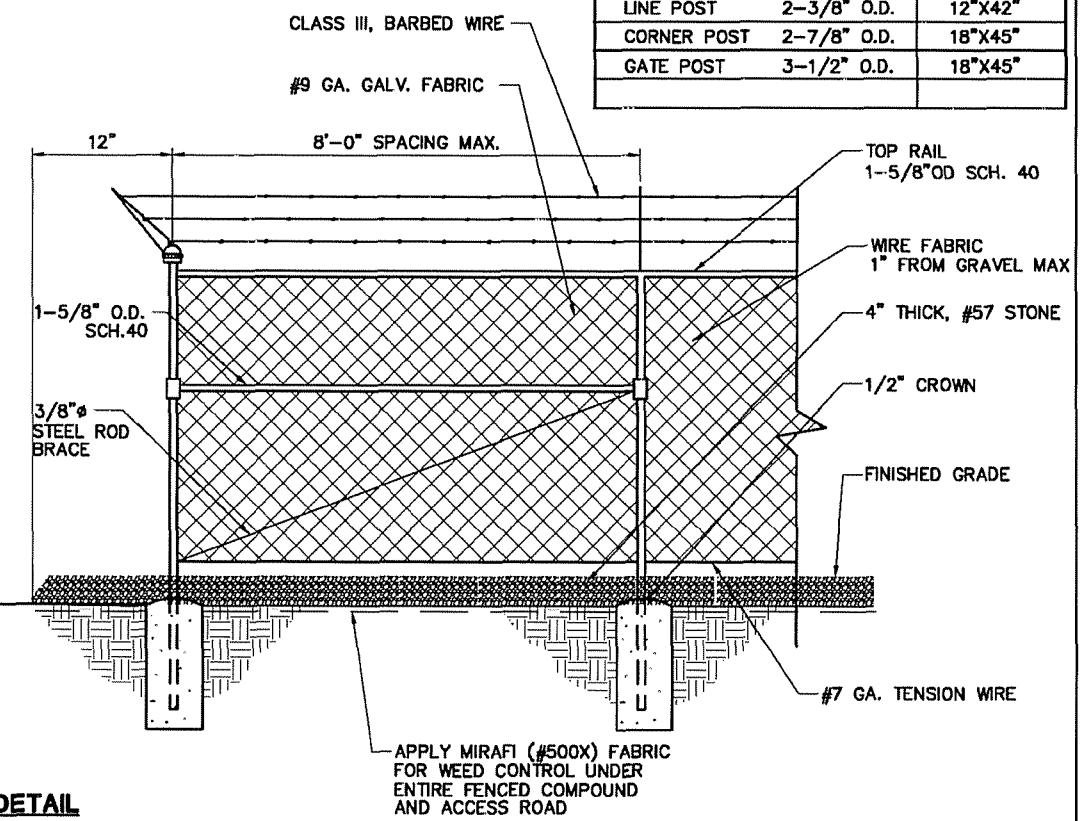


**5 GRAVEL DRIVE DETAILS**  
N.T.S.



**FRONT VIEW**

**4 FENCE AND GATE DETAIL**  
N.T.S.



6' HIGH FENCE		FOOTINGS
LINE POST	2-3/8" O.D.	12"x42"
CORNER POST	2-7/8" O.D.	18"x45"
GATE POST	3-1/2" O.D.	18"x45"

**MAX ENGINEERING, LLC**  
9000 SW FREEWAY, Ste # 410  
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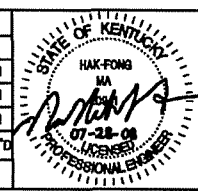


**CENTRAL STATES TOWER, INC.**  
323 SOUTH HALE STREET  
SUITE 100  
WHEATON, IL 60187

**SITE No: KY-00-0821**  
**SITE NAME: GREENBO LAKE**  
72 HARRIS HOLLOW RD.  
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NO.	DATE	REVISIONS	BY	CHK	APP'D
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0	05/08/08	FOR CONSTRUCTION	PT	VD	HM
A	04/23/08	FOR REVIEW	PT	VD	HM

SCALE: AS SHOWN    DESIGNED BY: PT    DRAWN BY: PT



**SHEET TITLE**  
**ICE BRIDGE & FENCE DETAILS**  
**SHEET NUMBER**  
**C-3**

**SITE WORK GENERAL NOTES**

1. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
2. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & 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. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, OWNER AND/OR LOCAL UTILITIES.
6. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
7. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
8. 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.
9. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
10. 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.
12. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.

**STRUCTURAL STEEL NOTES**

1. ALL STEEL WORK SHALL BE PAINTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND IN ACCORDANCE WITH ASTM A36 UNLESS OTHERWISE NOTED.
2. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION". PAINTED SURFACES SHALL BE TOUCHED UP.
3. BOLTED CONNECTIONS SHALL BE ASTM A325 BEARING TYPE (3/4" #) CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
4. NON-STRUCTURAL CONNECTIONS FOR STEEL GRATING MAY USE 5/8" DIA. ASTM A 307 BOLTS UNLESS NOTED OTHERWISE.
5. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS.

**CONCRETE AND REINFORCING STEEL NOTES**

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, UNLESS NOTED OTHERWISE.
3. SLAB FOUNDATION DESIGN BASED ON ASSUMING ALLOWABLE SOIL SOIL BEARING PRESSURE OF 2000 PSF.
4. 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.
5. A CHAMFER 3/4" 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 ANCHOR. SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR ENGINEERING APPROVAL WHEN DRILLING HOLES IN CONCRETE. EXPANSION BOLTS SHALL BE PROVIDED BY RAMSET/REDHEAD OR APPROVED EQUAL.

**GENERAL NOTES**

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:  
 CONTRACTOR - CELLERE  
 SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)  
 OWNER - CENTRAL STATE TOWER, INC. (CST)  
 OEM - ORIGINAL EQUIPMENT MANUFACTURE
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. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO SCALE AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
7. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CONTRACTOR.
8. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING.
9. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
10. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
11. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

**APPLICABLE BUILDING CODES AND STANDARDS**

SUBCONTRACTORS WORK SHALL COMPLY WITH ALL THE APPLICABLE NATIONAL, STATE AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF THE CONTRACT AWARD SHALL GOVERN THE DESIGN.

2003 STATE CONSTRUCTION CODE (2003 IBC)

NATIONAL ELECTRICAL CODE (NEC 2002 PART 8 STATE MENDMENTS) WITH LOCAL UNDERWRITTEN LABORATORIES APPROVED ELECTRICAL PRODUCTS

LIFE SAFETY CODE NFPA - 101

SUBCONTRACTOR'S WORK SHALL COOMPLY WITH THE LATEST EDITION OF THE FOLLOWING:

AMERICAN CONCRETE INSTITUTE 9ACIO 318, BUILDING CODE REQUIREMENT FOR STRUCTURAL AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION (ASD)

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) EIA-222-F, STRUCTURAL STANDARDS FOR STRUCTURAL ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES

INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINNERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVITY, GROUND IMPEDENCE AND EARTH SURFACE POTENTIAL OF A GROUND SYSTEM.

IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC.

IEEE C62.41, RECOMMENDED PRACTICES ON SURGE VOLTAGES IN LOW VOLTAGE AC POWER CIRCUITS (FOR LOCATION CATEGORY "C3" AND HIGH SYSTEM EXPOSURE")

TIA 807 COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECORDIA GR-1503 COAXIAL CABLE CONNECTIONS.

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL METHODS OF CONSTRUCTION OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THER IS A CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

**ABBREVIATIONS & SYMBOLS**

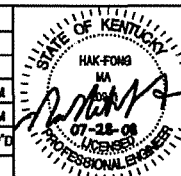
SYMBOLS		ABBREVIATIONS
	SOLID GROUND BUS BAR	AGL ABOVE GRADE LEVEL
	SOLID NEUTRAL BUS BAR	BTS BASE TRANSCEIVER STATION
	SUPPLEMENTAL GROUND CONDUCTOR	(E) EXISTING
	2-POLE THERMAL-MAGNETIC CIRCUIT BREAKER	MIN MINIMUM
	SINGLE-POLE THERMAL-MAGNETIC CIRCUIT BREAKER	N.T.S. NOT TO SCALE
	CHEMICAL GROUND ROD	REF REFERENCE
	GROUND ROD	RF RADIO FREQUENCY
	DISCONNECT SWITCH	T.B.D. TO BE DETERMINED
	METER	T.B.R. TO BE RESOLVED
	EXOTHERMIC WELD (CADWELD) (UNLESS OTHERWISE NOTED)	TYP TYPICAL
	MECHANICAL CONNECTION (UNLESS OTHERWISE NOTED)	REQ REQUIRED
	5/8" x 10' COPPER CLAD STEEL GROUND	EGR EQUIPMENT GROUND RING
	5/8" x 10' COPPER CLAD STEEL GROUND ROD WITH INSPECTION SLEEVE	AWG AMERICAN WIRE GAUGE
	EXOTHERMIC WELD (CADWELD) WITH INSPECTION SLEEVE	MGB MASTER GROUND BUS
	GROUNDING WIRE	EG EQUIPMENT GROUND
		BCW BARE COPPER WIRE
		SIAD SMART INTEGRATED ACCESS DEVICE
		GEN GENERATOR
		IGR INTERIOR GROUND RING (HALO)
		RBS RADIO BASE STATION

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 Fax (713) 773-2558

**(CST)** CENTRAL STATES TOWER, INC.  
 323 SOUTH HALE STREET  
 SUITE 100  
 WHEATON, IL 60187

SITE No: KY-00-0821  
 SITE NAME: GREENBO LAKE  
 72 HARRIS HOLLOW RD.  
 ARGILLITE, KY 41121

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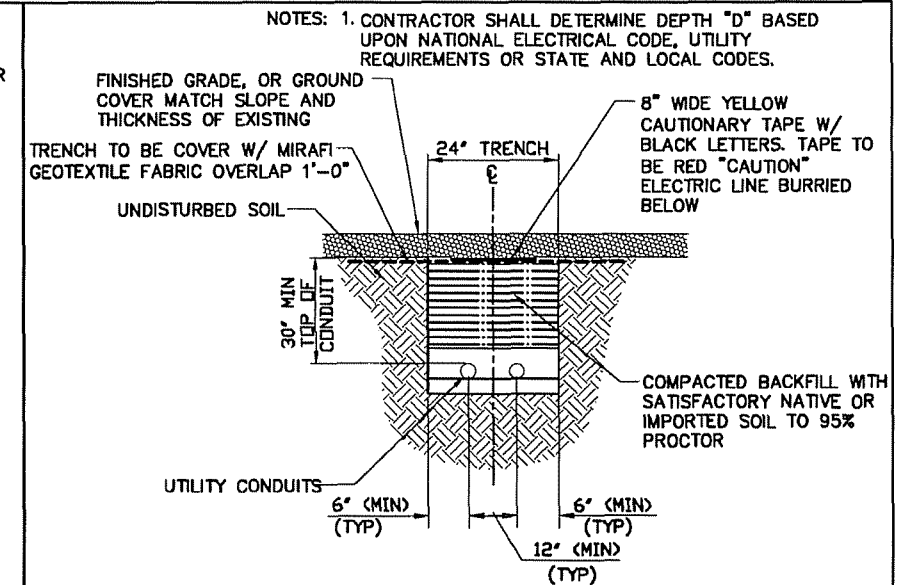
SHEET TITLE	GENERAL NOTES
SHEET NUMBER	C-4

**ELECTRICAL INSTALLATION NOTES:**

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE LOCAL CODES. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
- CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
- EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING, AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC & OSHA.
- ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH PLASTIC TAPE PER COLOR SCHEDULE. ALL EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT ID NUMBERS (I.E., PANELBOARD AND CIRCUIT ID'S).
- PANELBOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
- ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
- POWER, CONTROL, AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED, UNLESS OTHERWISE SPECIFIED.
- 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.
- POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90 °C (WET AND DRY) OPERATION; WITH OUTER JACKET; LISTED OR LABELED FOR THE LOCATION USED, UNLESS OTHERWISE SPECIFIED.
- ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRENUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRENUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75°C (90°C IF AVAILABLE).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.
- 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.
- ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT), OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- GALVANIZED STEEL INTERMEDIATE METALLIC CONDUIT (IMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
- 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.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SETSCREW FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, BOXES, AND WIREWAYS SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE, AND NEC.
- 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)

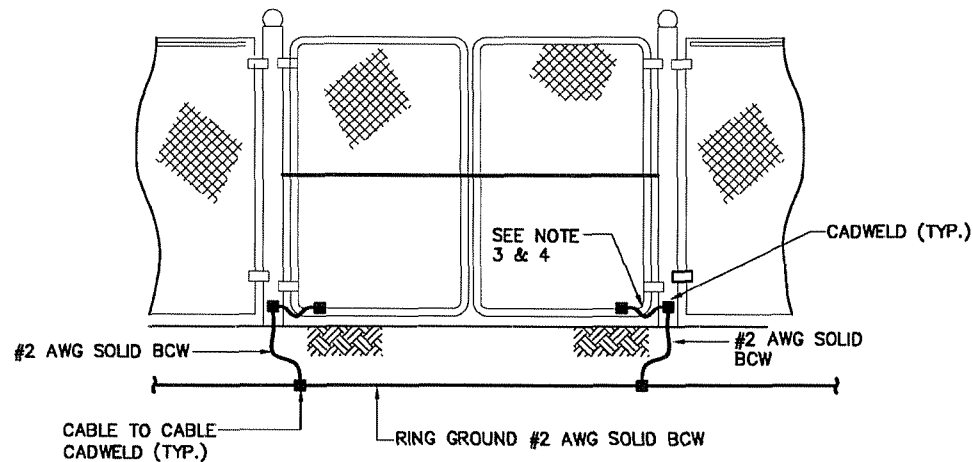
**ELECTRICAL INSTALLATION NOTES (cont.):**

- EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED OR OR EPOXY-COATED SHEET STEEL, SHALL MEET OR EXCEED UL 50, AND RATED NEMA 1 (OR BETTER) INDOORS OR NEMA 3R (OR BETTER) OUTDOORS
- 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) BETTER INDOORS, OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
- 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.
- THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
- 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.



\* CONDUIT SIZE, TYPE, QUANTITY AND SEPARATION DIMENSION TO BE VERIFIED WITH LOCAL UTILITY COMPANY REQUIREMENTS

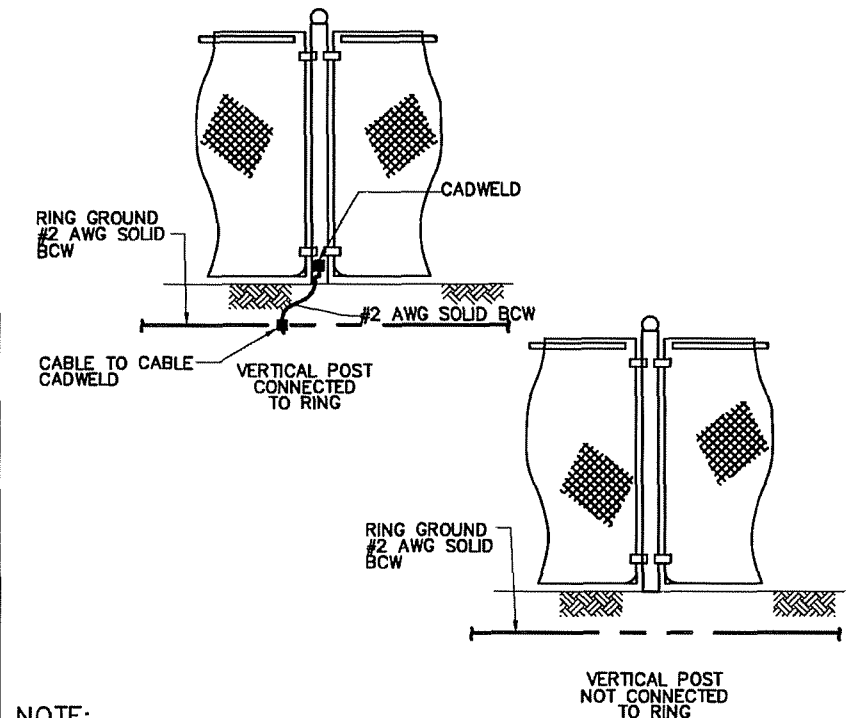
**2 TYPICAL TRENCH DETAILS**  
N.T.S.



**NOTES:**

- THE #2 AWG, BCW, FROM THE RING GROUND SHALL BE CADWELDED TO THE POST ABOVE GRADE.
- BOND EACH HORIZONTAL POLE/BRACE TO EACH OTHER AND TO EACH VERTICAL POLE BONDED TO THE EXTERIOR GROUND RING.
- GATE JUMPER SHALL BE #4/0 AWG WELDING CABLE OR FLEXIBLE COPPER BRAID BUNRDY TYPE B WITH SLEEVES ON EACH END DESIGNED FOR EXOTHERMIC WELDING.
- GATE JUMPER SHALL BE INSTALLED SO THAT IT WILL NOT BE SUBJECTED TO DAMAGING STRAIN WHEN GATE IS FULLY OPEN IN EITHER DIRECTION.

**1 FENCE GATE GROUNDING DETAILS**  
N.T.S.



**NOTE:**

- VERTICAL POSTS SHALL BE BONDED TO THE RING AT EACH CORNER AND AT EACH GATE POST. AS A MINIMUM ONE VERTICAL POST SHALL BE BONDED TO THE GROUND RING IN EVERY 100 FOOT STRAIGHT RUN TO FENCE.
- HORIZONTAL POLES SHALL BE BONDED TO EACH OTHER.
- BOND EACH HORIZONTAL POLE / BRACE TO EACH OTHER AND TO EACH VERTICAL POST THAT IS BONDED TO THE EXTERIOR GROUND RING

**3 FENCE GROUNDING DETAILS**  
N.T.S.

MAX ENGINEERING, LLC  
9000 SW FREEWAY, Ste # 410  
Houston, Texas 77074  
Phone (713) 773-2525  
Fax (713) 773-2558

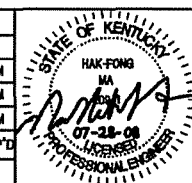


CENTRAL STATES TOWER, INC.  
323 SOUTH HALE STREET  
SUITE 100  
WHEATON, IL 60187

SITE No: KY-00-0821  
SITE NAME: GREENBO LAKE  
72 HARRIS HOLLOW RD.  
ARGILLITE, KY 41121

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SCALE: AS SHOWN    DESIGNED BY: PT    DRAWN BY: PT

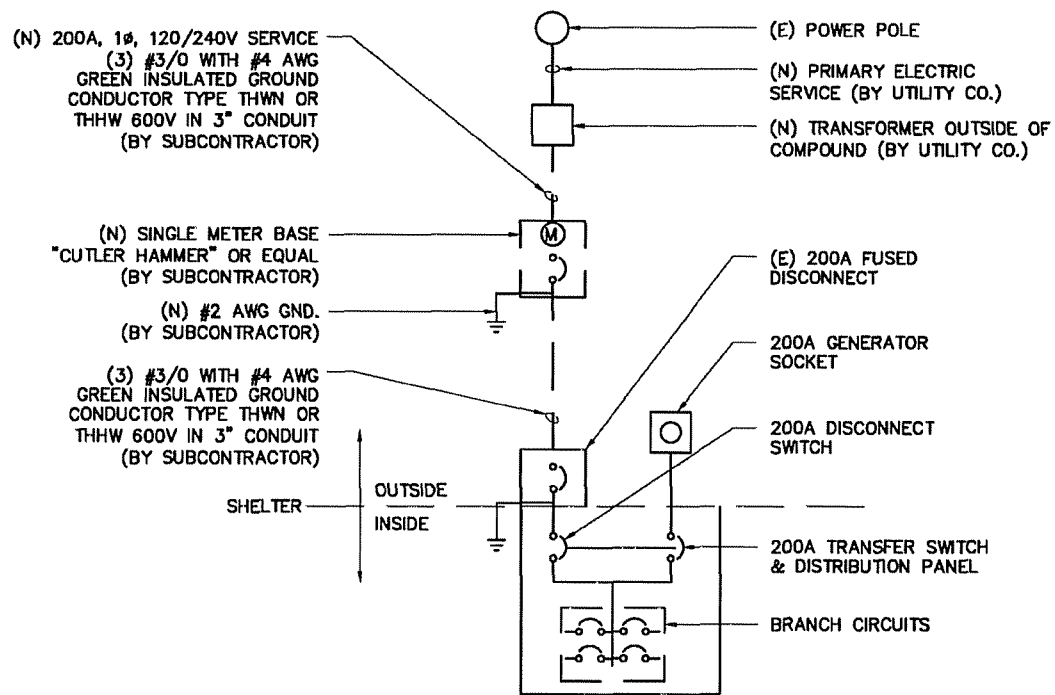


SHEET TITLE  
**ELECTRICAL NOTES & DETAILS**

SHEET NUMBER  
**E-1**

**ELECTRICAL NOTES:**

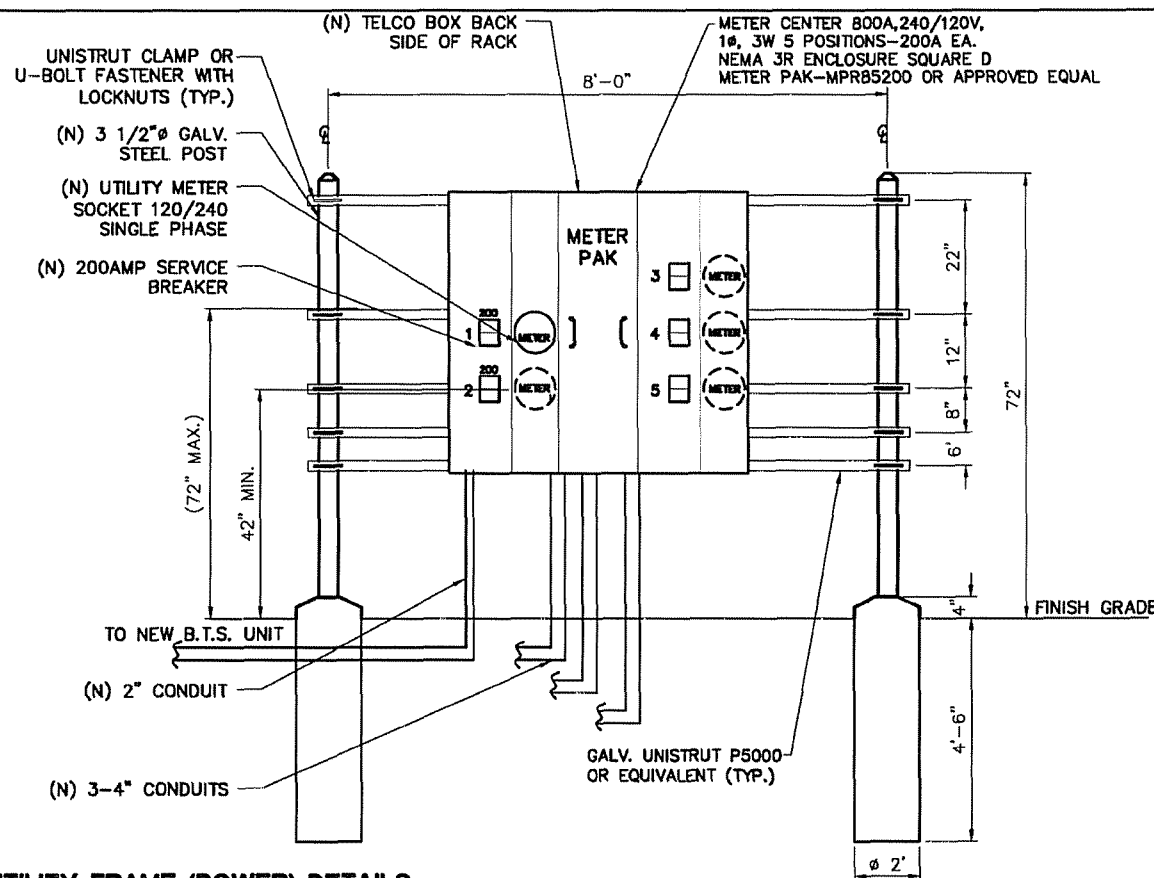
- SUBCONTRACTOR SHALL PROVIDE 200AMP, SINGLE PHASE, 120/240 VAC, 60HZ SERVICE FOR SITE.
- SUBCONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY BEFORE THE START OF CONSTRUCTION. POWER AND TELEPHONE CONDUIT SHALL BE PROVIDED AND INSTALLED PER UTILITY REQUIREMENTS.
- FOR COMPLETE INTERNAL WIRING AND ARRANGEMENT REFER TO DRAWINGS PROVIDED BY PANEL MANUFACTURER.
- SUBCONTRACTOR SHALL INSTALL SUFFICIENT LENGTHS OF LFMC INCLUDING ALL CONDUIT FITTINGS (NUTS, REDUCING BUSHINGS, ELBOWS, COUPLINGS, ETC) NECESSARY FOR CONNECTION FROM IMC CONDUIT TO THE INTERIOR OF THE BTS CABINET.
- SUBCONTRACTOR SHALL PROVIDE ELECTRICAL SERVICE EQUIPMENT WITH FAULT CURRENT RATINGS GREATER THAN THE AVAILABLE FAULT CURRENT FROM THE POWER UTILITY.
- CUT, COIL, AND TAPE A 3 FOOT PIGTAIL FROM END OF LFMC FOR TERMINATING BY BTS EQUIPMENT MANUFACTURER.
- SUBCONTRACTOR SHALL VERIFY THAT MAIN BONDING JUMPER AND GROUNDING ELECTRODE CONDUCTOR IS INSTALLED PROPERLY WHEN PANEL IS SERVICE ENTRANCE EQUIPMENT.



**1 200 AMP SINGLE LINE DIAGRAM**  
N.T.S.

**NOTE:**

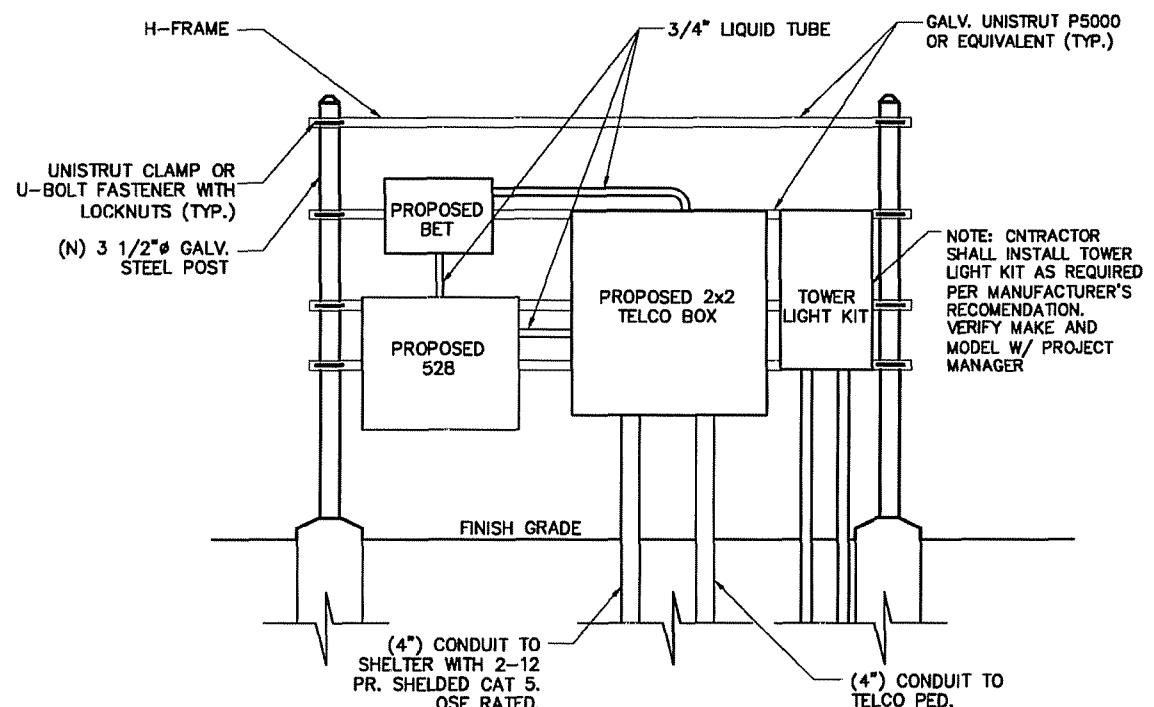
- FROM THE TAP BOX: THE TWO (2) FOUR INCH (4") CONDUIT WILL RETURN TO THE LOCATION DETERMINED BY THE LOCAL UTILITY AND EXTENDED OUT OF THE FINISHED GRADE 12" AND 36" RESPECTIVELY. BOTH CONDUITS SHALL BE INSTALLED WITH PULL-STRINGS AND WATERPROOFING CAPS.
- CABINET AND CONDUCTORS FURNISHED AND INSTALLED BY CUSTOMER, 350 KCMIL SERVICE CONDUCTORS FURNISHED AND INSTALLED BY UTILITY.
- EQUIPMENT ASSEMBLY DRAWINGS AND RISER DIAGRAMS MUST BE SUBMITTED TO A UTILITY PLANNER FOR ACCEPTANCE PRIOR TO INSTALLATION.
- CABINETS AND CONDUITS SHOWN SHALL CONTAIN ONLY UNMETERED LINE CONDUCTORS. CABINET SHALL BE SEALABLE WITH ACCEPTABLE SEALING HASP.
- TRANSMISSION TOWER SERVICES WILL UTILIZE A STANDARD 200 AMP SERVICE W/ CONTINUOUS CONDUIT TO THE SOURCE.
- SUBSTATION CELLULAR SERVICES WILL BE A SINGLE 200AMP SERVICE OR BUILT TO THIS SPECIFICATION. NO SERVICE SHALL BE TAKEN OUT OF THE SUBSTATION HOUSE SERVICE.
- ALL CONDUIT AND NIPPLE ENTRIES TO CABINET AND METER BOXES WILL BE MADE WITH WEATHERPROOF HUBS, CONNECTORS OR LOCKNUTS LISTED FOR THE APPLICATIONS. NON-METALLIC BRUSHINGS.
- FOR INACCESSIBLE LOCATIONS CONSULT WITH METER ENGINEERING FOR POSSIBLE ERT METER INSTALLATION.
- ONLY ONE SERVICE ALLOWED PER LUG. ALL GROUNDING AND BONDING MUST COMPLY WITH NEC 250 REQUIRED.
- ALL ELECTRICAL PLUMBING MUST BE VERIFIED PRIOR TO INSTALLATION BY CONTRACTOR AND MUST MEET GOVERNING CODES, NO EXCEPTIONS.



**2 NEW UTILITY FRAME (POWER) DETAILS**  
N.T.S.

**NOTES:**

- COORDINATE WITH LOCAL TELCO UTILITY PRIOR TO PROCURING AND INSTALLATION OF BOX AND COMPONENTS.
- ALL MATERIAL SHALL MEET REQUIREMENTS OF LOCAL TELCO UTILITY.
- ITEM #4 SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR. BOND SURGE PROTECTION UNIT TO GROUND BAR WITH #6 AWG INSULATED WIRE.
- COORDINATE SIZE, TYPE AND QUANTITY OF ITEM(S) #5 WITH LOCAL UTILITY.
- INSTALL ITEM #6 ONLY IF REQUIRED BY UTILITY. RECEPTACLE POWERED FROM SPARE BREAKER IN DISTRIBUTION PANEL.
- 1 20" x 20" x 8" NEMA 3R ENCLOSURE (HOFFMAN A-20R20BHCR OR SIMILAR).
- NEW TOWER LIGHT KIT TO BE INSTALLED BY CONTRACTOR. VERIFY ALL REQUIREMENTS PRIOR TO INSTALLATION.



**3 NEW UTILITY FRAME (TELCO) DETAILS**  
N.T.S.

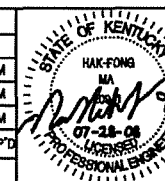
**MAX ENGINEERING, LLC**  
9000 SW FREEWAY, Ste # 410  
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**CENTRAL STATES TOWER, INC.**  
323 SOUTH HALE STREET  
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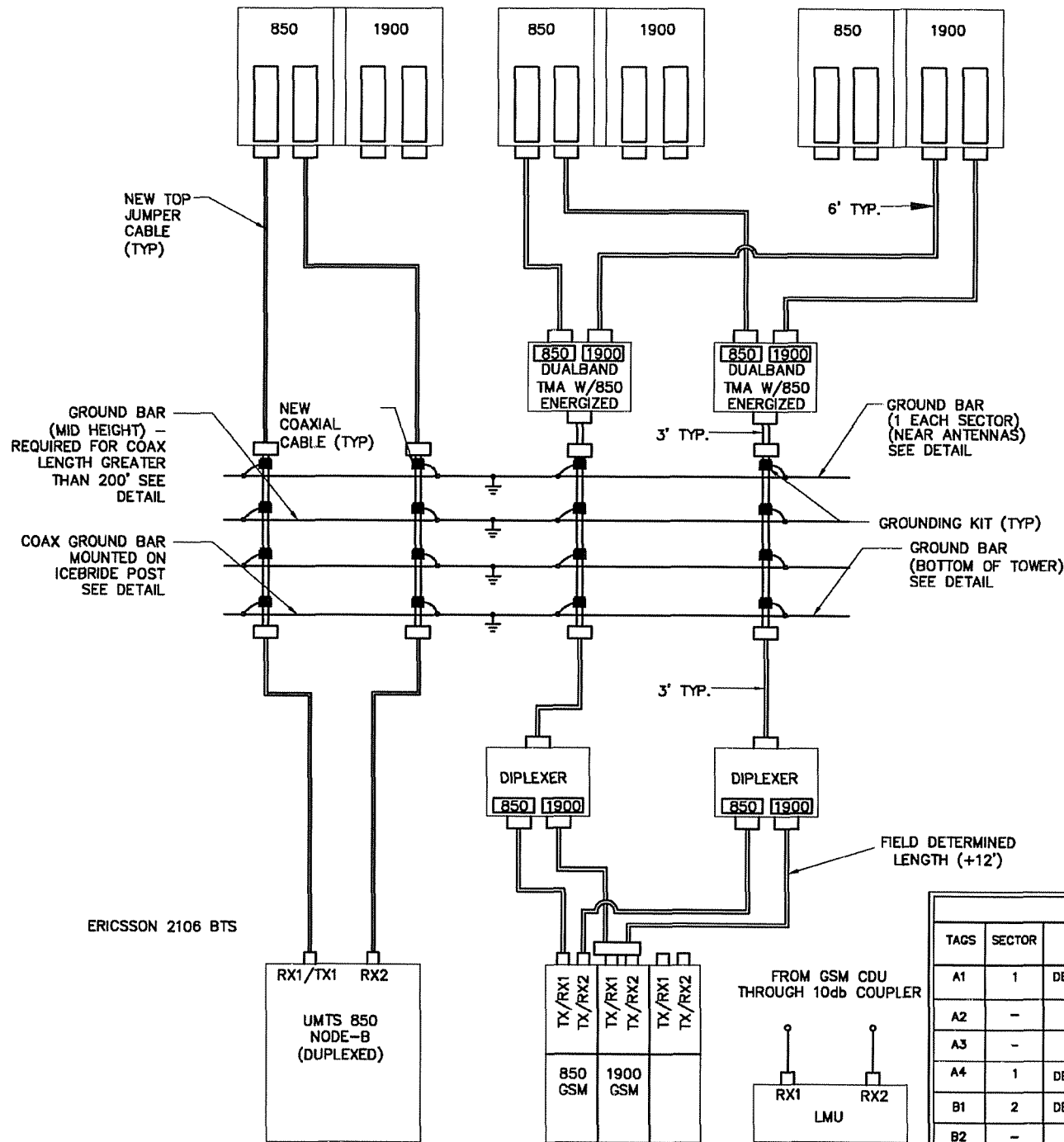
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SHEET TITLE	
<b>SINGLE LINE DIAGRAM &amp; DETAILS</b>	
SHEET NUMBER	
<b>E-2</b>	





① 2 - ANTENNAS PER SECTOR CONFIGURATION

**NOTES:**

1. ALL MATERIALS SHALL BE PROVIDED BY THE CONTRACTOR TO THE SUBCONTRACTOR FOR INSTALLATION.
2. SUBCONTRACTOR SHALL AS-BUILT CABLE LENGTHS AND PROVIDE ANTENNA SERIAL NUMBERS ON RED-LINED DRAWINGS.
3. ANTENNAS SHALL BE PROCURED AND INSTALLED WITH DOWNTILT BRACKETS AND HEAVY DUTY CLAMPS SUPPLIED BY ANTENNA MANUFACTURER.
4. FOLLOW DETAIL FOR AT&T COAX COLOR CODING.
5. COAX GROUND KITS, COAX WEATHER PROOFING, SNAP-IN HANGER CLAMPS AND HOISTING GRIPS SHALL BE PROVIDED BY THE CONTRACTOR TO THE SUBCONTRACTOR FOR INSTALLATION.
6. RF DATA IS TO BE VERIFIED BY CONTRACTOR

**ANTENNA AND COAXIAL CABLE SCHEDULE**

TAGS	SECTOR	ANTENNA TYPE	ANTENNA SERIAL NUMBER	ELEC. DOWN TILT	MECH DOWN TILT	AZIMUTH	ANTENNA RAD CTR	CABLE LENGTH	COAXIAL CABLE	TOP JUMPER	BOTTOM JUMPER	COLOR CODE	TMA TYPE	DIPLEXER	DC BLOCK Y/N
A1	1	DBXLH-8585A-VTM		2°	60°	0°	295	370	ANDREWS AVA7-50 1-5/8'	(6') 1/2" LDF4P	(6') 1/2" SF	1 GREEN STRIPE	KRY112 75/1	LGP 21903	N
A2	-	-		-	-	-	-	-	ANDREWS AVA7-50 1-5/8'	(6') 1/2" LDF4P	(6') 1/2" SF	2 GREEN STRIPES	-	-	N
A3	-	-		-	-	-	-	-	ANDREWS AVA7-50 1-5/8'	(6') 1/2" LDF4P	(6') 1/2" SF	3 GREEN STRIPES	-	-	N
A4	1	DBXLH-8585A-VTM		2°	60°	0°	295	370	ANDREWS AVA7-50 1-5/8'	(6') 1/2" LDF4P	(6') 1/2" SF	4 GREEN STRIPES	KRY112 75/1	LGP 21903	N
B1	2	DBXLH-8585A-VTM		2°	180°	120°	295	370	ANDREWS AVA7-50 1-5/8'	(6') 1/2" LDF4P	(6') 1/2" SF	1 BLUE STRIPE	KRY112 75/1	LGP 21903	N
B2	-	-		-	-	-	-	-	ANDREWS AVA7-50 1-5/8'	(6') 1/2" LDF4P	(6') 1/2" SF	2 BLUE STRIPES	-	-	N
B3	-	-		-	-	-	-	-	ANDREWS AVA7-50 1-5/8'	(6') 1/2" LDF4P	(6') 1/2" SF	3 BLUE STRIPES	-	-	N
B4	2	DBXLH-8585A-VTM		2°	180°	120°	295	370	ANDREWS AVA7-50 1-5/8'	(6') 1/2" LDF4P	(6') 1/2" SF	4 BLUE STRIPES	KRY112 75/1	LGP 21903	N
C1	3	DBXLH-8585A-VTM		2°	300°	240°	295	370	ANDREWS AVA7-50 1-5/8'	(6') 1/2" LDF4P	(6') 1/2" SF	1 WHITE STRIPE	KRY112 75/1	LGP 21903	N
C2	-	-		-	-	-	-	-	ANDREWS AVA7-50 1-5/8'	(6') 1/2" LDF4P	(6') 1/2" SF	2 WHITE STRIPES	-	-	N
C3	-	-		-	-	-	-	-	ANDREWS AVA7-50 1-5/8'	(6') 1/2" LDF4P	(6') 1/2" SF	3 WHITE STRIPES	KRY112 75/1	LGP 21903	N
C4	3	DBXLH-8585A-VTM		2°	300°	240°	295	370	ANDREWS AVA7-50 1-5/8'	(6') 1/2" LDF4P	(6') 1/2" SF	4 WHITE STRIPES	KRY112 75/1	LGP 21903	N

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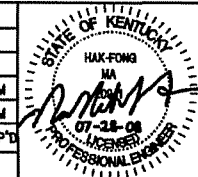


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 SUITE 100  
 WHEATON, IL 60187

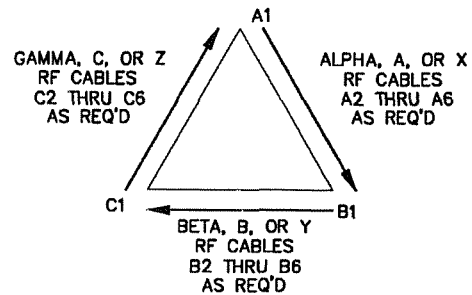
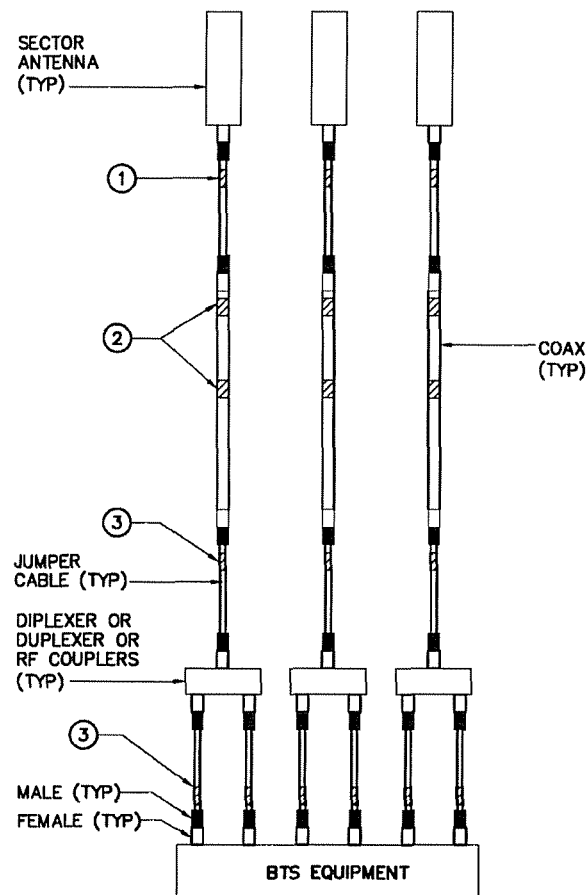
**SITE No: KY-00-0821**  
**SITE NAME: GREENBO LAKE**  
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 ARGILLITE, KY 41121

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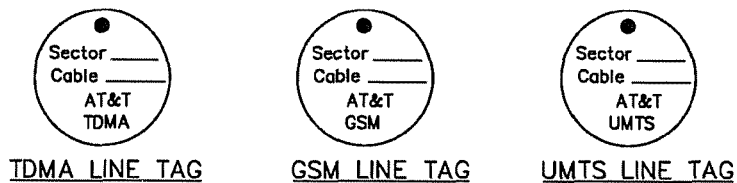


SHEET TITLE  
**ANTENNA SCHEMATICS AND DETAILS**  
 SHEET NUMBER  
**E-2A**



**NOTE:**  
SECTOR ORIENTATION/AZIMUTH WILL VARY FROM REGION TO REGION AND IS SITE SPECIFIC. REFER TO RF REPORT FOR EACH SPECIFIC SITE TO DETERMINE THE SECTOR ORIENTATION.

**ANTENNA SECTOR AND CABLE DEFINITION**



TO PROVIDE ADDITIONAL IDENTIFICATION EACH RF CABLE SHALL BE IDENTIFIED WITH A METAL TAG MADE OF STAINLESS STEEL OR BRASS AND STAMPED WITH THE SECTOR, CABLE NUMBER, AND "AT&T" TO IDENTIFY AT&T MOBILITY CABLES. THE ID MARKING LOCATIONS SHOULD BE AS PER "CABLE MARKING LOCATIONS TABLE". THE TAG SHOULD BE ATTACHED WITH CORROSION PROOF WIRE AROUND THE CABLE. PREFERRED TAG LABELING SHOULD BE AS SHOWN ABOVE "TDMA LINE TAG", "GSM LINE TAG" AND "UMTS LINE TAG".

**2 CABLE MARKING TAGS**

**NOTES:**

1. USING COLOR BANDS ON THE CABLES, MARK ALL RF CABLES BY SECTOR AND CABLE NUMBER, AS SHOWN ON "CABLE MARKING COLOR CONVENTION TABLE" (EX. SECTOR ALPHA, CABLE A3 WOULD BE THREE GREEN BANDS)
2. THE STANDARD CABLE MARKING TAPE IS BASED ON THE 5 "NEMA" COLORED TAPES: GREEN, BLUE, WHITE, RED AND ORANGE.
3. UMTS CABLES WILL BE MARKED WITH A MINIMUM OF 3" WIDE AT TOP AND MIDDLE OF TOWER, AND 2" WIDE AT THE BOTTOM. ALL JUMPERS SHALL BE INCLUDED.
4. ALL COLOR CODE TAPE SHALL BE 3M-35 AND SHALL BE INSTALLED USING A MINIMUM OF (3) WRAPS OF TAPE AND SHALL BE NEATLY TRIMMED AND SMOOTHED OUT TO AVOID UNWRAPPING.
5. ALL COLOR CODE TAPE SHALL BE 3" WIDE AT TOP AND MIDDLE OF TOWER, AND 2" WIDE AT THE BOTTOM. ALL JUMPERS SHALL BE INCLUDED

**3 COAX COLOR CODING AND IDENTIFICATION DETAIL FOR OVERLAY**

**1 CABLE MARKING LOCATIONS DIAGRAM GRAVEL DRIVE DETAILS**

ALL RF CABLE SHALL BE MARKED AS PER CABLE MARKING LOCATIONS TABLE BELOW:

CABLE MARKING LOCATIONS TABLE			
NO.	TAPE	TAG	LOCATIONS
1.	X		EACH TOP-JUMPER SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS.
2.	X		EACH MAIN COAX SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS NEAR THE TOP-JUMPER CONNECTION AND WITH (1) SET OF 3/4" WIDE COLOR BANDS JUST PRIOR TO ENTERING THE BTS OR TRANSMITTER BUILDING.
3.	X		ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" WIDE BANDS ON EACH END OF THE BOTTOM JUMPER.
4.	*	*	ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" WIDE BANDS ON EACH END OF THE BOTTOM JUMPER.

(\* -- DENOTES TAG OR TAPE.)

**FSA3 - CABLE MARKING COLOR CONVENTION TABLE**

SECTOR	850 TDMA/GSM	1900 TDMA/GSM	850 TDMA/GSM	1900 TDMA/GSM	850 UMTS (FUTURE)	1900 UMTS	850 UMTS (FUTURE)	1900 UMTS
	CABLE A1	CABLE A2	CABLE A3	CABLE A4	CABLE UMTS1	CABLE UMTS2	CABLE UMTS3	CABLE UMTS4
SECTOR ALPHA, A, OR X	ONE (1) 3/4" GRN	TWO (2) 3/4" GRN	THREE (3) 3/4" GRN	FOUR (4) 3/4" GRN	ONE (1) 1 1/2" GRN 3/4" ORG	TWO (2) 1 1/2" GRN 3/4" ORG	THREE (3) 1 1/2" GRN 3/4" ORG	FOUR (4) 1 1/2" GRN 3/4" ORG
SECTOR BETA, B, OR Y	ONE (1) 3/4" BLUE	TWO (2) 3/4" BLUE	THREE (3) 3/4" BLUE	FOUR (4) 3/4" BLUE	ONE (1) 1 1/2" BLUE 3/4" ORG	TWO (2) 1 1/2" BLUE 3/4" ORG	THREE (3) 1 1/2" BLUE 3/4" ORG	FOUR (4) 1 1/2" BLUE 3/4" ORG
SECTOR GAMMA, C, OR Z	ONE (1) 3/4" WHT	TWO (2) 3/4" WHT	THREE (3) 3/4" WHT	FOUR (4) 3/4" WHT	ONE (1) 1 1/2" WHT 3/4" ORG	TWO (2) 1 1/2" WHT 3/4" ORG	THREE (3) 1 1/2" WHT 3/4" ORG	FOUR (4) 1 1/2" WHT 3/4" ORG
SECTOR DELTA, D, OR W	ONE (1) 3/4" RED	TWO (2) 3/4" RED	THREE (3) 3/4" RED	FOUR (4) 3/4" RED	ONE (1) 1 1/2" RED 3/4" ORG	TWO (2) 1 1/2" RED 3/4" ORG	THREE (3) 1 1/2" RED 3/4" ORG	FOUR (4) 1 1/2" RED 3/4" ORG

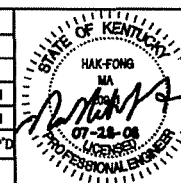
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**CENTRAL STATES TOWER, INC.**  
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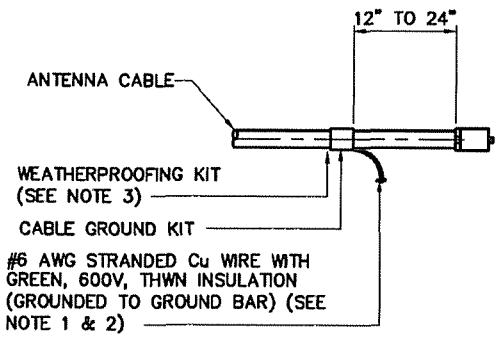
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ARGILLITE, KY 41121

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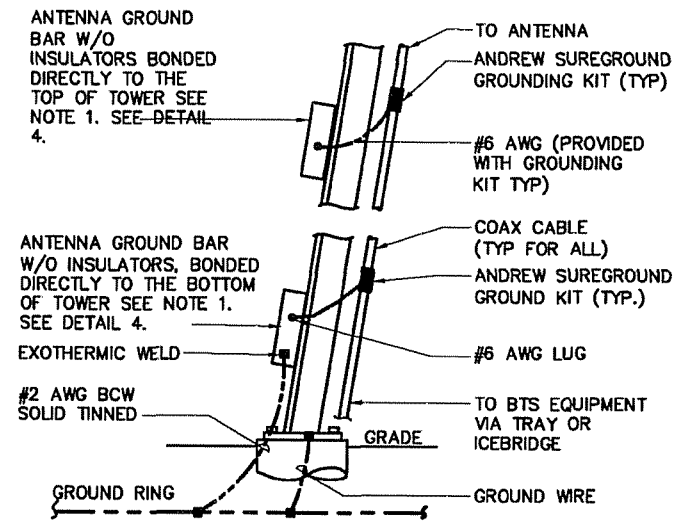
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**COAX COLOR CODING**  
SHEET NUMBER

**E-2B**



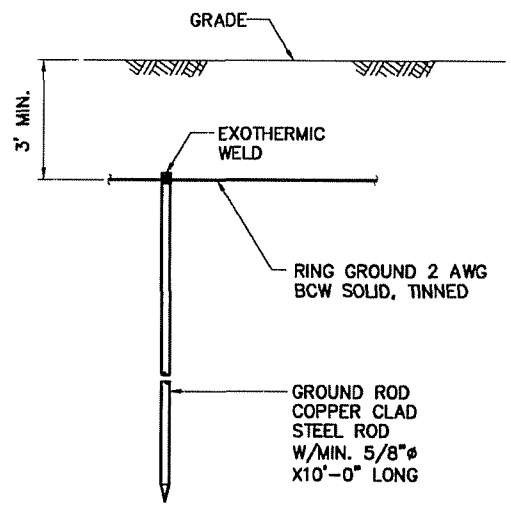
- NOTES:**
- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
  - GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
  - WEATHER PROOFING SHALL BE (TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.)

**1 CONNECTION OF CABLE GROUND KIT TO ANTENNA CABLE**  
N.T.S.



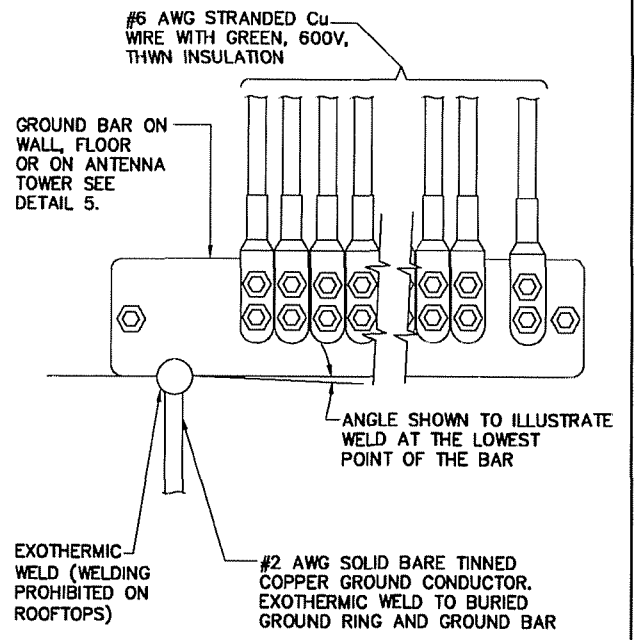
- NOTE:**
- NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
  - AN ADDITIONAL GROUND BARS TO BE MOUNTED ON THE MIDDLE OF TOWER IF TOWER HEIGHT IS MORE THAN 200'.

**2 ANTENNA CABLE GROUNDING FOR A SELF SUPPORTING LATTICE TOWER**  
N.T.S.



- GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.

**3 GROUND ROD DETAILS**  
N.T.S.

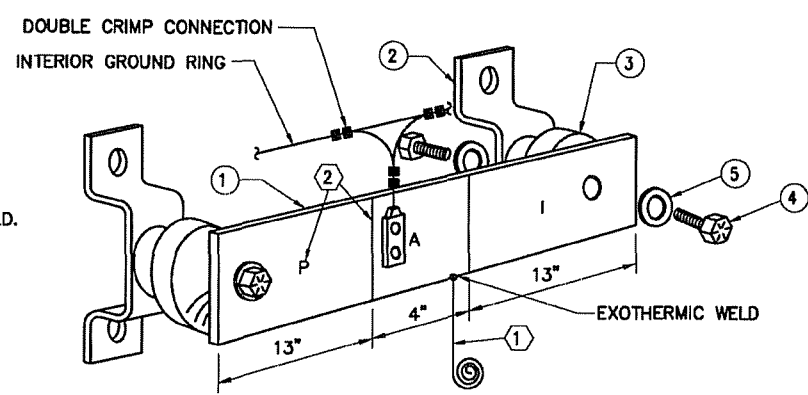


**4 INSTALLATION OF GROUND WIRE TO GROUND BAR DETAILS**  
N.T.S.

EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

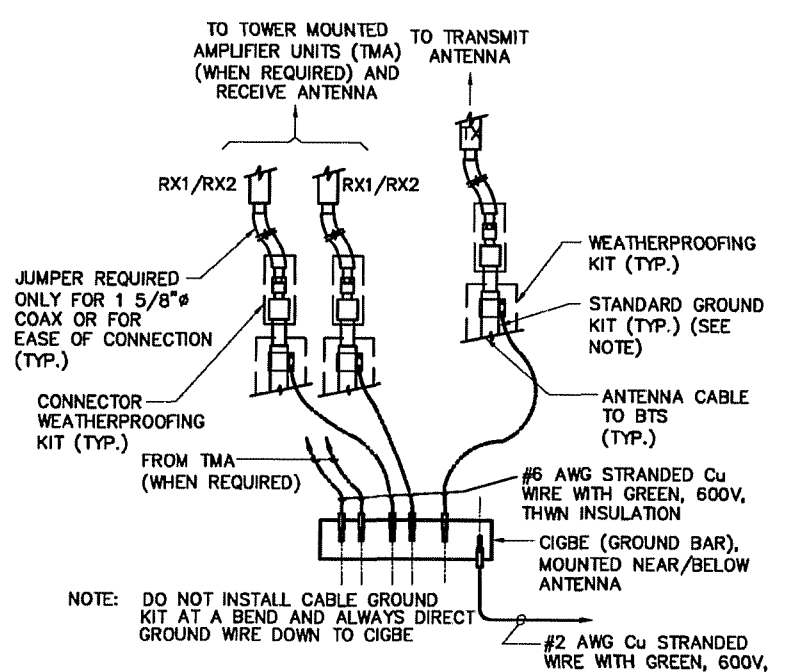
- SECTION "P" - SURGE PROTECTORS**
- CABLE ENTRY PORTS (HATCH PLATES) (#2)
  - GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
  - TELCO GROUND BAR (#2)
  - COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
  - +24V POWER SUPPLY RETURN BAR (#2)
  - 48V POWER SUPPLY RETURN BAR (#2)
  - RECTIFIER FRAMES.
  - COAX SUPPRESSION
- SECTION "A" - SURGE ABSORBERS**
- INTERIOR GROUND RING (#2)
  - EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
  - METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
  - BUILDING STEEL (IF AVAILABLE) (#2)
- SECTION "I" - ISOLATED GROUND ZONE**
- ALL COMMUNICATIONS EQUIPMENT FRAMES.
  - ISOLATED GROUND BAR - IGB (#2)

NEWTON INSTRUMENT COMPANY, INC. BUTNER, N.C.			
NO.	REQ.	PART NO.	DESCRIPTION
1	1	1/4"x4"x30"	SOLID GND. BAR
2	2	A-6056	WALL MTG. BRKT.
3	2	3061-4	INSULATORS
4	4	3012-1	5/8"-11x1" H.H.C.S.
5	4	3015-8	5/8 LOCKWASHER

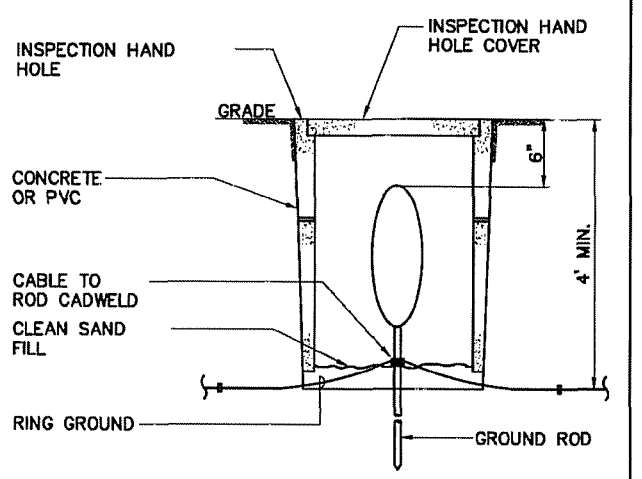


- DETAIL NOTES:**
- EXOTHERMICALLY WELD #2 AWG BARE TINNED SOLID COPPER CONDUCTOR TO GROUND BAR. ROUTE CONDUCTOR TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
  - USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION ("P", "A", "I") WITH 1" HIGH LETTERS.

**5 (RGB) REFERENCE GROUND BAR DETAIL**  
N.T.S.



**6 CONNECTION OF GROUND WIRE TO GROUNDING BAR (CIGBE) TOWER/MONOPOLE**  
N.T.S.



- NOTE:** INSPECTION HAND HOLE MAY BE CONCRETE OR PVC AND SHALL BE A MINIMUM OF 8" IN WIDTH/DIAMETER

**7 GROUND ROD WITH ACCESS AREA DETAILS**  
N.T.S.

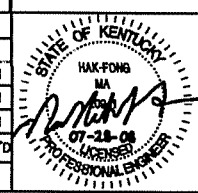
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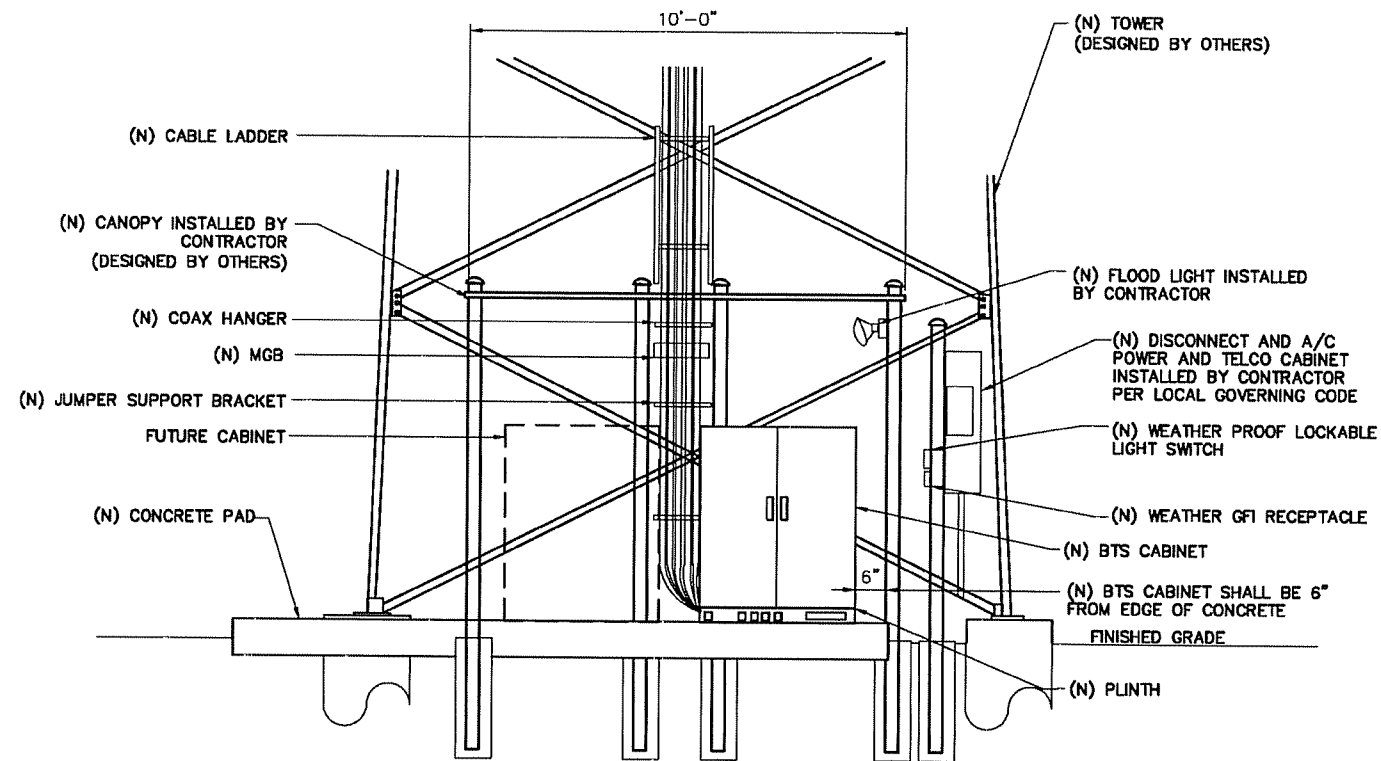
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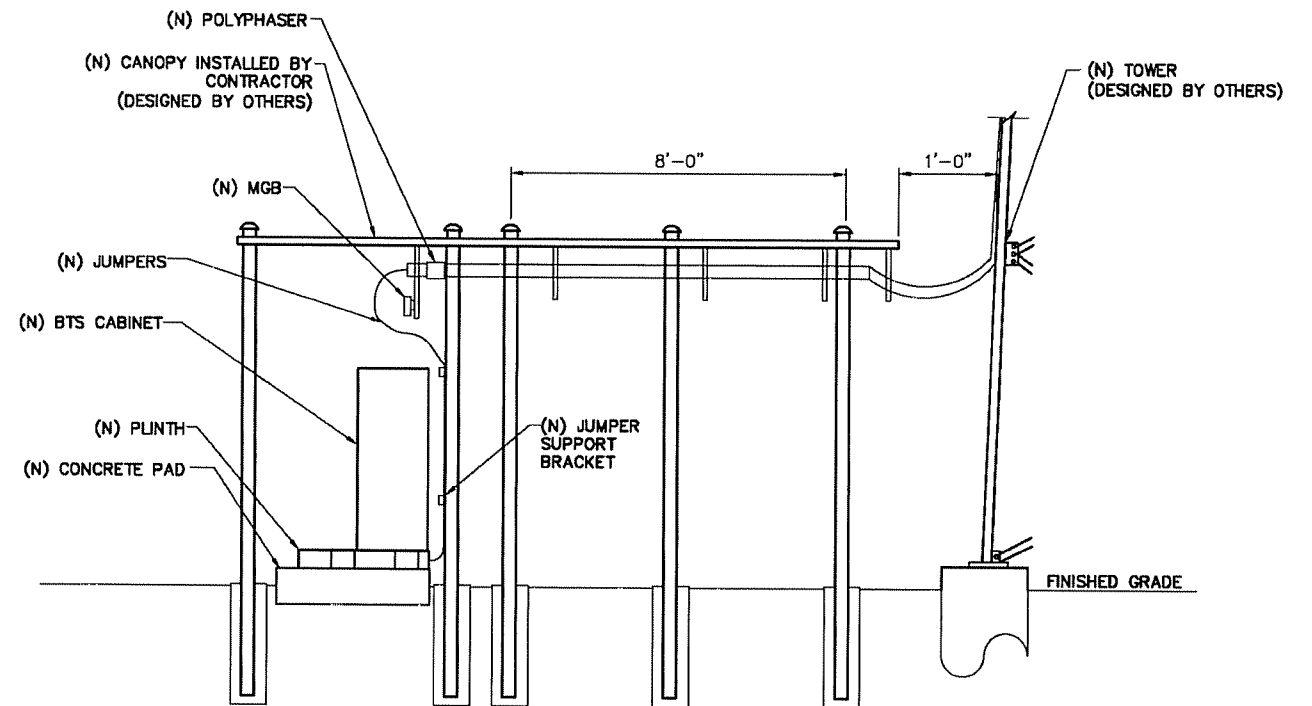


SHEET TITLE  
**GROUNDING DETAILS**  
SHEET NUMBER  
**E-3**



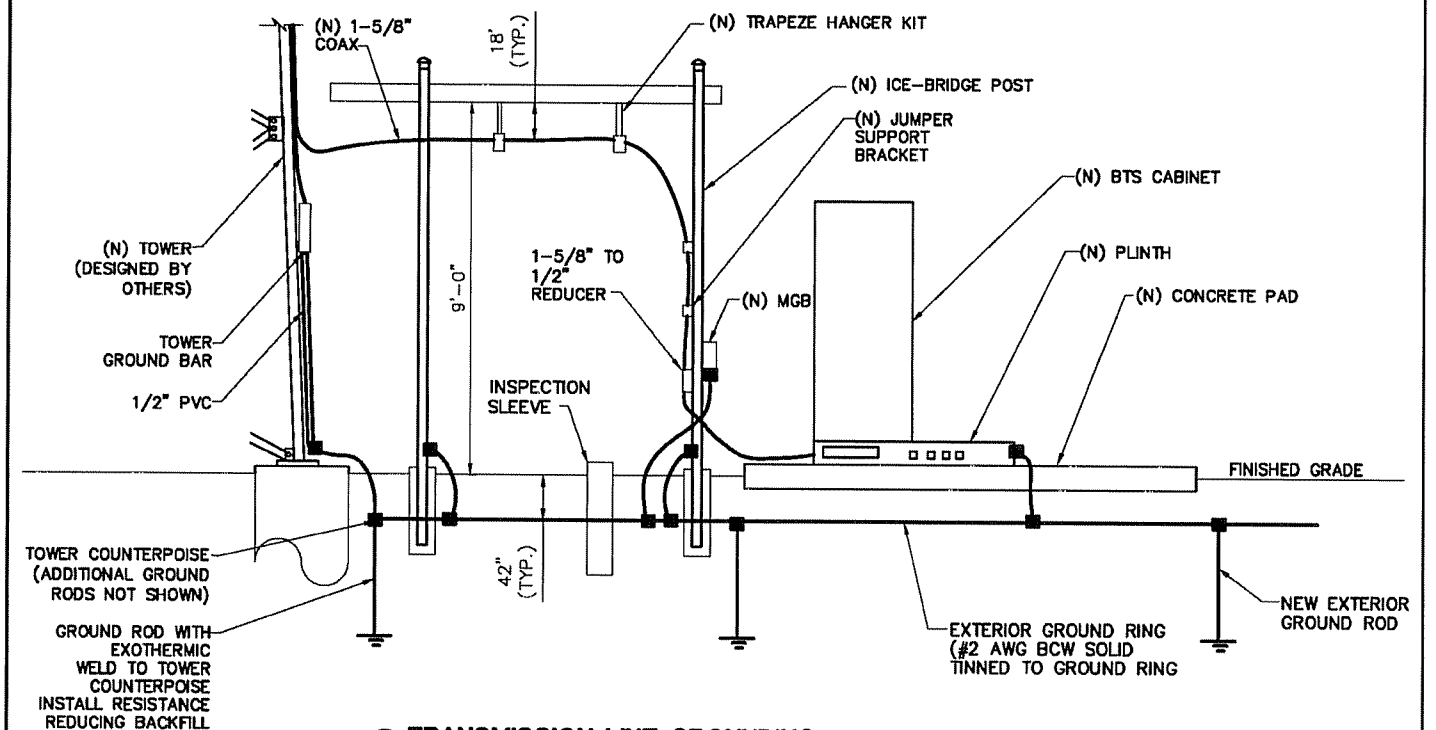


① **CABINET FRONT ELEVATION**  
N.T.S.



② **CABINET SIDE ELEVATION**  
N.T.S.

NOT USED



④ **TRANSMISSION LINE GROUNDING - EQUIPMENT AND SERVICE (SIDE ELEVATION)**  
N.T.S.

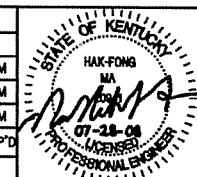
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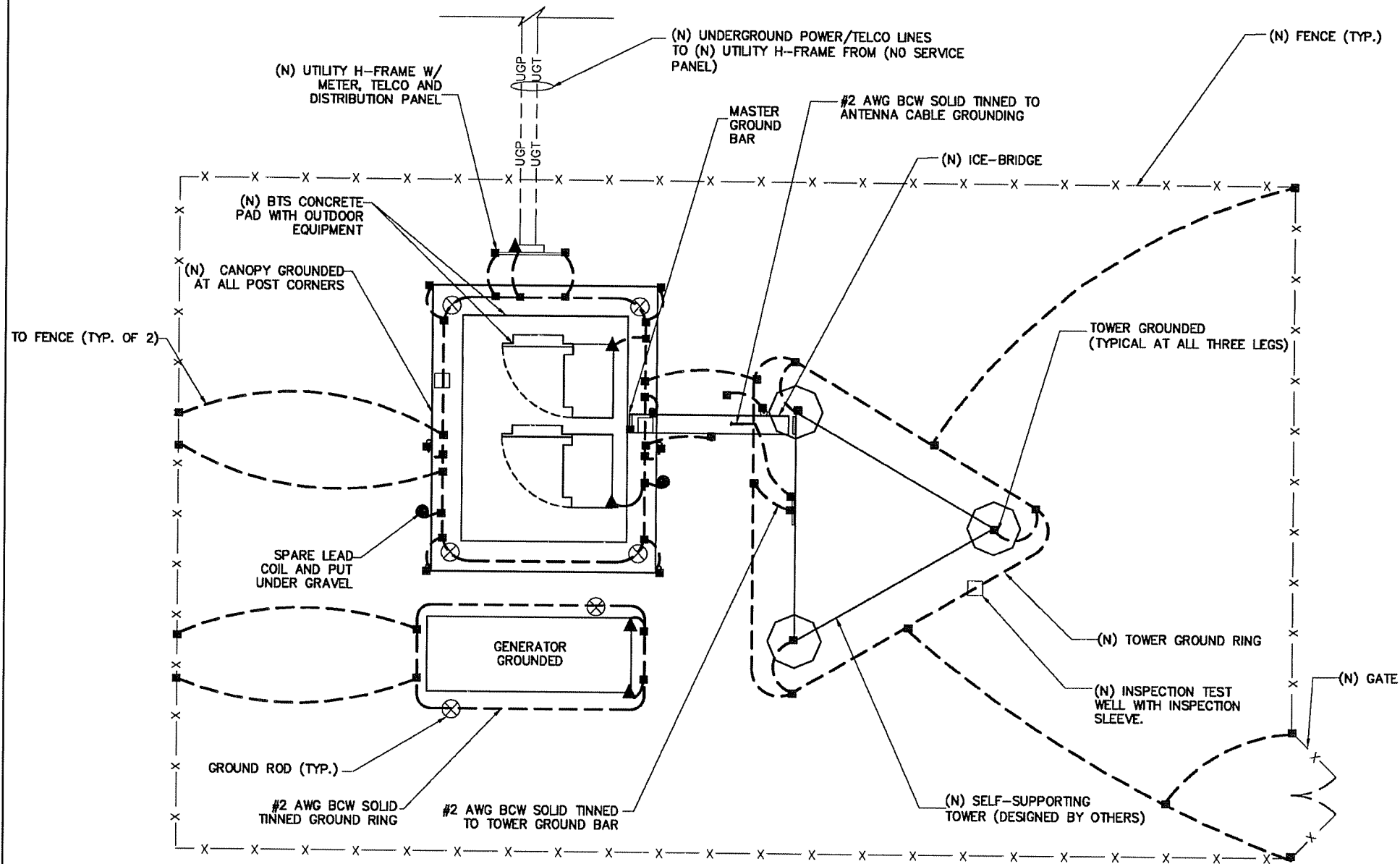
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**GROUNDING AND ELEVATION DETAILS**  
SHEET NUMBER

**E-4**



**1 TYPICAL SELF-SUPPORTING TOWER GROUNDING PLAN**  
N.T.S. (SCHEMATIC ONLY)

**GROUNDING NOTES:**

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE SUB-CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT & PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED-BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90± BENDS IS PROHIBITED. MAXIMUM BENDING IN THE PROTECTION GROUNDING CONDUCTORS IS 45°.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR & EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. INSTALL GROUND RODS FOR THE NEW GROUND RING, SEPARATION BETWEEN GROUND RODS SHOULD NOT BE LESS THAN THE LENGTH OF THE RODS NOR BE MORE THAN ONE AND ONE-HALF TIMES THE LENGTH OF THE RODS. CONNECT THE NEW RING TO EXISTING GROUND RING AT LEAST TWO SEPARATE PLACES.

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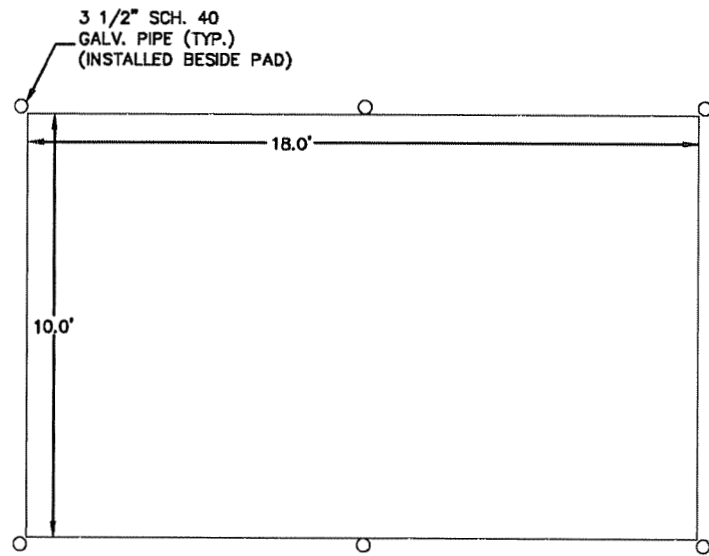
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A	04/23/08	FOR REVIEW	PT	VD	HM

SCALE: AS SHOWN    DESIGNED BY: PT    DRAWN BY: PT

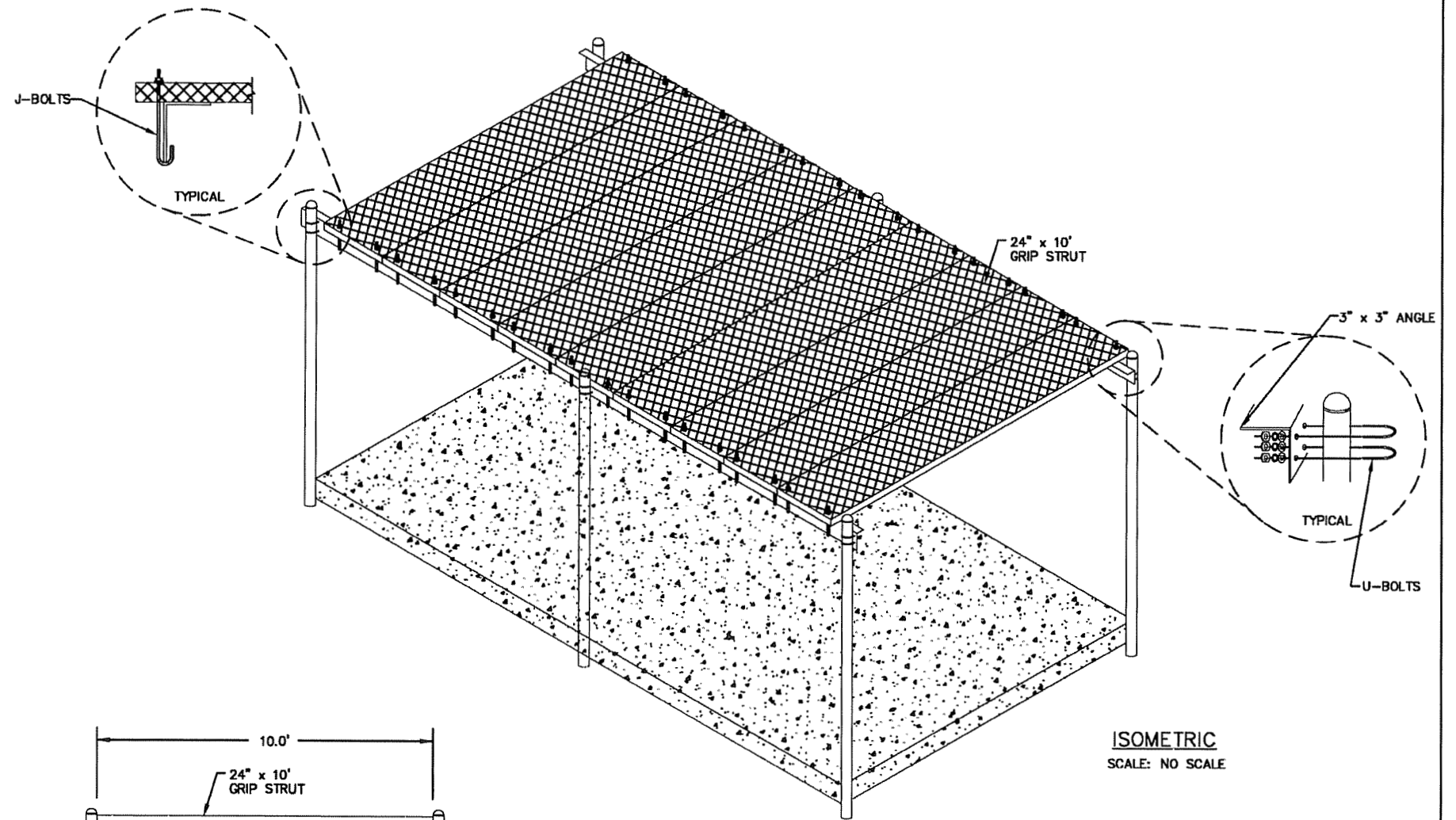


SHEET TITLE  
**GROUNDING NOTES & DETAILS**  
SHEET NUMBER  
**E-5**

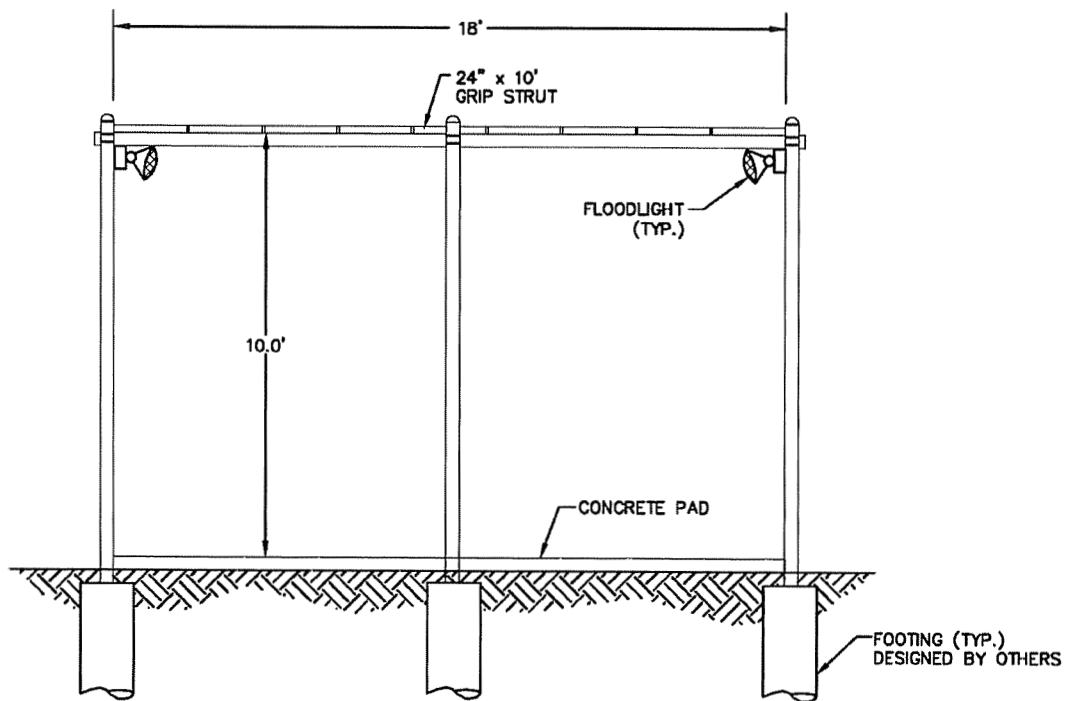
NOTE:  
CANOPY SHALL BE SITE PRO 1  
PART #COV101B OR EQUAL.



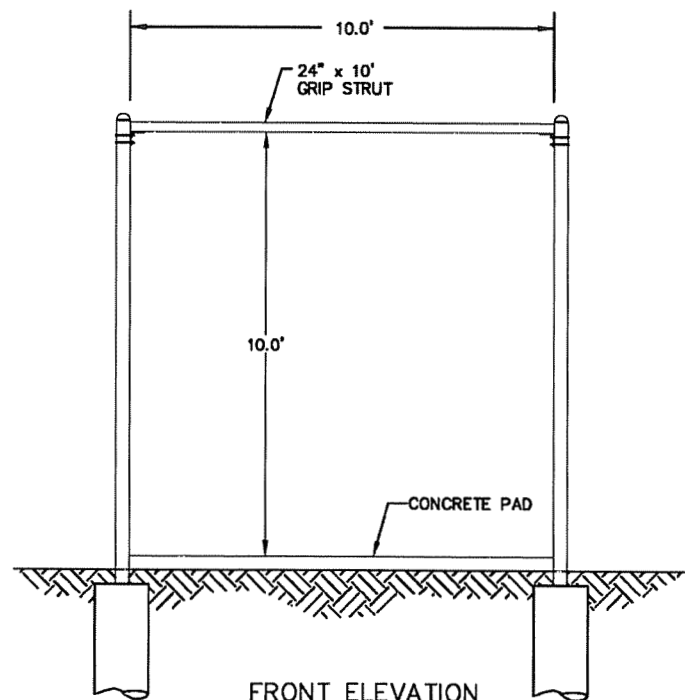
PLAN VIEW  
SCALE: NO SCALE



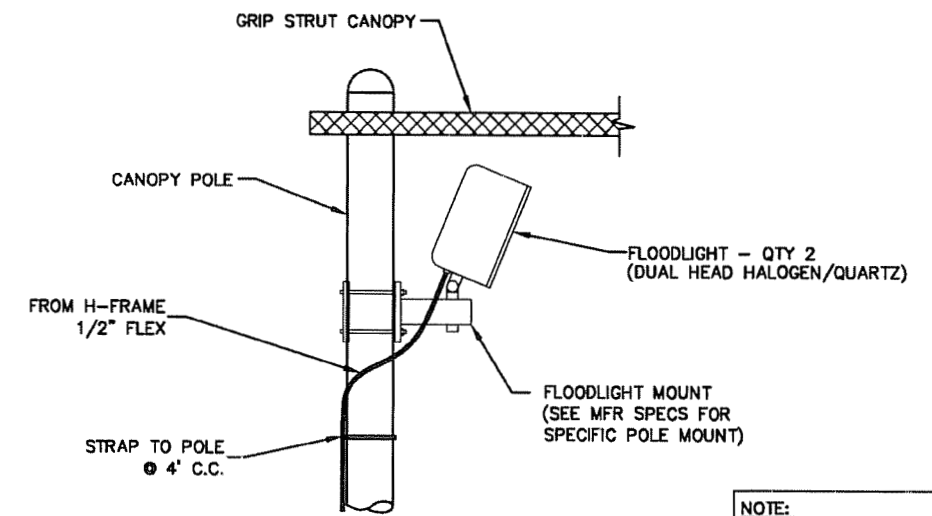
ISOMETRIC  
SCALE: NO SCALE



SIDE ELEVATION  
SCALE: NO SCALE



FRONT ELEVATION  
SCALE: NO SCALE



FLOODLIGHT DETAIL  
SCALE: NO SCALE

NOTE:  
LIGHTS TO BE MOUNTED ON THE  
SIDE OF CANOPY OPPOSITE OF  
THE CABINETS. AIM LIGHTS AT  
CABINETS.



**CENTRAL STATES TOWER, INC.**  
323 SOUTH HALE STREET  
SUITE 100  
WHEATON, IL 60187

**SITE No: KY-00-0821**  
**SITE NAME: GREENBO LAKE**  
72 HARRIS HOLLOW RD.  
ARGILLITE, KY 41121

NO.	DATE	REVISIONS	BY	CHK	APP'D

SCALE: AS SHOWN    DESIGNED BY:    DRAWN BY:

SHEET TITLE

**CANOPY**

SHEET NUMBER

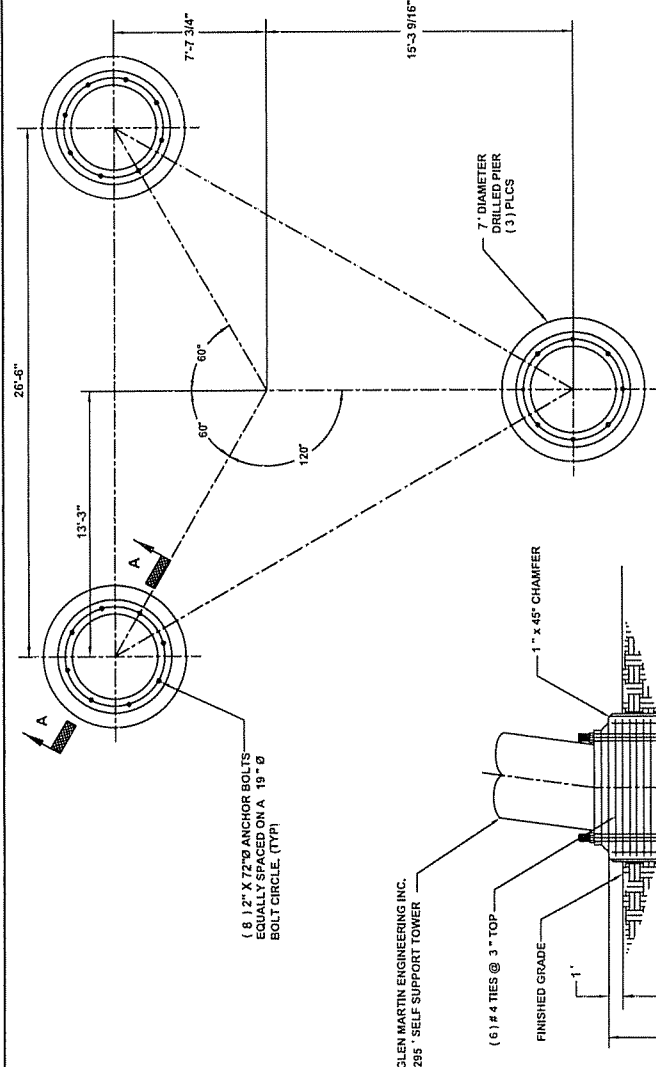
REF

**GENERAL NOTES:**

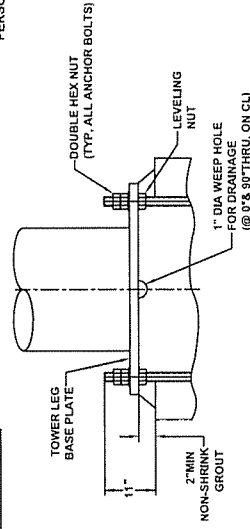
- 1) CONCRETE:
- A CONCRETE SHALL CONFORM TO SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS, ACI 301-99 AND ACI 338.
  - B ALL CONCRETE SHALL BE MADE WITH STONE AGGREGATE AND SHALL DEVELOP MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI IN 28 DAYS.
  - C 6-1/2 SACKS MINIMUM PER CUBIC YARD, 5 INCHES MAX. SLUMP, 3/4 INCHES MAXIMUM AGGREGATE.
  - D ALL REINFORCING SHALL BE HIGH STRENGTH DEFORMED BARS, GD 60, ASTM A615-67, WITH 60 KSI MINIMUM YIELD POINT.
  - E REINFORCEMENT PROTECTION: CONCRETE POURED AGAINST EARTH 5 INCH ALL BAR LENGTHS ARE NOT DRAWN TO SCALE UNLESS NOTED. NO SPLICING OF REINFORCEMENT SHALL BE MADE EXCEPT AS DETAILED OR AS AUTHORIZED BY THE STRUCTURAL ENGINEER. LAP SPACES WHERE PERMITTED SHALL BE A MINIMUM OF 40 BAR DIAMETERS UNLESS NOTED.
  - F DETAILED BARS IN ACCORDANCE WITH ACI DETAILING MANUL AND ACI BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, 5 INCHES CLEARANCE FOR ALL REINFORCEMENT. PROVIDE ALL ACCESSORIES NECESSARY TO SUPPORT REINFORCING AT THE POSITIONS SHOWN ON THE PLANS.

2) FOUNDATIONS:

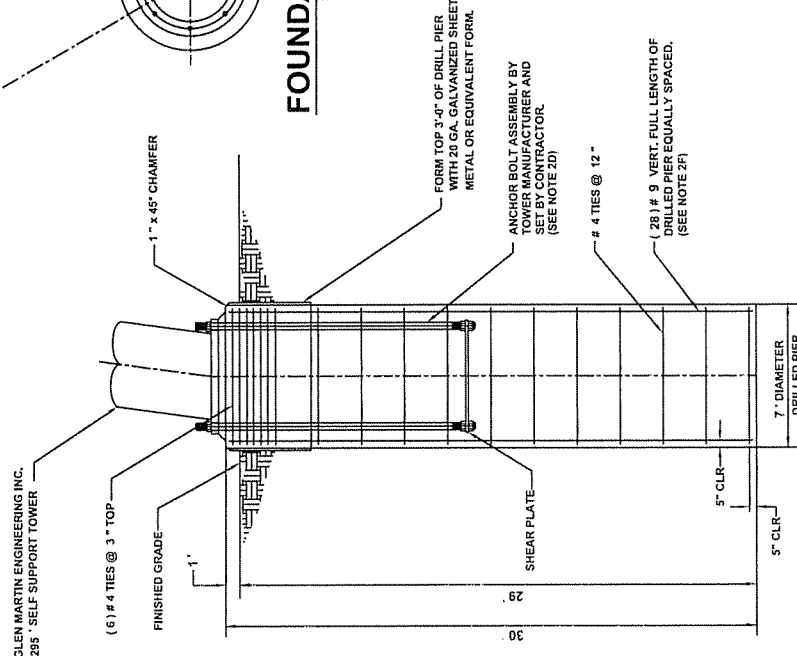
- A DRILLED PIER DESIGN BASED ON REPORT: 25936 00804.11 BY: WILCOX PROFESSIONAL SERVICES LLC OF: WHEATON, ILLINOIS DATED: APRIL 25, 2008
- B GEOTECHNICAL ENGINEER SHALL OBSERVE AND APPROVE IN WRITING THE ADEQUACY OF FOOTING BOTTOM AND PLACEMENT OF CONCRETE. COPIES OF WRITTEN APPROVAL SHALL BE SENT TO THE TOWER MANUFACTURE (GME), AND TO THE ENGINEERING COMPANY IF REQUIRED. THE CONTRACTOR SHALL BE PROVIDED ADEQUATE ASSISTANCE AND NOTIFICATIONS TO ACCOMPLISH THIS REQUIREMENT.
- C CONCRETE MAY BE PLACED USING A TREMIE TO THE DEPTH INDICATED ON THE FOUNDATION DRAWING. DURING CONCRETE PLACEMENT, THE CONTRACTOR SHALL NOT ALLOW FOR A COLD JOINT TO FORM IN CASSION. ALL CONCRETE TO BE VIBRATED DURING PLACEMENT.
- D TEMPORARY CASING MAY BE REQUIRED DUE TO LOOSE SOIL ENCOUNTERED.
- E CONTRACTOR IS TO VERIFY ANCHOR BOLT PATTERN PRIOR TO CONSTRUCTION AND TO USE SUPPLIED TEMPLATE IN SETTING ANCHOR BOLTS.
- F CONTRACTOR SHALL BE RESPONSIBLE FOR JOB SAFETY AND PROTECTION OF PUBLIC PERSONAL WHEN PRESENT.



**FOUNDATION PLAN**  
SCALE: N.T.S.



**BASE DETAIL**  
SCALE: N.T.S.



**SECTION "A-A"**  
SCALE: N.T.S.

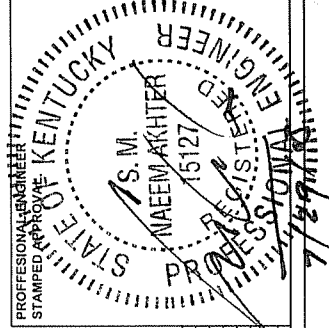
REACTION LOADS:

MAX SHEAR/LEG:	54.743	KIPS
MAX UPLIFT:	544.233	KIPS
MAX COMPRESSION:	637.522	KIPS
AXIAL:	283.856	KIPS
STRUCTURAL OTM:	13948.876	FT-KIPS
TOTAL SHEAR @ BASE:	87.767	KIPS

DESIGN CONCRETE VOLUME:

MAT VOLUME:	0.00	CUBIC YARDS
PIER VOLUME:	128.28	CUBIC YARDS
TOTAL VOLUME:	128.28	CUBIC YARDS

REVIEWED  
(By) August 08 at 11:03 am, Jul 17, 2008



PROFESSIONAL ENGINEER  
STAMPED APPROVAL  
**BASE DETAIL**  
SCALE: N.T.S.

CELLERE, INC	DRWN. #:	REV.#
PROJECT #: SO 18929	DATE: 7/17/2008	GM-10102
SITE NUMBER: KY-00-0821-GREENBO LAKE	CHECKED: JHW	0
SITE NAME : GREENBO LAKE		
SITE ADDRESS :		
GREENUP TWP., GERRNUP CO., KENTUCKY		

REVISIONS

<b>GLENMARTIN</b>  <b>GLENMARTIN</b> 13620 Old Hwy 40 Boonville, Mo 65233 Phone: (660) 882-2734 FAX: (660) 882-7200	<b>Job</b> Site: Greenbo Lake SO: 18929	<b>Page</b> 1 of 10
	<b>Project</b> 295' HS 90mph-G (18754 model)	<b>Date</b> 12:41:27 07/15/08
	<b>Client</b> Cellere	<b>Designed by</b> GM

**SITE NAME:** Greenbo Lake  
**SITE #:** KY-00-0821A  
**SALES ORDER:** 18929  
**SITE ADDRESS:** Greenup County, Kentucky

Purchaser: Cellere  
Project Contact: Braxton Dougherty  
231-929-4555  
bdougherty@cellere.us

**Contact Address:**  
Attn: Braxton Dougherty  
Cellere, LLC  
4110 Copper Ridge Drive  
Ste 204  
Traverse City MI 49684

All documents and details prepared in accordance with applicable EIA/TIA-222-G under the direct supervision of a registered professional engineer under the laws of the state of Kentucky, Enclosed calculations are certified and meet all specified purchaser requirements.

CERTIFIED BY: Naeem Akhter

DATE REVIEWED: 7-30-08



<b>GLENMARTIN</b>  <b>GLENMARTIN</b> 13620 Old Hwy 40 Boonville, Mo 65233 Phone: (660) 882-2734 FAX: (660) 882-7200	<b>Job</b> Site: Greenbo Lake SO: 18929	<b>Page</b> 2 of 10
	<b>Project</b> 295' HS 90mph-G (18754 model)	<b>Date</b> 12:41:27 07/15/08
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### Tower Input Data

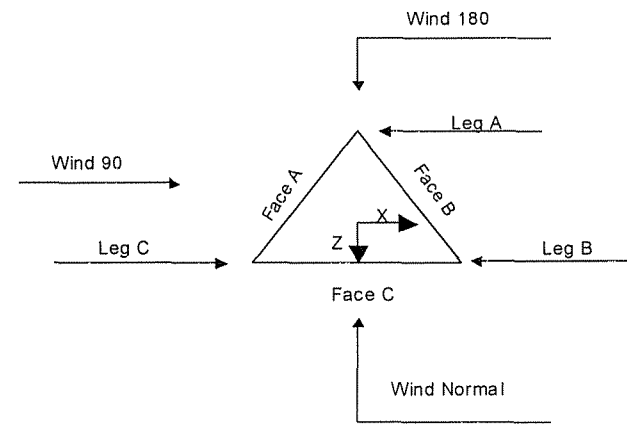
The main tower is a 3x free standing tower with an overall height of 295.52 ft above the ground line.  
The base of the tower is set at an elevation of 0.00 ft above the ground line.  
The face width of the tower is 4.00 ft at the top and 26.50 ft at the base.  
This tower is designed using the TIA-222-G standard.  
The following design criteria apply:

- Tower is located in Greenup County, Kentucky.
- Basic wind speed of 90 mph.
- Structure Class II.
- Exposure Category C.
- Topographic Category 1.
- Crest Height 0.00 ft.
- Nominal ice thickness of 0.7500 in.
- Ice thickness is considered to increase with height.
- Ice density of 56 pcf.
- A wind speed of 30 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- All members stamped for identification in accordance with EIA/TIA-222G..
- Lock washers provided for all brace bolted connections. Brace connection bolts meet A325X structural joint specification. All X-braces are center bolted..
- Step bolt climb ladder provided on single leg with fall protection cable..
- All members hot dipped galvanized after fabrication per ASTM A123. Hardware (Bolts, Nuts, Etc.) galvanized per ASTM B695 Class 50 (Mechanical)..
- All welded joints and connections certified for integrity and quality per AWS D1:1..
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in tower member design is 1.
- Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

### Options

- |   |   |   |
|---|---|---|
| <ul style="list-style-type: none"> <li>Consider Moments - Legs</li> <li>Consider Moments - Horizontals</li> <li>Consider Moments - Diagonals</li> <li>Use Moment Magnification</li> <li>√ Use Code Stress Ratios</li> <li>√ Use Code Safety Factors - Guys</li> <li>Escalate Ice</li> <li>Always Use Max Kz</li> <li>Use Special Wind Profile</li> <li>√ Include Bolts In Member Capacity</li> <li>√ Leg Bolts Are At Top Of Section</li> <li>√ Secondary Horizontal Braces Leg</li> <li>Use Diamond Inner Bracing (4 Sided)</li> <li>Add IBC 6D+W Combination</li> </ul> | <ul style="list-style-type: none"> <li>√ Distribute Leg Loads As Uniform</li> <li>Assume Legs Pinned</li> <li>√ Assume Rigid Index Plate</li> <li>√ Use Clear Spans For Wind Area</li> <li>√ Use Clear Spans For KL/r</li> <li>Retension Guys To Initial Tension</li> <li>Bypass Mast Stability Checks</li> <li>Use Azimuth Dish Coefficients</li> <li>√ Project Wind Area of Appurt</li> <li>Autocalc Torque Arm Areas</li> <li>√ SR Members Have Cut Ends</li> <li>Sort Capacity Reports By Component</li> <li>√ Triangulate Diamond Inner Bracing</li> </ul> | <ul style="list-style-type: none"> <li>√ Treat Feedline Bundles As Cylinder</li> <li>Use ASCE 10 X-Brace Ly Rules</li> <li>√ Calculate Redundant Bracing Forces</li> <li>Ignore Redundant Members in FEA</li> <li>SR Leg Bolts Resist Compression</li> <li>√ All Leg Panels Have Same Allowable</li> <li>Offset Girt At Foundation</li> <li>Consider Feedline Torque</li> <li>Include Angle Block Shear Check</li> <li>Poles</li> <li>Include Shear-Torsion Interaction</li> <li>Always Use Sub-Critical Flow</li> <li>Use Top Mounted Sockets</li> </ul> |
|---|---|---|

<b>GLENMARTIN</b>  <b>GLENMARTIN</b> 13620 Old Hwy 40 Boonville, Mo 65233 Phone: (660) 882-2734 FAX: (660) 882-7200	<b>Job</b> Site: Greenbo Lake SO: 18929	<b>Page</b> 3 of 10
	<b>Project</b> 295' HS 90mph-G (18754 model)	<b>Date</b> 12:41:27 07/15/08
	<b>Client</b> Cellere	<b>Designed by</b> GM



**Triangular Tower**

**Maximum Tower Deflections - Service Wind**

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	295.52 - 290.52	18.910	47	0.7416	0.0000
T2	290.52 - 275.52	18.131	47	0.7376	0.0000
T3	275.52 - 255.84	15.844	47	0.6795	0.0000
T4	255.84 - 236.16	13.163	47	0.5929	0.0000
T5	236.16 - 216.48	10.829	47	0.5166	0.0000
T6	216.48 - 196.8	8.834	47	0.4307	0.0000
T7	196.8 - 177.12	7.163	47	0.3618	0.0000
T8	177.12 - 157.44	5.720	47	0.3157	0.0000
T9	157.44 - 137.76	4.468	47	0.2687	0.0000
T10	137.76 - 118.08	3.410	47	0.2212	0.0000
T11	118.08 - 98.4	2.524	47	0.1876	0.0000
T12	98.4 - 78.72	1.777	47	0.1536	0.0000
T13	78.72 - 59.04	1.164	47	0.1195	0.0000
T14	59.04 - 39.36	0.691	47	0.0850	0.0000
T15	39.36 - 19.68	0.340	47	0.0570	0.0000
T16	19.68 - 0	0.109	43	0.0286	0.0000

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

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
295.00	BM-1207	47	18.829	0.7414	0.0000	93027
285.00	BM-1207	47	17.274	0.7225	0.0000	25319
275.00	BM-1207	47	15.767	0.6770	0.0000	10978
265.00	BM-1207	47	14.363	0.6310	0.0000	12220

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	<b>Project</b> 295' HS 90mph-G (18754 model)	<b>Date</b> 12:41:27 07/15/08
	<b>Client</b> Cellere	<b>Designed by</b> GM

### Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	295.52 - 290.52	68.175	18	2.6741	0.0002
T2	290.52 - 275.52	65.366	18	2.6597	0.0002
T3	275.52 - 255.84	57.121	18	2.4502	0.0002
T4	255.84 - 236.16	47.458	18	2.1380	0.0002
T5	236.16 - 216.48	39.042	18	1.8630	0.0002
T6	216.48 - 196.8	31.850	18	1.5533	0.0002
T7	196.8 - 177.12	25.823	18	1.3047	0.0001
T8	177.12 - 157.44	20.622	18	1.1383	0.0001
T9	157.44 - 137.76	16.106	18	0.9690	0.0001
T10	137.76 - 118.08	12.290	18	0.7976	0.0001
T11	118.08 - 98.4	9.098	18	0.6763	0.0001
T12	98.4 - 78.72	6.406	18	0.5538	0.0000
T13	78.72 - 59.04	4.195	18	0.4307	0.0000
T14	59.04 - 39.36	2.491	18	0.3065	0.0000
T15	39.36 - 19.68	1.226	18	0.2054	0.0000
T16	19.68 - 0	0.394	18	0.1031	0.0000

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

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
295.00	BM-1207	18	67.883	2.6733	0.0002	25166
285.00	BM-1207	18	62.278	2.6053	0.0002	7021
275.00	BM-1207	18	56.847	2.4411	0.0002	3054
265.00	BM-1207	18	51.784	2.2755	0.0002	3399

### Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load Allowable	Allowable Ratio	Criteria
T1	295.52	Leg	A325X	0.7500	4	0.08	29820.60	0.000 ✓	1	Bolt Tension
		Diagonal	A325X	0.5000	1	1771.86	7312.50	0.242 ✓	1	Member Bearing
T2	290.52	Leg	A325X	0.7500	4	1079.89	29820.60	0.036 ✓	1	Bolt Tension
		Diagonal	A325X	0.5000	1	4924.84	7312.50	0.673 ✓	1	Member Bearing
T3	275.52	Leg	A325X	1.0000	4	8674.69	53014.40	0.164 ✓	1	Bolt Tension
		Diagonal	A325X	0.5000	1	6273.35	8835.73	0.710 ✓	1	Bolt Shear
T4	255.84	Leg	A325X	1.0000	4	22077.00	53014.40	0.416 ✓	1	Bolt Tension
		Diagonal	A325X	0.5000	1	5952.42	8835.73	0.674 ✓	1	Bolt Shear



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	<b>Project</b> 295' HS 90mph-G (18754 model)	<b>Date</b> 12:41:27 07/15/08
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Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load Allowable	Allowable Ratio	Criteria
T5	236.16	Leg	A325X	1.0000	4	33914.80	53014.40	0.640 ✓	1	Bolt Tension
		Diagonal	A325X	0.5000	1	5912.06	8835.73	0.669 ✓	1	Bolt Shear
T6	216.48	Leg	A325X	1.0000	6	29304.50	53014.40	0.553 ✓	1	Bolt Tension
		Diagonal	A325X	0.5000	1	6381.53	8835.73	0.722 ✓	1	Bolt Shear
T7	196.8	Leg	A325X	1.0000	6	35420.50	53014.40	0.668 ✓	1	Bolt Tension
		Diagonal	A325X	0.5000	1	6976.47	8835.73	0.790 ✓	1	Bolt Shear
T8	177.12	Leg	A325X	1.0000	6	41249.70	53014.40	0.778 ✓	1	Bolt Tension
		Diagonal	A325X	0.7500	1	7604.15	12339.80	0.616 ✓	1	Member Bearing
T9	157.44	Leg	A325X	1.0000	6	47056.20	53014.40	0.888 ✓	1	Bolt Tension
		Diagonal	A325X	0.7500	1	8435.19	12339.80	0.684 ✓	1	Member Bearing
T10	137.76	Leg	A325X	1.0000	10	31679.10	53014.40	0.598 ✓	1	Bolt Tension
		Diagonal	A325X	0.7500	1	9404.66	16453.10	0.572 ✓	1	Member Bearing
T11	118.08	Leg	A325X	1.0000	10	35075.90	53014.40	0.662 ✓	1	Bolt Tension
		Diagonal	A325X	0.7500	1	10441.50	16453.10	0.635 ✓	1	Member Bearing
T12	98.4	Leg	A325X	1.0000	10	38500.50	53014.40	0.726 ✓	1	Bolt Tension
		Diagonal	A325X	0.7500	1	11208.60	16453.10	0.681 ✓	1	Member Bearing
T13	78.72	Leg	A325X	1.0000	10	41918.20	53014.40	0.791 ✓	1	Bolt Tension
		Diagonal	A325X	0.7500	2	6269.76	19880.40	0.315 ✓	1	Bolt Shear
T14	59.04	Leg	A325X	1.0000	10	45357.20	53014.40	0.856 ✓	1	Bolt Tension
		Diagonal	A325X	0.7500	2	6651.12	19880.40	0.335 ✓	1	Bolt Shear
T15	39.36	Leg	A325X	1.0000	10	48761.40	53014.40	0.920 ✓	1	Bolt Tension
		Diagonal	A325X	0.7500	2	7143.93	19880.40	0.359 ✓	1	Bolt Shear
T16	19.68	Leg	A325X	1.0000	10	52180.40	53014.40	0.984 ✓	1	Bolt Tension
		Diagonal	A325X	0.7500	2	7977.60	19880.40	0.401 ✓	1	Bolt Shear

**Compression Checks**

**Leg Design Data (Compression)**

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> lb	φP <sub>n</sub> lb	Ratio P <sub>u</sub> /φP <sub>n</sub>
T1	295.52 - 290.52	P1.5x145	5.00	4.92	94.8 K=1.00	0.7995	-3168.53	18657.20	0.170 <sup>1</sup> ✓
T2	290.52 - 275.52	P2x154	15.00	4.97	75.8 K=1.00	1.0745	-29967.10	31766.40	0.943 <sup>1</sup> ✓
T3	275.52 - 255.84	P3.5x226	19.70	4.90	44.0 K=1.00	2.6795	-86789.00	104643.00	0.829 <sup>1</sup> ✓
T4	255.84 -	P5x258	19.70	4.90	31.3	4.2999	-138482.00	180083.00	0.769 <sup>1</sup> ✓

<b>GLENMARTIN</b> GLENMARTIN 13620 Old Hwy 40 Boonville, Mo 65233 Phone: (660) 882-2734 FAX: (660) 882-7200	<b>Job</b> Site: Greenbo Lake SO: 18929	<b>Page</b> 6 of 10
	<b>Project</b> 295' HS 90mph-G (18754 model)	<b>Date</b> 12:41:27 07/15/08
	<b>Client</b> Cellere	<b>Designed by</b> GM

Section No.	Elevation ft	Size	L ft	L <sub>n</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>n</sub> lb	φP <sub>n</sub> lb	Ratio $\frac{P_n}{\phi P_n}$
T5	236 16 - 216 48	P5x 258	19 70	4 90	K=1 00	4 2999	-182415 00	180083 00	1.013 <sup>1</sup>
T6	216 48 - 196 8	4 9-3 (1 01 CR) - 88 P6x 28	19 70	4 90	26 2 K=1 00	5 5813	-223048 00	238856 00	0 934 <sup>1</sup>
T7	196 8 - 177 12	P8x 322	19 70	4 90	20 0 K=1 00	8 3993	-262624 00	367036 00	0 716 <sup>1</sup>
T8	177 12 - 157 44	P8x 322	19 70	4 90	20 0 K=1 00	8 3993	-302407 00	367036 00	0 824 <sup>1</sup>
T9	157 44 - 137 76	P8x 322	19 70	6 54	26 7 K=1 00	8 3993	-340120 00	358753 00	0 948 <sup>1</sup>
T10	137 76 - 118 08	P10x 365	19 70	6 54	21 4 K=1 00	11 9083	-380056 00	518292 00	0 733 <sup>1</sup>
T11	118 08 - 98 4	P10x 365	19 70	6 54	21 4 K=1 00	11 9083	-420567 00	518292 00	0 811 <sup>1</sup>
T12	98 4 - 78 72	P10x 365	19 70	6 54	21 4 K=1 00	11 9083	-461484 00	518292 00	0 890 <sup>1</sup>
T13	78 72 - 59 04	P10x 365	19 70	6 54	21 4 K=1 00	11 9083	-503025 00	518292 00	0 971 <sup>1</sup>
T14	59 04 - 39 36	P12x 375	19 70	6 54	17 9 K=1 00	14 5790	-545112 00	640815 00	0 851 <sup>1</sup>
T15	39 36 - 19 68	P12x 375	19 70	6 54	17 9 K=1 00	14 5790	-587980 00	640815 00	0 918 <sup>1</sup>
T16	19 68 - 0	P12x 375	19 70	6 54	17 9 K=1 00	14 5790	-630459 00	640815 00	0 984 <sup>1</sup>

<sup>1</sup> P<sub>n</sub> / φP<sub>n</sub> controls

### Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>n</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>n</sub> lb	φP <sub>n</sub> lb	Ratio $\frac{P_n}{\phi P_n}$
T1	295 52 - 290 52	L1 1/2x1 1/2x1/8	6 34	3 04	123 3 K=1 00	0 3594	-1771 86	5338 98	0 332 <sup>1</sup>
T2	290 52 - 275 52	L1 1/2x1 1/2x1/8	6 38	3 03	122 9 K=1 00	0 3594	-4924 84	5377 19	0 916 <sup>1</sup>
T3	275 52 - 255 84	L1 3/4x1 3/4x3/16	7 30	3 56	124 3 K=1 00	0 6211	-6273 35	9075 09	0 691 <sup>1</sup>
T4	255 84 - 236 16	L1 3/4x1 3/4x3/16	8 56	4 12	143 9 K=1 00	0 6211	-5805 27	6779 15	0 856 <sup>1</sup>
T5	236 16 - 216 48	L2x2x3/16	9 92	4 81	146 4 K=1 00	0 7150	-5912 06	7536 18	0 784 <sup>1</sup>
T6	216 48 - 196 8	L2 1/2x2 1/2x3/16	11 34	5 48	132 7 K=1 00	0 9020	-6381 53	11563 90	0 552 <sup>1</sup>
T7	196 8 - 177 12	L2 1/2x2 1/2x3/16	12 81	6 12	148 5 K=1 00	0 9020	-6976 47	9244 29	0 755 <sup>1</sup>
T8	177 12 - 157 44	L3x3x3/16	14 31	6 88	138 5 K=1 00	1 0900	-7797 43	12840 00	0 607 <sup>1</sup>

<b>GLENMARTIN</b>  <b>GLENMARTIN</b> 13620 Old Hwy 40 Boonville, Mo 65233 Phone: (660) 882-2734 FAX: (660) 882-7200	<b>Job</b> Site: Greenbo Lake SO: 18929	<b>Page</b> 7 of 10
	<b>Project</b> 295' HS 90mph-G (18754 model)	<b>Date</b> 12:41:27 07/15/08
	<b>Client</b> Cellere	<b>Designed by</b> GM

Section No	Elevation ft	Size	L ft	L <sub>n</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>n</sub> lb	φP <sub>n</sub> lb	Ratio $\frac{P_n}{\phi P_n}$
T9	157 44 - 137 76	L3x3x3/16	16 35	7 93	159 6 K=1 00	1 0900	-8783 71	9668 03	0 909 <sup>1</sup> ✓
T10	137 76 - 118 08	L3x3x1/4	17 83	8 58	173 9 K=1 00	1 4400	-9669 66	10761 70	0 899 <sup>1</sup> ✓
T11	118 08 - 98 4	L3 1/2x3 1/2x1/4	19 34	9 33	161 4 K=1 00	1 6900	-10709 30	14659 20	0 731 <sup>1</sup> ✓
T12	98 4 - 78 72	L3 1/2x3 1/2x1/4	20 85	10 10	174 6 K=1 00	1 6900	-11524 50	12527 70	0 920 <sup>1</sup> ✓
T13	78 72 - 59 04	L4x4x1/4	22 39	10 86	164 0 K=1 00	1 9400	-12539 50	16296 60	0 769 <sup>1</sup> ✓
T14	59 04 - 39 36	L4x4x1/4	23 93	11 55	174 3 K=1 00	1 9400	-13302 30	14418 00	0 923 <sup>1</sup> ✓
T15	39 36 - 19 68	L4x4x5/16	25 48	12 33	187 0 K=1 00	2 4000	-14287 90	15502 20	0 922 <sup>1</sup> ✓
T16	19 68 - 0	L4x4x3/8	27 03	13 11	199 6 K=1 00	2 8600	-15955 20	16216 80	0 984 <sup>1</sup> ✓

<sup>1</sup> P<sub>n</sub> / φP<sub>n</sub> controls

### Top Girt Design Data (Compression)

Section No	Elevation ft	Size	L ft	L <sub>n</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>n</sub> lb	φP <sub>n</sub> lb	Ratio $\frac{P_n}{\phi P_n}$
T1	295 52 - 290 52	L1 1/2x1 1/2x1/8	4 00	3 84	155 6 K=1 00	0 3594	-972 47	3351 34	0 290 <sup>1</sup> ✓

<sup>1</sup> P<sub>n</sub> / φP<sub>n</sub> controls

### Tension Checks

### Leg Design Data (Tension)

Section No	Elevation ft	Size	L ft	L <sub>n</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>n</sub> lb	φP <sub>n</sub> lb	Ratio $\frac{P_n}{\phi P_n}$
T1	295 52 - 290 52	P1 5x 145	5 00	4 92	94 8	0 7995	2694 55	35975 60	0 075 <sup>1</sup> ✓
T2	290 52 - 275 52	P2x 154	15 00	4 97	75 8	1 0745	27738 30	48353 90	0 574 <sup>1</sup> ✓
T3	275 52 - 255 84	P3 5x 226	19 70	4 90	44 0	2 6795	80964 30	120579 00	0 671 <sup>1</sup> ✓
T4	255 84 - 236 16	P5x 258	19 70	4 90	31 3	4 2999	129839 00	193494 00	0 671 <sup>1</sup> ✓
T5	236 16 -	P5x 258	19 70	4 90	31 3	4 2999	170687 00	193494 00	0 882 <sup>1</sup> ✓

<b>GLENMARTIN</b>  <b>GLENMARTIN</b> 13620 Old Hwy 40 Boonville, Mo 65233 Phone: (660) 882-2734 FAX: (660) 882-7200	<b>Job</b> Site: Greenbo Lake SO: 18929	<b>Page</b> 8 of 10
	<b>Project</b> 295' HS 90mph-G (18754 model)	<b>Date</b> 12:41:27 07/15/08
	<b>Client</b> Cellere	<b>Designed by</b> GM

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> lb	φP <sub>n</sub> lb	Ratio P <sub>u</sub> / φP <sub>n</sub>
	216 48								✓
T6	216 48 - 196 8	4 9-3 (1 01 CR) - 88 P6x 28	19 70	4 90	26 2	5 5813	207610 00	251161 00	0 827 <sup>1</sup>
T7	196 8 - 177 12	P8x 322	19 70	4 90	20 0	8 3993	242774 00	377967 00	0 642 <sup>1</sup>
T8	177 12 - 157 44	P8x 322	19 70	4 90	20 0	8 3993	277659 00	377967 00	0 735 <sup>1</sup>
T9	157 44 - 137 76	P8x 322	19 70	6 54	26 7	8 3993	310638 00	377967 00	0 822 <sup>1</sup>
T10	137 76 - 118 08	P10x 365	19 70	6 54	21 4	11 9083	344611 00	535873 00	0 643 <sup>1</sup>
T11	118 08 - 98 4	P10x 365	19 70	6 54	21 4	11 9083	378692 00	535873 00	0 707 <sup>1</sup>
T12	98 4 - 78 72	P10x 365	19 70	6 54	21 4	11 9083	412864 00	535873 00	0 770 <sup>1</sup>
T13	78 72 - 59 04	P10x 365	19 70	6 54	21 4	11 9083	447120 00	535873 00	0 834 <sup>1</sup>
T14	59 04 - 39 36	P12x 375	19 70	6 54	17 9	14 5790	481254 00	656053 00	0 734 <sup>1</sup>
T15	39 36 - 19 68	P12x 375	19 70	6 54	17 9	14 5790	515416 00	656053 00	0 786 <sup>1</sup>
T16	19 68 - 0	P12x 375	19 70	6 54	17 9	14 5790	548812 00	656053 00	0 837 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> lb	φP <sub>n</sub> lb	Ratio P <sub>u</sub> / φP <sub>n</sub>
T1	295 52 - 290 52	L1 1/2x1 1/2x1/8	6 34	3 04	78 5	0 2109	1769 36	10283 20	0 172 <sup>1</sup>
T2	290 52 - 275 52	L1 1/2x1 1/2x1/8	6 38	3 03	78 2	0 2109	4795 16	10283 20	0 466 <sup>1</sup>
T3	275 52 - 255 84	L1 3/4x1 3/4x3/16	7 30	3 56	79 5	0 3779	6091 42	18424 10	0 331 <sup>1</sup>
T4	255 84 - 236 16	L1 3/4x1 3/4x3/16	7 60	3 65	81 6	0 3779	5820 21	18424 10	0 316 <sup>1</sup>
T5	236 16 - 216 48	L2x2x3/16	9 92	4 81	93 5	0 4484	5645 86	21857 50	0 258 <sup>1</sup>
T6	216 48 - 196 8	L2 1/2x2 1/2x3/16	11 34	5 48	84 5	0 5886	6143 06	28694 70	0 214 <sup>1</sup>
T7	196 8 - 177 12	L2 1/2x2 1/2x3/16	12 81	6 12	94 5	0 5886	6784 89	28694 70	0 236 <sup>1</sup>
T8	177 12 - 157 44	L3x3x3/16	14 31	6 88	87 9	0 6945	7604 15	33854 60	0 225 <sup>1</sup>
T9	157 44 - 137 76	L3x3x3/16	16 35	7 93	101 3	0 6945	8435 19	33854 60	0 249 <sup>1</sup>

<b>GLENMARTIN</b>  <b>GLENMARTIN</b> 13620 Old Hwy 40 Boonville, Mo 65233 Phone: (660) 882-2734 FAX: (660) 882-7200	<b>Job</b> Site: Greenbo Lake SO: 18929	<b>Page</b> 9 of 10
	<b>Project</b> 295' HS 90mph-G (18754 model)	<b>Date</b> 12:41:27 07/15/08
	<b>Client</b> Cellere	<b>Designed by</b> GM

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> lb	φP <sub>n</sub> lb	Ratio $\frac{P_u}{\phi P_n}$
T10	137.76 - 118.08	L3x3x1/4	17.83	8.58	110.7	0.9159	9404.66	44652.00	0.211 <sup>1</sup>
T11	118.08 - 98.4	L3 1/2x3 1/2x1/4	19.34	9.33	102.8	1.1034	10441.50	53792.60	0.194 <sup>1</sup>
T12	98.4 - 78.72	L3 1/2x3 1/2x1/4	20.85	10.10	111.2	1.1034	11208.60	53792.60	0.208 <sup>1</sup>
T13	78.72 - 59.04	L4x4x1/4	22.39	10.86	104.3	1.2909	12220.20	62933.20	0.194 <sup>1</sup>
T14	59.04 - 39.36	L4x4x1/4	23.93	11.55	110.9	1.2909	12966.10	62933.20	0.206 <sup>1</sup>
T15	39.36 - 19.68	L4x4x5/16	25.48	12.33	119.3	1.5949	13932.00	77752.40	0.179 <sup>1</sup>
T16	19.68 - 0	L4x4x3/8	27.03	13.11	127.9	1.8989	15543.80	92571.70	0.168 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>u</sub> ft	Kl/r	A in <sup>2</sup>	P <sub>u</sub> lb	φP <sub>n</sub> lb	Ratio $\frac{P_u}{\phi P_n}$
T1	295.52 - 290.52	L1 1/2x1 1/2x1/8	4.00	3.84	99.1	0.2695	923.20	13139.60	0.070 <sup>1</sup>

<sup>1</sup> P<sub>u</sub> / φP<sub>n</sub> controls

### Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	σP <sub>allow</sub> lb	% Capacity	Pass Fail
T1	295.52 - 290.52	Leg	P1 5x145	1	-3168.53	18657.20	17.0	Pass
		Diagonal	L1 1/2x1 1/2x1/8	7	-1771.86	5338.98	33.2	Pass
		Top Girt	L1 1/2x1 1/2x1/8	5	-972.47	3351.34	29.0	Pass
T2	290.52 - 275.52	Leg	P2x154	15	-29967.10	31766.40	94.3	Pass
		Diagonal	L1 1/2x1 1/2x1/8	16	-4924.84	5377.19	91.6	Pass
T3	275.52 - 255.84	Leg	P3 5x226	34	-86789.00	104643.00	82.9	Pass
		Diagonal	L1 3/4x1 3/4x3/16	37	-6273.35	9075.09	69.1	Pass
T4	255.84 - 236.16	Leg	P5x258	61	-138482.00	180083.00	76.9	Pass
		Diagonal	L1 3/4x1 3/4x3/16	64	-5805.27	6779.15	85.6	Pass
T5	236.16 - 216.48	Leg	P5x258	89	-182415.00	180083.00	101.3	Pass
		Diagonal	L2x2x3/16	92	-5912.06	7536.18	78.4	Pass
T6	216.48 - 196.8	Leg	P6x28	115	-223048.00	238856.00	93.4	Pass
		Diagonal	L2 1/2x2 1/2x3/16	118	-6381.53	11563.90	55.2	Pass
T7	196.8 - 177.12	Leg	P8x322	143	-262624.00	367036.00	71.6	Pass

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	<b>Project</b> 295' HS 90mph-G (18754 model)	<b>Date</b> 12:41:27 07/15/08
	<b>Client</b> Cellere	<b>Designed by</b> GM

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$\phi P_{allow}$ lb	% Capacity	Pass Fail	
		Diagonal	L2 1/2x2 1/2x3/16	145	-6976 47	9244 29	75 5	Pass	
T8	177 12 - 157 44	Leg	P8x 322	169	-302407 00	367036 00	79 0 (b)	Pass	
		Diagonal	L3x3x3/16	172	-7797 43	12840 00	82 4	Pass	
T9	157 44 - 137 76	Leg	P8x 322	198	-340120 00	358753 00	61 6 (b)	Pass	
		Diagonal	L3x3x3/16	199	-8783 71	9668 03	94 8	Pass	
T10	137 76 - 118 08	Leg	P10x 365	217	-380056 00	518292 00	90 9	Pass	
		Diagonal	L3x3x1/4	220	-9669 66	10761 70	73 3	Pass	
T11	118 08 - 98 4	Leg	P10x 365	240	-420567 00	518292 00	89 9	Pass	
		Diagonal	L3 1/2x3 1/2x1/4	243	-10709 30	14659 20	81 1	Pass	
T12	98 4 - 78 72	Leg	P10x 365	260	-461484 00	518292 00	73 1	Pass	
		Diagonal	L3 1/2x3 1/2x1/4	262	-11524 50	12527 70	89 0	Pass	
T13	78 72 - 59 04	Leg	P10x 365	280	-503025 00	518292 00	92 0	Pass	
		Diagonal	L4x4x1/4	283	-12539 50	16296 60	97 1	Pass	
T14	59 04 - 39 36	Leg	P12x 375	301	-545112 00	640815 00	76 9	Pass	
		Diagonal	L4x4x1/4	307	-13302 20	14418 00	85 1	Pass	
T15	39 36 - 19 68	Leg	P12x 375	322	-587980 00	640815 00	85 6 (b)	Pass	
		Diagonal	L4x4x5/16	325	-14287 90	15502 20	92 3	Pass	
T16	19 68 - 0	Leg	P12x 375	343	-630459 00	640815 00	91 8	Pass	
		Diagonal	L4x4x3/8	347	-15955 20	16216 80	98 4	Pass	
							98 4 (b)	Pass	
							Summary		
							Leg (T5)	101 3	Pass
							Diagonal (T16)	98 4	Pass
							Top Girt (T1)	29 0	Pass
							Bolt Checks	98 4	Pass
							<b>RATING =</b>	<b>101.3</b>	<b>Pass</b>

**SST TOWER CAISSON FOUNDATION DESIGN WORK SHEET:**

**REVIEWED**  
By Xinguo Cai at 4:44 pm, Jul 18, 2008

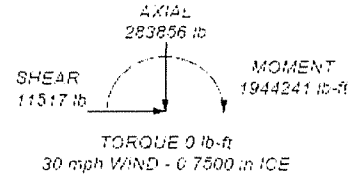
Tower Site Name GREENBO LAKE  
 Project Number (Quote or Sales) SO 18929  
 Foundation Drawing Number GM-10102  
 Site Number KY-00-0821-GREENBO LAKE  
 Site Location GREENUP TWP., GERRUP CO., KENTUCI  
 Client Name CELLERE, INC  
 Drawing Revision Number 0  
 Geotech Report Number 25036.00004.11  
 Geotech Company Name WILCOX PRPFSSIONAL SERVICES, LLC  
 Geotech Company Location WHEATON, ILLINOIS  
 Geotech Report Date APRIL 25, 2008  
 Concrete Compressive Strength 4 Kpsi

GLEN MARTIN		Site: Greenbo Lake SO: 18929	
13820 Old Hwy 40		295' HS 90mph-G (18754 model)	
Boonville Mo 65233		Cellere	DATE: 07/18/08
Phone: (660) 852-2734		TIA-222-5	DATE: 07/18/08
FAX: (660) 852-7200			

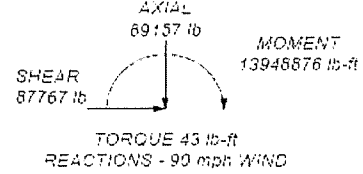
**Project No. 25036.00004.11**

**MAX CORNER REACTIONS AT BASE**  
 DOWN 637522 lb  
 UPLIFT -554233 lb  
 SHEAR 54743 lb

Ultimate Bearing Pressure 24000 psf  
 Pier Compression Force (Down) 637.522 kips  
 Pier Tension Force (Uplift) 554.233 kips  
 Pier Shear Force (Pier) 54.743 kips  
 Tower Axial Force (Down) 283.856 kips  
 Tower Overturning Moment 13948.876 ft kips  
 Tower Shear Force (Base) 87.767 kips



Tower Weight 51813.4 lbs  
 Tower Spread (Input) 26.5 ft  
 Tower Spread (Print on drawing) 26'-6" ft  
 1/3 Distance (Center to Face) 7'-7 3/4" ft  
 2/3 Distance (Center to Leg) 15'-3 9/16" ft  
 1/2 Distance (Half Spread) 13'-3" ft



Pier Diameter 7 ft 7  
 Pier Height Below Grade 29 ft 29  
 Total Pier Height 30 ft 30  
 Pier Height Above Grade 1 ft 1  
 Tower Height: 295.5 ft

Vertical Rebar Size (Round) 9 # Rebar  
 Vertical Rebar Quantity (Round) 28  
 Horizontal Tie Size 4 12" Spacing  
 Fc, Concrete Strength 4 ksi  
 Fy, Rebar Yield Stress 60 ksi

Anchor Bolt Diameter 2 in 2  
 Anchor Bolt Quantity 8  
 Anchor Bolt Circle Diameter 19 in XX in  
 Anchor Bolt Projectior 11 in 11 in  
 Anchor Bolt Length 72 in 72 in

Base Plate Thickness in

DRAWN ZR  
 DATE 7/18/2008  
 CHECKED CJM  
 DATE 7/18/2008

**UPLIFT AND VERTICAL DOWN CHECKING**

PIER DIAMETER	7	ft	VERT. LOAD	398 45125	kips	Soil type	Kc	Kt
GROUND WATER	60	ft	UPLIFT	346 395625	kips	sand	1 0 to 2 0	0 5 to 0 7
ARM LENGTH	22 949661	ft	OTM	8718 0475	ft-kips	silt	1	0 5 to 0 7
CONCRETEWT	150	pcf	UPLIFT CALCS:	380	kips	clay	1	0 7 to 1
p	0 005		TOWER SPREAD	26.5	ft	Adh factor α	Undrained shear stress C (tsf)	
BGRW	0 00	ft	ULTIMATE END BEARING			1	0 25	
PLENGTH	29.00	ft	PER GEOTECH	24000	psf	0 65	0 5	
RESULT	ANALYSIS OK IN UPLIFT					0 5	75 or greater	
	ANALYSIS OK IN VERTICAL DOWN							
	ANALYSIS OK IN OTM							

STRATAS	Allowable Skin		Soil Density (pcf)	Kc (Down) Compression	Kt (Uplift) Tension	Friction Angle δ (degree)	Cohesion C (psf)	Over. Pressure σ (psf)
	Soil Depth (ft)	Friction (SF-2) (psf)						
	1	5	110	1	0.8	0	0	550
	2	24	110	1	0.8	0	0	3190
	3	0	0	0	0	0	0	3190
	4	0	0	0	0	0	0	3190
	5	0	0	0	0	0	0	3190
	6	0	0	0	0	0	0	3190
	7	0	0	0	0	0	0	3190
	8	0	0	0	0	0	0	3190
	9	0	0	0	0	0	0	3190
	10	0	0	0	0	0	0	3190

**CONT.**

DESIGN UPLIFT	352.78	kips	DESIGN DOWN	911.64	kips		
<b>VERTICAL BAR SIZING</b>			dp	61.5	in		
BAR SIZE	9	#	AREA BARSHEAR	0.560648064	in^2		
BAR NUMBER	28		DESIGN SPACING	8.62535483	in		
CHECK SPACE	SPACING OK FOR REBAR SIZING		PIER BAR ACI LIMITS	39	in	ACI 11.5.4.2	
REBAR UP. CHECK	REBAR OK FOR UPLIFT		REBAR UP. CAPACITY	1292.424	kips		
<b>ANCHOR BOLT DESIGN</b>			FLANGE THICK	1.5	in		
SET INDEX	24		OTM	12000	ft-lb	OTM=12000	
LEG SIZE (DIA)	12	in	AXIAL WEIGHT	398451.25	lb	AXIALWEIGHT=VERTICAL LO	
BOLT DIAMETER	2	in	SHEAR FORCE	34214.375	lb	SHEARFORCE=SHEAR PER I	
BOLT QUANTITY	8		Fc	4000	psi		
BOLT CIRCLE DIA	19	in	Fy	60000	psi		
BOLT LENGTH	72	in	BASE PLATE STR	880.7706391	psi		
BASE PLATE DIA	26	in					
BOLT PROJECT	11	in					
RESULT	ANALYSIS OK FOR ANCHOR BOLT RATIO						
	ANALYSIS OK FOR PUNCHING						
	ANALYSIS OK FOR BASE PLATE STRENGTH						

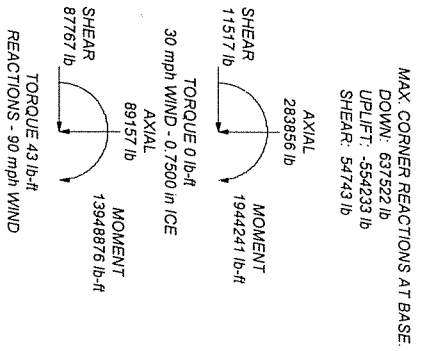
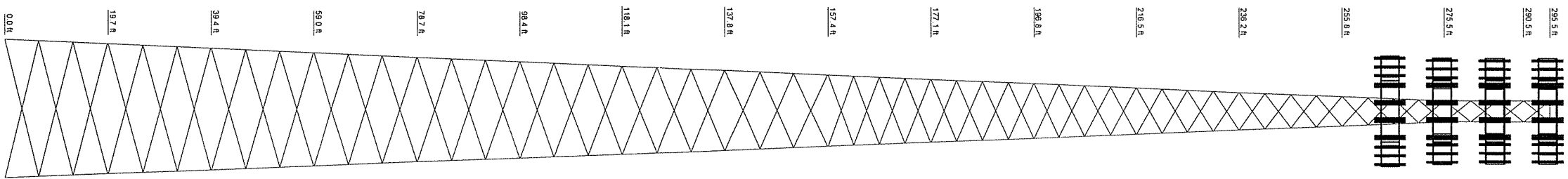
MINTENSTRBLTU	55000	psi	DIA NUTPUNCHING	3.13	in
ALLTENSTRBLT	36300	psi	THREADS PER LENG	4.5	in
YIELDSTRFLANGE	50000	psi	DATA2	5.7	in
DIASTREBOLT	1.7834889	in	AREASTREBOLT	2.498225937	in^2
AXIALBOLT	49806.406	lb	AREANOMBOLT	3.1416	in^2
			STRESSBOLT	19936.71009	psi
BOLTDEGREE	45	degree			
Yt	451.2500	in^2	BOLTRADIUS	0.7853975	rad
Ya	361.0000	in^2	RADIUSBC	9.5	in
MINERSINBOLT	0.4966508	in^4	MINEBOLTTOTAL	905.83277	in^4

**MAX ANCHOR BOLT LENGTH DEVELOPMENT**

ld	8.6962636		DIASHEARIN	15	in
SHEARPLATETH	0.7	in	DIASHEAROT	23	in



Section	T16	T15	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1			
Legs	P12x 3/5			P10x 3/5				P8x 3/2			P6x 2/8		P5x 2/5		P3 5x.226	P2x 1/54	A		
Leg Grade	A500-50																		
Diagonals	L4x4x3/8	L4x4x5/16	L4x4x1/4		L3 1/2x3 1/2x1/4		L3x3x1/4	L3x3x3/16		L2 1/2x2 1/2x3/16		L2x2x3/16	L1 3/4x1 3/4x3/16		L1 1/2x1 1/2x1/8				
Diagonal Grade	A36M-50																		
Top Girts	N.A.																		
Face Width (ft)	26.5	24.8929	23.2857	21.6785	20.0714	18.4643	16.8571	15.25	13.6429	12.0357	10.4286	8.82143	7.21429	5.60714	4				
# Panels @ (ft)	24 @ 6.53222								24 @ 4.89917								3 @ 4.97222		C
Weight (lb)	51813.4	7577.4	6601.8	5714.4	4894.4	4051.5	3244.7	2424.1	1748.1	1033.0	532.3	1918.5	1413.8	1274.5	897.5	305.0	132.0		



MAX. CORNER REACTIONS AT BASE  
 DOWN: 637522 lb  
 UPLIFT: -554233 lb  
 SHEAR: 54743 lb

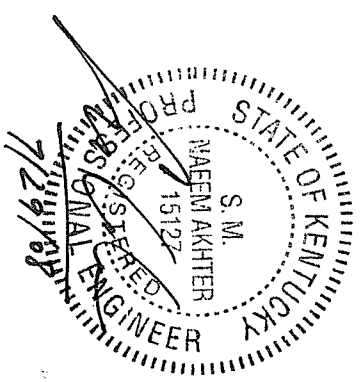
DESIGNED APPURTENANCE LOADING			
MARK	TYPE	ELEVATION	ELEVATION
BM-1207	(41)X6 Antenna	295	275
(41)X6 Antenna	(41)X6 Antenna	295	275
(41)X6 Antenna	(41)X6 Antenna	295	275
(41)X6 Antenna	(41)X6 Antenna	295	275
BM-1207	(41)X6 Antenna	285	265
(41)X6 Antenna	(41)X6 Antenna	285	265
(41)X6 Antenna	(41)X6 Antenna	285	265
(41)X6 Antenna	(41)X6 Antenna	285	265

SYMBOL LIST			
MARK	SIZE	MARK	SIZE
A	P1.5x1.45	C	1 @ 4.91667
B	L1 1/2x1 1/2x1/8		

MATERIAL STRENGTH			
GRADE	FY	FU	FU
A500-50	50 ksi	62 ksi	65 ksi
A36M-50	50 ksi	50 ksi	55 ksi

**TOWER DESIGN NOTES**

1. Tower is located in Greenup County, Kentucky.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 90 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 30 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. All members are stamped for identification in accordance with EIA/TIA-222-G.
7. Lock washers provided for all brace bolted connections. Brace connection bolts meet A325X structural joint specification. All X-braces are center bolted.
8. Step bolt climb ladder provided on single leg with fall protection cable.
9. All members hot dipped galvanized after fabrication per ASTM A123 Hardware (Bolts, Nuts, Etc.) galvanized per ASTM B695 Class 50 (Mechanical).
10. All welded joints and connections certified for integrity and quality per AWS D1.1



<b>GLENMARTIN</b>		<b>Site: Greenbo Lake SO: 18929</b>	
13620 Old Hwy 40		Project: 295' HS 90mph-G (18754 model)	
Boonville, Mo 65233		Client: Cellere	
Phone: (660) 882-2734		Drawn by: GM	
FAX: (660) 882-7200		Code: TIA-222-G	
		Date: 07/15/08	
		Scale: NTS	
		Dwg No: E-1	

## **EXHIBIT C**

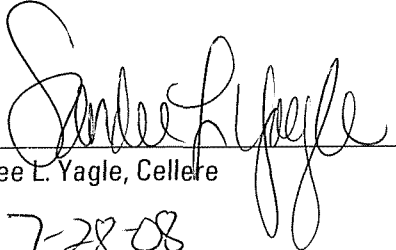
**Directions to Site from County Seat**



**Directions to the Site**  
**From the County Seat of Greenup County, Kentucky**

Greenbo Lake Site  
Greenup County, Kentucky

From the Greenup County Courthouse in Greenup Kentucky, begin heading Southeast on Main St/ KY-2541 toward Chestnut St. Turn RIGHT onto Washington Street for 0.3 miles. Washington Street becomes KY-2, continue for 4.9 miles. Turn LEFT onto KY-1459/ Low Gap Rd. for 0.8 miles. Continue to Harris Hollow Road and Turn RIGHT. Proceed to 72 Harris Hollow Road.

  
\_\_\_\_\_  
Sandee L. Yagle, Cellere

7-28-08  
Date

**EXHIBIT D**

**Memorandum of Lease**

MEMORANDUM OF LEASE

**Return to:**

C/O Central States Tower Holdings, LLC  
323 S. Hale Street, Suite 100  
Wheaton, IL 60187  
(630) 221-8500 Main Number  
Attn: Property Manager

**Prepared By:**

David Larsen  
Cellere  
4110 Copper Ridge Drive Ste. 204  
Traverse City, MI 49684  
(231) 929-4555

*David Larsen*

Re: Cell Site #KY-00-0821; Cell Site Name: GREENBO LAKE

State: Kentucky  
County: Greenup

This Memorandum of Lease is entered into on this 7<sup>th</sup> day of February, 2008, by and between Leonard Eugene Darby, a married man, having a mailing address of 72 Harris Hollow Rd, Argillite, Kentucky, 41121 (hereinafter referred to as "**Landlord**") and Central States Tower Holdings, LLC, a Delaware limited liability company, having a mailing address of 323 S. Hale Street, Suite 100, Wheaton, IL 60187 (hereinafter referred to as "**Tenant**").

1. Landlord and Tenant entered into a certain Option and Lease Agreement ("**Agreement**") on the 7<sup>th</sup> day of February, 2008, for the purpose of installing, operating and maintaining a communications facility and other improvements. All of the foregoing are set forth in the Agreement.
2. The initial lease term will be five (5) years ("**Initial Term**") commencing on the effective date of written notification by Tenant to Landlord of Tenant's exercise of the Option, with five (5) successive five (5) year options to renew.
3. A portion of the Property being leased to Tenant contained and described in **Exhibit A** annexed hereto.
4. This Memorandum of Lease is not intended to amend or modify, and shall not be deemed or construed as amending or modifying, any of the terms, conditions or provisions of the Agreement, all of which are hereby ratified and affirmed. In the event of a conflict between the provisions of this Memorandum of Lease and the provisions of the Agreement, the provisions of the Agreement shall control. The Agreement shall be binding upon and inure to the benefit of the parties and their respective heirs, successors, and assigns, subject to the provisions of the Agreement.

GREENUP COUNTY  
MC49 PG397

IN WITNESS WHEREOF, the parties have caused this Agreement to be effective as of the last date written below.

WITNESSES:

"LANDLORD"

Print Name: \_\_\_\_\_

By: Leonard Eugene Darby  
Print Name: Leonard Eugene Darby  
Its: Owner

Date: \_\_\_\_\_

Print Name: \_\_\_\_\_

By: \_\_\_\_\_  
Print Name: ~~Mary Elizabeth Darby~~  
Its: ~~Owner~~

Date: \_\_\_\_\_

LANDLORD ACKNOWLEDGMENT

INDIVIDUAL ACKNOWLEDGMENT

STATE OF KENTUCKY            )  
  ) ss:  
COUNTY OF GREENUP        )

BE IT REMEMBERED, that on this 26<sup>th</sup> day of January, 2008 before me, the subscriber, a person authorized to take oaths in the State of Kentucky, personally appeared Leonard Eugene Darby and Mary Elizabeth Darby, husband and wife, who, being duly sworn on his/her/their oath, deposed and made proof to my satisfaction that he/she/they is/are the person(s) named in the within instrument; and I, having first made known to him/her/them the contents thereof, he/she/they did acknowledge that he/she/they signed, sealed and delivered the same as his/her/their voluntary act and deed for the purposes therein contained. \*A MARRIED MAN.

Notary Public: Judy Black  
(Print name) Judy B Pack  
My Commission Expires: 12/10/09

PARTNERSHIP (consisting of corporations) ACKNOWLEDGMENT

STATE OF \_\_\_\_\_ )  
  ) ss:  
COUNTY OF \_\_\_\_\_ )

I CERTIFY that on \_\_\_\_\_, 2007, \_\_\_\_\_ personally came before me and this/these person(s) acknowledged under oath to my satisfaction, that:

- (a) this/these person(s) signed, sealed and delivered the attached document as \_\_\_\_\_ of \_\_\_\_\_ a corporation of the State of \_\_\_\_\_, which is a general partner of the partnership named in this document;
- (b) the proper corporate seal of said corporate general partner was affixed; and
- (c) this document was signed and delivered by the corporation as its voluntary act and deed as [a] general partner(s) on behalf of said partnership [by virtue of authority from its Board of Directors].

Notary Public: \_\_\_\_\_  
My Commission Expires: \_\_\_\_\_

CORPORATE ACKNOWLEDGMENT

STATE OF \_\_\_\_\_ )  
  ) ss:  
COUNTY OF \_\_\_\_\_ )

I CERTIFY that on \_\_\_\_\_, 2007, [name of representative] personally came before me and acknowledged under oath that he or she:

- (a) is the [title] of [name of corporation] the corporation named in the attached instrument,
- (b) was authorized to execute this instrument on behalf of the corporation and
- (c) executed the instrument as the act of the corporation.

Notary Public: \_\_\_\_\_  
My Commission Expires: \_\_\_\_\_

WITNESSES:

"TENANT"

Central States Tower Holdings, LLC  
a Delaware limited liability company

Marianne Grant  
Print Name: MARIANNE GRANT

By: [Signature]  
Print Name: Brian P. Meier  
Its: C.O.O.  
Date: 2-7-2008

**TENANT ACKNOWLEDGMENT**

STATE OF ILLINOIS            )  
  ) ss:  
COUNTY OF DuPAGE        )

On the 7<sup>th</sup> day of February, 2008, before me personally appeared Brian P. Meier, C.O.O., and acknowledged under oath that he is duly authorized to sign on behalf of Central States Tower Holding, LLC, the Tenant named in the attached instrument, and as such was authorized to execute this instrument on behalf of the Limited Liability Company.



[Signature]  
Notary Public: BARBARA MEINDL  
My Commission Expires: JAN. 22, 2011



**EXHIBIT A**

**DESCRIPTION OF PROPERTY**

Page 1 of 1

to the Memorandum of Lease dated February 1<sup>st</sup>, 2008, by and between Leonard Eugene Darby, a married man, as Landlord, and Central States Tower Holdings, LLC, a Delaware limited liability company, as Tenant.

The Property is described and/or depicted as follows:

Certain land lying in Greenup County, Kentucky, and described as follows:

First Tract: A part of the Argillite Mill tract – BEGINNING at a stone by the county road leading from Argillite to Raccoon Furnace corner of lands sold Elizabeth Evans March 20, 1880; thence with road N. 22 W. 10 2/3 poles to a stake corner of John Pratt; thence with Pratts line S 84 ½ W. 68 poles to four white oaks N. 86 ½ W 40 ½ Poles corner to Wm. Nichols survey N. 77 W. 117 poles to a black oak stump and stones N. 85 W. 88 poles to a white oak bush standing N. 13 E. 2 poles from poplar corner of J. Riley and Raccoon Furnace lands, thence S. 13 W. 18 poles to a hickory, white oak and black oak on top of point in Joe Riley's line; thence S. 58 E. 62 poles to 3 pines and a gum on top of ridge S. 80 E. 116 poles to a red oak and hickory N. 64 E. 26 poles a large white oak S. 78 E. 22 poles to dogwood and black oak N. 74 ½ E. 30 poles a stake S. 20 ½ E. 20 poles to Evans corner stake and stone by a branch, thence with Evans line N. 56 E. 75 poles to the beginning, containing 83 ½ acres, more or less.

Second Tract: Being a part of the Pennsylvania Furnace tract of land lying west of Argillite, Kentucky, BEGINNING at a gum and 3 pines on a ridge corner of Pratts; thence S. 16 W. 16 poles to a stone at an ore dump S. 58 ½ W. 10 poles to a pine S. 18 W. 9 ¾ poles S. 13 ½ E. 24 poles to 2 gums S. 32 ½ E. 9 ¾ poles to 3 white oaks S. 54 ½ E. 10 ½ poles to chestnut oak and black oak S. 43 E. 22 poles to small chestnut oak and dogwood N. 86 ½ E. 13 poles to small pine N. 34 E. 13 poles to 3 black oaks from one root N. 75 E. 19 poles to 2 black oaks from one root N. 48 E. 13 poles to pine and white oak N. 12 E. 14 poles to pine corner of Wm. Thompson; thence N. 14 poles to a pine N. 43 E. 21 poles to a stake and stone on ore bank thence with Pratts line N. 80 W. 82 poles to the beginning, containing 32 ¾ acres, more or less.

Being excepted from the above described real estate a right of way easement for roadway purposes heretofore conveyed to Eskel Carter and Grace Carter, his wife, by deed of easement dated July 13, 1966, and recorded in Deed Book 220, Page 268, Greenup County Court Clerk's Records.

Site Name: GREENBO LAKE  
Site Number: KY-00-0821

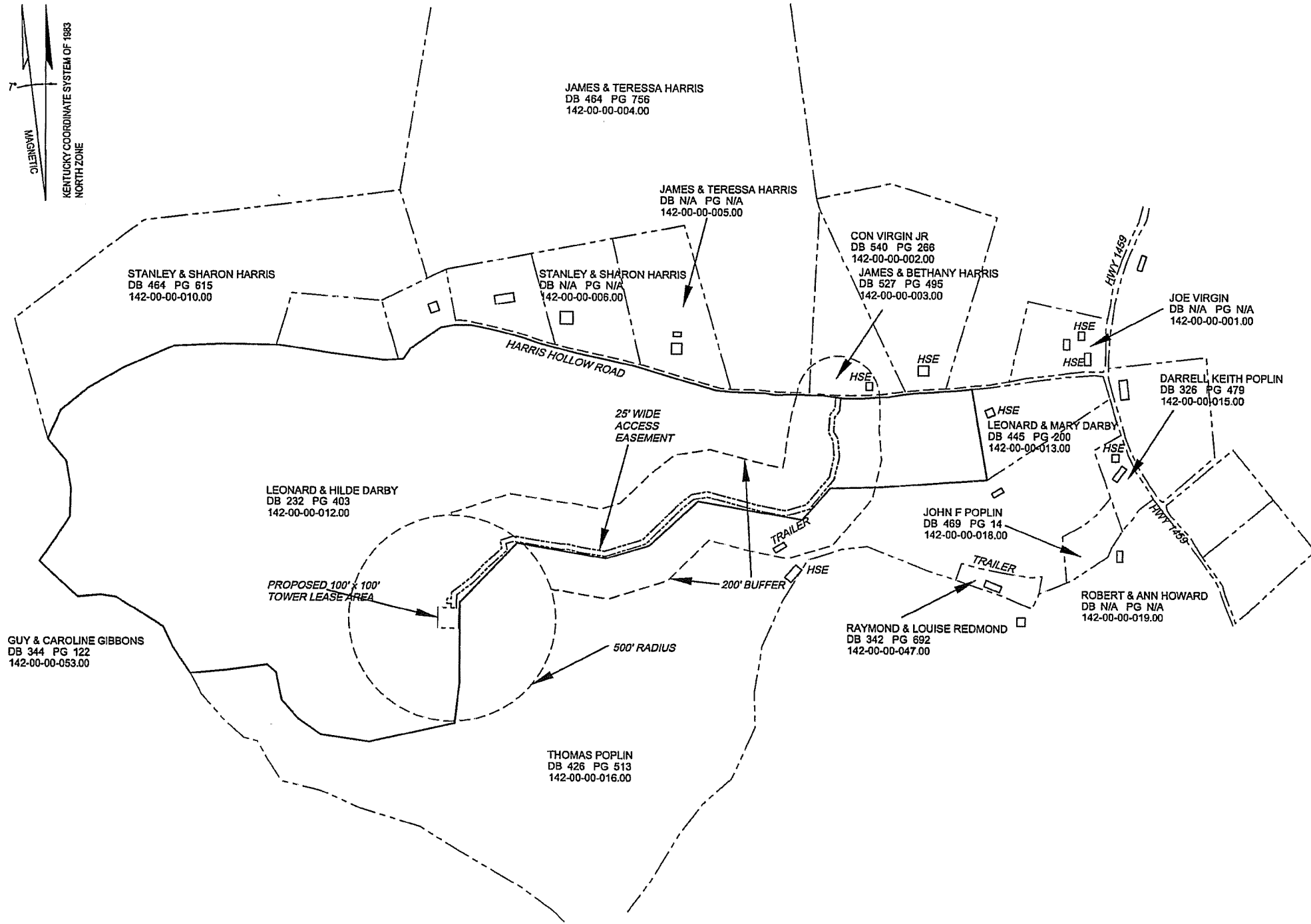
GREENUP COUNTY  
MC49 PG401

DOCUMENT NO: 212376  
RECORDED ON: FEBRUARY 25, 2008 02:52:40PM  
TOTAL FEES: \$23.00  
COUNTY CLERK: PAT HIENEMAN  
COUNTY: GREENUP COUNTY  
DEPUTY CLERK: JOAN BURNETT  
BOOK MC49 PAGES 397 - 401

**EXHIBIT E**

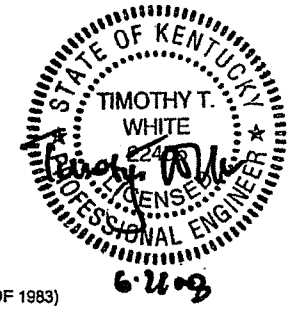
**Site Plan – 500' Radius Map with  
Flood Plain Information**

KENTUCKY COORDINATE SYSTEM OF 1983  
NORTH ZONE  
MAGNETIC



**LEGEND**

---	PROPERTY LINE
---	TRACT LINE
---	RIGHT OF WAY
---	STREAM/DITCH
X	EXISTING FENCE LINE
SAN	EXISTING SANITARY SEWER
STM	EXISTING STORM SEWER
W	EXISTING WATER LINE
G	GAS LINE
E	OVERHEAD ELECTRIC
UE	UNDERGROUND ELECTRIC
T	OVERHEAD TELEPHONE
UT	UNDERGROUND TELEPHONE
C	OVERHEAD CABLE
UC	UNDERGROUND CABLE
E&C	OVERHEAD ELECTRIC/CABLE
E,C&T	OVERHEAD ELECTRIC/CABLE/TELEPHONE
○	5/8" REBAR WITH CAP SET
⊕	FOUND MONUMENTATION
⊙	BENCH MARK
⊙	CALCULATED POINT
⊙	EXISTING FIRE HYDRANT
⊙	EXISTING WATER OR GAS METER
⊙	TELEPHONE OR ELECTRIC RISER
⊙	UTILITY POLE
⊙	CONCRETE AREA
⊙	ASPHALT AREA



**TOWER BASE:**

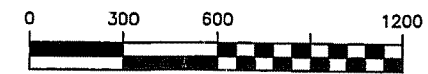
LATITUDE: 38°-29'-48.73" N  
LONGITUDE: 82°-51'-17.42" W  
(PER NORTH AMERICAN DATUM OF 1983)

ELEVATION: 829±  
(PER NORTH AMERICAN VERTICAL DATUM OF 1988)

**FLOOD PLAIN INFORMATION**

THE SUBJECT PROPERTY LIES WITHIN ZONE "X", WHICH IS OUTSIDE THE 0.2% CHANCE OF ANNUAL FLOODING, AS DESIGNATED ON N.F.I.P. GREENUP COUNTY, KY COMMUNITY PANEL #21089C0301C, BEARING AN EFFECTIVE DATE OF SEPTEMBER 16, 2004.

**GRAPHIC SCALE**



MAP:	NAME	ADDRESS:	CITY:	STATE	ZIP:	DB:	PG:
142-00-00-001.00	JOE VIRGIN	719 ST. RT. 1459	ARGILLITE	KY	41121	N/A	N/A
142-00-00-013.00	LEONARD EUGENE & MARY E. DARBY	72 HARRIS HOLLOW	ARGILLITE	KY	41121	445	200
142-00-00-015.00	DARRELL KEITH POPLIN	2581 W. HOLLOW RD	GREENUP	KY	41144	326	479
142-00-00-018.00	JOHN F. POPLIN	1725 DELAWARE ST	ASHLAND	KY	41101	469	14
142-00-00-019.00	ROBERT & ANN HOWARD	98 HOWARD RD	ARGILLITE	KY	41121	N/A	N/A
142-00-00-047.00	RAYMOND & LOUISE REDMOND	7448 ST. RT. 1	ARGILLITE	KY	41121	342	692
142-00-00-016.00	THOMAS E. POPLIN	P.O. BOX 86	WORTHINGTON	KY	41183	426	513
142-00-00-012.00	LEONARD EUGENE DARBY	72 HARRIS HOLLOW	ARGILLITE	KY	41121	N/A	N/A
142-00-00-002.00	CON VIRGIN JR.	19 MARY DR	LANSING	MI		540	266
142-00-00-003.00	JAMES A. & BETHANY HARRIS	466 HARRIS HOLLOW RD	ARGILLITE	KY	41121	527	495
142-00-00-004.00	JAMES W. & TERESSA HARRIS	492 HARRIS HOLLOW RD	ARGILLITE	KY	41121	464	756
142-00-00-005.00	JAMES W. & TERESSA HARRIS	492 HARRIS HOLLOW RD	ARGILLITE	KY	41121	N/A	N/A
142-00-00-006.00	STANLEY L. & SHARON K. HARRIS	562 HARRIS HOLLOW RD	ARGILLITE	KY	41121	N/A	N/A
142-00-00-010.00	STANLEY L. & SHARON K. HARRIS	562 HARRIS HOLLOW RD	ARGILLITE	KY	41121	464	615
142-00-00-053.00	GUY & CAROLINE GIBBONS	P O BOX 62	ARGILLITE	KY	41121	344	122

**Waco**  
Professional Services  
ONE MADISON AVENUE  
CADILLAC, MI 49601  
(231) 775-7755 OFFICE  
(231) 775-3135 FAX  
www.wifcox.us

**CST**  
CENTRAL STATES TOWER, INC.  
323 SOUTH HALE STREET  
SUITE 100  
WHEATON, IL 60187

**TERRADON**  
P.O. Box 519  
Nitro, West Virginia 25143  
(304) 755-8291 FAX 755-2636

**KY-00-0821**  
**GREENBO LAKE**  
72 HARRIS HOLLOW RD  
ARGILLITE, KY 41121

NO.	DATE	REVISIONS	BY	CHK	APP'D

DATE: 06/23/08 SCALE: AS SHOWN DESIGNED BY: SFP DRAWN BY: SFP

SHEET R-1  
500' RADIUS MAP & FLOOD PLAIN INFORMATION  
DRAWING NUMBER  
KY-00-0821

**EXHIBIT F**

**Affidavit of Notification of Adjacent Property  
Owners and Owners within 500 feet**

COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

Application of Central States Tower Holdings, LLC for Issuance  
of a Certificate of Public Convenience and Necessity to Construct  
a Cell Site (KY-00-0818A Greenbo Lake) in Argillite, Kentucky

Case No. 2008-00258

Affidavit of Sandee L. Yagle

I, Sandee L. Yagle, being duly sworn, depose and state as follows:

1. My name is Sandee L. Yagle and I am an employee of Cellere, LLC, agent for Central States Tower Holdings, LLC and am submitting this affidavit in conjunction with the above referenced matter.


2. In order to demonstrate compliance with 807 KAR 5:063 § 1(1)(1), Exhibit 1 identifies, with the exception of the individual identified in paragraph 4, the names of the residents/ tenants and property owners within 500 feet of the proposed tower who have been: (i) notified by written notice of the proposed construction, sufficient postage prepaid, by United States Certified Mail, return receipt requested; (ii) given the Commission docket number under which the application will be processed; and (iii) informed of the right to request intervention.

3. Attached as Exhibit 2 is a copy of the United States Certified Mail return receipts that demonstrate proof of service of the written notice of the proposed construction upon (all of whom could be located to respond): (1) Con Virgin, Jr.; (2) Leonard Eugene and Mary Darby; (3) Darrell Keith Poplin; (4) Guy and Caroline Gibbons; (5) Robert and Ann Howard; (6) James and Bethany Harris; (7) James and

Teresa Harris; (8) Raymond and Louise Redmond; (9) Stanley and Sharon Harris; (10) Thomas E. Poplin; and (11) Joe Virgin. (See Exhibit1)

4. Attached as Exhibit 3 is a copy of the United States Certified Mail return receipt indicating that the USPS attempted to deliver the certified mail and was rejected as "attempted, not known". The tax assessor has only this address to send tax bills;: 1725 Delaware Street, Ashland, KY 41101. This is also the address that appears for John F. Poplin in the phone register. No other address for John F. Poplin could be located at this time and therefore cannot be served by United States Certified Mail in compliance with 807 KAR 5:063 § 1(l) and (m).

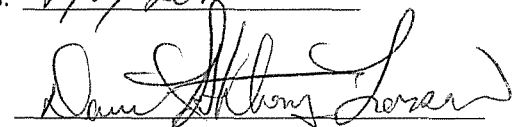
Further Affiant saith not.

  
Sandee L. Yagle

State of Michigan )  
                                  ) SS:  
County of Grand Traverse )

Subscribed and Sworn to before me this 30<sup>TH</sup> day of July, 2008.

My commission expires: 7/2/2012

  
Notary Public

**DAVID ANTHONY LARSEN**  
Notary Public, State of Michigan  
County of Grand Traverse  
My Commission Expires 02-02-2012  
Acting in the County of *GR. TRAVERSE*

Landowner and Adjacent Landowner List

Central States Tower Holdings, LLC  
Greenbo Lake Site  
Argillite, Kentucky

Con Virgin Jr.  
19 Mary Drive  
Lansing, MI 48906

Leonard Eugene and Mary Darby  
72 Harris Hollow  
Argillite, KY 41121

Darrell Keith Poplin  
2581 W. Hollow Drive  
Greenup, KY 41144

Guy and Caroline Gibbons  
P.O. Box 62  
Argillite, KY 41121

Robert and Ann Howard  
98 Howard Road  
Argillite, KY 41121

James and Bethany Harris  
466 Harris Hollow Road  
Argillite, KY 41121

James and Teressa Harris  
492 Harris Hollow Road  
Argillite, KY 41121

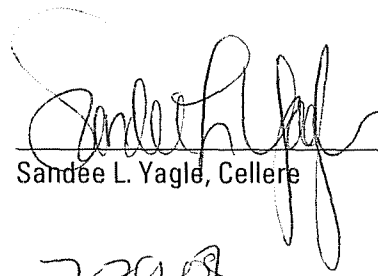
Raymond and Louise Redmond  
7448 St. Rte 1  
Argillite, KY 41121

Stanley and Sharon Harris  
562 Harris Hollow Road  
Argillite, KY 41121

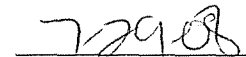
Thomas E. Poplin  
P.O. Box 68  
Worthington, KY 41183

Joe Virgin  
719 St. Rte 1459  
Argillite, KY 41121

John F. Poplin  
1725 Delaware Street  
Ashland, KY 41101



Sandee L. Yagle, Cellere



Date

July 2, 2008

Leonard Eugene and Mary Darby  
72 Harris Hollow  
Argilite, KY 41121

### Public Notice

Cellere, LLC, a Michigan limited liability company as agent for Central States Tower Holdings, LLC is applying to the Public Service Commission of the Commonwealth of Kentucky (the "Commission") for a Certificate of Public Convenience and Necessity to construct a new cellular tower facility to provide cellular telephone service. This facility will include a 300 foot tower to be located at +/- 72 Harris Hollow Rd., Argilite, Kentucky 41121. A map showing the location is attached.

The Commission invites your comments regarding this proposed construction. Also, the Commission wants you to be aware of your right to intervene in this matter. Your comments and request for intervention should be addressed to:

Executive Director's Office  
Public Service Commission of Kentucky  
P.O. Box 615  
Frankfort, Kentucky 40602

Please refer to case number 2008-00258 in your correspondence.

Cellere and Central States welcome the opportunity to serve and provide wireless service in your community!

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY
<ul style="list-style-type: none"><li>Complete Items 1, 2, and 3. Also complete Item 4 if Restricted Delivery is desired.</li><li>Print your name and address on the reverse so that we can return the card to you.</li><li>Attach this card to the back of the mailpiece, or on the front if space permits.</li></ul>	A. Received by (Please Print Clearly) B. Date of Delivery  C. Signature <i>Leonard Darby</i> <input type="checkbox"/> Agent <input type="checkbox"/> Addressee
1. Article Addressed to:  <b>Leonard Eugene and Mary Darby 72 Harris Hollow Argilite, KY 41121</b>	D. Is delivery address different from item 1? <input type="checkbox"/> Yes If YES, enter delivery address below: <input type="checkbox"/> No  3. Service Type <input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D.
2. Article Number (Copy from service label)	4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes  7008 0150 0001 5347 7990



July 2, 2008

Con Virgin, Jr.  
19 Mary Drive  
Lansing, MI 48906

### Public Notice

Cellere, LLC, a Michigan limited liability company as agent for Central States Tower Holdings, LLC is applying to the Public Service Commission of the Commonwealth of Kentucky (the "Commission") for a Certificate of Public Convenience and Necessity to construct a new cellular tower facility to provide cellular telephone service. This facility will include a 300 foot tower to be located at +/- 72 Harris Hollow Rd., Argilite, Kentucky 41121. A map showing the location is attached.

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<ul style="list-style-type: none"><li>Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.</li><li>Print your name and address on the reverse so that we can return the card to you.</li><li>Attach this card to the back of the mailpiece, or on the front if space permits.</li></ul>	A. Received by (Please Print Clearly) <i>Barbara Horton</i> B. Date of Delivery
1. Article Addressed to:  <b>Con Virgin, Jr. 19 Mary Drive Lansing, MI 48906</b>	C. Signature <i>x Barbara Horton</i> <input type="checkbox"/> Agent <input type="checkbox"/> Addressee
2. Article Number (Copy from service label)	D. Is delivery address different from item 1? <input type="checkbox"/> Yes If YES, enter delivery address below: <input type="checkbox"/> No
	3. Service Type <input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D.
	4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes
	7008 0150 0001 5347 8003

July 2, 2008

Darrell Keith Poplin  
2581 W. Hollow Rd.  
Greenup, KY 41144

### Public Notice

Cellere, LLC, a Michigan limited liability company as agent for Central States Tower Holdings, LLC is applying to the Public Service Commission of the Commonwealth of Kentucky (the "Commission") for a Certificate of Public Convenience and Necessity to construct a new cellular tower facility to provide cellular telephone service. This facility will include a 300 foot tower to be located at +/- 72 Harris Hollow Rd., Argilite, Kentucky 41121. A map showing the location is attached.

The Commission invites your comments regarding this proposed construction. Also, the Commission wants you to be aware of your right to intervene in this matter. Your comments and request for intervention should be addressed to:

Executive Director's Office  
Public Service Commission of Kentucky  
P.O. Box 615  
Frankfort, Kentucky 40602

Please refer to case number 2008-00258 in your correspondence.

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Darrell Poplin	7/2/08												
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X <i>Darrell Poplin</i>	<input type="checkbox"/> Addressee												
D. Is delivery address different from item 1?	<input type="checkbox"/> Yes												
If YES, enter delivery address below:	<input type="checkbox"/> No												
1. Article Addressed to:  <b>Darrell Keith Poplin 2581 W. Hollow Rd. Greenup, KY 41144</b>	3. Service Type <input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D. 4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes												
2. Article Number (Copy from service label)	7008 0150 0001 5347 7983												

July 2, 2008

Guy and Caroline Gibbons  
P.O. Box 62  
Argilite, KY 41121

### Public Notice

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1. Article Addressed to:  <b>Guy and Caroline Gibbons P.O. Box 62 Argilite, KY 41121</b>	C. Signature <i>Caroly A Gibbons</i> <input type="checkbox"/> Agent <input type="checkbox"/> Addressee
	D. Is delivery address different from Item 1? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If YES, enter delivery address below:
	3. Service Type <input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D.
	4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes
Article Number (Copy from service label)	<b>7008 0150 0001 5347 7976</b>
Form 3811, July 1999	Domestic Return Receipt 102595-00-M-0952

July 2, 2008

Robert and Ann Howard  
98 Howard Road  
Argilite, KY 41121

### Public Notice

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1. Article Addressed to:	C. Signature <i>Robert Howard</i> <input type="checkbox"/> Agent <input checked="" type="checkbox"/> Addressee
<b>Robert and Ann Howard</b> <b>98 Howard Road</b> <b>Argilite, KY 41121</b>	D. Is delivery address different from Item 1? <input type="checkbox"/> Yes If YES, enter delivery address below: <input type="checkbox"/> No
2. Article Number (Copy from service lab)	3. Service Type <input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D.
	4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes
	7008 0150 0001 5347 7969
PS Form 3811, July 1999	Domestic Return Receipt 102595-00-M-0952

July 2, 2008

James and Bethany Harris  
466 Harris Hollow Road  
Argilite, KY 41121

### Public Notice

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1. Article Addressed to:  <b>James and Bethany Harris 466 Harris Hollow Road Argilite, KY 41121</b>	3. Service Type <input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D. <p>4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes</p>
2. Article Number (Copy from service label)	7006 0150 0001 5347 7952
PS Form 3811, July 1999	Domestic Return Receipt 102585-00-M-0952

July 2, 2008

James and Teressa Harris  
492 Harris Hollow Road  
Argilite, KY 41121

### Public Notice

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Frankfort, Kentucky 40602

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1. Article Addressed to:  <b>James and Teressa Harris 492 Harris Hollow Road Argilite, KY 41121</b>	D. Is delivery address different from Item 1? <input type="checkbox"/> Yes If YES, enter delivery address below: <input type="checkbox"/> No  3. Service Type <input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D. 4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes
2. Article Number (Copy from service label)	7008 0150 0001 5347 7945

July 2, 2008

Raymond and Louise Redmond  
7448 St. Rt. 1  
Argilite, KY 41121

### Public Notice

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1. Article Addressed to:  <b>Raymond and Louise Redmond 7448 St. Rt. 1 Argilite, KY 41121</b>	3. Service Type <input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D.
2. Article Number (Copy from service label)	4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes
7008 0150 0001 5347 7921	
PS Form 3811, July 1999	Domestic Return Receipt 102595-00-M-0952

July 8, 2008

Stanley and Sharon Harris  
562 Harris Hollow Road  
Argilite, KY 41121

### Public Notice

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<i>Sharon Harris</i>	<i>7-12-08</i>												
C. Signature	<input type="checkbox"/> Agent												
<i>Sharon Harris</i>	<input type="checkbox"/> Addressee												
D. Is delivery address different from item 1?	<input type="checkbox"/> Yes												
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<b>Stanley and Sharon Harris</b> <b>562 Harris Hollow Road</b> <b>Argilite, KY 41121</b>	4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes												
2. Article Number (Copy from service label)	7008 0150 0001 5347 7907												



July 8, 2008

Thomas E. Poplin  
P.O. Box 86  
Worthington, KY 41183

### Public Notice

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C. Signature <i>[Signature]</i>							
<input type="checkbox"/> Agent	<input type="checkbox"/> Addressee						
1. Article Addressed to:  <b>Thomas E. Poplin P.O. Box 86 Worthington, KY 41183</b>	<p><input checked="" type="checkbox"/> Is delivery address different from item 1? <input type="checkbox"/> Yes If YES, enter delivery address below: <input type="checkbox"/> No</p> <p>Service Type <input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D.</p> <p>4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes</p>						
2. Article Number (Copy from service label)	7008 0150 0001 5347 7891						

July 8, 2008

Joe Virgin  
719 St. Rt 1459  
Argilite, KY 41121

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1. Article Addressed to:  <b>Joe Virgin 719 St. Rt. 1459 Argilite, KY 41121</b>	3. Service Type <input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D.						
2. Article Number (Copy from service label) <b>7008 0150 0001 5347 7884</b>	4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes						

 **Cellere**  
4110 Copper Ridge Drive, Suite 204  
Traverse City, MI 49684

**CERTIFIED MAIL™**



7008 0150 0001 5347 7938

\$5.320  
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0625000569822  
49684

stamp.com  
C18141.17



*AK*

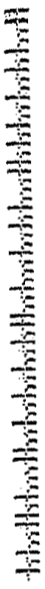
John F. Poplin  
1725 Delaware Street  
Ashtabula, OH 44004

NIXIE 409 DE 1 00 07/15/08

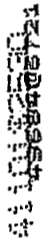
RETURN TO SENDER  
ATTEMPTED - NOT KNOWN  
UNABLE TO FORWARD

BC: 49684672154

#2785-04915-09-41



*100-624-1080*



July 2, 2008

John F. Poplin  
1725 Delaware Street  
Ashland, KY 41101

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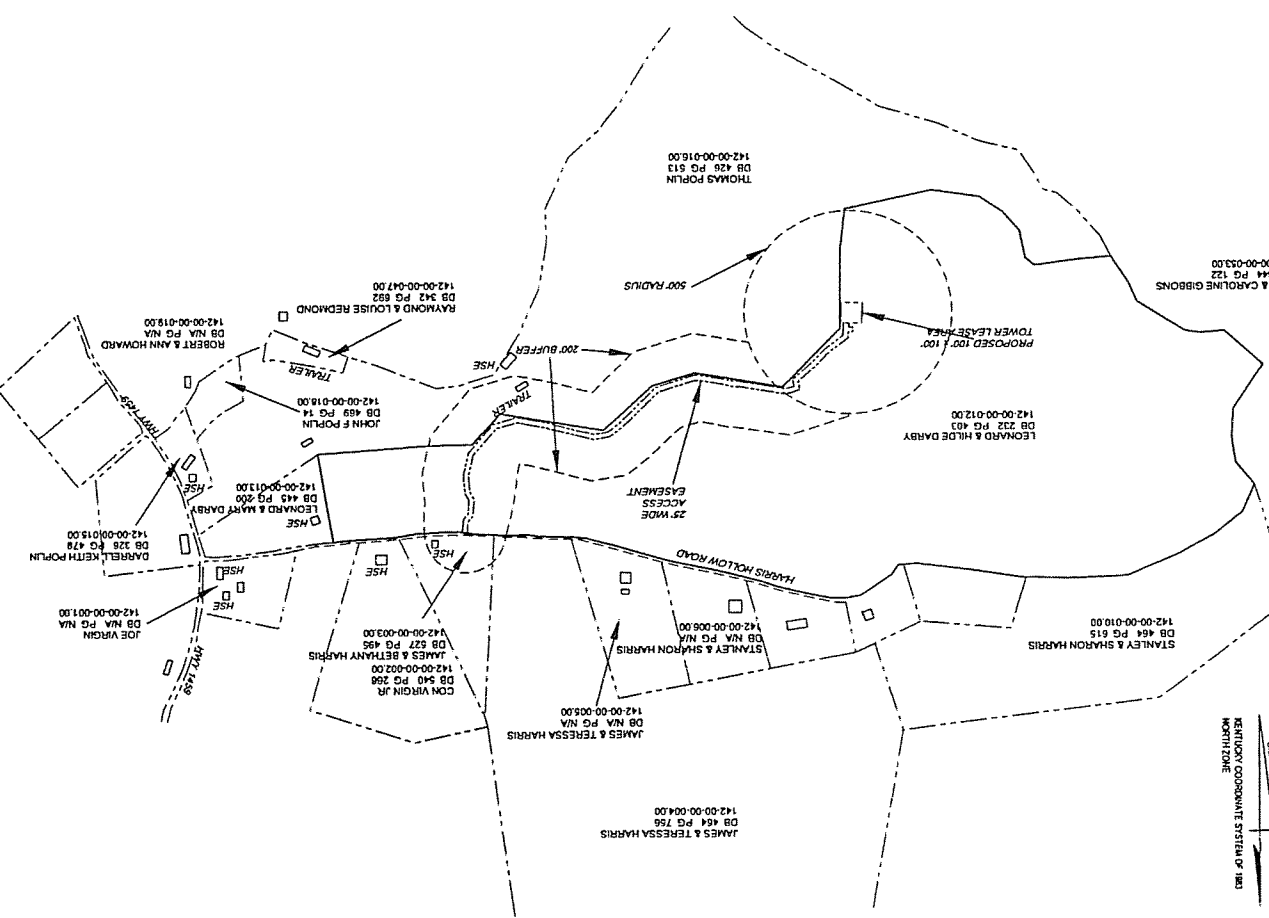
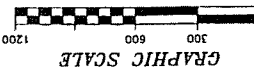
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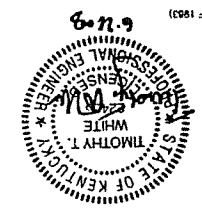
NO.	DATE	REVISIONS	DESIGNED BY	CHECKED BY	APP'D.



FLOOD PLAIN INFORMATION  
 THE SUBJECT PROPERTY LIES WITHIN ZONE "X", WHICH IS OUTSIDE THE 20% ANNUAL FLOOD FLOODING, AS DESIGNATED ON N.F.P. GREENUP COUNTY, KY COMMUNITY PANEL #210969030010, BEARING AN EFFECTIVE DATE OF SEPTEMBER 18, 2004.

TOWER BASE:  
 LATITUDE: 36°29'-48.73" N  
 LONGITUDE: 82°51'-17.47" W  
 ELEVATION: 829' (PER NORTH AMERICAN VERTICAL DATUM OF 1988)  
 ELEVATION: 829' (PER NORTH AMERICAN VERTICAL DATUM OF 1988)

- LEGEND**
- PROPERTY LINE
  - TRACT OF WAY
  - STRAIGHT/DITCH
  - EXISTING FLOOD LINE
  - EXISTING SANITARY SEWER
  - EXISTING STORM SEWER
  - EXISTING WATER LINE
  - OVERHEAD ELECTRIC
  - UNDERGROUND TELEPHONE
  - OVERHEAD TELEPHONE
  - OVERHEAD CABLE
  - UNDERGROUND CABLE
  - ELECTRIC
  - OVERHEAD ELECTRIC/CABLE
  - UNDERGROUND ELECTRIC/TELEPHONE
  - 5/8" REBAR WITH CAP SET
  - FOUND MONUMENTATION
  - BENCH MARK
  - CALCULATED POINT
  - EXISTING FIRE HYDRANT
  - EXISTING WATER OR GAS METER
  - TELEPHONE ON ELECTRIC RISER
  - CONCRETE AREA
  - ASPHALT AREA





Cellere

4110 Copper Ridge Drive, Suite 204  
Traverse City, MI 49684

John F. Poplin  
1725 Delaware Street  
Ashland, KY 41101

PLACE STICKER AT TOP OF ENVELOPE TO THE RIGHT OF THE RETURN ADDRESS, FOLD AT DOTTED LINE

**CERTIFIED MAIL™**

7008 0150 0001 5347 7938  
7008 0150 0001 5347 7938

**U.S. Postal Service™**  
**CERTIFIED MAIL™ RECEIPT**  
*(Domestic Mail Only; No Insurance Coverage Provided)*

For delivery information, visit our website at [www.usps.com](http://www.usps.com)

**OFFICIAL USE**

Postage	\$ 4.2	Postmark Here
Certified Fee	2.70	
Return Receipt Fee (Endorsement Required)	2.20	
Restricted Delivery Fee (Endorsement Required)		
Total Postage & Fees	\$ 5.32	

Sent To: **John F. Poplin**  
Street, Apt. No., or PO Box No. **1725 Delaware Street**  
City, State, ZIP+4 **Ashland, KY 41101**

PS Form 3800, August 2005 See Reverse for Instructions

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

**John F. Poplin  
1725 Delaware Street  
Ashland, KY 41101**

**COMPLETE THIS SECTION ON DELIVERY**

A. Received by (Please Print Clearly) B. Date of Delivery

C. Signature  Addressee  
 Agent

D. Is delivery address different from item 1?  Yes  
If YES, enter delivery address below:  No

3. Service Type  
 Certified Mail  Express Mail  
 Registered  Return Receipt for Merchandise  
 Insured Mail  C.O.D.

4. Restricted Delivery? (Extra Fee)  Yes

2. Article Number (Copy from service label)

7008 0150 0001 5347 7938

**EXHIBIT G**

**Certified letter to Judge Executive**

July 17, 2008

Via Certified Mail  
Greenup County Judge Executive  
Robert W. Carpenter  
Greenup County Courthouse, Rm 102  
Greenup, KY 41144

RE: Public Notice – Public Service Commission of Kentucky  
Case No. 2008-00258

Cellere, LLC, as agent for Central States Tower Holdings, LLC, is applying to the Public Service Commission of Kentucky (the "Commission") for a Certificate of Public Convenience and Necessity to propose construction and operation for a new facility to provide cellular telecommunications service in Carter County. The facility will include a 300 foot tower and an equipment shelter to be located at +/- 72 Harris Hollow Rd., Argilite, Kentucky 41121. A map showing the location of the proposed new facility is enclosed.

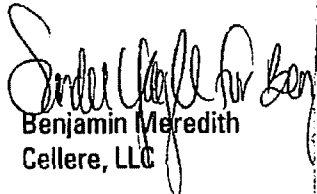
The Commission invites your comments regarding the proposed construction. You also have the right to intervene in this matter.

Your comments and request for intervention should be addressed to:

Executive Director's Office  
Public Service Commission of Kentucky  
P.O. Box 615  
Frankfort, Kentucky 40602

Please refer to case number 2008-00258 in your correspondence.

Sincerely,

  
Benjamin Meredith  
Cellere, LLC

Enclosure

sly

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY	
<ul style="list-style-type: none"> <li>■ Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.</li> <li>■ Print your name and address on the reverse so that we can return the card to you.</li> <li>■ Attach this card to the back of the mailpiece, or on the front if space permits.</li> </ul>	A. Received by (Please Print Clearly) <i>CNH RASH</i>	B. Date of Delivery <i>7-23-08</i>
1. Article Addressed to:  <b>Greenup County Judge Executive Robert W. Carpenter Greenup County Courthouse, Rm 102 Greenup, KY 41144</b>	C. Signature <i>[Signature]</i>	<input type="checkbox"/> Agent <input checked="" type="checkbox"/> Addressee
	D. Is delivery address different from item 1? - If YES, enter delivery address below:	
	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  <i>301 Main St. Rm 102</i>	
2. Article Number (Copy from service label)  <b>7008 0150 0001 5347 8164</b>	3. Service Type <input checked="" type="checkbox"/> Certified Mail <input type="checkbox"/> Express Mail <input type="checkbox"/> Registered <input type="checkbox"/> Return Receipt for Merchandise <input type="checkbox"/> Insured Mail <input type="checkbox"/> C.O.D.  4. Restricted Delivery? (Extra Fee) <input type="checkbox"/> Yes	



**EXHIBIT H**

**Public Notice Signs  
(Photos)**

# PUBLIC NOTICE

Central States Tower Holdings, LLC  
proposes to  
construct a cellular  
communications

# TOWER

on this site. If you have any  
questions please contact:

Central States Tower Holdings, LLC  
c/o Latham & Watkins LLP  
4150 Capital Plaza Drive, Suite 204  
Troy, NY 12180

The Executive Director  
Public Service Commission  
211 Tower Road, P.O. Box 111  
Troy, NY 12180

Please refer to P.S.C.

**Case #2008-00258**

In your correspondence.

HARRIS HOLW

**PUBLIC NOTICE**

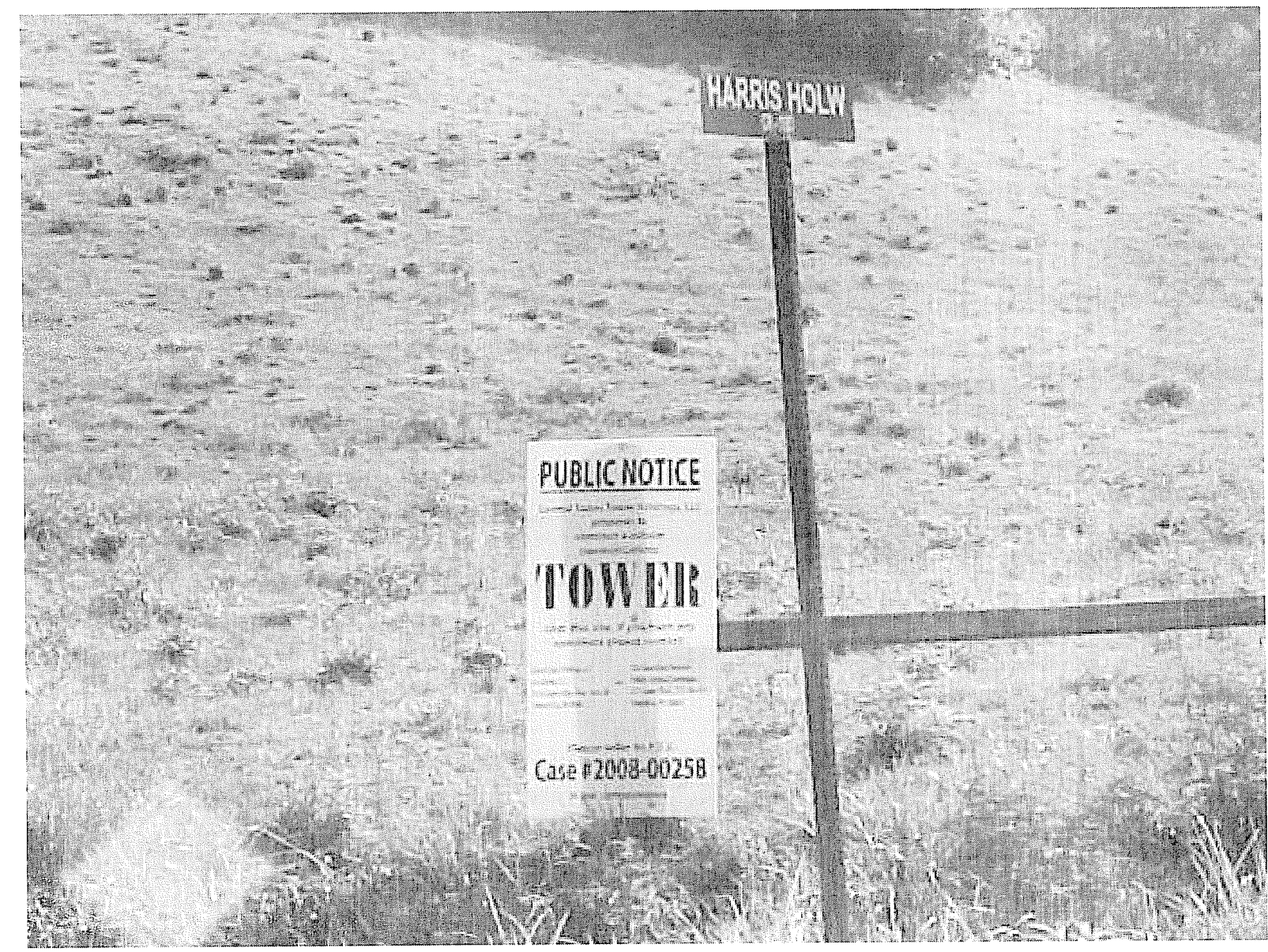
General Public Notice  
proposed to  
construct and  
operate a

**TOWER**

located on the site of the former  
and adjacent property

located on the site of the former  
and adjacent property

Case #2008-00258

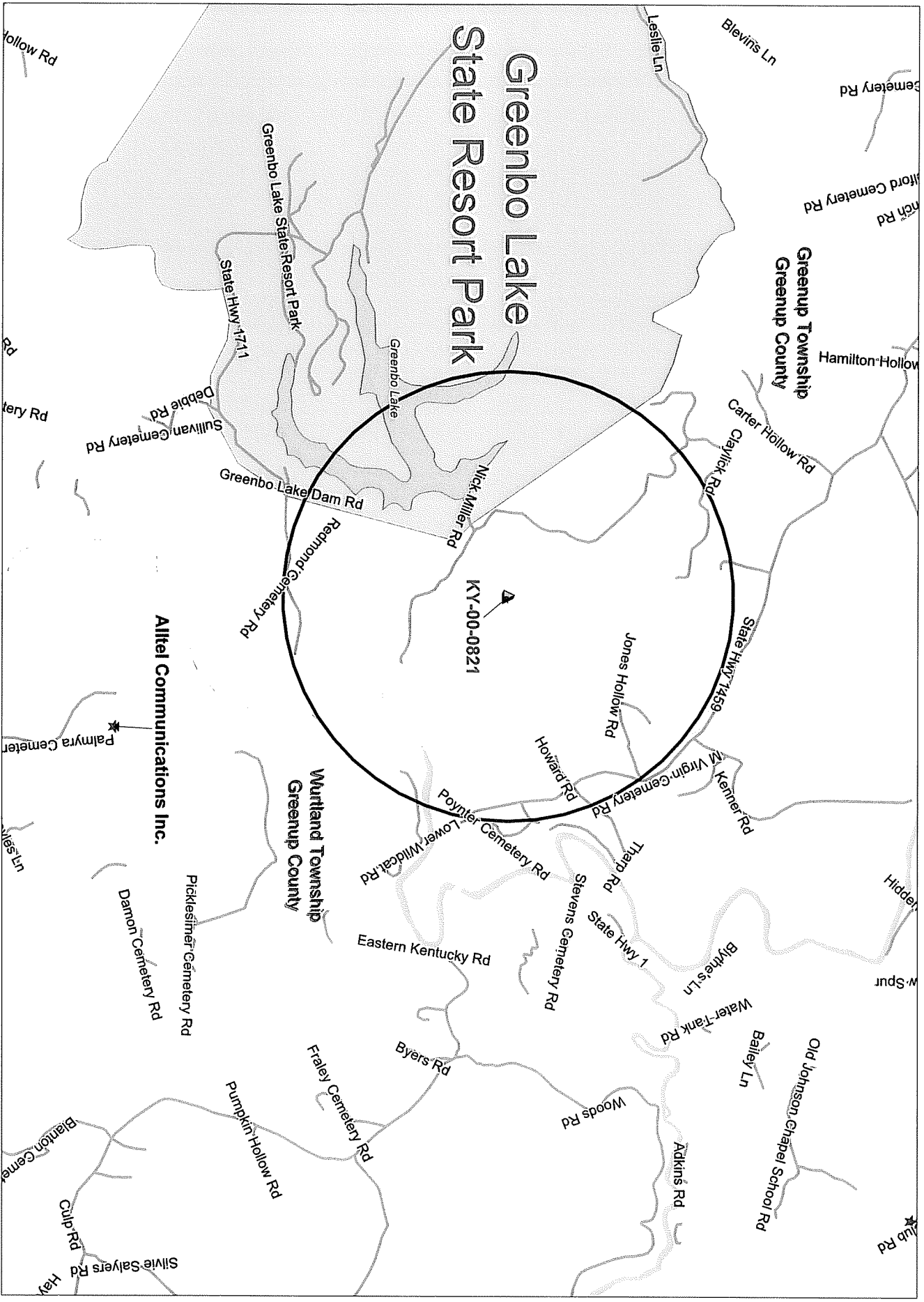


**EXHIBIT I**

**Affidavit of Publication of Public Notice**

## **EXHIBIT J**

### **Map of Search Area**



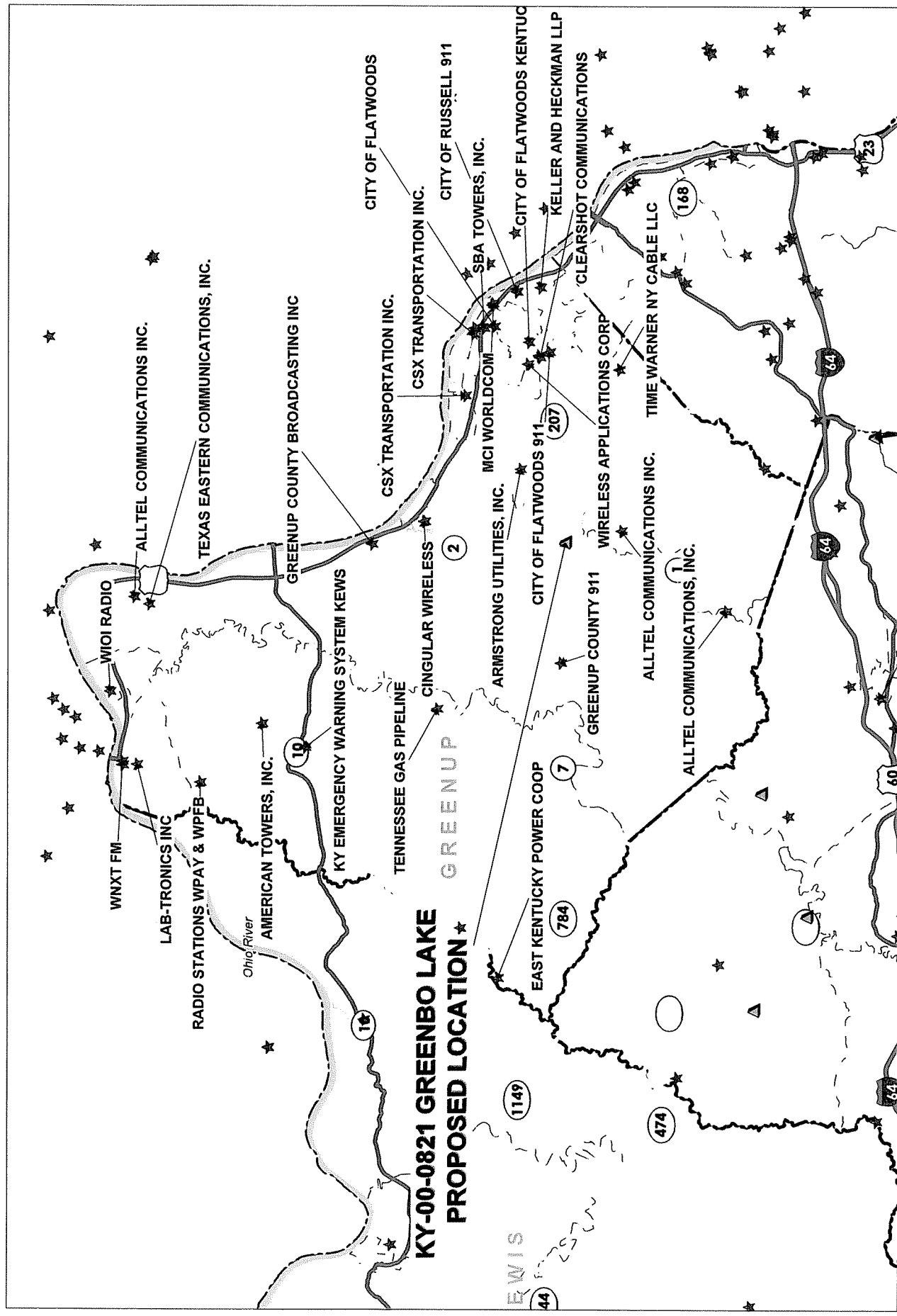
KY-00-0821 GREENBO LAKE 38.4938 / -82.8580

## **EXHIBIT K**

**Map of Existing and Proposed Towers**



**PROPOSED TOWER LOCATION IN GREENUP COUNTY and Identified Existing Tower Locations within Greenup County**



1" = 4.308 miles