## RECEIVED

#### COMMONWEALTH OF KENTUCKY

NOV 20 2008

#### **BEFORE THE PUBLIC SERVICE COMMISSION**

PUBLIC SERVICE COMMISSION

In the Matter of:

APPLICATION OF CUMBERLAND CELLULAR PARTNERSHIP FOR ISSUANCE OF A CERTIFICATE CASE NO. 2008-00363 OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT A CELL SITE (CUMBERLAND FALLS) IN RURAL SERVICE AREA #5 (MCCREARY) OF THE COMMONWEALTH OF KENTUCKY APPLICATION FOR A CERTIFICATE OF

#### PUBLIC CONVENIENCE AND NECESSITY (CUMBERLAND FALLS)

Cumberland Cellular Partnership ("Cumberland Cellular"), through counsel, 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 Cumberland Falls cell site in and for rural service area ("RSA") #5 of the Commonwealth of Kentucky, namely the counties of Barren, Monroe, Metcalfe, Adair,

Cumberland, Russell, Clinton, Wayne, McCreary and Hart, Kentucky.

1. As required by 807 KAR 5:001 Sections 8(1) and (3), and 807 KAR 5:063, Cumberland

Cellular states that it is a Kentucky limited liability partnership whose full name and post office address are: Cumberland Cellular Partnership, 2902 Ring Road, Elizabethtown, Kentucky, 42701.

2. Pursuant to 807 KAR § 1 (1)(b), a copy of the applicant's application to and approval from the Federal Aviation Administration, and a copy of its application to the Kentucky Airport Zoning Commission ("KAZC") are Exhibit "A". Written authorization from the KAZC will be supplied to the

Commission upon its approval.

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, foundation design recommendations, and a 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 Exhibit "C".

5. Pursuant to 807 KAR 5:063 §1(1)(f), a copy of the lease for the property on which the tower is proposed to be located, is Exhibit "D".

6. Pursuant to 807 KAR §1(1)(g), experienced personnel will manage and operate the Cumberland Falls cell site. The President of Bluegrass Cellular Inc., Mr. Ron Smith, is ultimately responsible for all construction and operations of the cellular system of Cumberland Cellular, of which system the Cumberland Falls cell site will be a part. Bluegrass Cellular Inc. provides management services to Cumberland Cellular under a management contract, just as it does with three (3) other wireless carriers in the Commonwealth. And, Bluegrass Cellular Inc. has been providing these management services to these other wireless carriers for well over a decade. This extensive management experience with Bluegrass Cellular demonstrates that Bluegrass Cellular Inc.'s management and technical ability to supervise the operations of a wireless carrier.

7. Pursuant to 807 KAR §1(1)(g), Eastpointe Engineering Group, LLC is responsible for the design specifications of the proposed tower (identified in Exhibit "B").

8. 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 Exhibit "B".

9. 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 antennas is Exhibit "B".

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10. 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 Exhibit "B".

11. 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 Exhibit "E".

12. Pursuant to 807 KAR 5:063 § 1 (1)(1), applicant's legal counsel 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 application will be processed; and (iii) informed of his or her right to request intervention.

13. Pursuant to KRS 278.665(2), applicant's legal counsel 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 antenna 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.

14. 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 Exhibit "F".

15. Pursuant to 807 KAR 5:063 § 1 (1)(n), applicant's legal counsel hereby affirms that the Office of the McCreary 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.

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

17. Pursuant to 807 KAR 5:063 § 1 (1)(p), applicant's legal counsel hereby affirms that (i) two written notices meeting subsection two (2) of this section have been posted, one in a visible location

3

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.

18. Pursuant to 807 KAR  $5:063 \le 1$  (2)(a), applicant's legal counsel affirms that:

(a) A written notice, of durable material at least two (2) feet by four (4) feet in size, stating that "*Cumberland Cellular Partnership 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 "*Cumberland Cellular Partnership 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"

19. 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.

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

21. Pursuant to 807 KAR 5:063 §1(1)(s), Cumberland Cellular 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. Cumberland Cellular has attempted to co-locate on towers designed to host multiple wireless service providers' facilities or existing structures, such as a telecommunications tower, or another suitable structure capable of supporting the utility's facilities.

22. 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 Exhibit "J".

23. 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 Exhibit "K".

24. No reasonably available telecommunications tower, or other suitable structure capable of

supporting the cellular facilities of Cumberland Cellular and which would provide adequate service to the

area exists.

25. Correspondence and communication with regard to this application should be

addressed to:

John E. Selent Holly C. Wallace **DINSMORE & SHOHL LLP** 1400 PNC Plaza 500 West Jefferson Street Louisville, KY 40202 (502) 540-2300 (502) 585-2207 *john.selent@dinslaw.com holly.wallace@dinslaw.com* 

WHEREFORE, Cumberland Cellular Partnership requests the Commission to enter an order:

1. Granting a certificate of public convenience and necessity to construct the Cumberland

Falls cell site; and

2. Granting all other relief as appropriate.

Respectfully submitted,

John E. Selent Holly C. Wallac DINSMORE & SHOHL LLP 1400 PNC Plaza 500 West Jefferson Street Louisville, XX 40202 (502) 540-2300 (502) 540-2207 john.selent@dinslaw.com holly.wallace@dinslaw.com

## Kerry



1650 TYSONS BOULEVARD, SUITE 1500 MCLEAN, VIRGINIA 22102 703 584 8678 • 703 584 8696 FAX

WWW.FCCLAW.COM

\*

RUSSELL D. LUKAS DAVID L. NACE THOMAS GUTIERREZ<sup>\*</sup> ELIZABETH R. SACHS<sup>\*</sup> GEORGE L. LYON, JR. PAMELA L. GIST DAVID A. LAFURIA TODD SLAMOWITZ<sup>\*</sup> TODD B. LANTOR<sup>\*</sup> STEVEN M. CHERNOFF<sup>\*</sup> KATHERINE PATSAS<sup>\*</sup> CONSULTING ENGINEERS ALI KUZEHKANANI LEILA REZANAVAZ OF COUNSEL LEONARD S. KOLSKY\* JOHN CIMKO\* J. K. HAGE III\* JOHN J. MCAVOY\* HON. GERALD S. MCGOWAN\* TAMARA DAVIS-BROWN\*

September 5, 2008

Telephone (703) 584-8668

#### Via Federal Express

Mr. John Houlihan Kentucky Airport Zoning Commission 90 Airport Road Building 400 Frankfort, Kentucky 40601

Dear Mr. Houlihan:

Enclosed please find two completed TC 56-50 forms, Application for Permit to Construct or Alter a Structure, for a new tower (Cumberland Falls) near Parkers Lake, Kentucky. The Structure, including top-mounted antennas will have an overall height of 255 feet Above Ground Level.

Enclosed Form TC 56-50 and the attached exhibit include all the pertinent information for this existing tower structure. Also enclosed are copies of the completed FAA Form 7460-1 for the proposed site, a non-reduced 7-1/2' U.S. Geological Survey map indicating the exact location of the site, and a 2-C survey report.

Please do not hesitate to contact the undersigned if there are questions regarding this matter.

Sincerely, Leila Rezanavaz Leila Rezanavaz

Consulting Engineer

Enclosures

CC: Doug Updegraff

INSTRUCTIONS	ON REVERSE	SIDE OF FORM -	
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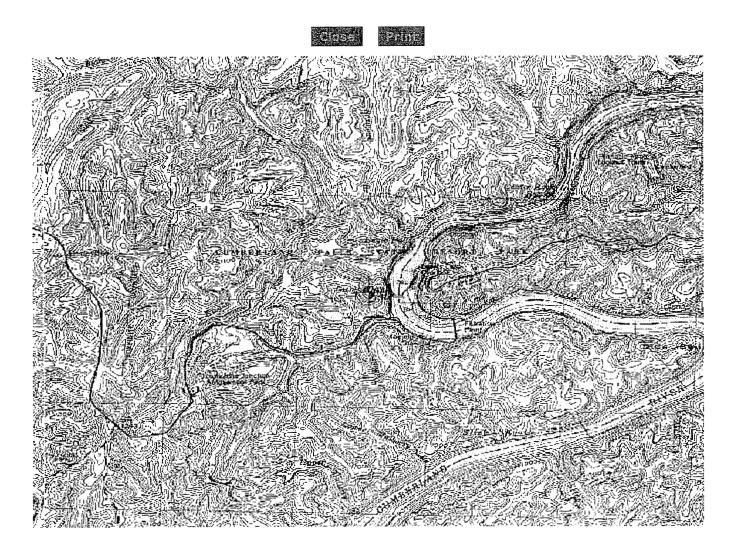
TC 56-50 (Rev. 08/00) PAGE 1 OF 2

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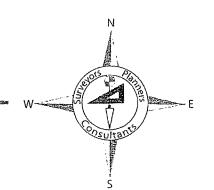
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- INSTRUCTIONS ON REVERSE SIDE OF FORM -	TC 56-50 (Rev. 08/00) PAGE 1 OF 2
Kentucky Transportation Cabinet, Kentucky Airport Zoning Commission, 125 H	olmes Street, Frankfort KY 40622 Kentucky Aeronautical Study Number
APPLICATION FOR PERMIT TO CONSTRUCT OR	ALTER A STRUCTURE
1. APPLICANT - Name, Address, Telephone, Fax, etc.	9. Latitude: 36 • 50 · 21 .04 "
Scott McCloud	10. Longitude: 84 • 20 • 51 31 ·
Bluegrass Cellular	
2902 Ring Road	11. Datum: X NAD 83 NAD 27 Other
Elizabethtown, KY 42702	12. Nearest Kentucky City Parkers LKCounty: McCreary
Tel: 270-769-0339 Fax: 270-737-0580	
Fax. 270-757-0580	13. Nearest Kentucky public use or Military airport:
2. Representative of Applicant - Name, Address, Telephone, Fax	Williamsburg-Whitley County Airport
Leila Rezanavaz Lūkās, Nace, Gutierrez & Sachs, Chartered	14. Distance from #13 to Structure: 8.8 Miles
1650 Tysons Blvd., Suite 1500	15. Direction from #13 to Structure: WNW
McLean, VA 22102	16. Site Elevation (AMSL): <u>1110</u> Feet
<u>T: 703-584-8668</u>	17. Total Structure Height (AGL); 255 Feet
3. Application for: 🖾 New Construction 🗋 Alteration 🗍 Existing	18. Overall Height (#16 + #17) (AMSL): 1365 Feet
4. Duration: A Permanent Temporary (MonthsDays)	19. Previous FAA and/or Kentucky Aeronautical Study Number(s):
5. Work Schedule: Start 1/20/08 End 11/25/08	N/A
6. Type: X Antenna Tower C Crane Building Power Line	<ol> <li>Description of Location: (Attach a USGS 7.5 minute Quadrangle Map or an Airport Layout Drawing with the precise site marked and any certified survey)</li> </ol>
7. Marking/Painting and/or Lighting Preferred:	Site is located at:
Image: Red Lights and Paint     Image: Red & Medium Intensity White       Image: White - Medium Intensity     Image: Red & High Intensity White	774 Herman Vanover Road
White - High Intensity Other	Parkers Lake, KY 42634
8. FAA Aeronautical Study Number 2008-ASO-4911-OE	
21. Description of Proposal:	
	tower with top-mounted antennas for overall
Max ERP: 250 watts.	· · · ·
Frequencies: PCS Block C	
22. Has a "NOTICE OF CONSTRUCTION OR ALTERATION" (FAA Form 746	0-1) D No
22. Has a "NOTICE OF CONSTRUCTION OR ALTERATION (FAA Form 746 been filed with the Federal Aviation Administration?	$\Sigma_{\rm Yes, When} 9/5/2008$
CERTIFICATION: 1 hereby certify that all the above statements made by me are to	
Leila Rezanavaz / Consulting Engineer Printed Name Signature	Leela Rezanours 9/5/2008
PENALTIES: Persons failing to comply with Kentucky Revised Statutes (KRS 183.) Series) are liable for fines and/or imprisonment as set forth in KRS 183.990(3). Non further penalties.	361 through 183.990) and Kentucky Administrative Regulations (602 KAR 050:
Commission Action:	C [] Administrator, KAZC
Approved	
Disapproved	Date



## Landmark Surveying Co., Inc.

Darren L. Helms, P.L.S., PRESIDENT Dennis N. Helms, P.L.S., VICE PRESIDENT



15 N.E. 3rd Street Washington, Indiana 47501 Phone: 812-257-0950 Fax: 812-257-0953 Email: landmark97@sbcglobal.net

#### **2C Certification**

August 26, 2008

Designation:Cumberland FallsSite ID No.:Not AvailableTower Type:Proposed Self-Support TowerLocation:774 Herman Vanover Road, Parkers Lake, KY 42634

I certify that the latitude, longitude, ground elevation and height of the proposed self-support tower are as follows:

Latitude:	36 degrees 50 minutes 21.04 seconds North	(NAD 1983)
Longitude:	84 degrees 20 minutes 51.31 seconds West	(NAD 1983)
Ground Elevation:	1,109.5 feet or 338.18 meters	(NAVD 1988)
Proposed Structure Height:	240 feet or 73.2 meters	(above ground level)
Proposed Overall Structure Height:	not available	(above ground level)

The accuracy of the latitude and longitude of the proposed self-support tower is  $\pm$  50 feet or  $\pm$  15 meters. The ground elevation and structure height are accurate to within  $\pm$  20 feet or  $\pm$  6 meters.

The information shown above is based upon field observations made on August 14, 2008 using the National Geodetic Survey monument "FBN FRYE" and the Kentucky State Plane Coordinate System, South Zone, NAD 1983 (2007). The field observations were completed using Sokkia GPS receivers and a Topcon GPT-8005A robotic total station. Geodetic computations were completed using Sokkia's Locus software and Autodesk Land Desktop Companion 2008 software.

Landmark Surveying Co., Inc.

Darren L. Helms, Kentucky Professional Land Surveyor No. 3386

STATE OF KENTUCKY
STATE OF KENTUCKY DARREN L. HELMS 3386 LICENSED PROPEBBIONAL LAND SURVEYORAL
LICENSED
ELAND SURVEYORE

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

Project Name: BLUEG-0		Sponsor: Bluegrass Cellu		621.**#99966*\$2498.****	مه زي ر ۲۰۰ مر مربع بر ۲۰۰ م	ለሌ የንድዳጥራጣ ቅፍርር ፕሎሌት ለማጀታ
	Details for Case :	Cumberland Falls				
	Show Proje	ct Summary				
Case Status			and and the second s			aran baya an a salayan
ASN: 2008-ASO-49	11-OE	Date Accepted:	09/05/2008			
Status: Accepted		Date Determined	:			
		Letters:	None			
Construction / Altera	tion Information	Structure Summ	nary			
Notice Of:	Construction	Structure Type:	Antenna Tower			· · · · · · · · ·
Duration:	Permanent	Structure Name:	Cumberland Falls			
if Temporary :	Months: Days:	FCC Number:				
Work Schedule - Start:	11/20/2008	Prior ASN:				
Work Schedule - End:	11/25/2008					
State Filing:	Filed with State					
Structure Details		Common Freque	ency Bands			
Latitude:	36° 50' 21.04" N	Low Freq 806	High Freq 824	Freq Unit MHz	ERP 500	ERP Unit
Longitude:	84° 20' 51.31'' W	824	849	MHz	500	W W
Horizontal Datum:	NAD83	851 869	866 894	MHz MHz	500 500	W W
Site Elevation (SE):	1110 (nearest foot)	896 901	901 902	MHz MHz	500 7	W W
Structure Height (AGL):	255 (nearest foot)	930 931	931 932	MHz MHz	3500 3500	W
Marking/Lighting:	Dual-red and medium intensity	932	932.5	MHz	17	dBW
Other :		935 940	940 941	MHz MHz	1000 3500	W W
Nearest City:	Parkers Lake	1850 1930	1910 1990	MHz MHz	1640 1640	W W
Nearest State:	Kentucky	2305 2345	2310 2360	MHz MHz	2000 2000	W W
Description of Location:	Site is located at: 774 Herman Vanover Road parkers Lake, KY 42634	Specific Freque	ncies			
Description of Proposal:	Proposed self-support tower top-mounted antennas for overall height of 255' AGL.					



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

Issued Date: 11/07/2008

Scott McCloud Bluegrass Cellular, Inc. 2902 Ring Road Elizabethtown, KY 42701

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

Aeronautical Study No.

2008-ASO-6010-OE

2008-ASO-4911-OE

Prior Study No.

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:	Antenna Tower Cumberland Falls
Location:	Parkers Lake, KY
Latitude:	36-50-21.04N NAD 83
Longitude:	84-20-51.31W
Heights:	135 feet above ground level (AGL)
-	1245 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:

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking and/or lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory circular 70/7460-1 K Change 2.

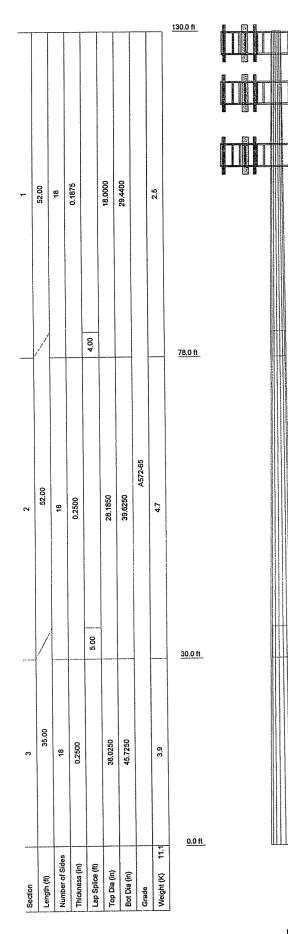
This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power will void this determination. Any future construction or alteration, including increase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

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DESIGNED	APPURTENANCE	LOADING
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TYPE	ELEVATION	TYPE	ELEVATION	
Lightning Rod 1"x10' (Initial)	130	T frame sector Mount (Future Carrier	120	
(2) D100-0042-0041 (Initial)	128	1)		
(2) D100-0042-0041 (Initial)	128	(2) RWB 80014/120 (Future)	110	
T frame sector Mount (Initial)	128	(2) RWB 80014/120 (Future)	110	
T frame sector Mount (Initial)	128	T frame sector Mount (Future Carrier	110	
T frame sector Mount (Initial)	128	2)		
(2) D100-0042-0041 (Initial)	128	T frame sector Mount (Future Carrier	110	
(2) RWB 80014/120 (Future)	120	T frame sector Mount (Future Carrier	110	
(2) RWB 80014/120 (Future)	120	2)		
(2) RWB 80014/120 (Future)	120	(2) RWB 80014/120 (Future)	110	
T frame sector Mount (Future Carrier 1)	120			
T frame sector Mount (Future Carrier 1)	120	-		

#### MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
	65 ksi	80 ksi			

#### TOWER DESIGN NOTES

- Tower is located in Mccreary County, Kentucky.
   Tower designed for Exposure C to the TIA-222-G Standard.
   Tower designed for a 90 mph basic wind in accordance with the TIA-222-G Standard.
   Tower is also designed for a 30 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
- Deflections are based upon a 60 mph wind.
   Structure Class = II
   Topographic Category = 1
   All lines considered to be inside pole.
   Final Design 10/14/08. JLR

AXIAL 28 K

TORQUE 0 kip-ft 30 mph WIND - 0.7500 in ICE

AXIAL

19 K

TORQUE 0 kip-ft

REACTIONS - 90 mph WIND

SHEAR

2K |

SHEAR

18 K |

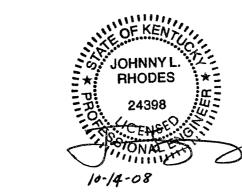
MOMENT

231 kip-ft

MOMENT

1738 kip-ft

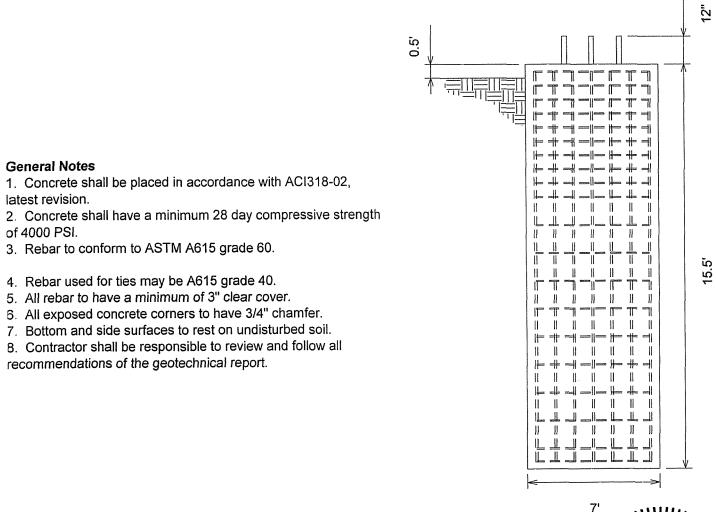
 $\bigcirc$ 



Eastpointe Engineering Group, LLC	<sup>Job:</sup> Ell Job #2993Cumberland Falls	
4020 Tull Ave	Project: 130' MPMcCreary County, KY	
Muskogee, OK 74403	Client: Bluegrass Cellular Drawn by: Johnny L. Rhodes, P.E.	App'd:
		Scale: NTS
	Path: 24Freed Flags/000 Serve(0993) Currenting Strifting/nethig/files/Centgr(993) 1354/P CurrentingFile et	Dwg No. E-1

## **CAISSON DESIGN**

Vertical Bars	(18) #9 bars, 15' long
Ties	#5 bars @ 6" c/c for the first 6.5' then 12" c/c thereafter



#### 

## EASTPOINTE ENGINEERING GROUP, LLC

**Supplemental Notes** 

4020 Tull Ave. Muskogee, OK 74403--Phone 918.683.2169--Fax:918.682.7618

Soil values obtained from Terracon soils report #57087346 Dated 08/28/08.

Use (8) 2 1/4" A615-75 Anchor bolts w/ 72" embedment

Client: Bluegrass Cellular			
Site:	Cumberland Falls		
Job:	2993 Drawn by: JLR		
Scale:	NTS	Date:	10/14/08

#### GEOTECHNICAL ENGINEERING REPORT

PROPOSED 240' COMMUNICATION TOWER SITE NAME: CUMBERLAND FALLS PARKERS LAKE, MCCREARY COUNTY, KENTUCKY

> Project No.: 57087346 August 28, 2008

> > Prepared For:

BLUEGRASS CELLULAR Elizabethtown, Kentucky

Prepared by:



## ][erracon\_

August 28, 2008

Bluegrass Cellular 2902 Ring Road Elizabethtown, Kentucky 42702

Attention: Mr. Doug Updegraff

Re: Geotechnical Engineering Report Proposed 240' Communication Tower Site Name: Cumberland Falls Parkers Lake, McCreary County, Kentucky Terracon Project No. 57087346



Terracon Consultants, Inc. 5217 Linbar Drive, #309 Nashville, Tennessee 37211 Phone 615.333.6444 Fax 615.333.6443 www.terracon.com

Dear Mr. Updegraff:

The subsurface exploration for the proposed communication tower planned at the Cumberland Falls site in Parkers Lake, Kentucky has been completed. The accompanying report presents the findings of the subsurface exploration and provides recommendations regarding earthwork and the design and construction of foundations for the proposed tower.

Terracon's geotechnical design parameters and recommendations within this report apply to the existing planned tower height and would apply to adjustments in the tower height, up to a 20% increase or decrease in height, as long as the type of tower does not change. If changes in the height of the tower dictate a change in tower type (i.e. - monopole to a self-support), Terracon should be contacted to evaluate our recommendations with respect to these changes.

We appreciate the opportunity to be of service to you on this project. Should you have any questions concerning this report, or if we may be of further assistance, please contact us.

Sincerely, Terracon

Ashfaq A. Memon, P.E. Geotechnical Engineer

n:\projects\Louisville/57087346.doc

Attachments

Copies to: Addressee (2 hard copies and PDF)

Timothy G. LaGrow, P.E.

Timothy **G**. LaGrow, P.E. Kentucky No. 17758

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#### APPENDIX

Boring Location Diagram Log of Boring General Notes General Notes - Sedimentary Rock Classification Unified Soil Classification System

#### **GEOTECHNICAL ENGINEERING REPORT**

#### PROPOSED COMMUNICATION TOWER SITE NAME: CUMBERLAND FALLS PARKERS LAKE, MCCREARY COUNTY, KENTUCKY

#### Project No.: 57087346 August 28, 2008

#### INTRODUCTION

Subsurface exploration for the proposed tower planned in Parkers Lake, Kentucky has been completed. As a part of our subsurface exploration, one (1) boring extending to a depth of approximately 30<sup>1</sup>/<sub>2</sub> feet below existing grade was drilled at the site. The purpose of this report is to describe the subsurface conditions encountered in the boring, analyze and evaluate the test data, and provide recommendations regarding earthwork and the design and construction of foundations for the proposed communication tower and equipment building.

#### **PROJECT DESCRIPTION**

We understand the proposed project will consist of the construction of a 240-foot self supporting lattice tower. Exact tower loads are not available, but based on our past experience are anticipated to be as follows:

Vertical Load:	550 kips
Horizontal Shear:	70 kips
Uplift:	450 kips

A small, lightly loaded equipment building or metal equipment cabinets supported on thickened concrete slabs will also be constructed at the site. At the time of our visit, the property was a grass and gravel covered vacant tract adjacent to some woods. Existing grades within the 100-foot by 100-foot leased area were not available as of this writing. However, based on our field observation, the proposed site appeared relatively flat and will likely require minimal cut and fill.

#### SUBSURFACE EXPLORATION AND TESTING PROCEDURES

The boring was drilled near the expected tower center as staked in the field by the owner's representative. The approximate boring location is shown on the enclosed boring location plan. The surface elevation of the site was not available and has been omitted from the boring log.

#### Terracon

#### Proposed 240' Self-Supporting Tower Parkers Lake, Kentucky Terracon Project No.: 57087346

Drilling was performed using a truck mounted drill rig. Hollow stem augers were used to advance the borehole. Representative soil samples were obtained by the split-barrel sampling procedure. In the split-barrel sampling procedure, the number of blows required to advance a standard 2-inch O.D. split-barrel sampler the last 12 inches of the typical total 18-inch penetration by means of a 140-pound hammer with a free fall of 30 inches, is the standard penetration resistance value (N). This value is used to estimate the in-situ relative density of cohesionless soils and the consistency of cohesive soils. The sampling depths and penetration distance, plus the standard penetration resistance values, are shown on the boring log. The samples were sealed and returned to the laboratory for testing and classification.

Auger refusal was encountered at a depth of about 10½ feet. Below this depth, the boring was advanced into the refusal materials using a diamond bit attached to the outer barrel of a double core barrel. The inner barrel collected the cored material as the outer barrel was rotated at high speeds to cut the rock. The barrel was retrieved to the surface upon completion of each drill run. Once the core samples were retrieved, they were placed in a box and logged. The rock was later classified by an engineer and the "percent recovery" and rock quality designation (RQD) were determined.

The "percent recovery" is the ratio of the sample length retrieved to the drilled length, expressed as a percent. An indication of the actual in-situ rock quality is provided by calculating the sample's RQD. The RQD is the percentage of the length of broken cores retrieved which have core segments at least 4 inches in length compared to each drilled length. The percent recovery and RQD are related to rock soundness and quality as illustrated below:

Relation of RQD and In-situ Rock Quality					
RQD (%)	Rock Quality				
90 - 100	Excellent				
75 - 90	Good				
50 - 75	Fair				
25 - 50	Poor				
0 -25	Very Poor				

TABLE 1 ROCK QUALITY DESIGNATION (RQD)

A field log of the boring was prepared by the drill crew. This log included visual classifications of the materials encountered during drilling as well as the driller's interpretation of the subsurface conditions between samples. The final boring log included with this report represents an interpretation of the field log and includes modifications based on laboratory observation and tests of the samples.

The soil samples were classified in the laboratory based on visual observation, texture and plasticity. The descriptions of the soils indicated on the boring log are in general accordance

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with the enclosed General Notes and the Unified Soil Classification System. Estimated group symbols according to the Unified Soil Classification System are given on the boring log. A brief description of this classification system is attached to this report.

The laboratory testing program consisted of performing water content tests and one Atterberg Limits test on representative soil samples. A calibrated hand penetrometer was used to estimate the approximate unconfined compressive strength of the samples. The calibrated hand penetrometer has been correlated with unconfined compression tests and provides a better estimate of soil consistency than visual examination alone. Results of these tests are provided on the boring log at the appropriate horizon.

Classification and descriptions of rock core samples are in general accordance with the enclosed General Notes, and are based on visual and tactile observations. Petrographic analysis of thin sections may indicate other rock types. Percent recovery and rock quality designation (RQD) were calculated for these samples and are noted at their depths of occurrence on the boring log.

#### SITE GEOLOGY

A review of the Geologic Quadrangle Map, Cumberland Falls, Kentucky (dated 1963), published by the United States Geological Survey (USGS) indicates that the site is underlain by the Lees Formation, which consists of shale and sandstone. The sandstone is yellowish-brown, fine to medium grained and clayey. The shale is dark-brown to brownish gray and sandy. The shale contains numerous lenses of yellowish gray to brown clayey fine grained sandstone and siltstone. The thickness of Lees Formation ranges from 0 to 130 feet.

#### SITE AND SUBSURFACE CONDITIONS

The communication tower will be located at the end of Herman Vanover Road off Highway 90 in Parkers Lake, McCreary County, Kentucky. The site is situated within a former tourist area next to a horse corral and adjacent to undeveloped woods. The proposed tower site will be located within a relatively level grass and gravel covered tract as shown on the enclosed Boring Location Diagram (Figure 1).

Specific conditions encountered at the boring location are indicated on the attached boring log. The stratification boundaries on the boring log represent the approximate location of changes in soil and rock types; in-situ, the transition between materials may be gradual. Conditions encountered at the boring location are summarized below.

Beneath about 6 inches of gravel cover, the boring encountered cohesive fill to a depth of about 2 feet below grade. Natural lean to fat clay was encountered beneath the existing fill and extended to highly weathered sandstone at about 6 feet below grade. Weathered sandstone extended to auger refusal at about 10 ½ feet below existing grade. The fill and natural soils exhibited a very stiff consistency based on standard penetration (N) values of

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21 and 20 blows per foot (bpf). The N-value within the fill may be inflated by the presence of some limestone fragments.

Below a depth of about 10½ feet, rock coring techniques were employed to sample the refusal materials. The bedrock was found to consist of moderately weathered and fractured, thin bedded and cemented sandstone with shale and siltstone bedding. The bedrock at the site appears to be relatively continuous as evidenced by core recoveries in excess of 80 percent. The quality of the rock is rated as very poor to good based on RQD values of 20 to 80 percent. Considering relatively continuous nature of the bedrock, coring operations were terminated at a depth of approximately 30½ feet below existing grade.

#### WATER LEVEL OBSERVATIONS

No groundwater was encountered during the auger drilling portion of the borehole. Water was used to advance the borehole during rock coring operations. The introduction of water into the borehole precluded obtaining accurate groundwater level readings at the time of drilling operations. Long term observation of the groundwater level in monitoring wells, sealed from the influence of surface water, would be required to obtain accurate groundwater levels on the site.

Fluctuations of the groundwater level can occur due to seasonal variations in the amount of rainfall, runoff, and other factors not evident at the time the boring was performed. Perched water could develop at higher levels within more permeable layers following periods of heavy or prolonged precipitation. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

#### ANALYSIS AND RECOMMENDATIONS

#### General

Based on the encountered subsurface conditions, the proposed tower can be either founded on drilled piers or on a mat foundation. The equipment building may be supported on shallow spread footings. Design recommendations for the tower drilled pier and mat foundation as well as shallow footings for the equipment building are presented in the following paragraphs.

**Tower Foundations - Drilled Pier Alternative:** The proposed tower can be supported on drilled pier foundations. Based on the results of our boring, we have developed the following tower foundation design parameters:

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Depth * (feet)	Description **	Allowable Skin Friction (psf)	Allowable End Bearing Pressure (psf)	Allowable Passive Pressure (psf)	Internal Angle of Friction (Degree)	Cohesion (psf)	Lateral Subgrade Modulus (pci)	Strain, & <sub>50</sub> (in/in)
0-2	Fill	Ignore	Ignore	Ignore	-	-	Ignore	Ignore
2-6	Lean to Fat Clay	425	lgnore	1,500	0	1,500	125	0.007
6 - 10 ½	Weathered Sandstone	525	5,000	2,500	0	2,500	200	0.005
10½15	Sandstone w/shale	1,500 ***	10,000	3,000	0	30,000 ***	3,000	0.00001
15 25	Sandstone	4,500	20,000	9,000	0	90,000	3,000	0.00001
25 - 30 1/2	Sandstone	6,000	40,000	12,000	0	120,000	3,000	0.00001

#### **Drilled Pier Foundation Design Parameters**

\* Pier inspection is recommended to adjust pier length if variable soil/rock conditions are encountered.

\*\* A total unit weight of 120 and 140 pcf can be estimated for the clay and sandstone, respectively.

\*\*\* The parameters have been reduced to take into account the shallow overburden. The pier should be embedded a minimum of 3 feet into intact sandstone to mobilize these rock strength parameters. Furthermore, it is assumed the rock socket will be extended using coring techniques rather than blasting/shooting.

The above indicated cohesion, friction angle, lateral subgrade modulus and strain values have no factors of safety, and the allowable skin friction and the passive resistances have a factor of safety of about 2. The cohesion, internal friction angle, lateral subgrade modulus and strain values given in the above table are based on our boring, published values and our past experience with similar soil types. These values should, therefore, be considered approximate. To mobilize the higher rock strength parameters, the pier should be socketed at least 3 feet into bedrock. Furthermore, it is assumed that the rock socket is developed using coring rather than blasting techniques. The allowable end bearing pressure provided in the table has an approximate factor of safety of at least 3. If the drilled piers are designed using the above parameters and bear within the sandstone bedrock, settlements are not anticipated to exceed 1/4 inch.

The upper 2 feet of fill should be ignored due to the potential affects of frost action and construction disturbance. To avoid a reduction in uplift and lateral resistance caused by variable bedrock depths and bedrock quality, it is recommended that a minimum pier length and minimum intact rock socket length be stated on the design drawings. Relatively intact rock was encountered in our boring below a depth of about 10½ feet, but could vary between tower legs, or if the tower is moved from the location of our boring, or if significant grade changes occur at the site. Considering the site geology, variable rock depths should be anticipated if the tower location is moved from the location of our boring. If the tower center is moved more than 25 feet, our office should be notified to review our recommendations and determine whether an additional boring is required. To facilitate pier length adjustments that may be necessary because of variable rock conditions, it is recommended that a Terracon representative observe the drilled pier excavation.

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Although our boring was able to penetrate the highly weathered sandstone from 6 to 10  $\frac{1}{2}$  feet, there is a possibility that larger diameter drilled pier equipment will refuse on this material, at higher elevations than shown in our boring. The contractor should recognize the hardness of the material and be prepared to use rock teeth or other means to extend through these layers.

A drilled pier foundation should be designed with a minimum shaft diameter of 30 inches to facilitate clean out and possible dewatering of the pier excavation. Temporary casing may be required during the pier excavation in order to control possible groundwater seepage and support the sides of the excavation in weak soil zones. Care should be taken so that the sides and bottom of the excavations are not disturbed during construction. The bottom of the shaft should be free of loose soil or debris prior to reinforcing steel and concrete placement.

A concrete slump of at least 6 inches is recommended to facilitate temporary casing removal. It should be possible to remove the casing from a pier excavation during concrete placement provided that the concrete inside the casing is maintained at a sufficient level to resist any earth and hydrostatic pressures outside the casing during the entire casing removal procedure.

**Tower Foundations - Mat Foundation Alternative**: If desired, a mat foundation can be used to support the proposed tower. The mat foundation can be designed using the following natural soil/engineered fill parameters. These parameters are based on the findings of our boring, a review of published values and our experience with similar soil conditions. These design parameters also assume that the base of the mat foundation will rest on natural soils or well-graded crushed stone that is compacted and tested on a full time basis.

Depth (feet)	Description	Allowable Contact Bearing Pressure (psf)	Allowable Passive Pressure (psf)	Coefficient of Friction, Tan $\delta$	Vertical Modulus of Subgrade Reaction (pci)
0-2	Fill	Ignore	Ignore	-	
≥2	Lean to fat Clay or Crushed Stone Fill	3,500	Ignore	0.35	125

#### **Mat Foundation Design Parameters**

To assure that fill and/or soft soils are not left under the mat foundation, it is recommended that a geotechnical engineer observe the foundation subgrade prior to concrete placement. Provided the above recommendations are followed, total mat foundation settlements are not anticipated to exceed about 1 inch. Differential settlement should not exceed 50 percent of the total settlement.

**Equipment Building/Equipment Cabinet Foundations:** Considering the questionable nature and limited thickness of the existing fill, it is recommended that the building/cabinet areas be undercut in their entirety, and backfilled with well compacted fill. The undercut should extend at least 5 feet outside the building/cabinet footprint. The proposed equipment

building may then be supported on shallow footings bearing on the newly compacted fill. Alternatively, the building footings can be extended through the fill and placed on natural soils. The building floor slab or cabinet slab can be ground supported on the existing fill, provided the slab area passes a proofroll test. With the second alternative, the owner would have to accept somewhat higher than normal risk of floor slab settlement associated with the uncertain characteristics of the fill.

The proposed equipment building may be supported on shallow footings bearing on firm natural soils. We recommend the equipment building foundations be dimensioned using a net allowable soil bearing pressure of 3,000 pounds per square foot (psf). In using net allowable soil pressures for footing dimensioning, the weight of the footings and backfill over the footings need not be considered. Furthermore, the footings should be at least 12 inches wide and a minimum of 2.0 feet square.

The foundation excavations should be observed by a qualified geotechnical engineer or his representative to verify that the bearing materials are suitable for support of the proposed loads. If, at the time of such observation, any soft soils are encountered at the design foundation elevation, the excavations should be extended downward so that the footings rest on firm soils. If it is inconvenient to lower the footings, the proposed footing elevations may be re-established by backfilling after the undesirable material has been removed.

The recommended soil bearing value should be considered an upper limit, and any value less than that listed above would be acceptable for the foundation system. Using the value given, it is our opinion that total settlement will be about 1 inch or less with differential settlements being less than 75 percent of total settlement. Footings should be placed at a depth of 1.5 feet, or greater, below finished exterior grade for protection against frost damage.

**Parking and Drive Areas -** It is our understanding that the drive that accesses the site will be surfaced with crushed stone. Parking and drive areas that are surfaced with crushed stone should have a minimum thickness of 6 inches and be properly placed and compacted as outlined herein. The crushed stone should meet Kentucky Transportation Cabinet (KTC) specifications and applicable local codes.

It should be noted that a paving section consisting only of crushed graded aggregate base course should be considered a high maintenance section. Regular care and maintenance is considered essential to the longevity and use of the section. Site grades should be maintained in such a manner as to allow for adequate surface runoff. Any potholes, depressions or excessive rutting which may develop should be repaired as soon as possible to minimize the damage to the soil subgrade.

**Site Preparation**: Site preparation should begin with the removal of any topsoil, loose, soft or otherwise unsuitable materials from the construction area. The actual stripping depth, along with any soft soils that require undercutting, should be evaluated by the geotechnical engineer at the time of construction.

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Any fill and backfill placed on the site should consist of approved materials that are free of organic matter and debris. Fill placed beneath the tower mat foundation should be limited to granular soils and well graded limestone rock. Suitable fill materials beneath the equipment building and roads can consist of either granular material or low-plasticity cohesive soil. Low-plasticity cohesive soil should have a liquid limit of less than 45 percent and a plasticity index of less than 25 percent. The on site soils are only marginally suitable for re-use as fill due to the moderately high plasticity. The undercut fill is expected to be soil and rock mix and is not recommended for reuse. It is recommended that during construction these soils should be further tested and evaluated prior to use as fill. Fill should not contain frozen material and it should not be placed on a frozen subgrade.

The fill should be placed and compacted in lifts of 9 inches or less in loose thickness. All fill placed below structures or used to provide lateral resistance should be compacted to at least 98 percent of the material's maximum standard Proctor dry density (ASTM D-698). All cohesive fill should be placed, compacted, and maintained at moisture contents within minus 1 to plus 3 percent of the optimum value determined by the standard Proctor test.

We recommend the geotechnical engineer be retained to monitor fill placement on the project and to perform field density tests as each lift of fill is placed in order to evaluate compliance with the design requirements. Standard Proctor and Atterberg limits tests should be performed on the representative samples of fill materials before their use on the site.

**Seismic Considerations** - Based on a review of the 2002 edition of the Kentucky Building Code, subsurface conditions encountered in our borings, the results of our laboratory testing, and our experience in this geologic region, the site corresponds to the seismic site class C.

#### GENERAL COMMENTS

Terracon should be retained to review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Terracon also should be retained to provide testing and observation during excavation, grading, foundation and construction phases of the project.

The analysis and recommendations presented in this report are based upon the data obtained from the boring performed at the indicated location and from other information discussed in this report. This report does not reflect variations that may occur, across the site, or due to the modifying effects of weather. The nature and extent of such variations may not become evident until during or after construction. If variations appear, we should be immediately notified so that further evaluation and supplemental recommendations can be provided.

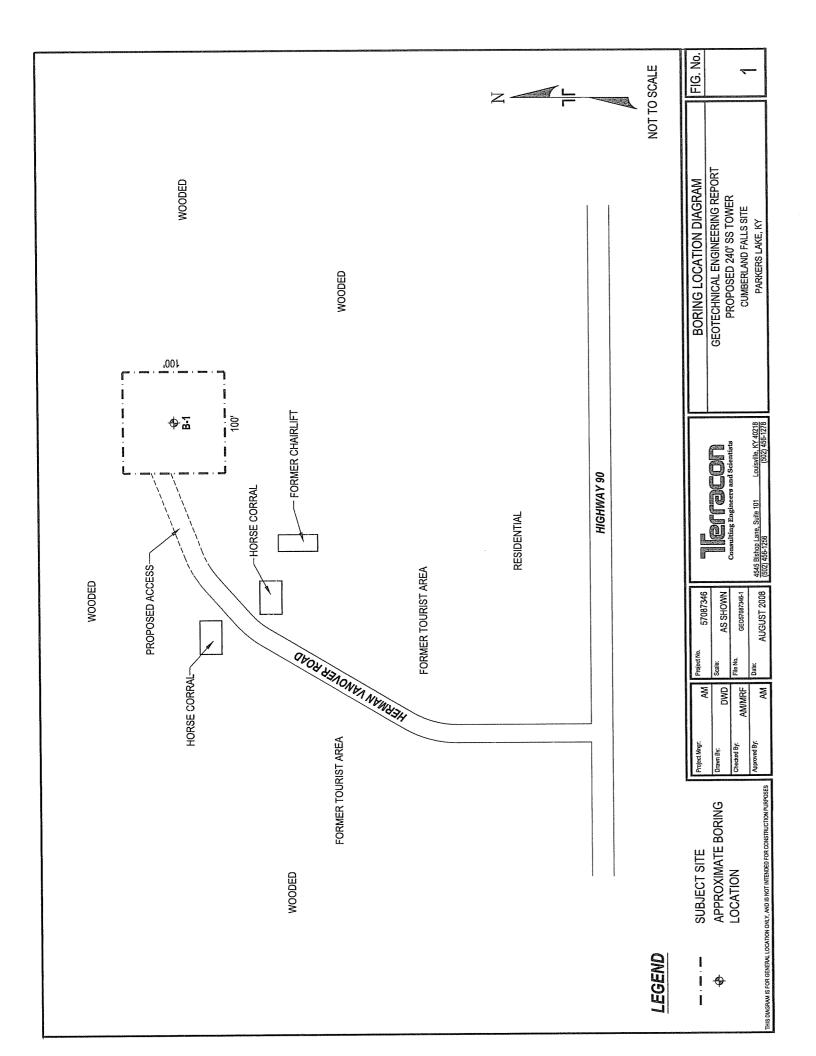
The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing.





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CLIE	NT Bluegrass Cellular				opos	ed 2	40' Co	mmu	nicatio	on Tow	er
SITE		PRO	JEC	Г		Cum	nberla	nd Fa	lle Sit	a	
	Parkers Lake, KY				SAM	IPLES				TESTS	
GRAPHIC LOG	DESCRIPTION	DEPTH, ft.	USCS SYMBOL	NUMBER	түре	RECOVERY, in.	SPT - N BLOWS / ft.	WATER CONTENT, %	DRY UNIT WT pcf	UNCONFINED STRENGTH, psf	
	9.5										
$\bigotimes$	FILL: LEAN CLAY, with limestone		CL	1	SS	12	20	9			
	LEAN TO FAT CLAY, tan-brown, very		-					4.5			11-48
Ű	stiff, moist		CL CH	2	SS	18	21	15			LL=48 PL=20
N	6	5					<b>70/0</b>		<u> </u>		PI=28
<u></u>	WEATHERED SANDSTONE, trace clay, brown, hard, moist			3	SS	10	50/3"	7			
	Drown, naru, moist		-				50 (0)				-
				4	SS	3	50/3"	5			_
	10.5 AUGER REFUSAL		-	R-1	DB	82%					-
	SANDSTONE, with shale and siltstone layers, yellowish-brown to tannish-gray, well-cemented, moderately weathered, hard, thin bedded	15-		R-2	DB	80%			-		RQD=20%
		20-		R-3		81009					RQD=42%
			3								
		-									RQD=47%
			_								
	-Gray below 25'	25-	]-		4 DE	3100	/			+	
		-									RQD=80%
	30.5										_
	CORING TERMINATED										
Th	e stratification lines represent the approximate boundary lines tween soil and rock types: in-situ, the transition may be gradual.										
1.	ATER LEVEL OBSERVATIONS, ft					ВО	RING	STAR	TED		8-21-0
W			C		MARKED &	во	RING	COMF	PLETE	D	8-21-0
						12				FORE	

			GENER	AL NOTES		
	NG & SAMPLING		untere etheruise note	a 110.	Liellow Ctom Augor	
SS:			unless otherwise note		Hollow Stem Auger	
ST:			ss otherwise noted	PA:	Power Auger	
RS:	- ·		., unless otherwise no		Hand Auger	
DB:		oring - 4", N, B		RB:	Rock Bit	
BS:	Bulk Sample o	r Auger Sample		WB:	Wash Boring or Mud Rotary	
The nur penetrat	nber of blows re ion with a 140-po	quired to advance ound hammer fallin	a standard 2-inch O g 30 inches is conside	D. split-spoon sampler ( ared the "Standard Penetra	SS) the last 12 inches of the tota ation" or "N-value".	1 18-inch
WATER	LEVEL MEASU	REMENT SYMBO	DLS:			
WL:	Water Level			WS:	While Sampling	
WCI:	Wet Cave in			WD:	While Drilling	
DCI:	Dry Cave in			BCR:	Before Casing Removal	
AB:	After Boring			ACR:	After Casing Removal	
	•				mes indicated. Groundwater levels	
low perm DESCRI more tha Grained plastic, a	neability soils, the IPTIVE SOIL CL an 50% of their of Soils have less and silts if they ar	e accurate determin ASSIFICATION: S dry weight retained than 50% of their re slightly plastic or	nation of groundwater coil classification is based on a #200 sieve; the dry weight retained of non-plastic. Major co based on grain size.	levels may not be possible sed on the Unified Classific eir principal descriptors a on a #200 sieve; they are instituents may be added In addition to gradation, co	may reflect the location of groundw e with only short-term observations. ication System. Coarse Grained So re: boulders, cobbles, gravel or sa e principally described as clays if as modifiers and minor constituents barse-grained soils are defined on t	oils have Ind. Fine they are s may be
	in-place relative of		ained soils on the basi	-	TY OF COARSE-GRAINED SOIL	S
	in-place relative of	OF FINE-GRAIN		-	TY OF COARSE-GRAINED SOIL	<u>S</u>
of their	in-place relative of <u>CONSISTENCY</u>	OF FINE-GRAIN Standard Penetration or		RELATIVE DENSI		<u>S</u>
of their <u>Un</u> <u>Co</u>	in-place relative of CONSISTENCY Inconfined Impressive	OF FINE-GRAIN Standard Penetration or N-value (SS)	<u>ED SOILS</u>	RELATIVE DENSI Standard Penetrati or N-value (SS)	on	<u>8</u>
of their <u>Un</u> <u>Co</u>	in-place relative of CONSISTENCY Inconfined Impressive Igth, Qu, psf	<u>Standard</u> <u>Standard</u> <u>Penetration or</u> <u>N-value (SS)</u> <u>Blows/Ft.</u>	ED SOILS Consistency	RELATIVE DENSI Standard Penetrati or N-value (SS) Blows/Ft.	on <u>Relative Density</u>	<u>S</u>
of their <u>Un</u> <u>Coi</u> <u>Stren</u>	in-place relative of <u>CONSISTENCY</u> <u>inconfined</u> <u>inpressive</u> <u>igth, Qu, psf</u> < 500	<u>OF FINE-GRAIN</u> <u>Standard</u> <u>Penetration or</u> <u>N-value (SS)</u> <u>Blows/Ft.</u> <2	<u>ED SOILS</u> <u>Consistency</u> Very Soft	<u>RELATIVE DENSI</u> Standard Penetrati or N-value (SS) <u>Blows/Ft.</u> 0 – 3	<u>on</u> <u>Relative Density</u> Very Loose	<u>8</u>
of their <u>Ur</u> <u>Cor</u> <u>Stren</u> 50	in-place relative of <u>CONSISTENCY</u> <u>inconfined</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpressive</u> <u>inpres</u>	<u>Standard</u> <u>Standard</u> <u>Penetration or</u> <u>N-value (SS)</u> <u>Blows/Ft.</u> <2 2-3	<u>ED SOILS</u> <u>Consistency</u> Very Soft Soft	<u>RELATIVE DENSI</u> <u>Standard Penetrati</u> <u>or N-value (SS)</u> <u>Blows/Ft.</u> 0 – 3 4 – 9	<u>on</u> <u>Relative Density</u> Very Loose Loose	<u>S</u>
of their <u>Un</u> <u>Cor</u> <u>Stren</u> 50 1,00	in-place relative of <u>CONSISTENCY</u> <u>aconfined</u> <u>mpressive</u> <u>igth, Qu, psf</u> < 500 0 - 1,000 1 - 2,000	<u>OF FINE-GRAIN</u> Standard Penetration or <u>N-value (SS)</u> <u>Blows/Ft.</u> <2 2-3 4-6	<u>ED SOILS</u> <u>Consistency</u> Very Soft Soft Medium Stiff	<u>RELATIVE DENSI</u> <u>Standard Penetrati</u> <u>or N-value (SS)</u> <u>Blows/Ft.</u> 0 – 3 4 – 9 10 – 29	<u>on</u> <u>Relative Density</u> Very Loose Loose Medium Dense	<u>S</u>
0f their 0 00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	in-place relative of <u>CONSISTENCY</u> <u>mpressive</u> <u>igth, Qu, psf</u> < 500 0 - 1,000 1 - 2,000 1 - 4,000	<u>Standard</u> <u>Penetration or</u> <u>N-value (SS)</u> <u>Blows/Ft.</u> <2 2-3 4-6 7-12	<u>ED SOILS</u> <u>Consistency</u> Very Soft Soft Medium Stiff Stiff	Biows/Ft.           0 - 3           4 - 9           10 - 29           30 - 49	<u>on</u> <u>Relative Density</u> Very Loose Loose Medium Dense Dense	<u>8</u>
f their <u>Un</u> <u>Con</u> <u>Stren</u> 50 1,00 2,00 4,00	in-place relative of <u>CONSISTENCY</u> <u>aconfined</u> <u>mpressive</u> <u>gth, Qu, psf</u> < 500 0 - 1,000 1 - 2,000 1 - 4,000 1 - 8,000	<u>OF FINE-GRAIN</u> Standard Penetration or <u>N-value (SS)</u> <u>Blows/Ft.</u> <2 2-3 4-6	<u>ED SOILS</u> <u>Consistency</u> Very Soft Soft Medium Stiff	<u>RELATIVE DENSI</u> <u>Standard Penetrati</u> <u>or N-value (SS)</u> <u>Blows/Ft.</u> 0 – 3 4 – 9 10 – 29	<u>on</u> <u>Relative Density</u> Very Loose Loose Medium Dense	<u>6</u>
0f their Con <u>Stren</u> 50 1,00 2,00 4,00 8,0	in-place relative of <u>CONSISTENCY</u> <u>aconfined</u> <u>mpressive</u> <u>ogth, Qu, psf</u> < 500 0 - 1,000 1 - 2,000 1 - 4,000 1 - 8,000 000+	<u>Standard</u> <u>Standard</u> <u>Penetration or</u> <u>N-value (SS)</u> <u>Blows/Ft.</u> <2 2-3 4-6 7-12 13-26 26+	ED SOILS Consistency Very Soft Soft Medium Stiff Stiff Very Stiff Hard	$\begin{array}{r} \hline \textbf{RELATIVE DENSI}\\ \hline \textbf{Standard Penetrati}\\ \hline \textbf{or N-value (SS)}\\ \hline \textbf{Blows/Ft.}\\ 0-3\\ 4-9\\ 10-29\\ 30-49\\ 50+ \end{array}$	on <u>Relative Density</u> Very Loose Loose Medium Dense Dense Very Dense	<u>S</u>
0f their Con <u>Stren</u> 50 1,00 2,00 4,00 8,0 <u>REL</u>	in-place relative of <u>CONSISTENCY</u> <u>aconfined</u> <u>mpressive</u> <u>ogth, Qu, psf</u> < 500 0 - 1,000 1 - 2,000 1 - 4,000 1 - 8,000 000+ <u>ATIVE PROPOR</u>	Y OF FINE-GRAIN Standard Penetration or N-value (SS) Blows/Ft. <2 2-3 4-6 7-12 13-26 26+ RTIONS OF SAND	ED SOILS Consistency Very Soft Soft Medium Stiff Very Stiff Hard	$\begin{array}{r} \hline \textbf{RELATIVE DENSI}\\ \hline \textbf{Standard Penetrati}\\ \hline \textbf{or N-value (SS)}\\ \hline \textbf{Blows/Ft.}\\ 0-3\\ 4-9\\ 10-29\\ 30-49\\ 50+ \\ \hline \textbf{GRAIN}\\ \hline \textbf{GRAIN}\\ \hline \end{array}$	<u>on</u> <u>Relative Density</u> Very Loose Loose Medium Dense Dense	<u>S</u>
0f their Con <u>Stren</u> 50 1,00 2,00 4,00 8,0 <u>REL</u>	in-place relative of <u>CONSISTENCY</u> <u>aconfined</u> <u>mpressive</u> <u>ogth, Qu, psf</u> < 500 0 - 1,000 1 - 2,000 1 - 4,000 1 - 8,000 000+	<u>Standard</u> <u>Standard</u> <u>Penetration or</u> <u>N-value (SS)</u> <u>Blows/Ft.</u> <2 2-3 4-6 7-12 13-26 26+ <u>RTIONS OF SAND</u> ) of other	ED SOILS Consistency Very Soft Soft Medium Stiff Stiff Very Stiff Hard	$\begin{array}{r} \hline \textbf{RELATIVE DENSI}\\ \hline \textbf{Standard Penetrati}\\ \hline \textbf{or N-value (SS)}\\ \hline \textbf{Blows/Ft.}\\ 0-3\\ 4-9\\ 10-29\\ 30-49\\ 50+ \end{array}$	on <u>Relative Density</u> Very Loose Loose Medium Dense Dense Very Dense	<u>S</u>
0f their Con <u>Stren</u> 50 1,00 2,00 4,00 8,0 <u>REL</u>	in-place relative of <u>CONSISTENCY</u> <u>inconfined</u> <u>inpressive</u> <u>igth, Qu, psf</u> < 500 0 - 1,000 1 - 2,000 1 - 4,000 1 - 8,000 000+ <u>ATIVE PROPOR</u> <u>criptive Term(s)</u> <u>constituent</u>	<u>Standard</u> <u>Standard</u> <u>Penetration or</u> <u>N-value (SS)</u> <u>Blows/Ft.</u> <2 2-3 4-6 7-12 13-26 26+ <u>RTIONS OF SAND</u> ) of other	ED SOILS Consistency Very Soft Soft Medium Stiff Stiff Very Stiff Hard AND GRAVEL Percent of Dry Weight	RELATIVE DENSI Standard Penetrati or N-value (SS) Blows/Ft. 0 – 3 4 – 9 10 – 29 30 – 49 50+ <u>GRAIN</u> Major Component of Sample	on Relative Density Very Loose Loose Medium Dense Dense Very Dense Very Dense	<u>8</u>
0f their Con <u>Stren</u> 50 1,00 2,00 4,00 8,0 <u>REL</u>	in-place relative of <u>CONSISTENCY</u> <u>inconfined</u> <u>mpressive</u> <u>int</u> , <u>Qu</u> , <u>psf</u> < 500 0 - 1,000 1 - 2,000 1 - 2,000 1 - 4,000 1 - 8,000 000+ <u>ATIVE PROPOR</u> <u>constituent</u> Trace	<u>Standard</u> <u>Standard</u> <u>Penetration or</u> <u>N-value (SS)</u> <u>Blows/Ft.</u> <2 2-3 4-6 7-12 13-26 26+ <u>RTIONS OF SAND</u> ) of other	ED SOILS Consistency Very Soft Soft Medium Stiff Very Stiff Hard AND GRAVEL Percent of Dry Weight < 15	RELATIVE DENSI Standard Penetrati or N-value (SS) Blows/Ft. 0 - 3 4 - 9 10 - 29 30 - 49 50+ <u>GRAIN</u> Major Component of Sample Boulders	on Relative Density Very Loose Loose Medium Dense Dense Very Dense Very Dense SIZE TERMINOLOGY Particle Size Over 12 in. (300mm)	
0f their Con <u>Stren</u> 50 1,00 2,00 4,00 8,0 <u>REL</u>	in-place relative of <u>CONSISTENCY</u> <u>aconfined</u> <u>mpressive</u> <u>ogth, Qu, psf</u> < 500 0 - 1,000 1 - 2,000 1 - 4,000 1 - 8,000 000+ <u>ATIVE PROPOR</u> <u>criptive Term(s)</u> <u>constituent</u> Trace With	<u>Standard</u> <u>Standard</u> <u>Penetration or</u> <u>N-value (SS)</u> <u>Blows/Ft.</u> <2 2-3 4-6 7-12 13-26 26+ <u>RTIONS OF SAND</u> ) of other	ED SOILS Consistency Very Soft Soft Medium Stiff Very Stiff Hard AND GRAVEL Percent of Dry Weight < 15 15 – 29	RELATIVE DENSI Standard Penetrati or N-value (SS) Blows/Ft. 0 - 3 4 - 9 10 - 29 30 - 49 50+ <u>GRAIN</u> Major Component of Sample Boulders Cobbles	on <u>Relative Density</u> Very Loose Loose Medium Dense Dense Very Dense <u>Very Dense</u> <u>Very Dense</u> <u>Very Dense</u> <u>Very Dense</u> <u>Very Dense</u> <u>Very Loose</u> <u>Dense</u> <u>Dense</u> <u>Very Loose</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u> <u>Dense</u>	יווו)
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#### **GENERAL NOTES**

#### Sedimentary Rock Classification

#### DESCRIPTIVE ROCK CLASSIFICATION:

Sedimentary rocks are composed of cemented clay, silt and sand sized particles. The most common minerals are clay, quartz and calcite. Rock composed primarily of calcite is called limestone; rock of sand size grains is called sandstone, and rock of clay and silt size grains is called mudstone or claystone, siltstone, or shale. Modifiers such as shaly, sandy, dolomitic, calcareous, carbonaceous, etc. are used to describe various constituents. Examples: sandy shale; calcareous sandstone.

LIMESTONE Light to dark colored, crystalline to fine-grained texture, composed of CaCo<sub>3</sub>, reacts readily with HCI.

DOLOMITE Light to dark colored, crystalline to fine-grained texture, composed of CaMg(CO<sub>3</sub>)<sub>2</sub>, harder than limestone, reacts with HCI when powdered.

CHERT Light to dark colored, very fine-grained texture, composed of micro-crystalline quartz (Si0<sub>2</sub>), brittle, breaks into angular fragments, will scratch glass.

SHALE Very fine-grained texture, composed of consolidated silt or clay, bedded in thin layers. The unlaminated equivalent is frequently referred to as siltstone, claystone or mudstone.

SANDSTONE Usually light colored, coarse to fine texture, composed of cemented sand size grains of quartz, feldspar, etc. Cement usually is silica but may be such minerals as calcite, iron-oxide, or some other carbonate.

CONGLOMERATE Rounded rock fragments of variable mineralogy varying in size from near sand to boulder size but usually pebble to cobble size (½ inch to 6 inches). Cemented together with various cementing agents. Breccia is similar but composed of angular, fractured rock particles cemented together.

#### PHYSICAL PROPERTIES:

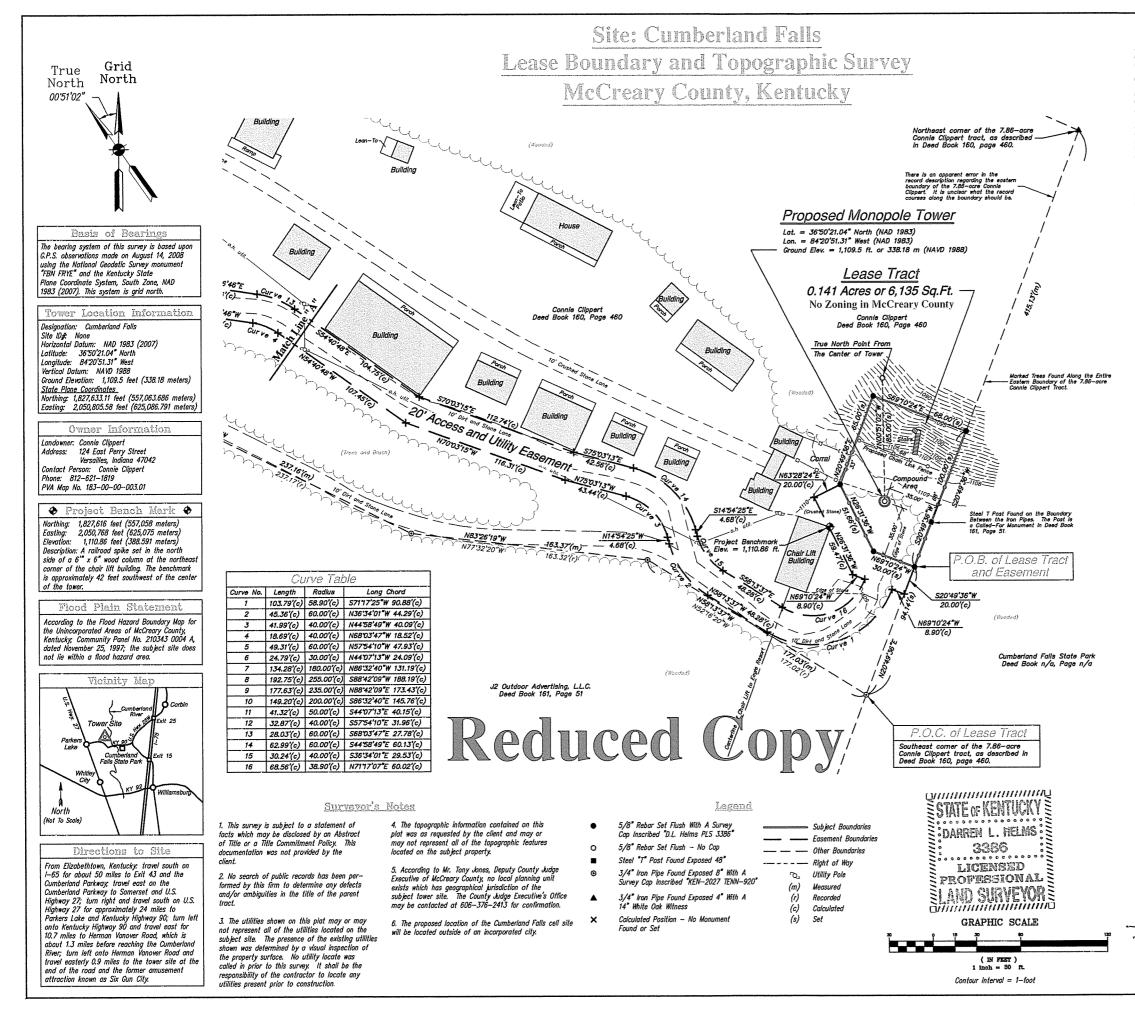
#### DEGREE OF WEATHERING

#### BEDDING AND JOINT CHARACTERISTICS

Slight	Slight decomposition of parent material on joints. May be color change.	Bed Thickness Very Thick Thick	Joint SpacingDimensionsVery Wide> 10'Wide3' - 10'
Moderate	Some decomposition and color change throughout.	Medium Thin Very Thin	Moderately Close 1' - 3' Close 2" - 1' Very Close 4" - 2"
High	Rock highly decomposed, may be ex-	Laminated	1"4"
	tremely broken.	Bedding Plane	A plane dividing sedimentary rocks of the same or different lithology.
HARDNESS AND	DEGREE OF CEMENTATION	Joint	Fracture in rock, generally more or
Limestone and D	Dolomite:		less vertical or transverse to bedding, along which no appreciable move-
Hard	Difficult to scratch with knife.		ment has occurred.
Moderately Hard	Can be scratched easily with knife, cannot be scratched with fingernail.	Seam	Generally applies to bedding plane with an unspecified degree of
Soft	Can be scratched with fingernail.		weathering.
Shale, Siltstone	and Claystone		
Hard	Can be scratched easily with knife,		VOID CONDITIONS
	cannot be scratched with fingernail.	Solid	Contains no voids.
Moderately Hard	Can be scratched with fingernail.	Vuggy (Pitted)	Rock having small solution pits or cavities up to ½ inch diameter, fre- quently with a mineral lining.
Soft	Can be easily dented but not molded with fingers.	Porous	Containing numerous voids, pores, or other openings, which may or may
Sandstone and C	Conglomerate		not interconnect.
Well Cemented	Capable of scratching a knife blade.	Cavernous	Containing cavities or caverns, some- times quite large.
Cemented	Can be scratched with knife.		
Poorly Cemented	Can be broken apart easily with fingers.		
		;	

## UNIFIED SOIL CLASSIFICATION SYSTEM

More than 50% or index 00.4       More than 50% of caree in a 50% of caree in No.4 size       Liss than 5% lines <sup>10</sup> Cu < 4 and/or 1 > Cc > 3 <sup>6</sup> QP       Poorty graded graw 0.4         No. 300 size       Sortia       Sortia       Gravels with Fines       Fines classify as ML or MH       GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> GM 2 (bergy graw) <sup>4</sup> . At Mines <sup>10</sup> <t< th=""><th></th><th></th><th></th><th></th><th></th><th>Soi</th><th>I Classification</th></t<>						Soi	I Classification
Constrained Sulta       Gravels       Gravels       Case 4 and or 1 s C z 3 <sup>4</sup> GW       Well graded graw         No. 200 alleve       No. 4 sizee       Case 4 and or 1 s C z 3 <sup>4</sup> GP       Pooty graded graw         Sunda       Sanda       Sanda       Games Casely a sult or MH       GM       GM </td <td>Criteria</td> <td>for Assigning Group Symbols a</td> <td>nd Group Names Using</td> <td>Laboratory Tests<sup>A</sup></td> <td></td> <td></td> <td>Group Name<sup>B</sup></td>	Criteria	for Assigning Group Symbols a	nd Group Names Using	Laboratory Tests <sup>A</sup>			Group Name <sup>B</sup>
More than 50% or name     More than 5% to coarse No. 4 silve     Less than 5% times <sup>2</sup> Cu < 4 and/or 1 > Cc > 3 <sup>6</sup> GP     Poorly graded gram       Sanda SW or more of coarse Traction passes No. 4 silve     Sanda Sw or more of coarse Traction passes No. 4 silve     Ease than 5% times <sup>2</sup> Fines classify an ML or MH     GM     GL yey grawf <sup>2</sup> A.*       Fine-Grained Solis SW or more passes No. 4 silve     Sanda Sw or more passes No. 4 silve     Cale 5 and 1 > Cc > 3 <sup>6</sup> SP     Poorly graded sand Cale 5 and 1 > Cc > 3 <sup>6</sup> SP     Poorly graded sand Cale 5 and 1 > Cc > 3 <sup>6</sup> SP     Poorly graded sand Cale 5 and 1 > Cc > 3 <sup>6</sup> SP     Poorly graded sand Cale 5 and 1 > Cc > 3 <sup>6</sup> SP     Poorly graded sand Cale 5 and 1 > Cc > 3 <sup>6</sup> SP     Poorly graded sand Cale 5 and 1 > Cc > 3 <sup>6</sup> SP     Poorly graded sand Cale 5 and 1 > Cc > 3 <sup>6</sup> SP     Poorly graded sand Cale 5 and 1 > Cc > 3 <sup>6</sup> SP     Poorly graded sand Cale 5 and 1 > Cc > 3 <sup>6</sup> SP     Poorly graded sand Cale 5 and 1 > Cc > 3 <sup>6</sup> SP     Poorly graded sand Cale 5 and 1 > Cc > 3 <sup>6</sup> SP     Poorly graded sand Cale 5 and 1 > Cc > 3 <sup>6</sup> SP     Poorly graded sand Cale 5 and 1 > Cc > 3 <sup>6</sup> SP     Poorly graded sand Cale 5 and 1 > Cc > 3 <sup>6</sup> SP     Poorly graded sand Cale 5 and 1 > Cc > 3 <sup>6</sup> SP     Poorly graded sand Cale 5 and 1 > Cc > 3 <sup>6</sup> SP     Poorly graded sand Cale 5 and 1 > Cc > 3 <sup>6</sup> SP     Poorly graded sand Cale 5 and 1 > Cc > 3 <sup>6</sup> SP     Poorly graded sand Cale 5 and 1 > Cc > 3 <sup>6</sup>	Query Orginal Saila	Gravels	Clean Gravels $Cu > 4$ and $1 < Cc < 3^{E}$				Well-graded gravel <sup>F</sup>
No. 200 allere       Hallon Hambolin       A dates         More than 12% lines/ Sorker       Gravela with Fines Sorker       Gravela with Fines Sorker       Pines classify as ML or MH       GM       Sitty gravef <sup>16,14</sup> Sorker       Sorker       Gravela with Fines       Sorker	More than 50% retained on	More than 50% of coarse	Less than 5% fines <sup>C</sup>		3 <sup>E</sup>		Poorly graded gravel <sup>F</sup>
Sands       Sonds       Grant BW Interface       Fines classify as CL or CH       GC       Clays gravel <sup>16, M</sup> Sonds       Sonds       Sonds       Class 6 and 1 is Co s 3 <sup>6</sup> SW       Weil-graded sand <sup>6, ML</sup> Sonds       Sonds with Fines       Class 6 and 1 is Co s 3 <sup>6</sup> SW       Weil-graded sand <sup>6, ML</sup> Sonds with Fines       Sonds with Fines       Class 6 and 1 is Co s 3 <sup>6</sup> SW       Weil-graded sand <sup>6, ML</sup> Sonds with Fines       Sitts and Clays       Liquid limit - cond rabors % line?       Sitts and Clays       Class classify as CL or CH       SC Clays sand <sup>6, ML</sup> Sonds with Fines       Sitts and Clays       Liquid limit - cond rabors % line?       Line clays <sup>1, L, M</sup> Sitts and Clays       Class classify as CL or CH       SC Clays sand <sup>6, ML</sup> Sitts and Clays       Sitts and Clays       Inorganic       Liquid limit - cond rabors % line?       ML can clays <sup>1, L, M</sup> Sitts and Clays       Sitts and Clays       Inorganic       Pl plots below % line?       ML can clays <sup>1, L, ML</sup> Sitts and Clays       Sitts and Clays       Inorganic all ML or ML       Pl plots below % line?       CH       Fat clays <sup>1, L, ML</sup> Highly organic sols       Pl plots below % line?       Pl plots below % line?       Pl plots below % line?       Sitts and Clays sith % line % line?	No. 200 sieve			Fines classify as ML or M	Н	GM	
Sinds       Sinds       Clear Bands       Cu < 6 and 1 < Cu < 3 <sup>4</sup> SW       Well-graded samt Gu < 6 and 1 < Cu < 3 <sup>4</sup> SW       Well-graded samt Gu < 6 and 1 < Cu < 3 <sup>4</sup> SW       Well-graded samt Gu < 6 and 1 < Cu < 3 <sup>4</sup> SW       Well-graded samt Gu < 6 and 1 < Cu < 3 <sup>4</sup> SW       Well-graded samt Gu < 6 and 1 < Cu < 3 <sup>4</sup> SW       Well-graded samt Gu < 6 and 1 < Cu < 3 <sup>4</sup> SW       SW <t< td=""><td></td><td></td><td>Gravels with Fines More than 12% fines<sup>C</sup></td><td></td><td></td><td>GC</td><td></td></t<>			Gravels with Fines More than 12% fines <sup>C</sup>			GC	
Sigk or more of cloarse No. 4 sizes       Subsection passes No. 4 sizes       Las than 5% (Ines <sup>6</sup> )       Cu < 6 and/cr 1> Cc > 3 <sup>d</sup> SP       Poorty graded san Missing and Nith Sines classify as NL or MH       SM       Sills and Clays Liquid limit these than 50         Fine-Grained Soils 50% or more passes the No. 200 sizes       Sills and Clays Liquid limit these than 50       Inorganic       P1 > 7 and pitots on or above 'X' line'       CL can take 'L M         Sills and Clays Liquid limit 50 or more       Sills and Clays Liquid limit 50 or more       Inorganic       P1 > 7 and pitots on or above 'X' line'       Organic clays' L M         Sills and Clays Liquid limit 50 or more       Sills and Clays Liquid limit 50 or more       Inorganic       P1 pols on or above 'X' line'       Organic clays' L M         Might organic soils       Primarily organic mater, dark lin color, and organic codor 'Crawnic with 5 to 12% lines require dual symbols:       Primarily organic mater, dark lin color, and organic codor 'PT       P1 balls contains 2 to 29% plus No. 200, predominantly sand, add 'smdry' to group name.         "Bit field cample contained cobbes or bounder, or but 2% lines require dual symbols:       P1 field cample containe 2 to 2% plus No. 200, predominantly sand, add 'smdry' to group name.         "Bit field cample containe so 12% inter require dual symbols:       P1 soil contains 2 to 29% plus No. 200, predominantly sand, add 'smdry' to group name.         "Bit field cample containe colars       So 12% lines require dual symbols:       So 29% plus No. 200, predomin		Sands	Clean Sands			SW	Well-graded sand <sup>1</sup>
No. 4 sieve     Sands with Fines More than 12% fines Fines classify as ALL or MH     SM     SMI ysand <sup>A,1,1</sup> Fines classify as ALL or MH     SC     Clays and <sup>A,1,1</sup> Sitts and Clays No. 200 sieve     Sitts and Clays Liquid limit less than 50     PI > 7 and pito on arbox 7% line'     SC     Cl. Lan elge L. Lan el		50% or more of coarse	Less than 5% fines <sup>E</sup>	Cu < 6 and/or 1 > Cc > 3	3 <sup>E</sup>	SP	Poorly graded sand
More than 12% fines <sup>0</sup> Fines classify as CL CH       SC       Clarge sand <sup>A, L, W</sup> Fine-Grained Solis 05% or more passes the No. 200 sieve       Sits and Clays       Inorganic       PI > 4 or plots below "A" line"       CL       Laan clays <sup>K, L, W</sup> Grained Solis 05% or more       Sits and Clays       organic       Liquid limit - oven dried Liquid limit - not dried       C 07       OL       Organic silfs <sup>K, L, W</sup> Sits and Clays       Sits and Clays       inorganic       PI plots below "A" line       CH       Fat clays <sup>K, L, W</sup> Upuid limit 50 or more       Pi plots below "A" line       CH       Fat clays <sup>K, L, W</sup> Organic silfs <sup>K, L, W</sup> Highly organic solis       Primarily organic matter, dark in coto, and organic dor       PT       Peat         *di soil contains 15 to 29% plus No. 200, add "With soad" and, add "with organic films" to "Boulders, or both" do group name.       *ff soil contains 15 to 29% plus No. 200, add "With soad" contains 2 30% plus No. 200, add "With contains 2 30% plus No. 200, add "With con			Condo with Einon	Fines classify as ML or M	iH	SM	Silty sand <sup>G, H, I</sup>
bits or more bases the No. 200 sleve       Liquid limit less than 50       PI < 4 or plots below "A" line"				Fines classify as CL or Cl	Н	SC	Clayey sand <sup>G, H, I</sup>
60% or more passes the No. 200 sieve       Liquid limit less than 50       PI < 4 or plots below "A" line <sup>4</sup> ML       Stilt-L.M         organic       organic       uiquid limit – ond dried       0.75       0.0       Organic drag* L.M         Silts and Clays       Liquid limit – ond dried       0.75       0.0       Organic drag* L.M         Liquid limit – ond dried       0.75       0.0       Organic drag* L.M         Highly organic soils       Pinarily organic matter, dark in color, and organic odor       PT       Peat         Abased on the material passing the 3-in. Drobin and "with organic matter, dark in color, and organic odor or "boulders, or both" dor "with gravel"       PT       Peat         **       File datample contained cobbles or boulders, or both" dor "with organic matter, dark with organic matter, dark with organic matter, dark with organic matter, dark with organic files" to group name.       **       **         **       Scales with is to 12% fines require dual symbols:       **       **       **       **         GWCM weil-graded gravel with silt SMS covel-graded strike to daread with bit SMS covel-graded strike to daread with organic fines *       **       **       **       **         **       Strike to daread strike to daread strike to cove scales       **       **       **       **       *         **       Strike to daread strike to cove scales	Fine-Grained Soils	Silts and Clays	inorganic	PI > 7 and plots on or above	ve "A" line <sup>J</sup>	CL	Lean clay <sup>K, L, M</sup>
organic       Liquid limit — oven dried       Organic day 1.4         Liquid limit — oven dried       Organic day 1.4         Sitts and Clays       Inorganic       Pi plots below "A" line       MH       Elastic sith <sup>X</sup> 1.W         Minorganic       Pi plots below "A" line       MH       Elastic sith <sup>X</sup> 1.W         Organic Clays         Liquid limit — oven dried       0.75       OH       Organic clays 1.W         Minority organic matter, dath in cloyd or drived       Pi plots below "A" line       MH       Elastic sith <sup>X</sup> 1.W         Minority organic matter, dath in cloyd or drived       Pi plots below "A" line       Organic clays 1.W         Minority organic matter, dath in cloyd or drived       Pi Plots       Pi Plots         Add or drived with organic mater         Minority organic mater, dath in cloyd or drived with organic fines" to man.         Minority organic mater, dath organic fines" to man.         Minority organic mater, dath with organic fines" to man.         Minority organic mater, dath with organic fines" to man.         Minority organic mater, dath with organic fines" to man.         Minority organic mater, dath with organic fines" to man. <td< td=""><td>50% or more passes the</td><td>Liquid limit less than 50</td><td></td><td>PI &lt; 4 or plots below "A"</td><td>line<sup>j</sup></td><td>ML</td><td>Silt<sup>K, L, M</sup></td></td<>	50% or more passes the	Liquid limit less than 50		PI < 4 or plots below "A"	line <sup>j</sup>	ML	Silt <sup>K, L, M</sup>
$\frac{  c_{u}  }{ c_{u}  } \frac{  c_{u}  }{  c_{u}   } \frac{  c_{u}   c_{u}  }}{  c_{u}   c_{u}   }} \frac{  c_{u}  }{  c_{u}   }   c_{u$	NO. 200 Sieve		organic	Liquid limit - oven dried	< 0.75	01	Organic clay <sup>K, L, M, N</sup>
$\frac{1}{10000000000000000000000000000000000$			organic	Liquid limit — not dried	< 0.75	UL	Organic silt <sup>K, L, M, O</sup>
$\frac{ P  plots below Ya line MH }{ Lquid limit - oven dried} < 0.75 \text{ OH} Organic clayK,L,M Organic clay$		Silts and Clays	inorganic	PI plots on or above "A" li	ine	СН	Fat clay <sup>K, L, M</sup>
OrganicLiquid limit — not driedOrganic silt <sup>K L.M.</sup> Organic silt <sup>K L.M.</sup> Highly organic soilsPrimarily organic matter, dark in color, and organic odorPTPeat*Based on the material passing the 3-in. (P5-mm) sizes.Primarily organic matter, dark in color, and organic odorPTPeat*Based on the material passing the 3-in. (P5-mm) sizes.Primarily organic matter, dark in color, and organic odorPTPeat*Bit field sample contained cobiles or boulders, or both. dol with cobiles or boulders, or both. dol with cobiles or boulders or both. Of group name.CC = $\left( D_{0,0} \right)^2$ Fif soil contains > 15%, sand, add "with sand" to predominantly sand, add "sandy" to group name.*Grade gravel with sit GPG Mouth graded gravel with fill SP-SC poorty graded sand with sits SP-SC poorty graded sand with clayFif soil contains > 15% gravel, add "with gravel" to gravel, add "with clayMI contains > 15% gravel, add "with gravel" to routains > 15% gravel, add "with gravel" to contains > 15% routains > 15% gravel, add "with gravel" to routains > 15% gravel, add "with gravel" to routains > 15% gravel, add "with gravel" to contains > 15% routains > 15% gravel, add "with gravel" to routains > 15% gravel, add "with gravel" to routains > 15% gravel, add "with gravel" to contains > 15% routains > 15% gravel, add "with gravel" to routains > 16%****		Liquid limit 50 or more		PI plots below "A" line		мн	Elastic silt <sup>K, L, M</sup>
Liquid limit — not driedOrganic silt K <sup>L</sup> L.M. Organic silt K <sup>L</sup> L.M.Highly organic soilsPrimarily organic matter, dark in color, and organic odorPTPeat*Abased on the material passing the 3-in. (75-mm) silve. $E^{(L)} = D_{eg}/D_{10}$ $C_{C} = \begin{pmatrix} D_{eg}/D_{10} \\ D_{10} \times D_{10} \\$			organic	Liquid limit — oven dried	< 0.75	ЛЦ	Organic clay <sup>K, L, M, P</sup>
Prigrate subset A Based on the material passing the 3-in. (75-mm) sive. B If field sample contained cobbles or boulders, or both, add "with cobbles or B ands with b to 12% (fines require dual symbols: SWSM well-graded sand with clay SPSM poorty graded sand with clay SPSM poorty gra			organic	Liquid limit — not dried	< 0.75	Оп	Organic silt <sup>K, L, M, Q</sup>
A based on the material passing the 3-in. (75mm) sive. <sup>R</sup> Hield sample contained cobbies or boulders, or both" to group name. <sup>C</sup> Gravels with 5 to 12% fines require dual symbols. <sup>C</sup> Gravel with 5 ito 12% fines require dual symbols. <sup>C</sup> Gravel with 5 ito 12% fines require dual symbols. <sup>C</sup> Gravel with 5 ito 12% fines require dual symbols. <sup>C</sup> Gravel with 6 ito 12% fines require dual symbols. <sup>C</sup> For classification of fine-grained solls for our class with 6 ito 12% fines require dual symbols. <sup>C</sup> For classification of fine-grained solls for our class with 6 ito 12% fines require dual symbols. <sup>C</sup> For classification of fine-grained solls for our class with 6 ito 12% fines require dual symbols. <sup>C</sup> For classification of fine-grained solls for our class with 6 ito 12% fines require dual symbols. <sup>C</sup> For classification of fine-grained solls <sup>C</sup> For classification of two fine-grained solls <sup>C</sup> For classification of two fine-grained solls <sup>C</sup> For classification of fine-grained fine-grained solls <sup>C</sup> For classification of two fine-g	Highly organic soils	Primarily orga	nic matter, dark in color, a	nd organic odor		PT	Peat
(a)     For classification of line-grained soils and fine-grained fraction of coarse- grained soils       50     Equation of "A" - line Horizontal at PI = 4 to LL = 25.5. then PI = 0.73 (LL - 20)       Equation of "U" - line Vertical at LL = 16 to PI = 7, then PI = 0.9 (LL - 8)       30       10       20       11       12       13       14       15       15       16       17       18       19       10       10       11       12       13       14       14       15       16       17       18	symbols: GW-GM well-graded gravel wi GP-GM poorly graded gravel wi GP-GC poorly graded gravel of poorly graded gravel <sup>D</sup> Sands with 5 to 12% fines re symbols: SW-SM well-graded sand with SW-SC well-graded sand with SP-SM poorly graded sand w	equire dual GM, or SC-4 th silt <sup>H</sup> If fines are group name with silt <sup>I</sup> If soil conta with clay group name quire dual <sup>J</sup> If Atterberg ML, silty cl o clay ith silt	SM. organic, add "with organ a. ins ≥ 15% gravel, add " a. limits plot in shaded are	with gravel" to $PI \ge 4$ ea, soil is a CL- $MIf$ soil $MIf$ soil $Predom$ name. $^{M}PI \ge 4$ $^{O}PI < 4$	and plots or plots be s on or abo	on or at on or at olow "A" ve "A" l	l "gravelly" to group pove "A" line. ' line.
0 10 16 20 30 40 50 50 70 80 90 100 110 LIQUID LIMIT (LL)	50 40 30 20 10 7 4 0	and fine-grained fraction of co grained soils Equation of "A" - line Horizontal at PI = 4 to LL = 3 then PI = 0.73 (LL - 20) Equation of "U" - line Vertical at LL = 16 to PI = 7, then PI = 0.9 (LL - 8)	25.5	МН оя ОН 0 70 80 9	90 100	 D 1	



#### Lease Boundary and Resement Description

A tract of land that is located at the east end Herman Vanover Road, 0.9 miles easterly of the intersection of solid road with Kentucky Highway 90, near Cumberland Falls in McCreary County, Kentucky, solid tract being described as follows:

COMMENCING AT a %-Inch iron pipe found exposed 8 inches with a survey cap inscribed KCH-2027 TENH-920? which monuments the southeest came of the 7.66-acre Cannie Clippert tract, as described in Deed Book 160, page 460 in the office of the Canniy Clark of McCreary Canty, Kentucky, thence, along the eastern boundary of said Clippert tract, North 20 degrees 49 minutes 35 seconds East 94.14 feet to a 5/8-inch rebar set flush with a survey cap inscribed DL. Heims PLS 3386 (referred to as rebar in the remainder of this description) at the PONT OF EEGNNNG of this description: thence North 69 degrees 10 minutes 24 seconds West 33.00 feet to a rebar set flush; thence North 20 degrees 31 minutes 35 seconds West 31.66 feet to a rebar set flush; thence North 20 degrees 40 minutes 35 seconds East 65.00 feet to a rebar set flush; thence South 69 degrees 10 minutes 24 seconds East 68.00 feet to a rebar set flush on the eastern boundary of the diressid Clippert tract; thence South 20 degrees 40 minutes 36 seconds West 100.00 feet to the point of beginning and containing 0.141 ocres (6,135 square feet), more or less.

TOGETHER WITH an access and utility easament from the above-described 0.141-acre lease tract to the east end of the publicly maintained portion of Herman Vanover Road, sold easement being described as follows: BEGINNING AT a 5/8-inch rebar set flush with a survey cop inscribed 'D.L. the essi end of the publicly mainlained portion of Herman Vanover Roat, sold easement being described as follows: BEGINNING AT a 5/8-inch rebar set flash with a survey cap inscribed DL Helms PIS 3280 (referred to a or rabar in the remainder of this description) at the south most corner of the above-described 0.141-acre lease tract; thene SUL 20 degrees 49 minutes 38 seconds West 20.00 feet; thence North 69 degrees 10 minutes 24 seconds West 30 feet in thene Suthmestary 103.79 feet along an arc to the right and hoving a radius of 58.90 feet and sublended by a long chard howing a bearing of South 71 degrees 17 minutes 25 seconds West 48.20 feet; thence Northwestary 103.79 feet along an arc to the right and hoving a radius of 60.00 feet and sublended by a long chard howing a bearing of North 35 degrees 17 minutes 25 seconds West and a length of 90.88 feet; thence North 58 degrees 16 minutes 25 seconds West 48.20 feet; thence Northwestary 41.99 feet along an arc to the left and hoving a radius of 60.00 feet and sublended by a long chard howing a bearing of North 35 degrees 34 minutes 01 seconds West and a length of 40.00 feet and subtended howing a bearing of North 36 degrees 48 minutes 48 seconds West and a length of 40.00 feet lands whering of horth 44 degrees 53 minutes 40 seconds West 48.40 feet; thence North 70 degrees 00 minutes 15 seconds West 118.31 feet; thence North 54 degrees 40 minutes 48 seconds West 107.45 feet; thence North 40 degrees 26 minutes 40 seconds West 44.40 feet; thence North 70 degrees 00 minutes 15 seconds West 118.31 feet; thence North 55 degrees 40 minutes 45 seconds West 100.45 feet; thence North 118.25 leet; thence North 55 degrees 27 minutes 47 seconds West 107.45 feet; thence North 31 seconds West 43.44 feet; thence North 54 degrees 40 minutes 45 seconds West 106.45 feet; thence North 31 seconds West 43.45 feet to minutes 45 seconds West 41.65 feet; thence North 31 seconds West 43.45 feet; thence North 55 degrees 10 minutes 45 seconds West 44.65 feet; thence Nor Right also larged Floates to ESCACE lists and a Lingth of 198.19 fact; through of scaling of Social 88 degrees 24 mixules 09 seconds lists and a Lingth of 198.19 fact; through of Social Social (appears 10-foot load right of very with); thence, along the east and of said root, Narth 20 degrees 21 mixules 35 seconds East 20.00 feet; thence South 69 degrees 38 minutes 35 seconds East 20.00 feet; there Easters 177.63 feet along on arc. Io the left and having a rodius of 255.00 feet and sublanded by a long chord having a bearing of Narth 88 degrees 42 minutes 35 seconds East 20.30 feet; there Easters 177.63 feet; thence Narth 67 degrees 02 minutes 35 seconds East 20.30 feet; there Easters 177.63 feet; thence Narth 67 degrees 02 minutes 35 seconds East 20.30 feet; there Easters 178.56 feet; thence Narth 67 degrees 02 minutes 35 seconds East 20.30 feet; there Easters 153.86 feet; thence Narth 72 degrees 05 minutes 05 seconds East 20.30 feet; there Easters 174.52 feet along on arc. Io the right and having a rodius of 200.00 feet and sublended by a long chord having a bearing of South 86 degrees 12 minutes 40 seconds East 140.98 feet; thence Easter 145.20 feet; thence South 57 degrees 05 minutes 25 seconds East 140.98 feet; thence Easter 145.20 feet; thence South 57 degrees 07 minutes 13 seconds East 140.98 feet; thence Easter 142.20 feet along on arc to the right and having a rodius 15.200 feet and sublended by a long chord having a bearing of South 44 degrees 07 minutes 13 seconds East 140.98 feet; thence South 57 degrees 44 minutes 44 seconds East 13.26 feet; thence South 51 degrees 21 minutes 46 seconds East 140.20 feet and sublended by a long chord having a ardius 13.26 feet; thence South 51 degrees 21 minutes 46 seconds East 140.20 feet and sublended by a long chord having a easter to the left and having a rodius of 40.00 feet and sublended by a long chord having a bearing of South 57 degrees 50 minutes 47 seconds East 140.70 degrees 30 minutes 45 seconds East 140.70 feet; thence South 51 degr

The bearing system of this description is based upon the Kentucky State Plane Coordinate System, South Zone, NAD 1983 (2007), as determined by G.P.S. observations made on August 14, 2008 using the National Geodetic Survey monument TEW RTPE: This description is based upon a survey completed by Landmark Surveying Ca, hc. and certified by Darra L. Helms, PL.S. 3306, on August 26, 2008. This survey is hereby referenced and made a part of this description.

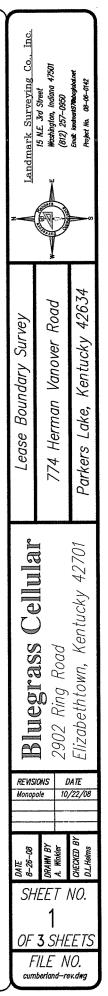
SOURCE OF TITLE: The 0.141-pore lease tract being a partion of the land described in deed to Connie L Clippert on April 24, 2002 in Deed Book 160, page 460 in the office of the County Clerk of McCheary County, Kentucky. The access and utility essement being a partien of sold Clippert tract and a partien of the land described in deed to Armay L Vance and Donna B. Vance on February 8, 2007 in Deed Book 179, page 503 in sold County Clerk's office.

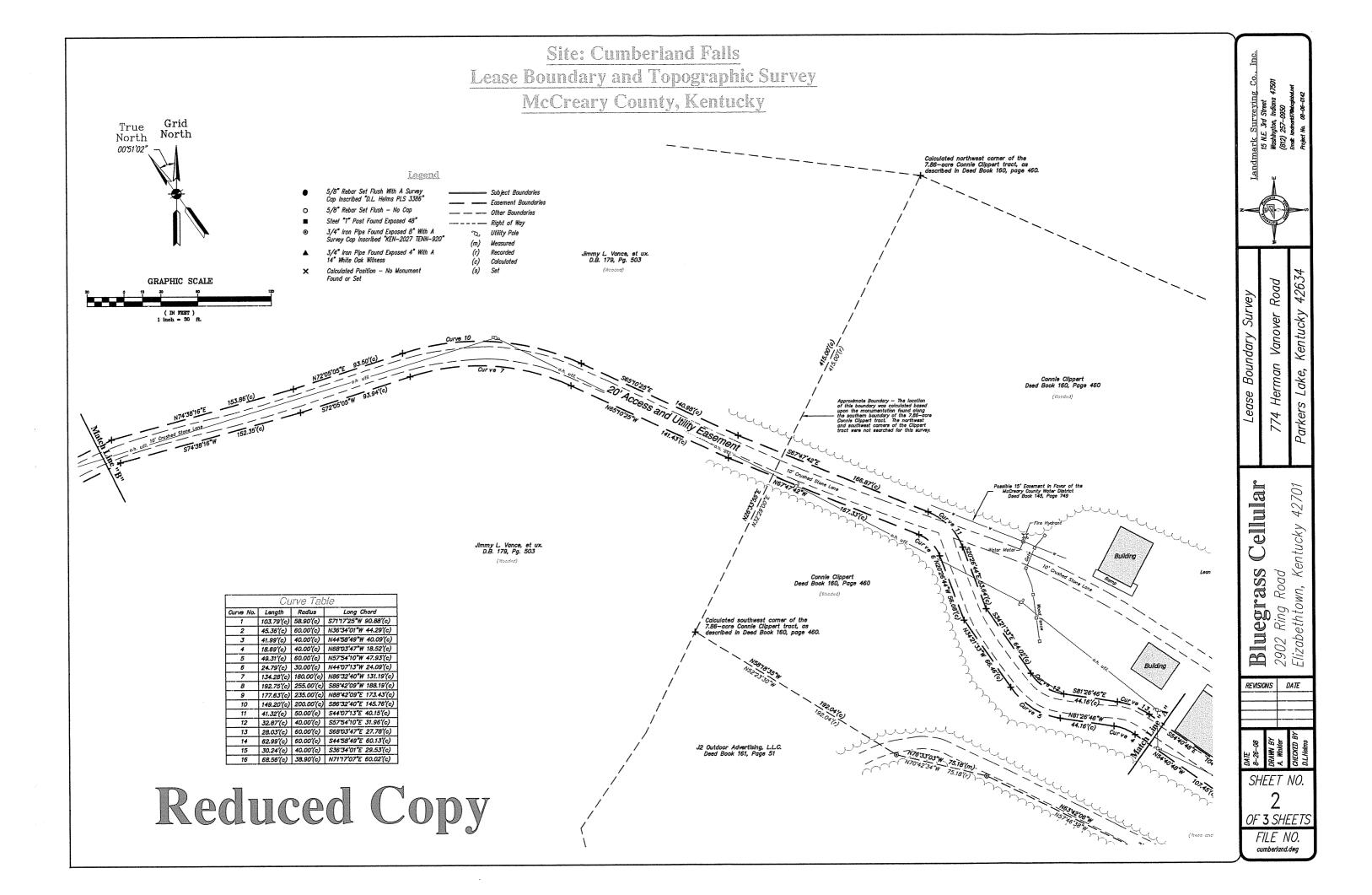
#### Surveyor's Certification

I hereby certify that this plat has been compiled from a survey actually made upon the ground under my direct supervision on August 14, 2008 by the method of random traverse with sideshols. The unadjusted precision ratio of the traverse was better than 1:23,900 and it was not adjusted. This survey is a Class B survey and the accuracy and precision of this survey meets all the specifications of this class.

Darren L. Helme

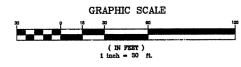
OCT. 22, 2008





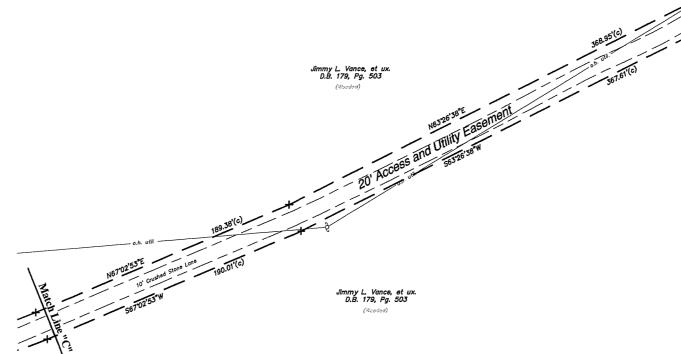
## Site: Cumberland Falls Lease Boundary and Topographic Survey McCreary County, Kentucky

True Grid North North



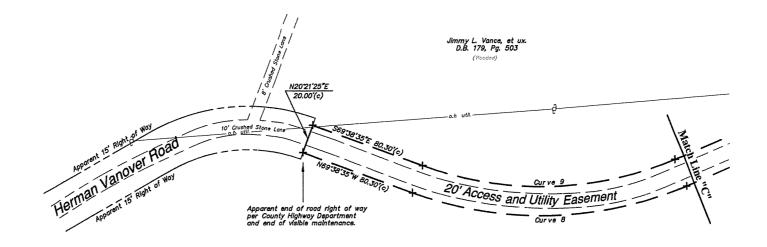
#### Legend

- 5/8" Rebar Set Flush With A Survey Cap Inscribed "D.L. Helms PLS 3386"
   5/8" Rebar Set Flush - No Cap
   5/8" Rebar Set Flush - No Cap
   Other Boundaries
   Steel "1" Post Found Exposed 48"
   Guide Steel "1" Post Found Exposed 48"
   J/4" Iron Pipe Found Exposed 8" With A Survey Cap Inscribed "KEN-2027 TENN-920" (m) Measured
   J/4" Iron Pipe Found Exposed 4" With A 14" White Oak Witness
   Colculated Position - No Monument
   Set
- ✗ Calculated Position − No Monument Found or Set

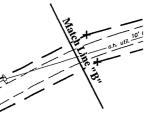


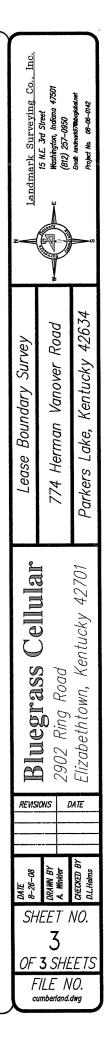
# **Reduced Copy**

Curve Table							
Curve No.	Length	Radius	Long Chord				
1	103.79'(c)	58.90'(c)	S7177'25"W 90.88'(c)				
2	45.36'(c)	60.00'(c)	N36'34'01"# 44.29'(c)				
3	41.99'(c)	40.00'(c)	N44'58'49"W 40.09'(c)				
4	18.69'(c)	40.00'(c)	N68'03'47"W 18.52'(c)				
5	49.31'(c)	60.00'(c)	N57"54'10"₩ 47.93'(c)				
6	24.79'(c)	30.00'(c)	N44'07'13"W 24.09'(c)				
7	134.28'(c)	180.00'(c)	N86°32'40°W 131.19'(c)				
8	192.75'(c)	255.00'(c)	S88'42'09"W 188.19'(c)				
9	177.63'(c)	235.00'(c)	N88'42'09"E 173.43'(c)				
10	149.20'(c)	200.00'(c)	S86'32'40"E 145.76'(c)				
11	41.32'(c)	50.00'(c)	S44'07'13"E 40.15'(c)				
12	32.87'(c)	40.00'(c)	S57'54'10"E 31.96'(c)				
13	28.03'(c)	60.00'(c)	\$68'03'47"E 27.78'(c)				
14	62.99'(c)	60.00'(c)	\$44'58'49"E 60.13'(c)				
15	30.24'(c)	40.00'(c)	S36'34'01"E 29.53'(c)				
16	68.56'(c)	38.90'(c)	N7177'07"E 60.02'(c)				



limmy L. Vance, et ux. D.B. 179, Pg. 503 (illoaded)





# BIJJEGRASS FIIIAR

APPROVAL SIGNATURES	
BLUEGRASS CELLULAR PROJECT SUPERVISOR:	
DATE:	
CITY REPRESENTATIVE:	 ļ
<u>TITLE:</u>	
DATE:	
PROPERTY_OWNER/OWNERS:	
DATE:	
TOWER OWNER/OWNERS:	
DATE:	 )

# SITE NAME: CUMBERLAND FALLS

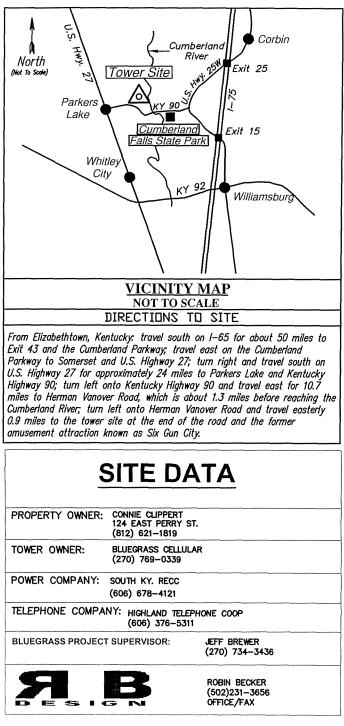
911 ADDRESS: 774 HERMAN VANOVER RD. PARKERS LAKE, KY. 42634

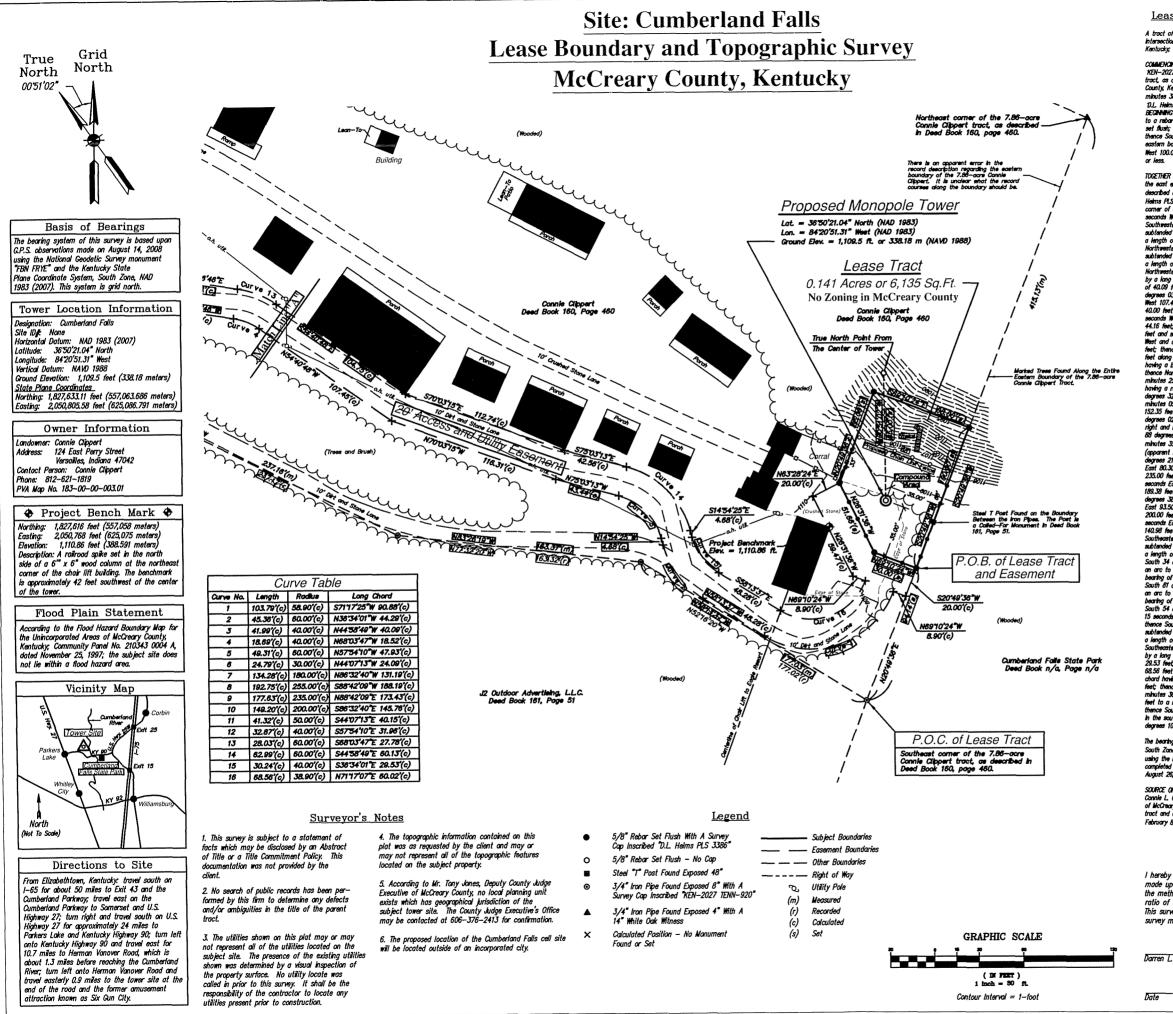
**COUNTY: McCREARY** 

# **TOWER LATITUDE & LONGITUDE**

N 36\* 50' 21.04" W 84\* 20' 51.31"

SHEET INDEX				
SHEET NO.	DESCRIPTION	REVISION		
TITLE SHEET	TITLE SHEET SURVEY			
A-1	SITE PLAN FENCE DETAILS			
A-2 ANTENNA DETAILS 1 ANTENNA DETAILS 2	ANT.SPECS/TOWER ELEV.			
E-1 E-2	SITE PLAN - ELECTRICAL			
LYNCOLE	LYNCOLE GROUNDING			
E-3 E-4	ELEC. PLAN - GROUNDING GROUNDING DETAILS			
S-1	FOUNDATION DETAILS			
GENERATOR DETAIL GENERAL NOTES	GENERATOR DETAIL GENERAL NOTES			





### Lease Boundary and Easement Description

A tract of land that is located at the east end Herman Vanover Road, 0.9 miles easterly of the Intersection of sold road with Kentucky Highmay 90, near Cumberland Fails in McCreary County, Kentucky, sold tract being described as follows:

COMMEXCING AT a ".-hch iron pipe found exposed 8 inches with a survey cap inscribed IGH-2027 IBM-520" with monuments the southeast corner of the 7.86-acre Connie Clippert tract, as described in Deed Book 160, page 460 in the office of the County Clerk of McCraary County, Kentucky, thence, along the eastern boundary of said Clippert tract, North 20 degrees 49 minutes 35 seconds East 94.14 feet to a 5/8-inch rebar set flush with a survey cap inscribed 10.1. Heims PLS 3386" (reformed to as rabor in the remainder of this description) at the POMIT OF BECIMING of this description: thence North 69 degrees 10 minutes 36 seconds Next 51.65 feet to a rabor set flush; thence South 69 degrees 10 minutes 24 seconds East 65.00 feet to a rabor set flush; thence South 69 degrees 10 minutes 34 seconds East 65.00 feet to a rabor set flush; thence South 69 degrees 10 minutes 36 seconds East 65.00 feet to a rabor set flush; thence South 69 degrees 10 minutes 34 seconds East 65.00 feet to a rabor set flush; thence South 69 degrees 10 minutes 36 seconds East 65.00 feet to a rabor set flush; thence South 69 degrees 10 minutes 36 seconds East 65.00 feet to a rabor set flush; thence South 69 degrees 10 minutes 36 seconds East 65.00 feet to a rabor set flush; thence South 69 degrees 10 minutes 36 seconds East 65.00 feet to a rabor set flush; thence South 69 degrees 49 minutes 36 seconds East 65.00 feet to a rabor set flush; thence South 69 degrees 10 minutes 34 seconds East 65.00 feet to a rabor set flush; thence South 69 degrees 10 minutes 34 seconds East 65.00 feet to a rabor set flush; thence South 69 degrees 10 minutes 36 seconds East 65.00 feet to a rabor set flush; thence South 69 degrees 10 minutes 36 seconds East 65.00 feet to a rabor set flush;

To end the set and of the publicly model in the conter-described Q.I.Hi-core lease tract to the set and of the publicly model and prove float interver. Rook and second the publicly model and prove float the set in mail the set in the set in mail the set in the set in the set in mail the set in the set in mail the set in the set in the set in the set in mail the set in the set in the set in the set in mail the set in the se TOGETHER WITH an access and utility assement from the above-described 0.141-ocre lease tract to the east end of the publicly maintained partion of Herman Vanover Rood; sold ecsement being described as failows: BEGINNING AT a 5/8-inch rebor set flush with a survey cap inscribed DL

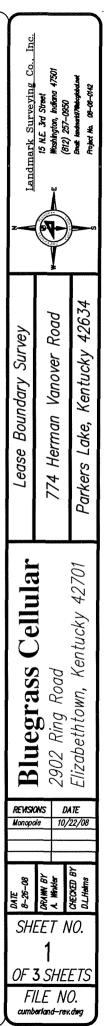
The bearing system of this description is based upon the Kentucky State Plane Coordinate System, South Zone, NAD 1983 (2007), as determined by G.P.S. absentations mode an August 14, 2008 using the National Geodelic Survey monument 'FBN FRYE'. This description is based upon a survey completed by Landmark Surveying Co., inc. and cartified by Darren L. Heims, P.L.S. 1386, on August 26, 2008. This survey is hereby referenced and mode a part of this description.

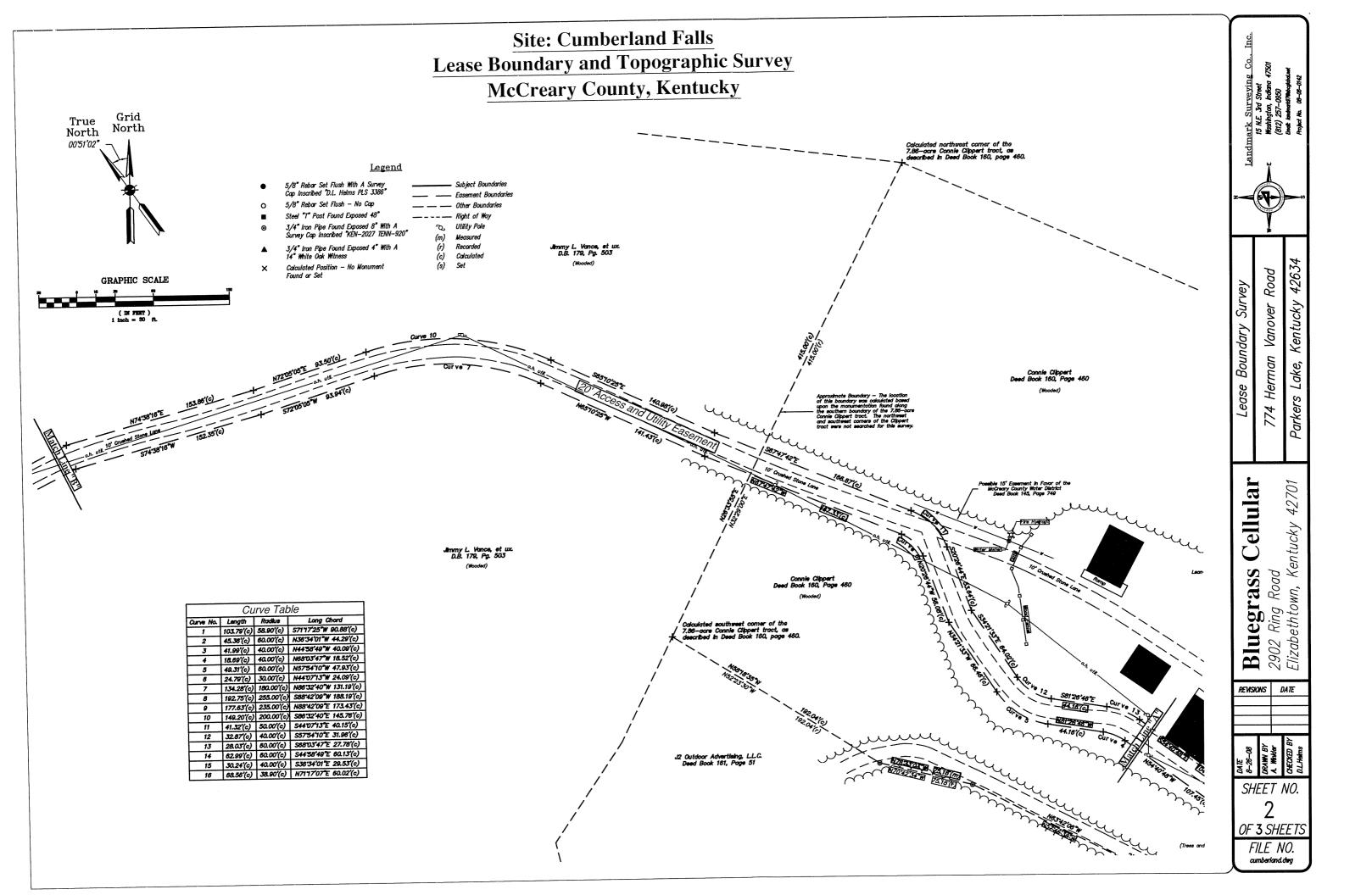
SOURCE OF TITLE: The 0.141-acre lease tract being a partian of the land described in deed to Cannie L. Cippert an April 24, 2002 in Deed Book 160, page 460 in the office of the Canny Cark of McCreary County, Kentucky. The occess and utility accement being a partian of sold Cippert tract and a partian of the land described in deed to Jimmy L. Vance and Danna B. Vance an February 8, 2007 in Deed Book 179, page 503 in sold County Clerk's office.

## Surveyor's Certification

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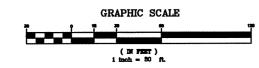
Darren L. Helms, P.L.S. 3386





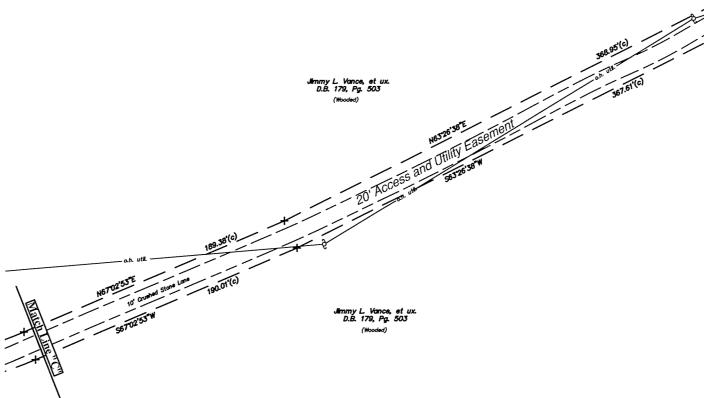
# Lease Boundary and Topographic Survey

Grid North True North *00\*51'02\** 

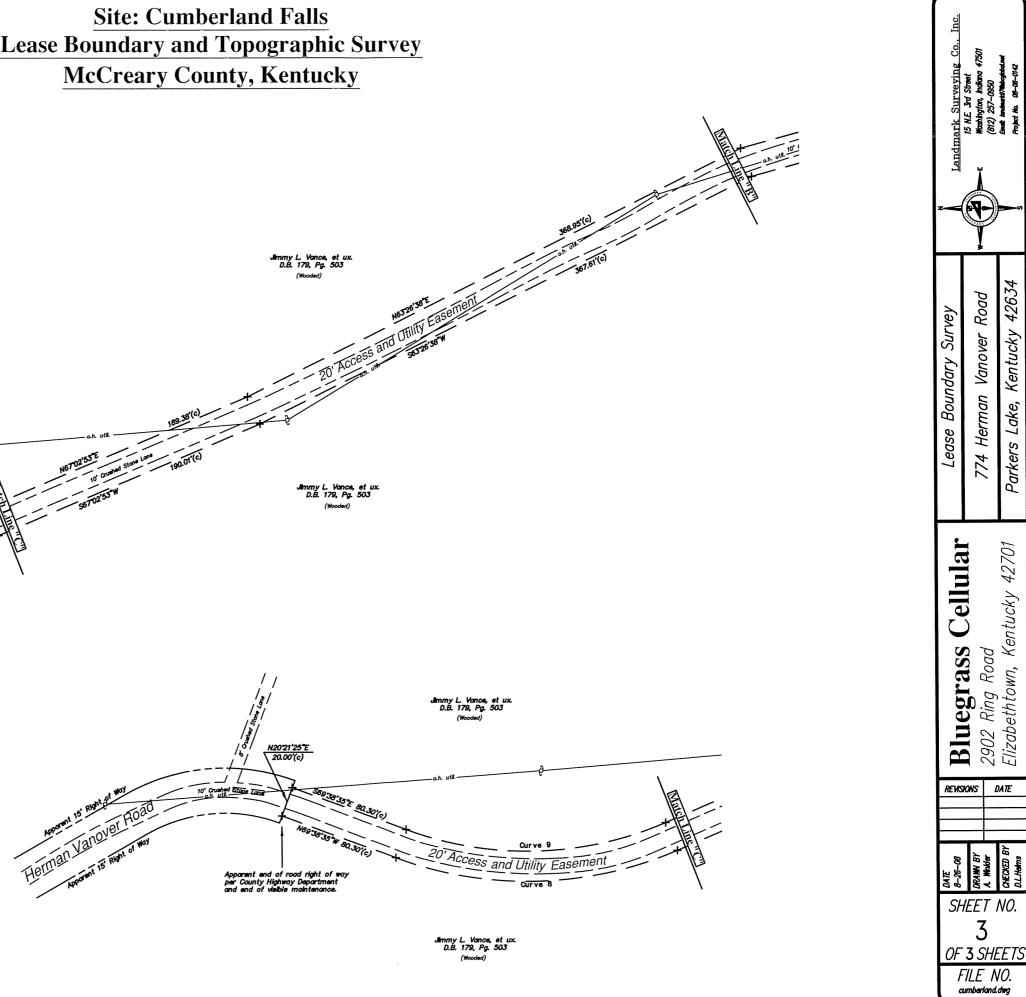


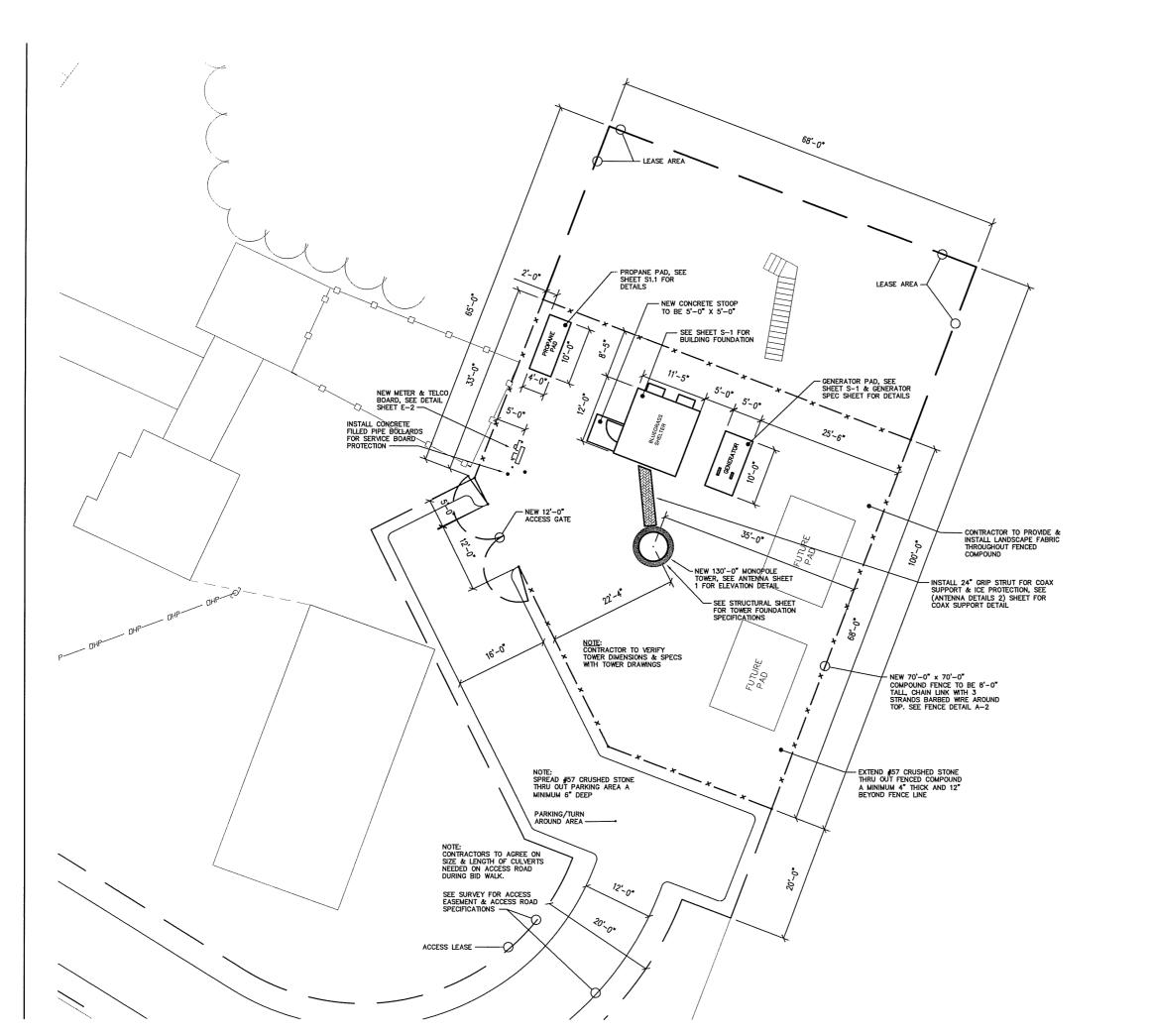
## Legend

•	5/8" Rebar Set Flush With A Survey Cap Inscribed "D.L. Heims PLS 3386"		Subject Boundari Easement Bounde
ο	5/8" Rebar Set Flush – No Cap		Other Boundaries
	Steel "T" Post Found Exposed 48"		Right of Way
9	3/4" Iron Pipe Found Exposed 8" With A Survey Cap Inscribed "KEN-2027 TENN-920"	с. (т)	Utility Pole Measured
•	3/4" Iron Pipe Found Exposed 4" With A 14" White Ook Witness	(r) (c)	Recorded Calculated
×	Calculated Position – No Monument Found or Set	(s)	Set



	Curve Table					
Curve No.	Longth	Rodius	Long Chord			
1	103.79'(c)	58.90'(c)	S717725"W 90.88'(c)			
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15	30.24'(c)	40.00'(c)	S36'34'01"E 29.53'(c)			
16	68.56'(c)	38.90'(c)	N7177'07"E 60.02'(c)			





GENERAL NOTES:

1) EQUIPMENT PICK-UP AND DELIVERY TO SITE FROM BLUEGRASS CELLULAR STAGING FACILITY TO BE THE CONTRACTORS RESPONSIBILITY, INCLUDING CRANE SET, AND ALL COST INCURRED.

2) FOR, BUILDING AND ALL CONCRETE PAD DETAILS REFER TO STRUCTURALS AND SHEET S1.1

3) ALL CONCRETE TO HAVE SPECIFIED COATED SEALANT PER STRUCTURAL RECOMMENDATIONS.

4) ANY DAMAGE DUE TO CONSTRUCTION, TO BE REPAIRED OR REPLACED TO ORIGINAL CONDITION. (SUBJECT TO BLUEGRASS CELLULAR'S APPROVAL).

5) ANY DAMAGE OF NATURAL SURROUNDINGS , INCLUDING BUT NOT LIMITED TO, GRASS, TREES, LANDSCAPING, ETC.. TO BE REPAIRED OR REPLACED TO ORIGINAL CONDITION AT BLUEGRASS CELLULAR'S APPROVAL.

6) ROADWAYS TO BE GRADED SMOOTH AND EVEN, REMOVING ALL POTHOLES. ROADS TO HAVE PROPER DRAINAGE AND RUNOFF PER BLUEGRASS CELLULAR'S APPROVAL.

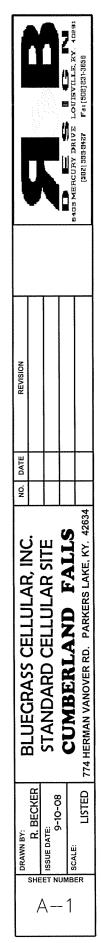
7) ANY RELOCATION OF EXISTING UTILITIES TO BE DONE IN ACCORDANCE WITH LOCAL CODES AND RECOMMENDATIONS, CONSULTING ALL UTILITY COMPANIES INVOLVED FOR APPROVAL AND SPECIFICATIONS REQUIRED.

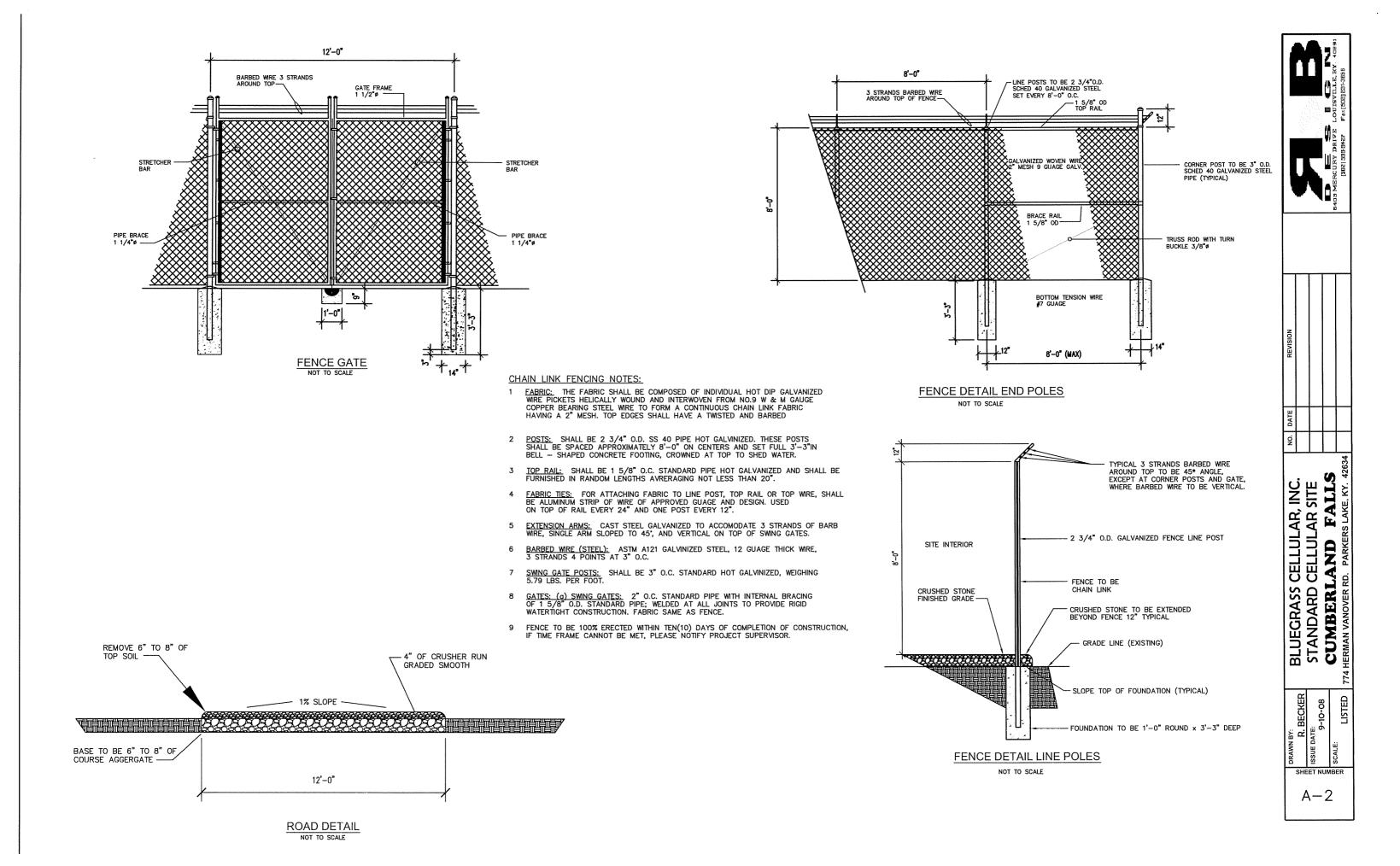
8) FOR GRADING DETAILS, SEE GENERAL NOTESHEET

9) CONTRACTOR TO FIELD VERIFY ALL TOWER DIMENSIONS WITH TOWER MANUFACTURER PRIOR TO JOB BIDDING OR START OF ANY CONSTRUCTION

10) CONTRACTOR RESPONSIBLE FOR APPLYING FOR SERVICE TO SITE AND PAYING ANY FEES REQUIRED FOR PERMITS, HOOKUP, ETC..







ALL LINES AND ANTENNAS TO BE PROPERLY MOUNTED TO TOWER OR STRUCTURE PER BLUEGRASS CELLULAR SPECIFICATIONS.

ALL GROUND BARS TO BE INSTALLED AND CAD WELDED TO GROUND FIELD (WHERE REQUIRED)

ALL LINES TO BE GROUNDED AT THE TOP AND BASE OF STRUCTURE OR TOWER.

ALL LINES TO BE GROUNDED AT ENTRANCE OF SHELTER BEFORE WAVE GUIDE PORTS. (EXTERIOR OF BUILDING)

LINES ARE TO BE SECURED TO ICE BRIDGE

WAVE-GUIDE BOOTS ARE TO BE INSTALLED ON ALL LINES (BOTH INSIDE AND OUTSIDE)

ALL COAX CONNECTIONS ARE TO BE WEATHER PROOFED.

INVENTORY OF ALL MATERIAL IS TO BE DONE PRIOR TO INSTALLATION BY CONTRACTOR. (LIST WILL BE PROVIDED)

ALL TRASH AND REFUGE IS TO BE PROPERLY DISPOSED OF.

CONTRACTOR TO EXTEND HARDLINES INTO BUILDING 12" & INSTALL POLYPHASERS, PER INSTRUCTION OF PROJECT SUPERVISOR.

CONTRACTORS TO SUPPLY POLYPHASERS OR LIKE UNITS TO BE INSTALLED AND GROUNDED TO GROUND BAR INSIDE BUILDING AT WAVE GUIDE ENTRANCE. GO TO SUPPLY GROUND CABLE & LUGS.

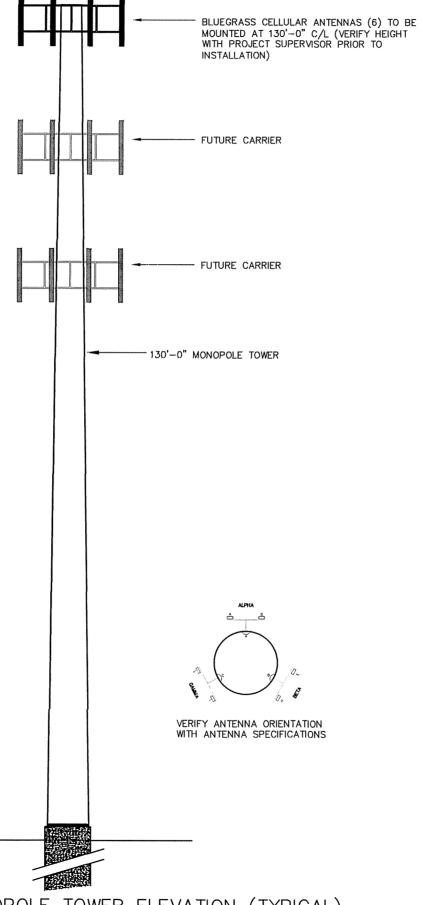
GENERAL CONTRACTOR TO MOUNT ANTENNA MOUNTS AT TOP OF STRUCTURE OR TOWER BY BLUEGRASS CELLULAR SPECIFICATIONS.

ICE BRIDGE TO BE SUPPLIED AND INSTALLED BY GENERAL CONTRACTOR. (Additional Ice Bridge if needed)

TRAPEZE KIT TO BE SUPPLIED AND INSTALLED BY GENERAL CONTRACTOR.

CONTRACTOR TO INSTALL GPS BRACKET

# BLUEGRASS CELLULAR GENERAL NOTES & ANTENNA SPECS



# TOWER HEIGHT & TYPE

130'-0" MONOPOLE TOWER

# ANTENNA SPECS

	TYPE	SIZE L x ₩ x D	NUMBER	AZIMUTH	MOUNTING HEIGHT
ANTENNA (PRIMARY)	59200	L=78.6 W=10.3 D=4.6	6	80*, 240*, 345*	130'-0" C/L VERIFY WITH CONSTRUCTION SUPERVISOR
ANTENNA (SECONDARY)					

# ANTENNA MOUNTING HARDWARE SPECS

	TYPE	SIZE	
MOUNT (PRIMARY)	TRI-SECTOR MOUNT		
MOUNT (SECONDARY)			

# ANTENNA TRANSMISSION LINES SPECS

	TYPE	SIZE	Г
TRANSMISSION LINE (PRIMARY)	ANDREW	1-5/8"	
TRANSMISSION LINE (SECONDARY)			

# DISH SPECS

	MICROWAVE/DONOR	SIZE	NUMBER	AZIMUTH	MOUNTING HEIGHT
DISH #1					
DISH #2					

DISH TRANSMISSION LINES
-------------------------

	TYPE	SIZE	
TRANSMISSION LINE #1			
TRANSMISSION LINE #2			

# ANTENNA SYNOPSIS

\* ANTENNAS TO HAVE A 1\*E X,Y & Z

\* ANTENNA FREQUENCY 1975.00 - 1982.50

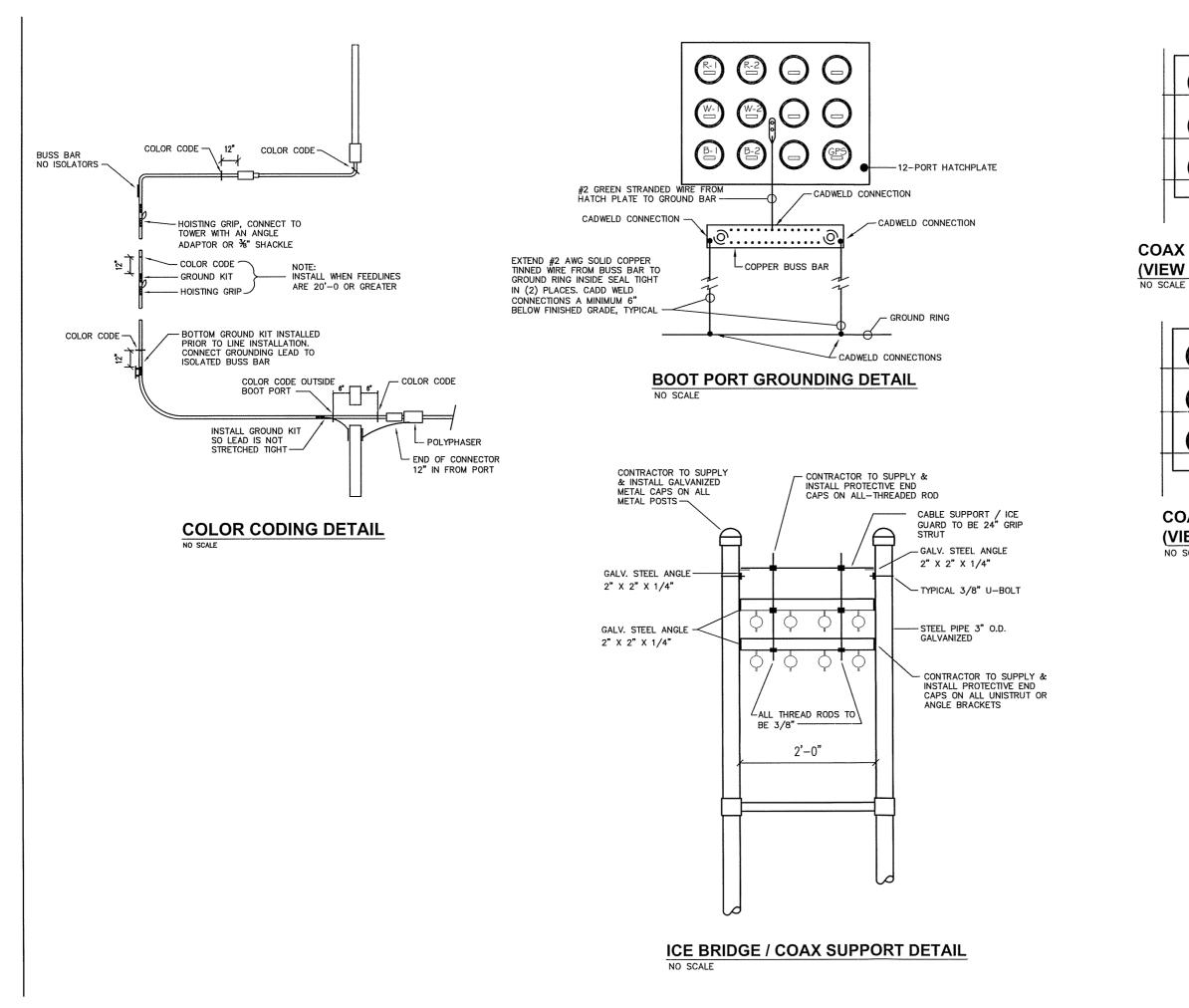
MONOPOLE TOWER ELEVATION (TYPICAL)

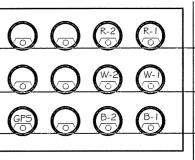


NUMBER	
6	

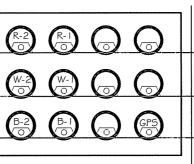
NUMBER

				(\$02) 599-84-27 Fax (502) 231-3656
REVISION				
NO. DATE				4
BUTECDASS CELLIN AD INC		SIANDARD CELLULAR SIIE	CUMBERLAND FALLS	LISTED 774 HERMAN VANOVER RD. PARKERS LAKE, KY. 42634
	I ST			į



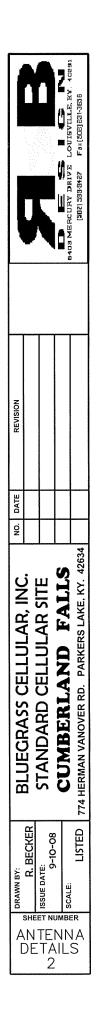


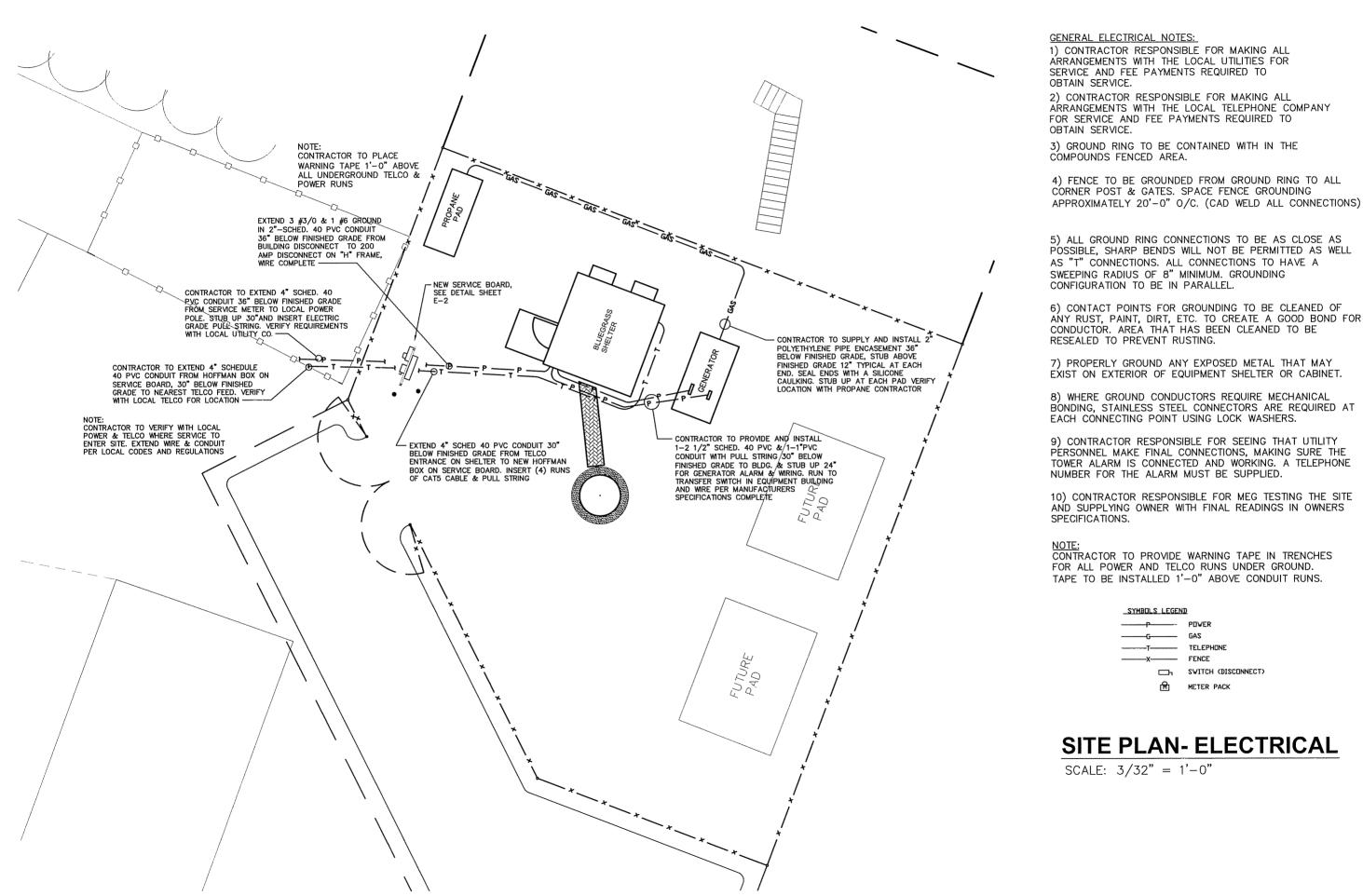
# COAX ENTRY DETAIL POWER SIDE (VIEW FROM INSIDE SHELTER)

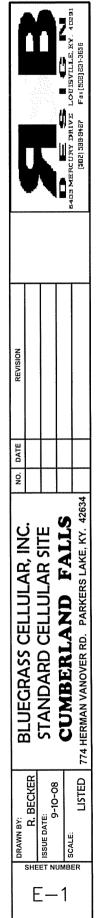


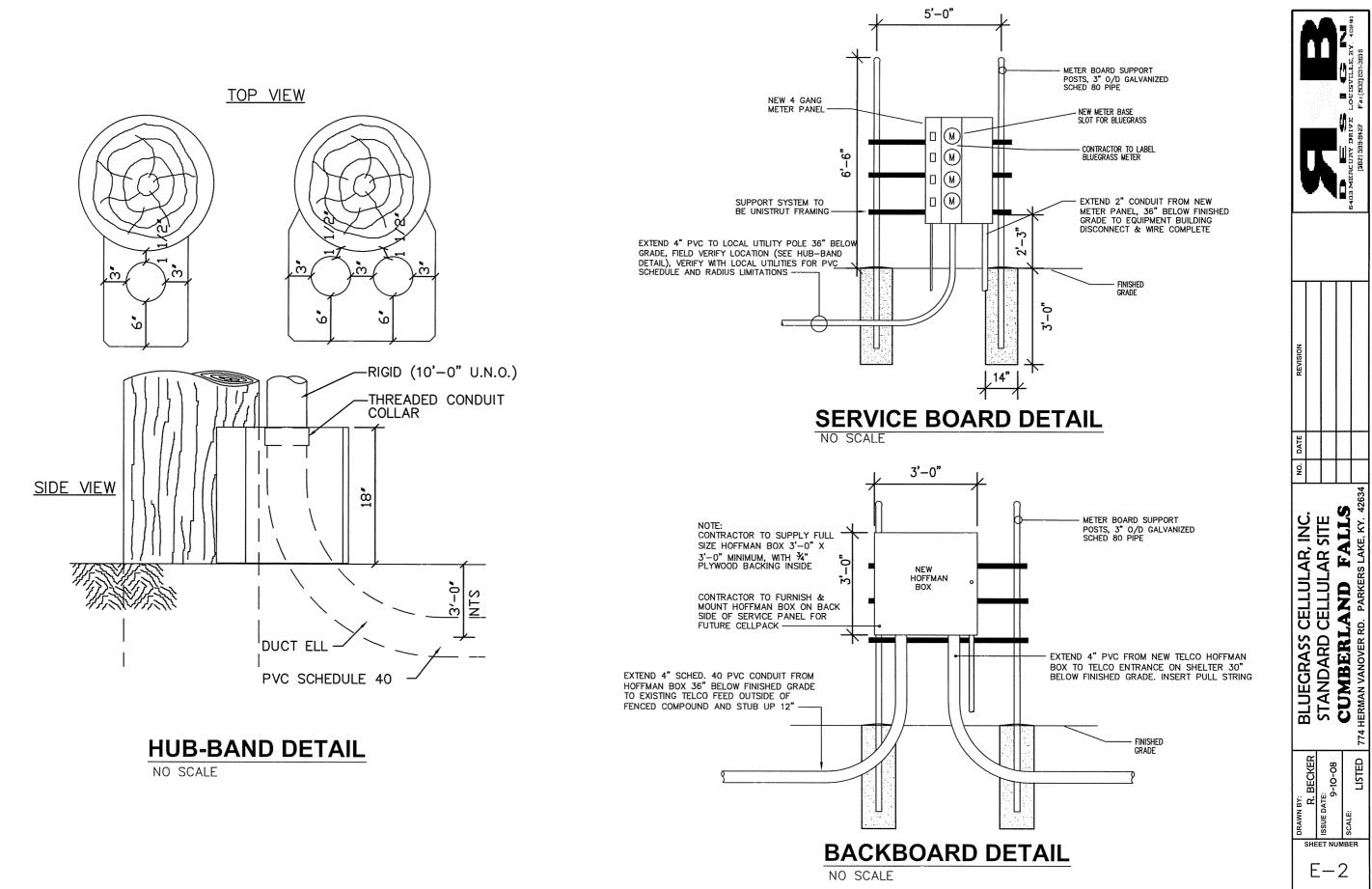
# COAX ENTRY DETAIL A/C SIDE (VIEW FROM INSIDE SHELTER)

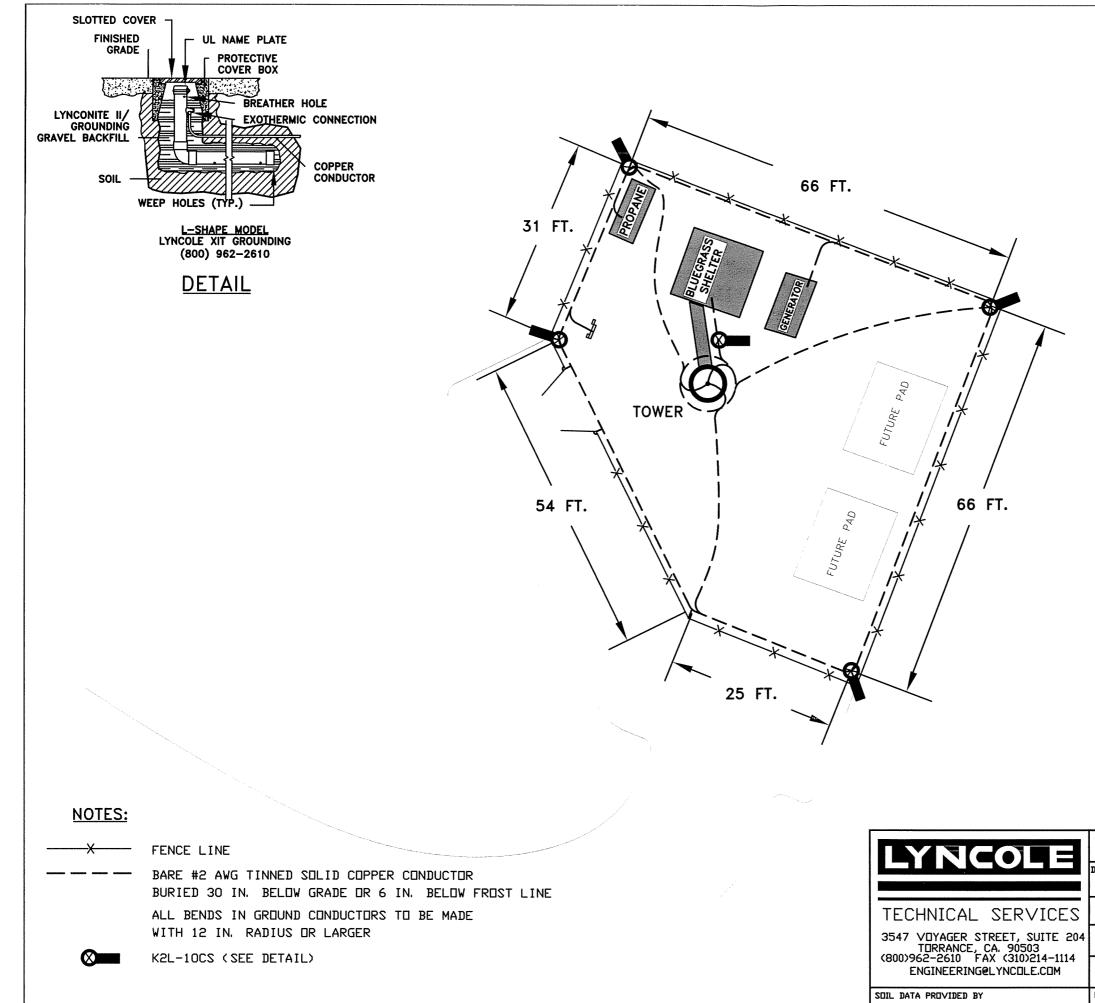
NO SCALE







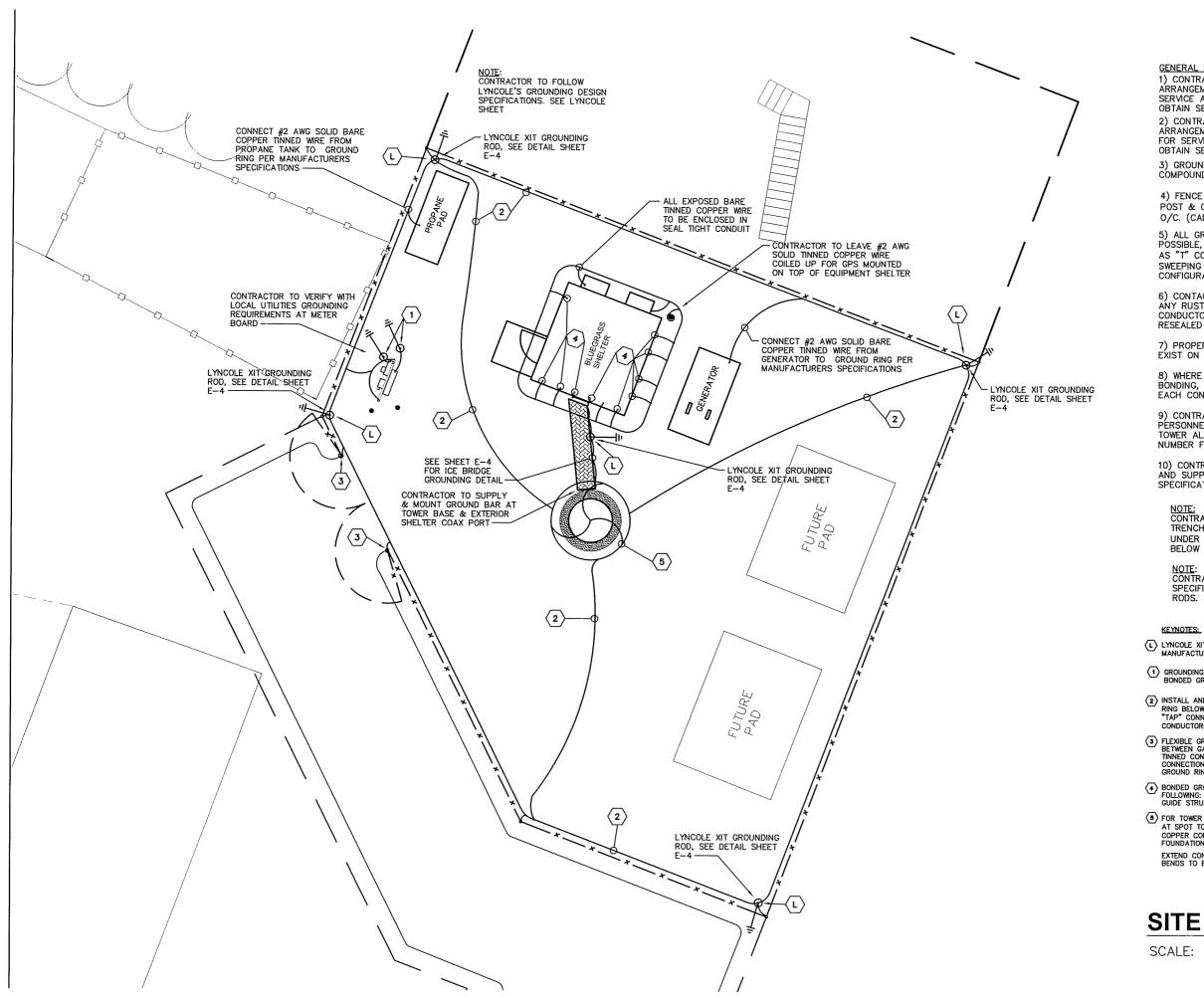




	CLIENT / END USER RSB DESIGN / BLUEGRASS CELLULAR						
	DRAWING	PREJ	CT NAME				
	1a	BLUEGRASS CUMBERLAND FALLS					
TITLE GROUNDING OPTION							
4	LOCATION: CITY, STATE				CALCULATED RESISTANCE		
	P	PARKERS LAKE,			<	25	OHMS
	DRAWN	BY	APPROVED BY		10/	16/	20008
	REFERENCE NUMBER			SCALE		LTS	NUMBER
	NA		NONI	E	0	80249	

TERRACON

			N	
			TRUE NORTH	
	CLIENT / END USER RSB DESIGN / BL	UEGRA	SS CELLULAR	
		CUMBI	ERLAND FALLS	
	GROUNDI	NG OP		
4	LOCATION: CITY, STATE PARKERS LAKE,	KY	CALCULATED RESISTANCE < 25 OHMS	
	DRAWN BY APPRUVED BY	DATE	10/16/20008	
-	REFERENCE NUMBER	SCALE	LTS NUMBER	



GENERAL ELECTRICAL NOTES: 1) CONTRACTOR RESPONSIBLE FOR MAKING ALL ARRANGEMENTS WITH THE LOCAL UTILITIES FOR SERVICE AND FEE PAYMENTS REQUIRED TO OBTAIN SERVICE. 2) CONTRACTOR RESPONSIBLE FOR MAKING ALL ARRANGEMENTS WITH THE LOCAL TELEPHONE COMPANY FOR SERVICE AND FEE PAYMENTS REQUIRED TO OBTAIN SERVICE.

3) GROUND RING TO BE CONTAINED WITH IN THE COMPOUNDS FENCED AREA.

4) FENCE TO BE GROUNDED FROM GROUND RING TO ALL CORNER POST & GATES. SPACE FENCE GROUNDING APPROXIMATELY 20'-0" O/C. (CAD WELD ALL CONNECTIONS)

5) ALL GROUND RING CONNECTIONS TO BE AS CLOSE AS POSSIBLE, SHARP BENDS WILL NOT BE PERMITTED AS WELL AS "T" CONNECTIONS. ALL CONNECTIONS TO HAVE A SWEEPING RADIUS OF 8" MINIMUM. GROUNDING CONFIGURATION TO BE IN PARALLEL.

6) CONTACT POINTS FOR GROUNDING TO BE CLEANED OF ANY RUST, PAINT, DIRT, ETC. TO CREATE A GOOD BOND FOR CONDUCTOR. AREA THAT HAS BEEN CLEANED TO BE RESEALED TO PREVENT RUSTING.

7) PROPERLY GROUND ANY EXPOSED METAL THAT MAY EXIST ON EXTERIOR OF EQUIPMENT SHELTER OR CABINET.

8) WHERE GROUND CONDUCTORS REQUIRE MECHANICAL BONDING, STAINLESS STEEL CONNECTORS ARE REQUIRED AT EACH CONNECTING POINT USING LOCK WASHERS.

9) CONTRACTOR RESPONSIBLE FOR SEEING THAT UTILITY PERSONNEL MAKE FINAL CONNECTIONS, MAKING SURE THE TOWER ALARM IS CONNECTED AND WORKING. A TELEPHONE NUMBER FOR THE ALARM MUST BE SUPPLIED.

10) CONTRACTOR RESPONSIBLE FOR MEG TESTING THE SITE AND SUPPLYING OWNER WITH FINAL READINGS IN OWNERS SPECIFICATIONS.

NOTE: CONTRACTOR TO PROVIDE WARNING TAPE IN TRENCHES FOR ALL POWER AND TELCO RUNS UNDER GROUND. TAPE TO BE INSTALLED AT 9" BELOW GRADE.

NOTE: CONTRACTOR TO FOLLOW LYNCOLES GROUNDING SPECIFICATIONS WHEN USING THEIR XIT GROUNDING RODS. SEE DETAIL SHEET E-4.

 $\overleftarrow{\mathbf{L}}$  Lyncole XIT grounding Rod to be installed where shown and to manufacturers specifications. (See Lyncole specifications)

(1) GROUNDING RODS 10'-0" LONG x 3/4" COPPER BONDED GROUND RODS

(2) INSTALL AND PROVIDE SOLID BARE TINNED COPPER WIRE #2 AWG, GROUND RING BELOW GRADE 30°. USE #2 AWG SOLID BARE TINNED COPPER GROUND "TAP" CONNECTING CONDUCTORS. (CONNECTIONS FOR ALL TAP CONDUCTORS TO BE PARALLEL AND "CAD WELD" CONNECTIONS)

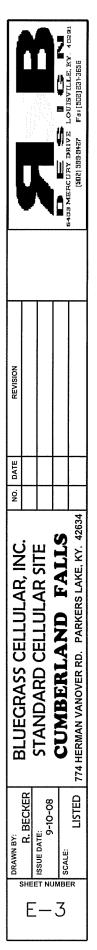
(3) FLEXIBLE GROUNDING STRAP TO BE USED TO PROVIDE A COMMON BOND BETWEEN GATE AND CHAIN LINK FENCE, #2 AWG SOLID COPPER BARE TINNED CONDUCTOR FROM GROUND RING TO FENCE USING CAD WELD CONNECTIONS. GROUND TAP TO BE PROVIDED ON EACH 4 SIDES TO GROUND RING AS DESCRIBED ABOVE.

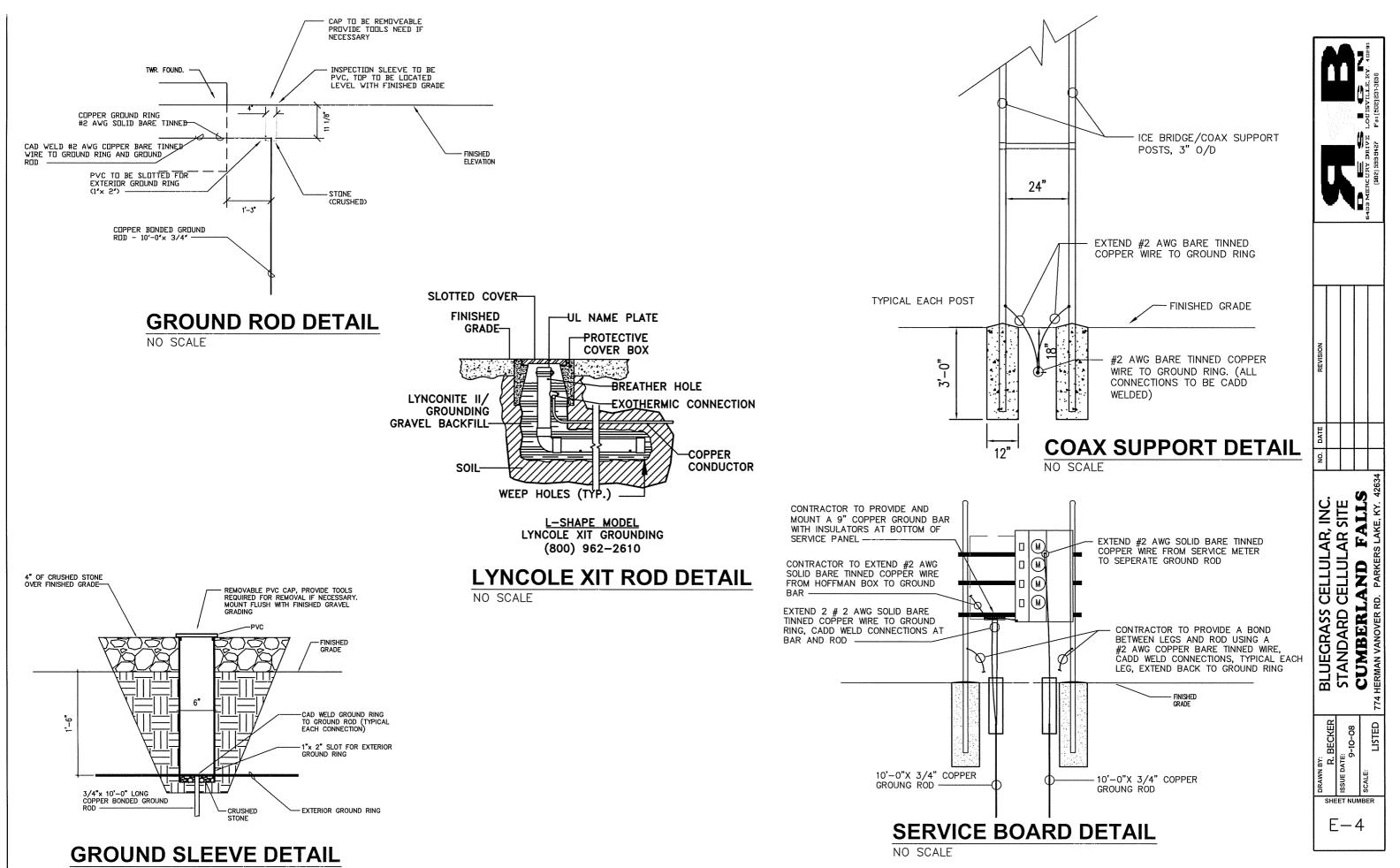
◆ BONDED GROUND TO BE PROVIDED TO GROUND RING FOR EACH OF THE FOLLOWING: BUILDING STEEL, HATCH PLATE, EMERGENCY RECEPTACLE, WAVE GUIDE STRUCTURE, FRAME WORK, BUILDING DISCONNECT.

FOR TOWER FRAME GROUNDING, REMOVE GALVANIZED COATING COMPLETELY AT SPOT TO "CAD WELD" TO AND CLEAN. #2 AWG SOLID BARE TINNED COPPER CONDUCTOR TO BE CAD WELDED APPROXIMATELY 1-0" ABOVE FOUNDATION OR AT FLANGE IF PROVIDED BY TOWER MANUFACTURER. EXTEND CONDUCTOR TO GROUND RING. RIGHT ANGLES NOT ACCEPTED ALL BENDS TO BE SWEEPING.

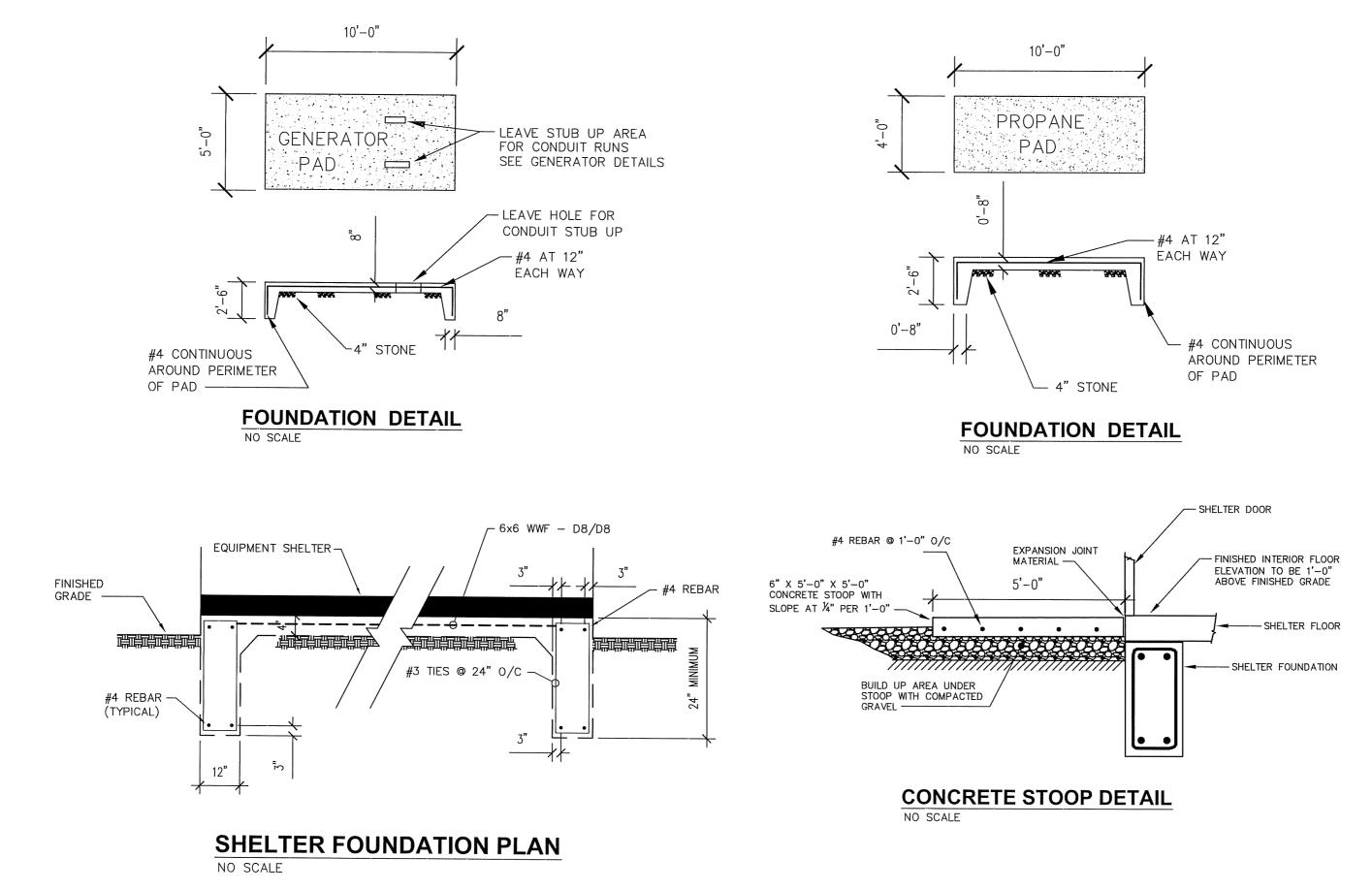
# SITE PLAN-GROUNDING

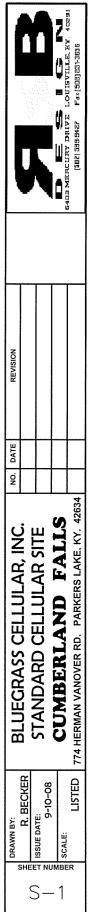
SCALE: 3/32" = 1'-0"

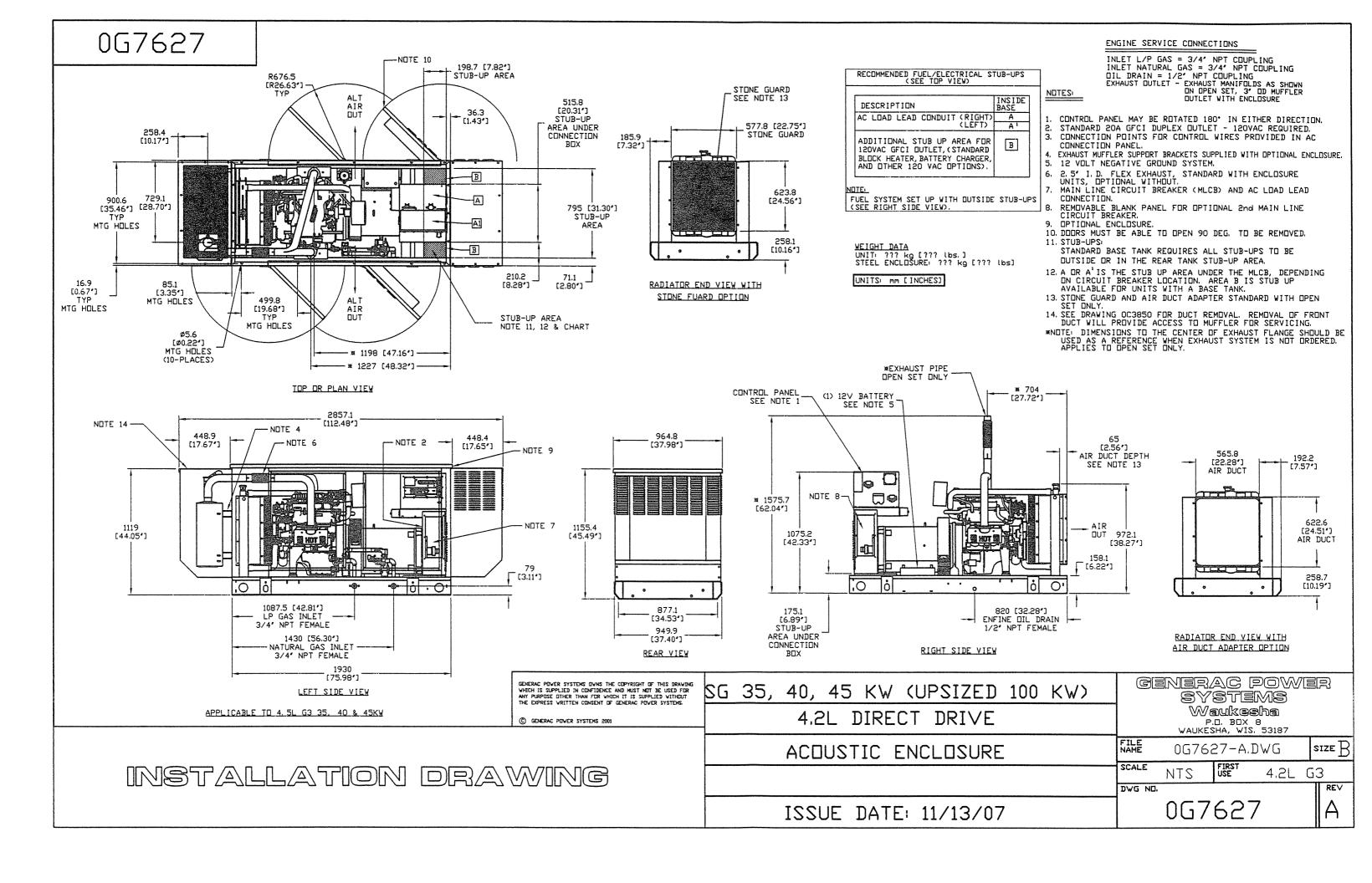




NO SCALE







## GENERAL NOTES:

THE CONTRACTOR IS RESPONSIBLE FOR EQUIPMENT PICK UP DELIVERY TO SITE, ERECTION OF TOWER, AND CRANE SET, ALL COSTS INCURRED.

2) THE CONTRACTOR IS RESPONSIBLE FOR VISITING THE SITE PRIOR TO BIDDING AND REVIEWING EXISTING STRUCTURES OR UTILITIES THAT MIGHT BE LOCATED ON OR AROUND THE COMPOUND THAT COULD INTERFERE.

THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING LOCAL AUTHORITIES NECESSARY FOR INSPECTIONS IF REQUIRED, PLEASE PROVIDE AMPLE NOTICE.

4) THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING PERSONS RESPONSIBLE FOR ANY MATERIALS TESTING, PLEASE PROVIDE AMPLE

5) THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE OWNER WITH FINAL TEST RESULTS ON ALL MATERIALS TESTING. IF ANY PROBLEMS ARE FOUND PRIOR TO FINAL RESULTS PLEASE NOTIFY A&E OR OWNER IMMEDIATELY.

6) THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO ADJOINING PROPERTY, AND REPAIRING OR REPLACING WHAT IS NECESSARY TO OWNERS APPROVAL.

7) THE CONTRACTOR IS TO VERIFY DIMENSIONS ON SITE PRIOR TO CONSTRUCTION STARTING, ANY PROBLEMS OR CHANGE FOUND CONTACT A&E OR OWNER TO VERIFY.

8) THE CONTRACTOR IS RESPONSIBLE FOR ANY TEMPORARY LIGHTING ON THE TOWER AND CONTACTING PROPER AUTHORITIES IF ANY LIGHTING PROBLEMS OCCUR, ALL FINAL LIGHTING TO BE MOUNTED ON TOWER DURING CONSTRUCTION, NOTIFY OWNER WHEN TOWER HAS REACHED FINAL HEIGHT.

9) THE CONTRACTOR IS RESPONSIBLE FOR ALL ON SITE WORK MEANS AND METHODS.

10) CONTRACTOR, ANY CONTRACTOR EMPLOYEES OR REPRESENTATIVES, OR SUB-CONTRACTOR, ANY SUB-CONTRACTOR EMPLOYEES OR REPRESENTATIVES, WILL CONFORM TO ALL LAWS AND REGULATIONS APPLICABLE TO THE WORK BEING PERFORMED, INCLUDING BUT NOT LIMITED TO, ALL OCCUPATIONAL SAFETY AND HEALTH ACT ("OSHA") STATUTES AND REGULATIONS AS WELL AS ALL OTHER FEDERAL, STATE AND/OR LOCAL LAWS OR REGULATIONS APPLICABLE TO THE WORK BEING PERFORMED BY CONTRACTOR.

11) THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL SITE DRAINAGE, AND PROVIDING SILT AND EROSION CONTROL NECESSARY TO MAINTAIN ANY RUN OFF.

12) THE CONTRACTOR IS RESPONSIBLE FOR ALL SEED AND STRAW WORK NECESSARY TO REPAIR DAMAGED AREAS.

13) CONTRACTOR TO GRADE SMOOTH OR REPAIR ANY POT HOLES OR DITCHING ON PROPERTY OR ROAD THAT HAS OCCURRED DURING CONSTRUCTION AT CONTRACTORS EXPENSE.

14) CONTRACTOR'S RESPONSIBILITIES REGARDING BUILD OUT ON FIBREBOND EQUIPMENT SHELTERS TO INCLUDE:

\* INSTALLING THE DOOR CANOPY

\* INSTALLING EXTERIOR LIGHT ON WALL DETERMINED BY PROJECT SUPERVISOR AND PHOTOCELL REQUIREMENTS

\* INSTALLING INTRUDER ALARMS

CHECK OPERATIONS OF DOOR AND DOOR HARDWARE

\* ADJUST WEATHERSTRIPPING ON DOORS AS NEEDED

- \* INSPECT ROOF FOR DAMAGE AND POSSIBLE LEAKS
- \* INSPECT INTERIOR FINISH FOR IMPERFECTIONS AND REPAIR AS NEEDED
- \* CHECK OPERATION OF LIGHTS AND ELECTRICAL OUTLETS

\* CHECK OPERATION OF INTAKE AND EXHAUST LOUVERS AND ADJUST AS NEEDED

\* CHECK OPERATION OF ENVIRONMENTAL CONTROLS AND HVAC UNITS

\* INSTALL AND PAINT SHELTER TIE-DOWNS TO MATCH

15) INSTALL CONCRETE PADS FOR BUILDING, PROPANE TANK, GENERATOR PAD.

16) INSTALL ELECTRIC AND GROUND FIELD FOR COMPOUND.

17) GC WILL BE RESPONSIBLE FOR ALL CRANE OPERATIONS IN ORDER TO SET FIBREBOND BUILDING. COORDINATE BUILDING DELIVERY DATE THROUGH BLUEGRASS CELLULAR.

18) GC WILL BE RESPONSIBLE FOR OFF LOADING AND STACKING OF TOWER WHEN APPLICABLE.

19) GC WILL BE RESPONSIBLE FOR MOUNTING ALL LINES AND ANTENNAS.

20) GC WILL BE RESPONSIBLE FOR SUPPLYING AND INSTALLING ICE BRIDGE

21) GC WILL BE RESPONSIBLE FOR SCHEDULING PROPANE TANK DELIVERY AND HOOK-UP.

22) GC WILL BE RESPONSIBLE FOR COORDINATING THE CLEANING OF THE INSIDE OF THE BUILDING WITH THE PROJECT SUPERVISOR AFTER THE SITE HAS BEEN TURNED OVER TO THE OPERATIONS DEPARTMENT AND ALL TURN-UP PROCEDURES HAVE BEEN COMPLETED. THIS WILL INCLUDE SUPPLYING A 30 GALLON TRASHCAN, 30 GALLON TRASH BAGS, BROOM, DUST PAN AND DOORMAT FOR BUILDING.

23) GC TO VERIFY ALL BLUEGRASS CELLULAR EQUIPMENT DIMENSIONS & SPECIFICATIONS WITH MANUFACTURER'S DRAWINGS, (FIBREBOND, GENERAC, EASTPOINTE ETC.) PRIOR TO CONSTRUCTION. ADDRESS ANY ISSUES WITH PROJECT SUPERVISOR BEFORE WORK BEGINS.

24) ALL WAREHOUSE MATERIAL (LINES, ANTENNAS, MOUNTING HARDWARE, GENERATOR, TOWER FOUNDATION KIT, ETC.) WILL NEED TO BE PICKED UP

25) GC WILL BE RESPONSIBLE FOR SCHEDULING GENERATOR START-UP WITH CONTACT SCOTT ANDERSON (EVAPAR) 502-267-6315

26) TI CONDUIT WILL NEED TO BE PLACED FROM POLE TO BUILDING. (IF A MICROWAVE DISH IS USED, THE TI CONDUIT WILL STILL BE INSTALLED FOR FUTURE USE.)

27) GC WILL BE RESPONSIBLE FOR INSTALLATION OF ALL FENCING.

28) ALL TRASH AND DEBRIS TO BE REMOVED BY GC

29) GC WILL BE RESPONSIBLE FOR APPLYING FOR ELECTRICAL SERVICE AND PAYING NECESSARY FEES REQUIRED.

30) GC WILL BE RESPONSIBLE FOR SUPPLYING & INSTALLING PROTECTIVE END CAPS ON ANY EXPOSED THREADED ROD OR UNISTRUT USED ON SITE. VERIFY TYPE WITH PROJECT SUPERVISOR PRIOR TO INSTALLATION.

31) GC WILL BE RESPONSIBLE FOR HAVING A CERTIFIED ELECTRICIAN HOOK UP THE BATTERIES (IMMEDIATELY) AFTER POWER HAS BEEN TURNED UP AT THE SITE, PREVENTING THE DELAY OF ANY WORK FOR OPERATIONS. THE GENERAL CONTRACTOR MUST NOTIFY THE PROJECT SUPERVISOR IMMEDIATELY AT THIS TIME SO HE CAN COORDINATE A CELL TECH TO BE ONSITE WHEN THIS OCCURS.

32) GC WILL BE RESPONSIBLE FOR RUNNING (CAT5) FROM THE GENERATOR ALARM PANEL MOUNTED ON THE SIDE OF THE TRANSFER SWITCH (BY THE CONTRACTOR), THROUGH THE TRANSFER SWITCH AND UP TO THE EXISTING CONDUIT BESIDE THE A/C POWER FAIL RELAY. THE (CAT5) WILL BE PULLED THROUGH EXISTING CONDUIT AROUND THE SHELTER AND EXTENDED TO THE ALARM BLOCK. THERE SHOULD BE A MINIMUM 3'-O" OF (CAT5) LEFT HANGING ON EACH END FOR THE CELL TECH TO HOOK UP THE GENERATOR ALARMS.

33) GC MUST SUBMIT A COPY OF THE BUILDING PERMIT AND CONSTRUCTION SCHEDULE TO THE PROJECT SUPERVISOR PRIOR TO RECEIVING (NTP) TO BEGIN CONSTRUCTION (NO EXCEPTIONS).

### GRADING & EXCAVATING NOTES:

1) ANY DAMAGE TO EXISTING UTILITIES, STRUCTURES, ROADS AND PARKING AREAS TO BE REPAIRED OR REPLACED TO OWNERS SATISFACTION.

2) PREPARATION FOR FILL:

REMOVAL OF ALL DEBRIS, WET AND UNSATISFACTORY SOIL MATERIALS, TOPSOIL, VEGETATION, AND HARMFUL MATERIALS FROM SURFACE OF GROUND PRIOR TO PLOWING, STRIPPING, PLACING FILLS OR BREAKING UP OF SLOPED SURFACES GREATER THAN 1 VERTICAL TO 4 HORIZONTAL SO MATERIAL FOR FILL WILL BOND TO EXISTING SURFACE. WHEN AREA TO RECEIVE FILL HAS A DENSITY LESS THAN REQUIRED, BREAK UP GROUND SURFACE TO DEPTH REQUIRED, AERATE, MOISTURE - CONDITION, OR PULVERIZE SOIL AND RECOMPACT TO REQUIRED DENSITY.

3) BACK FILLING:

- EXCAVATED AREA SHALL BE CLEARED FROM STONES OR CLODS OVER 2 1/2" MAXIMUM DIAMETER

- SHALL BE PLACED IN LAYERS OF 6" AND COMPACTED TO A 95% STANDARD PROCTOR, USE A 90%

PROCTOR IN GRASSED / LANDSCAPED AREAS WHERE REQUIRED. - SHALL BE APPROVED MATERIALS CONSISTING OF SANDY CLAY, GRAVEL AND SAND, SOFT SHALE, EARTH OR LOAM. CONSULT WITH OWNER PRIOR TO FILL BEING ADDED.

4) ALL MATERIAL FOR FILL TO BE APPROVED BY OWNER AND ALL COMPACTING RESULTS TO BE COMPLETED TO SPEC'S ALL COMPACTING RESULTS TO BE TURNED OVER TO OWNER.

AFTER COMPLETION OF BELOW GRADE EXCAVATING. AREA TO BE CLEANED AND CLEARED OF ANY UNSUITABLE MATERIALS, SUCH AS TRASH, DEBRIS, VEGETATION AND SO

6) ANY EXCAVATING IN WHICH CONCRETE IS TO BE PLACED SHALL BE SUBSTANTIALLY HORIZONTAL ON UNDISTURBED AND UNFROZEN SOIL AND BE FREE OF ANY LOOSE MATERIAL AND EXCESS GROUND WATER.

7) IF SOUND SOIL IS NOT REACHED AT DESIGNATED EXCAVATION DEPTH, THE POOR SOIL IS TO BE EXCAVATED TO ITS FULL DEPTH AND EITHER REPLACED WITH MECHANICALLY COMPACTED GRANULAR MATERIAL OR THE EXCAVATION TO BE FILLED WITH THE SAME QUALITY CONCRETE SPECIFIED FOR THE FOUNDATION. PLEASE NOTIFY THE PROJECT SUPERVISOR AND THEY WILL HAVE A 3RD PARTY ENGINEERING FIRM CONTACT YOU WITH RECOMMENDATIONS.

8) MECHANICALLY COMPACTED GRANULAR MATERIAL OR CONCRETE OF THE SAME QUALITY SPECIFIED FOR THE FOUNDATIONS TO BE USED IF EXCAVATION EXCEEDED THE OVERALL REQUIRED DEPTH. FOR STABILIZATION OF THE BOTTOM OF THE EXCAVATION, CRUSHED STONE MAY BE USED. STONE, IF USED, SHALL NOT BE USED AS COMPILING CONCRETE THICKNESS. PLEASE NOTIFY THE PROJECT SUPERVISOR AND THEY WILL HAVE A 3RD PARTY ENGINEERING FIRM CONTACT YOU WITH RECOMMENDATIONS.

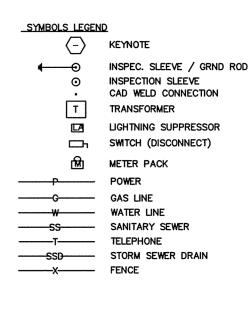
9) EXCAVATION TO COMPOUND TO INCLUDE WEED CONTROL MAT.

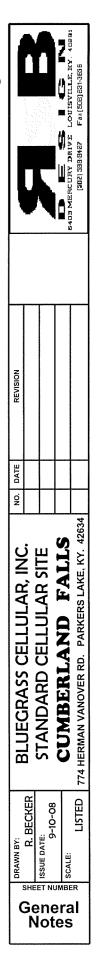
10) SITE TO HAVE PROPER DRAINAGE & EROSION CONTROL (CROWNED FORMATION)

11) GC WILL BE RESPONSIBLE FOR REPAIR OF ALL AREAS DISTURBED DURING CONSTRUCTION. (EXCAVATING ISSUES)

## 'BEFORE YOU DIG'

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE UTILITY PROTECTION CENTER, PHONE 1-800-752-6007, WHICH WAS ESTABLISHED TO PROVIDE ACCURATE LOCATIONS OF UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY THE UTILITY PROTECTION CENTER 48 HOURS IN ADVANCE OF ANY CONSTRUCTION ON THIS PROJECT. ALL NEW SERVICE AND GROUNDING TRENCHES PROVIDE A WARNING TAPE O 12 INCHES BELOW GRADE.



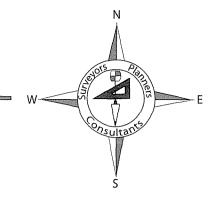


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# Landmark Surveying Co., Inc.

Darren L. Helms, P.L.S., PRESIDENT Dennis N. Helms, P.L.S., VICE PRESIDENT



15 N.E. 3rd Street Washington, Indiana 47501 Phone: 812-257-0950 Fax: 812-257-0953 Email: landmark97@sbcglobal.net

# **Directions to the Site** From the County Seat of McCreary County, Kentucky

## **Cumberland Falls Site** McCreary County, Kentucky

From the McCreary County Courthouse in Whitley City, Kentucky: travel south on Kentucky Highway 1651 for 0.2 miles to Kentucky Highway 478; turn left onto Kentucky Highway 478 and travel east for 0.2 miles to U.S. Highway 27; turn left onto U.S. Highway 27 and travel north for 8.3 miles to Parkers Lake and Kentucky Highway 90; turn right on Kentucky Highway 90 and travel east for 10.7 miles to Herman Vanover Road, which is about 1.3 miles before reaching the Cumberland River; turn left onto Herman Vanover Road and travel easterly 0.9 miles to the tower site at the end of the road and the former amusement attraction known as Six Gun City. The address of the site is 774 Herman Vanover Road, Parkers Lake, Kentucky 42634.

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Darren L. Helms, Kentucky Professional Land Surveyor No. 3386

ບາາາາາາາາາາາາາ **STATE OF KENTUCKY** DARREN L. HELMS 3386 Licensed LICENSED ELAND SURVEYOR ວັກທີ່ທີ່ທີ່ທີ່ທີ່ທີ່ທີ່ທີ່ທີ່ທີ່ທີ່ມີບໍ່ມີ

<u>Aug. 26, 2008</u> Date

# **LEASE AGREEMENT**

THIS AGREEMENT TO LEASE REAL PROPERTY (the "Lease Agreement") is made and entered into this <u>i</u> day of <u>August</u>, 200 <u>B</u> (the "Effective Date"), by and between Connie Clippert (the "Landlord (s)") and Cumberland Cellular Partnership, d/b/a /Bluegrass Cellular, a Kentucky general partnership with a principal office and place of business at 2902 Ring Road, Elizabethtown, KY 42701 (the "Tenant").

## $\underline{WITNESSETH}$ :

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WHEREAS, the Landlord(s) is the owner of certain real property located in <u>McCreary</u> County, Kentucky as more particularly described on Exhibit A attached hereto and incorporated herein by reference (the "Property"); and

WHEREAS, the Landlord(s) wishes to grant to the Tenant, and the Tenant wishes to obtain from the Landlord(s), an agreement to lease the Property upon the terms and conditions set forth herein;

**NOW, THEREFORE,** in consideration of the foregoing premises and for other good and valuable consideration, the mutuality, receipt and sufficiency of which are hereby acknowledged, the parties hereto do agree as follows.

- The parties hereto anticipate that the Property comprises approximately a One Hundred Foot by One Hundred Foot area, and that a right of way will be given by the Landlord(s) for the purposes of ingress and egress throughout the term of the lease. The Tenant shall obtain an accurate survey of the Property by a registered land surveyor licensed in the Commonwealth of Kentucky at the sole expense of the Tenant. A copy of the survey shall be provided to the Landlord(s). The description of the Property shall include the number of acres determined by the surveyor. The Tenant shall obtain said survey within a reasonable time following the date of the Lease Agreement.
- The Tenant may assign this Lease Agreement, and upon any assignment such assignee shall have all the rights, remedies and obligations as if it were the original Tenant hereunder. From and after any such assignment, the term "Tenant" shall refer to such assignee.
- 3. The parties hereto represent to each other that neither has engaged any broker to represent their interests in connection with the transactions contemplated hereby, and each agrees to indemnify the other against any and all claims made by any brokers engaged or purported to be engaged by the other for brokerage commissions or fees in connection with the transactions contemplated hereby.
- 4. The Landlord(s) represents, warrants and covenants to the Tenant that the Landlord(s) has not caused or permitted, and shall not cause or permit, and to the best of Landlords(s)' knowledge no other person has caused or permitted any hazardous material (as defined by any applicable federal, state or local law, rule or regulation) to be brought upon, placed, held, located or disposed of at the Property. In the event any such contamination occurs for which the Tenant becomes legally liable, the

Landlord(s) shall indemnify the Tenant against all claims, damages, judgments, penalties and costs and expenses, including reasonable attorneys' fees, which Tenant may incur. Landlord shall not be responsible for indemnifying the Tenant, however, to the extent such contamination occurs as a result of the intentional or negligent acts or omissions of the Tenant.

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- 5. This Lease Agreement and the rights and obligations of the parties hereto shall be construed in accordance with the laws of the Commonwealth of Kentucky.
- 6. For the purposes of giving notice as permitted or required herein, the address of the Landlord(s)shall be: 124 East Perry St., Versailles, IN 47042; the Tenant's address shall be: 2902 Ring Road, Elizabethtown, KY 42701. Any inquiry by the Landlord to the Tenant regarding the terms and conditions of the Lease Agreement, or otherwise related to the Lease Agreement, shall be made in writing and submitted to the attention of the Tenant's Lease Administrator at the above address.
- The Tenant shall have the right, in its sole discretion, to record this Lease Agreement or a Memorandum of this Lease Agreement in the Office of the Clerk of the County Court of <u>McCreary</u> County, Kentucky.
- 8. The term of the Lease shall commence on the Effective Date. The initial term shall expire five (5) year(s) ("Original Term") from the Effective Date of the Lease Agreement and shall be renewable for up to six (6) additional five (5)-year terms (each a "Renewal Term"). Tenant may, by providing written notice at least sixty (60) days prior to the expiration of the Original Term or any Renewal Term, elect to unilaterally terminate this Lease at the end of any such term. Such notice must be personally delivered or sent via registered or certified mail, return receipt requested,

to the notice address of the Landlord(s) identified in Paragraph 6 hereof. The rent amount shall be adjusted at the end of the Original Term and each Renewal Term, if any, by an increase of fifteen percent (15%).

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The parties hereby further acknowledge that Tenant has not yet received all required governmental, regulatory, and/or other approvals (the "Required Approvals") for the erection of a permanent cellular antenna tower (as distinguished from a "cell on wheels" or "COW") on the Property and that, accordingly, Tenant is executing this Lease Agreement prior to securing those Required Approvals as an accommodation to Landlord. Therefore, Landlord and Tenant agree that Tenant may terminate this Lease Agreement without penalty or other cost in the event that Tenant, in the exercise of its sole judgment and discretion, determines that the Required Approvals are unlikely to be received. In the event Tenant seeks to terminate this Lease Agreement pursuant to this provision, Tenant shall provide Landlord with no less than ten (10) days prior written notice of its intent to do so.

- 9. The Tenant shall pay to the Landlord(s) rent for the Property in the sum of <u>Five</u> <u>Thousand Four Hundred Dollars and Zero Cents (\$5,400.00)</u> yearly, to be paid in advance. All rent payments shall be personally delivered or mailed to the Landlord(s) at the address set forth in Paragraph 6, hereof. Any check payment of the rent due pursuant to this Lease Agreement shall be payable to the order of Landlord(s).
- 10. The Tenant shall be entitled to use and occupy the Property for the purpose of erecting, maintaining and operating a communications tower and communications facilities thereon and for all such other uses as Tenant may, in its sole discretion, deem necessary in connection therewith.

- 11. The Landlord(s) shall be responsible for the payment of all real estate taxes which shall be assessed against the Property during the term of the lease. The Tenant shall pay all charges for heat, water, gas, electricity, sewer use charges and any other utility used or consumed on the Property. The Tenant shall, at its own cost and expense, maintain and keep in full force and effect during the term of the lease public liability insurance with coverage in the amount of at least one million dollars (\$1,000,000.00) per person for bodily injury, disease, or death and shall maintain property insurance on any property the Tenant located on the Property.
- 12. The Tenant may sublet all or part of the space on the tower or ground space.
- 13. The Landlord may sell or otherwise convey the Property subject to the terms of this Lease Agreement. Upon such conveyance, the conveyee of the Property shall have all the rights, remedies and obligations as if it were the original Landlord hereunder. From and after any such conveyance, the term "Landlord" shall refer to such conveyee.
- 14. The Landlord(s) covenants that upon the Tenant's payment of the rent agreed upon herein, as well as Tenant's observing and performing all of the covenants and conditions contained in this Lease Agreement, the Tenant may peacefully and quietly enjoy the Property subject to the terms and conditions set forth in this Lease Agreement.
- 15. The Tenant agrees to maintain an access road in a passable manner for the term of the lease. The access road shall be the Existing Access Road or the Optional Access Road identified in the survey of the Property.

# EXECUTION OF AGREEMENT(S)

IN WITNESS WHEREOF, the parties hereto have set their hands and affixed their

respective seals.

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Connie Clippert	Cumberland Cellular Partnership, d/b/a				
("Landlord")	Bluegrass Cellular ("Tenant")				
By:	By: Ron Smith				
Its:	Its: Authorized Representative				
(If Landlord is signing in individual capacity, leave this line blank.)					

Date: 8-1.08 Date: 0/13/14 \_\_\_\_\_

1 Indiana STATE OF R: COUNTY OF The foregoing instrument was acknowledged before me this 1 day of Aug. + to be his/her free act and deed. 2008, by Lonaie Clippert NOTARY PUBLIC STATE AT LARGE My commission expires: <u>5-14-16</u>

STATE OF KENTUCKY	
COUNTY OF HARDIN	
This instrument was acknowledged	before me this $13$ day of <u>August</u> ,
	tive of Cumberland Cellular Partnership, d/b/a Bluegrass
Cellular	
	Jul I Vill
	NOTARY PUBLIC STATE AT LARGE
	My commission expires: <u>1-21-09</u>

This instrument prepared by:

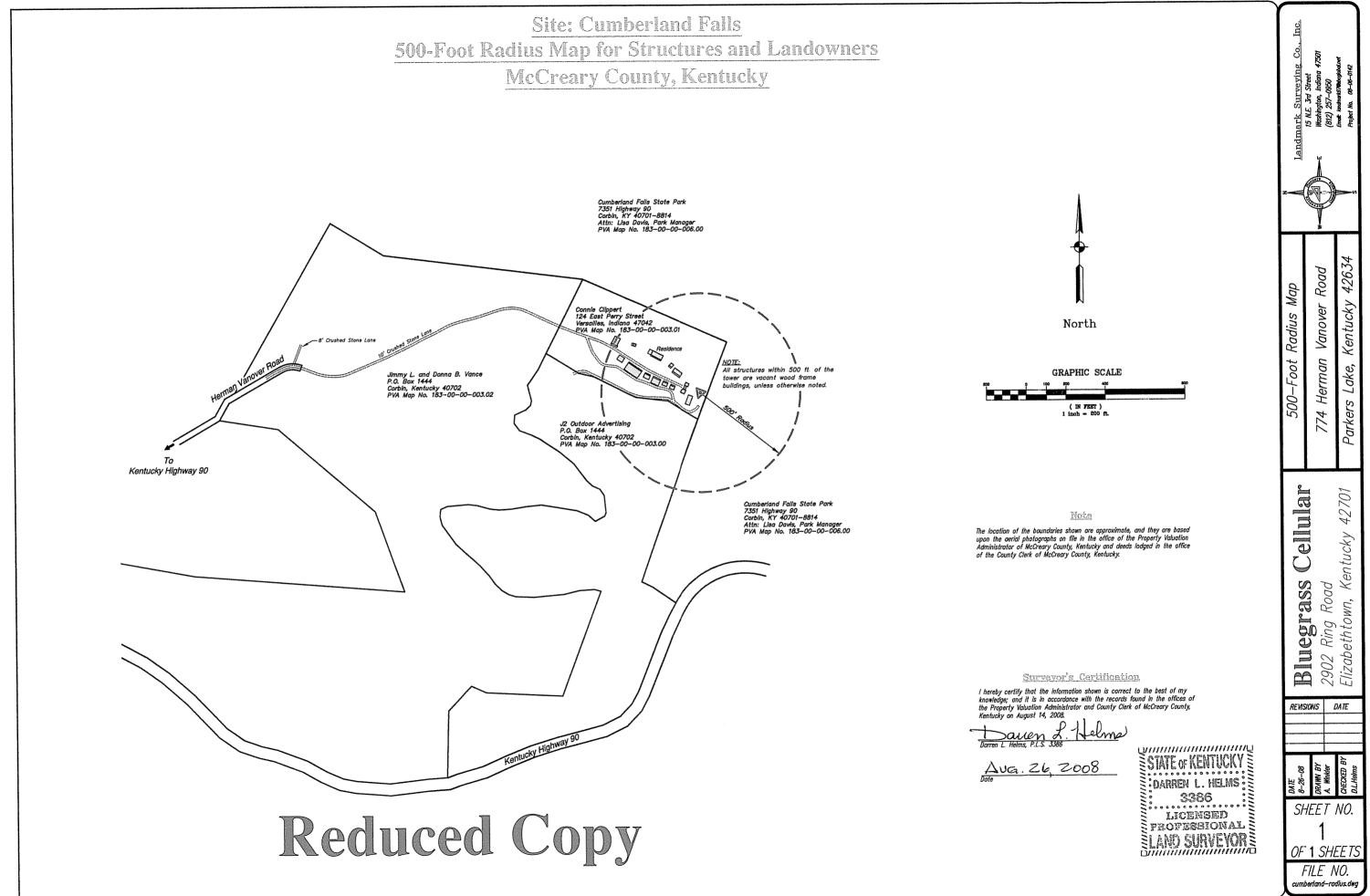
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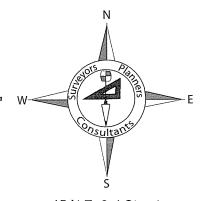
John E. Scient 450 DINSMORE & SHOIL LLP 1400 PNC Plaza 500 West Jefferson Street Louisville, KY 10202 (502) 540-2300

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Darren L. Helms, P.L.S., PRESIDENT Dennis N. Helms, P.L.S., VICE PRESIDENT



15 N.E. 3rd Street Washington, Indiana 47501 Phone: 812-257-0950 Fax: 812-257-0953 Email: landmark97@sbcglobal.net

# Landowner and Adjacent Landowner List

Bluegrass Cellular Cumberland Falls Site McCreary County, Kentucky

Jimmy L. and Donna B. Vance P.O. Box 1444 Corbin, KY 40702

J2 Outdoor Advertising P.O. Box 1444 Corbin, KY 40702 Cumberland Falls State Park 7351 Highway 90 Corbin, KY 40701-8814 Attn: Lisa Davis, Park Manager

Connie Clippert 124 East Perry Street Versailles, IN 47042

Ims Sauen

Darren L. Helms, Kentucky Professional Land Surveyor No. 3386

<u>Aug. 26 2008</u> Date

DARREN L. HELMS DARREN L. HELMS 3386 LICENSED PROFESSIONAL LAND SURVEYOR

## October 31, 2008

Jimmy L. and Donna B. Vance P.O. Box 1444 Corbin, Kentucky 40702

# **<u>Public Notice</u>**

Cumberland Cellular Partnership is a Kentucky general partnership that markets its services as Bluegrass Cellular. Bluegrass Cellular has been serving Central Kentucky with wireless communications services for over 15 years.

Cumberland Cellular Partnership is applying to the Public Service Commission of the Commonwealth of Kentucky (the "Commission") for a Certificate of Public Convenience and Necessity to construct and operate a new cell facility to provide cellular radio service. This facility will include a 130-foot tower to be located at 774 Herman Vanover Road, Parkers Lake, Kentucky, 42634. 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 2008-00363 in your correspondence.

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY		
<ul> <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> <li>Article Addressed to:</li> <li>TIMMY C. A DOMNAVANG P. O. BOX 14444</li> </ul>	A. Signature  A.		
Corbin, KX 40702	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 (Transfer from service label)	1300 0000 4494 0459		
PS Form 3811, February 2004 Domestic I	Return Receipt 102595-02-M-1540		

J2 Outdoor Advertising P.O. Box 1444 Corbin, Kentucky 40702

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Cribin, KY 40702	3. Service-Type Certified Mail Express Mall Registered Return Receip Insured Mail C.O.D. 4. Restricted Delivery? (Extra Fee)	t for Merchandise
The state state of the state of	130050000 4494 0466	
=PS Form 3811, February 2004 Domestic Ret	urn Redelpt	102595-02-M-1540

October 31, 2008

Cumberland Falls State Park Attn: Lisa Davis, Park Manager 7351 Highway 90 Corbin, Kentucky 40701-8814

# **Public Notice**

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Cumberland Cellular Partnership is applying to the Public Service Commission of the Commonwealth of Kentucky (the "Commission") for a Certificate of Public Convenience and Necessity to construct and operate a new cell facility to provide cellular radio service. This facility will include a 130-foot tower to be located at 774 Herman Vanover Road, Parkers Lake, Kentucky, 42634. 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 2008-00363 in your correspondence.

SENDER: COMPLETE THIS SECTION	COMPLETE THIS SECTION ON DELIVERY		
<ul> <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> <li>Article Addressed to: UM barland Falls State Park AHM: Cisa Davis, Park Manager 7351 Highway 90</li> </ul>	A. Signature		
1351 Highway 90 Corbin, KY 40701-8814	Registered     Return Receipt for Merchandise     Insured Mail     C.O.D.		
	4. Restricted Delivery? (Extra Fee)		
2. Article Number ( <i>Transfer from service label</i> ) 7008 130	0 0000 4494 0473		
PS Form 3811. February 2004 Domestic Ret	turn Receipt 102595-02-M-1540		

Connie Clippert 124 East Perry Street Versailles, Indiana 47042

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Versailles, Endiana 47042	3. Service Type         Image: Constraint of the service of the servi	
2. Article Number (Transfer from service label) 7008 1300 0000 4494 0480		
PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-15		



Dinsmore Shohlup ATTORNEYS Kerry W. Ingle 502-540-2354 kerry.ingle@dinslaw.com

October 31, 2008

*Via Certified Mail* McCreary County Judge Executive One North Main St. Whitley City, KY 42653

> RE: Application of Cumberland Cellular Partnership for issuance of a Certificate of Public Convenience and Necessity to Construct a Cell Site (Cumberland Falls) in Rural Service Area #5 (McCreary County), Public Service Commission of the Commonwealth of Kentucky, Case No. 2008-00363

Your Honor:

Cumberland Cellular Partnership ("Cumberland Cellular") is a Kentucky general partnership that markets its services as Bluegrass Cellular. Cumberland Cellular is applying to the Public Service Commission of the Commonwealth of Kentucky (the "Commission") for a Certificate of Public Convenience and Necessity to propose construction and operation for a new facility to provide cellular radio telecommunications service in rural service area (RSA) #5 in McCreary County. The facility will include a 130 ft. tower and an equipment shelter to be located at 774 Herman Vanover Road, Parkers Lake, Kentucky, 42634. 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, P.O. Box 615, Frankfort, Kentucky 40602. Please refer to case number 2008-00363 in your correspondence.

Very truly yours,

DINSMORE & SHOFT LLP

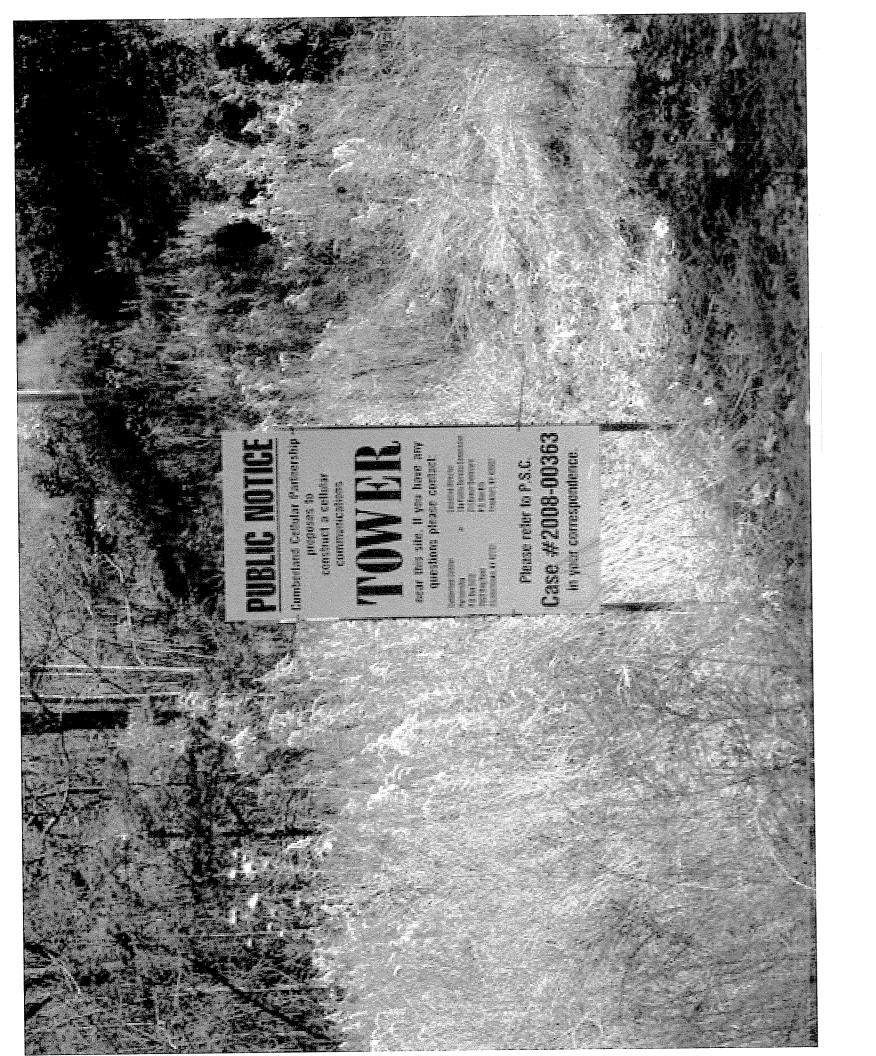
Kerry W. Ins Paralegal

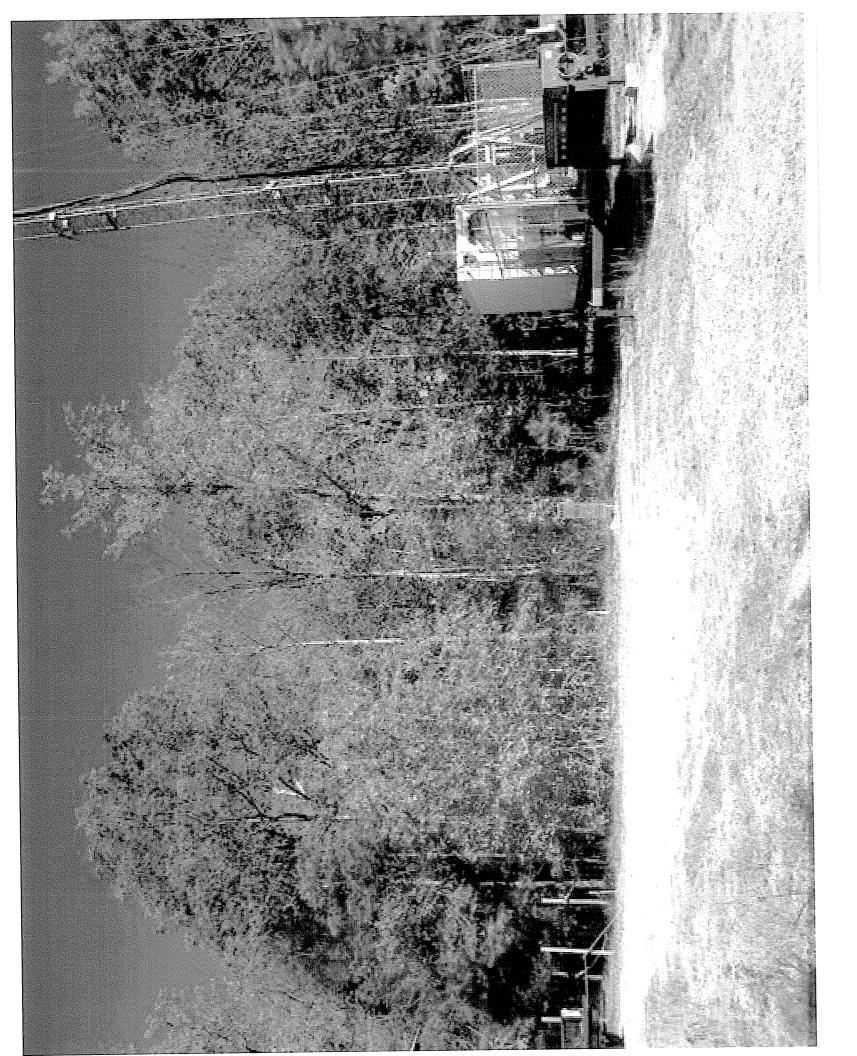
Enclosure

COMPLETE THIS SECTION ON DELIVERY 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 A. Signature Agent Х Finit 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. B. Beceived by (Printed Name) C. Date of Delivery Ph7123 11/5/0 Bline D. Is delivery address different from item 1? If YES, enter delivery address below: 1. Article Addressed to: McCreary CentyJudge Executive One North Main St. 3. Service Type Registered Return Receipt for Merchandise □ Insured Mail □ C.O.D. 12653 4. Restricted Delivery? (Extra Fee) 🛛 Yes 7008 1300 0000 4494 0497 2. Article Number (Transfer from service label) 🛁 102595-02-M-1540 Domestic Return Receipt PS Form 3811, February 2004

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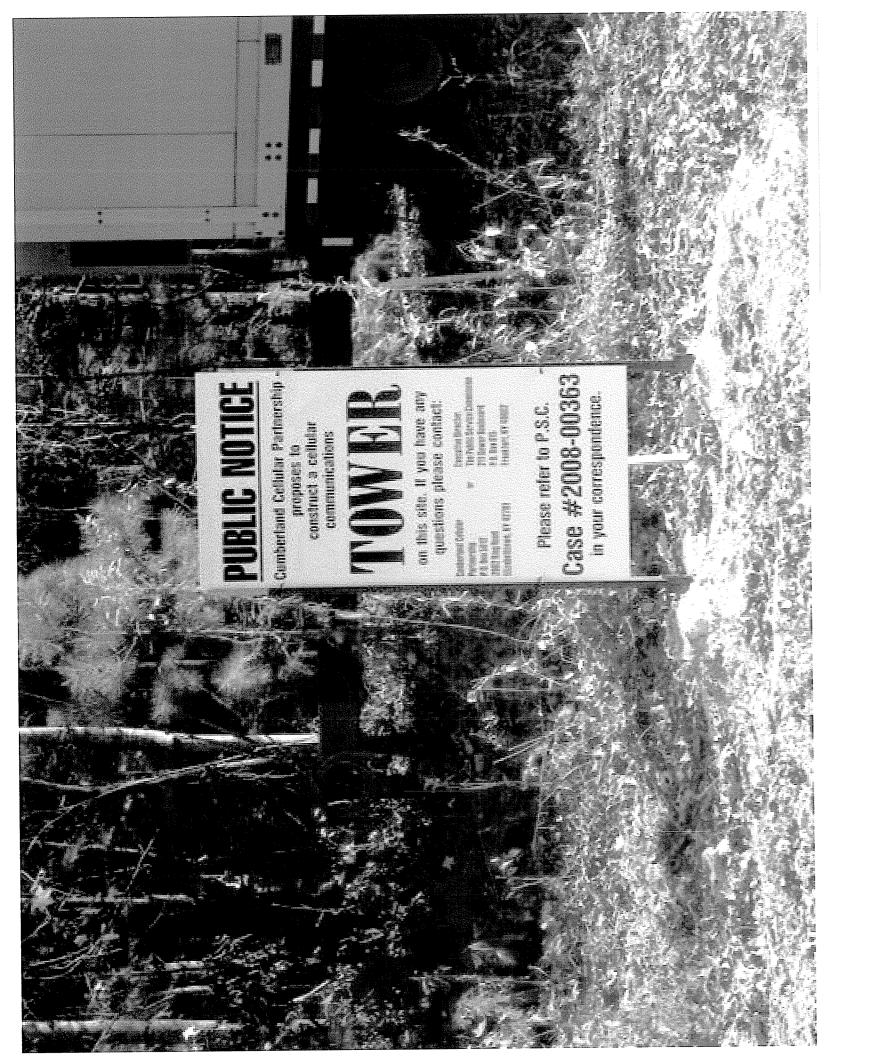
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## AFFIDAVIT OF PUBLICATION

Beth Gibson I, \_\_\_\_\_

of The McCreary County Record, a legal newspaper holding a second class mailing permit, published weekly in Whitley City, county of McCreary, Commonwealth of Kentucky, do swear and subscribe that the attached proof of publication of a legal notice, as required and prescribed by KRS Chapter..., was published in said newspaper in the issue of

Nov. 4 & 11, 2008

10"	_ for which the sum of \$	47.30
is due and paya	- able. () -	
$\bigcirc$		

lilison Bith Signed:

<u>Circulation</u> Title:

Subscribed and sworn to before me, a notary public for the County of McCreary, Commonwealth of

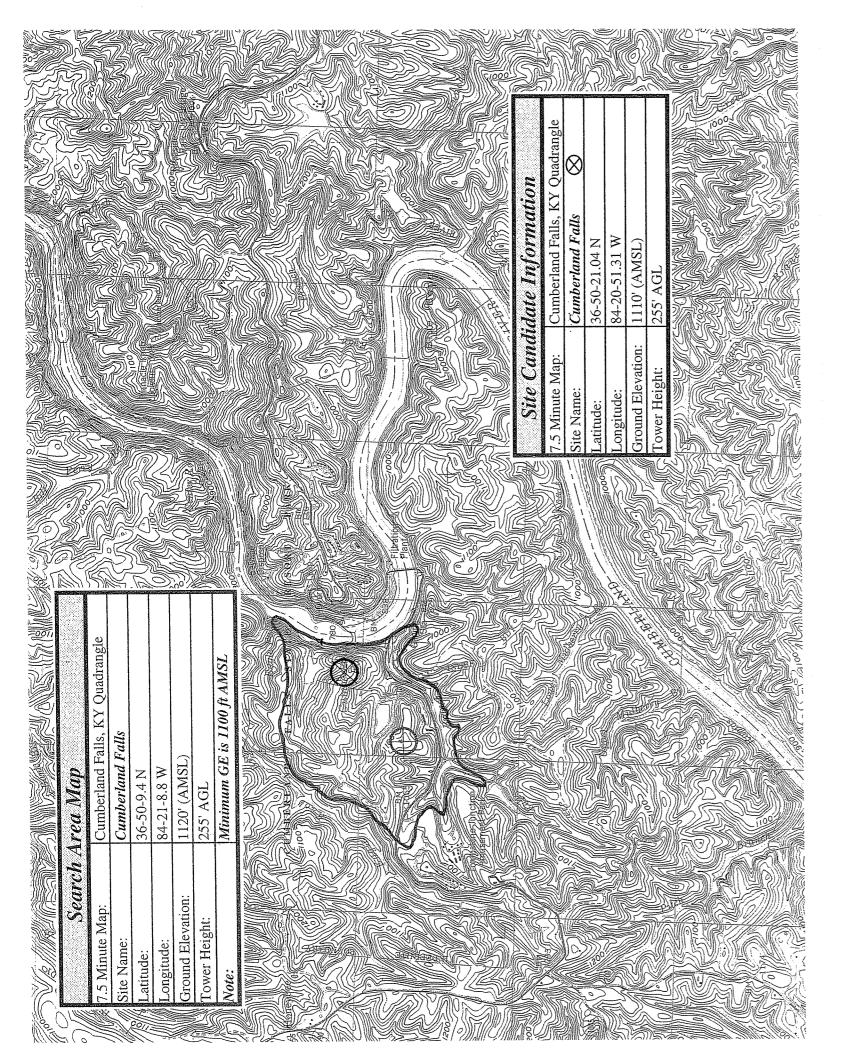
Kentucky, this	<u></u>	12th
day of	November	, A.D. 20 <u>08</u>
Carolin	Jue,	anderon
	Commission of	

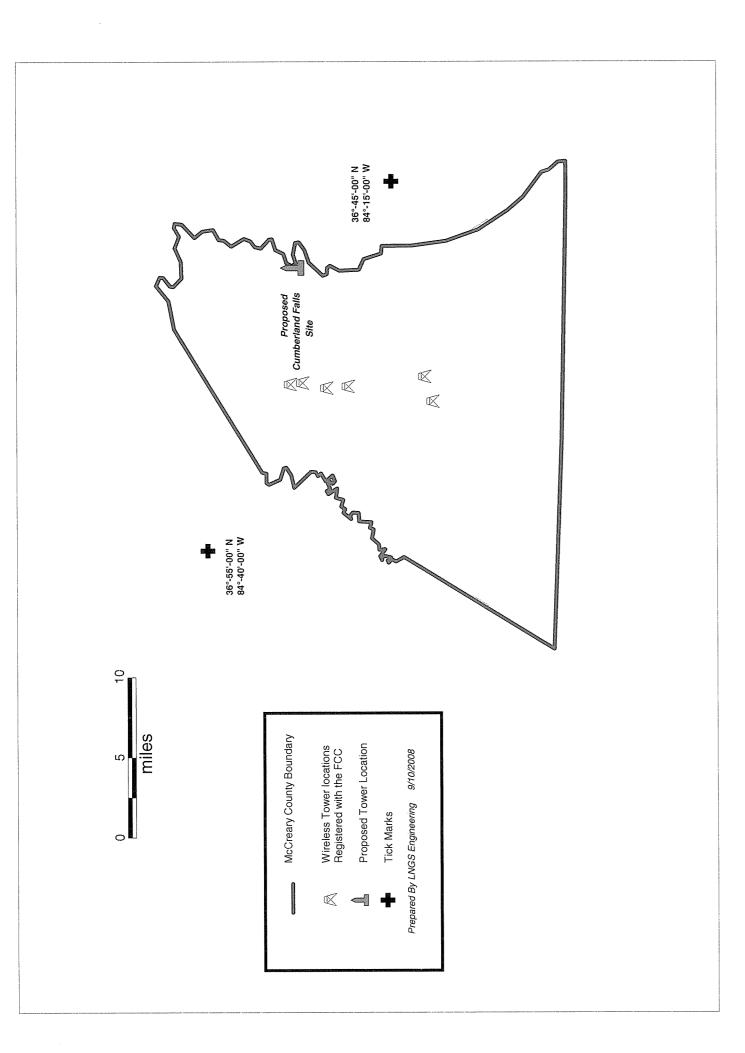
My Commission expires Dec. 17 2008

(SEAL)

vposeal.com 1-800-	Great for Commer-			
434-4628!!!	cial or Private Use!	Rd. 01/2009	Stearns, on Johnny	HAMLIN, Dale, Ronn & Misty- Property
Mystery Shopper	69.97 surveyed acres		Dick Dd 10/00	ponds on Meadow
Earn up to \$100 per				Group Dd 9 Dath 1 D
day. Undercover shop	이 같은 것 같은 것 같은 것 같은 것 같은 것 같은 것 🙆 것 같은 것 같			
pers needed to judge	한 방법을 많은 것이 못 하는 것을 잘 못 하는 것을 하는 것을 못 하는 것을 했다.		Gary Stephens Rd and	
retail and dining estab lishments. Experience	이 같이 있는 것이 같은 것이 같은 것이 같은 것이 없는 것이 없는 것이 없다.		2 goroo him - to it	, = and 1 topc
not required. Call 1-	water. 20 homesites	CANADA, John & Lisa	Creek in Strunk.	& pond Meadow Grove Rd & Airport Ro
800-558-0649/	surveyed/lotted for po-	16 acres, Catron Rd. Whitley City. No tres-	KV07/00	07/09
	tential subdivision in	Dassing not roopened		
Epperson Air	Strunk on Hwy 27 Aer-	ble for accidents		HAMLIN, Eddie- 1
Conditioning, Heat-	ial Shots available	12/08	pool. Rattlesnake	acres. Marsh Creel
ing, Plumbing Elec-	460 Real Estate Wanted		ridge Stearns 00/00	08/09
tric Wish to acquire	Construction of the Constr	COFFEY, Clarence		
similar operating busi-	We Pay Cash for	Nealer Approx 1 1 /2		HAMLIN, Ronald
ness and Assets. Call		acres off Beech Grove		Shirley- Property a pond, Meadows Grov
(606) 679-7476. Located at 112 W University		Rd. 3/09	pool on the Fordie Cof-	rd. 07/09
Drive, Somerset, KY	<ul> <li>grounds- rough wood- ed land and other</li> </ul>	COFFEY, Flora	fey Rd. 06/09	10, 07/03
42503 EOE & Drug	ground- 50 ac to 1,000	A	DOBSON, Doug- 5 1/2	HAMLIN, Ronnie
Free Workplace.	ac and up. call Marion		acres & ponds (540	Misty- All property o
	270-422-2444	Stearns 07/09	Hwy 741) Webb War-	Meadows Grove Ro
215 Help Wanted / Drivers	)		man Hill, Stearns.	07/09
	570 Wanted to Buy	CONSTANT, Jay- Ap-	08/00	
Transport Deluga		prox 6 acres located on		HATFIELD, Herman &
Transport Drivers Must have CDL w/	Buying Gold and Sil-	Mary Shadoan Rd &	DOPLE, Faye Approx.	Larue-50 Acres, Perkins Creek off Murphy
Hazmat & Tanker en-	ver Coins and scrap.	Constant Lane. No	6 acres, HWY 1044, off	kins Creek off Murphy Ridge, Strunk. 10/09
dorsements. At home	561-0100 or 219-2000	Hunting, No Fishing,	Bethel Rd. Pine Knot.	. nugo, ouunk. 10/09
everyday, have insur-		No trespassing 10/09	04/09	HENRY, Dorothea
ance, paid vacations &	600 Services	CORDELL	Foster Dandy & L	3 acres & Pond, Pine
401K. Call 606-679-		CORDELL, Lenville-	Foster, Randy & Linda	Ridge Rd., Stearns.
6316.	840 Painting	Land & 3 ponds, Day Ridge Rd. 01/09	3 tracts on Hwy 742, and Foster Rd. No tres-	8/09
		11090 110. 01/09	passing. 10/09	thra -
	J & D Painting	COX, Dorothy- 25	passing. 10/09	HILL, Roy & Dorothy- 28
	Free Est/Exp. Int.	acres & pond, Hwy. KY	GARLAND, Edward &	acres & pond, 130 Claude Hill Rd, Strunk. 1/15/09
320 Unfurnished Apts.	\$45/room. Woodwork	478 .05/09	Judy & CLARK Kathy-	
	extra. Also Ext paint.		Approx 50 acres on	HORNING, David &
Apartment For Lease.	and Stain 875-1189.	Cox, Lanny & Mary-Ap-	Sweet Gum Rd. 05/09	Nancy 267 acre Farm
2 Bdr, 1 Ba, Open		prox 2 acres on N. Hwy 27		& 4 ponds, Greenwood
Floor Space. No Pets	900 Notices	on Dixie Lane. 12/08	GIBSON, Willie	Area. No Recreational
& No W/D. \$349 mo.	and Manager	동물 관람은 관람은 관계 가지 않는다. 1997년 - 1997년 - 1997년 1997년 - 1997년 -	Approx. 40 Acres at the	Vehicles, not responsi- ble for injuries or acci-
Call 606-875-0216	010 Land Dagted	CRABREE, Chris &	end of Selvidge Lane	dents 01/09
	910 Land Posted	LaRhonda- Approx	05/09	
	ABBOTT, Ernest &	9.10 acres of WCC	GILREATH, Leslie Jr.,	INMAN, Eddie & Shar-
Apartments for rent:	Charlene- Approx. 15	Rd., just Roundtop Rd.	- Approx 15 acrs &	on- Land on Clean on
1&2 bdrms available	acres, house & 2 ga-	08/09	pond Pig Skin Rd.	Strunk Rd., postively
Excellent locations	rages on 1419 Vanover Bidgo Rd Dorker		08/09	no tresspassing. 09/09
in town. Utilities in-	Ridge Rd., Parkers, Lake 07/09	CRABTREE, Brian &		
cluded at some lo-		Lisa Approx. 2 acres	N/AT	IAE 7
cations. Low in-	BALL, Leamon- Ap-	on Bob Musgrove Rd.	NOT	
come family &/or	prox. 51 acres off Kidd	Pool & Property. 07/09	<u></u>	
Elderly Housing 62	School Rd. 2/09		Cumberland Cellular Par	tnership is applying to
yrs. of age or older.	BALL,Geneva-105	CRABTREE, Randy &	the Public Service Comm	ission of Kentucky for a
Handicapped/disa-	acres & 115 acre farm	Lannette- Approx 4 1/2	Certificate of Public Conv	enience and Necessity
bled regaurdless of	at Holly Hill. 01/15/09	acres at the end of Fed	to construct and operate a	a new facility to provide
age. Equal Housing Opportunity.	BRUMETT,-Brummett	Stephens Rd. Pine	cellular radio telecomm	Unications
606-678-5110	Property on Foster Rd.,	Knot 07/09 -	Rural Sonving Area #5	the Q
TDD: 800-247-2510	01/09		Rural Service Area #5 of	ine Commonwealth of
100.000-24/-2010	BOWMAN, Ora & Lor-	CRABTREE, Randy &	Kentucky (Cumbrland Fall	s Cell Site). The facility
	etta- Approx 2 acres on	Lannette- Approx 9.10	is a 130 foot tower and a	n equipment shelter to
365 Storage Units	Woods Rd no trespass-	acres on WCC Rd just	be located at 774 Herman	Nanover Road, Park-
EXCLUSION AND A CONTRACTOR OF	ing at any time. 03/09	on Haoundtop Hd.	ers Lake, Kentucky, 4263	4. Your comments and
Godby & Godby		Strunk 08/09	requests for intervention sl	hould be addressed t
Storage Rentals	Bryant, Dorman Approx		Executive Director's Of	Dublic o
Now Leasing 10x12	27 Acres & pond. 7	entround in the internet	Executive Director's Office	, FUDIIC Service Com-
and 8x10 units Starting	miles down Sandhill rd.	& Rosemary- Approc	mission, Post Office Box 6	15, 211 Sower Boule-
at \$40 to \$50 a month.	1 mile down Hen's	28 acres on Wilson	vard, Frankfort, Kentucky	40602. Please refer to
Contact 305-8411	Nest Rd. 3/09	Ridge Rd. 08/09	Case No. 2008-00363 in y	our correspondence
sector care to a construct the sector of the state of the	승규는 것을 가 가 있는 것이 없는 것이 없다.			
	모습을 한 수집을 얻을 수집할 수 없다. 가지 가지 않는다.			
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0 Notices Mystery Shopper Earn up to \$100 per ay. Undercover shop-	Apartments for rent: 1&2 bdrms available Excellent locations in town. Utilities in-	Estate for Sale	900 Notices 910 Land Posted	COFFEY, Flora Approx 5 & 9/10 acres on Doc West Rd., Stearns 07/09
ers needed to judge tail and dining estab- shments. Experience not required. Call 1- 800-558-0649/	cluded at some lo- cations. Low in- come family &/or Elderly Housing 62 yrs. of age or older.	GOVERMENT FUNDS AVAILABLE! Zero Down if you have a deed to property or rel- atives property. Easy fi-	A THE FOLLOWING PROPERTIES HAVE BEEN POSTED NO TRESPASSING NO HUNTING, NO FISH-	CONSTANT, Jay- Ap- prox 6 acres located on Mary Shadoan Rd & Constant Lane. No
Epperson Air Conditioning, Heat- ng, Plumbing Elec- tric Wish to acquire	Handicapped/disa- bled regaurdless of age. Equal Housing Opportunity. 606-678-5110	nancing!!! 606-678- 8134 FIRST TIME HOME BUYERS SOCIAL	ING, NOT LIABLE FOR ANY ACCI- DENTS OR INJURIES THAT MAY OCCUR.	Hunting, No Fishing, No trespassing 10/09 CORDELL, Lenville-
imilar operating busi- ness and Assets. Call 506) 679-7476. Locat- d at 112 W University	TDD: 800-247-2510	SECURITY SSI IN- COME! WE CAN FI- NANCE WITH OUR SPECIAL LOW PAY- MENT PDOCRAMS!	ABBOTT, Ernest & Charlene- Approx. 15 acres, house & 2 ga- rages on 1419 Vanover	Land & 3 ponds, Day Ridge Rd. 01/09 COX, Dorothy- 25
Drive, Somerset, KY 42503 EOE & Drug Free Workplace. 20 Unfurnished Apts.	325 Duplexes:Furn / Unf. 2br, 2 ba, w/garage, nice yard, no hud, no	MENT PROGRAMS! Zero down with a deed to property or Cash Down As Little As \$3000!!! 606-678-8135	Ridge Rd., Parkers, Lake 07/09 BALL, Leamon Ap-	acres & pond, Hwy. KY 478 .05/09 Cox, Lanny & Mary-Ap- prox 2 acres on N. Hwy 27
2 Bdr, 1 Ba, Open Floor Space. No Pets & No W/D. \$369 mo.	pets. \$525 per mo. 606-451-8811	460 Real Estate Wanted	prox. 51 acres off Kidd School Rd. 2/09 BALL,Geneva-105 acres & 115 acre farm	on Dixie Lane. 12/08 CRABREE, Chris & LaRhonda- Approx
Call 606-875-0216	340 Mobile Homes	We Pay Cash for Land Wanted- Good Hunting grounds- rough wood- ed land and other	at Holly Hill. 01/15/09 BOWMAN, Ora & Lor- etta- Approx 2 acres on Woods Rd no trespass-	9.10 acres of WCC Rd., just Roundtop Rd. 08/09
storage rooms. \$530/month. No pets. 679-2701	mobile home \$350. month &\$150. deposit, big yard, sand Hill 376- 3798 or 606-310-3302	ground- 50 ac to 1,000 ac and up. call Marion	BRUMETT,-Brummett Property on Foster Rd.,	CRABTREE, Brian & Lisa Approx. 2 acres on Bob Musgrove Rd. Pool & Property. 07/09
			01/09 Bryant, Dorman Approx 27 Acres & pond. 7 miles down Sandhill rd. 1 mile down Hen's Nest Rd. 3/09	CRABTREE, Randy & Lannette- Approx 4 1/2 acres at the end of Fed Stephens Rd. Pine Knot 07/09
1100K			CADDELL, George & Daisy-150+ acres, Hol- ly Hill, Bethel Rd. & Be- thel Ridge. Also 375+ acre son both sides Rt. 92, directly east of 3C Rd. 01/2009	CRABTREE, Randy & Lannette- Approx 9.10 acres on WCC Rd just off Raoundtop Rd. Strunk 08/09
"Y	ave your ad place ard Sale Direc	tory"	CAMPBELL, CLINTON & VICKIE Approx. 5.1 acres on 145 Hobert Perkins Rd 1/09	DAUGHERTY, Stanley & Rosemary- Approc 28 acres on Wilson Ridge Rd: 08/09
	Call 606-376-5 ads must be p	선생님 물건을 물건을 다 가 밥을 물건을 잡다. 그 📲	NÒ	TICE
lf you weather,	have to cance we'll rerun ye	el, due to our ad FREE	the Public Service Con Certificate of Public Co	Partnership is applying to mission of Kentucky for a privenience and Necessity te a new facility to provide
	i., & Sat, Nov. ' is Farm Rd, W		cellular radio telecor Rural Service Area #5 Kentucky (Cumbrland	nmunications' service in of the Commonwealth of Falls Cell Site). The facility d an equipment shelter to
Saturday, Stephens I mower, k	ALE - Friday, 8 am-noon Farm Rd. Furn Aitchen table bys & much me	at end of niture, riding & chairs,	be located at 774 Her ers Lake, Kentucky, 42 requests for intervention Executive Director's O mission, Post Office B vard, Frankfort, Kentu	a an equipment sheller to man Vanover Road, Park- 2634. Your comments and on should be addressed to: ffice, Public Service Com- tox 615, 211 Sower Boule- cky 40602. Please refer to a in your correspondence.





## Information on Towers Registered with the FCC in McCreary County and 1/2 Mile Area Outside of the County Boundary

FCC Tower Reg. No.	North Latitude	West Longitude	City, State	Tower Owner
1032038	36-49-48	84-28-38	Greenwood, KY	NORFOLK SOUTHERN CORPORATION
1042231	36-43-12	84-28-13	Whitley City, KY	Global Tower, LLC
1043060	36-42-45	84-29-53	Whitley City, KY	CUMBERLAND CELLULAR PARTNERSHIP DBA = BLUEGRASS CELLULAR
1043464	36-48-29	84-28-59	Whitley City, KY	DukeNet Communication Services, LLC
1233359	36-50-27.1	84-28-44.2	Parkers Lake, KY	Optasite Towers LLC
1258597	36-47-19.7	84-28-52	Whitley City, KY	CUMBERLAND CELLULAR PARTNERSHIP DBA = BLUEGRASS CELLULAR

Prepared By: LNGS Engineering

Page1 of 1

September 10, 2008