COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the matter of:

THE APPLICATION OF EAST KENTUCKY NETWORK, LLC FOR THE ISSUANCE OF A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT A TOWER IN LETCHER COUNTY, KENTUCKY	)	CASE No 2017-00069

East Kentucky Network, LLC, d/b/a Appalachian Wireless, was granted authorization to provide cellular service in the KY-10 Cellular Market Area (CMA452) by the Federal Communications Commission (FCC). FCC license is included as Exhibit 1. East Kentucky Network, LLC merger documents were filed with the Commission on February 2, 2001 in Case No. 2001-022. East Kentucky Network, LLC is a Kentucky Limited Liability Company that was organized on June 16, 1998. East Kentucky Network, LLC is in good standing with the state of Kentucky.

In an effort to improve service in Letcher County, pursuant to KRS 278.020 Subsection 1 and 807 KAR 5:001, East Kentucky Network, LLC is seeking the Commission's approval to construct a 300 foot telecommunications tower on a tract of land located near 6920 Highway 610 W, Myra, Kentucky (37°14'38.9828"N 82°38'20.5173"W). A map and detailed directions to the site can be found in Exhibit 7.

Exhibit 2 is a list of all Property owners or residents according to the Property Valuation Administrator's record who reside or own property within 500 feet of the proposed tower and all property owners who own property contiguous to the property upon which construction is proposed in accordance with the Public Valuation Administrator's records.

Pursuant to 807 KAR 5:063 Section 1(1)(L), Section 1(1)(m), and Section 2, all affected property owners according to the Property Valuation Administrator's record who reside or own

property within 500 feet of the proposed Tower or who own property contiguous to the property upon which construction is proposed were notified by certified mail return receipt requested of East Kentucky Network, LLC's proposed construction and informed of their right to intervene. They were given the docket number under which this application is filed. Enclosed in Exhibit 2 is a copy of that notification.

Letcher County has no formal local planning unit. In absence of this unit, the Letcher County Judge Executive's office was notified by certified mail, return receipt requested of East Kentucky Network, LLC's proposal and informed of its right to intervene. The Letcher County Judge Executive's Office was also given the docket number under which this application is filed. Enclosed in Exhibit 3 is a copy of that notification.

Notice of the location of the proposed construction was published in The Mountain Eagle, February 22, 2017 edition. Enclosed in Exhibit 3 is a copy of that notice. The Mountain Eagle is the newspaper with the largest circulation in Letcher County.

A geologist was employed to determine soil and rock types and to ascertain the distance to solid bedrock. The geotechnical report is enclosed as Exhibit 4.

A copy of the tower design information is enclosed as Exhibit 5. The proposed tower has been designed by engineers at World Tower Company, Inc. and will be constructed under their supervision. Their qualifications are evidenced in Exhibit 5 by the seal and signature of the registered professional engineer responsible for this project.

The tower will be erected by S & S Tower Services of St. Albans, West Virginia. S & S Tower Services has vast experience in the erection of communications towers.

FAA and Kentucky Airport Zoning Commission approvals are included as Exhibit 6.

No Federal Communications Commission approval is required prior to construction of this facility. Once service is established from this tower we must immediately notify the Federal

Communications Commission of its operation. Prior approval is needed only if the proposed facility increases the size of the cellular geographic service area. This cell site will not expand the cellular geographic service area.

East Kentucky Network, LLC will finance the subject Construction with earned surplus in its General Fund.

Estimated Cost of Construction	$ 350,000.00
Annual Operation Expense of Tower	$ 12,500.00

Two notice signs meeting the requirements prescribed by 807 KAR 5:063, Section 1(2), measuring at least two (2) feet in height and four (4) feet in width and containing all required language in letters of required height, have been posted, one at a visible location on the proposed site and one on the nearest public road. The two signs were posted on February 14, 2017, and will remain posted for at least two weeks after filing of this application as specified.

Enclosed in Exhibit 8 is a copy of East Kentucky Network, LLC's Memorandum of Lease for the site location along with a lot description.

The proposed construction site is on a reclaimed surface mining site some distance from the nearest structure.

East Kentucky Network, LLC's operation will not affect the use of nearby land nor its value. No more suitable site exists in the area. A copy of the search area map is enclosed in Exhibit 7. No other tower capable of supporting East Kentucky Network, LLC's load exists in the general area; therefore, there is no opportunity for co-location of our facilities with anyone else.

Enclosed, and filed as Exhibit 9 is a survey of the proposed tower site signed by a Kentucky registered professional engineer.

Exhibit 10 is a map in one (1) inch equals 200 feet scale identifying every structure and every owner of real estate within 500 feet of the proposed tower.

Enclosed as Exhibit 11 is a map identifying every person who, according to the Property Valuation Administrator, owns property contiguous to the property upon which the construction is proposed.

Exhibit 12 contains a vertical sketch of the tower supplied by Jody G. Hunt, Kentucky registered professional engineer.

WHEREFORE, Applicant, having met the requirements of KRS 278.020(1), 278.650, and 278.665 and all applicable rules and regulations of the PSC, respectfully requests that the PSC accept the foregoing Application for filing and grant a Certificate of Public Convenience and Necessity to construct and operate the proposed tower.

The foregoing document was prepared by Cindy D. McCarty, Staff Attorney at East Kentucky Network, LLC d/b/a Appalachian Wireless. All related questions or correspondence concerning this filing should be mailed to East Kentucky Network, LLC d/b/a/ Appalachian Wireless, 101 Technology Trail, Ivel, KY 41642.

SUBMITTED BY: Lynn Haney DATE: 2/16/17
Lynn Haney, Regulatory Compliance Director

APPROVED BY: W A Gillum DATE: 2-17-17
W.A. Gillum, General Manager

ATTORNEY: Cindy D. McCarty DATE: 2-16-17
Hon. Cindy D. McCarty, Attorney

CONTACT INFORMATION:

W.A. Gillum, General Manager
Phone: (606) 477-2355, Ext. 111
Email: wagillum@ekn.com

Lynn Haney, Regulatory Compliance Director
Phone: (606) 477-2355, Ext. 1007
Email: lhaney@ekn.com

Cindy D. McCarty, Attorney
Phone: (606) 477-2355 ext. 1006
Email: cmccarty@ekn.com

Mailing Address:

East Kentucky Network, LLC
d/b/a Appalachian Wireless
101 Technology Trail
Ivel, KY 41642

1. FCC License
2. Copies of Cell Site Notices to Land Owners
3. Notification of County Judge Executive and Newspaper Advertisement
4. Universal Soil Bearing Analysis
5. Tower Design
6. FAA and KAZ C Approvals
7. Driving Directions from County Court House and Map to Suitable Scale
8. Memorandum of Lease for Proposed Site with Legal Description
9. Survey of Site Signed/Sealed by Professional Engineer Registered in State of Kentucky
10. Site Survey Map with Property Owners Identified in Accordance with PVA of County
11. Contiguous Property Owners Map
12. Vertical Profile Sketch of Proposed Tower

ULS License

Cellular License - KNKN809 - East Kentucky Network, LLC d/b/a Appalachian Wireless

Call Sign	KNKN809	Radio Service	CL - Cellular
Status	Active	Auth Type	Regular

Market

Market	CMA452 - Kentucky 10 - Powell	Channel Block	B
Submarket	0	Phase	2

Dates

Grant	08/30/2011	Expiration	10/01/2021
Effective	08/30/2011	Cancellation	

Five Year Buildout Date

10/17/1996

Control Points

1 US Route 23, FLOYD, Harold, KY
P: (606)478-2355

Licensee

FRN	0001786607	Type	Limited Liability Company

Licensee

East Kentucky Network, LLC d/b/a Appalachian Wireless
101 Technology Trail
Ivel, KY 41642
ATTN Gerald Robinette, Manager

P:(606)477-2355
F:(606)874-7551

Contact

Lukas, Nace, Gutierrez & Sachs, LLP
Pamela L Gist Esq
8300 Greensboro Drive
McLean, VA 22102

P:(703)584-8665
F:(703)584-8695
E:pgist@fcclaw.com

Ownership and Qualifications

Radio Service Type: Mobile

Regulatory Status: Common Carrier Interconnected: Yes

Alien Ownership
The Applicant answered "No" to each of the Alien Ownership questions.

Basic Qualifications
The Applicant answered "No" to each of the Basic Qualification questions.

EXHIBIT II: LIST OF PROPERTY OWNERS:

Statement Pursuant to Section 1 (1) (I) 807 KAR 5:063

Section 1 (1)(I) 1. The following is a list of every property owner who according to property valuation administrator's records, owns property within 500 feet of the proposed tower and each have been: notified by certified mail, return receipt requested, of the proposed construction,

Section 1 (1)(I) 2. Every person listed below who, according to the property valuation administrator's records, owns property within 500 feet of the proposed tower has been: Given the Commission docket number under which the application will be processed: and

Section 1 (1)(I) 3. Every person listed below who, according to property valuation administrator's records owns property within 500 feet of the proposed tower has been: Informed of his right to request intervention.

Section 2. If the construction is proposed for an area outside the incorporated boundaries of a city, the application shall state that public notices required by Section 1(1)(L) have been sent to every person who, according to the property valuation administrator, owns property contiguous to the property upon which the construction is proposed

Pike-Letcher Land
c/o Marshall Resources Inc.
P.O. Box 2100
Pikeville, KY 41502

Shannon Mullins
519 Bear Fork
Jenkins, KY 41537

Michael and Sona Burke
1298 Beefhide Creek
Jenkins, KY 41537

City of Jenkins
P.O. Box 458
Jenkins, KY 41537

Michael Burke
1298 Beefhide Creek
Jenkins, KY 41537

Paula Kavolus
12 Abbott Trail
Greenville, SC 29602

Irene Fleming Estate
4550 Long Fork Road
Virgie, KY 41572

Commonwealth of Kentucky
Transportation Cabinet
200 Mero Street
Frankfort, KY 40601

EAST KENTUCKY NETWORK
101 TECHNOLOGY TRAIL
IVEL, KY 41642
PHONE: (606) 874-7550
FAX: (606) 874-7551

EAST KENTUCKY NETWORK

VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

February 22, 2017

Pike Letcher Land, Inc.
c/o Marshall Resources, Inc.
P.O. Box 2100
Pikeville, KY 41502

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00069)

East Kentucky Network, LLC d/b/a Appalachian Wireless has applied to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct and operate a new facility to provide cellular telecommunications service in Letcher County. The facility will include a 300-foot self-supporting tower with attached antennas extending upwards, and an equipment shelter located on a tract of land near 6920 Highway 610 W, Myra, Kentucky. A map showing the location of the proposed new facility is enclosed. This notice is being sent to you because you may own property within a 500' radius of the proposed tower or own property contiguous to the property upon which construction is proposed.

The Commission invites your comments regarding the proposed construction. You also have the right to intervene in this matter. The Commission must receive your initial communication within 20 days of the date of this letter as shown above.

Your comments and request for intervention should be addressed to: Executive Director's Office, Public Service Commission of Kentucky, P.O. Box 615, Frankfort, KY 40602. Please refer to Case No. 2017-00069 in your correspondence.

If you have any questions for East Kentucky Network, LLC, please direct them to my attention at the following address: East Kentucky Network, LLC, 101 Technology Trail, Ivel, KY 41642 or call me at 606-477-2355, Ext. 1007.

Sincerely,

Lynn Haney

Lynn Haney
Regulatory Compliance Director
Enclosure 1

EAST KENTUCKY NETWORK
101 TECHNOLOGY TRAIL
IVEL, KY 41642
P: (606) 874-7550
F: (606) 874-7551

EAST KENTUCKY NETWORK

VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

February 22, 2017

Shannon Mullins
519 Bear Fork
Jenkins, KY 41537

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00069)

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Sincerely,

Lynn Haney

Lynn Haney
Regulatory Compliance Director
Enclosure 1

EAST KENTUCKY NETWORK
101 TECHNOLOGY TRAIL
IVEL, KY 41642
PHONE: (606) 874-7550
FAX (606) 874-7551

EAST KENTUCKY NETWORK

VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

February 22, 2017

Michael and Sona Burke
1298 Beefhide Creek
Jenkins, KY 41537

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Sincerely,

Lynn Haney

Lynn Haney
Regulatory Compliance Director
Enclosure 1

EAST KENTUCKY NETWORK
101 TECHNOLOGY TRAIL
IVEL, KY 41642
PHONE (606) 874-7550
F (6) 874-7551

EAST KENTUCKY NETWORK

VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

February 22, 2017

City of Jenkins
P.O. Box 458
Jenkins, KY 41537

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00069)

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Sincerely,

Lynn Haney

Lynn Haney
Regulatory Compliance Director
Enclosure 1

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PHONE (606) 874-7550
FAX (606) 874-7551

EAST KENTUCKY NETWORK

VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

February 22, 2017

Michael Burke
1298 Beefhide Creek
Jenkins, KY 41537

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Sincerely,

Lynn Haney

Lynn Haney
Regulatory Compliance Director
Enclosure 1

EAST KENTUCKY NETWORK
101 TECHNOLOGY TRAIL
IVEL, KY 41642
PHONE: (606) 874-7550
FAX: (606) 874-7551

EAST KENTUCKY NETWORK

VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

February 22, 2017

Paula Kavolus
12 Abbott Trail
Greenville, SC 2962

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00069)

East Kentucky Network, LLC d/b/a Appalachian Wireless has applied to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct and operate a new facility to provide cellular telecommunications service in Letcher County. The facility will include a 300-foot self-supporting tower with attached antennas extending upwards, and an equipment shelter located on a tract of land near 6920 Highway 610 W, Myra, Kentucky. A map showing the location of the proposed new facility is enclosed. This notice is being sent to you because you may own property within a 500' radius of the proposed tower or own property contiguous to the property upon which construction is proposed.

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Sincerely,

Lynn Haney

Lynn Haney
Regulatory Compliance Director
Enclosure 1

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IVEL, KY 41642
PHONE: (606) 874-7550
F 6) 874-7551

EAST KENTUCKY NETWORK

VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

February 22, 2017

Irene Fleming Estate
4550 Long Fork Road
Virgie, KY 41572

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00069)

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Sincerely,

Lynn Haney

Lynn Haney
Regulatory Compliance Director
Enclosure 1

EAST KENTUCKY NETWORK
101 TECHNOLOGY TRAIL
IVEL, KY 41642
PH (606) 874-7550
FA (606) 874-7551

EAST KENTUCKY NETWORK

VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

February 22, 2017

Commonwealth of Kentucky
Transportation Cabinet
200 Mero Street
Frankfort, KY 40601

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00069)

East Kentucky Network, LLC d/b/a Appalachian Wireless has applied to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct and operate a new facility to provide cellular telecommunications service in Letcher County. The facility will include a 300-foot self-supporting tower with attached antennas extending upwards, and an equipment shelter located on a tract of land near 6920 Highway 610 W, Myra, Kentucky. A map showing the location of the proposed new facility is enclosed. This notice is being sent to you because you may own property within a 500' radius of the proposed tower or own property contiguous to the property upon which construction is proposed.

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Sincerely,

Lynn Haney

Lynn Haney
Regulatory Compliance Director
Enclosure 1

Appalachian Wireless Location Map

Site Name	Location	GPS Location
Beefhide Site	6920 HWY. 610 W Myra, KY.	N 37 14 38.9828 W 82 38 20.5173

dba Appalachian Wireless
101 Technology Trail
Ivel, KY 41642
Phone: 606-477-2355
Fax: 606-791-2225

EAST KENTUCKY NETWORK

To:	The Mountain Eagle Attn: Classifieds	**From:**	Raina Helton Regulatory Compliance Assistant
Email:	Pwalker_eagle@hotmail.com	**Date:**	February 17, 2017
Re:	PUBLIC NOTICE ADVERTISEMENT	**Pages:**	1

Please place the following Public Notice Advertisement in The Mountain Eagle to be ran on February 22, 2017.

PUBLIC NOTICE:

RE: Public Service Commission of Kentucky (CASE NO. 2017-00069)

Public Notice is hereby given that East Kentucky Network, LLC, dba Appalachian Wireless has applied to the Kentucky Public Service Commission to construct a cellular telecommunications tower on a tract of land located near 6920 Highway 610 W, Myra, Kentucky. The proposed tower will be a 300 foot self-supporting tower with attached antennas. If you would like to respond to this notice, please contact the Executive Director, Public Service Commission, 211 Sower Boulevard, PO Box 615, Frankfort, Kentucky 40602. Please refer to Case No. 2017-00069.

If you have any questions about the placement of the above mentioned notice, please call me at 606-477-2375, ext. 1005.

Thank you,

Raina Helton
Regulatory Compliance Assistant

EAST KENTUCKY NETWORK
101 TECHNOLOGY TRAIL
IVEL, KY 41642
PHONE: (606) 874-7550
FAX: (606) 874-7551

EAST KENTUCKY NETWORK

VIA: U.S. CERTIFIED MAIL

February 22, 2017

Jim T. Ward, Judge Executive
156 Main Street, Suite 107
Whitesburg, KY 41858

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00069)

East Kentucky Network, LLC d/b/a Appalachian Wireless has applied to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct and operate a new facility to provide cellular telecommunications service in Letcher County. The facility will include a 300-foot self-supporting tower with attached antennas extending upwards, and an equipment shelter located on a tract of land near 6920 Highway 610 W, Myra, Kentucky. A map showing the location of the proposed new facility is enclosed. This notice is being sent to you because you are the County Judge Executive of Letcher County.

The Commission invites your comments regarding the proposed construction. You also have the right to intervene in this matter. The Commission must receive your initial communication within 20 days of the date of this letter as shown above.

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If you have any questions for East Kentucky Network, LLC, please direct them to my attention at the following address: East Kentucky Network, LLC, 101 Technology Trail, Ivel, KY 41642 or call me at 606-477-2355, Ext. 1007.

Sincerely,

Lynn Haney

Lynn Haney
Regulatory Compliance Director
Enclosure

Appalachian Wireless Location Map

Site Name	Location	GPS Location
Beefhide Site	6920 HWY. 610 W Myra, KY.	N 37 14 38.9828 W 82 38 20.5173

APPALACHIAN WIRELESS
Geotechnical Investigation on the Beefhide Site
Letcher County, Kentucky
ERMC² Project No. 165-000-0033

PREPARED FOR:
Appalachian Wireless.
101 Technology Trail
Ivel, Kentucky 41642

PREPARED BY:
Richard Dirk Smith PE, PLS
General Manager Appalachian Region
ENVIRONMENTAL RESOURCES MANAGEMENT CONSULTING COMPANY
230 Swartz Drive
Hazard, Kentucky 41701

_____, 20215, January 16th, 2017

EXECUTIVE SUMMARY

A geotechnical investigation has been performed on the Beefhide tower site, located in Letcher County, Kentucky. This site is readily accessible. A location map is shown in Figure 1 of this report. Four (4) borings were advanced to depths ranging from 24.5 ft. to 25.2 ft. The following geotechnical considerations were identified:

- Borings utilized for this study encountered mine spoil to a depth of 9.5 ft. Underlying shales and sandstones were encountered to a depth of 25.2 ft. The estimated proposed base elevation of tower foundation is 2187.0 ft.
- This site is on the edge of a reclaimed mine area.
- **The allowable bearing capacities of the underlying sandstone is estimated at 6 tsf.**
- The 2015 International Building Code seismic site classification for this site is "B".
- If during the foundation design it becomes necessary to lower the base of the footer, alternate design recommendations are included in section 5.3 of this report.
- Close monitoring of the construction operations discussed herein will be critical in achieving the design subgrade support. We therefore recommend that ErMC^2 be retained to monitor this portion of the work.

This executive summary is included to provide a general overview of the project and should not be relied upon except for the purpose it was prepared. Please rely on the complete report for the information on the findings, recommendations and all other concerns.

1. INTRODUCTION

Environmental Resources Management Consulting Company (ErMC^2) was retained by Mr. Marty Thacker of Appalachian Wireless to prepare a geotechnical engineering report for the proposed tower site located on the Beefhide Property, in Letcher County, Kentucky. A site location map is shown in Figure No. 1.

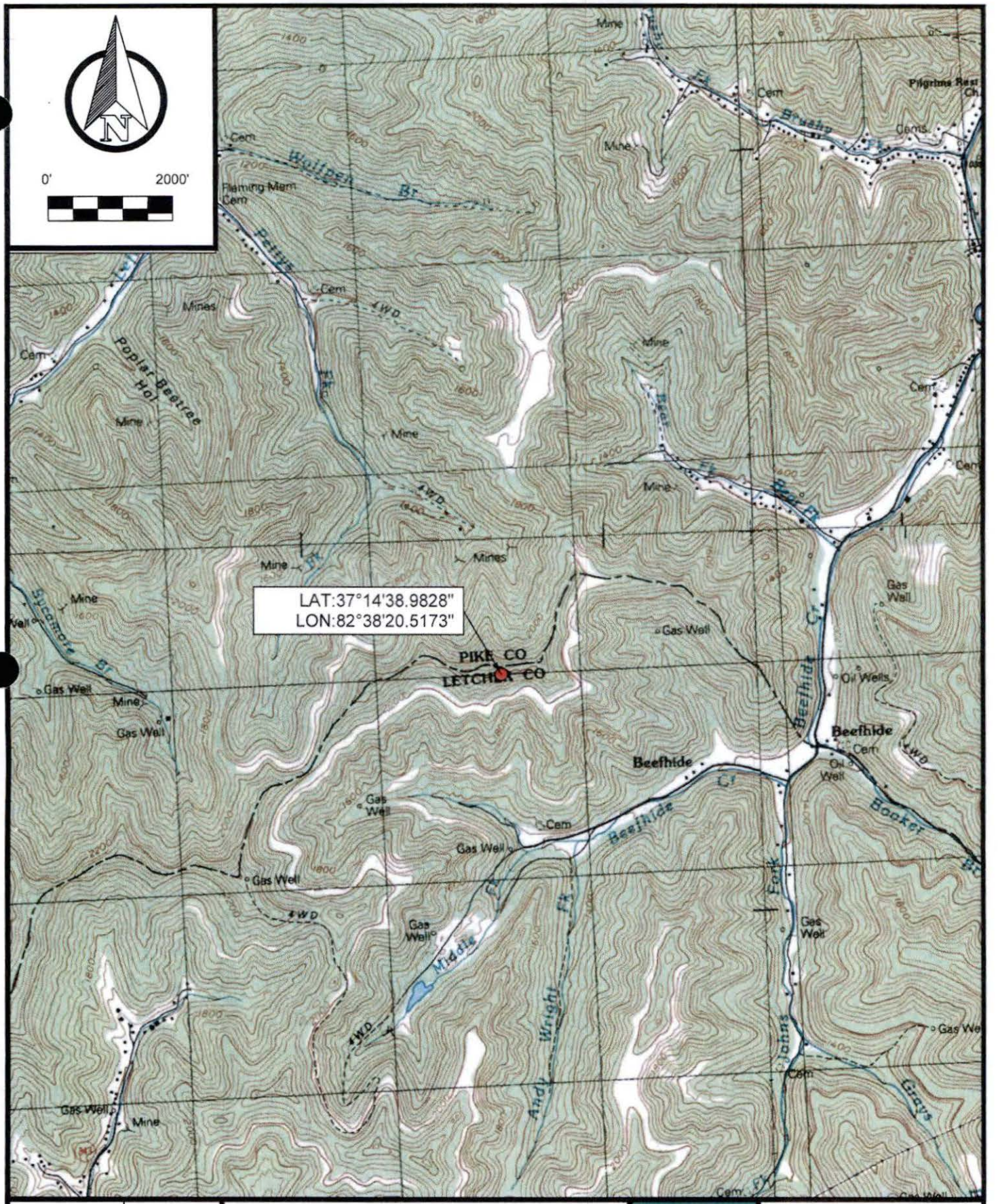
Four (4) borings were advanced to depths ranging from 24.5 ft. to 25.2 ft. Horn and Associates, Inc. provided drilling services to obtain these borings. Logs of the borings along with a boring location plan are included in Appendix A. The purpose of these services is to provide information and geotechnical engineering recommendations relative to subsurface conditions, earthwork, seismic considerations, groundwater conditions and foundation design.

2.0 PROJECT DESCRIPTION

The proposed communication facility will consist of a self-supporting tower of undetermined height and ancillary support area s. The footing area wi ll be approximately 38 ft. x 38 ft. with an estimated base of the tower footer elevation at 2187.0 ft. Based upon information provided, we estimate the structural loads will be similar to the following conditions;

CONDITION	LOAD
Total Shear	40 Kips
Axial Load	50 Kips

We anticipate that overturning will govern the structur al design. If the loading is significantly different than these expected values, ErMC^2 should be notifi ed to re-evaluate the recommendations provided in this report.



Drawn:	Date: 12/7/16
Job:	Scale: 1"=2000'
Drawing: USGS QUAD SITE LOCATION MAP	

BEEFHIDE SITE

APPALACHIAN WIRELESS

USGS QUAD LOCATION MAP

ErMC²

921 Beasley Street, Suite 145
Lexington, KY 40509
(859)381-1000
engineering@ermc2.us

3.0 SITE DESCRIPTION & HISTORICAL MINING

3.1 GENERAL INFORMATION

The site location is a relatively flat existing reclaimed mine site at the top of a backfilled highwall. The site has reasonable vegetative cover, with an existing high wall to the south. There is some minimal fill material on the existing bench with underlying shale rock beneath.

ErMC^2 reviewed available historical mine maps from the Kentucky Division of Mine Safety, Kentucky Mine Mapping Information System ("KMMIS"). Based on available data, significant historical surface and underground mining has occurred.

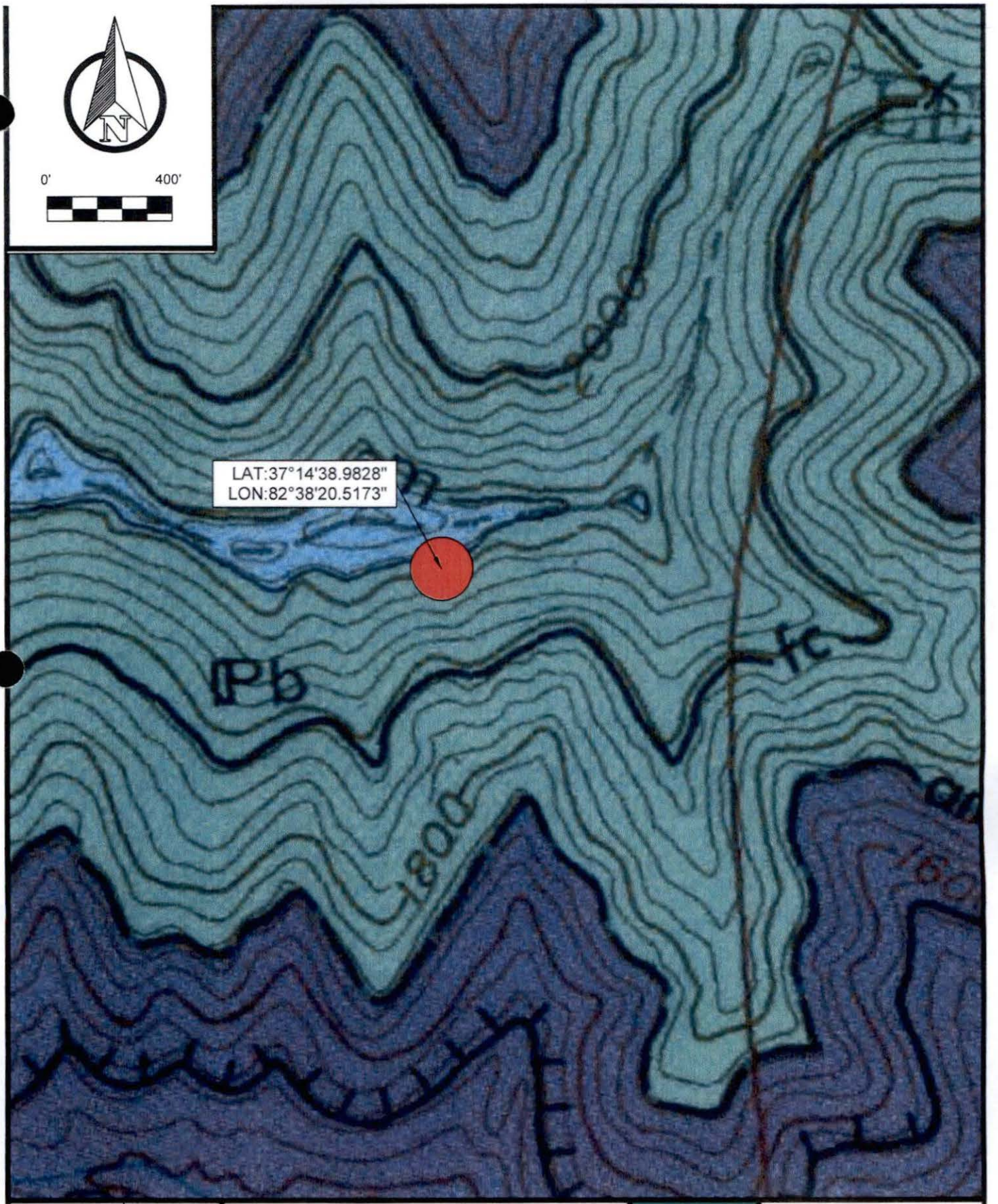
3.2 SURFACE MINING

The site was contoured and area mined primarily by Teco Coal Permit No. 898-0732. Based upon mine maps obtained from Kentucky Mine Mapping Information System (KMMIS), the Taylor coal seam was mined at an approximate elevation of ±2018', the Fire Clay Seam at an approximate elevation of ±2000', the Hazard No. 4 Seam at an elevation of ±1960', the Whitesburg Seam at ± 1835-1860', and the Amburgey at ± 1710'. Maps are included in Appendix E of this report that demonstrates mining in these seams.

The surface mined coal seams which may have impact on the proposed tower site are the Whitesburg and the Hazard No. 4 Seams. There is an existing wall adjacent to the tower site that was created during the mining operations. All borings encountered rock above the top of the highwall. During construction, care should be taken to insure that the existing wall is not immediately adjacent to final placement of the towe r foundations. If any support facilities are near or over the edge of the backfilled wall, additional remediation may be necessary.

3.3 UNDERGROUND MINING

Our research found underground works that are underneath the proposed tower site. Underground mining in the Amburgey and Upper Elkhorn Seam exist immediately below the proposed tower site. Mine Maps and subsidence evaluation are included in appendices of this report.



wn:	Date: 12/7/16
Job:	Scale: 1"=400'
Drawing: GQ QUAD SITE LOCATION MAP	

BEEFHIDE SITE

APPALACHIAN WIRELESS

GQ QUAD LOCATION MAP

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4.0 FIELD EXPLORATION

4.1 SITE INFORMATION

A boundary survey was conducted on the Beefhide Property and provided to ErMC^2. The proposed tower location was established and tied to the existing boundary. An estimated footer location was determined and boring locations were placed at the corners of proposed foundation for the towers support.

4.2 BORING DATA

Four (4) borings were made in the relative positions shown on the Boring Location Map in Appendix A. The boring logs and resulting data are also included in Appendix A. The borings were made with a track mounted boring rig using hollow-stem augers and employing standard penetration resistance methods (ASTM D-1 586, which includes 140-pound hammer, 30-inch drop, and two-inch-O.D. split-spoon sampler) at maximum depth intervals of five feet or at major changes in stratum, whichever occurred first. The disturbed split-spoon samples were visually classified, logged, sealed in moisture-proof jars, and taken to the ErMC^2 laboratory for study. The depths where these "A"-type split-spoon samples were collected are noted on the boring logs. The results of the natural moisture contents by boring and interval are shown in Table 1.

TABLE 1

RESULTS OF NATURAL MOISTURE CONTENT TESTS (ASTM D-4643)

BORING NO.	DEPTH INCREMENT, (FT.)	NATURAL MOISTURE CONTENT, %
B1	4.5-6.5	10.7 %
B1	9.5-10.3	10.1 %
B1	14.5-15.1	7.7 %
B2	4.5-5.5	3.2 %
B2	9.5-10.2	8.5 %
B2	14.5-15.0	14.2 %

BORING NO.	DEPTH INCREMENT, (FT.)	NATURAL MOISTURE CONTENT, %
B3	4.5-6.0	4.0 %
B3	9.5-11.6	7.2 %
B4	4.0-5.5	10.3 %
B4	9.0-10.5	13.8 %

The borings encountered mine spoil to a maximum depth of 15.1 ft. The borings were extended by "NX" size rock core that were taken to confirm the presence of rock at the site and to determine its physical characteristics. The core was made with "NX" size diamond coring equipment. These borings range in depth from 14.0 ft. to 25.2 ft. The position at which the core was taken are indicated on the boring logs and shown on the boring location map in Appendix A. The corresponding Rock Quality Data Ratings (RQD) are shown in Table No. 2. This boring demonstrates the full geologic column at the site. Rock-quality designation (RQD) is a rough measure of the degree of jointing or fracture in a rock mass, measured as a percentage of the drill core in lengths of 10 cm or more. High-quality rock has an RQD of more than 75%, low quality of less than 50%. Rock quality designation (RQD) has several definitions.

TABLE NO. 2

ROCK QUALITY

Boring	Run Interval	RQD Values %	Description
B1	15.1-25.1	75%	Grey Sandstone
B2	15.0 - 25.5	55%	Grey SS / Shale
B3	15.0 - 25.0	48%	Grey SS / Shale
B4	14.5 - 24.5	23%	Grey SS / Shale

Photographs of the cores are included in Appendix A of this report.

4.3 GROUNDWATER

Groundwater observations were made during the drilling operations (by noting the depth to water on the drilling tools) and in the open boreholes following withdrawal of the drilling augers. No groundwater levels were noted during drilling activities.

4.4 SEISMIC SITE CLASSIFICATION

Based on the encountered soil conditions at the project site, the site classification was determined to be "Site Class B" Rock" per the 2015 Kentucky Building Code. In addition, a S_{DS} coefficient of 0.144 g was calculated, and a S_{D1} coefficient of 0.059 g was also calculated for design based on the aforementioned building code.

5.0 DISCUSSION AND RECOMMENDATIONS

5.1 GENERAL

The structure will be a self-supporting free standing tri-pole tower. Due to wind loading, lattice tower foundations can experience both vertical loads and horizontal loads. The vertical loads act in both an upward and downward direction as the tower attempts to overturn and can act in any directions.

5.2 FOUNDATIONS

It is our understanding that the foundations for these structures can be designed to bear on low bearing pressure soils. This report demonstrates the different expected bearing capacities based upon the type of material encountered from the boring logs and sampling taken at the site.

Approximately 14.5 feet of soil is present at this proposed location. It consists of mine soils. Standard penetrations tests were conducted on 5 foot intervals in this material. Grey Sandstone was found at approximately 15 ft. (± 2190 ft. in elevation). Shale was found at 23.6 ft. (± 2181.3 ft. in elevation)

The approximate elevation of the surface of the site is 2204.2 ft. with an expected base of the footer at 2187.0 ft. in elevation. The standard penetration tests were conducted on 5 foot intervals within the first 15 feet material. The blow counts (N) ranged from

7to 50/0" to this depth. This formation exhibited rock quality designations (RQD) that range from 75% to 22%.

5.3 SUBSIDENCE

Based upon our research there has been considerable historical underground mining in the Upper Elkhorn Seam and the Amburgey Seam. There are highwall miner entries in the Whitesburg Seam which could also influence the tower foundation. These mine openings range in a depth from 345 ft. to 755 ft. under the footprint of the site. The reviewed mine records demonstrate secondary mining in the Amburgey Seam and a high percentage of extraction in the Upper Elkhorn Seam.

ErMC^2 utilized the NIOSH Ground Control Toolbar version 1.1.02 to evaluate the previous mining. For the highwall mining in the Whitesburg Seam, ARMPS-HWM module was used. This module is used to develop pillar safety factors for highwall mining. For the multiseam interaction, ErMC^2 evaluated the Amburgey and Whitesburg Seams using the AMSS (Analysis of Multiple Seam Stability) module

A NIOSH Ground Control Analysis was conducted on the Whitesburg Seam mining. The analysis gave the minimum acceptable subsidence safety factors for highwall mining entries. A multiseam analysis for the Amburgey and Whitesburg Seams was evaluated for potential subsidence interaction. The NIOSH program was used to evaluate upper seam as the active seam, and the mined out area below as the previously mined seam. The Whitesburg highwall miner openings were evaluated as room and pillar mine, with very long crosscut spacing. This provides a reasonable approximation of the geometry to be analysed in the model. Both scenarios pass the minimum safety factors of ARMPS program and the results are included in Appendix C of the report.

Interaction between the Upper Elkhorn No. 3 Seam and Amburgey does not lend itself to using the AMSS module due to the geometry of the mine openings. No mine pillars are remaining under the proposed tower site in the Amburgey Seam and the remaining pillars in the Upper Elkhorn Seam are very long and slender. No coal thicknesses were available on the historical mine maps in the Elkhorn mine. Based upon available data the maximum thickness of the Upper Elkhorn Seam is reported to be a 48 inches.

Using the USBM rule of thumb of 60 multiplied by the mining height to predict subsidence effects, the lower seam thickness would need to be less than 4.33 feet to cause interaction between the Elkhorn seam to the Amburgey Seam.

Core information available from the Kentucky Division of Surface Mining was obtained in the vicinity of the tower. Based upon this data, there is a major sandstone unit from 10 to 15 ft. thick between the Upper Elkhorn and the Amburgey Seam. There is also a sandstone unit approximately 20 ft. thick between the Amburgey Mine and the Whitesburg highwall miner openings. Sandstone was also visible on the existing high walls near the proposed tower site between the Whitesburg level and the proposed tower footer. Based upon the previous analysis and our evaluation we do not expect any subsidence issues at this site.

5.4 SHALLOW FOUNDATIONS

We recommend a single spread footer foundation on the sandstone rock. The proposed location is adjacent to an existing tower site with fill material present. There are approximately 14 ft. of mine spoil below the immediate surface at this location. The lithology below varies from weathered grey sandstone to shale. Some soils and rock excavation will be required in order to obtain a sufficient footing for the foundation and construction area. At the proposed location of the footer the shale unit will provide an **allowable bearing capacity of 6.0 tsf**. Borings 3 and 4 were highly fractured and weathered. It may be desirable to move the tower footing South, to place the foundation on rock that has less outcrop characteristics. Care must be exercised to ensure that the edges of the foundation are bearing on rock. The thickness of the soils can vary on the outer edge of the bench. If this occurs, the base footer elevation will need to be adjusted to insure that it is placed the sandstone formation.

It is furthermore recommended that the slabs-on-grade be supported on 4 to 6-inch layer of relatively clean granular material such as sand and gravel or crushed stone. This is to help distribute concentrated loads and equalize moisture conditions beneath the slab. Proper drainage must be incorporated into this granular layer to preclude future wet areas in the finished slab-on-grade. However, all topsoil and/or other deleterious materials encountered during site preparation must be removed and replaced with 4000 psi. concrete below the foundation base. Provided that a minimum

of 4 inches of granular material is placed below the new slab-on-grade, a modulus of subgrade reaction (k30) of 100 lbs./cu. in. can be used for design of the slabs.

Support structure for this tower can be placed on the bench areas as needed. It is recommended that test pits are examined to insure that any of these structures are on the rock bench and not on soil pushover that is common near the out slopes of the existing mine area. If pockets of soft, loose or otherwise unsuitable material are encountered in the footing excavations and 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 undercut excavation beneath each footing should extend to suitable bearing soils and the dimensions of the excavation base should be determined by imaginary planes extending outward and down on a 1 (vertical) to 1 (horizontal) slope from the base perimeter of the footing. The entire excavation should then be refilled with a well-compacted engineered fill, or lean concrete (Please note that the width of the lean concrete zone should be equal or wider than the width of the overlying footing element). Special care should be exercised to remove any sloughed, loose or soft materials near the base of the excavation slopes. In addition, special care should be taken to "tie-in" the compacted fill with the excavation slopes, with benches as necessary, to insure that no pockets of loose or soft materials will be left in place along the excavation slopes below the foundation bearing level. All Federal, State, and Local regulations should be strictly adhered to relative to excavation side-slope geometry.

5.5 BURIED UTILITIES

Excavations for buried utility pipelines should follow the guidelines set forth in this report. Depending on the pipeline material, a minimum thickness of at least 0.5 feet of select fine-grained granular bedding material should be used beneath all below-grade pipes, with a minimum cover thickness of at least 3 feet to afford an "arching" effect and reduce stresses on the pipe. The cover thickness may be reduced if the external loading condition on the pipe is relatively light or if the pipe is designed to withstand the external loading condition. It is not recommended that "pea-gravel" or other "open-work" aggregates be used for trench backfill since these materials are

nearly impossible to compact and have a tend ency to pond water within th eir interstices.

6.0 WARRANTY

Our professional services have been performed, our findings obtained and our recommendations prepared in acc ordance with generally accepted geotechnical engineering principles and practices. No other warranty, express or implied, is made.

While the services of ErMC^2 are a valuable and integral part of the design and construction teams, we do not warrant, guarantee, or insure the quality or completeness of ser vices provided by other members of those teams, the quality, completeness, or sa tisfactory performance of construction plans and specifications which we have not prepared, nor the ultimate performance of building site materials.

6.1 SUBSURFACE EXPLORATION

Subsurface exploration is normally accomplished by test borings, although test pits are sometimes employed. The method of determining the boring location and the surface elevation at the boring is noted in the report, and is presented on the Boring Location Plan or on the boring log. The location and elevation of the boring should be considered accurate only to the degree inherent with the method used.

The boring log includes sampling information, description of the materials recovered, approximate depth of boundaries between soil and rock strata and groundwater data. The boring log represents conditions specifically at the locatio n and time the boring was made. The boundaries between different soil st rata are indicated at specific depths; however, these depths are in fact approximate and are somewhat dependent upon the frequency of sampling (The transition between soil strata is often gradual). Free groundwater level readings are made at the times and under conditions stated on the boring logs (Groundwater levels change with time and season). The borehole does not always remain open sufficiently long enough for the measured water level to coincide with the groundwater table.

6.2 LABORATORY AND FIELD TESTS

Laboratory and field tests are performed in accordance with specific ASTM standards unless otherwise indicated. All determinations included in a given ASTM standard are not always required and performed. Each test report indicates the measurements and determinations actually made.

6.3 ANALYSIS AND RECOMMENDATIONS

The geotechnical report is prepared primarily to aid in the engineering design of site work and structural foundations. Although the information in the report is expected to be sufficient for these purposes, it is not intended to determine the cost of construction or to stand alone as a construction specification.

Our engineering report recommendations are based primarily on d ata from test borings made at the locations shown on a boring location drawing included. Soil variations may exist between borings and these variations may not become evident until construction. If sig nificant variations are then noted, the geotechnical engineer should be contacted so that field conditions can be examined and recommendations revised if necessary.

The geotechnical engineering report states o ur understanding as to th e location, dimensions and structural features proposed for the site. Any significant changes in the nature, design, or location of the site improvements MUST be communicated to the geotechnical engineer such that the geotechnical analysis, conclusions, and recommendations can be appropriately adjusted. The geotechnical engineer should be given the opportunity to review all drawings that have been prepared based on their recommendations.

6.4 CONSTRUCTION MONITORING

Construction monitoring is a vital element of complete geotechnical services. The field engineer/inspector is the owner's "representative" observing the work o f the contractor, performing tests as required in the specifications, and reporting data developed from such tests and observations. The field engineer or inspector does not direct the contractor's construction means, methods, operations or personnel. The field inspector/engineer does not interfere with the relationship between the owner and

the contractor and, except as an observer, does not become a substitute owner on site. The field inspector/engineer is responsible for his own safety but has no responsibility for the safety of other personnel at the site. The field inspector/engineer is an important member of a team whose responsibility is to watch and test the work being done and report to the owner whether that work is being carried out in general conformance with the plans and specifications.

6.5 GENERAL

The scope of our services did not include an environmental assessment for the presence or absence of hazardous or toxic materials in the soil, surface water, groundwater or air, on, within or beyond the site studied. Any statements in the report or on the boring logs regarding odors, staining of soils or other unusual items or conditions observed are strictly for the information of our client.

To evaluate the site for possible environmental liabilities, we recommend an environmental assessment, consisting of a detailed site reconnaissance, a record review, and report of findings. Additional subsurface drilling and samplings, including groundwater sampling, may be required

This report has been prepared for the exclusive use of Appalachian Wireless, for specific application to the proposed cellular tower located on the Beefhide Property located in Letcher County, Kentucky. Specific design and construction recommendations have been provided in the various sections of the report. The report shall, therefore, be used in its entirety. This report is not a bidding document and shall not be used for that purpose. Anyone reviewing this report must interpret and draw their own conclusions regarding specific construction techniques and methods chosen. ErMC^2 is not responsible for the independent conclusions, opinions or recommendations made by others based on the field exploratory and laboratory test data presented in this report.

SPECIFICATIONS

I – GENERAL

1.0 STANDARDS AND DEFINITIONS

1.1 STANDARDS - All standards refer to latest edition unless otherwise noted.

1.1.1 ASTM D-698-70 (Method C) "Standard Test Methods for Moisture. Density Relations of Soils and Soil Aggregate Mixtures Using 5.5-lb (2.5 kg.) Rammer and 12-inch (305-mm) Drop".

1.1.2 ASTM D-2922 "Standard Test Method for Density of Soil and Soil Aggregate in Place by Nuclear methods (Shallow Depth)".

1.1.3 ASTM D-1556 "Standard Test Method for Density of Soil in place by the Sand-Cone Method".

1.2 DEFINITIONS

1.2.1 Owner - In these specifications the word "Owner" shall mean Appalachian Wireless.

1.2.2 Engineer - In these specifications the word "Engineer" shall mean the Owner designated engineer.

1.2.3 Design Engineer - In these specifications the words "Design Engineer" shall mean the Owner designated design engineer.

1.2.4 Contractor - In these specifications the word "Contractor" shall mean the firm or corporation undertaking the execution of any work under the terms of these specifications.

1.2.5 Approved - In these specifications the word "approved" shall refer to the approval of the Engineer or his designated representative.

1.2.6 As Directed - In these specifications the words "as directed" shall refer to the directions to the Contractor from the Owner or his designated representative.

2.0 GENERAL CONDITIONS

2.1 The Contractor shall furnish all labor, material and equipment and perform all work and services except those set out and furnished by the Owner, necessary to complete in a satisfactory manner the site preparation, excavation, filling, compaction, grading as shown on the plans and as described therein.

This work shall consist of all mobilization clearing and grading, grubbing, stripping, removal of existing material unless otherwise stated, preparation of the land to be filled, filling of the land, spreading and compaction of the fill, and all subsidiary work necessary to complete the grading of the cut and fill areas to conform with the lines, grades, slopes, and specifications.

This work is to be accomplished under the observation of the Owner or his designated representative.

2.2 Prior to bidding the work, the Contractor shall examine, investigate and inspect the construction site as to the nature and location of the work, and the general and local conditions at the construction site, including, without limitation, the character of surface or subsurface conditions and obstacles to be encountered on and around the construction site; and shall make such additional investigation as he may deem necessary for the planning and proper execution of the work.

If conditions other than those indicated are discovered by the Contractor, the Owner should be notified immediately. The material which the Contractor believes to be a changed condition should not be disturbed so that the owner can investigate the condition.

2.3 The construction shall be performed under the direction of an experienced engineer who is familiar with the design plan.

II - ENGINEERED FILL BENEATH STRUCTURES

CLEARING AND GRADING SPECIFICATIONS

1.0 GENERAL CONDITIONS

The Contractor shall furnish all labor, materials, and equipment, and perform all work and services necessary to complete in a satisfactory manner the site preparation, excavation, filling, compaction and grading as shown on the plans and as described therein.

This work shall consist of all clearing and grading, removal of existing structures unless otherwise stated, preparation of the land to be filled, filling of the land, spreading and compaction of the fill, and all subsidiary work necessary to complete the grading of the cut and fill areas to conform with the lines, grades, slopes, and specifications.

This work is to be accomplished under the constant and continuous supervision of the Owner or his designated representative.

In these specifications the terms "approved" and "as directed" shall refer to directions to the Contractor from the Owner or his designated representative.

2.0 SUBSURFACE CONDITIONS

Prior to bidding the work, the Contractor shall examine, investigate and inspect the construction site as to the nature and location of the work, and the general and local conditions at the construction site, including without limitation, the character of surface or subsurface conditions and obstacles to be encountered on and around the construction site; and shall make such additional investigation as he may deem necessary for the planning and proper execution of the work. Borings and/or soil investigations shall have been made. Results of these borings and studies will be made available by the Owner to the Contractor upon his request, but the Owner is not responsible for any interpretations or conclusions with respect thereto made by the Contractor on the basis of such information, and the Owner further has no responsibility for the accuracy of the borings and the soil investigations.

If conditions other than those indicated are discovered by the Contractor, the Owner should be notified immediately. The material which the Contractor believes to be a changed condition should not be disturbed so that the Owner can investigate the condition.

3.0 SITE PREPARATION

Within the specified areas, all trees, brush, stumps, logs, tree roots, and structures scheduled for demolition shall be removed and disposed of.

All cut and fill areas shall be properly stripped. Topsoil will be removed to its full depth and stockpiled for use in finish grading. Any rubbish, organic and other objectionable soils, and other deleterious material shall be disposed of off the site, or as directed by

the Owner or his designated representative if on site disposal is provided. In no case shall such objectionable material be allowed in or under the fill unless specifically authorized in writing.

Prior to the addition of fill, the original ground shall be compacted to job specifications as outlined below. Special notice shall be given to the proposed fill area at this time. If wet spots, spongy conditions, or groundwater seepage is found, corrective measures must be taken before the placement of fill.

4.0 FORMATION OF FILL AREAS

Fills shall be formed of satisfactory materials placed in successive horizontal layers of not more than eight (8) inches in loose depth for the full width of the cross-section. The depth of lift may be increased if the Contractor can demonstrate the ability to compact a larger lift. If compaction is accomplished using hand-tamping equipment, lifts will be limited to 4-inch loose lifts. Engineered fill placed below the structure bearing elevation shall be compacted to at least 95% of the maximum dry unit weight with a moisture content within 2% of the optimum moisture content as determined by the modified Proctor test. The top size of the material placed shall not exceed 4 inches.

All material entering the fill shall be free of organic matter such as leaves, grass, roots, and other objectionable material.

The operations on earth work shall be suspended at any time when satisfactory results cannot be obtained because of rain, freezing weather, or other unsatisfactory conditions. The Contractor shall keep the work areas graded to provide the drainage at all times.

The fill material shall be of the proper moisture content before compaction efforts are started. Wetting or drying of the material and manipulation to secure a uniform moisture content throughout the layer shall be required. Should the material be too wet to permit proper compaction or rolling, all work thus affected shall be delayed until the material has dried to the required moisture content. The moisture content of the fill material should be no more than two (2) percentage points higher or lower than optimum unless otherwise authorized. Sprinkling shall be done with equipment that will satisfactorily distribute the water over the disced area. Any areas inaccessible to a roller shall be consolidated and compacted by mechanical tampers. The equipment shall be operated in such a manner that hardpan, cemented gravel, clay or other chunky soil material will be broken up into small particles and become incorporated with the other material in the layer.

In the construction of filled areas, starting layers shall be placed in the deepest portion of the fill, and as placement progresses, additional layers shall be constructed in horizontal planes. Original slopes shall be continuously, vertically benched to provide horizontal fill planes. The size of the benches shall be formed so that the base of the bench is horizontal and the back of the bench is vertical. As many benches as are necessary to bring the site to final grade shall be constructed. Filling operations shall

begin on the lowest bench, with the fill being placed in horizontal eight (8) inch thick loose lifts unless otherwise authorized. The filling shall progress in this manner until the entire first bench has been filled, before any fill is placed on the succeeding benches. Proper drainage shall be maintained at all times during benching and filling of the benches, to insure that all water is drained away from the fill area.

Frozen material shall not be placed in the fill nor shall the fill be placed upon frozen material.

The Contractor shall be responsible for the stability of all fills made under the contract, and shall replace any portion, which in the opinion of the Owner or his designated representative, has become displaced due to carelessness or negligence on the part of the Contractor. Fill damaged by inclement weather shall be repaired at the Contractor's expense.

5.0 SLOPE RATIO AND STORM WATER RUN-OFF

Slopes shall not be greater than 2 (horizontal) to 1 (vertical) in both cut and fill, or as illustrated on the construction drawings. Excavations shall be constructed in accordance with all Federal, State and local codes relative to slope geometry.

6.0 GRADING

The Contractor shall furnish, operate, and maintain such equipment as is necessary to construct uniform layers, and control smoothness of grade for maximum compaction and drainage.

7.0 COMPACTING

The compaction equipment shall be approved equipment of such design, weight, and quantity to obtain the required density in accordance with these specifications.

8.0 TESTING AND INSPECTION SERVICES

Testing and inspection services will be provided by the Owner.

III GUIDELINES FOR EXCAVATIONS AND TRENCHES

The following represents some general guidelines relative to the design and construction of excavations and trenches. It must b e emphasized that these guidelines are not intended to represent a "safety plan," but rather are presented herein to provide general guidance with regard to the design characteristics and safety measures for excavations and trenches.

1. Check with the following utilities prior to breaking ground:
   - Sewer
   - Telephone
   - Fuel
   - Electric
   - Water
   - Gas
   - Cable

   When utility companies or owners do not respond to your request within 48 hours, the contractor may only then proceed provided the contractor does so with caution by using detection equipment or other acceptable means to locate utility installations.

   Once the excavation is open, the contractor should protect and support the exposed underground utilities or remove installations to safeguard workers and prevent damage to exposed utilities.

2. Access and egress ramps must be designed by a "comp etent person" and structural ramps used for equipment must be designed by a "competent person" with qualified knowledge in structural design. In addition:
   - Ramps must be secured to prevent displacement;
   - Ramps used in lieu of steps must have cleats to prevent slipping; and
   - Trenching excavations four feet or greater in depth must have a stairway, ladder, ramps or other safe means to egress with lateral travel no more than 25 feet.

3. Workers must be provided with reflector garments, such as warning orange or red vests, when exposed to vehicular traffic.

4. Contractors must not allow workers to work under or near equipment when there is danger of falling debris, spillage or equipment-related injuries.

5. Mobile equipment, operating adjacent to an open excavation or approaching the edge of an excavation, must have one of the following when the operator's view is obstructed:
   - Warning System
   - Mechanical Signals
   - Barricades
   - Stop Logs
   - Hand Signals

6. The contractor must check the atmosphere for hazardous gases and oxygen deficiencies when excavating four feet or greater around landfills, or when hazardous substances are stored nearby, and when the contractor expects there could be any exposure to the workers.

7. When hazardous atmospheric conditions exist, or when conditions could change, the contractor must make em ergency rescue equipment readily available including breathing apparatus, safety harnesses with life lines and a basket stretcher.

8. When workers enter bell-bottom pier holes or o ther deep and confined excavations, the worker must wear (at all times while performing work in the confined space) a separate life line attached to a harness. The line must be attended by someone above while work is being performed. The worker must check for hazardous atmospheric conditions prior to entry.

9. The contractor must ensure that wa ter does not accumulate in op en excavations and must inspect the excavation prior to allowing workers to re-enter after heavy rains.

10. Adjacent structures (buildings, walls, etc.) must be supported or secured to prevent worker exposure to u nsafe conditions and damage to existing structures.

11. A registered professional engineer must approve operations when a contractor underpins existing structures to ensure worker safety and prevent damage to existing structures.

12. Workers must not be exposed to loose soil and rock or materials in and around excavations. Ma terials, such as removed soil and rock, must not be stored closer than two feet from the edge of the excavation.

13. Daily inspections of the excavation, the adjacent areas and protective systems must be made by a " competent person" for evidence of possible cave-ins, indications of failure of protective systems, hazardous atmospheres or oth er

hazardous conditions. The "competent person" must stop work immediately and remove workers from the excavation when conditions change and pose a threat to their safety.

14. Workers must not be exposed to fall hazards associated with excavations. Protective walkways or bridges with standard guard rails must be provided.

15. All wells, pits, shafts etc. must be barricaded or covered. After completion of work, all wells, pits, shafts etc. must be backfilled.

IV - GENERAL CONCRETE SPECIFICATIONS

1.0 GENERAL

It is the intent of this specification to secure, for every part of the work, concrete of homogenous structure which, when hardened, will have the required strength and resistance to weathering. To this end, the limiting values of concrete and the requirements hereinafter specified must be met. Standard tests of the cement, aggregates, concrete and reinforcement will be made by the Owner as it sees fit. The Contractor shall furnish the material for all required samples plus such labor as required to obtain samples. The Contractor shall provide to authorized representatives of the Owner, convenient access to all parts of the work of all concreting operations for the purpose of sampling and inspection.

2.0 SCOPE

Contractor shall furnish all materials, labor, services, transportation, tools, equipment, and related items required to complete work indicated on the drawings and/or specified.

Unless otherwise noted or as modified by more stringent requirements specified herein, all plain and reinforced concrete work shall be performed in full compliance with applicable requirements of the Building Code Requirements for Reinforced Concrete ACI 318.

Contractor shall obtain Owner's approval of all subgrades, footing bottoms, forms, and reinforcement just prior to placing concrete.

Contractor shall coordinate the work specified in this section with that specified in other sections so that all anchors, pipes and other embedded items are properly installed before concrete is placed.

Contractor shall clean all exposed concrete surfaces and obtain approval of Owner for method of cleaning.

3.0 MATERIALS

All materials shall be of their respective quality specified herein, delivered, stored, and handled as to prevent inclusion of foreign matter and damage by dampness or breakage. Packaged material shall be stored in original container until ready for use. Materials showing evidence of dampness or other damage may be rejected.

A. Fine and Coarse Aggregates: Coarse and fine aggregates shall conform to ASTM Specification C33. The maximum size of aggregate shall not be larger than one-fifth (1/5) of the narrowest dimensions between forms, or larger than three fourths (3/4) of the minimum clear spacing between reinforcement.

1. Fine Aggregate: Sand shall be composed essentially of clean, hard, strong, durable grains free of structurally weak grains,

organic matter, loam, clay, silt, salt, mica or other fine materials that may affect bonding of the cement paste.

2. Coarse Aggregate: Cement concrete shall consist of crushed rock or screened gravel and shall be composed essentially of clean, hard, strong and impermeable particles, resistant to wear and frost and free from deleterious amounts of organic matter, loam, clay, salts, mica, and soft, thin, elongated, laminated or disintegrated stone, and shall be inert to water and cement.

B. Portland Cement: Portland cement shall conform to ASTM Specification C150. Type I or Type II Portland Cement shall be used provided that they are not intermixed during any one batch. Type II Portland Cement shall not be used unless indicated on the plans.

C. Water: Water for mixing and curing shall be clean, fresh, and free from deleterious materials.

D. Metal Reinforcement: Rebar shall be Grade 60 and with deformations conforming to ASTH Specification A305. Welded wire mesh shall conform to W4 x W4 size and be of Grade 60 steel.

E. Admixtures: Except as herein noted, admixtures shall not be used.

1. Under adverse weather conditions only retarding or accelerating agents containing no chloride may be used.

2. Air-Entraining Agent shall be used for all concrete will give an entrained air range of not less than 4 percent but no greater than 8 percent in the finished product. Under no circumstances shall the air-entraining be interground with cement.

3. Approval in writing shall be required from Owner prior to the use of any admixture.

4.0 FORM

Forms shall be constructed with proper shoring and cross-bracing, safeguarding the total structure and specifically lateral stability and sufficiently strong to stand vibrations of concrete and to carry, without appreciable deflection or displacement, all dead and live loads to which they may be subjected.

5.0 INSERTS, ETC.

Anchors, bolts, dowels, conduit, waterstops, vent pipes and other similar built-in or concreted-in items shall be properly located, accurately positioned and secured. The Contractor shall cooperate in placing of such items with other contractors who require a fastening device for their work and he shall maintain them in proper location during the progress of his work.

6.0 REINFORCEMENT

Reinforcement at the time concrete is placed shall be free from rust, scale or other coatings that will destroy or reduce the bond.

+

Reinforcement shall be accurately placed and securely tied at intersections and shall be securely held in position during the placing of concrete by pacers, chairs, or other approved supports.

The reinforcement of foundations, footings and other principal structural members in which the concrete is deposited against the ground shall not have less than three (3) inches of concrete between it and the ground contact surface. If concrete surfaces after removal of the forms are to be exposed to the weather or to be in contact with the ground or rock, reinforcement shall be protected with not less than two (2) inches of concrete,

7.0 CONCRETE

Concrete for the various parts of the work shall be of 4000 pounds per square inch compressive strength with a minimum 28-day cure. Contractor is responsible to provide a mix of not less than 6 bags of cement per yard of concrete and not more than 7 gallons of water per bag of cement, producing a minimum slump of 2-1/2 inches and a maximum slump of 4-1/2 inches. Concrete that exceeds the above range of maximum or minimum slump requirements may be rejected by the Owner. All concrete shall be air-entrained. Contractors are required to furnish the name or names of the company(s) that will be providing the mix. The Owner reserves the right to disapprove any concrete supplier that has been known to supply an undesirable material to the Owner on previous occasions.

8.0 DEPOSITING CONCRETE

4.1. Preparation for Placing Concrete: Before depositing concrete, the Contractor shall:

1. Remove from space to be occupied by concrete all debris, including snow, ice, and water unless otherwise permitted by Owner.

2. Provide diversion, satisfactory to Owner, of any flow of water to an excavation so as to avoid washing the freshly deposited concrete.

3. Coal the forms prior to placing of reinforcing steel as required in form work.

4. Secure firmly in correct position, all reinforcement and other items to be encased and remove therefrom all coating including ice and frost.

B. Transportation of Concrete from Batch Plant: The concrete shall be delivered to the site of the work and discharge shall be completed within 90 minutes after addition of the cement and water to the aggregates. Each batch of concrete delivered at the job site shall be accompanied by a time slip issued at the batching plant, bearing the time of charging of the mixer drum with the cement and aggregates.

C. Transporting of Concrete from Mixer to Place of Final Deposit: Transportation shall be done as rapidly as practical by means which shall prevent the separation or loss of the ingredients. If chutes are used, they shall be at a slope not flatter than one vertical to two horizontal. Buggies or carts shall be equipped with pneumatic rubber tires or surfaces of runways shall be sufficiently smooth or both so as not to cause separation or segregation of concrete ingredients. Concrete shall not be allowed to drop freely more than 4 feet. Where greater drops are required, canvas "elephant trunks" or galvanized iron chutes equipped with suitable hopper heads shall be employed and a sufficient number placed to insure that the concrete may be effectively compacted into horizontal layers not exceeding 12 inches in thickness with minimum lateral movements.

D. Depositing of Concrete: Depositing of concrete shall:

1. Proceed continuously after once starting until reaching the end of a section of construction joint location shown on the drawings, or as approved by the Owner. The operations shall be conducted so that no concrete is deposited on concrete sufficiently hardened to cause formation of seams, and planes of weakness.
2. Be as near as practical to its final position in the forms.
3. Proceed so as to maintain constantly a top surface which is approximately level.
4. Be placed before initial set has occurred, and in no event after it has contained its water content for more than 90 minutes.
5. Be thoroughly worked and compacted by means of suitable tools to provide impermeability, durability and strength and shall be thoroughly worked around reinforcements and embedded items and into corners of forms and so as to be free from voids, pockets or honeycombing. Particular care shall be taken to provide impermeability.

E. Vibration Equipment: Vibration equipment shall be of the appropriate type and shall, at all times, be adequate in number of units and power of each unit to properly consolidate all concrete.

F. Monolithic Pours: Proper delivery of concrete shall be the Contractor's responsibility in order to make a mono-lithic pour without delays and changes of cold joints.

9.0 CURING

All concrete work shall be protected from injurious action by the sun, rain, flowing water, frost and other injury and shall be covered with plastic after application of curing compound for three (3) days on pours located above ground.

Contractor shall not remove any formwork for a minimum period of 24 hours after a concrete pour without written approval of the Owner.

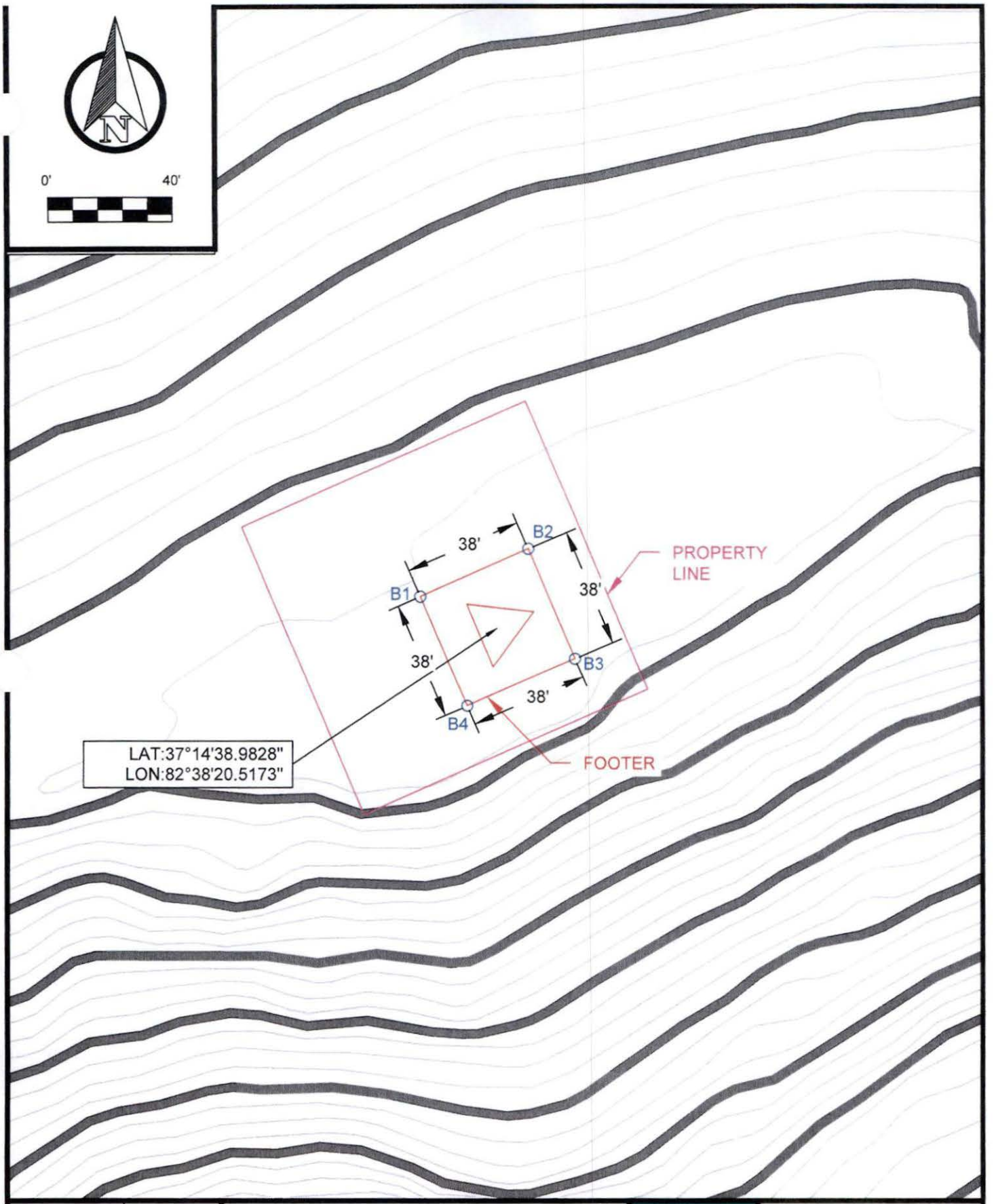
10.0 CONCRETE FINISHES

Finishes of all exposed concrete shall be free of defects which impair its durability or adversely affect is appearance. All such surfaces when stripped, shall be uniform in appearance and any surfaces displaying any deviations from adjacent uniform surfaces shall be rejected and subject to removal.

Finished work shall be level and plumb, true to lines, and dimensions. Finished plane surfaces shall be smooth, and as nearly perfect as practical; however, deviations from a true plane shall not exceed 1/8 inch when measured from a 6-foot straight edge placed against the surface to any point on the surface and under the straight edge.

All exposed surfaces shall have deflects corrects, protrusions removed, and holes filled.

APPENDIX A BORING DATA



vn:	Date: 1/17/17
Job:	Scale: 1"=40'
Drawing: DIGITIZED TOWER ON DEM CONTOURS	

BEEFHIDE SITE

APPALACHIAN WIRELESS

BORING LOCATION MAP

ErMC²

921 Beasley Street, Suite 145
Lexington, KY 40509
(859)381-1000
engineering@ermc2.us

HORN AND ASSOCIATES, INC
216 N. Main Street - Winchester, KY 40391
Ph: 800-729-2802 Fax: 859-744-5892

FIELD BORING LOG

Project Name	AMP Cell Tower	Hole Number	1
Federal Project No.	BEEFHIDE, KY	Total Depth	25.1
State Project No.		Location	AS STAKED
Drilling/Sampling Method	HSA / NX	Surface Elevation	N/A
Boring Diameter	6" / 3"	Date Started	12-27-16
Driller	Steven I	Date Completed	
		Weather	

From To	Soil and Rock Description	Sample/Run Interval	Blow Counts/RQD	Sample/Run No.	Sample Type	% Recovery
0.0 14.5	Mine Spoil	4.5 6.0	5-25-10	S-1	SPT	
14.5 15.1	Gr, weath, SS	9.5 10.3	7-50/3	S-2	SPT	
	AR @ 15.1	14.5 15.1	38-50/1	S-3	SPT	
15.1 25.1	Gr, SS					
		15.1 25.1	7.4	R-1	NX	9.8
	TD @ 25.1					

ater Level @ Drilling _____ 24 Hr. Water Level _____ 7 Day Water Level _____

Moving/Delay Time _____ Hammer Weight 140 lbs. Hammer Drop 30 in.

HORN AND ASSOCIATES, INC
216 N. Main Street - Winchester, KY 40391
Ph: 800-729-2802 Fax: 859-744-5892

FIELD BORING LOG

Project Name	APP - Cell Tower	Hole Number	2
Federal Project No.	BEEFHIDE, KY	Total Depth	25.0
State Project No.		Location	As Staked
Drilling/Sampling Method	HSA / NX	Surface Elevation	N/A
Boring Diameter	6" / 3"	Date Started	12-27-16
		Date Completed	
		Driller	Steven
		Weather	

From To	Soil and Rock Description	Sample/Run Interval	Blow Counts/RQD	Sample/Run No.	Sample Type	% Recovery
0.0 9.5	SPO.T	4.5 3.0	50/5	S-1	SPT	
9.5 15.0	weath SH	9.5 10.2	33 + 50/2	S-2	SPT	
	AR @ 15.0	14.5 15.0	50/3	S-3	SPT	
15.0 25.0	GR, SA, SH					
		15.0 25.0	5.5	R-1	NX	10.0
	TD @ 25.0					

Water Level @ Drilling _____ 24 Hr. Water Level _____ 7 Day Water Level _____

Moving/Delay Time _____ Hammer Weight 140 lbs. Hammer Drop 30 in.

HORN AND ASSOCIATES, INC
216 N. Main Street - Winchester, KY 40391
Ph: 800-729-2802 Fax: 859-744-5892

FIELD BORING LOG

Project Name	APP - Cell Tower	Hole Number	3
Federal Project No.	BEEFHIDE, KY	Total Depth	24.5
State Project No.		Location	As Staked
Drilling/Sampling Method		Surface Elevation	N/A
Boring Diameter	6" / 3"	Date Started	12-27-16
		Date Completed	
		Driller	Steven
		Weather	

From To	Soil and Rock Description	Sample/Run Interval	Blow Counts/RQD	Sample/Run No.	Sample Type	% Recovery
0.0 9.5	Br, Sa, Sandy Sh	4.5 6.0	13-7-17	S-1	SPT	
9.5 14.5	weath Sh	9.5 11.0	15-23-37	S-2	SPT	
	AR @ 14.5	14.5 14.5	50/0	S-3	SPT	
14.5 24.5	Gr, Sa, Sh					
		14.5 24.5	4.8	R-1	Wk	10.0
	TD @ 24.5					

Water Level @ Drilling | 24 Hr. Water Level | 7 Day Water Level

Moving/Delay Time | Hammer Weight 140 lbs. | Hammer Drop 30 in.

HORN AND ASSOCIATES, INC
216 N. Main Street - Winchester, KY 40391
Ph: 800-729-2802 Fax: 859-744-5892

FIELD BORING LOG

Project Name: APP Cell Tower
Federal Project No.: Beefhide, Ky
State Project No.:
Drilling/Sampling Method: HSA / NX
Boring Diameter: 6" / 3"

Hole Number: 4 Total Depth: 25.2
Location: As Staked
Surface Elevation: N/A
Date Started: 12-27-16 Date Completed:
Driller: Steven I Weather:

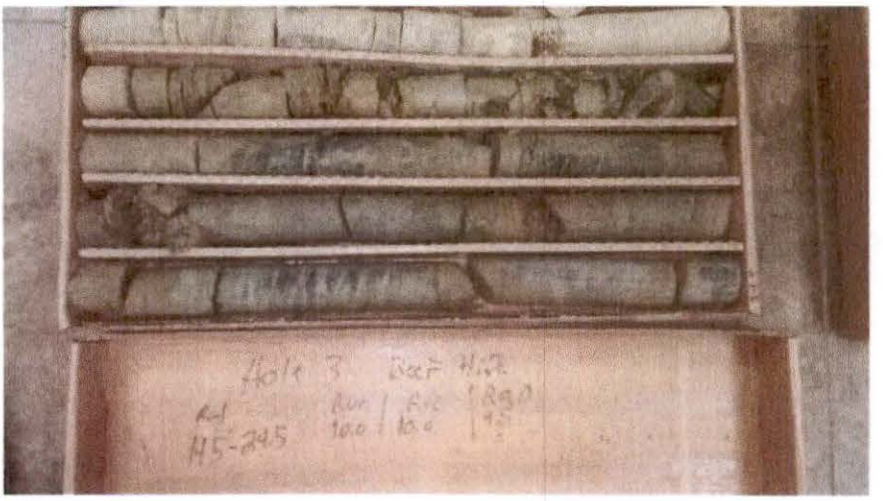
From To	Soil and Rock Description	Sample/Run Interval	Blow Counts/RQD	Sample/Run No.	Sample Type	% Recovery
0.0 9.5	Br, SG, CL	4.0 5.5	5-11-16	S-1	SPT	
9.5 14.0	Gr, CL, weath SH	9.0 10.5	4-9-9	S-2	SPT	
	AR @ 15.2	14.0 14.3	50/3	S-3	SPT	NO REC
14.0 25.2	Gr, SG, SH					
		15.2 25.2	92.3	R-1	NX	8.4
	TD @ 25.2					

Water Level @ Drilling: 24 Hr. Water Level: 7 Day Water Level:
Moving/Delay Time: Hammer Weight: 140 lbs. Hammer Drop: 30 in.

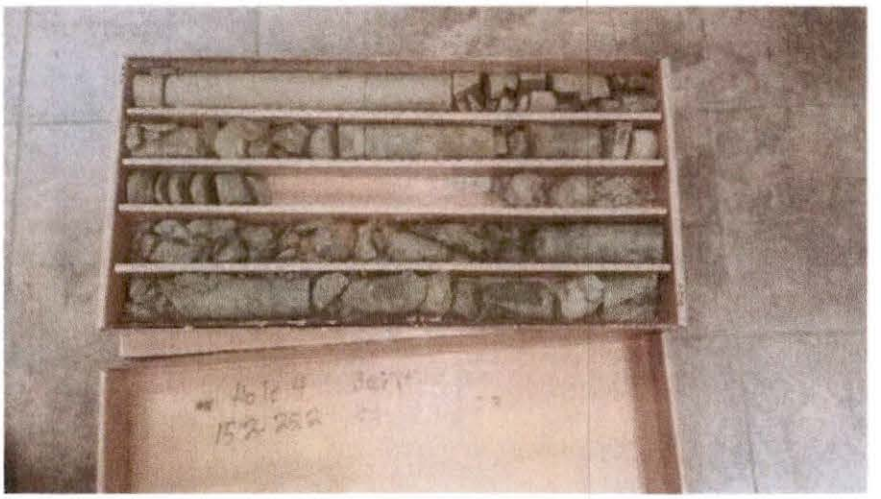
Boring 1: Run 15.1 ft. to 25.1 ft.

Boring 2: Run 15.0 ft. to 25.0 ft.

Boring 3: Run 14.5ft. to 24.5 ft.



Boring 4: Run 20.5 ft. to 25.5 ft.



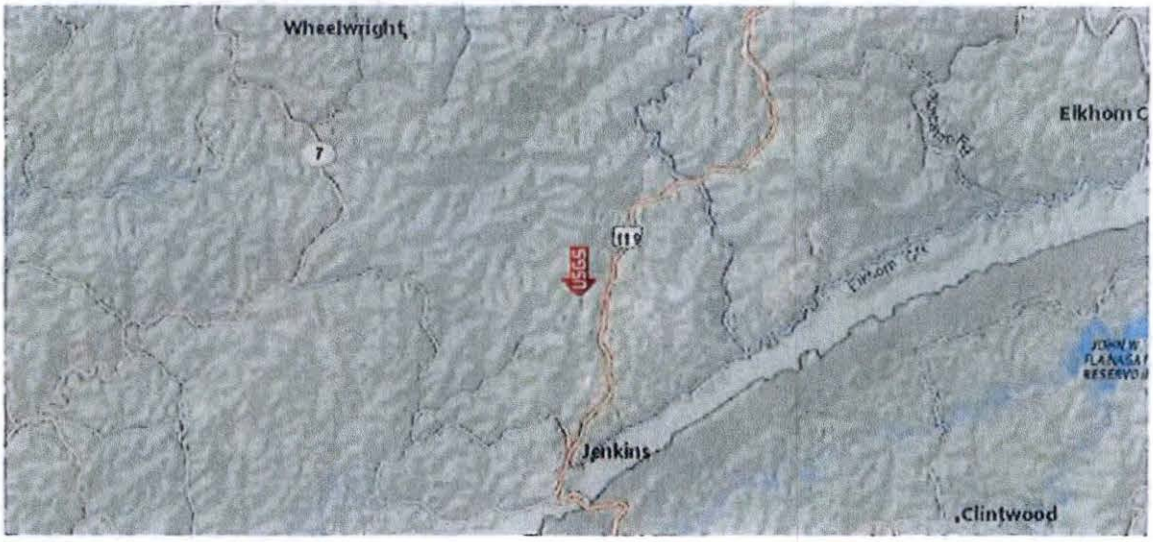
Environmental Resources Management Consulting Company, LLC
230 Swartz Drive • Hazard, Kentucky 41701 • phone (606) 436-1111 • fax (606) 435-0668

APPENDIX B SEISMIC

USGS Design Maps Summary Report

User–Specified Input

Report Title	Beefhide Tower Site Wed January 11, 2017 16:27:32 UTC
Building Code Reference Document	2012/2015 International Building Code (which utilizes USGS hazard data available in 2008)
Site Coordinates	37.24416°N, 82.63903°W
Site Soil Classification	Site Class B – "Rock"
Risk Category	IV (e.g. essential facilities)

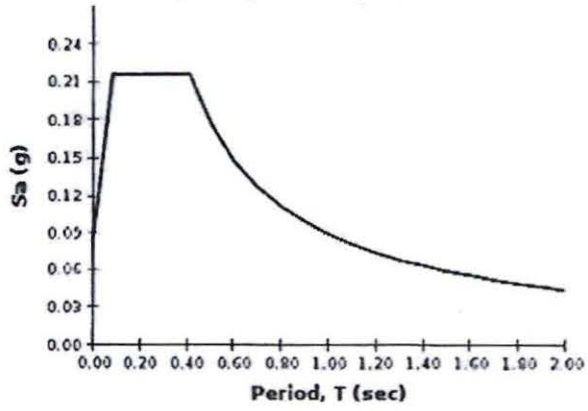


USGS–Provided Output

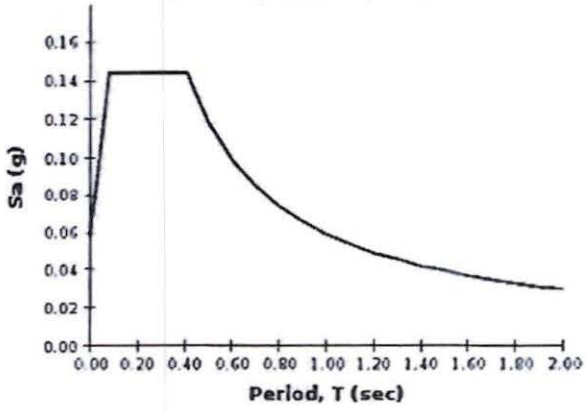
S_S =	0.216 g	S_{MS} =	0.216 g	S_{DS} =	0.144 g
S_1 =	0.089 g	S_{M1} =	0.089 g	S_{D1} =	0.059 g

For information on how the SS and S1 values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.

MCE_R Response Spectrum



Design Response Spectrum



APPENDIX C SUBSIDENCE

ARMPSHWM module build: 1.3.02
Project File: Untitled

Input Units: (ft) (psi)

[PROJECT TITLE]
Beefhide Tower Site

[PROJECT DESCRIPTION]
Whitesburg HW Mining

[DEVELOPMENT GEOMETRY PARAMETERS]
Extraction Thickness.....3.33 (ft)
Depth of Cover.....345 (ft)
Hole Width.....10 (ft)
Web Thickness.....6 (ft)
Barrier Pillar Width.....60 (ft)
Number of Holes.....13

[DEFAULT PARAMETERS]
In Situ Coal Strength.....900 (psi)
Unit Weight of Overburden.....162 (pcf)
Abutment Angle of Gob.....21 (deg)

[ARMPS-HWM STABILITY FACTORS]

Overall.....6.53
Webs ONLY.....1.40
Barrier Pillar.....7.80

Panel width (excluding barriers).....202.00 (ft)
Barrier pillar width-to-height ratio.....18.02
Web thickness-to-height ratio.....1.80
Extraction ratio.....49.62 %

[PILLAR PARAMETERS]

PILLAR	ENTRY CENTER (ft)	MINIMUM DIMENSION (ft)
Barrier	70.00	60.00
Web	16.00	6.00

PILLAR	AREA (ft)*(ft)	STRENGTH (psi)
Barrier	6.00E+07	9.33E+03
Web	6.00E+06	1.45E+03

To view the distribution of Pillar Load Bearing Capacity
select 'View Plots->Settings->Pillar Load Bearing Capacity'

Driller's Log Sheet
(Please Print or Type)

PE-01-93

ROCK CODE	UNIT THICKNESS	CUMULATIVE THICKNESS	N.P.	P.A.	COMMENTS	SAMPLE NO.
001	240.00	240.00			overburden	
540	21.50	261.50	18.76	0.104	sandstone/w fractures	4996
020	0.04	261.54	18.76	0.104	coal	4996
500	3.25	264.79	18.76	0.104	sandstone	4996
124	0.58	265.37	17.79	0.878	gray shale	4997
020	3.46	268.83			coal - **Amburgy**	
300	5.20	274.03	15.59	0.180	sandy shale	4998
540	4.30	278.33	5.3624	1.85	gray sandstone	4999
543	10.30	288.63	23.40	0.201	sandstone/w shale streaks	5000

ARMPSHWM module build: 1.3.02
Project File: Untitled

Input Units: (ft) (psi)

[PROJECT TITLE]

[PROJECT DESCRIPTION]

[DEVELOPMENT GEOMETRY PARAMETERS]
Extraction Thickness.....3.33 (ft)
Depth of Cover.....345 (ft)
Hole Width.....10 (ft)
Web Thickness.....10 (ft)
Barrier Pillar Width.....60 (ft)
Number of Holes.....13

[DEFAULT PARAMETERS]
In Situ Coal Strength.....900 (psi)
Unit Weight of Overburden.....162 (pcf)
Abutment Angle of Gob.....21 (deg)

[ARMPS-HWM STABILITY FACTORS]

Overall.....6.68
Webs ONLY.....2.62
Barrier Pillar.....7.51

Panel width (excluding barriers).....250.00 (ft)
Barrier pillar width-to-height ratio.....18.02
Web thickness-to-height ratio.....3.00
Extraction ratio.....41.94 %

[PILLAR PARAMETERS]

PILLAR	ENTRY CENTER (ft)	MINIMUM DIMENSION (ft)
Barrier	70.00	60.00
Web	20.00	10.00

PILLAR	AREA (ft)*(ft)	STRENGTH (psi)
Barrier	6.00E+07	9.33E+03
Web	1.00E+07	2.04E+03

To view the distribution of Pillar Load Bearing Capacity
select 'View Plots->Settings->Pillar Load Bearing Capacity'

AMSS module build: 2.1.02
Project File: Untitled

Input Units: (ft) (psi)

[PROJECT TITLE]
Multiseam Analysis

[PROJECT DESCRIPTION]
Amburgey & Whitesburg Interaction

[MULTIPLE SEAM PARAMETERS]
Active Seam Mining Mode.....Analysis of Retreat Mining Pillar Stability
Previous Mining.....Gob Solid Layout
Vertical Position.....Active OVER Previous
Interburden Thickness.....150 (ft)

[PREVIOUS SEAM PARAMETERS]
Seam Thickness.....3.33 (ft)
Width of Gob.....1000 (ft)
Age of Workings.....15 years

[ACTIVE SEAM PARAMETERS]
CMRR.....45

[ARMPS DATA]
Entry Height.....3.33 (ft)
Depth of Cover.....345 (ft)
Crosscut Angle.....90 (deg)
Entry Width.....10 (ft)
Number of Entries.....10
Crosscut Spacing.....200 (ft)
Center to Center Distance #1.....18 (ft)
Center to Center Distance #2.....18 (ft)
Center to Center Distance #3.....18 (ft)
Center to Center Distance #4.....18 (ft)
Center to Center Distance #5.....18 (ft)
Center to Center Distance #6.....18 (ft)
Center to Center Distance #7.....18 (ft)
Center to Center Distance #8.....18 (ft)
Center to Center Distance #9.....18 (ft)

[ARMPS DEFAULT PARAMETERS]
In Situ Coal Strength.....900 (psi)
Unit Weight of Overburden.....162 (pcf)
Breadth of AMZ.....92 (ft)
AMZ set automatically
Pressure Arch Factor.....0.79
Pressure Arch Factor set automatically

[ARMPS RETREAT MINING PARAMETERS]
Loading Condition.....DEVELOPMENT LOAD (NO NEARBY GOB)

[AMSS Output]

[MULTIPLE SEAM PILLAR STABILITY FACTORS]
Development.....1.81

Development pillar SF exceeds the suggested value of 1.50

[PREDICTED CONDITIONS]
Development: GREEN: A major interaction is unlikely.

Retreat: GREEN: A major interaction is unlikely.

[WARNING MESSAGES]

[CALCULATED STRESSES]
Single seam development stress.....919 (psi)
Multiple seam stress.....289 (psi)
Development abutment stress.....0 (psi)
Total vertical stress (Development).....1208 (psi)

[SUGGESTED CRITICAL INTERBURDEN AND STRESS]
  Critical Interburden for Development.....134 (ft)
  Allowable Total Vertical Stress.....1687 (psi)
If a pattern of supplemental roof support is installed, then:
  Critical Interburden for Development.....47 (ft)
  Allowable Total Vertical Stress.....4177 (psi)

[ARMPS STABILITY FACTORS - SINGLE SEAM CONDITIONS]

Development.....2.38

[ARMPS STABILITY FACTORS - MULTI SEAM CONDITIONS]

Development.....1.81

[WARNINGS - MULTI SEAM CONDITIONS]

Analysis of the ARMPS case history data base suggests that large groups of slender pillars, with width-to-height ratios of less than 4.0, may collapse suddenly. To minimize this potentially severe hazard, an ARMPS SF of at least 2.0 is recommended when such slender pillars are used. An alternative is to minimize the size of the area supported by slender pillars. For more information, consult Help/Stability Factors.

[DATA ABOUT THE ACTIVE MINING ZONE (AMZ)]

AMZ Width.....162.0 (ft)
AMZ Breadth.....92.0 (ft)
AMZ Area.....14904.0 (ft)*(ft)
Extraction Ratio within AMZ.....0.58
Tributary Area Load on AMZ.....8.33E+08 (lbs)

DEVELOPMENT LOADINGS ON AMZ (lbs)
Tributary Area*.....6.58E+08
TOTAL DEVELOPMENT.....6.58E+08
*Adjusted by Pressure Arch Factor

R-Factor for front abutment is the percent of the total front abutment load that is applied to the AMZ.

R-Factor for side abutment is the percent of the total side abutment load that is applied to the barrier pillar (the remainder is applied to the AMZ).

LTRANSBAR is the load transferred to the AMZ from the barrier pillar between the side and active gob if the barrier's SF is less than 1.5.

LTRANSREM is the load transferred to the AMZ from the remnant barrier between the side and active gob if the remnant's SF is less than 1.5.

[PILLAR PARAMETERS]

PILLAR	ENTRY CENTER (ft)	MINIMUM DIMENSION (ft)	MAXIMUM DIMENSION (ft)
1	18.00	8.00	190.00
2	18.00	8.00	190.00
3	18.00	8.00	190.00
4	18.00	8.00	190.00
5	18.00	8.00	190.00
6	18.00	8.00	190.00
7	18.00	8.00	190.00
8	18.00	8.00	190.00
9	18.00	8.00	190.00

PILLAR	AREA (ft)*(ft)	STRENGTH (psi)	LOAD-BEARING CAPACITY (lbs)
1	1.52E+03	1727.18	3.78E+08
2	1.52E+03	1727.18	3.78E+08
3	1.52E+03	1727.18	3.78E+08
4	1.52E+03	1727.18	3.78E+08
5	1.52E+03	1727.18	3.78E+08
6	1.52E+03	1727.18	3.78E+08
7	1.52E+03	1727.18	3.78E+08
8	1.52E+03	1727.18	3.78E+08
9	1.52E+03	1727.18	3.78E+08

TOTAL LOAD-BEARING CAPACITY OF PILLARS WITHIN AMZ: 1.57E+09 (lbs)

To view the distribution of Pillar Load Bearing Capacity
select 'View Plots->Settings->Pillar Load Bearing Capacity'

[BARRIER PILLAR PARAMETERS]

none

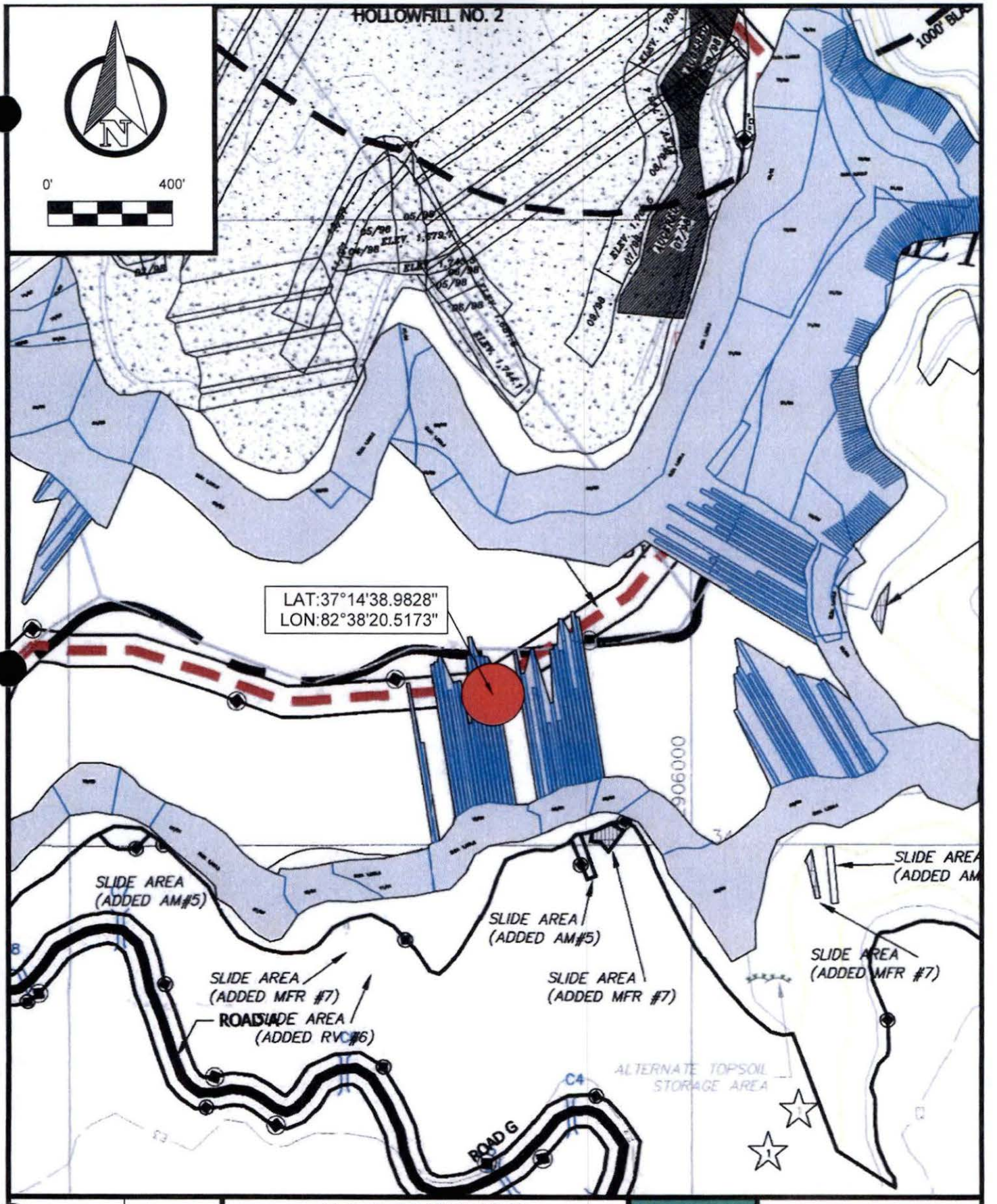
[REMNANT PILLAR AND LEAVE PILLAR PARAMETERS]

none

PHOTOGAPHS OF SANDSTONE STRATA

APPENDIX D PHOTOS

APPENDIX E MAPS



wn:	Date: 11/30/16
Job:	Scale: 1"=400'
Drawing: KNOWN PREVIOUS MINING SHAPEFILES	

BEEFHIDE TOWER SITE

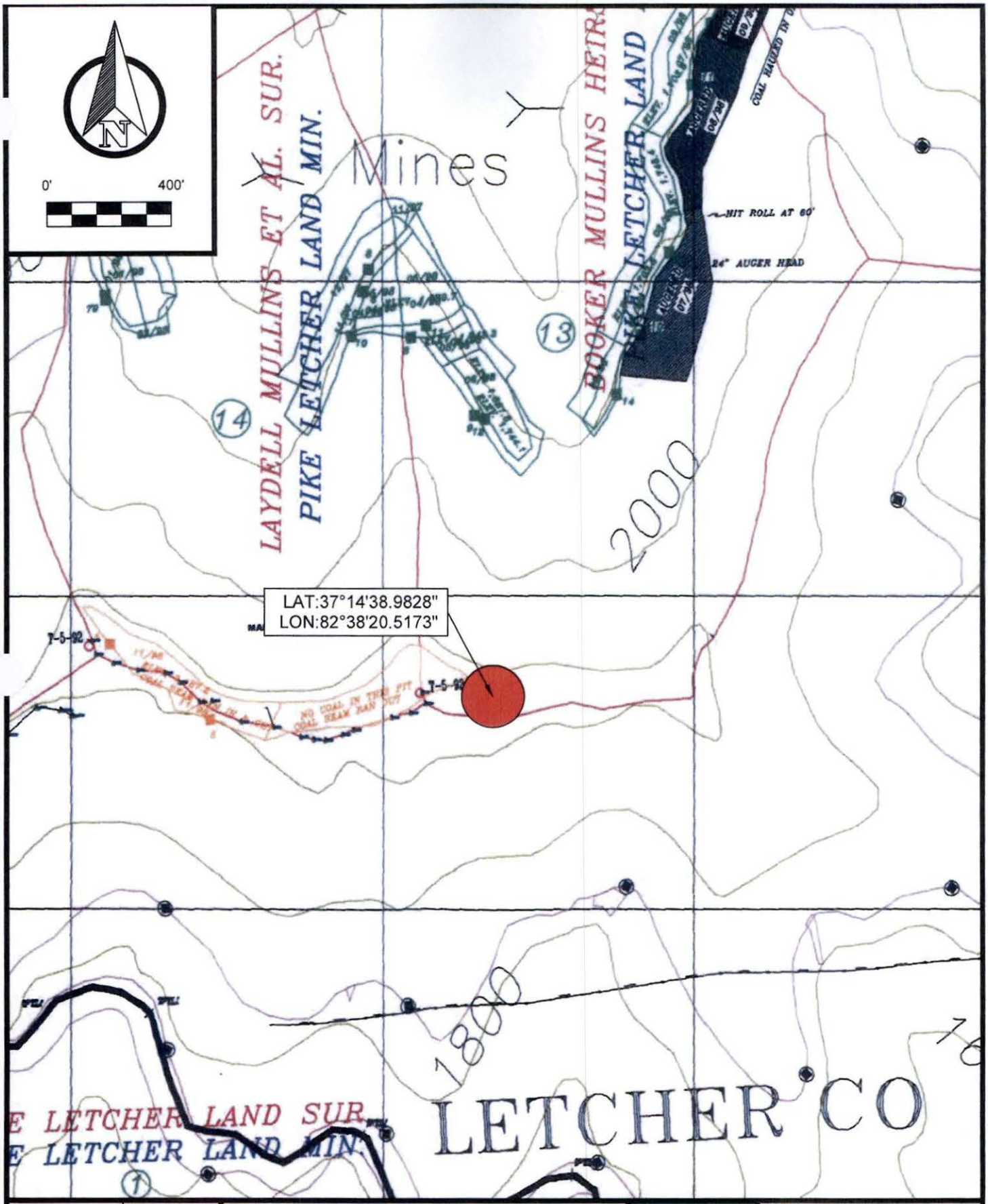
APPALACHIAN WIRELESS

WHITESBURG SEAM MINING

SEAM @1835'-1860', ~345FT OF COVER

ErMC²

921 Beasley Street, Suite 145
Lexington, KY 40509
(859)381-1000
engineering@ermc2.us



wn:	Date: 12/1/16
Job:	Scale: 1"=400'
Drawing: KNOWN PREVIOUS MINING SHAPEFILES	

BEEFHIDE TOWER SITE

APPALACHIAN WIRELESS

TAYLOR SEAM MINING

SEAM @2187', ~18FT OF COVER

ErMC²

921 Beasley Street, Suite 145
Lexington, KY 40509
(859)381-1000
engineering@ermc2.us

wn:	Date: 12/1/16
Job:	Scale: 1"=400'
Drawing: KNOWN PREVIOUS MINING SHAPEFILES	

BEEFHIDE TOWER SITE

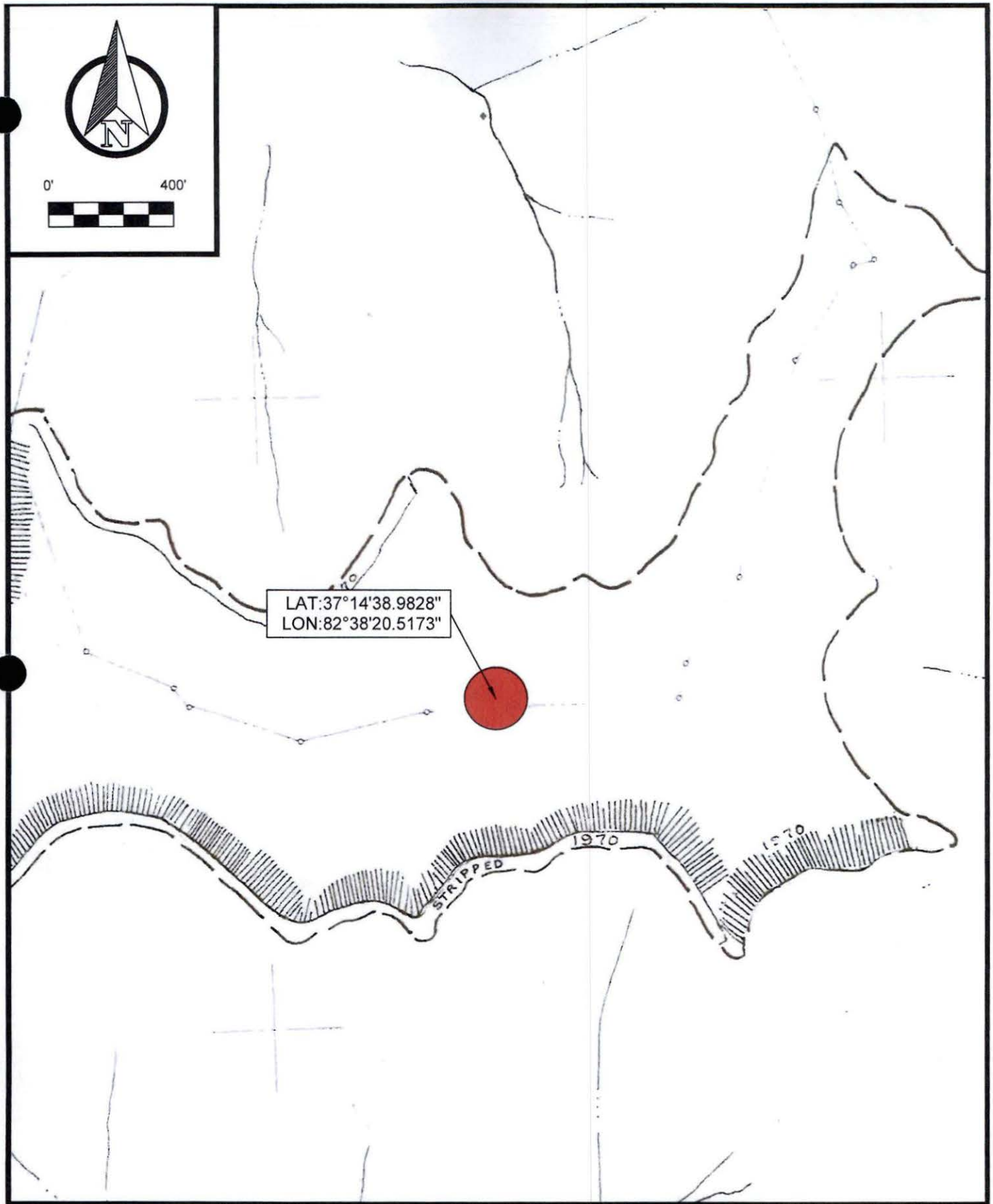
APPALACHIAN WIRELESS

HAZARD 4 SEAM MINING

SEAM @1960', ~245FT OF COVER

ErMC²

921 Beasley Street, Suite 145
Lexington, KY 40509
(859)381-1000
engineering@ermc2.us



wn:	Date: 12/1/16
Job:	Scale: 1"=400'
Drawing: KNOWN PREVIOUS MINING SHAPEFILES	

BEEFHIDE TOWER SITE

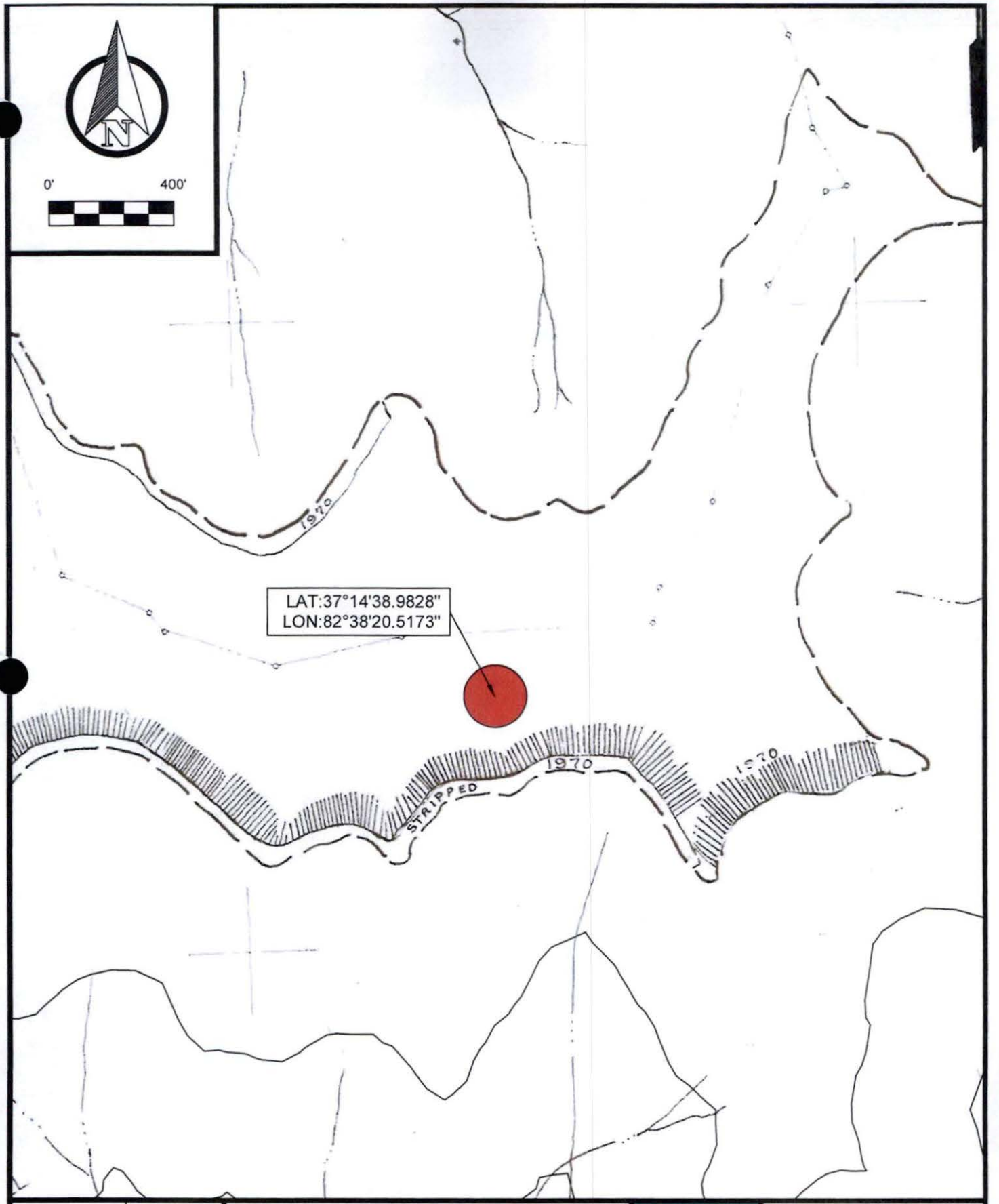
APPALACHIAN WIRELESS

HAZARD 4 SEAM MINING

SEAM @1960', ~245FT OF COVER

ErMC²

921 Beasley Street, Suite 145
Lexington, KY 40509
(859)381-1000
engineering@ermc2.us



wn:	Date: 12/1/16
Job:	Scale: 1"=400'
Drawing: KNOWN PREVIOUS MINING SHAPEFILES	

BEEFHIDE TOWER SITE

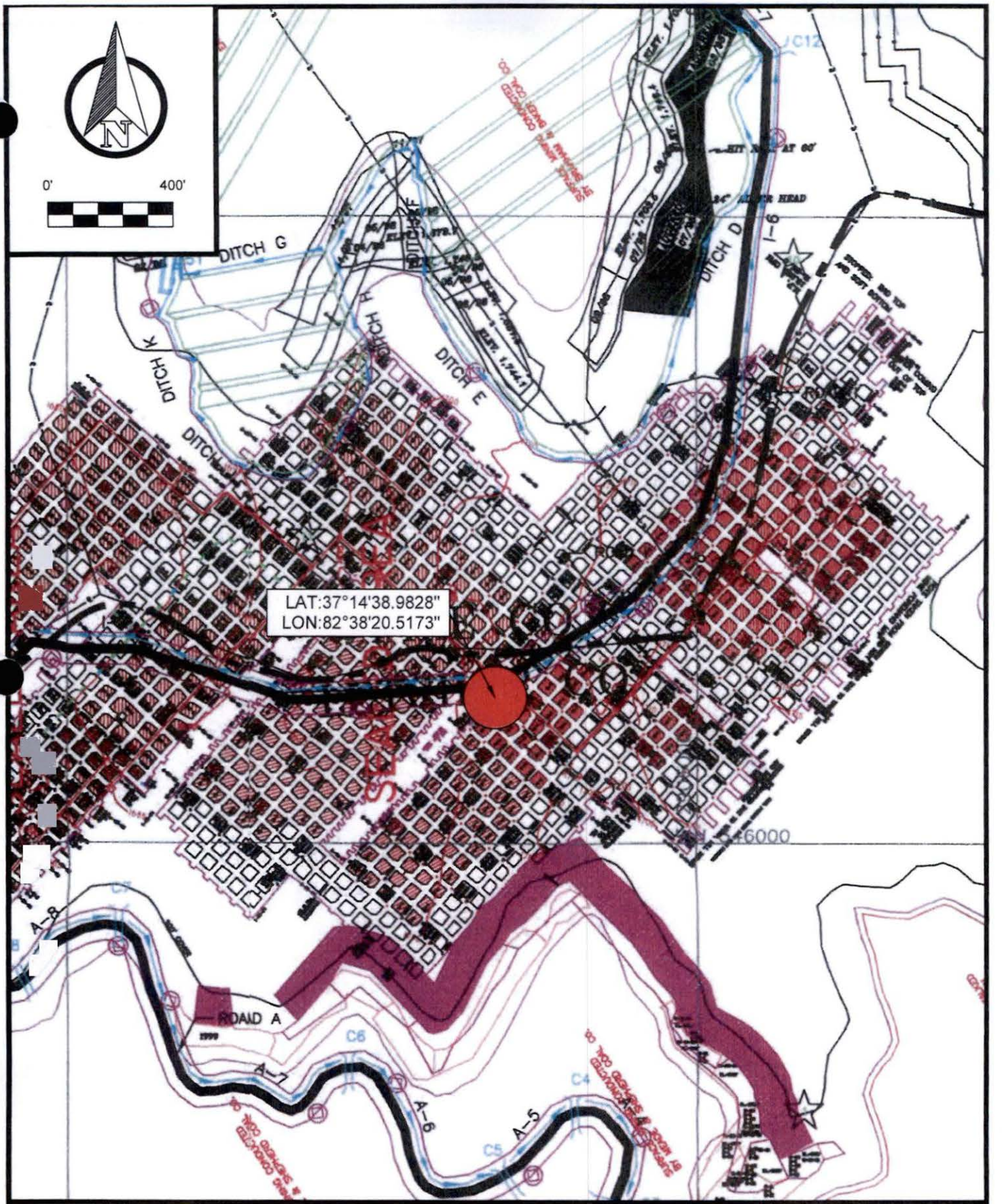
APPALACHIAN WIRELESS

FIRECLAY SEAM MINING

SEAM @2000', ~200FT OF COVER

ErMC²

921 Beasley Street, Suite 145
Lexington, KY 40509
(859)381-1000
engineering@ermc2.us



Drawn:	Date: 12/5/16
Job:	Scale: 1"=400'
Drawing: KNOWN PREVIOUS MINING SHAPEFILES	

BEEFHIDE TOWER SITE

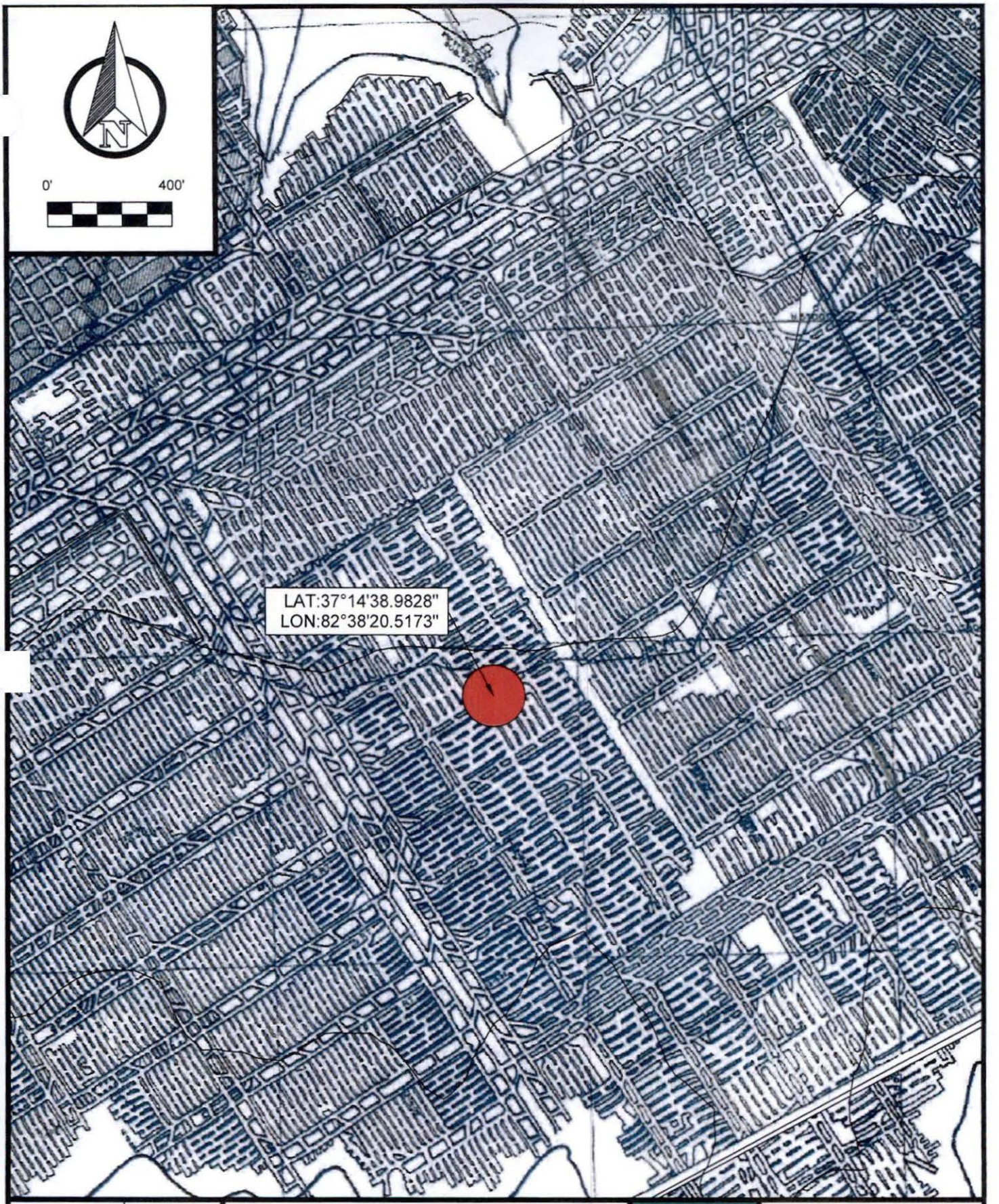
APPALACHIAN WIRELESS

AMBURGY SEAM MINING

SEAM @1710', ~495FT OF COVER

ErMC²

921 Beasley Street, Suite 145
Lexington, KY 40509
(859)381-1000
engineering@ermc2.us



vn:	Date: 11/30/16
Job:	Scale: 1"=400'
Drawing: KNOWN PREVIOUS MINING SHAPEFILES	

BEEFHIDE TOWER SITE

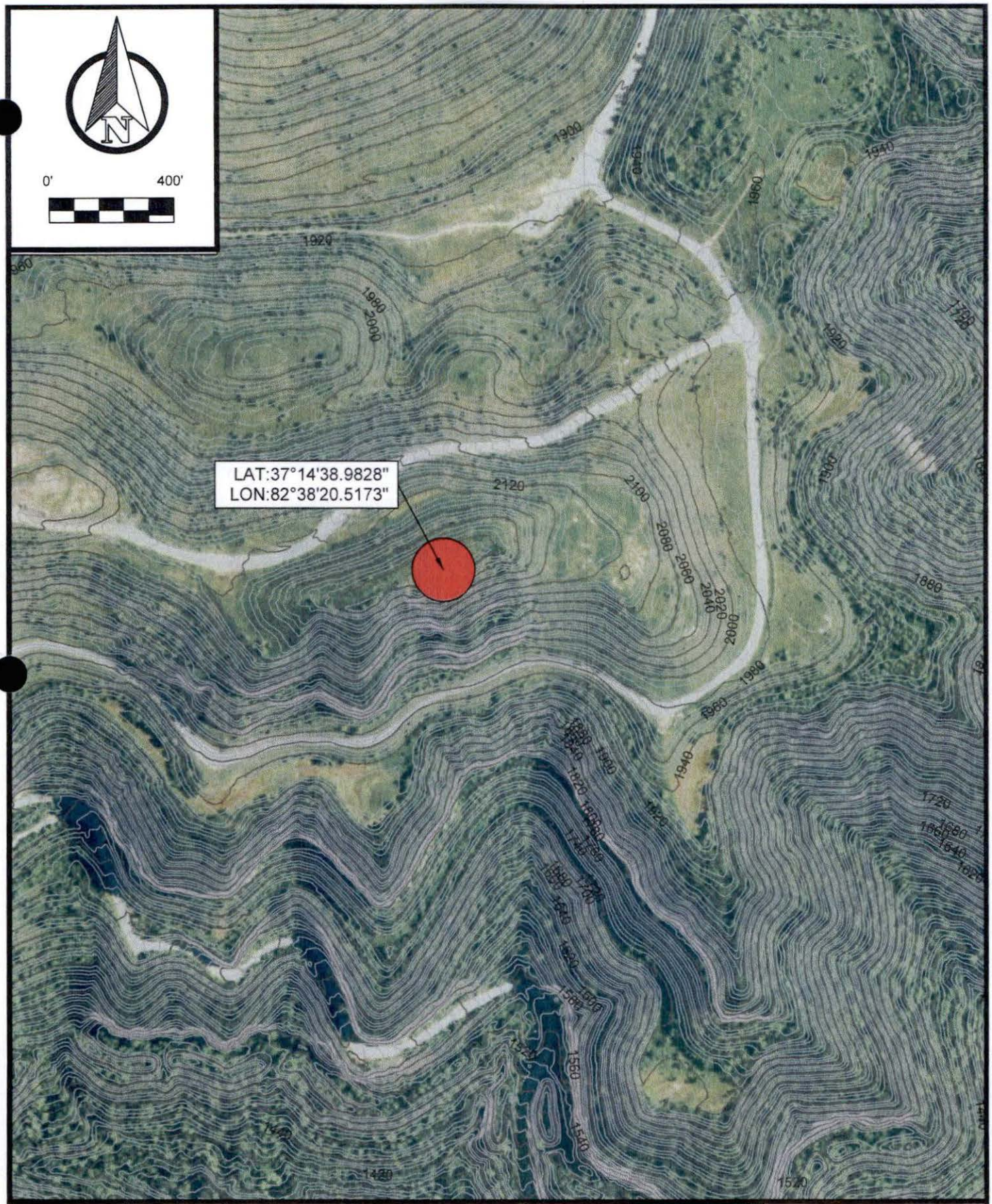
APPALACHIAN WIRELESS

UPPER ELKHORN #3 SEAM MINING

SEAM @1450', ~755FT OF COVER

ErMC²

921 Beasley Street, Suite 145
Lexington, KY 40509
(859)381-1000
engineering@ermc2.us



wn:	Date: 12/7/16
Job:	Scale: 1"=400'
Drawing: 2016 AERIAL IMAGE SITE LOCATION MAP	

BEEFHIDE SITE

APPALACHIAN WIRELESS

2016 AERIAL IMAGE LOCATION MAP

ErMC²

21 Beasley Street, Suite 145
Lexington, KY 40509
(859)381-1000
engineering@ermc2.us

World Tower
COMPANY, INC.

1213 Compressor Drive
P.O. Box 508
Mayfield, KY 42066
270-247-3642
FAX: 270-247-0909
E-mail: worldtower@worldtower.com
Web: www.worldtower.com

300' MODEL WSST TOWER
FOR: APPALACHIAN WIRELESS
SITE: BEEF HIDE
LETCHER COUNTY, KY
DESIGN PACKAGE

Fabrication, Installation, and Maintenance of TV, AM, FM, & Wireless Communications Towers

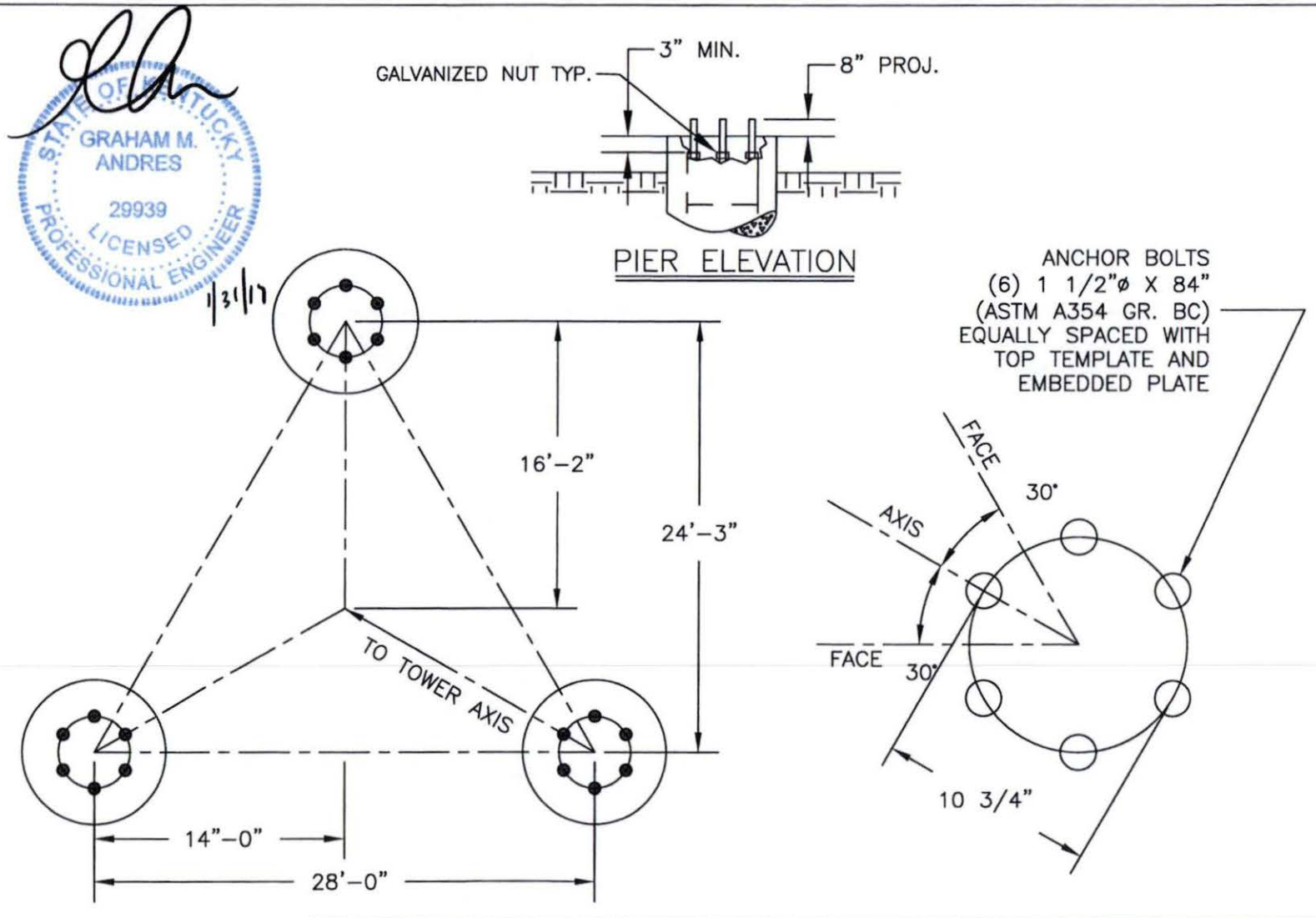
GENERAL NOTES

1. WELDED CONNECTIONS SHALL CONFORM TO THE LATEST REVISION OF THE AMERICAN WELDING SOCIETY AWS. D 1.1.
2. TOWER AND ALL FABRICATED ACCESSORIES ARE HOT-DIP GALVANIZED.
3. ALL BOLTS SHALL BE GALVANIZED ACCORDING TO THE STANDARD SPECIFICATION FOR ZINC COATING OF IRON AND STEEL HARDWARE ASTM A153.
4. LEG STEEL IS 50 KSI MIN YIELD SOLID ROUND OR PIPE AND BRACING STEEL IS 36 KSI MIN YIELD SOLID ROUND OR STRUCTURAL ANGLE.
5. ALL STRUCTURAL BOLTS ARE ASTM A325.
6. TOWER SHOULD BE INSPECTED IN ACCORDANCE WITH TIA-222-G EVERY 5 YEARS.
7. TOWER INSPECTION SHOULD ONLY BE PERFORMED BY EXPERIENCED QUALIFIED PERSONNEL. FOR ASSISTANCE IN PROPER MAINTENANCE OF YOUR TOWER, CALL WORLD TOWER AT 270-247-3642.

WORLD TOWER

TITLE:
300' MODEL WSST TOWER
FOR: APPALACHIAN WIRELESS
SITE: BEEF HIDE
LETCHER COUNTY, KY

SCALE	DWN. LKG	CKD.	DATE 1-30-17
FILE		DWG. NO.	Q16780N

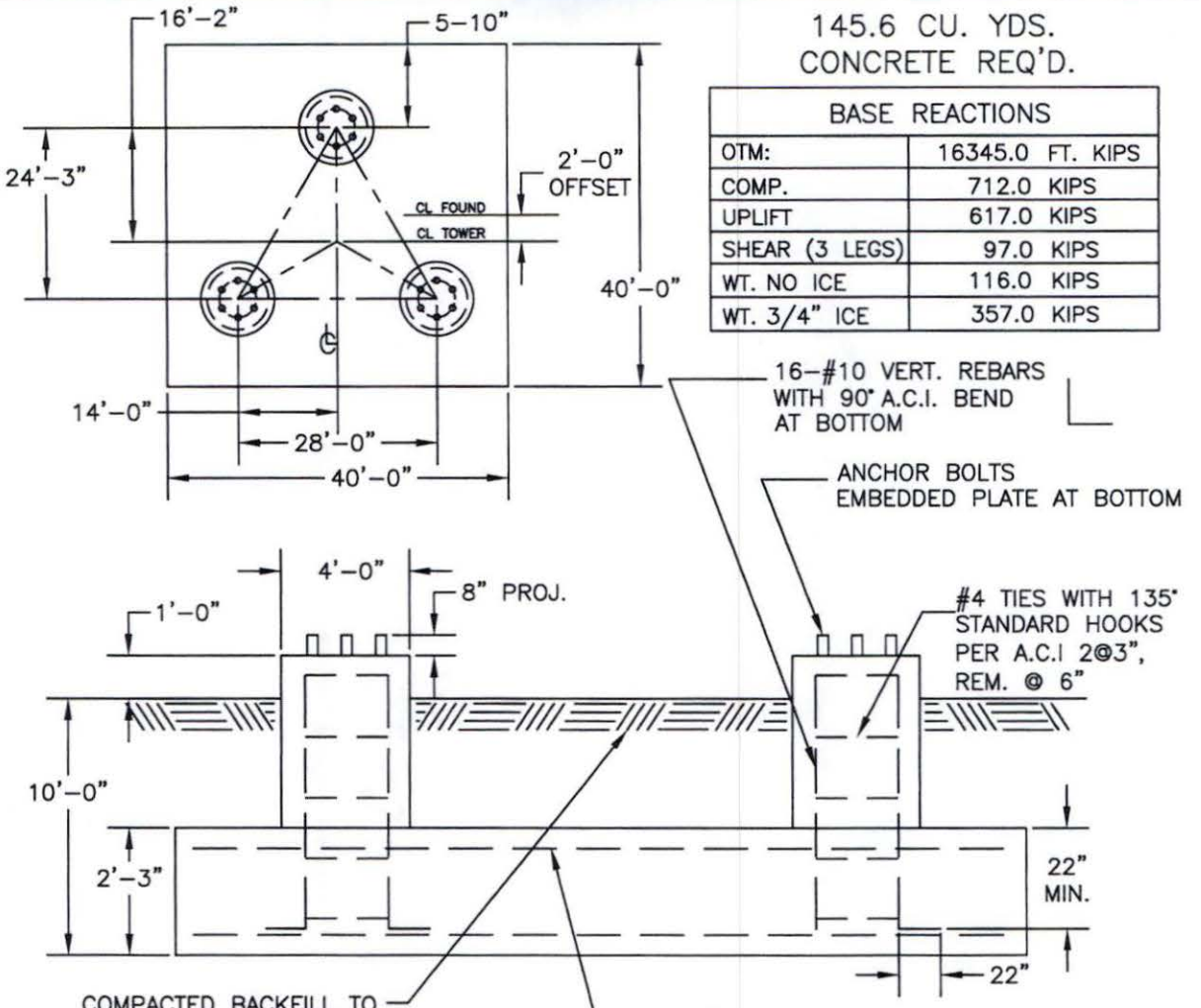


TITLE:

300' MODEL WSST TOWER
FOR: APPALACHIAN WIRELESS
SITE: BEEF HIDE
LETCHER COUNTY, KY

WORLD TOWER

SCALE NONE	DWN. LKG	CKD.	DATE 1-30-17
FILE	DWG. NO. Q16780AB		



145.6 CU. YDS.
CONCRETE REQ'D.

BASE REACTIONS	
OTM:	16345.0 FT. KIPS
COMP.	712.0 KIPS
UPLIFT	617.0 KIPS
SHEAR (3 LEGS)	97.0 KIPS
WT. NO ICE	116.0 KIPS
WT. 3/4" ICE	357.0 KIPS

GENERAL NOTES

1. CONCRETE TO HAVE 4000 PSI MIN. COMPRESSIVE STRENGTH AFTER 28 DAYS.
2. ALL REINFORCMENT STEEL IS DEFORMED AND MEETS THE STRENGTH REQUIREMENTS OF ASTM A615 GRADE 60.
3. EMBEDDED STEEL TO HAVE 3" MIN. CONCRETE COVER.
4. FOUNDATION DESIGN IS BASED ON CUSTOMER SUPPLIED SOIL DATA FROM ERMC2. PROJECT NUMBER 165-000-0033 DATED JANUARY 16, 2017.
5. FOUNDATION TO BEAR ON COMPETENT SOILS AS RECOMMENDED IN THE ABOVE REFERENCED SOILS REPORT. ADJUSTMENT OF THE BEARING DEPTH MAY BE REQUIRED.

STATE OF KENTUCKY
GRAHAM M. ANDRES
29939
LICENSED
PROFESSIONAL ENGINEER
1/31/17

TITLE: FOUNDATION DETAIL
300' WSST TOWER
FOR: APPALACHIAN WIRELESS
SITE: BEEF HIDE
LETCHER COUNTY, KY

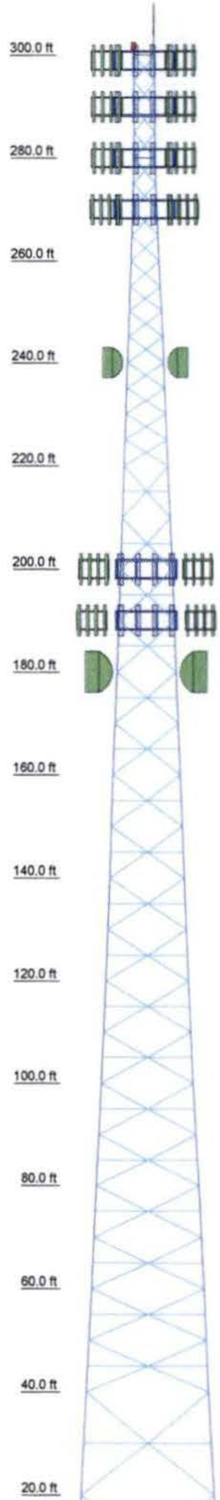
WORLD TOWER

SCALE	DWN.	CKD.	DATE
NONE	LKG		1-30-17

FILE

DWG. NO. Q16780F

Section	T15	T14	T13	T12	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	SR 5		SR 4 3/4		SR 4 1/2		4 1/4	SR 4		SR 3 3/4	SR 3 1/2	SR 3 1/4	SR 3	SR 2 1/2	SR 2
Leg Grade	A572-50														
Diagonals	L4x4x1/4		L4x4x3/8	L4x4x1/4	L3 1/2x3 1/2x3/8	L3 1/2x3 1/2x1/4		L3x3x3/8	L3 1/2x3 1/2x1/4	L3x3x1/4	L2 1/2x2 1/2x1/4	L2x2x3/16			
Diagonal Grade	A36														
Top Girts							N.A.								L2x2x1/8
Horizontals	L4x4x3/8	L4x4x1/4	L3 1/2x3 1/2x3/8	L3x3x3/8	L3 1/2x3 1/2x1/4	L3x3x1/4	L3x3x3/16		L2 1/2x2 1/2x3/16				N.A.		
Red. Horizontals	L3x3x3/16								N.A.						
Red. Diagonals	L3x3x3/16								N.A.						
Inner Bracing	L3x3x1/4								N.A.						
Face Width (ft)	28 / 26	24	22	20	18	16	14.5	13	11.5	10	8.5	7	5.5		4
# Panels @ (ft)	4 @ 10								52 @ 5						
Weight (K) 67.1	7.4	6.5	8.1	6.7	6.4	5.4	4.7	4.5	4.1	3.5	2.9	2.3	2.0	1.5	1.1



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
5/8" x 10' LROD	300	(4) RRUS 11	270
12" x 24" Beacon	300	(4) RRUS 11	270
(4) BXA-70063-6CF w/ Mount Pipe	299	(4) RRUS 11	270
(4) BXA-70063-6CF w/ Mount Pipe	299	WD13X53 Antenna Mounting Frame	270
(4) BXA-70063-6CF w/ Mount Pipe	299	WD13X53 Antenna Mounting Frame	270
(4) RRUS 11	299	WD13X53 Antenna Mounting Frame	270
(4) RRUS 11	299	Pipe Mount [PM 601-1]	240
(4) RRUS 11	299	Pipe Mount [PM 601-1]	240
WD13X53 Antenna Mounting Frame	299	6 FT DISH	240
WD13X53 Antenna Mounting Frame	299	6 FT DISH	240
WD13X53 Antenna Mounting Frame	299	(4) RRUS 11	200
(4) BXA-70063-6CF w/ Mount Pipe	290	(4) RRUS 11	200
(4) BXA-70063-6CF w/ Mount Pipe	290	WD13X53 Antenna Mounting Frame	200
(4) BXA-70063-6CF w/ Mount Pipe	290	WD13X53 Antenna Mounting Frame	200
(4) RRUS 11	290	WD13X53 Antenna Mounting Frame	200
(4) RRUS 11	290	(4) BXA-70063-6CF w/ Mount Pipe	200
(4) RRUS 11	290	(4) BXA-70063-6CF w/ Mount Pipe	200
WD13X53 Antenna Mounting Frame	290	(4) BXA-70063-6CF w/ Mount Pipe	200
WD13X53 Antenna Mounting Frame	290	(4) RRUS 11	200
WD13X53 Antenna Mounting Frame	290	(4) RRUS 11	190
(4) BXA-70063-6CF w/ Mount Pipe	280	(4) RRUS 11	190
(4) BXA-70063-6CF w/ Mount Pipe	280	WD13X53 Antenna Mounting Frame	190
(4) BXA-70063-6CF w/ Mount Pipe	280	WD13X53 Antenna Mounting Frame	190
(4) RRUS 11	280	WD13X53 Antenna Mounting Frame	190
(4) RRUS 11	280	(4) BXA-70063-6CF w/ Mount Pipe	190
(4) RRUS 11	280	(4) BXA-70063-6CF w/ Mount Pipe	190
WD13X53 Antenna Mounting Frame	280	(4) BXA-70063-6CF w/ Mount Pipe	190
WD13X53 Antenna Mounting Frame	280	(4) RRUS 11	190
WD13X53 Antenna Mounting Frame	280	Pipe Mount [PM 601-1]	180
(4) BXA-70063-6CF w/ Mount Pipe	270	Pipe Mount [PM 601-1]	180
(4) BXA-70063-6CF w/ Mount Pipe	270	8 FT DISH	180
(4) BXA-70063-6CF w/ Mount Pipe	270	8 FT DISH	180

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in Letcher County, Kentucky.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 89.00 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 30.00 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60.00 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 99.6%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 712 K
SHEAR: 61 K

UPLIFT: -617 K
SHEAR: 54 K

AXIAL 357 K
SHEAR 12 K
MOMENT 2130 kip-ft
TORQUE 1 kip-ft
30.00 mph WIND - 0.75 in ICE

AXIAL 116 K
SHEAR 97 K
MOMENT 16345 kip-ft
TORQUE 9 kip-ft
REACTIONS - 89.00 mph WIND

STATE OF KENTUCKY
GRAHAM M. ANDRES
29939
LICENSED
PROFESSIONAL ENGINEER
1/31/17

World Tower Company, Inc.	Job: 300' Model WSST / Run T1701-092		
1213 Compressor Drive	Project: Beef Hide, KY		
Mayfield, KY 42066	Client: Appalachian Wireless	Drawn by: SJJ	App'd:
Phone: (270) 247-3642	Code: TIA-222-G	Date: 01/09/17	Scale: NTS
FAX: (270) 247-0909	Path: [illegible]		Dwg No. E-1

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2016-ASO-27790-OE

Issued Date: 01/11/2017

Ali Kuzehkanani
East Kentucky Network, LLC
8300 Greensboro Drive, Suite 1200
McLean, VA 22102

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

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

Structure:	Antenna - Top Mount Dunham (Beefhide) Tower
Location:	Dunham, KY
Latitude:	37-14-38.98N NAD 83
Longitude:	82-38-20.51W
Heights:	2204 feet site elevation (SE)
	310 feet above ground level (AGL)
	2514 feet above mean sea level (AMSL)

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

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

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

This determination expires on 07/11/2018 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.

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

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

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 (FCC) because the structure is subject to their licensing authority.

If we can be of further assistance, please contact our office at (718) 553-2611. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-ASO-27790-OE.

Signature Control No: 308521885-314702364 (DNE)
Angelique Eersteling
Technician

Attachment(s)
Frequency Data

cc: FCC

Frequency Data for ASN 2016-ASO-27790-OE

LOW FREQUENCY	HIGH FREQUENCY	FREQUENCY UNIT	ERP	ERP UNIT
698	806	MHz	1000	W
806	824	MHz	500	W
824	849	MHz	500	W
851	866	MHz	500	W
869	894	MHz	500	W
896	901	MHz	500	W
901	902	MHz	7	W
930	931	MHz	3500	W
931	932	MHz	3500	W
932	932.5	MHz	17	dBW
935	940	MHz	1000	W
940	941	MHz	3500	W
1850	1910	MHz	1640	W
1930	1990	MHz	1640	W
2305	2310	MHz	2000	W
2345	2360	MHz	2000	W

KENTUCKY AIRPORT ZONING COMMISSION

MATTHEW BEVIN
Governor

200 Mero Street 4th Floor
Frankfort, KY 40622
www.transportation.ky.gov
502-782-4044

January 12, 2017

APPROVAL OF APPLICATION

APPLICANT:
East Kentucky Network, LLC.
East Kentucky Network, LLC.
8300 Greensboro Drive|Suite 1200
McLean, VA 22102

SUBJECT: AS-067-PBX-2016-081

STRUCTURE:	Antenna Tower
LOCATION:	Dunham, KY
COORDINATES:	37° 14' 38.98" N / 82° 38' 20.51" W
HEIGHT:	310' AGL/2514'AMSL

The Kentucky Airport Zoning Commission has approved your application for a permit to construct 310'AGL/ 2514'AMSL Antenna Tower near Dunham, KY 37° 14' 38.98" N / 82° 38' 20.51" W.

This permit is valid for a period of 18 Month(s) from its date of issuance. If construction is not completed within said 18-Month period, this permit shall lapse and be void, and no work shall be performed without the issuance of a new permit.

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

Medium Dual Obstruction Lighting is require in accordance with 602 KAR 50:100.

John Houlihan
Administrator

MATTHEW BEVIN
Governor

KENTUCKY AIRPORT ZONING COMMISSION

200 Mero Street 4th Floor
Frankfort, KY 40622
www.transportation.ky.gov
502-782-4044

CONSTRUCTION/ALTERATION STATUS REPORT

January 12, 2017

AERONAUTICIAL STUDY NUMBER: AS-067-PBX-2016-081

East Kentucky Network, LLC.
East Kentucky Network, LLC.
8300 Greensboro Drive Suite 1200
McLean, VA 22102

This concerns the permit which was issued to you by the Kentucky Airport Zoning Commission on January 12, 2017. This permit is valid for a period of 18 Month(s) from its date of issuance. If construction is not completed within the said 18-Month period, this permit shall lapse and be void, and no work shall be performed without the issuance of a new permit. When appropriate, please indicate the status of the project in the place below and return this letter to John Houlihan, Administrator, Kentucky Airport Zoning Commission, 200 Mero Street 4th Floor Office of Audits, Frankfort, KY, 40622. 502-782-4044.

STRUCTURE:	Antenna Tower
LOCATION:	Dunham, KY
COORDINATES:	37° 14' 38.98" N / 82° 38' 20.51" W
HEIGHT:	310' AGL /2514'AMSL

CONSTRUCTION/ALTERATION STATUS

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

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

   Date construction was completed. _____

   Type of obstruction marking/painting. _____

   Type of obstruction lighting. _____

   As built coordinates. _____

   Miscellaneous Information. _____

   DATE _____

   SIGNATURE/TITLE _____

Kentucky UNBRIDLED SPIRIT

KENTUCKY TRANSPORTATION CABINET

KENTUCKY AIRPORT ZONING COMMISSION

TC 56-50
Rev. 07/2010

APPLICATION FOR PERMIT TO CONSTRUCT OR ALTER A STRUCTURE

APPLICANT (*name*) East Kentucky Network, LLC c/o LNGS	**PHONE** 703-584-8667	**FAX** 703-584-8692	**KY AERONAUTICAL STUDY #** AS-067-PBX-2016-081
ADDRESS (*street*) 8300 Greensboro Dr, #1200	**CITY** McLean		**STATE** VA / **ZIP** 22102
APPLICANT'S REPRESENTATIVE (*name*) Ali Kuzehkanani	**PHONE** 703-584-8667	**FAX** 703-584-8692	
ADDRESS (*street*) 8300 Greensboro Dr, #1200	**CITY** McLean		**STATE** VA / **ZIP** 22102
APPLICATION FOR ☒ New Construction ☐ Alteration ☐ Existing **DURATION** ☐ Permanent ☐ Temporary (*months* *days*)			**WORK SCHEDULE** Start 12/1/16 End 12/15/16
TYPE ☐ Crane ☐ Building ☒ Antenna Tower ☐ Power Line ☐ Water Tank ☐ Landfill ☐ Other	**MARKING/PAINTING/LIGHTING PREFERRED** ☐ Red Lights & Paint ☐ White- medium intensity ☐ White- high intensity ☒ Dual- red & medium intensity white ☐ Dual- red & high intensity white ☐ Other		
LATITUDE 37°14'38.98"	**LONGITUDE** 82°38'20.51"		**DATUM** ☒ NAD83 ☐ NAD27 ☐ Other
NEAREST KENTUCKY City Dunham County Letcher	**NEAREST KENTUCKY PUBLIC USE OR MILITARY AIRPORT** Lonesome Pine Airport		
SITE ELEVATION (AMSL, *feet*) 2204	**TOTAL STRUCTURE HEIGHT** (AGL, *feet*) 310		**CURRENT** (*FAA aeronautical study #*)
OVERALL HEIGHT (*site elevation plus total structure height, feet*) 2514			**PREVIOUS** (*FAA aeronautical study #*)
DISTANCE (*from nearest Kentucky public use or Military airport to structure*) 18.7 mi			**PREVIOUS** (*KY aeronautical study #*)
DIRECTION (*from nearest Kentucky public use or Military airport to structure*) SSE			

DESCRIPTION OF LOCATION (*Attach USGS 7.5 minute quadrangle map or an airport layout drawing with the precise site marked and any certified survey.*)
Beefhide, approx. 3.6 miles N of Dunham (Letcher), KY

DESCRIPTION OF PROPOSAL
A new 300' tower with top-mounted antennas (overall height of 310' AGL)

FAA Form 7460-1 (*Has the "Notice of Construction or Alteration" been filed with the Federal Aviation Administration?*)
☐ No ☒ Yes, when? 10/26/16

CERTIFICATION (*I hereby certify that all the above entries, made by me, are true, complete, and correct to the best of my knowledge and belief.*)
PENALITIES (*Persons failing to comply with KRS 183.861 to 183.990 and 602 KAR 050 are liable for fines and/or imprisonment as set forth in KRS 183.990(3). Noncompliance with FAA regulations may result in further penalties.*)

NAME	**TITLE**	**SIGNATURE**	**DATE**
Ali Kuzehkanani	Dir of Engineering	Ali Kuzehkanani	10/26/16

COMMISSION ACTION

☐ Chairperson, KAZC
☒ Administrator, KAZC

☒ Approved
☐ Disapproved

SIGNATURE [signature]

DATE 1-12-17

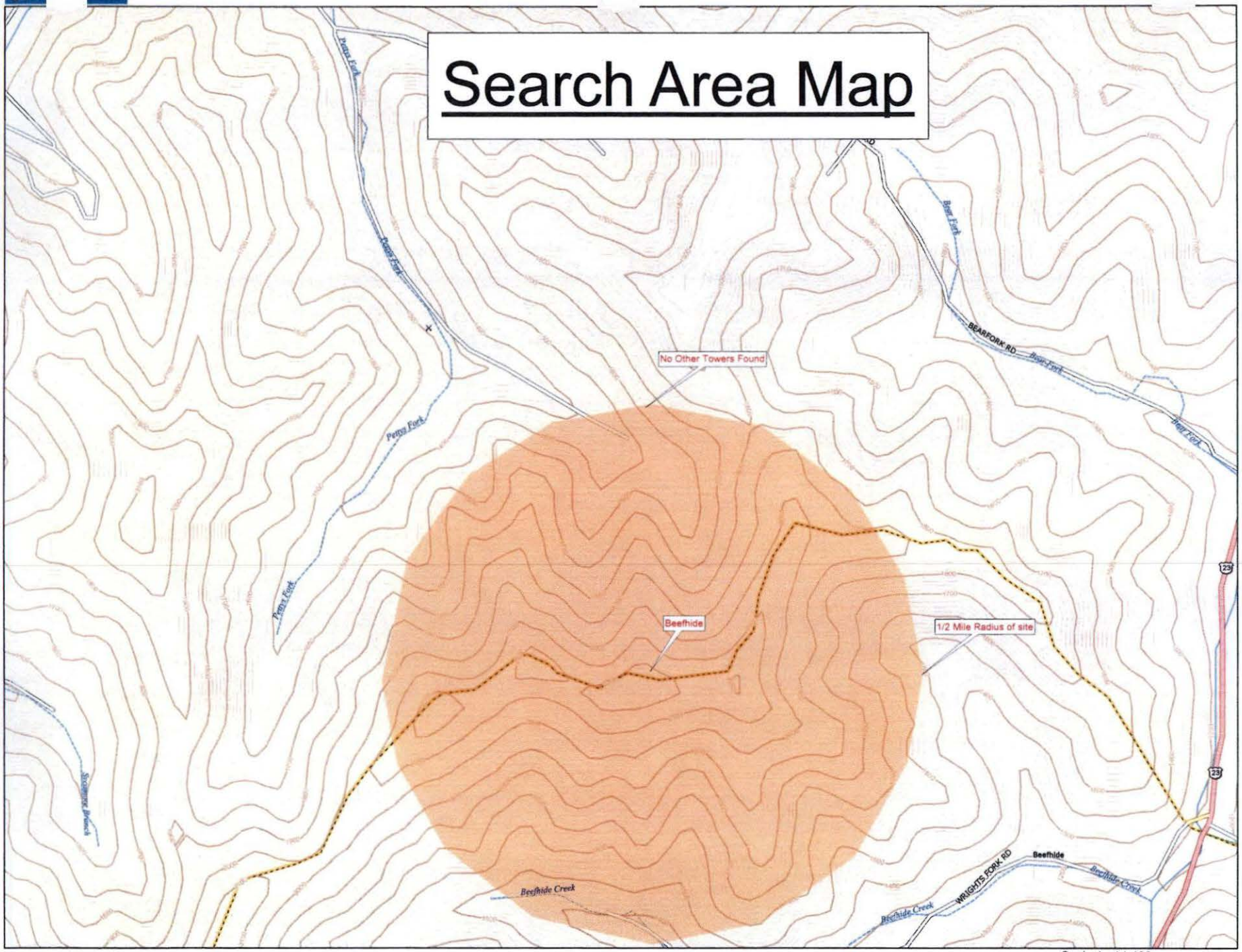
Driving Directions for Beefhide

Beginning on Short Street beside the Letcher County Courthouse in Whitesburg, KY turn right onto Main Street and drive three-tenths of a mile to the intersection of Main Street and Highway Fifteen. Turn right and drive eleven miles and seven-tenths to the intersection of Highway Fifteen and Highway Twenty-Three. Take Highway Twenty-Three North and drive six miles and four-tenths, then turn left onto Beefhide Road (signs will be posted here). Drive seven-tenths of a mile (road turns into gravel) and turn right. Drive up the hill eight-tenths of a mile and hang right. Go three-tenths of mile to the intersection. Drive straight another half a mile and you will see our road off to the right. The gravel stops at the foot of the road drive up the hill one-tenth of a mile and you will arrive at the site (signs will be posted).

Prepared by:

Daryl Bartley
Cell Site Compliance Agent
East Kentucky, LLC
d/b/a Appalachian Wireless
(606) 791-0310 (cell)
(606) 339-1363 (fax)
dbartley@ekn.com

Search Area Map



TN
MN (6.9°W)

Scale 1 : 14,400
1" = 1,200.0 ft
Data Zoom 14-3

MEMORANDUM OF LEASE

THIS MEMORANDUM OF LEASE is made and entered into on this 23 day of August, 2016, with a commencement date of September 1, 2016, by and between **PIKE-LETCHER LAND LLC**, a Kentucky limited liability company, with a mailing address of 15888 Ferrells Creek Rd., Belcher, Kentucky 41513, hereinafter referred to as "Lessor", and **EAST KENTUCKY NETWORK, LLC D/B/A APPALACHIAN WIRELESS**, a Kentucky limited liability company, with a mailing address of 101 Technology Trail, Ivel, Kentucky, 41642, hereinafter referred to as "Lessee."

WITNESSETH:

1. **Demised Premises**. For good and valuable consideration, Lessor leased to Lessee, and Lessee has leased from Lessor that certain tract of real estate located in Letcher County, Kentucky, and being a portion of the same land conveyed to Lessor by Pike-Letcher Coal Partners by Deed dated November 20, 1991, in Deed Book 301, Page 555, and Deed of Correction dated December 15, 1995, in Deed Book 323 Page 431 in the Letcher County Clerk's Office. The subject property is more particularly described in the description **attached** hereto and made a part hereof as **Exhibit A** and the plat **attached** hereto and made a part hereof as **Exhibit B**, prepared by Steven Haywood, Licensed-Professional Land Surveyor (hereinafter referred to as the "Premises").

The Lessor has also granted unto Lessee full and complete right of ingress, egress and regress to the Premises over an existing road on Lessors' property on Andy Wright Hollow of Beefhide Creek, and other associated rights, including but not limited to rights for installation of utilities and for maintenance. The Lessor has also granted Lessee easement rights for an alternate

access road, if necessary, subject to Lessor's approval and subject to the terms and conditions of the Lease.

2. **Term**. The initial term of the Lease is for a period of five (5) years from the commencement date set forth above.

3. **Option to Renew.** Lessee has the right and option to renew the Lease for an additional six (6) terms of five (5) years each.

4. **Binding Effect**. All of the terms, conditions, and covenants hereof shall be binding and inure to the benefit of the parties and their respective heirs, representatives, successors, and assigns.

5. **Purpose**. This Memorandum of Lease is prepared solely for the purpose of recordation, and is not intended to, nor shall it be deemed to, modify any of the terms and conditions set forth in the Lease, nor to construe any of the rights, duties or responsibilities of Lessor and Lessee. In the event of any conflict between the terms and conditions of this Memorandum and the terms and conditions of the Lease, the terms and conditions of the Lease shall supersede and control.

IN WITNESS WHEREOF, Lessor and Lessee have caused their names to be signed hereto, as of the day and year first above written.

LESSOR:
PIKE-LETCHER LAND LLC

By: Sam A. Carter
Its: Vice-President

COMMONWEALTH OF KENTUCKY
COUNTY OF Floyd

The foregoing instrument was acknowledged before me on this 23 day of August, 2016, by Sam Carter, the Vice President of Pike-Letcher Land LLC, Lessor.

Lynn Haney
Notary Public

My Commission Expires August 19, 2019

LYNN HANEY Notary ID # 540329 NOTARY PUBLIC Exp. 08/19/2019 STATE AT LARGE, KENTUCKY

LESSEE:

EAST KENTUCKY NETWORK, LLC D/B/A APPALACHIAN WIRELESS

W A Gillum
By: W.A. Gillum
Its: CEO/ General Manager

COMMONWEALTH OF KENTUCKY
COUNTY OF Floyd

The foregoing instrument was acknowledged before me on this 22 day of August, 2016, by W.A. Gillum, CEO/General Manager of East Kentucky Network, LLC d/b/a Appalachian Wireless.

Lynn Haney
Notary Public

My Commission Expires August 19, 2019

LYNN HANEY Notary ID # 540329 NOTARY PUBLIC Exp. 08/19/2019 STATE AT LARGE, KENTUCKY

This instrument was prepared by:

Cindy D. McCarty
Cindy D. McCarty, Attorney at Law
101 Technology Trail
Ivel, Kentucky 41642
(606) 339-1006

STATE OF KENTUCKY COUNTY OF LETCHER

I, WINSTON MEADE, CLERK OF LETCHER COUNTY, DO HEREBY CERTIFY THAT THE FOREGOING Lease WAS ON THIS 29 DAY OF Aug 2016 LODGED IN MY OFFICE FOR RECORD AND THAT IT AND THIS CERTIFICATE HAVE BEEN DULY RECORDED IN Lease BOOK 160 AT PAGE 230
WITNESS MY HAND THIS 29 DAY OF Aug 2016
WINSTON MEADE, CLERK BY Angel Back DC

Description
Pike Letcher Land Company
to
East Kentucky Network
d/b/a Appalachian Wireless

A certain tract of land lying on the ridge between Petty's Fork of the Left Fork of Long Fork and Beefhide Creek, Letcher County, Kentucky and more particularly described as follows.

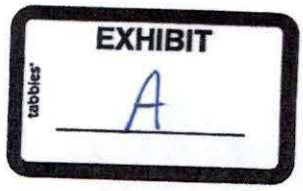
Unless stated otherwise any monument referred to herein as a Re-Bar and Cap is a set ½" steel re-bar eighteen (18") in length with a yellow plastic cap stamped Summit L.S. #2661. All bearings stated herein are referred to Grid North based on Kentucky Single Zone State Plane NAD 83 coordinates.

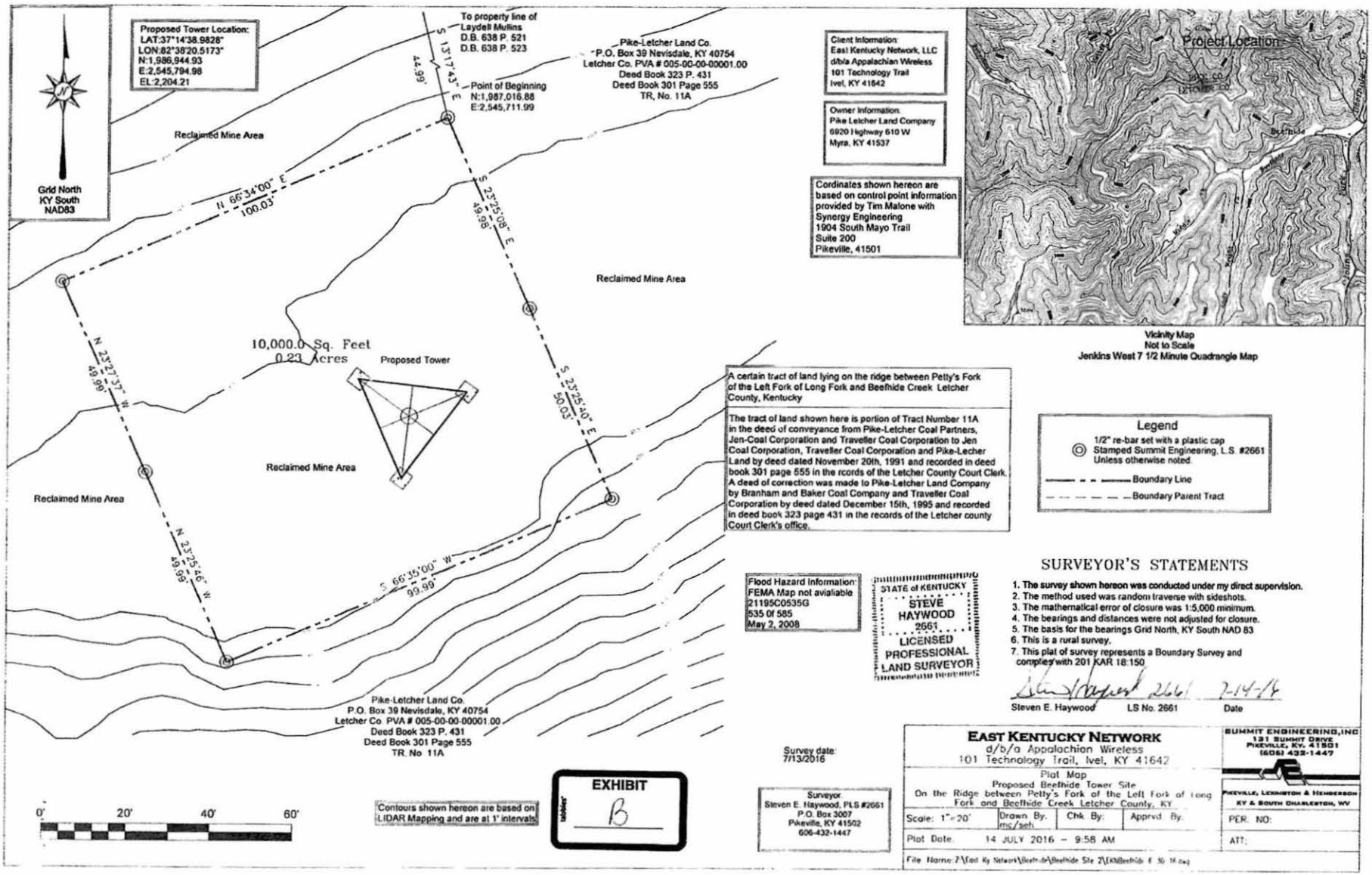
Beginning at a set Re-Bar and Cap and being S 13°17'43" E 44.99'+/- from the boundary line between Laydell Mulins (D.B. 638 P. 521 & D.B. 638 P. 523) and Pike Letcher Land Company (D.B. 323 P. 431 & D.B. 301 P. 555 Tract 11A) and having Kentucky South NAD83 Coordinates of N 1, 987,016.88 E: 2,545,711.99;

Thence, S 23°25'08" E a distance of 49.98' to a set Re-Bar and Cap on the now existing ridge; Thence, across the flat and down the hill S 23°25'40" E a distance of 50.03' to a set Re-Bar and Cap; Thence, around the hill S 66°35'00" W a distance of 99.99' to a set Re-Bar and Cap; Thence, up the hill N 23°25'46" W a distance of 49.99' to a set Re-Bar and Cap on the now existing ridge; Thence, N 23°27'37" W a distance of 49.99' to a set Re-Bar and Cap; Thence, around the hill N 66°34'00" E a distance of 100.03' to the point of beginning and containing 0.23 acres more or less according to a survey conducted by persons under the direct supervision of Steven E. Haywood, PLS 2661 with Summit Engineering, Inc. on July 13, 2016 and being a portion of tract Number 11A in the deed of conveyance from Pike –Letcher Coal Partners, Jen-Coal Corporation and Traveller Coal Corporation to Jen-Coal Corporation, Traveller Coal Corporation and Pike-Letcher land by deed dated November 20th, 1991 and recorded in deed book 301 page 555 in the records of the Letcher County, Court Clerk. A deed of correction was made to Pike-Letcher Land Company by Branham and Baker Coal Company and Traveller Coal Corporation by deed dated December 15th, 1995 and recorded in deed book 323 page 431 in the records of the Letcher County Court Clerk's office.

Steven E. Haywood, PLS #2661

Date: 7/14/2016





Client Information:
East Kentucky Network, LLC
d/b/a Appalachian Wireless
101 Technology Trail
Ivel, KY 41642

Owner Information:
Pike Letcher Land Company
6920 Highway 610 W
Myra, KY 41537

Cordinates shown hereon are based on control point information provided by Tim Malone with Synergy Engineering
1904 South Mayo Trail
Suite 200
Pikeville, 41501

Vicinity Map
Not to Scale
Jenkins West 7 1/2 Minute Quadrangle Map

A certain tract of land lying on the ridge between Petty's Fork of the Left Fork of Long Fork and Beefhide Creek Letcher County, Kentucky

The tract of land shown here is portion of Tract Number 11A in the deed of conveyance from Pike-Letcher Coal Partners, Jen-Coal Corporation and Traveller Coal Corporation to Jen Coal Corporation, Traveller Coal Corporation and Pike-Lecher Land by deed dated November 20th, 1991 and recorded in deed book 301 page 555 in the rcords of the Letcher County Court Clerk. A deed of correction was made to Pike-Letcher Land Company by Branham and Baker Coal Company and Traveller Coal Corporation by deed dated December 15th, 1995 and recorded in deed book 323 page 431 in the records of the Letcher county Court Clerk's office.

Legend
- 1/2" re-bar set with a plastic cap Stamped Summit Engineering, L.S. #2661 Unless otherwise noted.
- Boundary Line
- Boundary Parent Tract

Flood Hazard Information:
FEMA Map not avialiable
21195C0535G
535 of 585
May 2, 2008

STATE of KENTUCKY
STEVE HAYWOOD
2661
LICENSED PROFESSIONAL LAND SURVEYOR

SURVEYOR'S STATEMENTS

1. The survey shown hereon was conducted under my direct supervision.
2. The method used was random traverse with sideshots.
3. The mathematical error of closure was 1:5,000 minimum.
4. The bearings and distances were not adjusted for closure.
5. The basis for the bearings Grid North, KY South NAD 83
6. This is a rural survey.
7. This plat of survey represents a Boundary Survey and complies with 201 KAR 18:150

Steven E. Haywood LS No. 2661 Date 7-14-16

Survey date:
7/13/2016

Surveyor
Steven E. Haywood, PLS #2661
P.O. Box 3007
Pikeville, KY 41502
606-432-1447

EXHIBIT B

EAST KENTUCKY NETWORK
d/b/a Appalachian Wireless
101 Technology Trail, Ivel, KY 41642

Plat Map
Proposed Beefhide Tower Site
On the Ridge between Petty's Fork of the Left Fork of Long Fork and Beefhide Creek Letcher County, KY

Scale: 1"=20'	Drawn By: mc/seh	Chk. By:	Apprvd. By:
Plot Date: 14 JULY 2016 - 9:58 AM			

File Name: Z:\East Ky Network\Beefhide Site 2\EKNBeefhide E 50 16.dwg

SUMMIT ENGINEERING, INC
131 SUMMIT DRIVE
PIKEVILLE, KY. 41501
(606) 432-1447

PIKEVILLE, LEXINGTON & HENDERSON
KY & SOUTH CHARLESTON, WV

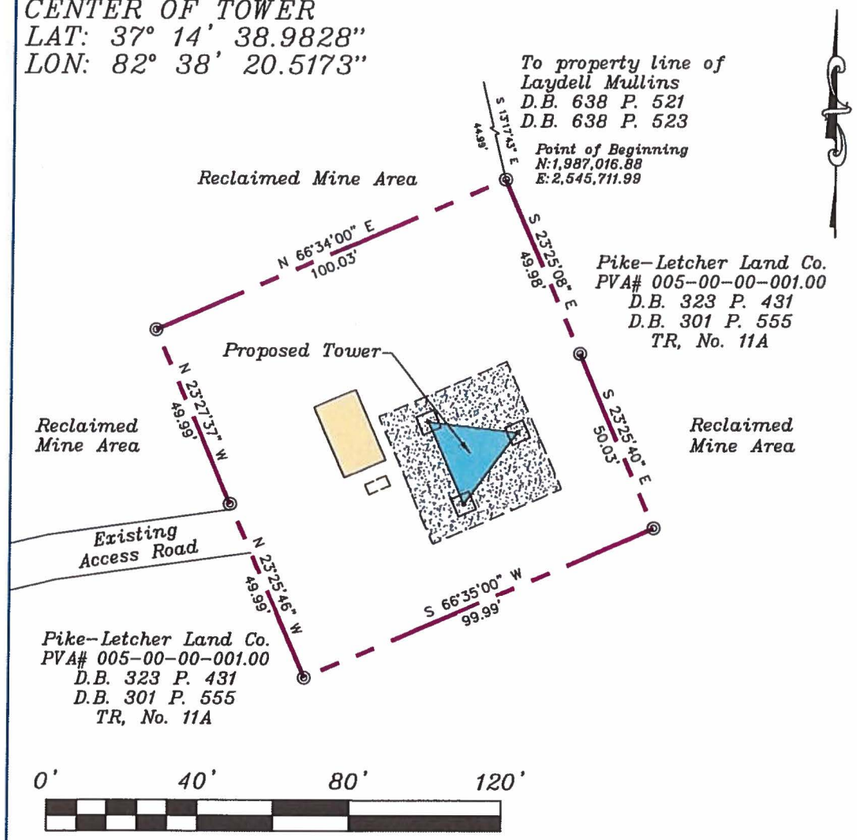
PER. NO:

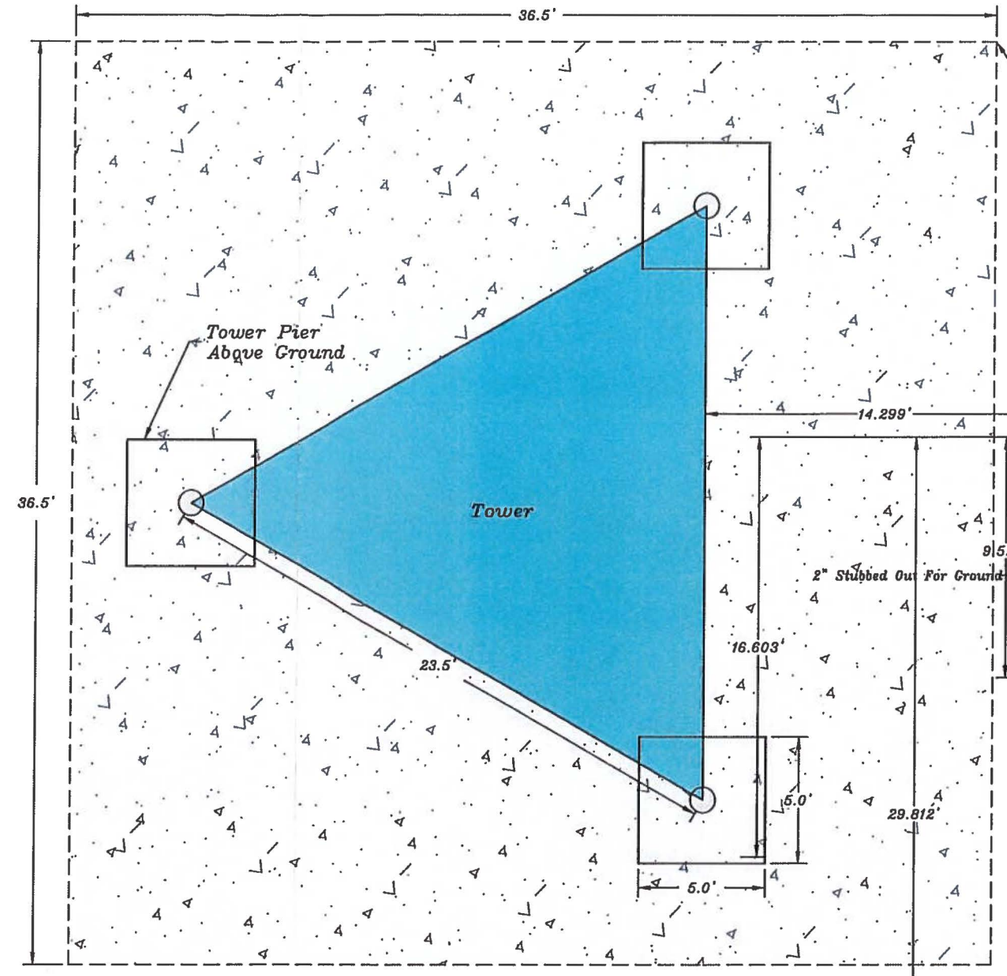
ATT:

BEEFHIDE TOWER

SITE SURVEY WITH PROPOSED TOWER & BUILDING LOCATION

CENTER OF TOWER
LAT: 37° 14' 38.9828"
LON: 82° 38' 20.5173"





SCALE: 1" = 6'

Legend

◎ 1/2" re-bar set with a plastic cap stamped Summit Engineering, L.S. #2661 unless otherwise noted.

Boundary

Proposed Tower Location

— NAD 83 KY South Zone State Plane Coordinates
N:1,986,944.93
E:2,545,794.98

— EL: 2,204 (Existing Ground)

STATE of KENTUCKY
STEVE HAYWOOD
2661
LICENSED PROFESSIONAL LAND SURVEYOR

FAA Certification

In Accordance with FAA Order 8260.19C, Appendix C, I hereby certify that the Obstacle Accuracy Codes for the proposed Tower meets or exceeds accuracy 2C (+50 ft Horizontal and +20 ft Vertical).

Steven E. Haywood PLS #2661 — 1-26-17

Steven E. Haywood, PLS #2661 — Date

STATE OF KENTUCKY
JODY G. HUNT
25374
LICENSED PROFESSIONAL ENGINEER

Jody Hunt — 25374 — 1-26-17

Jody Hunt — PE# 25374 — DATE

EAST KENTUCKY NETWORK
D/B/A APPALACHIAN WIRELESS
101 TECHNOLOGY TRAIL, IVEL, KY 41643

Beefhide Site Map
Pike Letcher Land Company
On the Ridge between Petty's Fork of the Left Fork of Long Fork and Beefhide Creek, Letcher Co., KY

Scale: As Noted	Drawn By: MAC	Chk By: MAC	Apprvd. By:	PER. NO:
Plot Date: 25 JANUARY 2017 – 3:06 PM				ATT:

File Name: Z:\East Ky Network\Beefhide\Beefhide Site 2\EKNBeefhide Site Map.dwg

SUMMIT ENGINEERING, INC.
265 HAMBLEY BLVD.
PIKEVILLE, KY. 41501
(606) 432-1447
PIKEVILLE, KY LEXINGTON, KY
SOUTH CHARLESTON, WV

Application

CONTAINS

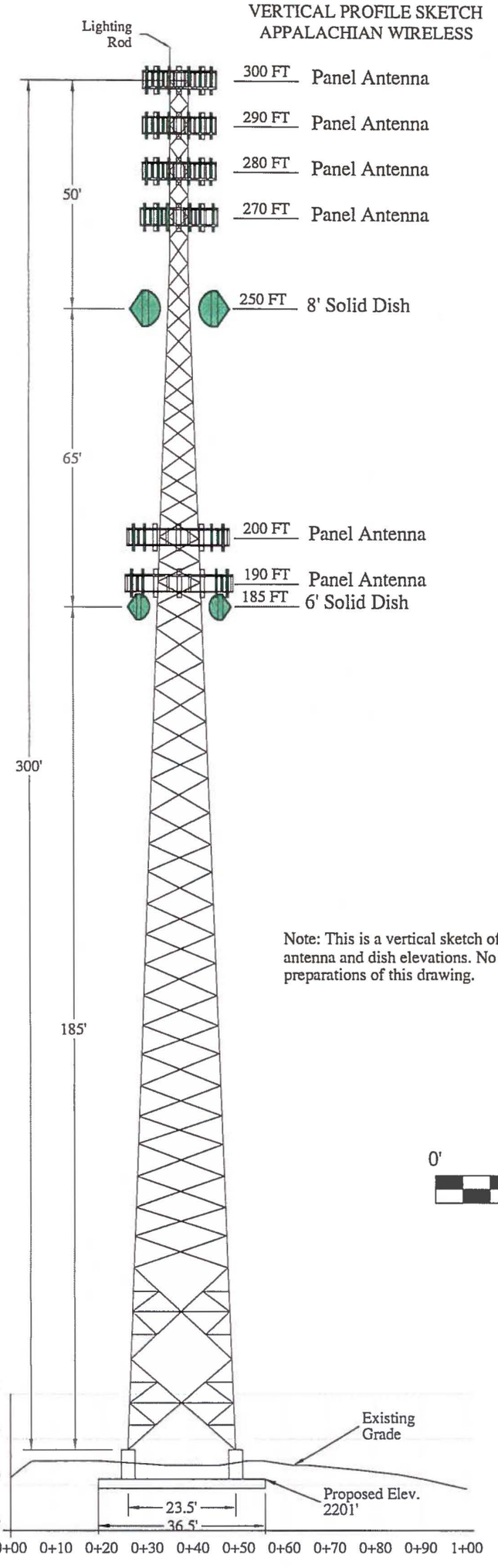
LARGE OR OVERSIZED

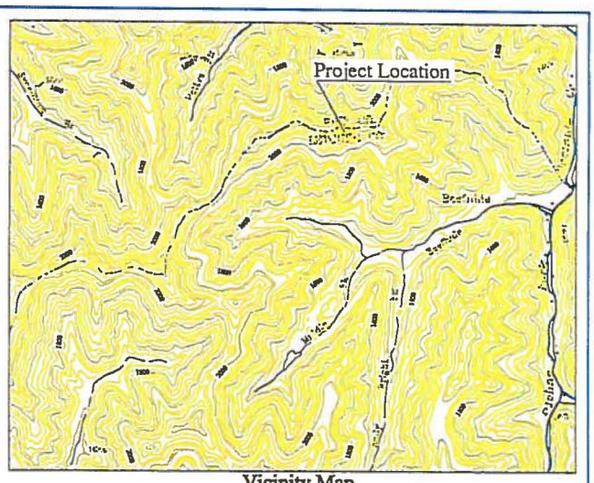
MAP(S)

RECEIVED ON:
02/20/2017

BEEFHIDE TOWER

VERTICAL PROFILE SKETCH
APPALACHIAN WIRELESS





Vicinity Map
Not to Scale
Jenkins West 7 1/2 Minute Quadrangle Map

Note: This is a vertical sketch of the tower indicating the proposed antenna and dish elevations. No design criteria was considered in the preparations of this drawing.

Graphic Scale
1" = 30'

STATE OF KENTUCKY
JODY G. HUNT
25374
LICENSED PROFESSIONAL ENGINEER

25374 1-26-17

Jody G. Hunt PE #25374 Date

DATE: 1-26-2017	SCALE: 1"=30'	**East Kentucky Network** D/B/A/ Appalachian Wireless 101 Technology Trail, Ivel, KY 41642	SUMMIT ENGINEERING, INC. 265 Hambley Blvd. Pikeville, KY. 41501 (606) 432-1447
DRAWN BY: MAC		Vertical Profile Sketch Beefhide Tower	Lexington, KY Pikeville, KY South Charleston, WV

File Name: Z:\East Ky Network\Beefhide\Beefhide Site 2\Beefhide Tower Vertical Profile.dwg