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PUBLIC SERVICE  
COMMISSION

**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 ) CASE No 2018-00131  
CONSTRUCT A REPLACEMENT TOWER IN LETCHER )  
COUNTY, KENTUCKY )

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 180 foot telecommunications tower on a tract of land located near 1089 Venters Lane, Letcher County, Kentucky (37°12'21.6718"N 82°54'32.3711"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 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 and Knott Counties have no formal local planning unit. In absence of this unit, the Letcher and Knott County Judge Executive's offices were notified by certified mail, return receipt requested of East Kentucky Network, LLC's proposal and informed of their right to intervene. They were 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, April 18, 2018 edition, and Troublesome Creek Times, April 19, 2018 edition, copies of which are enclosed as Exhibit 3. The Mountain Eagle is the newspaper with the largest circulation in Letcher County. Troublesome Creek Times is the newspaper with the largest circulation in Knott 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 Allstate Tower, 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 replacement 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.

The FAA approval and the Kentucky Airport Zoning Commission confirmation of no permit required 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 April 12, 2018, 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 Deed for the site location along with a lot description.

The proposed construction site is on a rugged mountaintop in close proximity to the existing tower. There is an existing 180' tower owned by East Kentucky Network, LLC on the property which cannot meet the needs of East Kentucky Network, LLC and will be removed upon construction of the proposed tower.

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 and all property owners who own contiguous property to the property upon which construction is proposed.

Exhibit 11 contains a vertical sketch of the tower supplied by Jonathan Newman, Kentucky registered professional engineer.

Enclosed as Exhibit 12 is a list of utilities, corporation, or persons with whom the tower is likely to compete.

**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 Krystal Branham, Regulatory Compliance 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: 4/17/18  
Lynn Haney, Regulatory Compliance Director

APPROVED BY: W.A. Gillum DATE: 4/17/18  
W.A. Gillum, General Manager

ATTORNEY: Krystal Branham DATE: 4/17/18  
Hon. Krystal Branham, 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**

**Krystal Branham, Attorney**  
**Phone: (606) 477-2355 ext. 1009**  
**Email: kbranham@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 KAZC Approvals
7	Driving Directions from County Court House and Map to Suitable Scale
8	Deeds 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	Vertical Profile Sketch of Proposed Tower
12	List of Competitors

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	10/10/2014	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
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## Licensee

East Kentucky Network, LLC d/b/a Appalachian Wireless 101 Technology Trail Ivel, KY 41642	P:(606)477-2355
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## 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
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## 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.

**Demographics**

Race

Ethnicity

Gender

Glenda Gardner  
Jarrod Vreeding, POA  
180 Apple Lake Private Drive  
Bluff City, TN 37618

VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

April 17, 2018

Malachi Young  
General Delivery  
Redfox, KY 41841

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2018-00131)

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 180-foot self-supporting tower with attached antennas extending upwards, and an equipment shelter located on a tract of land near 1089 Venters Lane, Isom. 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. 2018-00131 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, CPA  
Regulatory Compliance Director  
Enclosure 1



VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

April 17, 2018

Paul Taylor Caudill  
757 Stamper Branch  
Isom, KY 41824

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2018-00131)

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Sincerely,



Lynn Haney, CPA  
Regulatory Compliance Director  
Enclosure 1

VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

April 17, 2018

Rebecca and Carles Day  
1033 Stamper Branch  
Isom, KY 41824

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2018-00131)

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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, CPA  
Regulatory Compliance Director  
Enclosure 1



VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

April 17, 2018

Frances B. Wolfe  
1589 76th Ave.  
Oakland, CA 94621

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2018-00131)

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Sincerely,



Lynn Haney, CPA  
Regulatory Compliance Director  
Enclosure 1

VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

April 17, 2018

Freddie Adams  
620 SW 50<sup>th</sup> South Terrace  
Margate, FL 33068

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2018-00131)

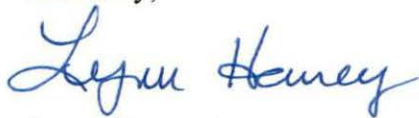
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Sincerely,



Lynn Haney, CPA  
Regulatory Compliance Director  
Enclosure 1



VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

April 17, 2018

Glenda Gardener  
Jarrod Breeding, POA  
180 Apple Lake Private Drive  
Bluff City, TN 37618

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2018-00131)

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 180-foot self-supporting tower with attached antennas extending upwards, and an equipment shelter located on a tract of land near 1089 Venters Lane, Isom. 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, CPA  
Regulatory Compliance Director  
Enclosure 1



# Isom Replacement

Location:

Near 1089 Venters Lane  
Isom, KY 41824

Coordinates:

N 37°12'21.67"  
W 82°54'32.37"

Proposed Isom Replacement Tower

Google Earth

© 2018 Google

2000 ft





VIA: U.S. CERTIFIED MAIL

April 17, 2018

Scott Alexander, Judge Executive  
P.O. Drawer 210  
Hazard, KY 41701

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2018-00131)

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 replacement tower in Letcher County, Kentucky in order to improve cellular telecommunication service in Letcher County. The facility will include a 180-foot self-supporting tower with attached antennas extending upwards, and an equipment shelter located on a tract of land near 1089 Venters Lane, Isom, Letcher County, 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.

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. 2018-00131 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  
Regulatory Compliance Director  
Enclosure

VIA: U.S. CERTIFIED MAIL

April 17, 2018

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

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2018-00131)

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Sincerely,



Lynn Hancy  
Regulatory Compliance Director  
Enclosure

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

EAST KENTUCKY  
NETWORK



<b>To:</b>	The Mountain Eagle	<b>From:</b>	Raina Helton
	Attn: Classifieds		Regulatory Compliance Assistant
<b>Email:</b>	Pwalker_eagle@hotmail.com	<b>Date:</b>	April 12, 2018
<b>Re:</b>	PUBLIC NOTICE ADVERTISEMENT	<b>Pages:</b>	1

**Please place the following Public Notice Advertisement in The Mountain Eagle to be ran on April 18, 2018.**

**PUBLIC NOTICE:**

RE: Public Service Commission of Kentucky (CASE NO. 2018-00131)

Public Notice is hereby given that East Kentucky Network, LLC, dba Appalachian Wireless has applied to the Kentucky Public Service Commission to replace an existing cellular telecommunications tower on a tract of land located near 1089 Venters Lane, Isom, Letcher County, Kentucky. The proposed tower will be a 180 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. 2018-00131.

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

The message above and the information contained in the documents transmitted are confidential and intended only for the person(s) named above. Dissemination, distribution or copying of this communication by anyone other than the person(s) named above is prohibited. If you have received this communication in error, please notify us immediately by telephone and return the original message to us at the address listed above via regular mail. Thank you.

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

# EAST KENTUCKY NETWORK



---

<b>To:</b>	Troublesome Creek Times	<b>From:</b>	Raina Helton
	Attn: Classifieds		Regulatory Compliance Assistant

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<b>Email:</b>	tcody@troublesomecreektimes.com	<b>Date:</b>	April 16, 2018
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<b>Re:</b>	PUBLIC NOTICE ADVERTISEMENT	<b>Pages:</b>	1
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**Please place the following Public Notice Advertisement in Troublesome Creek Times to be ran on April 19, 2018.**

**PUBLIC NOTICE:**

RE: Public Service Commission of Kentucky (CASE NO. 2018-00131)

Public Notice is hereby given that East Kentucky Network, LLC, dba Appalachian Wireless has applied to the Kentucky Public Service Commission to replace an existing cellular telecommunications tower on a tract of land located near 1089 Venters Lane, Isom, Letcher County, Kentucky. The proposed tower will be a 180 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. 2018-00131.

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

The message above and the information contained in the documents transmitted are confidential and intended only for the person(s) named above. Dissemination, distribution or copying of this communication by anyone other than the person(s) named above is prohibited. If you have received this communication in error, please notify us immediately by telephone and return the original message to us at the address listed above via regular mail. Thank you.



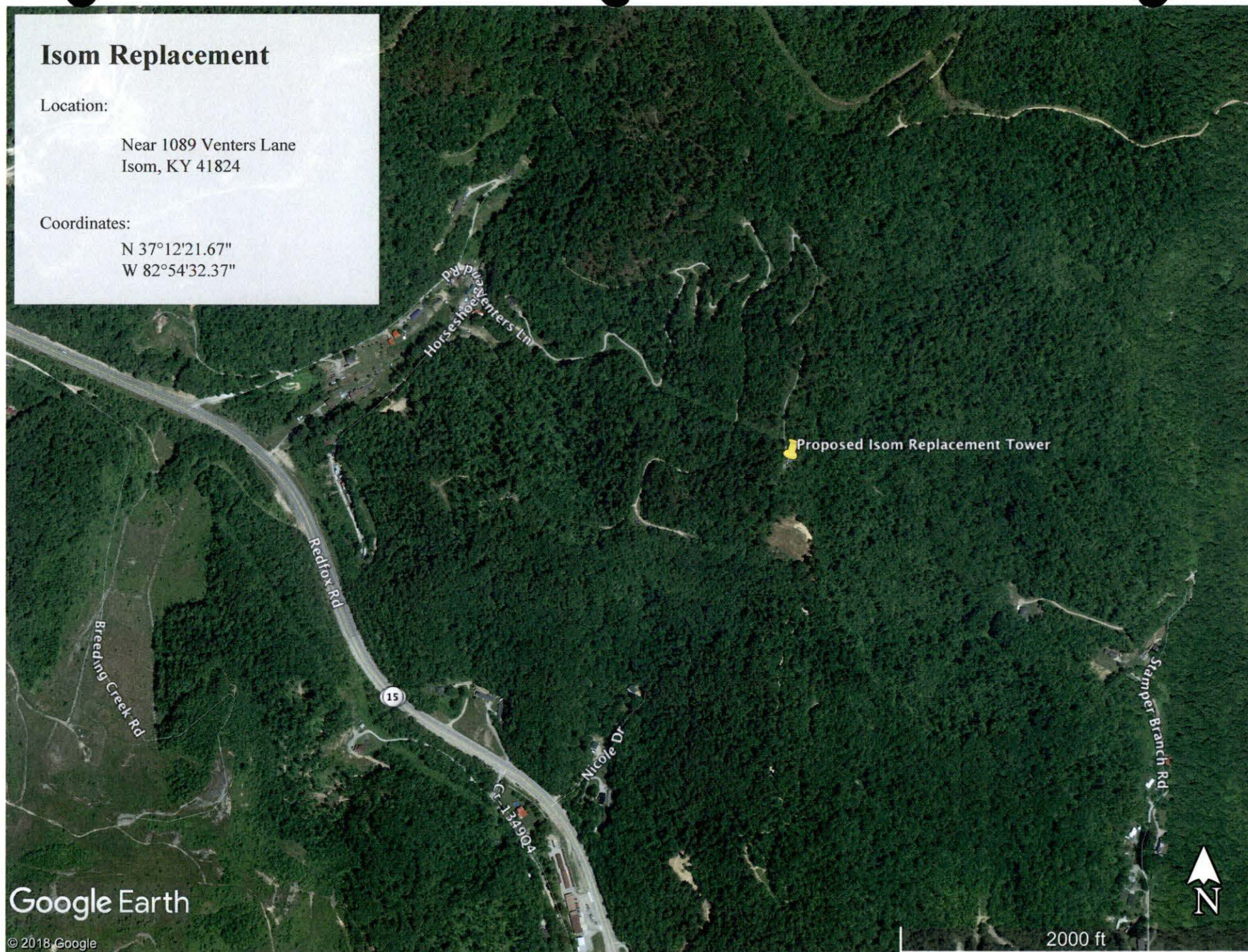
# Isom Replacement

## Location:

Near 1089 Venters Lane  
Isom, KY 41824

## Coordinates:

N 37°12'21.67"  
W 82°54'32.37"







230 Swartz Drive • Hazard • Kentucky • 41701  
Phone (606) 551-1050

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**EAST KENTUCKY ENGINEERING, LLC.**

**APPALACHIAN WIRELESS  
Geotechnical Investigation on the  
Isom Tower Site  
Letcher County, Kentucky  
EKYENG Project No. 165-000-0050**

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

PREPARED BY:  
Richard Dirk Smith PE, PLS  
President  
**East Kentucky Engineering**  
230 Swartz Drive  
Hazard, Kentucky 41701



, 20215. November 3<sup>rd</sup>, 2017





# **EAST KENTUCKY ENGINEERING, LLC.**

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## **EXECUTIVE SUMMARY**

### **1.0 INTRODUCTION**

### **2.0 PROJECT DESCRIPTION**

### **3.0 SITE DESCRIPTION & HISTORICAL MINING**

#### **3.1 GENERAL INFORMATION**

#### **3.2**

### **4.0 FIELD EXPLORATION**

#### **4.1 SITE INFORMATION**

#### **4.2 BORING DATA**

#### **4.3 GROUNDWATER**

#### **4.4 SEISMIC SITE CLASSIFICATION**

### **5.0 DISCUSSION AND RECOMMENDATIONS**

#### **5.1 GENERAL**

#### **5.2 SHALLOW MAT FOUNDATIONS RECOMMENDATIONS**

#### **5.3 BURIED UTILITIES**

### **6.0 WARRANTY**

#### **6.1 SUBSURFACE EXPLORATION**

#### **6.2 LABORATORY AND FIELD TEST**

#### **6.3 ANALYSIS AND RECOMMENDATIONS**

#### **6.4 CONSTRUCTION MONITORING**

#### **6.5 GENERAL**

## **SPECIFICATIONS**

### **I – GENERAL**

### **II – ENGINEERED FILL BENEATH STRUCTURES CLEARING AND GRADING**

### **SPECIFICATIONS**

### **III – GUIDELINES FOR EXCAVATIONS AND TRENCHING**

### **IV – GENERAL CONCRETE SPECIFICATIONS**

### **V – DRILLED PIER INSTALLATION**

## **APPENDIX A – BORING LOGS**

## **APPENDIX B – CORE PHOTOGRAPHS**

## **APPENDIX C – SEISMIC DATA**

## **APPENDIX D – PHOTOGRAPHS**

## **APPENDIX E – MAPS**



## EAST KENTUCKY ENGINEERING, LLC.

### EXECUTIVE SUMMARY

A geotechnical investigation has been performed on the Isom tower site, located in Letcher County, Kentucky. This site is readily accessible and adjacent to an existing tower. A location map is shown in Figure 1 of this report. Four (4) borings were advanced to depths of 25 ft. The following geotechnical considerations were identified:

- Borings utilized for this study encountered sandy soils to a depth of 6.0 ft., then hard sandstone to a depth of 25 ft.
- The maximum estimated base elevation of tower mat foundation is 2079 ft.
- This site is adjacent to an existing tower on a ridge line.
- **The allowable bearing capacities of the underlying shales estimated at 6 tsf.**
- The 2015 International Building Code seismic site classification for this site is "A".
- If during the foundation design it becomes necessary to lower the base of the footer, alternate design recommendations are included in the section of this report.
- Close monitoring of the construction operations discussed herein will be critical in achieving the design subgrade support. We, therefore, recommend that EKYENG is 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.



## EAST KENTUCKY ENGINEERING, LLC.

### 1. INTRODUCTION

East Kentucky Engineering (EKYENG) was retained by Mr. Marty Thacker of Appalachian Wireless to prepare a geotechnical engineering report for the proposed tower site located on the Isom Property, in Letcher County, Kentucky. A site location map is shown in Figure No. 1.

Four (4) borings were advanced to depths of 25 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 about subsurface conditions, earthwork, seismic considerations, groundwater conditions and foundation design.

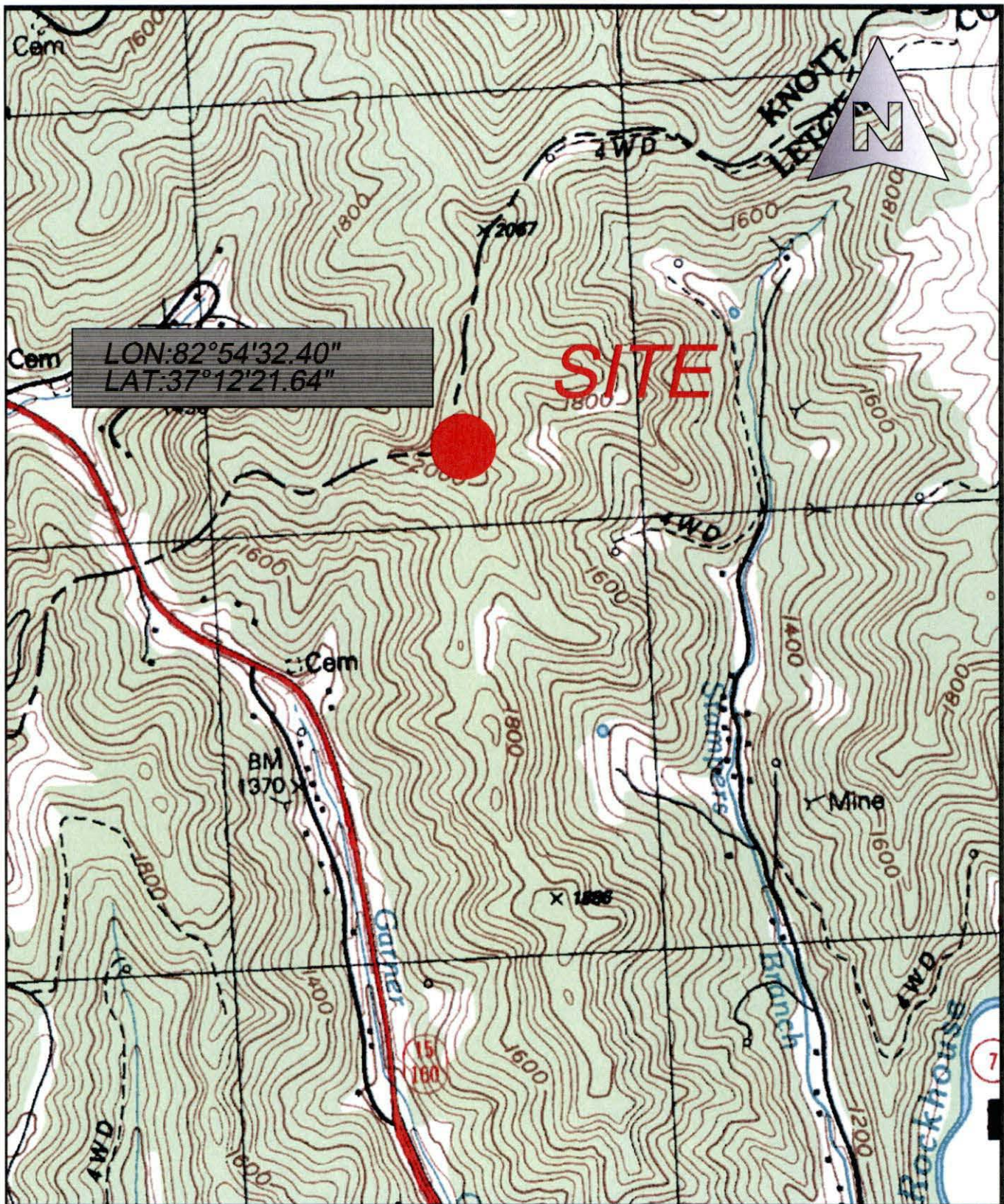
### 2.0 PROJECT DESCRIPTION

The proposed communication facility will consist of a self-supporting tower of undetermined height and ancillary support areas. The footing area is estimated to be 40 ft. X 40 ft. with an estimated base of the tower footer elevation at 2075 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 structural design. If the loading is significantly different than these expected values, EKYENG should be notified to re-evaluate the recommendations provided in this report.





Drawn: RDS	Date: 11/13/17
Job: 165-050	Scale: 1"=1000'

Appalachian Wireless  
USGS Quadrangle  
Location Map  
Isom Tower Site  
Figure No. 1

East Kentucky Engineering, LLC.  
230 Swartz Drive  
Hazard, KY 41701  
(606) 551-1050





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### **3.0 SITE DESCRIPTION & HISTORICAL MINING**

#### **3.1 GENERAL INFORMATION**

The site location is on a ridge line adjacent to an existing tower site near Isom in Letcher County, Kentucky. The current surface elevation is approximately 2082 ft. Research on the historical mining was conducted by obtaining previous mine license maps from the "Kentucky Mine Mapping Information System" (KMMIS). Other sources, photographs, and interviews were also used to assist in evaluation historical mining. The historical mining data is discussed in section \_ of this report.

#### **3.2 SURFACE MINING**

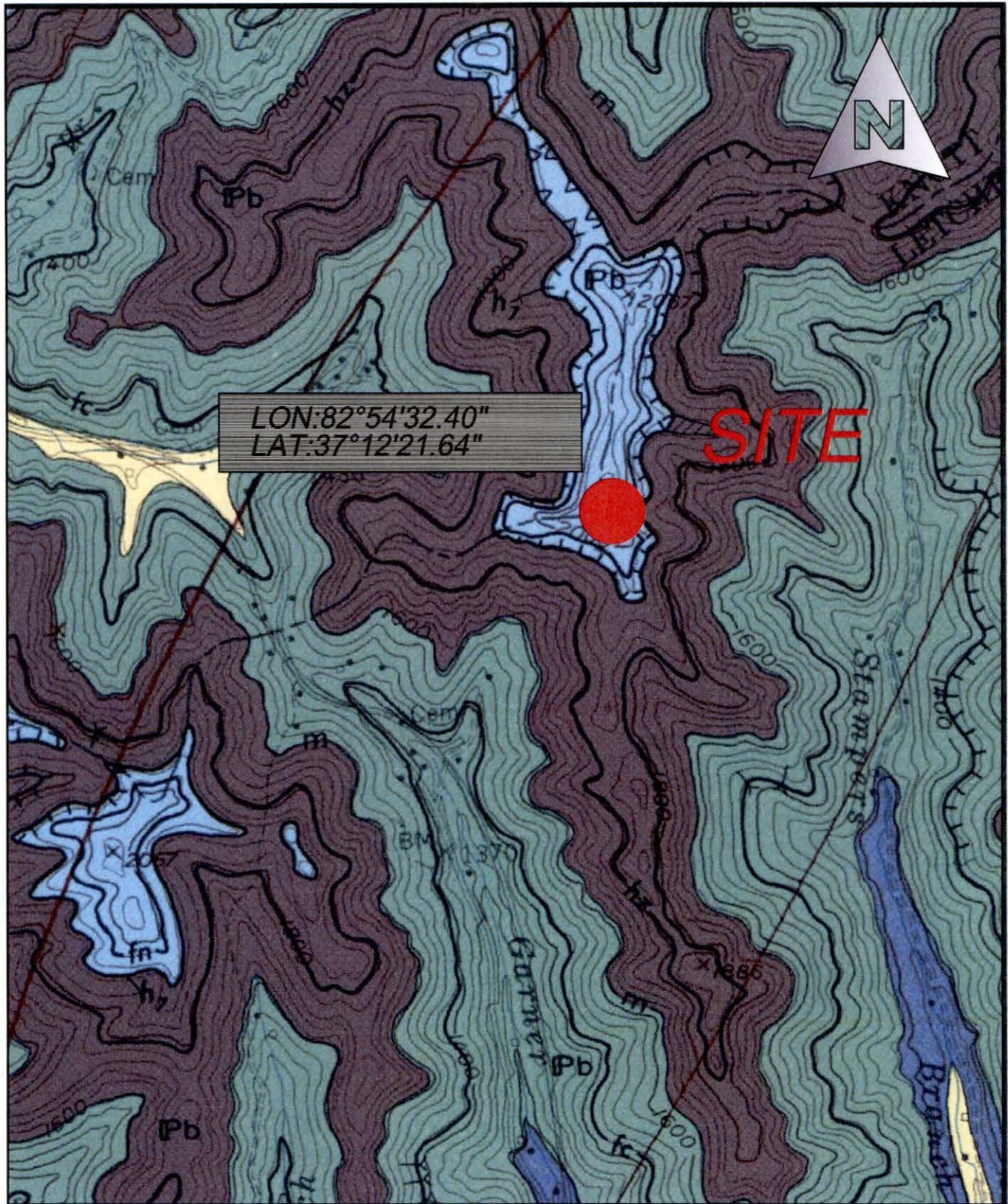
This site is on an preexisting mine area. No evidence of augering or additional surface mining was seen that would impact the proposed site.

#### **3.3 UNDERGROUND MINING**

Numerous underground mines are present within the area. Our research found two underground mines which could influence the proposed site. Room and pillar mining was conducted in the Hazard 5A Seam at an elevation of 1760 ft. adjacent to the towers site. South East Coal Company mined the Hazard No. 4 Seam and conducted secondary mining at an elevation of approximately 1400 ft.. All other underground mining activities found during our research are outside the area of influence of subsidence.

These mines are respectively 320 ft and 680 ft. below the proposed tower site. There was no evidence of subsidence during our field investigations. There is also an existing tower at this site that has had no problems with subsidence. Our opinion is no future problems with subsidence is expected.





Drawn: RDS	Date: 11/13/17
Job: 165-050	Scale: 1"=1000'

Appalachian Wireless  
Geologic Quadrangle  
Location Map  
Isom Tower Site  
Figure No. 2

East Kentucky Engineering, LLC.  
230 Swartz Drive  
Hazard, KY 41701  
(606) 551-1050





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### 4.0 FIELD EXPLORATION

#### 4.1 SITE INFORMATION

The proposed site is located on a ridge line in Letcher County Kentucky. The site lies within the Blackey Quadrangle. The site is readily accessible by conventional exploratory equipment. An estimated pad location was determined based on the information provided. Foundation dimensions were estimated to be a 40 ft. X 40 ft. footer for the purpose of this report.

Visual inspections were conducted to evaluate the site lithology and type of materials immediately below the proposed tower site. The following soils and rock properties were found.

TABLE NO. 1

Depth ft.	Base Elevation ft.	Strata
6.0	2081.0	Soils
16.0	2071.0	Shales
25.0	2061.0	Sandstone

A cross section of this information is in Appendix C of this report.

#### 4.2 BORING DATA

Four (4) borings were made in the relative positions shown on the Site Map in Appendix E. The boring logs and resulting data are included in Appendix E. These borings were made with a track mounted boring rig using hollow-stem augers and employing standard penetration resistance methods (ASTM D-1586, 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 EKYENG laboratory for study. The depths where these "A"-type split-spoon samples were



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collected are noted on the boring logs. The results of the natural moisture contents by boring and interval are shown in Table 2.

TABLE 2  
RESULTS OF NATURAL MOISTURE CONTENT TESTS (ASTM D-4643)

SAMPLE NO.	DEPTH INCREMENT, (FT.)	NATURAL MOISTURE CONTENT, %
B1-S-1	2.0-3.5	13.6%
B1-S-2	4.5-6.0	18.3%
B2-S-1	2.5-4.0	16.9%
B3-S-1	2.0-3.5	14.4%
B3-S-2	4.5-6.0	13.4%
B4-S-1	2.0-3.5	22.1%
B4-S-2	4.5-6.0	14.1%

The position at which the core was taken is indicated on the boring logs and shown on the site map in Appendix C. The corresponding Blow counts are shown in Table No. 3.

TABLE NO. 3  
STANDARD PENETRATIONS

Boring	Run Interval	Blow Counts	Description
B1	2.0-3.5	2-6-7	Brown Clay
B1	4.5-6.0	2-5-10	Brown Clay
B2	2.5-4.0	3-6-9	Brown Clay
B3	2.0-3.5	2-3-3	Brown Clay
B3	4.5-6.0	4-10-13	Brown Clay
B4	2.0-3.5	2-2-3	Brown Clay
B4	4.5-6.0	2-4-9	Brown Clay



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The borings encountered topsoils to a maximum depth of 6 ft. The 4 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 are each 25.0 ft. in depth. The position at which the core was taken are indicated on the boring logs and shown on the boring location map in Appendix D. 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. 4  
ROCK QUALITY

Boring	Run Interval	RQD Values %	Description
B-1	6.0-16.0	72%	Weathered clayey shell
B-1	16.0-25.0	79%	Weathered clayey shell
B-2	5.0-15.0	70%	Brown clay
B-2	15.0-25.0	85%	Weathered shale
B-3	6.0-16.0	65%	Clayey shale, weathered
B-3	16.0-26.0	79%	Clayey shale, weathered
B-4	6.0-11.0	70%	Clayey shale, weathered
B-4	11.0-16.0	50%	Clayey shale, weathered
B-4	16.0-25.0	84%	Shale

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





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### **4.3 GROUNDWATER**

Groundwater in Eastern Kentucky is characterized by water flowing through a system of internal fractures that lead to an alluvial aquifer near the bottom of valley floors. Large, defined aquifers other than the alluvium is not common, especially in higher elevations such as where this tower site is proposed. Therefore, groundwater should not be a concern in this area. During boring activities, no groundwater resources were observed.

### **4.4 SEISMIC SITE CLASSIFICATION**

Based on the encountered soil conditions at the project site, the site classification was determined to be "Site Class A" per the 2015 Kentucky Building Code. In addition, a  $S_{DS}$  coefficient of 0.174 g was calculated, and a  $S_{D1}$  coefficient of 0.102 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 SHALLOW MAT FOUNDATIONS RECOMMENDATIONS**

If shallow foundations are used, we recommend that the site be excavated through the soils and weathered shale rock a minimum of 7 feet. The proposed foundation is located on a narrow ridge line and care should be taken to insure the entire foundation is placed in the shale formation. The allowable bearing capacity for this shale is 6 tsf. This value has been reduced due to limited



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information and the presence of stress relief fractures that will be present at the extents of the foundation area.

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 ( $k_{30}$ ) of 100 lbs./cu. in. can be used for design of the slabs.

Support structure for this tower can be placed as needed. It is recommended that test pits are examined to ensure that any of these structures are on the competent materials. 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 ensure that no pockets of loose or soft materials will be left in place along the excavation slopes below the foundation



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bearing level. All Federal, State, and Local regulations should be strictly adhered to relative to excavation side-slope geometry.

### **5.3 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 tend to pond water within their interstices.

## **6.0 WARRANTY**

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

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





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### **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 location and time the boring was made. The boundaries between different soil strata 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 by specific ASTM standards unless otherwise indicated. All determinations included in each ASTM standard are not always required and performed. Each test report indicates the measurements and determinations 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.



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Our engineering report recommendations are based primarily on data from test borings made at the locations shown in a boring location drawing included. Soil variations may exist between borings, and these variations may not become evident until construction. If significant 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 our understanding as to the 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 of 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.



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### **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 Isom 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 conclusions regarding specific construction techniques and methods were chosen. EKYENG 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.





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## 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.





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### 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.



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### **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 based on 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.





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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 now. 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 always.

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 always during benching and filling of the benches, to ensure that all water is drained away from the fill area.



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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.





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### III GUIDELINES FOR EXCAVATIONS AND TRENCHES

The following represents some general guidelines relative to the design and construction of excavations and trenches. It must be emphasized that these guidelines are not intended to represent a "safety plan," but rather are presented herein to provide general guidance regarding 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 "competent 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.



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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 emergency 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 other deep and confined excavations, the worker must wear (always 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 water does not accumulate in open 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 unsafe 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. Materials, 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





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atmospheres or other 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.



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### 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 the 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.





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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, water stops, 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.



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### 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 to avoid washing the freshly deposited concrete.
3. Coat 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





## EAST KENTUCKY ENGINEERING, LLC.

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 ensure 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 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 to be free from voids, pockets or honeycombing. Care shall be taken to provide impermeability.



## EAST KENTUCKY ENGINEERING, LLC.

- E. Vibration Equipment: Vibration equipment shall be of the appropriate type and shall, always, 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 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 its 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 defects corrected, protrusions removed, and holes filled.





## EAST KENTUCKY ENGINEERING, LLC.

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APPENDIX A BORING LOGS
------------------------

Water Level @ Drilling	<i>Dry</i>	24 Hr. Water Level	<i>N/A</i>	7 Day Water Level	<i>N/A</i>
Moving/Delay Time	<i>N/A</i>	Hammer Weight	<i>140 lbs.</i>	Hammer Drop	<i>30 in.</i>





# FIELD BORING LOG

[illegible]

Water Level @ Drilling	<i>Dry</i>	24 Hr. Water Level	<i>N/A</i>	7 Day Water Level	<i>N/A</i>
Moving/Delay Time	<i>N/A</i>	Hammer Weight	<i>140 lbs.</i>	Hammer Drop	<i>30 in.</i>



Client Name	East Kentucky Engineering	Hole Number	4	Total Depth	25.0'
Project Name	Appalachian Wireless Tower	Location	As staked		
Site Loc.	Isom, KY	Surface Elevation	N/A		
Drilling/Sampling Method	HSA/NX	Date Started	10/25/2017	Date Completed	10/26/2017
Boring Diameter	8"3"	Driller	S. Ison	Weather	

[illegible]

Water Level @ Drilling	<i>Dry</i>	24 Hr. Water Level	<i>N/A</i>	7 Day Water Level	<i>N/A</i>
Moving/Delay Time	<i>N/A</i>	Hammer Weight	<i>140 lbs.</i>	Hammer Drop	<i>30 in.</i>



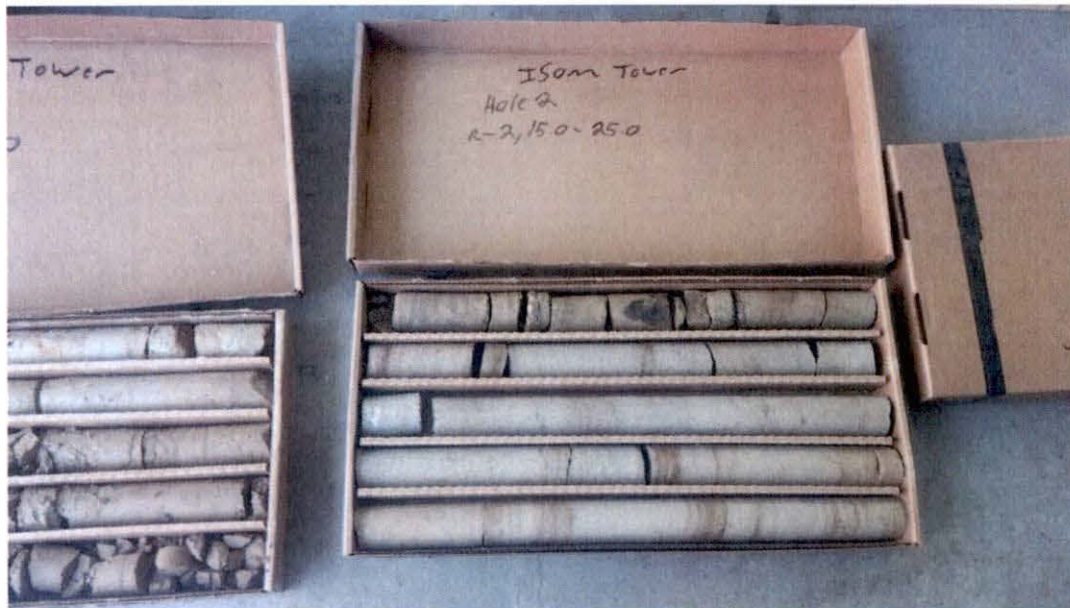
## EAST KENTUCKY ENGINEERING, LLC.

### APPENDIX B CORE PHOTOGRAPHS





## EAST KENTUCKY ENGINEERING, LLC.







## EAST KENTUCKY ENGINEERING, LLC.





## EAST KENTUCKY ENGINEERING, LLC.





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<b>APPENDIX C   SEISMIC DATA</b>
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# **Design Maps Summary Report**

## User-Specified Input

**Report Title** Isom

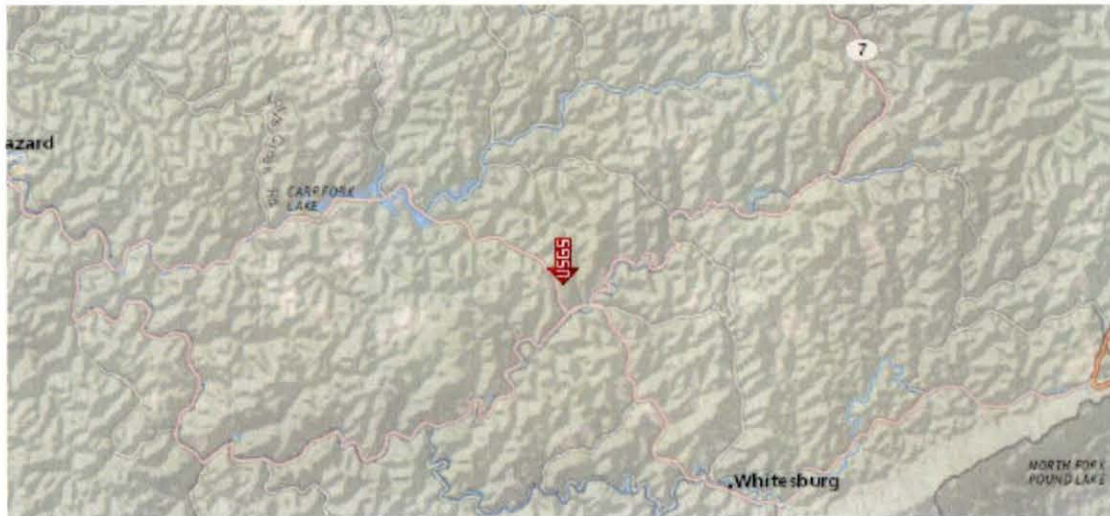
Tue November 28, 2017 14:12:47 UTC

**Building Code Reference Document** 2012/2015 International Building Code  
(which utilizes USGS hazard data available in 2008)

**Site Coordinates** 37.20612°N, 82.90894°W

**Site Soil Classification** Site Class C – "Very Dense Soil and Soft Rock"

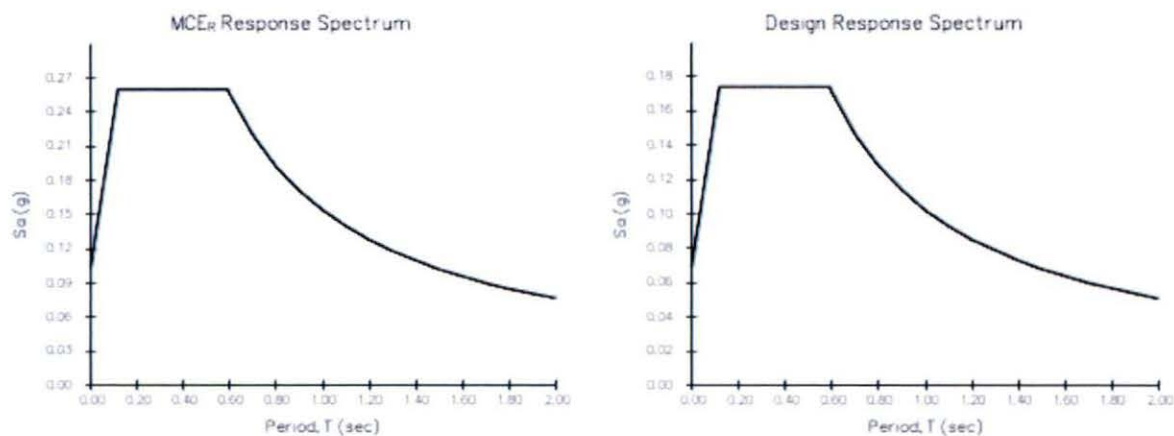
**Risk Category** IV (e.g. essential facilities)



## USGS-Provided Output

$S_s = 0.217 \text{ g}$	$S_{MS} = 0.260 \text{ g}$	$S_{DS} = 0.174 \text{ g}$
$S_1 = 0.090 \text{ g}$	$S_{M1} = 0.154 \text{ g}$	$S_{D1} = 0.102 \text{ g}$

For information on how the  $S_s$  and  $S_1$  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.



Although this information is a product of the U.S. Geological Survey, we provide no warranty, expressed or implied, as to the accuracy of the data contained therein. This tool is not a substitute for technical subject-matter knowledge.



## EAST KENTUCKY ENGINEERING, LLC.

### APPENDIX D PHOTOGRAPHS





**EAST KENTUCKY ENGINEERING, LLC.**

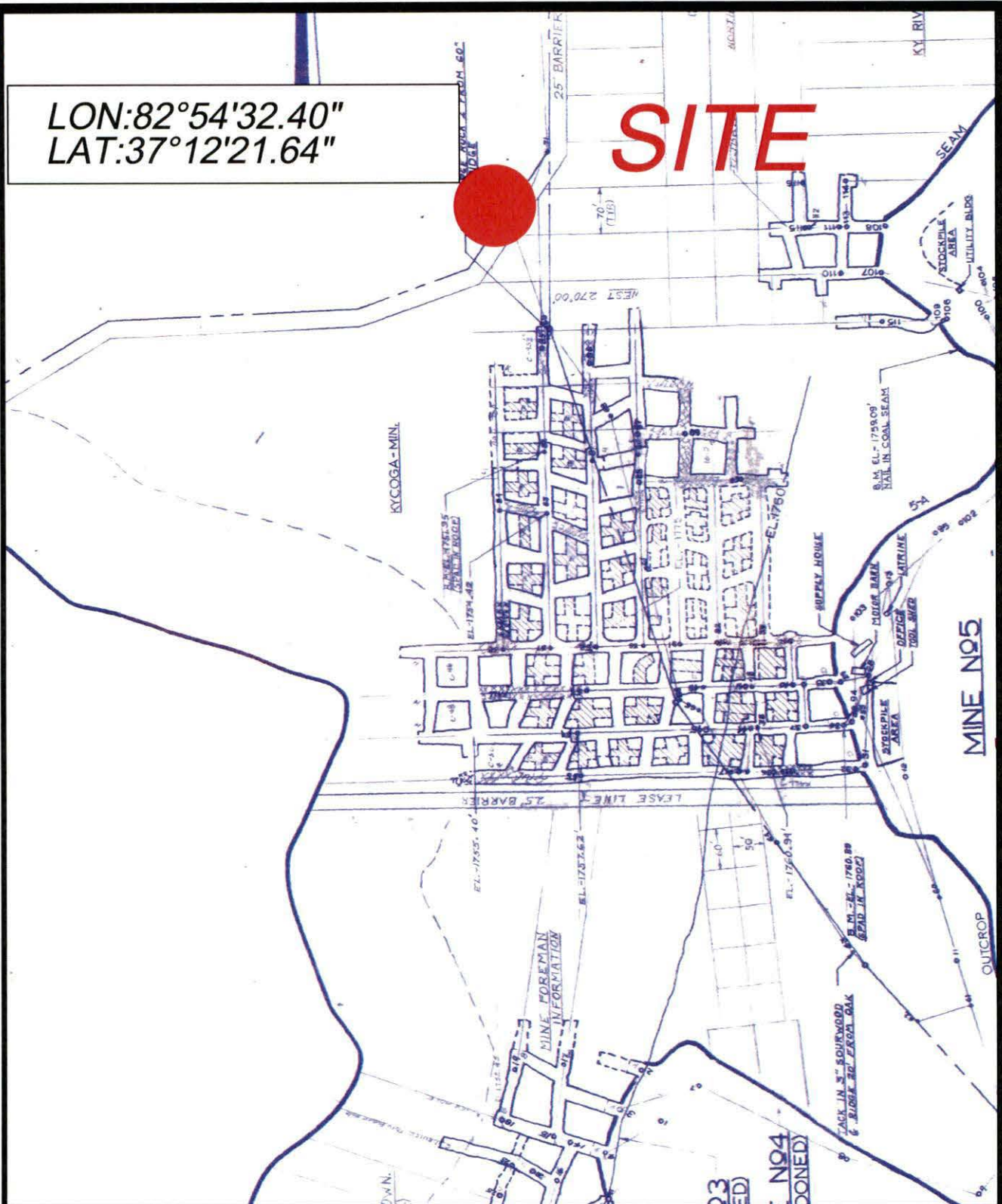
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<b>APPENDIX E    MAPS</b>
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LON:82°54'32.40"  
LAT:37°12'21.64"

**SITE**



Drawn: RDS Date: 11/13/17  
Job:165-050 Scale: 1"=200'

Appalachian Wireless  
Underground Mine Map  
Hazard 5A Seam  
Isom Tower Site  
Breeding Brothers Coal

East Kentucky Engineering, LLC.  
230 Swartz Drive  
Hazard, KY 41701  
(606) 551-1050





LON:82°54'32.40"  
LAT:37°12'21.64"

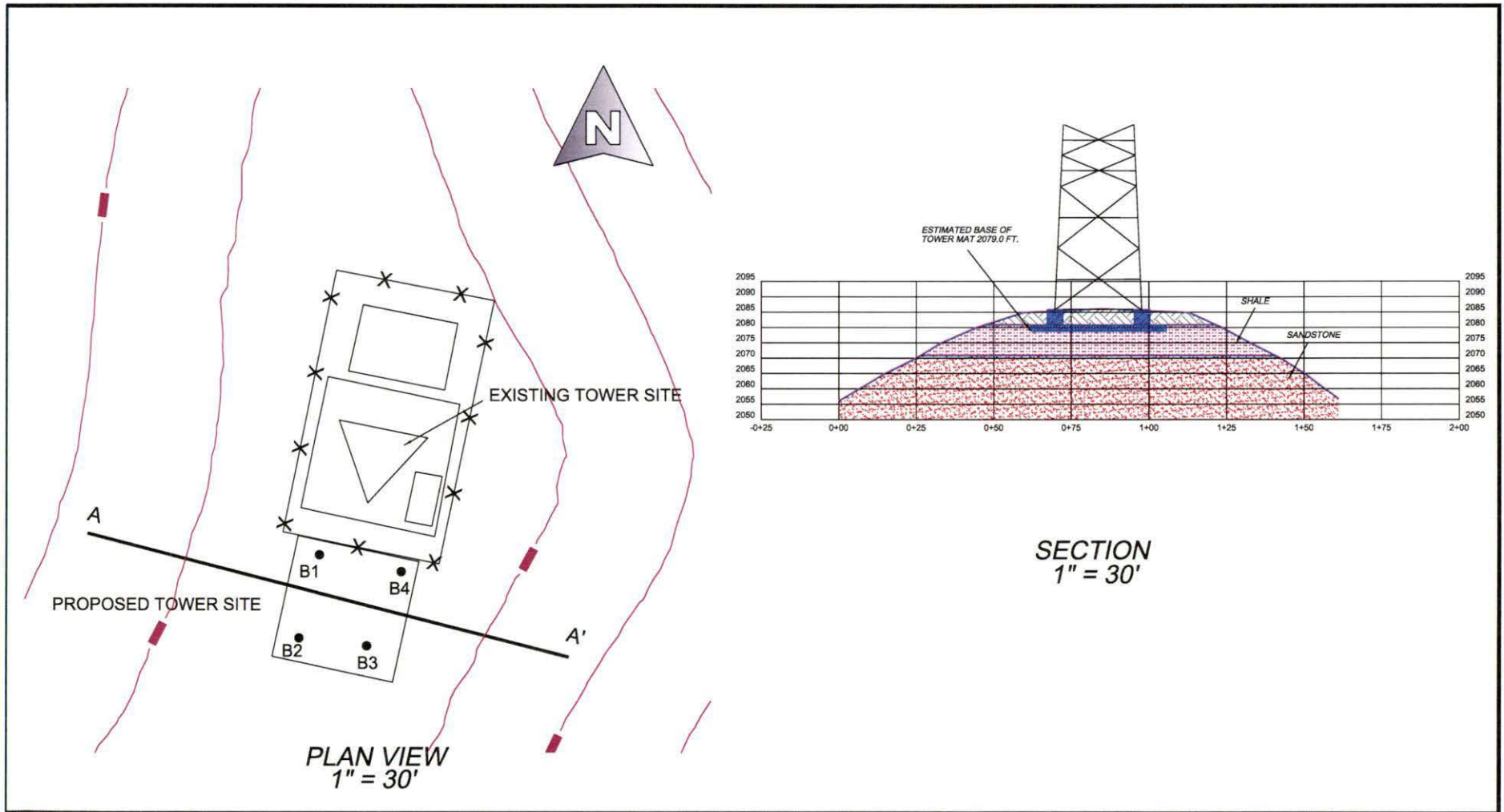
**SITE**

Drawn: RDS	Date: 11/13/17
Job:165-050	Scale: 1"=200'

*Appalachian Wireless  
Underground Mine Map  
Hazard 4 Seam  
Isom Tower Site  
South East Coal Company*

*East Kentucky Engineering, LLC.  
230 Swartz Drive  
Hazard, KY 41701  
(606) 551-1050*





East Kentucky Engineering, LLC

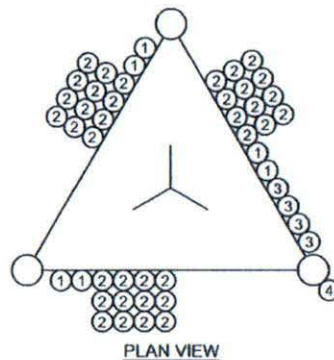
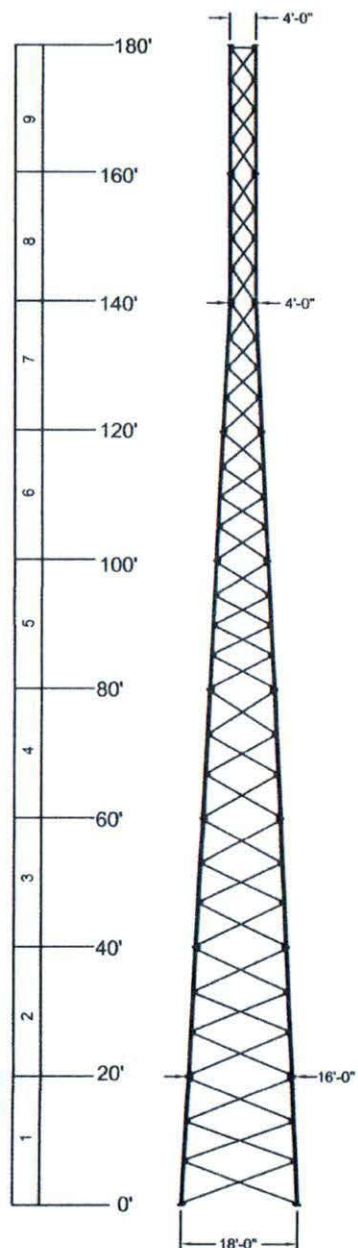
Hazard Location  
230 Swartz  
Hazard, KY 41701  
(606) 551-1050  
Email: rdsekyeng@outlook.com



Drawn by: RDS	Date: 12-03-2017
Job #: 165-0042	Scale: NOTED
File Location:	

APPALACHIAN  
WIRELESS  
ISOM TOWER  
LETCHER COUNTY KENTUCKY





**PLAN VIEW REF:**

- 1)  $\frac{7}{8}$ " HYBRID
- 2)  $1\frac{5}{8}$ " HELIAX
- 3) EW65
- 4) STEP BOLTS

**BASE REACTIONS:(FACTORED)**

TOTAL SHEAR = 45 KIPS  
 AXIAL LOAD = 102 KIPS  
 UPLIFT / LEG = 297 KIPS  
 COMP. / LEG = 334 KIPS  
 O.T. MOMENT = 4933 FT-K

**MEMBER INFORMATION**

SECTION	ELEVATION	FACE SIZE	LEG DIA.	DIAGONALS	GIRTS	# OF BAYS
1	0' - 20'	18'-0"	Ø4"	L 3" x 3/16"	N/A	3 - X
2	20' - 40'	16'-0"	Ø4"	L 3" x 3/16"	N/A	3 - X
3	40' - 60'	14'-0"	Ø3 3/4"	L 3" x 3/16"	N/A	3 - X
4	60' - 80'	12'-0"	Ø3 3/4"	L 2 1/2" x 3/16"	N/A	3 - X
5	80' - 100'	10'-0"	Ø3 1/4"	L 2" x 3/16"	N/A	4 - X
6	100' - 120'	8'-0"	Ø3"	L 2" x 3/16"	N/A	4 - X
7	120' - 140'	6'-0"	Ø2 3/4"	L 2" x 1/8"	N/A	4 - X
8	140' - 160'	4'-0"	Ø2 1/2"	L 2" x 1/8"	N/A	4 - X
9	160' - 180'	4'-0"	Ø1 3/4"	L 1 1/2" x 1/8"	L 1 1/2" x 3/16"	4 - X

ANTENNA INFORMATION LOCATED ON SHEET AA



*Keith M. Eaton*  
 12-13-2017

**DESIGN NOTES:**

- 1) TOWER LEGS ARE CONSTRUCTED OF SOLID ROUND BAR MATERIAL.
- 2) SOLID ROUND 0.75" AND LARGER ASTM A-572 GRADE : 50 KSI MIN.
- 3) SOLID ROUND 0.625" AND SMALLER IS ASTM A-36 GRADE : 36 KSI MIN.
- 4) ALL ANGLE MATERIAL IS ASTM A-529 : 50 KSI MIN.
- 5) ALL BRACE AND FLANGE BOLTS ARE A325-X
- 6) THIS TOWER IS DESIGNED FOR STEP BOLTS UP ONE LEG FOR CLIMBING WITH SAFETY CLIMB DEVICE.
- 7) (6) Ø1 1/4" x 8'-0" LONG (F1554-GR.105) ANCHOR BOLTS PER LEG.
- 8) THIS TOWER IS DESIGNED FOR A 90 M.P.H. WIND SPEED WITH NO ICE AND A 30 M.P.H. WIND SPEED WITH 0.50" IN ICE IN ACCORDANCE WITH THE TIA/EIA-222-G STANDARD. ICE IS CONSIDERED TO INCREASE IN THICKNESS WITH HEIGHT.
- 9) DEFLECTIONS BASED ON A 60 M.P.H. WIND.
- 10) TOWER DESIGNED TO EXPOSURE C; STRUCTURE CLASS II; TOPO. CAT 1.

APPROX. WEIGHT  
 24.93 KIPS

PROPRIETARY STATEMENT: THIS DRAWING IS THE PROPERTY OF ALLSTATE TOWER INC. IT IS NOT TO BE REPRODUCED OR COPIED IN ANYWAY WITHOUT PRIOR WRITTEN CONSENT OF ALLSTATE TOWER INC.

REV #	DESCRIPTION	DATE	BY
1	UPDATED ANCHOR BOLT LENGTH	12/15/17	RC

UNLESS OTHERWISE NOTED  
 DIMENSIONS ARE IN:  
**INCHES**  
 TOLERANCE BANDS:  
 X +3/32" -0 ANGLES +1/2"  
 XX +3/32" -0  
 XXX +1/16" -0 HOLES +8/16" -0

SCALE:

NTS

DRAWN BY: RC

DATE: 11/07/2017



ALLSTATE TOWER INC.  
 P.O. BOX 25  
 HENDERSON, KY 42419  
 PHONE: (270) 836-8517  
 FAX: (270) 836-8475  
 WWW.PTTG.COM

DESCRIPTION:  
**TOWER OVERVIEW**  
**APPALACHIAN WIRELESS**  
**180' SELF SUPPORT TOWER**  
**ISOM, LETCHER CO., KY**

FILE NAME:

66184FT

SHEET

A

# ANTENNA INFORMATION

ELEVATION	ANTENNA	LINE
180'	(12) BXA-70063/6CF_	(6) 1 5/8" HELIAX + (1) 7/8" HYBRID
180'	(12) ERICSSON-RRUS11_BEHIND ANTENNA	N/A
170'	(12) BXA-70063/6CF_	(6) 1 5/8" HELIAX + (1) 7/8" HYBRID
170'	(12) ERICSSON-RRUS11_BEHIND ANTENNA	N/A
160'	(12) BXA-70063/6CF_	(6) 1 5/8" HELIAX + (1) 7/8" HYBRID
160'	(12) ERICSSON-RRUS11_BEHIND ANTENNA	N/A
150'	(12) BXA-70063/6CF_	(6) 1 5/8" HELIAX + (1) 7/8" HYBRID
150'	(12) ERICSSON-RRUS11_BEHIND ANTENNA	N/A
140'	(2) 6' STD. DISH W/RADOME	(2) EW65
130'	(12) BXA-70063/6CF_	(6) 1 5/8" HELIAX + (1) 7/8" HYBRID
130'	(12) ERICSSON-RRUS11_BEHIND ANTENNA	N/A
120'	(12) BXA-70063/6CF_	(6) 1 5/8" HELIAX + (1) 7/8" HYBRID
120'	(12) ERICSSON-RRUS11_BEHIND ANTENNA	N/A
110'	(2) 8' STD. DISH W/RADOME	(2) EW65



*Keith M. Eaton*

12-13-2017

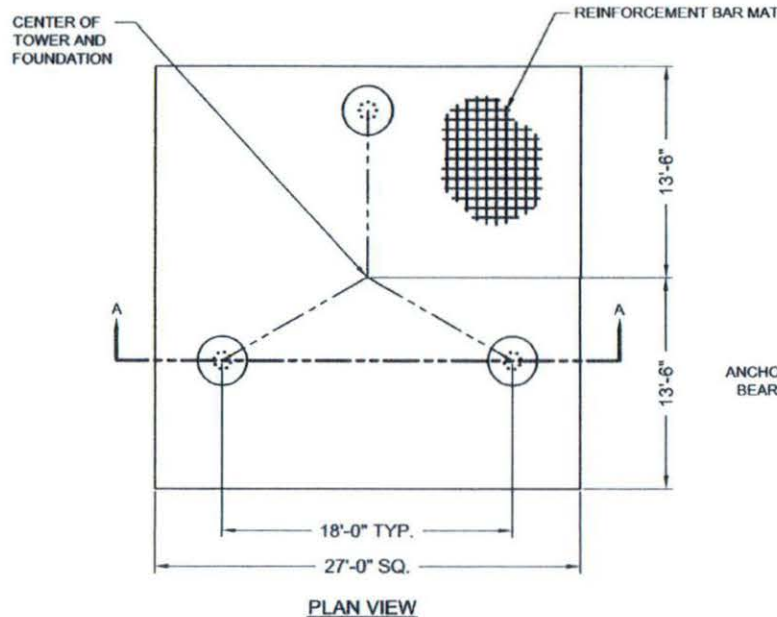


ALLSTATE TOWER INC.  
P.O. BOX 25  
HENDERSON, KY 42419  
PHONE: (270) 830-8512  
FAX: (270) 830-8475  
WWW.PITTL.COM

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REV #	DESCRIPTION	DATE	BY	UNLESS OTHERWISE NOTED DIMENSIONS ARE IN: INCHES	DESCRIPTION
				TOLERANCE BANDS: .X +.002"/-0 ANGLES +/- 2" .XX +.002"/-0 .XXX +.010"/-0 HOLES +.010"/-0	TOWER OVERVIEW APPALACHIAN WIRELESS 180' SELF SUPPORT TOWER ISOM, LETCHER CO., KY
SCALE: NTS				DRAWN BY: RC	FILE NAME: 66184FT
				DATE: 11/07/2017	SHEET: AA

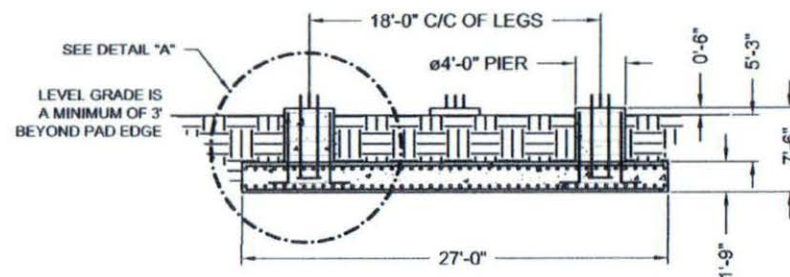




TOTAL VOLUME OF CONCRETE = 55.3 YD<sup>3</sup>

**FOUNDATION INSTALLATION/DESIGN NOTES:**

1. THIS FOUNDATION IS DESIGNED TO MEET ALL STANDARDS SET FORTH BY ACI 318: AMERICAN CONCRETE INSTITUTE, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, ANSI/TIA/EIA 222-G: STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. THIS FOUNDATION IS DESIGNED UTILIZING THE GEOTECHNICAL REPORT PERFORMED BY EAST KENTUCKY ENGINEERING, LLC.; DATED 11-3-2017; PROJECT NO. 165-000-0050. THE FOUNDATION CONTRACTOR SHALL INSTALL THE FOUNDATIONS IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT.
3. ALL WORK PERFORMED FROM THESE DRAWINGS SHOULD BE BY QUALIFIED CONTRACTORS EXPERIENCED IN TOWER FOUNDATION CONSTRUCTION.
4. ALL FOOTING EXCAVATIONS SHALL BE MANUALLY CLEANED PRIOR TO PLACING CONCRETE. COMPACT THE EXPOSED SOIL SURFACE AND ANY GRANULAR FILL UNDER THE FOUNDATION TO 90% OF THE MODIFIED PROCTOR DENSITY.
5. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AFTER 28 DAYS. COPIES OF THE CONCRETE CYLINDER TEST REPORTS SHALL BE SENT TO THE RESIDENT ENGINEER / INSPECTOR.
6. MINIMUM CONCRETE COVER FOR REINFORCING BARS SHALL BE 3". ALL REINFORCING BARS SHALL BE GRADE 60 REBAR (MIN YIELD = 60KSI).
7. FIELD BENDING OR WELDING OF REINFORCING BARS IS NOT PERMITTED.
8. PROVIDE CHAMFERS AT ALL EXPOSED CORNERS OF CONCRETE.
9. BACKFILL NEAR AND AROUND THE FOUNDATIONS SHALL BE A WELL GRADED FILL MATERIAL PLACED IN 8" THICK LAYERS THAT HAS BEEN COMPACTED TO 90% OF THE MODIFIED PROCTOR DENSITY PER ASTM D1557.
10. SOME DETAIL HAS BEEN PURPOSELY OMITTED TO CLARIFY ILLUSTRATION.



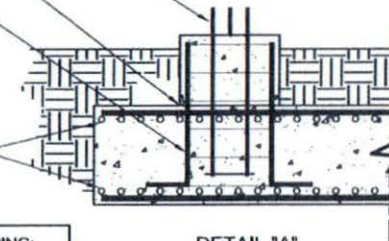
**SECTION A-A**

(6) #1 1/4" X 8'-0" OVERALL LENGTH ANCHOR BOLTS (F1554-GR105) W/ 5/8" THK BEARING PLATE AT THE BOTTOM OF THE ANCHOR BOLT CLUSTER (7'-0" MIN. ANCHOR BOLT EMBEDMENT).

USE EPOXY BONDING AGENT WHEN POURED SEPARATELY

(16) #8 VERTICAL BARS w/ 6" HOOK WITH (6) #4 TIES EQUALLY SPACED

(26) #5 HORIZONTAL BARS X 26'-6" LONG SPACED 12" O.C. EACH WAY AT TOP AND BOTTOM OF MAT. (TOTAL=104)



**DETAIL "A"**

**REINFORCEMENT BAR SPlicing:**

1. ALL LAP SPICES SHALL CONFORM TO ACI 318 REQUIREMENTS.
2. REFER TO CHART BELOW WHEN REINFORCEMENT BAR SPlicing IS NECESSARY.

REINFORCING BAR SIZE	LAP SPICE LENGTH
3	15"
4	17"
5	21"
6	26"
7	30"
8	36"
9	40"
10	58"
11	71"



*Keith M. Eaton*  
12-13-2017

**ALLSTATE TOWER**

ALLSTATE TOWER INC.  
P.O. BOX 25  
HENDERSON, KY 42410  
PHONE: (270) 830-8512  
FAX: (270) 830-8475  
WWW.PITG.COM

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REV #	DESCRIPTION	DATE	BY

UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES	DESCRIPTION: PAD & PIER FOUNDATION DESIGN
TOLERANCE BANDS: X +3/32" / -0 ANCHORS ± 2" XX +3/32" / -0 XXX +1/16" / -0 HOLES ± 0/1/16" / -0	APPALACHIAN WIRELESS
DRAWN BY: RC	ISOM, LETCHER CO., KY
DATE: 12/11/2017	FILE NAME: 66184FT - B
SCALE: NTS	SHEET: B





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

Aeronautical Study No.  
2017-ASO-25754-OE  
Prior Study No.  
1997-ASO-4481-OE

Issued Date: 03/20/2018

Ali Kuzehkanani  
East Kentucky Network, LLC  
8300 Greensboro Drive, Suite 1200  
Tysons, 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:	Tower Isoma
Location:	Isoma, KY
Latitude:	37-12-21.67N NAD 83
Longitude:	82-54-32.37W
Heights:	2086 feet site elevation (SE) 190 feet above ground level (AGL) 2276 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)  
☒ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

As a result of this structure being critical to flight safety, it is required that the FAA be kept appraised as to the status of the project. Failure to respond to periodic FAA inquiries could invalidate this determination.

This aeronautical study included evaluation of a structure that exists at this time. Action will be taken to ensure aeronautical charts are updated to reflect the most current coordinates, elevation and height as indicated in the case description.

**See attachment for additional condition(s) or information.**

This determination expires on 09/20/2019 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 does not constitute authority to transmit on the frequency(ies) identified in this study. The proponent is required to obtain a formal frequency transmit license from the Federal Communications Commission (FCC) or National Telecommunications and Information Administration (NTIA), prior to on-air operations of these frequency(ies).

This determination of No Hazard is granted provided the following conditional statement is included in the proponent's construction permit or license to radiate:

Upon receipt of notification from the Federal Communications Commission that harmful interference is being caused by the licensee's (permittee's) transmitter, the licensee (permittee) shall either immediately reduce the power to the point of no interference, cease operation, or take such immediate corrective action as is necessary to eliminate the harmful interference. This condition expires after 1 year of interference-free operation.

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, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, 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 includes all previously filed frequencies and power for this structure.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

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.

This determination cancels and supersedes prior determinations issued for this structure.

If we can be of further assistance, please contact our office at (202) 267-3215, or [kerryaine.yarber@faa.gov](mailto:kerryaine.yarber@faa.gov).  
On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2017-ASO-25754-OE.

**Signature Control No: 351488556-360381584**

( DNE )

Kerryaine Yarber  
Specialist

Attachment(s)  
Additional Information  
Frequency Data  
Map(s)

cc: FCC



## **Additional information for ASN 2017-ASO-25754-OE**

This proposal is to replace an existing antenna (FAA ASN 1997-ASO-4481-OE). The current study is nine feet lower than prior study as filed.

Obstacle penetrates Helipad - H1 Appalachian Regional Hospital (51KY), near Whitesburg, KY, 40:1 departure surface, however required climb gradient is less than currently published departure procedure. NO IFR EFFECT. Marking and lighting will mitigate the effect.

Any height exceeding 190 feet above ground level (2,276 feet above mean sea level) would require a new aeronautical study and may result in a substantial adverse effect which would warrant a Determination of Hazard to Air Navigation.

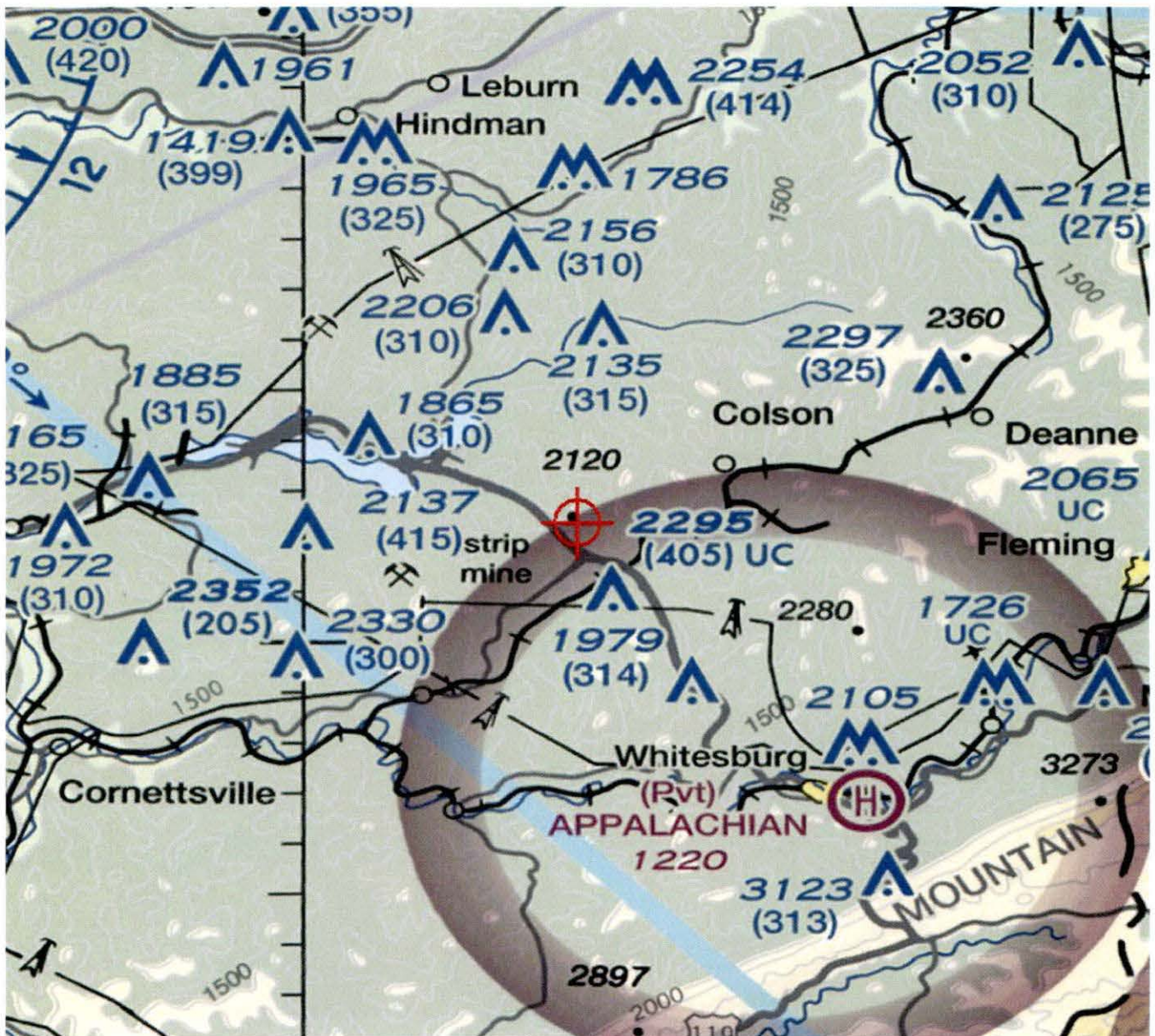
# Frequency Data for ASN 2017-ASO-25754-OE

LOW FREQUENCY	HIGH FREQUENCY	FREQUENCY UNIT	ERP	ERP UNIT
6	7	GHz	55	dBW
6	7	GHz	42	dBW
10	11.7	GHz	55	dBW
10	11.7	GHz	42	dBW
17.7	19.7	GHz	55	dBW
17.7	19.7	GHz	42	dBW
21.2	23.6	GHz	55	dBW
21.2	23.6	GHz	42	dBW
614	698	MHz	1000	W
614	698	MHz	2000	W
698	806	MHz	1000	W
806	901	MHz	500	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
929	932	MHz	3500	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
1670	1675	MHz	500	W
1710	1755	MHz	500	W
1850	1910	MHz	1640	W
1850	1990	MHz	1640	W
1930	1990	MHz	1640	W
1990	2025	MHz	500	W
2110	2200	MHz	500	W
2305	2360	MHz	2000	W
2305	2310	MHz	2000	W
2345	2360	MHz	2000	W
2496	2690	MHz	500	W

TOPO Map for ASN 2017-ASO-25754-OE







**From:** Ali Kuzehkanani AKuzehkanani@fcclaw.com  
**Subject:** FW: 638 - KAZC study request for a new tower at Isom  
**Date:** December 19, 2017 at 10:38 AM  
**To:** Raina Helton rhelton@ekn.com  
**Cc:** Lynn Haney (lhaney@ekn.com) lhaney@ekn.com, m.thacker@tgtel.com, Pamela Gist PGist@fcclaw.com

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FYI

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**From:** Houlihan, John F (KYTC) [mailto:John.Houlihan@ky.gov]  
**Sent:** Tuesday, December 19, 2017 8:39 AM  
**To:** Ali Kuzehkanani <AKuzehkanani@fcclaw.com>  
**Subject:** RE: 638 - KAZC study request for a new tower at Isom

No permit is required from the KAZC. Thank you

Kentucky Airport Zoning Commission (KAZC)

John Houlihan, Administrator

Department of Highways, District Six

421 Buttermilk Pike

Covington, KY 41017

Office 859-341-2700, Desk 859-341-2707 Ext. 292, Cell 502-330-3955

KAZC webpage: <http://transportation.ky.gov/Aviation/Pages/Zoning-Commission.aspx>

CONFIDENTIALITY NOTICE: This e-mail message, including any attachments, is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient, please contact the sender by reply e-mail or call (859) 341-2700 and destroy all copies of the original message.

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**From:** Ali Kuzehkanani [mailto:AKuzehkanani@fcclaw.com]  
**Sent:** Monday, December 18, 2017 4:14 PM  
**To:** Houlihan, John F (KYTC) <John.Houlihan@ky.gov>  
**Cc:** Raina Helton <rhelton@ekn.com>; Lynn Haney (lhaney@ekn.com) <lhaney@ekn.com>; m.thacker@tgtel.com; Pamela Gist <PGist@fcclaw.com>  
**Subject:** 638 - KAZC study request for a new tower at Isom

Dear John:

Forwarded herewith in accordance with KRS 183.990 and Chapter 50 of Title 602 of the Kentucky Administrative Regulations, is an "Application for Permit to Construct or Alter a Structure" (Form TC 56-50) for a new 190-foot communications support structure (Isom) proposed near Isom (Letcher), KY. The site is located approximately 1.4 miles NNW of Isom (Letcher), KY at geographic coordinates (**NAD83**) N 37-12-21.67; W 82-54-32.37.

Attached is a copy of the electronic FAA 7460-1 filing. A copy of the final FAA determination will be provided to you as soon as it is issued.

Please let me know if you have any questions or require any additional information.

Thank you in advance for your help in this matter.



## Isom Driving Directions from Hindman

Starting in front of the Knott County Courthouse drive 400ft to the intersection of 550 and 160. Turn right onto South 160 and drive 10.8 to the intersection of 160 South and HWY 15. Turn left onto Hwy 15 and drive 3.6 miles. Turn left up concrete driveway. Follow the gravel road 1.0 mile to the top of the mountain (signs will be posted).



## Isom Driving Directions

From the intersection of KY South and Kentucky 15 in Isom, Kentucky take KY 15 North approximately 14 miles to Horseshoe Bend Road. Turn right on Horseshoe Bend Road and go 0.4 mile to Venters Lane. Turn left up concrete driveway. Follow the gravel road 1.0 mile to the top of the mountain (signs will be posted).

# Isom Replacement


## Location:

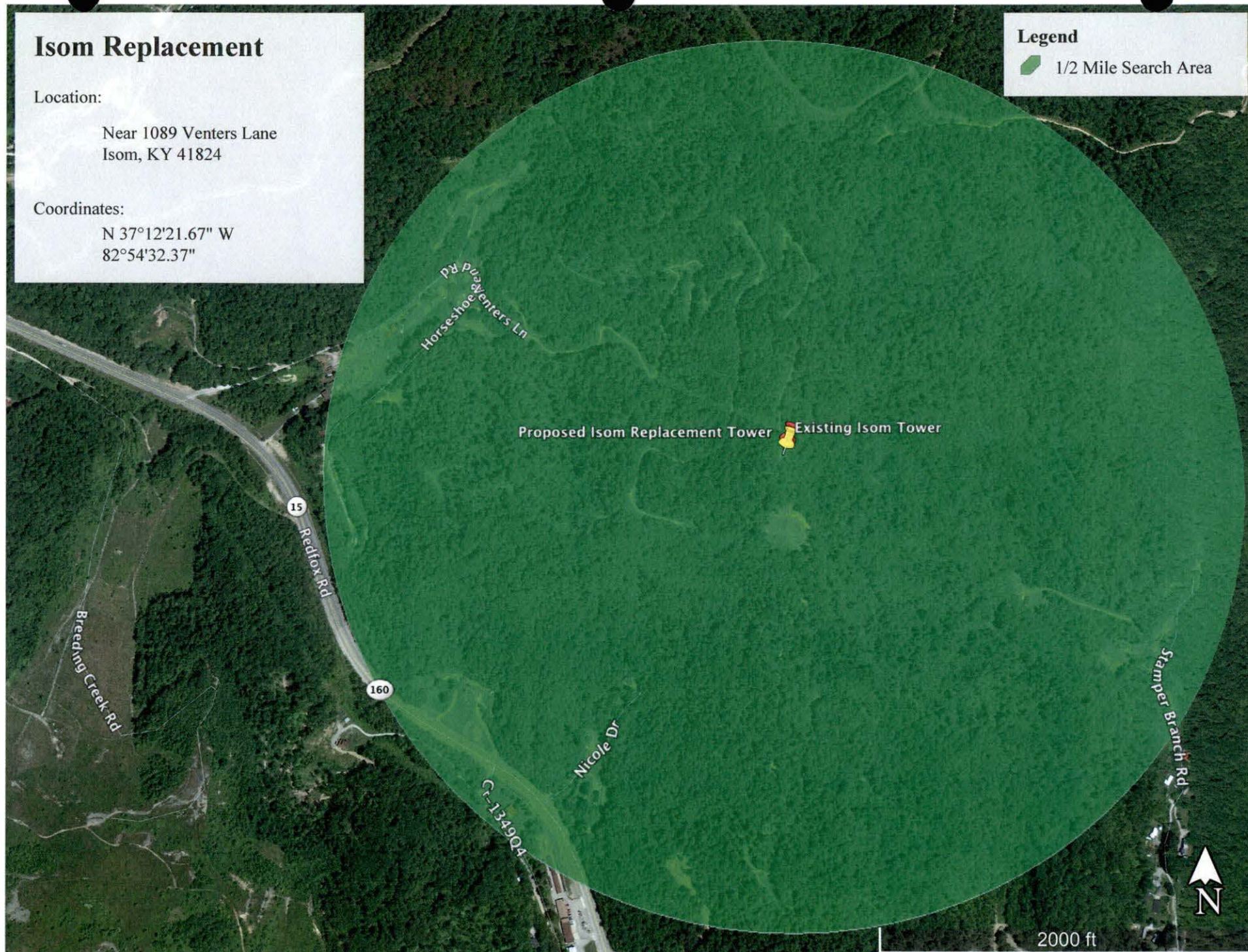
Near 1089 Venters Lane  
Isom, KY 41824

## Coordinates:

N 37°12'21.67" W  
82°54'32.37"

## Legend

 1/2 Mile Search Area





DEED

This Deed of Conveyance, made and entered into this 19 day of August, 1997, by and between BETHEL C. ALLEN and her husband, WILLIE ALLEN, residents of Tsum HC 85 Box 1890, Kentucky 41824, parties of the first part (hereinafter "Grantors"), and MOUNTAINEER CELLULAR GENERAL PARTNERSHIP, a Kentucky partnership having a mailing address of P.O. Box 1148, Hindman, Kentucky 41822, party of the second part (hereinafter "Grantee"),

WITNESSETH:

That said Grantors, for and in consideration of the sum of Three Thousand Seven Hundred and Fifty Dollars (\$3,750.00), of which \$100.00 being previously paid upon the Grantors' signing of an option agreement, the balance of \$3,650.00 being paid upon the execution hereof, the receipt and adequacy of all of which is hereby acknowledged, have bargained and sold and by these presents do hereby bargain, sell, grant and convey unto Grantee, its successors and assigns forever, a tract of land lying and being in Letcher County, Kentucky, and more particularly described as follows:

Lying and being on the waters of Stamper's Branch and bounded as follows:

BEGINNING on a #4 rebar on top of the knob on the Knott and Letcher County line, a corner to Robert Adams and Mountaineer Cellular General Partnership; thence with the county lines and said Partnership along the center of the ridge NE 20 00 00, 170.96 feet to a marked 40" twin oak; thence NW 02 26 06, 84.56 feet to a #4 rebar and the line of Bethel C. & Willie Allen, witness a #4 rebar in the root of a 30" oak, NW 75 41 05, 28.30 feet, witness also a 24" walnut tree NE 59 19 34, 45.27 feet; thence down the hill with said Allen SE 89 07 12, 100.00 feet to a #4 rebar; thence around the side of the hill SW 07 55 34, 330.19 feet to a #4 rebar; thence up the hill SW 56 36 34, 50.00 feet to an "X" on a rock in the center of the ridge and the line of Robert Adams; thence with the center of

TAXES PAID  
4.00



the ridge and the line of said Adams NW  
33 23 26, 70.81 feet to a #4 rebar;  
thence NW 28 54 36, 59.21 feet to the  
beginning, containing 3/4 acre.

SOURCE OF TITLE: Being a part of the same property  
conveyed to the Grantors by deed from Buddie Caudill dated  
August 21, 1964 and recorded at Deed Book 170, page 1 in the  
Letcher County Clerk's Office.

EASEMENT: Grantors further grant and convey to Grantee,  
its successors and assigns, an easement over Grantors'  
property for the placement and maintenance of anchors and  
guy wires to support Grantee's telecommunications tower  
which will be constructed on the above-described 3/4 acre  
tract, together with the right to cut and remove any brush  
or trees that may interfere with the operation of the  
telecommunications tower. This easement involves the  
property conveyed to Grantors by deed from Buddie Caudill  
dated August 21, 1964 and recorded at Deed Book 170, page 1  
in the Letcher County Clerk's Office.

TO HAVE AND TO HOLD the same, together with the  
appurtenances thereunto belonging unto Grantee, its  
successors and assigns forever, with covenants of General  
Warranty.

IN TESTIMONY WHEREOF, witness the signatures of  
Grantors on this the day and year first above written.

GRANTORS:

Bethel C. Allen  
Bethel C. Allen

Willie Allen  
Willie Allen

CERTIFICATE OF PARTIES

We, the undersigned Grantors and Grantee, do hereby certify, pursuant to KRS Chapter 382, that the above stated consideration in the amount of \$3,750.00 is the true, correct and full consideration paid for the property herein conveyed. We further certify our understanding that falsification of the stated consideration or sale price of the property is a Class D felony, subject to one to five years imprisonment and fines up to \$10,000.00.

GRANTORS:

Bethel C. Allen  
Bethel C. Allen

Willie Allen  
Willie Allen

GRANTEE:

MOUNTAINEER CELLULAR  
GENERAL PARTNERSHIP

By: William K. Grigsby  
William K. Grigsby  
Managing Partner

STATE OF KENTUCKY     )  
                                  )SS  
COUNTY OF LETCHER    )

I hereby certify that the foregoing deed and certificate of parties was produced to me and duly acknowledged, subscribed and sworn to before me by Bethel C. Allen and her husband, Willie Allen, parties thereto, to be their act and deed, on this the 19 day of AUGUST, 1997.

Paul L. L...  
Notary Public

My commission expires 12/09/2000.

STATE OF KENTUCKY )  
 )SS  
COUNTY OF KNOTT )

I hereby certify that the foregoing Certificate of Parties was duly acknowledged, subscribed and sworn to before me by William K. Grigsby, managing partner of Mountaineer Cellular General Partnership, party thereto, to be its act and deed, on this the \_\_\_\_\_ day of \_\_\_\_\_, 1997.

\_\_\_\_\_  
Notary Public

My commission expires \_\_\_\_\_.

STATE OF KENTUCKY )  
 )SS  
COUNTY OF LETCHER )

I, Charlie Wright, Clerk of Letcher County, do hereby certify that the foregoing instrument was on the 21<sup>st</sup> day of August, 1997, lodged in my office for record and that it, the foregoing, and this my certificate have been duly recorded in my said office in Deed Book 333, page 236.

Witness my hand on this the 21<sup>st</sup> day of August, 1997.

CHARLIE WRIGHT, CLERK

By: Lucille Bates Pelly D.C.

This instrument prepared by:

Robin J. Collins  
ROBIN JOHNSON COLLINS  
ATTORNEY AT LAW  
P.O. BOX 176  
LACKEY, KY 41643  
(606)358-4493

A:4832MC



DEED

This Deed of Conveyance, made and entered into this 22<sup>nd</sup> day of MAY, 1997, by and between VENTERS COMBS, widower, a resident of General Delivery, Redfox, Kentucky 41847; MELISSA STURGILL and her husband, RICKY STURGILL, residents of HC 32, Box 405, Redfox, Kentucky 41847; and ZENA JOLENE COMBS, single, a resident of P.O. Box 106, Hindman, Kentucky 41822, parties of the first part (hereinafter "Grantors"), and MOUNTAINEER CELLULAR GENERAL PARTNERSHIP, a Kentucky partnership having a mailing address of P. O. Box 789, Hindman, Kentucky 41822, party of the second part (hereinafter "Grantee"),

WITNESSETH:

That said Grantors, for and in consideration of the sum of THREE THOUSAND, SEVEN HUNDRED & FIFTY DOLLARS (\$3,750.00), cash in hand paid, the receipt and adequacy of which is hereby acknowledged, have bargained and sold and by these presents do hereby bargain, sell, grant and convey unto Grantee, its successors and assigns forever, a tract of land lying and being in Knott County, Kentucky, and more particularly described as follows:

Hillside Lot #1: Beginning on a #4 rebar on top of the knob on the Knott and Letcher County border, between Stampers Branch of Rockhouse Creek in Letcher County and Horseshoe Curve Branch of Breeding Creek in Knott County, a corner to the lands of Venters Combs, Lee Adams (heirs), and Willie Allen; thence with the line of said Adams and the center of the ridge SW 72 38 10, 67.20 feet to a marked thirty inch oak; thence leaving the center of the ridge and down the hill with the line of Venters Combs NW 29 54 21, 104.32 feet to a #4 rebar; thence around the side of the hill NE 17 23 28, 185.00 feet to a thirty-six inch oak; thence up the hill SE 89 07 12, 115.74 feet to a #4 rebar in the center of the ridge and the line of Willie Allen; thence along the center of the ridge with said Allen SE 02 26 06, 84.56 feet to a marked forty inch oak; thence SW 20 00 00, 170.96 feet to the beginning, containing .75 acres.

SOURCE OF TITLE: Being a part of the same property conveyed to Venters Combs and his wife, Zola Combs, by deed dated March 13, 1980 and recorded at Deed Book 117, page 367 in the Knott County Clerk's Office. See also the Affidavit of Descent for Zola Combs recorded at Deed Book 178, page 231 in the Knott County Clerk's Office.

EASEMENT

Grantors further grant and convey to Grantee, its successors and assigns, an easement or right to use Grantors' adjacent properties only for purposes of construction, maintenance and removal of Grantee's telecommunications site which will be constructed on the above-described .75 acre tract. These easement rights include the right of ingress to and egress from the above-described .75 acre tract, the placement and maintenance of anchors and guy wires to support Grantee's telecommunications tower which will be constructed on the .75 acre tract and the right to cut and remove any brush or trees that may interfere with Grantee's telecommunications operations. This easement shall terminate upon the removal of the telecommunications site by Grantee. This easement is a portion of the property described in the deed of conveyance to Venters Combs and Zola Combs recorded at Deed Book 117, page 367 in the Knott County Clerk's Office.

TO HAVE AND TO HOLD the same, together with the appurtenances thereunto belonging unto Grantee, its successors and assigns forever, with covenants of General Warranty.

IN TESTIMONY WHEREOF, witness the signatures of Grantors on this the day and year first above written.

GRANTORS:

Venters Combs  
Venters Combs

Melissa Sturgill  
Melissa Sturgill

Ricky E. Sturgill  
Ricky Sturgill

Zena Jolene Combs  
Zena Jolene Combs

CERTIFICATE OF PARTIES

We, the undersigned Grantors and Grantee, do hereby certify, pursuant to KRS Chapter 382, that the above stated consideration in the amount of \$3,750.00 is the true, correct and full consideration paid for the Grantors' undivided interest in the property herein conveyed. We further certify our understanding that falsification of the stated consideration or sale price of the property is a Class D felony, subject to one to five years imprisonment and fines up to \$10,000.00.

GRANTORS:

Venters Combs  
Venters Combs

Melissa Sturgill  
Melissa Sturgill

Ricky E. Sturgill  
Ricky Sturgill

Zena Jolene Combs  
Zena Jolene Combs

GRANTEE:

MOUNTAINEER CELLULAR  
GENERAL PARTNERSHIP

By: William K. Grigsby  
William K. Grigsby,  
Managing Partner



STATE OF KENTUCKY     )  
COUNTY OF Knott     )SS

I hereby certify that the foregoing deed and certificate of parties was produced to me and duly acknowledged, subscribed and sworn to before me by Venters Combs, party thereto, to be his act and deed, on this the 22<sup>nd</sup> day of MAY, 1997.

  
Notary Public

My commission expires 12/9/2000.

STATE OF KENTUCKY     )  
COUNTY OF Knott     )SS

I hereby certify that the foregoing deed and certificate of parties was produced to me and duly acknowledged, subscribed and sworn to before me by Melissa Sturgill and her husband, Ricky Sturgill, parties thereto, to be their act and deed, on this the 22<sup>nd</sup> day of MAY, 1997.

  
Notary Public

My commission expires 12/9/2000.

STATE OF KENTUCKY     )  
COUNTY OF Knott     )SS

I hereby certify that the foregoing deed and certificate of parties was produced to me and duly acknowledged, subscribed and sworn to before me by Zena Jolene Combs, party thereto, to be her act and deed, on this the 22<sup>nd</sup> day of MAY, 1997.

  
Notary Public

My commission expires 12/9/2000.

STATE OF KENTUCKY )  
 ) SS  
COUNTY OF KNOTT )

I hereby certify that the foregoing Certificate of Parties was duly subscribed and sworn to before me by William K. Grigsby, managing partner of Mountaineer Cellular General Partnership, on this the 22<sup>nd</sup> day of MAY, 1997.

[Signature]  
Notary Public

My commission expires 12/9/2000.

STATE OF KENTUCKY )  
 ) SS  
COUNTY OF KNOTT )

I, Mike Hall, Clerk of Knott County, do hereby certify that the foregoing instrument was on the 30 day of May, 1997, lodged in my office for record and that it, the foregoing, and this my certificate have been duly recorded in my said office in Deed Book 183, page 115.

Witness my hand on this the 30 day of May, 1997.

Mike Hall, CLERK

By: [Signature] D.C.

DEED TRANSFER TAX COLLECTED  
\$ 3.25  
DATE 29. 30 97 BY [Signature] D.C.

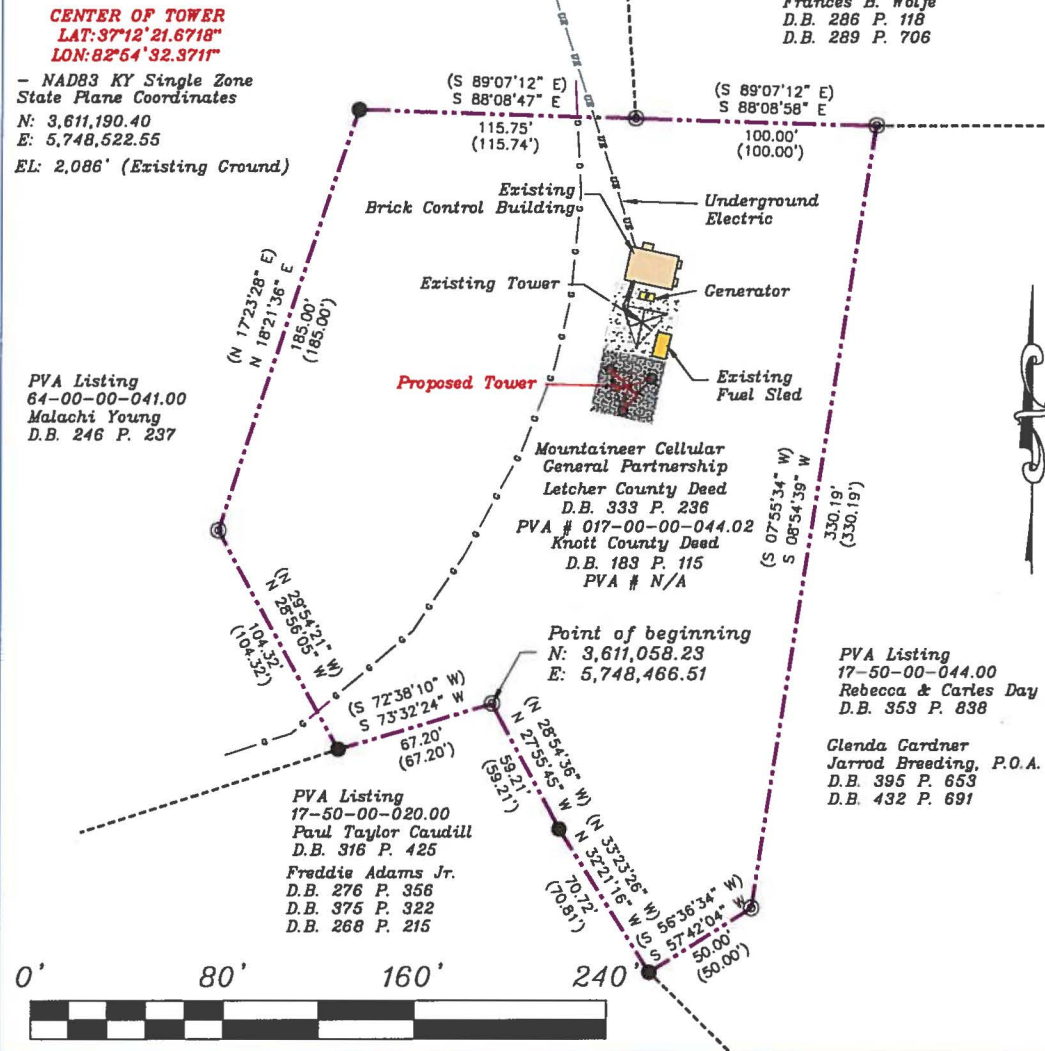
This instrument prepared by:

[Signature]  
ROBIN JOHNSON COLLINS  
ATTORNEY AT LAW  
P.O. BOX 176  
LACKEY, KY 41643  
(606) 358-4493

A:4796MC

# ISOM TOWER

## SITE SURVEY WITH PROPOSED TOWER & BUILDING LOCATION



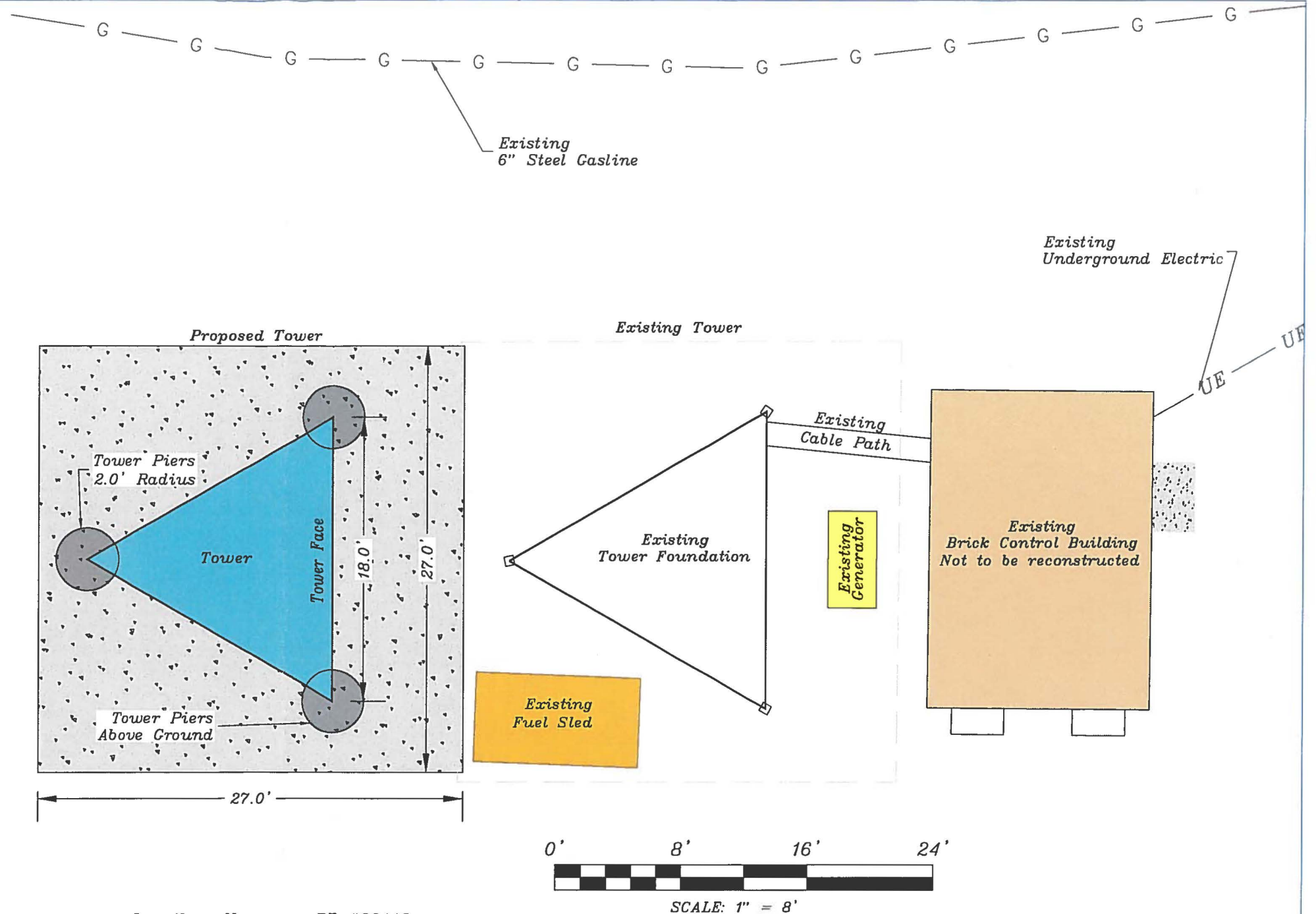
**Legend**

- 1/2" re-bar set with a plastic cap stamped Summit Engineering, L.S. #2661 unless otherwise noted.
- Fence Post
- Tree (Type Noted)
- Boundary
- Adjoining Property Lines
- UE — UE — Electric Line
- G — G — Gas Line

### FAA Certification

In Accordance with FAA Order 8260.19G, 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* 2661 4-11-18  
 Steven E. Haywood, PLS #2661 Date



Jonathan Newman, PE #29118  
 265 Hambley Blvd.  
 Pikeville, KY 41501  
 606-432-1447



Note: No design criteria was considered in the preparations of this drawing.

<b>EAST KENTUCKY NETWORK</b> D/B/A APPALACHIAN WIRELESS 101 TECHNOLOGY TRAIL, IVEL, KY 41643				<b>SUMMIT ENGINEERING, INC.</b> 265 HAMBLEY BLVD. PIKEVILLE, KY. 41501 (606) 432-1447 
Isom Tower Site Map On the Property of Mountaineer Cellular General Partnership Isom Letcher County, Kentucky				 PIKEVILLE, LEXINGTON & HENDERSON, KY & SOUTH CHARLESTON, WV
Scale: As Noted	Drawn By: DLM	Chk By: SEH	Apprvd. By:	PER. NO:
Plot Date: 11 APRIL 2018 – 6:28 AM				ATT:
File Name:Z:\East Ky Network\As Built Sites\Isom\Site Map\Isom Site Map.dwg				

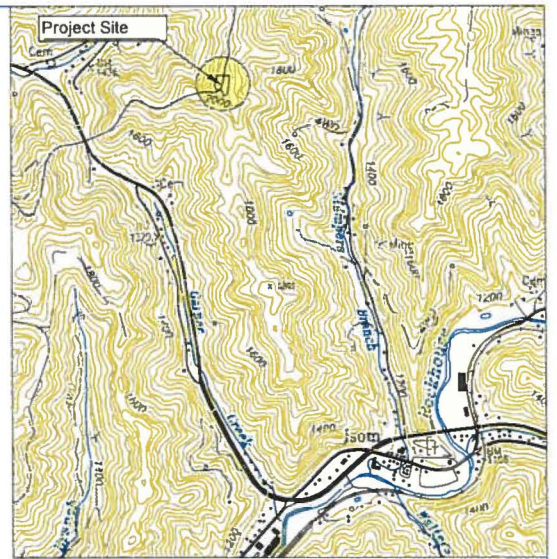


Filing  
CONTAINS  
LARGE OR OVERSIZED  
DRAWINGS

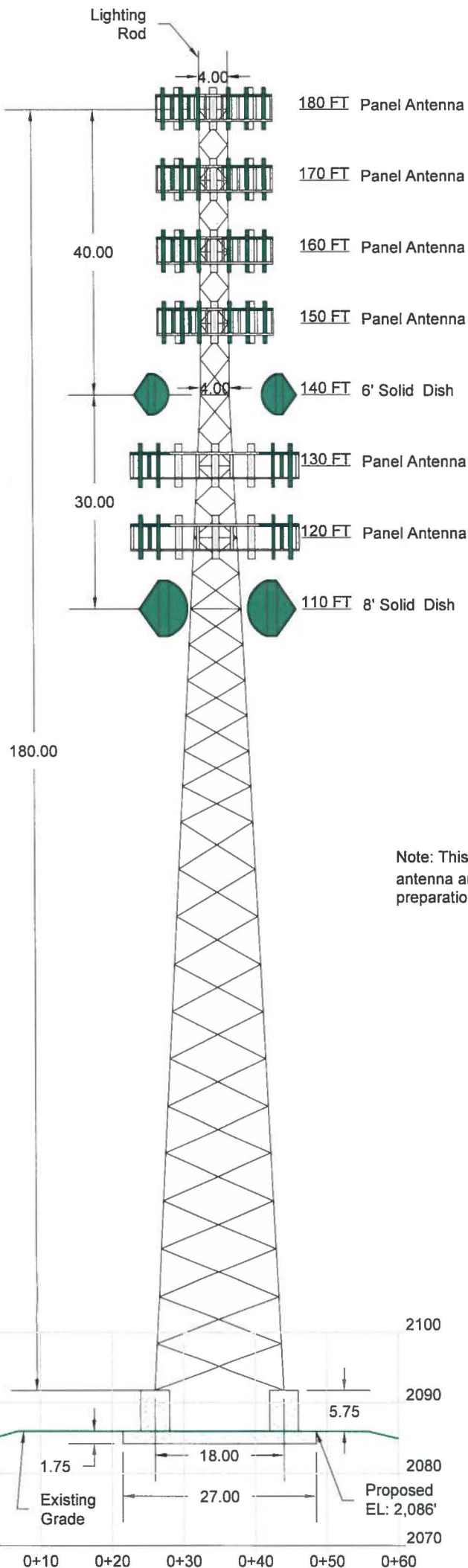
Case No. 2018-00131

RECEIVED ON:  
04/18/2018

ISOM TOWER  
VERTICAL PROFILE SKETCH  
APPALACHIAN WIRELESS



Vicinity Map  
Not to Scale  
Blackey 7 1/2" 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"=20'



This information shown hereon is correct to the best of my knowledge.

*Jonathan Newman*  
Jonathan Newman

29118  
P.E.

4-11-18  
Date

DATE: 04/11/18

SCALE: 1"=20'

DRAWN BY: DLM

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

Vertical Profile Sketch  
Isom Tower

**SUMMIT ENGINEERING, INC.**  
265 HAMBLEY BLVD.  
PIKEVILLE, KY, 41501  
(606) 432-1447



Utility ID	Utility Name	Utility Type	Class	City	State
4107900	365 Wireless, LLC	Cellular	D	Atlanta	GA
4109300	Access Point, Inc.	Cellular	D	Cary	NC
4108300	Air Voice Wireless, LLC	Cellular	A	Bloomfield Hill	MI
4110650	Alliant Technologies of KY, L.L.C.	Cellular	C	Morristown	NJ
44451184	Alltel Communications, LLC	Cellular	A	Basking Ridge	NJ
4110850	AltaWorx, LLC	Cellular	C	Fairhope	AL
4107800	American Broadband and Telecommunications Company	Cellular	C	Toledo	OH
4108650	AmeriMex Communications Corp.	Cellular	D	Dunedin	FL
4105100	AmeriVision Communications, Inc. d/b/a Affinity 4	Cellular	D	Virginia Beach	VA
4110700	Andrew David Balholm dba Norcell	Cellular	C	Clayton	WA
4108600	BCN Telecom, Inc.	Cellular	D	Morristown	NJ
4110550	Blue Casa Mobile, LLC	Cellular	D	Santa Barbara	CA
4108750	Blue Jay Wireless, LLC	Cellular	C	Carrollton	TX
4111050	BlueBird Communications, LLC	Cellular	C	New York	NY
4202300	Bluegrass Wireless, LLC	Cellular	A	Elizabethtown	KY
4107600	Boomerang Wireless, LLC	Cellular	B	Hiawatha	IA
4105500	BullsEye Telecom, Inc.	Cellular	D	Southfield	MI
4110050	CampusSims, Inc.	Cellular	D	Boston	MA
4100700	Cellco Partnership dba Verizon Wireless	Cellular	A	Basking Ridge	NJ
4106600	Cintex Wireless, LLC	Cellular	D	Rockville	MD
4111000	ComApp Technologies LLC	Cellular	C	Melrose	MA
4101900	Consumer Cellular, Incorporated	Cellular	A	Portland	OR
4106400	Credo Mobile, Inc.	Cellular	A	San Francisco	CA
4108850	Cricket Wireless, LLC	Cellular	A	San Antonio	TX
4001900	CTC Communications Corp. d/b/a EarthLink Business I	Cellular	D	Grand Rapids	MI
10640	Cumberland Cellular Partnership	Cellular	A	Elizabethtown	KY
4101000	East Kentucky Network, LLC dba Appalachian Wireless	Cellular	A	Ivel	KY
4002300	Easy Telephone Service Company dba Easy Wireless	Cellular	D	Ocala	FL
4109500	Enhanced Communications Group, LLC	Cellular	D	Bartlesville	OK
4110450	Excellus Communications, LLC	Cellular	D	Chattanooga	TN
4105900	Flash Wireless, LLC	Cellular	C	Concord	NC
4104800	France Telecom Corporate Solutions L.L.C.	Cellular	D	Oak Hill	VA
4109350	Global Connection Inc. of America	Cellular	D	Norcross	GA
4102200	Globalstar USA, LLC	Cellular	B	Covington	LA
4109600	Google North America Inc.	Cellular	A	Mountain View	CA
33350363	Granite Telecommunications, LLC	Cellular	D	Quincy	MA
4106000	GreatCall, Inc. d/b/a Jitterbug	Cellular	A	San Diego	CA
10630	GTE Wireless of the Midwest dba Verizon Wireless	Cellular	A	Basking Ridge	NJ
4110600	Horizon River Technologies, LLC	Cellular	C	Atlanta	GA
4103100	i-Wireless, LLC	Cellular	A	Newport	KY
4109800	IM Telecom, LLC d/b/a Infiniti Mobile	Cellular	D	Tulsa	OK
22215360	KDDI America, Inc.	Cellular	D	New York	NY
10872	Kentucky RSA #1 Partnership	Cellular	A	Basking Ridge	NJ
10680	Kentucky RSA #3 Cellular General	Cellular	A	Elizabethtown	KY
10681	Kentucky RSA #4 Cellular General	Cellular	A	Elizabethtown	KY
4109750	Konatel, Inc. dba telecom.mobi	Cellular	D	Johnstown	PA
4110900	Lunar Labs, Inc.	Cellular	C	Detroit	MI
4107300	Lycamobile USA, Inc.	Cellular	D	Newark	NJ
4108800	MetroPCS Michigan, LLC	Cellular	A	Bellevue	WA
4109650	Mitel Cloud Services, Inc.	Cellular	D	Mesa	AZ
4202400	New Cingular Wireless PCS, LLC dba AT&T Mobility, PCS	Cellular	A	San Antonio	TX
10900	New Par dba Verizon Wireless	Cellular	A	Basking Ridge	NJ
4000800	Nextel West Corporation	Cellular	D	Overland Park	KS
4001300	NPCR, Inc. dba Nextel Partners	Cellular	D	Overland Park	KS



4001800	OnStar, LLC	Cellular	A	Detroit	MI
4110750	Onvoy Spectrum, LLC	Cellular	C	Plymouth	MN
4109050	Patriot Mobile LLC	Cellular	D	Southlake	TX
4110250	Plintron Technologies USA LLC	Cellular	D	Bellevue	WA
33351182	PNG Telecommunications, Inc. dba PowerNet Global Communications	Cellular	D	Cincinnati	OH
4202100	Powertel/Memphis, Inc. dba T-Mobile	Cellular	A	Bellevue	WA
4107700	Puretalk Holdings, LLC	Cellular	A	Covington	GA
4106700	Q Link Wireless, LLC	Cellular	A	Dania	FL
4108700	Ready Wireless, LLC	Cellular	B	Hiawatha	IA
4110500	Republic Wireless, Inc.	Cellular	D	Raleigh	NC
4111100	ROK Mobile, Inc.	Cellular	C	Culver City	CA
4106200	Rural Cellular Corporation	Cellular	A	Basking Ridge	NJ
4108550	Sage Telecom Communications, LLC dba TruConnect	Cellular	D	Los Angeles	CA
4109150	SelecTel, Inc. d/b/a SelecTel Wireless	Cellular	D	Freemont	NE
4106300	SI Wireless, LLC	Cellular	A	Carbondale	IL
4110150	Spectrotel, Inc. d/b/a Touch Base Communications	Cellular	D	Neptune	NJ
4200100	Sprint Spectrum, L.P.	Cellular	A	Atlanta	GA
4200500	SprintCom, Inc.	Cellular	A	Atlanta	GA
4109550	Stream Communications, LLC	Cellular	D	Dallas	TX
4110200	T C Telephone LLC d/b/a Horizon Cellular	Cellular	D	Red Bluff	CA
4202200	T-Mobile Central, LLC dba T-Mobile	Cellular	A	Bellevue	WA
4002500	TAG Mobile, LLC	Cellular	D	Carrollton	TX
4109700	Telecom Management, Inc. dba Pioneer Telephone	Cellular	D	South Portland	ME
4107200	Telefonica USA, Inc.	Cellular	D	Miami	FL
4108900	Telrite Corporation dba Life Wireless	Cellular	D	Covington	GA
4108450	Tempo Telecom, LLC	Cellular	D	Kansas City	MO
4109950	The People's Operator USA, LLC	Cellular	D	New York	NY
4109000	Ting, Inc.	Cellular	A	Toronto	ON
4110400	Torch Wireless Corp.	Cellular	D	Jacksonville	FL
4103300	Touchtone Communications, Inc.	Cellular	D	Whippany	NJ
4104200	TracFone Wireless, Inc.	Cellular	D	Miami	FL
4002000	Truphone, Inc.	Cellular	D	Durham	NC
4110300	UVNV, Inc.	Cellular	D	Costa Mesa	CA
4105700	Virgin Mobile USA, L.P.	Cellular	A	Atlanta	GA
4110800	Visible Service LLC	Cellular	C	Lone Tree	CO
4106500	WiMacTel, Inc.	Cellular	D	Palo Alto	CA
4110950	Wing Tel Inc.	Cellular	C	New York	NY
4109900	Wireless Telecom Cooperative, Inc. dba theWirelessFreeway	Cellular	D	Louisville	KY