

**COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION**

RECEIVED

AUG 21 2017

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. 2017-00262
CONSTRUCT A TOWER IN BELL COUNTY, KENTUCKY)

East Kentucky Network, LLC d/b/a Appalachian Wireless was granted authorization to provide Personal Communications Service (“PCS”) in the Knoxville Major Trading Area (MTA044), Submarket 12 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 Bell County, pursuant to KRS 278.020 Subsection 1 and 807 KAR 5:001, East Kentucky Network, LLC is seeking the Commission’s approval to construct a 300 foot self-supporting telecommunications tower on a tract of land located at 10277 US Highway 119, Calvin, Bell County, Kentucky (36°46’40.4689”N 83°35’10.9104”W). A map and detailed directions to the site can be found in Exhibit 7.

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

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

Notice of the location of the proposed construction was published in The Pineville Sun, August 17, 2017 edition. Enclosed in Exhibit 3 is a copy of that notice. The Pineville Sun is the newspaper with the largest circulation in Bell 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 tower will be erected by S & S Tower Services of St. Albans, West Virginia. S & S Tower Services has vast experience in the erection of communications towers.

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

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

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

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

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

Two notice signs meeting the requirements prescribed by 807 KAR 5:063, Section 1(2), measuring at least two (2) feet in height and four (4) feet in width and containing all required language in letters of required height, have been posted, one at a visible location on the proposed site and one on the nearest public road. The two signs were posted on August 15, 2017, and will remain posted for at least two weeks after filing of this application as specified.

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

The proposed construction site is on a steep hillside some feet from the nearest structure. Prior to construction, the site was wooded.

Due to the steep hillside surrounding the proposed site, the property in close proximity is unsuitable for any type of development. 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 James W. Caudill, Kentucky registered professional engineer.

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

The foregoing document was prepared by Cindy D. McCarty, Staff Attorney for 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, Attn: Regulatory Compliance Department, 101 Technology Trail, Ivel, KY 41642.

SUBMITTED BY: *Lynn Haney* DATE: *8/18/17*
Lynn Haney, Regulatory Compliance Director

APPROVED BY: *W.A. Gillum* DATE: *8-18-2017*
W.A. Gillum, General Manager

ATTORNEY: *Cindy D. McCarty* DATE: *8-18-2017*
Hon. Cindy D. McCarty, Attorney

CONTACT INFORMATION:

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

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

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

Mailing Address:

East Kentucky Network, LLC
d/b/a Appalachian Wireless
Attn.: Regulatory Compliance Department
101 Technology Trail
Ivel, KY 41642

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

ULS License

PCS Broadband License - WQEF975 - East Kentucky Network, LLC d/b/a Appalachian Wireless

Call Sign	WQEF975	Radio Service	CW - PCS Broadband
Status	Active	Auth Type	Regular
Market			
Market	MTA044 - Knoxville	Channel Block	A
Submarket	12	Associated Frequencies (MHz)	001850.00000000-001865.00000000 001930.00000000-001945.00000000

Dates

Grant	05/27/2015	Expiration	06/23/2025
Effective	05/27/2015	Cancellation	

Buildout Deadlines

1st	2nd
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Notification Dates

1st	2nd
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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 ATTN W.A. Gillum, General Manager/CEO	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.

Tribal Land Bidding Credits

This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Gender



EXHIBIT II: LIST OF PROPERTY OWNERS:

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

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

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

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

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

Donald G. and Sharon Engle
2032 Balkan Road
Pineville, KY 40977

John M. and Maude Pursiful
C/O Hugh Delk
P.O. Box 752
Pineville, KY 40977

Otis Hoskins Estate
C/O Irene Hoskins
1495 Peach Blossom Road
Kettle Island, KY 40958

Lester and Louise Saylor
57 Lester Saylor Hill
Kettle Island, KY 40958

Janice Howard
93 Tan Yard Loop
Calvin, KY 40813

Glennis Adkins Life Estate
117 Tan Yard Loop
Calvin, KY 40813

Mary Jo Duffey Life Estate
1031 Highway 3482
Calvin, KY 40813

Angela R. Barnett Smith
150 Tan Yard Loop
Calvin, KY 40813

Charles Jr. and Lisa Johnson
Country Wide Home Loans, LLC
7105 Corporate Drive
Plano, TX 75024

Glen I. and Helen Helton
168 Gregory Hill Road
Pineville, KY 40977

Telecommunications Management, LLC
C/O Newwave Communications
One Montgomery Plaza Floor 4
Charolette, NC 28241

Carlos Lee and Linda Jackson
5120 Glenshire Drive
Loxley, AL 36551

Wilder Cemetery
Highway 987
Miracle, KY 40856

Jeff and Teresa Tingle
93 Wilder Cemetery Road
Calvin, KY 40813

Ross and Ellene Hoskins
45 Wilder Cemetery Road
Calvin, KY 40813

Bell South- AT&T Property Tax Group
P.O. Box 7207
Bedminster, NJ 07921

US 119 Road Right of Way
Commonwealth of Kentucky
Department of Highways
State Office Building
Frankfort, KY 40601

Charles E. Wilson
132 Sun Ray Drive
London, KY 40741

VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

August 18, 2017

Bell South- AT&T Property Tax Group
P.O. Box 7207
Bedminster, NJ 07921

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00262)

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 Bell County. The facility will include a 300-foot self-supporting tower with attached antennas extending upwards, and an equipment shelter located on a tract of land at 10277 US HIGHWAY 119, Calvin, Bell County, Kentucky. A map showing the location of the proposed new facility is enclosed. This notice is being sent to you because you may own property within a 500' radius of the proposed tower or own property contiguous to the property upon which construction is proposed.

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

Your comments and request for intervention should be addressed to: Executive Director's Office, Public Service Commission of Kentucky, P.O. Box 615, Frankfort, KY 40602. Please refer to Case No. 2017-00262 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

VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

August 18, 2017

US 119 Road Right of Way
Commonwealth of Kentucky
Department of Highways
State Office Building
Frankfort, KY 40601

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C/O Hugh Delk
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VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

August 18, 2017

Otis Hoskins Estate
C/O Irene Hoskins
1495 Peach Blossom Road
Kettle Island, KY 40958

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Sincerely,

A handwritten signature in blue ink that reads "Lynn Haney".

Lynn Haney, CPA
Regulatory Compliance Director
Enclosure



VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

August 18, 2017

Lester and Louise Saylor
57 Lester Saylor Hill
Kettle Island, KY 40958

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PUBLIC NOTICE

August 18, 2017

Janice Howard
93 Tan Yard Loop
Calvin, KY 40813

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PUBLIC NOTICE

August 18, 2017

Glennis Adkins Life Estate
117 Tan Yard Loop
Calvin, KY 40813

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August 18, 2017

Mary Jo Duffey Life Estate
1031 Highway 3482
Calvin, KY 40813

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Lynn Haney, CPA
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PUBLIC NOTICE

August 18, 2017

Angela R. Barnett Smith
150 Tan Yard Loop
Calvin, KY 40813

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Lynn Haney, CPA
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PUBLIC NOTICE

August 18, 2017

Charles Jr. and Lisa Johnson
Country Wide Home Loans, LLC
7105 Corporate Drive
Plano, TX 75024

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Lynn Haney, CPA
Regulatory Compliance Director
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Glen I. and Helen Helton
168 Gregory Hill Road
Pineville, KY 40977

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August 18, 2017

Telecommunications Management, LLC
C/O Newwave Communications
One Montgomery Plaza Floor 4
Charolette, NC 28241

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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 Bell County. The facility will include a 300-foot self-supporting tower with attached antennas extending upwards, and an equipment shelter located on a tract of land at 10277 US HIGHWAY 119, Calvin, Bell County, Kentucky. A map showing the location of the proposed new facility is enclosed. This notice is being sent to you because you may own property within a 500' radius of the proposed tower or own property contiguous to the property upon which construction is proposed.

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Your comments and request for intervention should be addressed to: Executive Director's Office, Public Service Commission of Kentucky, P.O. Box 615, Frankfort, KY 40602. Please refer to Case No. 2017-00262 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,

A handwritten signature in blue ink that reads "Lynn Haney".

Lynn Haney, CPA
Regulatory Compliance Director
Enclosure



VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

August 18, 2017

Carlos Lee and Linda Jackson
5120 Glenshire Drive
Loxley, AL 36551

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00262)

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 Bell County. The facility will include a 300-foot self-supporting tower with attached antennas extending upwards, and an equipment shelter located on a tract of land at 10277 US HIGHWAY 119, Calvin, Bell County, Kentucky. A map showing the location of the proposed new facility is enclosed. This notice is being sent to you because you may own property within a 500' radius of the proposed tower or own property contiguous to the property upon which construction is proposed.

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Sincerely,

A handwritten signature in blue ink that reads "Lynn Haney".

Lynn Haney, CPA
Regulatory Compliance Director
Enclosure

VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

August 18, 2017

Wilder Cemetery
Highway 987
Miracle, KY 40856

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00262)


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Sincerely,



Lynn Haney, CPA
Regulatory Compliance Director
Enclosure



VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

August 18, 2017

Jeff and Teresa Tingle
93 Wilder Cemetery Road
Calvin, KY 40813

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00262)

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Sincerely,

A handwritten signature in blue ink that reads "Lynn Haney".

Lynn Haney, CPA
Regulatory Compliance Director
Enclosure

VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

August 18, 2017

Ross and Ellene Hoskins
45 Wilder Cemetery Road
Calvin, KY 40813

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00262)

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Sincerely,



Lynn Haney, CPA
Regulatory Compliance Director
Enclosure

VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

August 18, 2017

Charles E. Wilson
132 Sun Ray Drive
London, KY 40741

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00262)

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 Bell County. The facility will include a 300-foot self-supporting tower with attached antennas extending upwards, and an equipment shelter located on a tract of land at 10277 US HIGHWAY 119, Calvin, Bell County, Kentucky. A map showing the location of the proposed new facility is enclosed. This notice is being sent to you because you may own property within a 500' radius of the proposed tower or own property contiguous to the property upon which construction is proposed.

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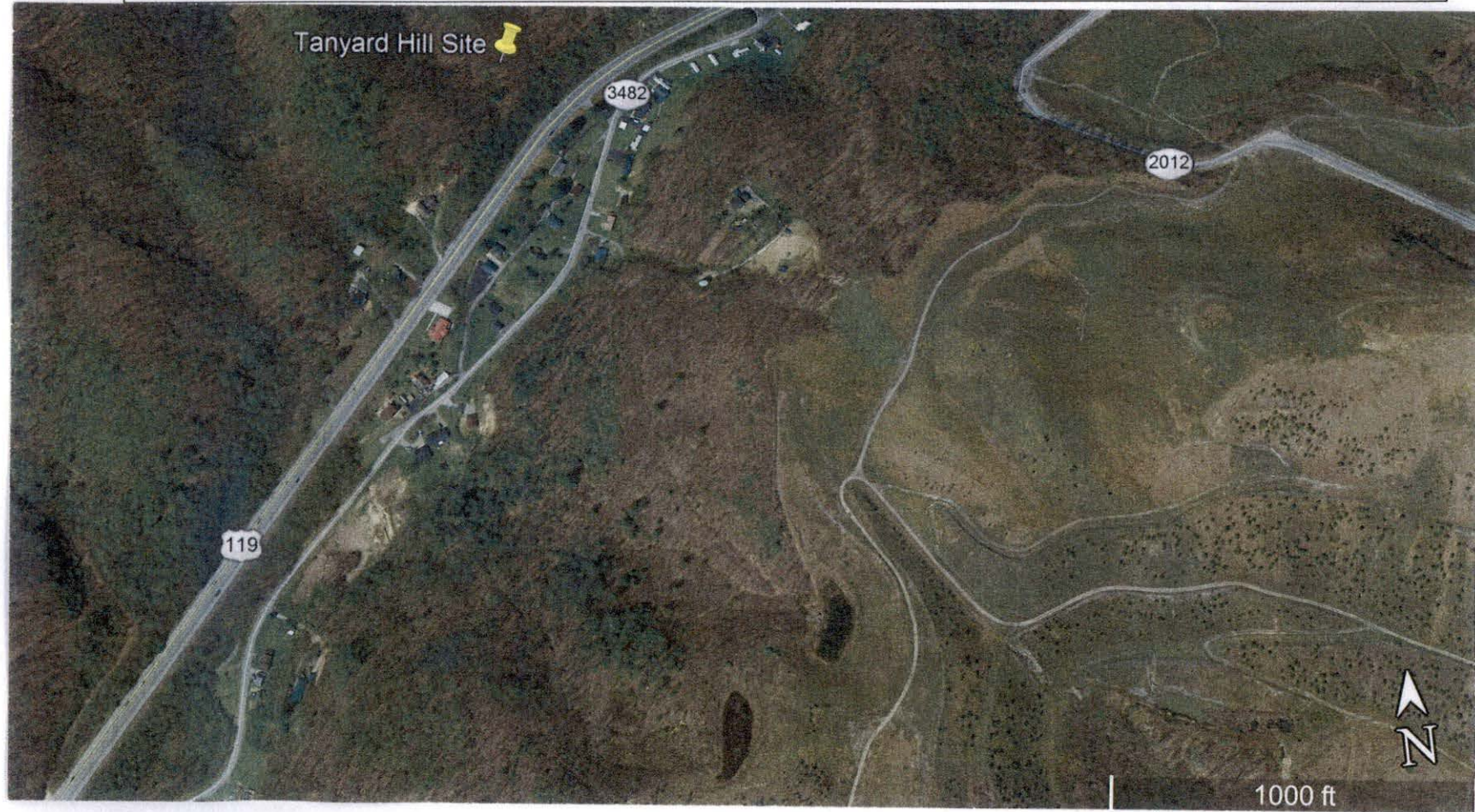
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Sincerely,



Lynn Haney, CPA
Regulatory Compliance Director
Enclosure

Appalachian Wireless Location Map



Site Name

Tanyard HillSite

Location

10277 US Highway 119 Calvin KY.

GPS Location

N 36 46 40.4689

W 83 35 10.9104

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

EAST KENTUCKY
NETWORK



To: The Pineville Sun
Attn: Classifieds

From: Raina Helton
Regulatory Compliance Assistant

Email: advertising@thepinevillesun.com **Date:** August 15, 2017

Re: PUBLIC NOTICE ADVERTISEMENT **Pages:** 1

Please place the following Public Notice Advertisement in The Pineville Sun to be ran on August 17, 2017.

PUBLIC NOTICE:

RE: Public Service Commission of Kentucky (CASE NO. 2017-00262)

Public Notice is hereby given that East Kentucky Network, LLC, dba Appalachian Wireless has applied to the Kentucky Public Service Commission to construct a cellular telecommunications tower on a tract of land located at 10277 US Highway 119, Calvin, Bell County, Kentucky. The proposed tower will be a 300 foot self-supporting tower with attached antennas. If you would like to respond to this notice, please contact the Executive Director, Public Service Commission, 211 Sower Boulevard, PO Box 615, Frankfort, Kentucky 40602. Please refer to Case No. 2017-00262.

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.

VIA: U.S. CERTIFIED MAIL

August 18, 2017

Albey Brock, Judge Executive
P.O. Box 339
Pineville, KY 40977

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00262)

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 Bell County. The facility will include a 300-foot self-supporting tower with attached antennas extending upwards, and an equipment shelter located on a tract of land at 10277 US Highway 119, Calvin, Bell 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 Bell 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. 2017-00262 in your correspondence.

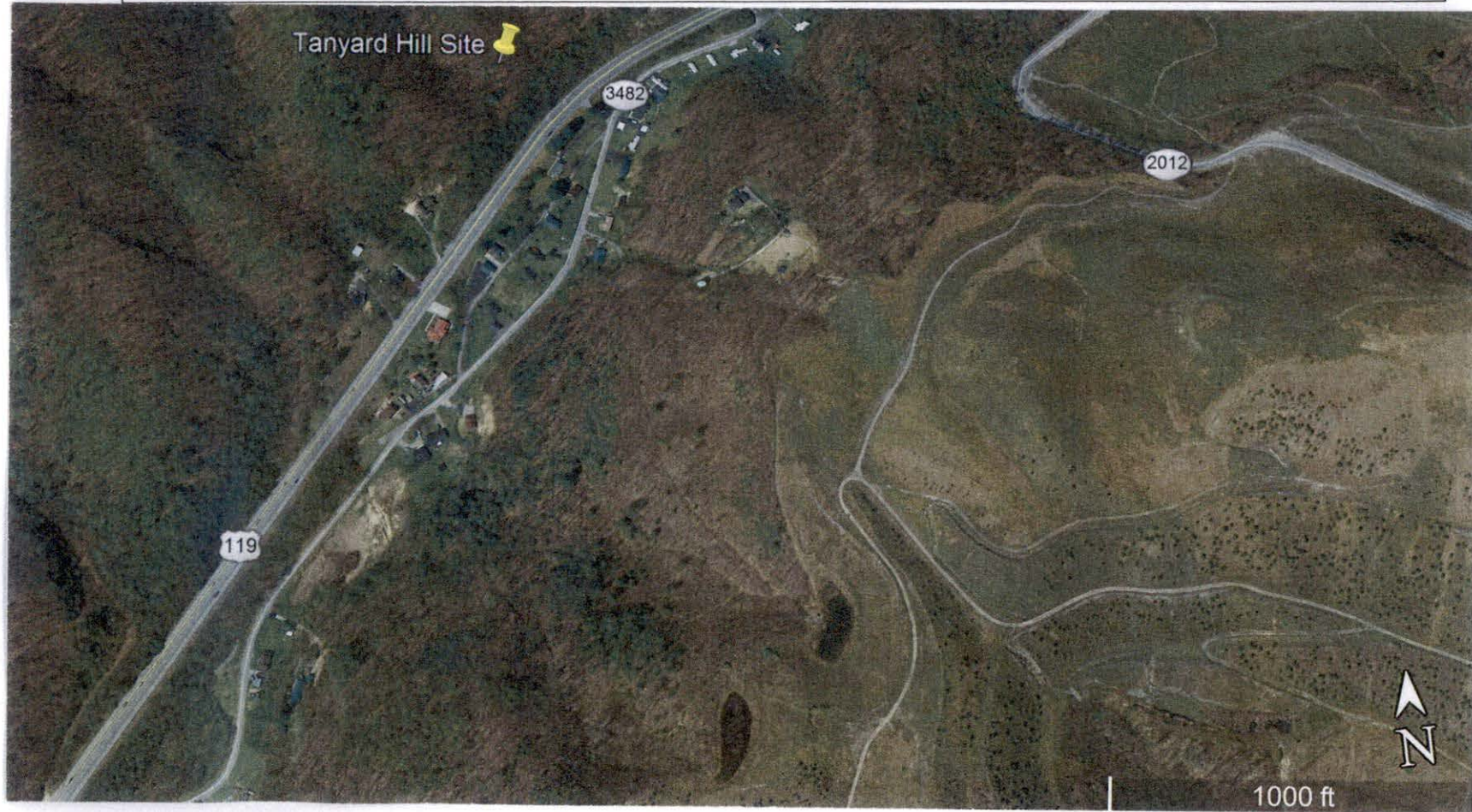
If you have any questions for East Kentucky Network, LLC, please direct them to my attention at the following address: East Kentucky Network, LLC, 101 Technology Trail, Ivel, KY 41642 or call me at 606-477-2355, Ext. 1007.

Sincerely,



Lynn Haney
Regulatory Compliance Director
Enclosure

Appalachian Wireless Location Map



Site Name

Tanyard HillSite

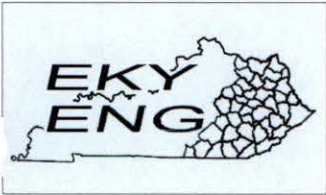
Location

10277 US Highway 119 Calvin KY.

GPS Location

N 36 46 40.4689

W 83 35 10.9104



230 Swartz Drive • Hazard • Kentucky • 41701

Phone (606) 551-1050

EAST KENTUCKY ENGINEERING, LLC.

**APPALACHIAN WIRELESS
Geotechnical Investigation on the
Tanyard Hill Site
Bell County, Kentucky
Project No. 165-000-0039**

prepared for:

Appalachian Wireless
101 Technology Trail
Ivel, Kentucky 41642

Prepared by:

Richard Dirk Smith PE, PLS
President
230 Swartz Drive
Hazard, Kentucky 41701



, 20215, June 22nd, 2017



EAST KENTUCKY ENGINEERING, LLC.

EXECUTIVE SUMMARY

- 1.0 INTRODUCTION**
- 2.0 PROJECT DESCRIPTION**
- 3.0 SITE DESCRIPTION**
 - 3.1 GENERAL INFORMATION
 - 3.2 SURFACE MINING
 - 3.3 UNDERGROUND MINING
- 4.0 FIELD EXPLORATION**
 - 4.1 SITE INFORMATION
 - 4.2 TRENCHING AND SITE DATA
 - 4.3 GROUNDWATER
 - 4.4 SEISMIC SITE CLASSIFICATION
- 5.0 DISCUSSION AND RECOMMENDATIONS**
 - 5.1 GENERAL
 - 5.2 SHALLOW FOUNDATION RECOMMENDATIONS
 - 5.3 BURIED UTILITIES
- 6.0 DISCUSSION AND RECOMMENDATIONS**
 - 6.1 SUBSURFACE INVESTIGATION
 - 6.2 LABORATORY AND FIELD TESTING
 - 6.3 ANALYSIS AND RECOMMENDATIONS
 - 6.4 CONSTRUCTION MONITORING
 - 6.5 GENERAL

SPECIFICATIONS

- I - GENERAL**
- II - ENGINEERED FILL BENEATH STRUCTURES**
- III - GUIDELINES FOR EXCAVATIONS AND TRENCHING**
- IV - GENERAL CONCRETE SPECIFICATIONS**

APPENDIX A - PHOTOGRAPHS

APPENDIX B - SEISMIC DATA

APPENDIX C- MAPS



EAST KENTUCKY ENGINEERING, LLC.

EXECUTIVE SUMMARY

East Kentucky Engineering LLC, (EKYENG) performed a geotechnical investigation on the Tanyard Hill Site, located in Bell County, Kentucky. This site is not readily accessible. Appalachian Wireless, (the client), provided a drawing giving the proposed location, configuration, and elevation of the tower. The estimated base elevation of the proposed tower footer of 1480.0 ft. was taken from this site drawing. A location map is shown in Figure 1 of this report. Trenching and visual inspections were used to determine the lithology and type of materials at the proposed tower site. The following geotechnical considerations were identified:

- This area is forested. The site has minimal previous disturbance. Soils and sandstone were encountered on the site during the trenching. The soils varied from 1.7 feet to 5.0 feet in thickness.
- We are recommending a shallow foundation, with the base of the foundation placed in the sandstone unit at an elevation of approximately 1480.0 ft. **The allowable bearing capacity of this sandstone unit is estimated to be 8 TSF.**
- The 2015 International Building Code seismic site classification for this site is "A."
- Close monitoring of the construction operations discussed herein will be critical in achieving the design subgrade support. We, therefore, recommend that East Kentucky Engineering be retained to monitor this portion of the work.

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



EAST KENTUCKY ENGINEERING, LLC.

1. INTRODUCTION

EKYENG has been retained by Mr. Marty Thacker of Appalachian Wireless to prepare a geotechnical engineering report for the proposed tower site located near the intersection of Highway 3482 and U.S. 119 in Bell County, Kentucky. A site location map is shown in Figure No. 1.

Trenching and test pits were excavated with assistance from Wendell Gay Construction using a track excavator. Visual inspections and surveyed elevations were used to determine the lithology and type of materials immediately below the proposed tower site. A vertical datum was based upon the property pins found with provided mapping. The purpose of these services is to provide information and geotechnical engineering recommendations about subsurface conditions, earthwork, seismic considerations, groundwater conditions and foundation design.

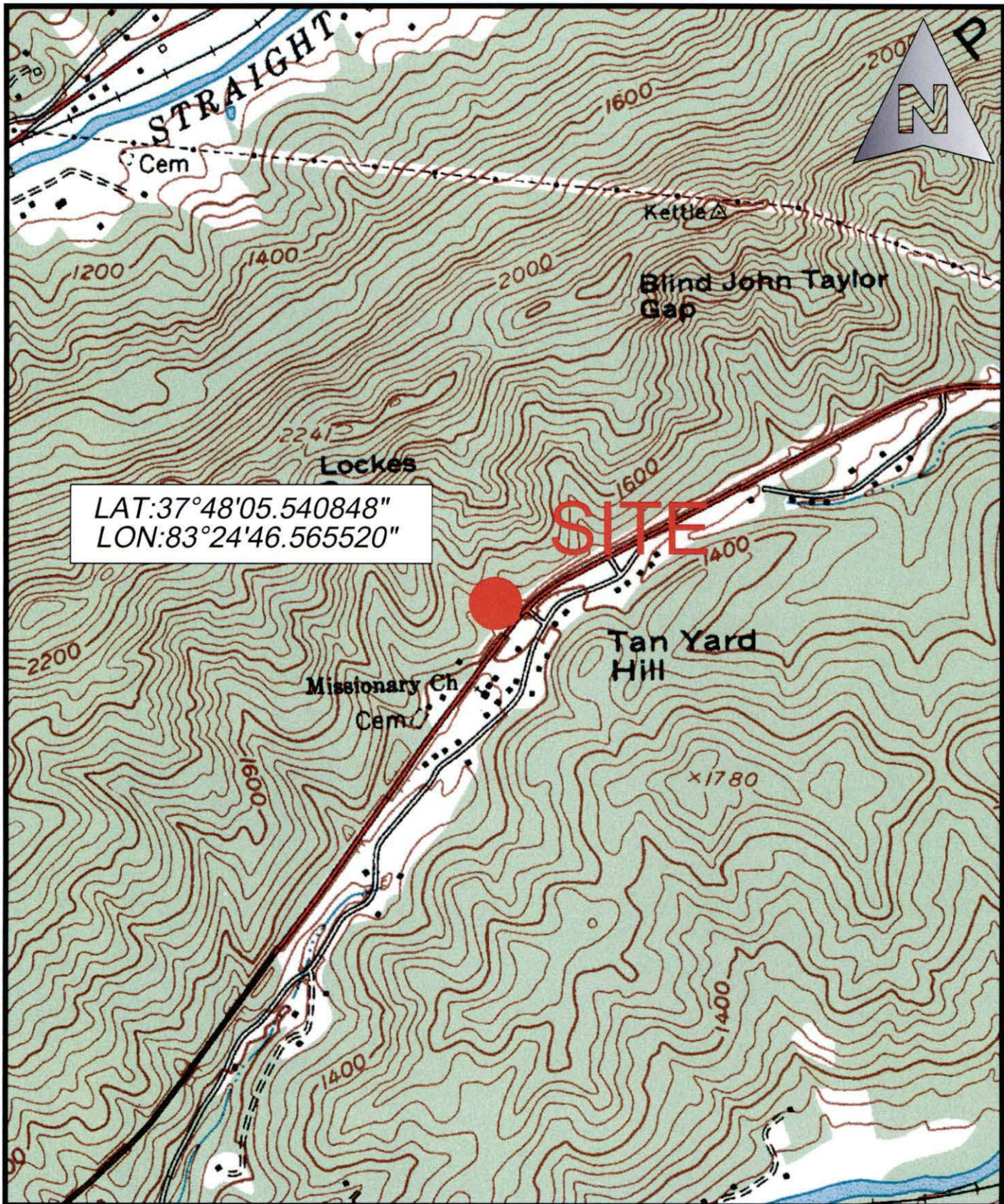
2.0 PROJECT DESCRIPTION

The proposed communication facility will consist of a self-supporting tower of undetermined height and ancillary support areas. Based upon information provided the foundation dimensions are to be approximately 40 ft. x 40ft. We estimate the structural loads will be similar to the following conditions:

TABLE NO. 1

CONDITION	LOAD
Total Shear	40 Kips
Axial Load	50 Kips

It is expected that overturning will govern the structural design. If the loadings are significantly different than these expected values, EKYENG should be notified to re-evaluate the recommendations provided in this report.



LAT:37°48'05.540848"
 LON:83°24'46.565520"

SITE



Drawn: RDS	Date: 6/26/17
Job:165-039	Scale: 1"=1000'

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

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



EAST KENTUCKY ENGINEERING, LLC.

3.0 SITE DESCRIPTION & HISTORICAL MINING

3.1 GENERAL INFORMATION

The site location is on an undisturbed slope in Bell County, Kentucky. The current surface elevation is approximately 1489.5 ft. Research on the historical mining was conducted by reviewing previous mine license maps from the "Kentucky Mine Mapping Information System" (KMMIS). Other sources were also used to try to evaluate historical mining.

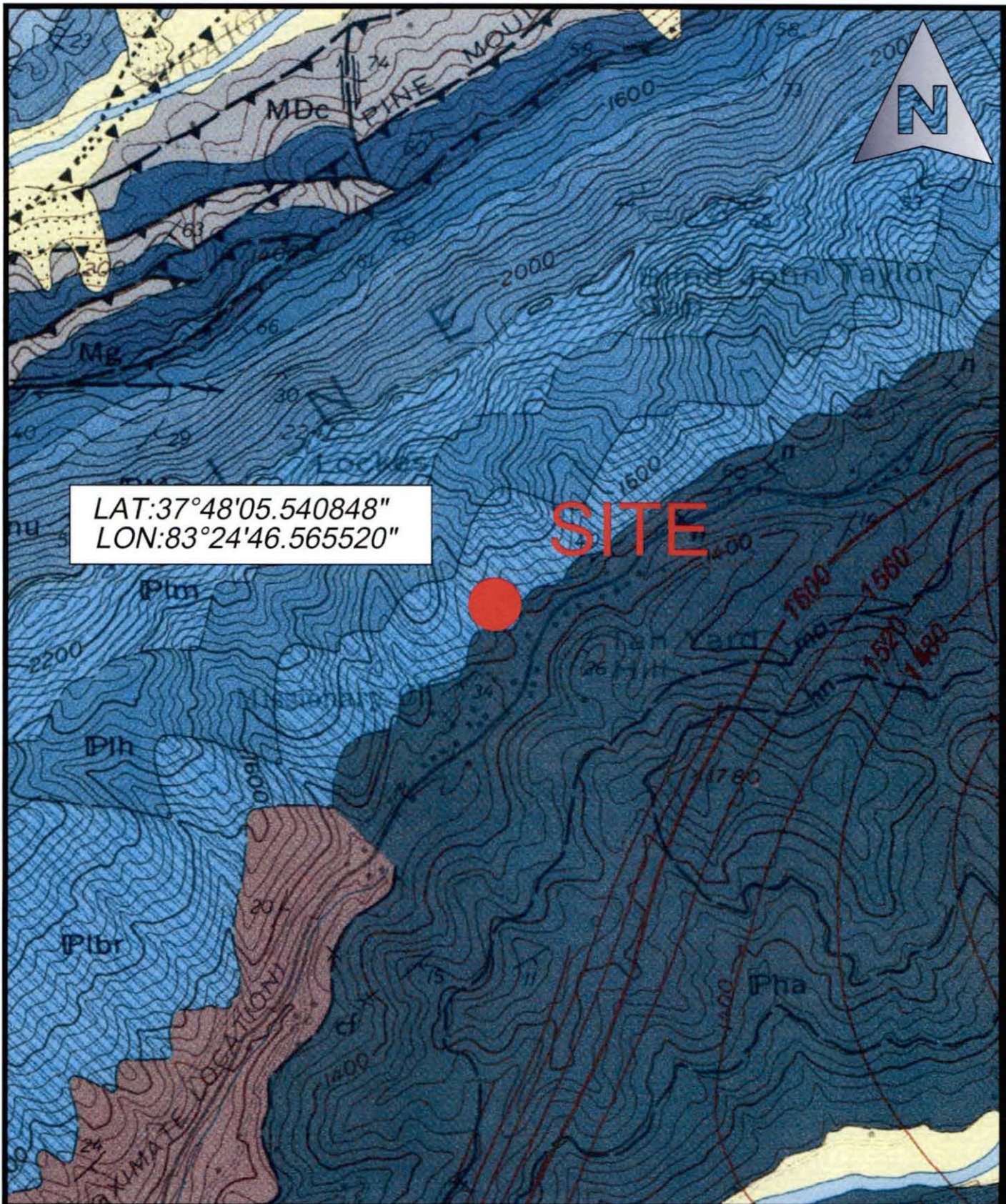
This proposed structure lies south of Pine Mountain within the thrust fault zone on the Bee Rock Sandstone member. The sandstone bedding planes lie approximately 30° up from the horizontal. This proposed tower site excavation areas will be susceptible to rock slope failures an additional measures may be required to provide a stable wall configuration upslope of the tower site.

3.2 SURFACE MINING

Based upon research and mine maps reviewed from Kentucky Mine Mapping Information System (KMMIS), surface mining has been conducted south of the proposed tower site. Historically the Vires and Grassy Coal Seams were minded in this area. The mining found during the research was over 1500 ft. away from the proposed site and no potential adverse impact is expected from surface mining activities.

3.3 UNDERGROUND MINING

Based upon research and mine maps reviewed from Kentucky Mine Mapping Information System (KMMIS), no underground mining has been conducted near or adjacent that would influence this site.



LAT:37°48'05.540848"
 LON:83°24'46.565520"

SITE



Drawn: RDS	Date: 6/26/17
Job:165-039	Scale: 1"=1000

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

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



EAST KENTUCKY ENGINEERING, LLC.

4.0 FIELD EXPLORATION

4.1 SITE INFORMATION

The proposed site is located on an undisturbed slope in Bell County, Kentucky. The site lies within the Balkan Quadrangle and is located West of the intersection of Highway 3482 and U.S. 119. The site is in a wooded area and is not readily accessible by conventional exploratory equipment. An estimated pad location was determined based on the information provided. A survey stake was found on this site for the center of the tower location. Foundation dimensions were estimated to be a 40 ft. x 40 ft. footer for the purpose of this report.

4.2 TRENCHING AND FIELD OBSERVATIONS

This investigation was conducted with assistance from Wendell Gay Construction with a track excavator. Trenching and 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. 2

Depth (Ft.)	Base Elevation (Ft.)	Strata
5.0	1485.0	Top Soils / Clays
50.0	1435.0	Sandstone

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

4.3 GROUNDWATER

Groundwater flow 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 are 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 trenching activities, no groundwater resources were observed.



EAST KENTUCKY ENGINEERING, LLC.

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" Hard Rock" per the 2015 International Building Code. Also, an S_{DS} coefficient of 0.154g was calculated, and an S_{D1} coefficient of 0.056g 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 direction. The proposed base of concrete mat elevation provided is approximately 1480.0 ft. The following recommendations are for the proposed foundation once base pad site elevation is established.

5.2 SHALLOW FOUNDATIONS RECOMMENDATIONS

A shallow mat foundation is recommended once the earthwork to construct the tower site is completed. Below the proposed site pad elevation is a sandstone unit a minimum of 50 ft. thick. We have estimated the bottom of the foundation base to established at an elevation of 1480.0. **The allowable bearing capacity for this sandstone unit is estimated to be eight tsf.**

Due to the dip of the sandstone strata, it is crucial that the slope of the high wall not be cut to a near vertical configuration. The proposed excavation is perpendicular to the dip of the sandstone rock and will be susceptible to slope failure. Rock slope failures are visible within the roadway cuts adjacent to this site.



EAST KENTUCKY ENGINEERING, LLC.

We are recommending that the rock slope is to be excavated at the angle of dip of the rock bedding planes. We recommend that a retaining wall is constructed at the base of the cut to provide sufficient areas to build the tower and provide additional protection from the potential rock slope failures.

During construction, scaling the exposed rock wall face to remove any loose rock will be necessary. If loose rock becomes a problem over time, it may become necessary to apply shotcrete or rock bolting may be required.

It is furthermore recommended that the mat is 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 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 the 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



EAST KENTUCKY ENGINEERING, LLC.

footing element). Special care should be exercised to remove any sloughed, loose or soft materials near the base of the excavation slopes. Also, 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 bearing level. All Federal, State and Local regulations should be strictly adhered to about excavation side-slope geometry.

5.3 BURIED UTILITIES

Excavations for buried utility pipelines should follow the guidelines outlined 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 by generally accepted geotechnical engineering principles and practices. No other warranty, express or implied, is made.

While the services of East Kentucky Engineering 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



EAST KENTUCKY ENGINEERING, LLC.

plans and specifications which we have not prepared, nor the ultimate performance of building site materials.

6.1 SUBSURFACE EXPLORATION

Subsurface exploration is normally accomplished by test borings, although test pits are sometimes employed. The method of determining the boring location and the surface elevation at the boring is noted in the report and is presented in the Boring Location Plan or 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 and trenching logs includes sampling information, description of the materials recovered, approximate depth of boundaries between soil and rock strata and groundwater data. These logs represent conditions specifically at the location and time the evaluation 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 times and under conditions stated on the 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 a given ASTM standard are not always required and performed. Each test report indicates the measurements and determinations actually made.



EAST KENTUCKY ENGINEERING, LLC.

6.3 ANALYSIS AND RECOMMENDATIONS

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

Our engineering report recommendations are based primarily on data from tests made at the locations shown on a site drawing included. Soil variations may exist in adjacent areas and 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



EAST KENTUCKY ENGINEERING, LLC.

personnel at the site. The field inspector/engineer is an important member of a team whose responsibility is to watch and test the work being done and report to the owner whether that work is being carried out in general conformance with the plans and specifications.

6.5 GENERAL

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

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

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



SPECIFICATIONS

I – GENERAL

1.0 STANDARDS AND DEFINITIONS

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

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

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

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

1.2 DEFINITIONS

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

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

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

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

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

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



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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 soil investigations shall have been made. Results of these borings and studies will be made available by the Owner to the Contractor upon his request, but the Owner is not responsible for any interpretations or conclusions with respect thereto made by the Contractor on the basis of such information, and the Owner further has no responsibility for the accuracy of the borings and the soil investigations.

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

3.0 SITE PREPARATION

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



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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.

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

4.0 FORMATION OF FILL AREAS

Fills shall be formed of satisfactory materials placed in successive horizontal layers of not more than eight (8) inches in loose depth for the full width of the cross-section. The depth of lift may be increased if the Contractor can demonstrate the ability to compact a larger lift. If compaction is accomplished using hand-tamping equipment, lifts will be limited to 4-inch loose lifts. Engineered fill placed below the structure bearing elevation shall be compacted to at least 95% of the maximum dry unit weight with a moisture content of 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 earthwork shall be suspended at any time when satisfactory results cannot be obtained because of rain, freezing weather, or other unsatisfactory conditions. The Contractor shall keep the work areas graded to provide the drainage at all times.

The fill material shall be of the proper moisture content before compaction efforts are started. Wetting or drying of the material and manipulation to secure a uniform moisture content throughout the layer shall be required. Should the material be too wet to permit proper compaction or to roll, 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



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constructed in horizontal planes. Original slopes shall be continuous, vertically benched to provide horizontal fill planes. The size of the benches shall be formed so that the base of the bench is horizontal and the back of the bench is vertical. As many benches as are necessary to bring the site to final grade shall be constructed. Filling operations shall begin on the lowest bench, with the fill being placed in horizontal eight (8) inch thick loose lifts unless otherwise authorized. The filling shall progress in this manner until the entire first bench has been filled before any fill is placed on the succeeding benches. Proper drainage shall be maintained at all times during benching and filling of the benches, to insure that all water is drained away from the fill area.

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

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

5.0 SLOPE RATIO AND STORM WATER RUN-OFF

Slopes shall not be greater than 2 (horizontal) to 1 (vertical) in both cut and fill, or as illustrated in the construction drawings. Excavations shall be constructed by all Federal, State and local codes about 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 about 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 about the design characteristics and safety measures for excavations and trenches.

1. Check with the following utilities before 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. Also:
 - 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 a danger of falling debris, spillage or equipment-related injuries.
5. Mobile equipment, operating adjacent to an open excavation or approaching the edge of excavation, must have one of the followings when the operator's view is obstructed:
 - Warning System



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- Mechanical Signals
 - Barricades
 - Stop Logs
 - Hand Signals
6. The contractor must check the atmosphere for hazardous gasses 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 (at all times while performing work in the confined space) a separate life line attached to a harness. The line must be attended by someone above while work is being performed. The worker must check for hazardous atmospheric conditions before entry.
 9. The contractor must ensure that water does not accumulate in open excavations and must inspect the excavation before 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 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.



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14. Workers must not be exposed to fall hazards associated with excavations. Protective walkways or bridges with standard guardrails 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, the 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 from now on 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 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 before 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 a 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 an 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.



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1. Fine Aggregate: Sand shall be composed essentially of clean, hard, strong, durable grains free of structurally weak grains, organic matter, loam, clay, silt, salt, mica or other fine materials that may affect bonding of the cement paste.
 2. Coarse Aggregate: Cement concrete shall consist of crushed rock or screened gravel and shall be composed essentially of clean, hard, strong and impermeable particles, resistant to wear and frost and free from deleterious amounts of organic matter, loam, clay, salts, mica, and soft, thin, elongated, laminated or disintegrated stone, and shall be inert to water and cement.
- B. Portland Cement: Portland cement shall conform to ASTM Specification C150. Type I or Type II Portland Cement shall be used provided that they are not intermixed during any one batch. Type II Portland Cement shall not be used unless indicated on the plans.
- C. Water: Water for mixing and curing shall be clean, fresh, and free from deleterious materials.
- D. Metal Reinforcement: Rebar shall be Grade 60 and with deformations conforming to ASTM 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 before 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



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items with other contractors who require a fastening device for their work, and he shall maintain them in proper location during the progress of his work.

6.0 REINFORCEMENT

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

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

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

7.0 CONCRETE

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

8.0 DEPOSITING CONCRETE

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

1. Remove from space to be occupied by concrete all debris, including snow, ice, and water unless otherwise permitted by Owner.
2. Provide diversion, satisfactory to Owner, of any flow of water to an excavation so as to avoid washing the freshly deposited concrete.
3. Coat the forms before placing of reinforcing steel as required in form work.



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4. Secure firmly in correct position, all reinforcement, and other items to be encased and remove there from all coating including ice and frost.
- B. Transportation of Concrete from Batch Plant: The concrete shall be delivered to the site of the work and discharge shall be completed within 90 minutes after addition of the cement and water to the aggregates. Each batch of concrete delivered at the job site shall be accompanied by a time slip issued at the batching plant, bearing the time of charging of the mixer drum with the cement and aggregates.
- C. Transporting of Concrete from Mixer to Place of Final Deposit: Transportation shall be done as rapidly as practical by means which shall prevent the separation or loss of the ingredients. If chutes are used, they shall be at a slope not flatter than one vertical to two horizontal. Buggies or carts shall be equipped with pneumatic rubber tires or surfaces of runways shall be sufficiently smooth or both so as not to cause separation or segregation of concrete ingredients. Concrete shall not be allowed to drop more than 4 feet freely. Where greater drops are required, canvas "elephant trunks" or galvanized iron chutes equipped with suitable hopper heads shall be employed and a sufficient number placed to insure that the concrete may be effectively compacted into horizontal layers not exceeding 12 inches in thickness with minimum lateral movements.
- D. Depositing of Concrete: Depositing of concrete shall:
1. Proceed continuously after once starting until reaching the end of a section of construction joint location shown in 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 the formation of seams and planes of weakness.
 2. Be as near as practical to its final position in the forms.
 3. Proceed so as to maintain constantly a top surface which is approximately level.
 4. Be placed before an initial set has occurred, and in no event after it has contained its water content for more than 90 minutes.



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5. Be thoroughly worked and compacted using suitable tools to provide impermeability, durability, and strength and shall be thoroughly worked around reinforcements and embedded items and into corners of forms and so as to be free from voids, pockets or honeycombing. Particular care shall be taken to provide impermeability.
- E. Vibration Equipment: Vibration equipment shall be of the appropriate type and shall, at all times, be adequate in a 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 monolithic 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.



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APPENDIX A PHOTOGRAPHS



Trench At Site



Site Before Trenching



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APPENDIX B SEISMIC

USGS Design Maps Summary Report

User-Specified Input

Report Title Tanyard Tower Site
Sun May 21, 2017 16:31:20 UTC

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

Site Coordinates 36.7779°N, 83.5864°W

Site Soil Classification Site Class A - "Hard Rock"

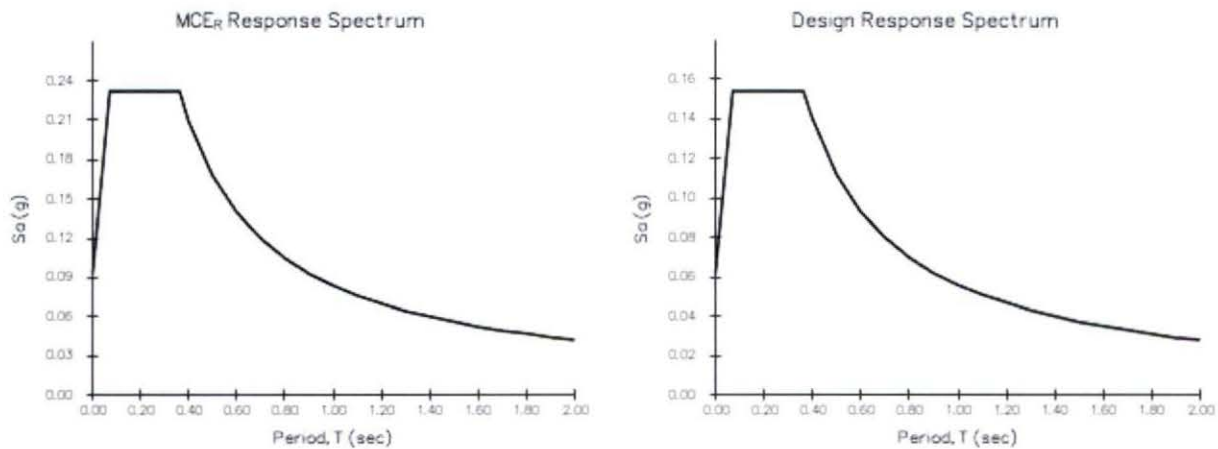
Risk Category IV (e.g. essential facilities)



USGS-Provided Output

$S_s = 0.290 \text{ g}$	$S_{MS} = 0.232 \text{ g}$	$S_{DS} = 0.154 \text{ g}$
$S_1 = 0.105 \text{ g}$	$S_{M1} = 0.084 \text{ g}$	$S_{D1} = 0.056 \text{ g}$

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

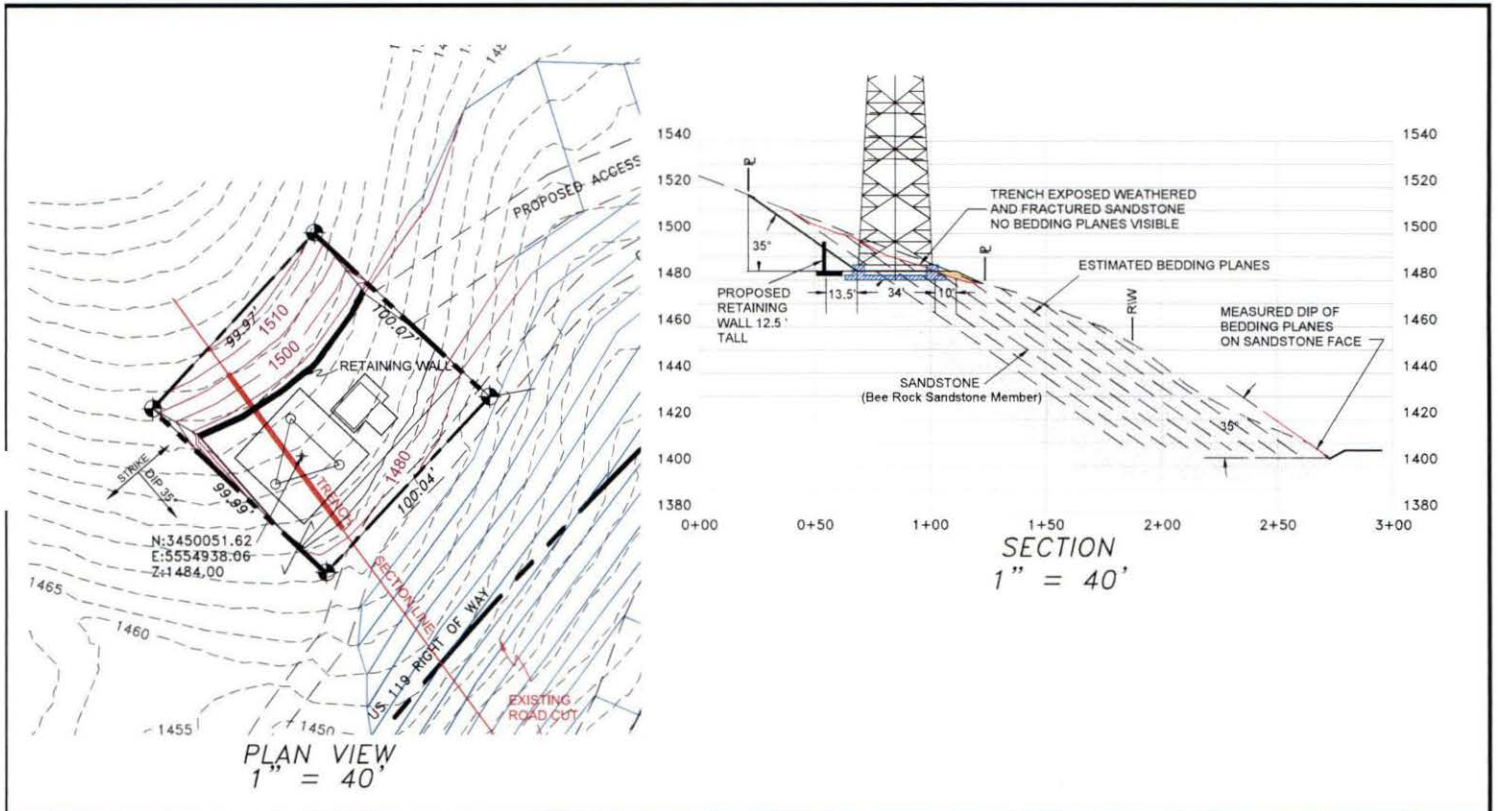


Although this information is a product of the U.S. Geological Survey, we provide no warranty, expressed or implied, as to the accuracy of the data contained therein. This tool is not a substitute for technical subject-matter knowledge.



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APPENDIX C MAPS



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

0' 40' 80'	
Drawn by: RDS	Date: 8/22/2017
Job #: 165-0039	Scale: NOTED
File Location:	



APPALACHIAN
 WIRELESS
 TANYARD HILL TOWER SITE
 BELL COUNTY KENTUCKY

MEMBER INFORMATION

SECTION	ELEVATION	FACE SIZE	LEG DIA.	DIAGONALS	HORIZONTALS	RED. HORZ/DIAGS.	INNER BRACING	GIRTS	# OF BAYS
1	0' - 20'	23'-6"	Ø4 3/4"	2L 3" x 3/16"	2L 2 1/2" x 3/16"	2L 2" x 3/16"	2L 2" x 3/16"	N/A	4 - MOD X
2	20' - 40'	22'-0"	Ø4 3/4"	2L 3" x 3/16"	2L 2 1/2" x 3/16"	2L 2" x 3/16"	2L 2" x 3/16"	N/A	4 - MOD X
3	40' - 60'	20'-6"	Ø4 3/4"	L 4" x 1/4"	N/A	N/A	N/A	N/A	3 - X
4	60' - 80'	19'-0"	Ø4 1/2"	L 3 1/2" x 1/4"	N/A	N/A	N/A	N/A	3 - X
5	80' - 100'	17'-6"	Ø4 1/2"	L 3 1/2" x 1/4"	N/A	N/A	N/A	N/A	3 - X
6	100' - 120'	16'-0"	Ø4 1/4"	L 3" x 1/4"	N/A	N/A	N/A	N/A	3 - X
7	120' - 140'	14'-6"	Ø4 1/4"	L 3" x 3/16"	N/A	N/A	N/A	N/A	3 - X
8	140' - 160'	13'-0"	Ø4"	L 3" x 3/16"	N/A	N/A	N/A	N/A	3 - X
9	160' - 180'	11'-6"	Ø3 3/4"	L 3" x 3/16"	N/A	N/A	N/A	N/A	3 - X
10	180' - 200'	10'-0"	Ø3 1/4"	L 2 1/2" x 3/16"	N/A	N/A	N/A	N/A	4 - X
11	200' - 220'	8'-6"	Ø3 1/4"	L 2" x 1/8"	N/A	N/A	N/A	N/A	4 - X
12	220' - 240'	7'-0"	Ø3"	L 2" x 1/8"	N/A	N/A	N/A	N/A	4 - X
13	240' - 260'	5'-6"	Ø2 3/4"	L 1 3/4" x 1/8"	N/A	N/A	N/A	N/A	4 - X
14	260' - 280'	4'-0"	Ø2 1/2"	L 1 3/4" x 1/8"	N/A	N/A	N/A	N/A	4 - X
15	280' - 300'	4'-0"	Ø1 3/4"	L 1 1/2" x 1/8"	N/A	N/A	N/A	L 1 1/2" x 3/16"	4 - X

ANTENNA INFORMATION

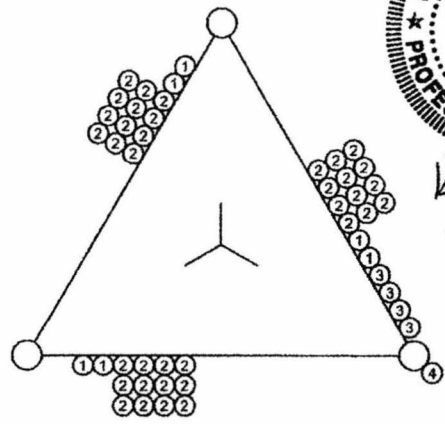
ELEVATION	ANTENNA	LINE
300'	(6)WPA-800102/4CF (3)BXA-70063/6CF (3)ERICSSON-RRUS11	(6) 1 5/8" HELIAX + (1) 7/8" HYBRID
290'	(6)WPA-800102/4CF (3)BXA-70063/6CF (3)ERICSSON-RRUS11	(6) 1 5/8" HELIAX + (1) 7/8" HYBRID
280'	(6)WPA-800102/4CF (3)BXA-70063/6CF (3)ERICSSON-RRUS11	(6) 1 5/8" HELIAX + (1) 7/8" HYBRID
270'	(6)WPA-800102/4CF (3)BXA-70063/6CF (3)ERICSSON-RRUS11	(6) 1 5/8" HELIAX + (1) 7/8" HYBRID
250'	(2) 8' STD. DISH W/ RADOME	(2) EW65
200'	(6)WPA-800102/4CF (3)BXA-70063/6CF (3)ERICSSON-RRUS11	(6) 1 5/8" HELIAX + (1) 7/8" HYBRID
190'	(6)WPA-800102/4CF (3)BXA-70063/6CF (3)ERICSSON-RRUS11	(6) 1 5/8" HELIAX + (1) 7/8" HYBRID
185'	(2) 6' STD. DISH W/ RADOME	(2) EW65

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 ON ONE LEGS FOR CLIMBING WITH SAFETY CLIMB DEVICE.
- 7) (6) #1 3/4" x 5'-6" LONG (F1554-GR-105) ANCHOR BOLTS PER LEGS.
- 8) THIS TOWER IS DESIGNED FOR A 50 M.P.H. WIND SPEED WITH NO ICE AND A 30 M.P.H. WIND SPEED WITH 0.75" 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.
- 11) WIND SHEAR IS GREATER THAN SEISMIC SHEAR AT THE BASE OF THE TOWER, THEREFORE WIND LOAD GOVERNS THE DESIGN OF THE TOWER.



Keith M. Eaton
8-15-2017



PLAN VIEW

- PLAN VIEW REF:
- 1) 7/8" HYBRID
 - 2) 1 5/8" HELIAX
 - 3) EW65
 - 4) STEP BOLTS

BASE REACTIONS:(FACTORED)

TOTAL SHEAR = 75 KIPS
 AXIAL LOAD = 225 KIPS
 UPLIFT / LEG = 535 KIPS
 COMP. / LEG = 629 KIPS
 O.T. MOMENT = 12160 FT-K

APPROX. WEIGHT
62.49 KIPS

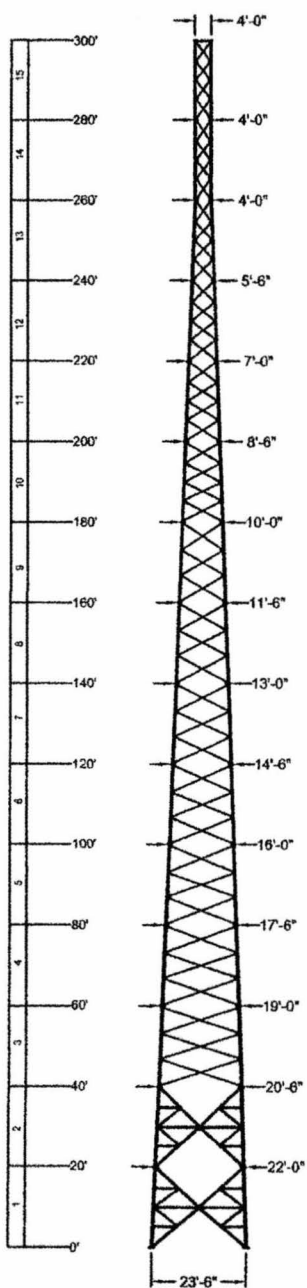
PROPRIETARY STATEMENT: THIS DRAWING IS THE PROPERTY OF ALLSTATE TOWER INC. IT IS NOT TO BE REPRODUCED OR COPIED IN ANYWAY WITHOUT PRIOR WRITTEN CONSENT OF ALLSTATE TOWER INC.

REV.#	DESCRIPTION	DATE	BY	UNLESS OTHERWISE NOTED DIMENSIONS ARE IN:
				INCHES
				TOLERANCE BANDS:
				X +.002/0 ANGLES +/- 2"
				XX +.002/0
				XXX +.01/0 HOLES +.01/16/0
DRAWN BY: RC				DATE: 8/10/2017
SCALE: NTS				

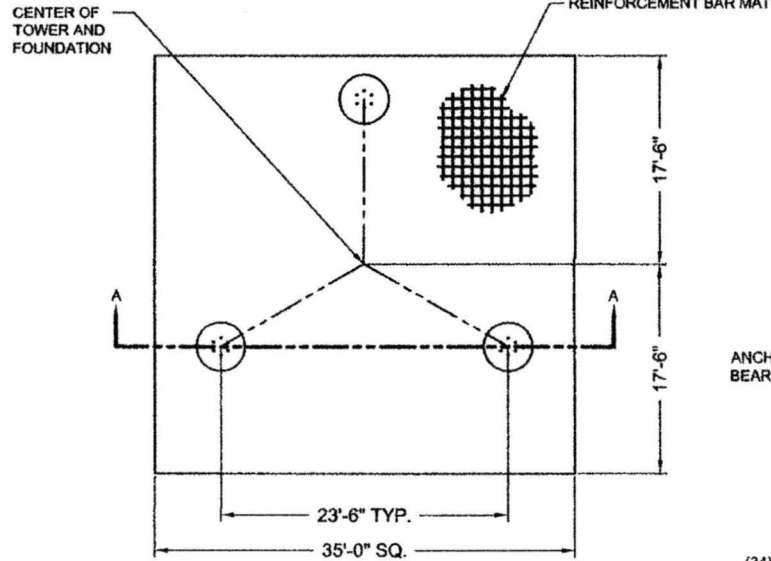
ALLSTATE TOWER

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

DESCRIPTION: TOWER OVERVIEW APPALACHIAN WIRELESS 300' SELF SUPPORT TOWER TANYARD HILL, BELL CO., KY	FILE NAME: 65435FT - A	SHEET A
---	---------------------------	-------------------

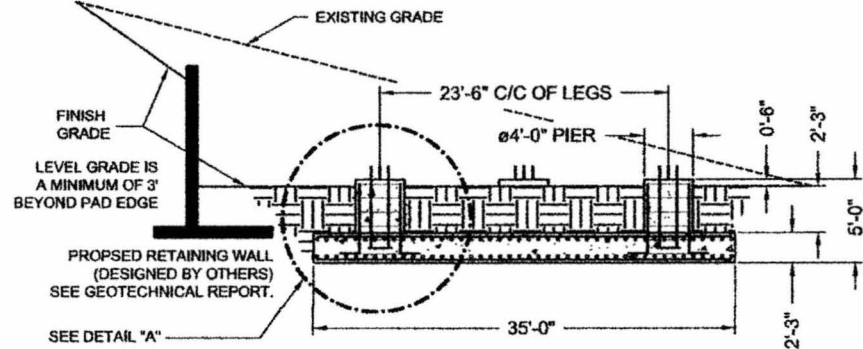


BASE REACTIONS:(FACTORED)
 TOTAL SHEAR = 75 KIPS
 AXIAL LOAD = 225 KIPS
 UPLIFT / LEG = 535 KIPS
 COMP. / LEG = 629 KIPS
 O.T. MOMENT = 12160 FT-K



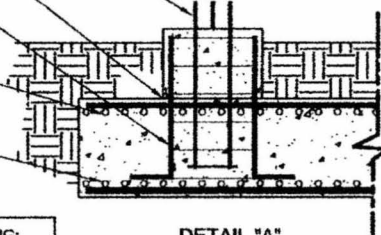
PLAN VIEW

TOTAL VOLUME OF CONCRETE = 105.9 YD³



SECTION A-A

- (6) ϕ 1 3/4" X 5'-6" OVERALL LENGTH ANCHOR BOLTS (F1554-GR105) W/ 1" THK BEARING PLATE AT THE BOTTOM OF THE ANCHOR BOLT CLUSTER (4'-6" MIN. ANCHOR BOLT EMBEDMENT).
- USE EPOXY BONDING AGENT WHEN POURED SEPERATELY
- (24) #9 VERTICAL BARS w/ 6" HOOK WITH (3) #4 TIES EQUALLY SPACED
- (34) #6 HORIZONTAL BARS x 34'-6" LONG SPACED 12" O.C. EACH WAY AT TOP OF MAT. (TOTAL=88)
- (46) #9 HORIZONTAL BARS x 34'-6" LONG SPACED 9" O.C. EACH WAY AT BOTTOM OF MAT. (TOTAL=92)



DETAIL "A"

REINFORCEMENT BAR SPLICING:

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

REINFORCING BAR SIZE	LAP SPlice LENGTH
3	15"
4	17"
5	21"
6	26"
7	30"
8	36"
9	46"
10	58"
11	71"



Keith M. Eaton
8-15-2017

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/AIA/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 6-22-2017; PROJECT NO. 165-000-0039. 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 REINFORCEMENT 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.

ALLSTATE TOWER

ALL STATE TOWER INC.
P.O. BOX 24
HENDERSON, KY 42419
PHONE: (270) 830-8476
FAX: (270) 830-8476
WWW.PTTTELCO.COM

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

UNLESS OTHERWISE NOTED DIMENSIONS ARE IN INCHES	DESCRIPTION
TOLERANCE BANDS: X +3/32" / -0 ANGLE ± .2" XX +3/32" / -0 XXX +1/16" / -0 HOLES ± .015" / -0	PAD & PIER FOUNDATION DESIGN APPALACHIAN WIRELESS 300' SELF SUPPORT TOWER TANYARD HILL, BELL CO., KY
SCALE: NTS	FILE NAME: 65435FT - B
DATE: 8/10/2017	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-5990-OE

Issued Date: 06/21/2017

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: Antenna Tower Miracle (Tan Yard Hill)
 Location: Miracle, KY
 Latitude: 36-46-40.46N NAD 83
 Longitude: 83-35-10.91W
 Heights: 1491 feet site elevation (SE)
 310 feet above ground level (AGL)
 1801 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, 24-hr med-strobes - Chapters 4,6(MIWOL),&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)

This determination expires on 12/21/2018 unless:

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

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

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

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

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

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

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

If we can be of further assistance, please contact our office at (847) 294-7575, or vivian.vilaro@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2017-ASO-5990-OE.

Signature Control No: 325745994-335900904

(DNE)

Vivian Vilaro
Specialist

Attachment(s)
Frequency Data
Map(s)

cc: FCC

Frequency Data for ASN 2017-ASO-5990-OE

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

TOPO Map for ASN 2017-ASO-5990-OE





KENTUCKY AIRPORT ZONING COMMISSION

MATTHEW BEVIN
Governor

421 Buttermilk Pike
Covington, KY 41017
www.transportation.ky.gov
502-341-2700

June 21, 2017

APPROVAL OF APPLICATION

APPLICANT:

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

SUBJECT: AS-007-135-2017-025

STRUCTURE: Antenna Tower
LOCATION: Miracle, KY
COORDINATES: 36° 46' 40.46" N / 83° 35' 10.91" W
HEIGHT: 310' AGL/1801' AMSL

The Kentucky Airport Zoning Commission has approved your application for a permit to construct 310' AGL/ 1801' AMSL Antenna Tower near Miracle, KY 36° 46' 40.46" N / 83° 35' 10.91" W.

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

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

Medium Intensity White Obstruction Lighting is required in accordance with 602 KAR 50:100



John Houlihan
Administrator



An Equal Opportunity Employer M/F/D



KENTUCKY AIRPORT ZONING COMMISSION

MATTHEW BEVIN
Governor

421 Buttermilk Pike
Covington, KY 41017
www.transportation.ky.gov
502-341-2700

CONSTRUCTION/ALTERATION STATUS REPORT

June 21, 2017

AERONAUTICAL STUDY NUMBER: AS-007-135-2017-025

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

This concerns the permit which was issued to you by the Kentucky Airport Zoning Commission on June 21, 2017. This permit is valid for a period of 18 Month(s) from its date of issuance. If construction is not completed within the said 18-Month period, this permit shall lapse and be void, and no work shall be performed without the issuance of a new permit. When appropriate, please indicate the status of the project in the place below and return this letter to John Houlihan, Administrator, Kentucky Airport Zoning Commission, 421 Buttermilk Pike, Covington, KY, 41017. 502-341-2700.

STRUCTURE: Antenna Tower
LOCATION: Miracle, KY
COORDINATES: 36° 46' 40.46" N / 83° 35' 10.91" W
HEIGHT: 310' AGL / 1801' AMSL

CONSTRUCTION/ALTERATION STATUS

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

2. Construction status is as follows:

Structure reached its greatest height of _____ ft. AGL
_____ ft. AMSL on _____ (date).

Date construction was completed. _____

Type of obstruction marking/painting. _____

Type of obstruction lighting. _____

As built coordinates. _____

Miscellaneous Information. _____

DATE _____

SIGNATURE/TITLE _____



An Equal Opportunity Employer M/F/D

2017-025



KENTUCKY TRANSPORTATION CABINET
KENTUCKY AIRPORT ZONING COMMISSION

TC 56-50
Rev. 07/2010
Page 2 of 2

APPLICATION FOR PERMIT TO CONSTRUCT OR ALTER A STRUCTURE

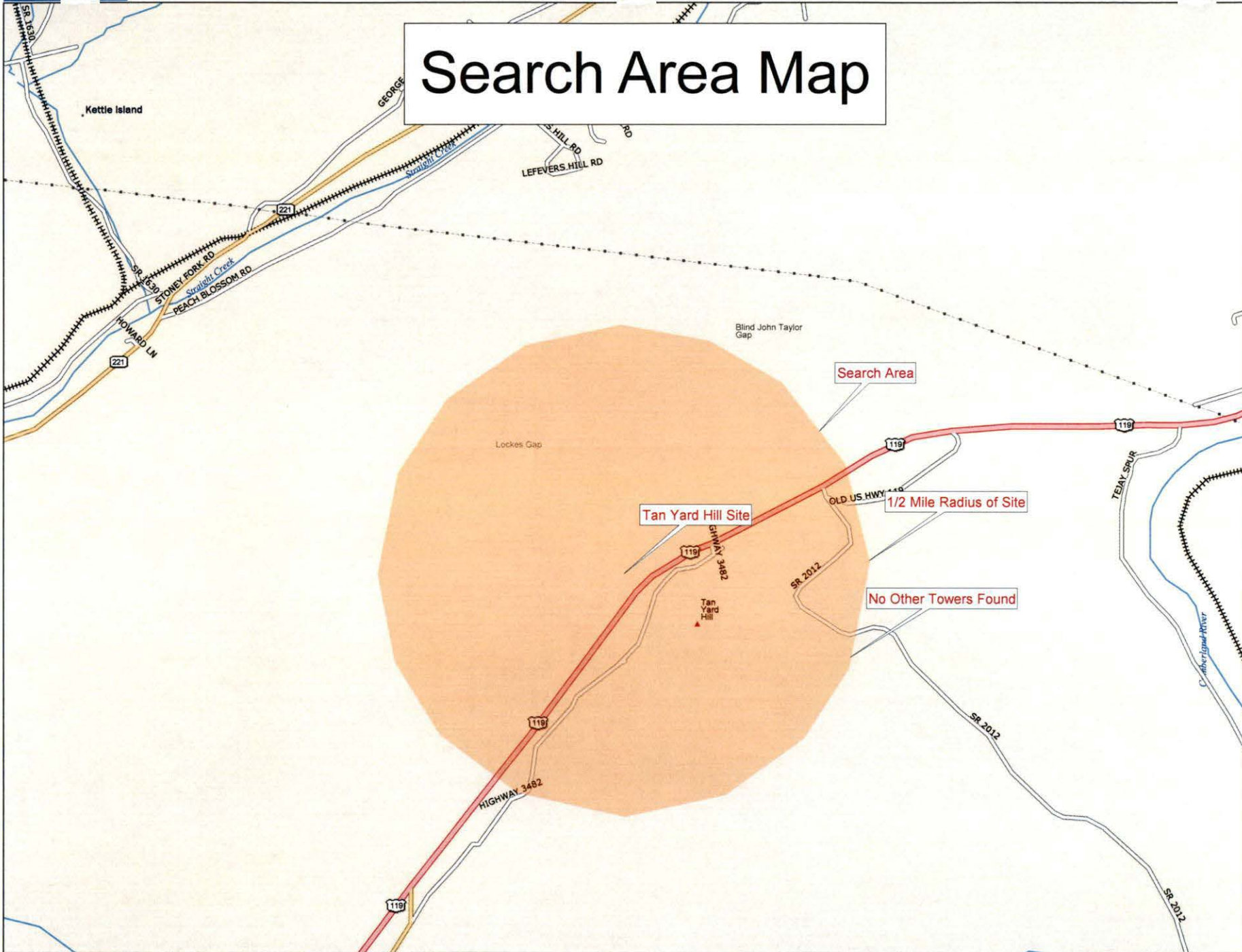
APPLICANT (name) East Kentucky Network, LLC c/o LLGS		PHONE 703-584-8667	FAX 703-584-8692	KY AERONAUTICAL STUDY # AJ-007-135-2017-025
ADDRESS (street) 8300 Greensboro Dr, #1200		CITY Tysons		STATE VA ZIP 22102
APPLICANT'S REPRESENTATIVE (name) Ali Kuzehkanani		PHONE 703-584-8667	FAX 703-584-8692	
ADDRESS (street) 8300 Greensboro Dr, #1200		CITY Tysons		STATE VA ZIP 22102
APPLICATION FOR <input checked="" type="checkbox"/> New Construction <input type="checkbox"/> Alteration <input type="checkbox"/> Existing				WORK SCHEDULE
DURATION <input type="checkbox"/> Permanent <input type="checkbox"/> Temporary (months days)				Start 04/15/17 End 04/20/17
TYPE <input type="checkbox"/> Crane <input type="checkbox"/> Building		MARKING/PAINTING/LIGHTING PREFERRED		
<input checked="" type="checkbox"/> Antenna Tower		<input type="checkbox"/> Red Lights & Paint <input checked="" type="checkbox"/> White- medium intensity <input type="checkbox"/> White- high intensity		
<input type="checkbox"/> Power Line <input type="checkbox"/> Water Tank		<input type="checkbox"/> Dual- red & medium intensity white <input type="checkbox"/> Dual- red & high intensity white		
<input type="checkbox"/> Landfill <input type="checkbox"/> Other		<input type="checkbox"/> Other		
LATITUDE 36°46'40.46"		LONGITUDE 83°35'10.91"		DATUM <input checked="" type="checkbox"/> NAD83 <input type="checkbox"/> NAD27 <input type="checkbox"/> Other
NEAREST KENTUCKY City Miracle County Bell ✓		NEAREST KENTUCKY PUBLIC USE OR MILITARY AIRPORT Tucker-Guthrie Memorial Airport		
SITE ELEVATION (AMSL, feet) 1491		TOTAL STRUCTURE HEIGHT (AGL, feet) 310		CURRENT (FAA aeronautical study #)
OVERALL HEIGHT (site elevation plus total structure height, feet) 1801				PREVIOUS (FAA aeronautical study #)
DISTANCE (from nearest Kentucky public use or Military airport to structure) 13.8 mi				PREVIOUS (KY aeronautical study #)
DIRECTION (from nearest Kentucky public use or Military airport to structure) ENE				
DESCRIPTION OF LOCATION (Attach USGS 7.5 minute quadrangle map or an airport layout drawing with the precise site marked and any certified survey.) Tan Yard Hill, approx. 1.1 miles NW of Miracle (Bell), KY				
DESCRIPTION OF PROPOSAL A new 300' tower with top-mounted antennas (overall height of 310' AGL)				
FAA Form 7460-1 (Has the "Notice of Construction or Alteration" been filed with the Federal Aviation Administration?) <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes, when? 03/16/17				
CERTIFICATION (I hereby certify that all the above entries, made by me, are true, complete, and correct to the best of my knowledge and belief.)				
PENALTIES (Persons failing to comply with KRS 183.861 to 183.990 and 602 KAR 050 are liable for fines and/or imprisonment as set forth in KRS 183.990(3). Noncompliance with FAA regulations may result in further penalties.)				
NAME Ali Kuzehkanani	TITLE Dir of Engineering	SIGNATURE 		DATE 03/16/17
COMMISSION ACTION				
<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved				
SIGNATURE 			DATE 6-21-17	

Driving Directions for Tanyard Hill

Beginning in front of the Courthouse in Pineville, Bell County, Kentucky on the corner of Kentucky Ave. and Pine Street go .1 miles and turn right onto 25E. Go 1 mile to the intersection of 25E and 119, and turn left. Go 10.1 miles (signs will be posted). Drive .1 mile, and you will arrive at the site (sign will be posted).

Prepared By:
Daryl Bartley
Appalachian Wireless
(606) 791-0310

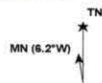
Search Area Map



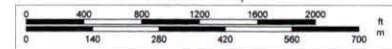
Data use subject to license.

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www.delorme.com



Scale 1 : 16,000



1" = 1,333.3 ft Data Zoom 14-0

MEMORANDUM OF LEASE

THIS MEMORANDUM OF LEASE is made and entered into on this 21st day of February, 2017, with a commencement date of March 1st, 2017, by and between **DONALD G. ENGLE** and **SHARON K. ENGLE**, husband and wife, with a mailing address of 2032 Balkan Road, Pineville, Kentucky 40977, hereinafter referred to as "**Lessors**", and **EAST KENTUCKY NETWORK, LLC D/B/A APPALACHIAN WIRELESS**, a Kentucky limited liability company, with a mailing address of 101 Technology Trail, Ivel, Kentucky, 41642, hereinafter referred to as "**Lessee**."

WITNESSETH

1. **Demised Premises.** For good and valuable consideration, Lessors leased to Lessee, and Lessee has leased from Lessors that certain tract of real estate located in Bell County, Kentucky, and being a portion of the same land conveyed to Pauline Howard Engle, by Deed dated February 25, 1980, and recorded on February 29, 1980, in Deed Book 228, Page 778, in the Bell County Clerk's Office. Said property is now owned by Lessors, pursuant to the following instruments, all of record in the Bell County Clerk's Office: Deed Book 306, Page 717; Will Book 15, Page 812; and Deed Book 369, Page 596. Said property is more particularly described in the description attached hereto and made a part hereof as **Exhibit A** and the plat attached hereto and made a part hereof as **Exhibit B**, prepared by James W. Caudill, Licensed Professional Land Surveyor (hereinafter referred to as the "**Premises**"). The Lessors have also granted unto Lessee full and complete rights of ingress, egress and regress to and from the Premises over any property owned by Lessors and other associated rights for installation of utilities and for maintenance.

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

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

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

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

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

LESSORS:

Donald G. Engle
DONALD G. ENGLE

Sharon K. Engle
SHARON K. ENGLE

STATE OF KENTUCKY,
COUNTY OF Bell, TO WIT;

The foregoing instrument was acknowledged before me on this 21st day of February, 2017, by DONALD G. ENGLE and SHARON K. ENGLE, Lessors.

Aina J. Helton
Notary Public

My Commission Expires Feb 6, 2020



LESSEE:

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

W.A. Gillum

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

STATE OF KENTUCKY,
COUNTY OF Floyd, TO WIT;

The foregoing instrument was acknowledged before me on this 22nd day of February, 2017, by W.A. Gillum, CEO/General Manager of **EAST KENTUCKY NETWORK, LLC D/B/A APPALACHIAN WIRELESS**, Lessee.

Raenee D. Helton
Notary Public

My Commission Expires Feb 6, 2020



This instrument was prepared by:

Cindy D. McCarty

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

LOT DESCRIPTION

Property of
Christopher F. Douglas Trustee
Donald G Engle & Sharon K. Engle
2032 Balkan Road
Pineville, KY 40977

Off highway 119 on Tan Yard Hill in Bell Co of KY
February 14, 2017



A portion of a certain tract of land on the north side of Highway 119 on Tan Yard Hill in Bell County, Kentucky. Being a part the same property conveyed to Christopher F. Douglas, Trustee and Donald G Engle and Sharon K. Engle, husband and wife, by deed dated April 28, 2016 and of record in Deed Book 369, page 596, in the Office of the Bell County Clerk.

Lot 1A

Beginning on a set iron pin with cap marked LS2259 at 24" oak with old wire fence and being a corner to the property of Charles Wilson (Deed Book 207 page 923); thence leaving the fence and severing the property of Christopher F. Douglas, Trustee and Donald G. and Sharon K. Engle (Deed Book 369 Page 596) by running around the hill side North 43 deg 03 min 01 sec East, 99.97 feet to a set iron pin with cap marked LS2259 on hillside; thence running down the hill South 46 deg 59 min 46 sec East, 100.07 feet to a set iron pin with metal cap marked ls2259 in old logging road; thence running around the hill with the old logging road South 43 deg 05 min 46 sec West, 100.04 feet to a set iron pin with cap marked LS2259 above the old logging road; thence running up the hill North 46 deg 57 min 31 sec West, 99.99 feet to the point of the beginning. Containing a calculated area of 10003.2 square feet or .23 acres.

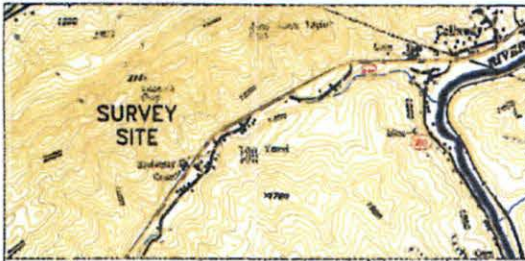
Unless stated otherwise, any monument referred to herein as "set iron pin with cap" is a set 1/2" diameter rebar, at least eighteen (18") in length, with a plastic cap stamped "LS-2259". All bearings stated herein are referred to NAD83, KY single zone of the Kentucky state plane system.

This survey was performed on February 14, 2017 by James W. Caudill, a Kentucky Licensed Professional Land Surveyor No. 2259.



James W. Caudill
James W. Caudill, PLS #2259
2-14-17

DOCUMENT NO: 170933
RECORDED: March 10, 2017 11:33:00 AM
TOTAL FEES: \$23.00
COUNTY CLERK: DEBBIE GAMBREL
DEPUTY CLERK: JENNIFER BARNETT
COUNTY: BELL COUNTY
BOOK: L52 PAGES: 566 - 570



CHRISTOPHER F. DOUGLAS TRUSTEE
 DONALD G. ENGLE & SHARON K. ENGLE
 DEED BOOK:369
 PAGE:596

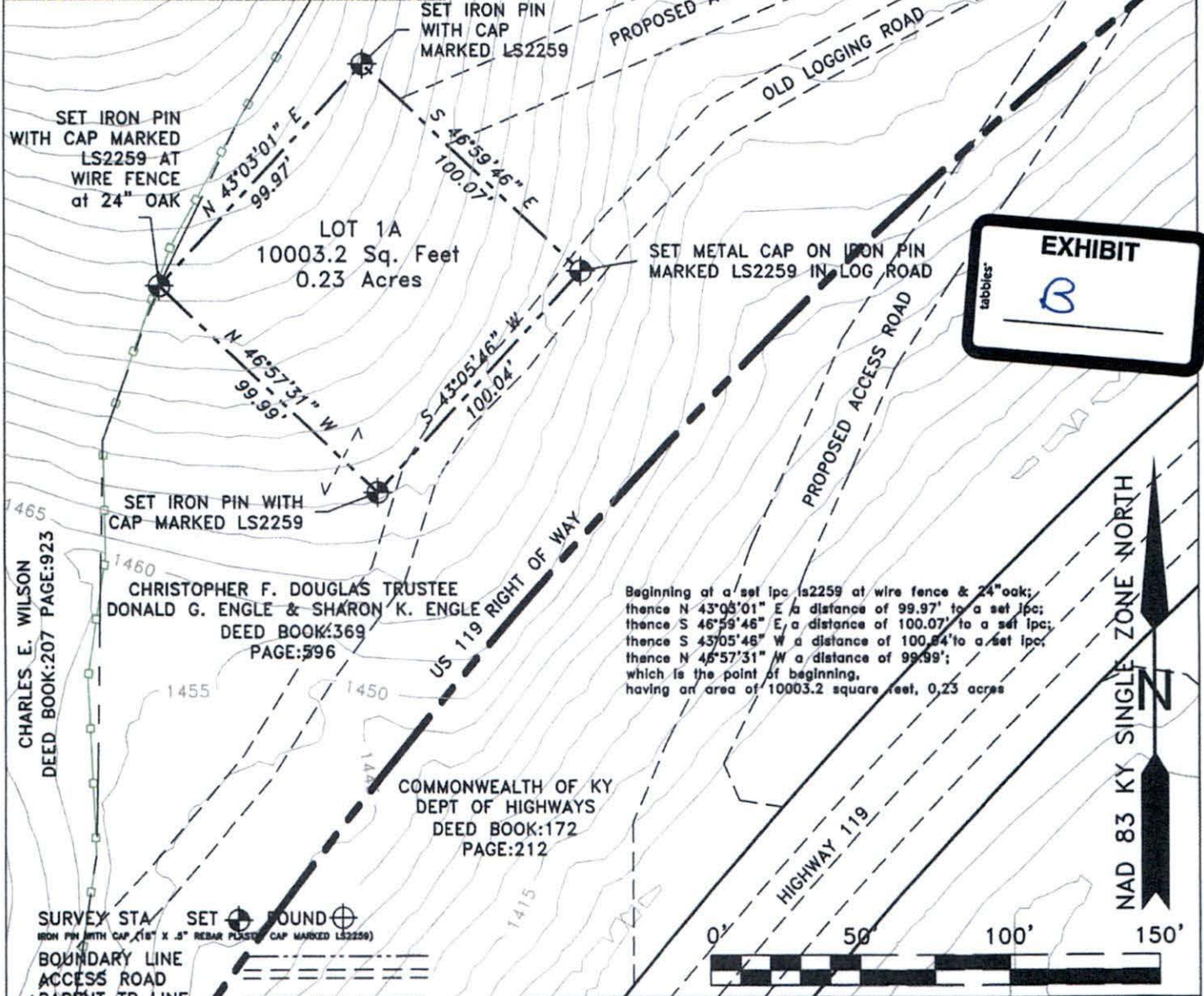
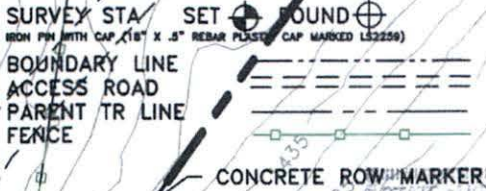


EXHIBIT
 B



URBAN CLASS SURVEY
 I HEREBY CERTIFY THAT THIS PLAT DEPICTS A SURVEY MADE BY ME, BY THE METHOD OF RANDOM TRAVERSE. THE BEARINGS SHOWN HEREON HAVE NOT BEEN ADJUSTED FOR CLOSURE. THIS SURVEY AND PLAT MEETS OR EXCEEDS THE MINIMUM STANDARDS OF GOVERNING AUTHORITIES. THE UNADJUSTED ERROR OF CLOSURE WAS 1 IN 10003.

James W. Caudill 2259 2-14-17
 NAME PLS# DATE

PLAT OF SURVEY		
DRAWN JWC	DATE 02/14/17	SUBDIVISION PROPERTY OF CHRISTOPHER F. DOUGLAS, TRUSTEE DONALD G. AND SHARON K. ENGLE 2032 BALKAN ROAD PINEVILLE ,KY 40977 DEED BOOK:369 PAGE:596
APPROVED	DATE	
SCALE 1" = 50'	SHEET 1 OF 1	SURVEYED BY JAMES W. CAUDILL LS2259 2999 PERKINS/MADDEN ROAD AMBURGEY, KY 41773

BALKAN 7.5' QUAD MAP

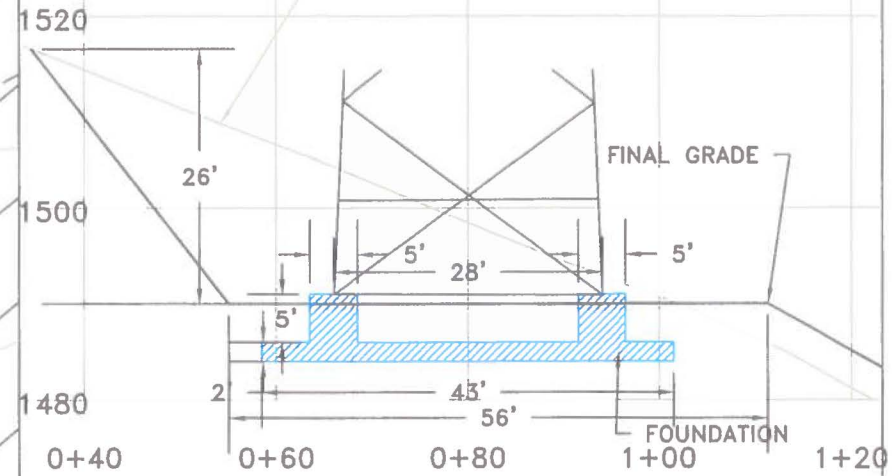
CHARLES E. WILSON
132 SUN RAY DRIVE
LONDON, KY 40741
MAP:132 PARCEL:67
DEED BOOK:207 PAGE:923

DONALD G. AND SHARON K. ENGLE
2032 BALKAN ROAD
PINEVILLE, KY 40977
MAP 132 PARCEL:75
DEED BOOK:369
PAGE:596

PROPOSED TOWER LOC
LAT:36°46'40.4689"
LON:83°35'10.9104"

DONALD G. AND SHARON K. ENGLE
2032 BALKAN ROAD
PINEVILLE, KY 40977
MAP:132 PARCEL:75
DEED BOOK:369
PAGE:596

CROSS SECTION



APPALACHIAN WIRELESS

101 TECHNOLOGY TRAIL
IVEL, KY 41642

PROPOSED TOWER SITE
TAN YARD HILL SITE
OFF HWY 119 NR PINEVILLE, KY
IN BELL COUNTY

PRELIMINARY DESIGN
NOTE: FOUNDATION AND TOWER DIMENSIONS
ARE ESTIMATED FOR PLANNING PURPOSES.
DRAWING WILL BE REVISED WHEN DESIGNS ARE
FINALIZED.
SEE FOUNDATION DRAWINGS FOR DETAILS.

- THE PROPOSED TOWER HAS BEEN LOCATED USING DUAL FREQUENCY GPS UNIT PROCESSED BY "OPUS"
- STATE PLANE COORDINATES NAD 83 KY SINGLE ZONE N3450064.29 E5554933.29, EL 1499.0' EXISTING GRD PROPOSED FOUNDATION EL1491'-TOP TOWER EL1791'
- PRECISION: HORIZONTAL=0.30' VERTICAL=0.50'
- THIS SURVEY MEETS OBSTACLE ACCURACY CODE 2C.
- PROPERTY LINE INFORMATION TAKEN FROM DEEDS AND/OR VERIFIED IN THE FIELD.

I HEREBY CERTIFY THAT THIS DOCUMENT
WAS PREPARED BY ME OR UNDER MY DIRECTION.

James W. Caudill 12305 2-27-17
JAMES W. CAUDILL PE# DATE



CROSS SECTION
TOWER PAD
N 43°05'01" E
99.97'

PROFILE

LINE1	S 57°11'09" E	70.20'
LINE2	S 72°40'20" E	28.40'
LINE3	S 83°35'29" E	58.90'
LINE4	S 86°01'31" E	88.80'
LINE5	N 71°12'51" E	88.92'
LINE6	N 67°32'50" E	61.35'
LINE7	N 62°57'23" E	83.33'
LINE8	S 13°05'59" W	50.95'
LINE9	S 06°52'23" W	80.22'
LINE10	S 01°28'31" E	59.78'
LINE11	S 09°37'53" E	35.67'
LINE12	S 14°24'08" E	81.78'
LINE13	S 19°44'19" E	47.19'

LEGEND

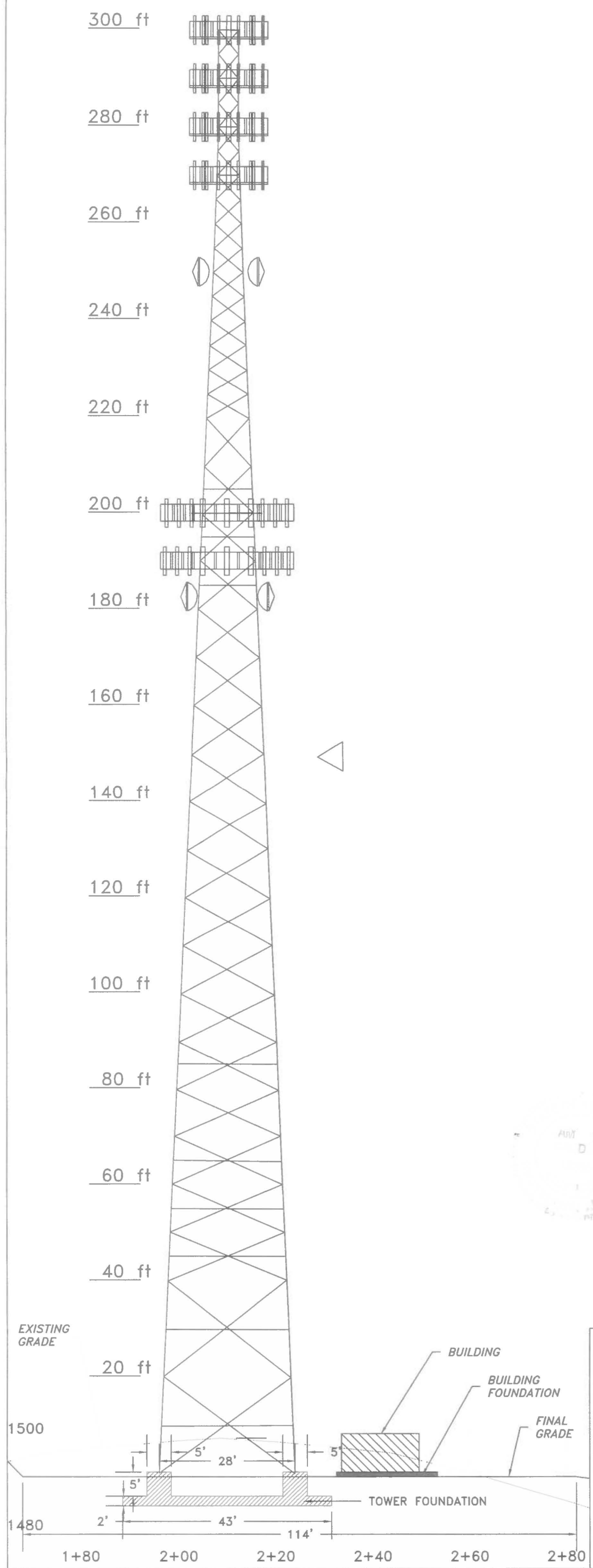
- SURVEY STA SET FOUND
- BOUNDARY LINE
- ACCESS ROAD
- OLD WIRE FENCE



PROPOSED SITE PLAN AND STRUCTURE LOCATION TAN YARD HILL TOWER APPALACHIAN WIRELESS

DRAWN JWC	DATE 02/27/2017	DETAIL SITE PLAN DONALD ENGLE TRACT OFF STATE HWY 119 NR PINEVILLE IN BELL CO
APPROVED	DATE	
SCALE 1" = 20'	SHEET 2 Of 3	PROJECT NO. TANYARDHILL/TY2c20

APPALACHIAN WIRELESS
 101 TECHNOLOGY TRAIL
 IVEL, KY. 41642
 PROPOSED TOWER SITE
 TAN YARD HILL IN BELL COUNTY



PROFILE WITH TOWER

THIS IS A VERTICAL PROFILE SKETCH OF THE TOWER INDICATING THE PROPOSED ANTENNA AND DISH ELEVATIONS. NO DESIGN CRITERIA WAS CONSIDERED IN THE PREPARATION OF THIS DRAWING.

James W. Caudill 12305 2-27-17
 JAMES W. CAUDILL PE #. DATE

PRELIMINARY DESIGN
 NOTE: FOUNDATION AND TOWER DIMENSIONS ARE ESTIMATED FOR PLANNING PURPOSES. DRAWING WILL BE REVISED WHEN DESIGNS ARE FINALIZED.
 NOTE: SEE FOUNDATION DRAWINGS FOR DETAILS

02/27/2017
 SCALE 1" = 20'



PROPOSED SITE PLAN AND STRUCTURE LOCATION
 TAN YARD HILL TOWER APPALACHIAN WIRELESS

DRAWN JWC	DATE 02/27/2017	DETAIL SITE PLAN DONALD ENGLE TRACT OFF STATE HWY 119 NR PINEVILLE IN BELL CO
APPROVED	DATE	
SCALE 1" = 20'	SHEET 3 OF 3	PROJECT NO. TANYARDHILL/TYPRO20

Filing
CONTAINS
LARGE OR OVERSIZED
DRAWINGS

Case No. 2017-00262

RECEIVED ON:
08/21/2017