

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

**RECEIVED**  
AUG 14 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. 2017-00320
CONSTRUCT A TOWER IN WOLFE COUNTY,	)	
KENTUCKY.	)	

East Kentucky Network, LLC d/b/a Appalachian Wireless was granted authorization to provide cellular service in the KY-10 Cellular Market Area (CMA452) by the Federal Communications Commission (FCC). The 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 Commonwealth of Kentucky.

In an effort to improve service in Wolfe 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 tower on a tract of land located at 808 Hazel Green Tower Road, Hazel Green, Wolfe County, Kentucky (37°48'05.5408"N 83°24'46.5655"W). A map and detailed directions to the site can be found in Exhibit 7.

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

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

within 500 feet of the proposed Tower or 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.

Wolfe County has no formal local planning unit. In absence of this unit, the Wolfe County Judge Executive's office was notified by certified mail, return receipt requested of East Kentucky Network, LLC's proposal and informed of their right to intervene. They were 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 Wolfe County News, August 11, 2017, edition. Enclosed is a copy of that notice in Exhibit 3. The Wolfe County News is the newspaper with the largest circulation in Wolfe 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 Approval and Kentucky Airport Zoning Commission Application 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 3, 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 and Deed for the site location along with a lot description.

The proposed construction site is on hillside farmland some feet from the nearest structure. There is an existing 180' tower owned by East Kentucky Network, LLC on the property which cannot meet the needs of East Kentucky Network, LLC and will be removed upon construction of the proposed tower.

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

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

Exhibit 10 is a map in one (1) inch equals 200 feet scale identifying every structure and every owner of real estate within 500 feet of the proposed tower and all property owners who own contiguous property to the property upon which construction is proposed.

Exhibit 11 contains a vertical sketch of the tower supplied by 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 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, 101 Technology Trail, Ivel, KY 41642.

SUBMITTED BY: Lynn Haney DATE: 8-10-17  
Lynn Haney, Regulatory Compliance Director

APPROVED BY: W.A. Gillum DATE: 8-10-2017  
W.A. Gillum, General Manager

ATTORNEY: Cindy McCarty DATE: 8-10-17  
Hon. Cindy 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 McCarty, Attorney**  
**Phone: (606) 477-2355, Ext. 1006**  
**Email: cmccarty@ekn.com**

**Mailing Address:**

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

1	FCC License
2	Copies of Cell Site Notices to Land Owners
3	Notification of County Judge Executive and Newspaper Advertisement
4	Universal Soil Bearing Analysis
5	Tower Design
6	FAA Approval and KAZ C Application
7	Driving Directions from County Court House and Map to Suitable Scale
8	Deed and 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

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

Call Sign	KNKN809	Radio Service	CL - Cellular
Status	Active	Auth Type	Regular
<b>Market</b>			
Market	CMA452 - Kentucky 10 - Powell	Channel Block	B
Submarket	0	Phase	2
<b>Dates</b>			
Grant	08/30/2011	Expiration	10/01/2021
Effective	08/30/2011	Cancellation	

**Five Year Buildout Date**

10/17/1996

**Control Points**

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

**Licensee**

FRN	0001786607	Type	Limited Liability Company
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**Licensee**

East Kentucky Network, LLC d/b/a Appalachian Wireless 101 Technology Trail Ivel, KY 41642 ATTN Gerald Robinette, Manager	P:(606)477-2355 F:(606)874-7551
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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	Mobile
Type	

Regulatory Status	Common Carrier	Interconnected	Yes
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**Alien Ownership**

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

**Basic Qualifications**

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

## **EXHIBIT II: LIST OF PROPERTY OWNERS:**

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

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

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

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

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

Dixie and Leo Davis  
6863 April Circle  
Middletown, OH 45042

Dorothy Gillum  
355 Rosedale Road  
Middletown, OH 45042

Patrick and Tammy Taulbee  
P.O. Box 205  
Hazel Green, KY 41332

Eric Lacy  
P.O. Box 1297  
Campton, KY 40353

Anothony Scott and Donna Lockard  
P.O. Box 186  
Hazel Green, KY 41332

Linda G. King  
P.O. Box 299  
Hazel Green, KY 41332

John Gillispie  
P.O. Box 697  
Campton, KY 41301

Marcella and James K. Lawson  
P.O. Box 321  
Hazel Green, KY 41882

VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

August 11, 2017

Dixie and Leo Davis  
6863 April Circle  
Middletown, OH 45042

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00320)

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 Wolfe 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 808 Hazel Green Tower Road, Hazel Green, Wolfe 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. 2017-00320 in your correspondence.

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

Sincerely,



Lynn Haney, CPA  
Regulatory Compliance Director  
Enclosure 1



VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

August 11, 2017

Dorothy Gillum  
355 Rosedale Road  
Middletown, OH 45042

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Lynn Haney, CPA  
Regulatory Compliance Director  
Enclosure 1



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PUBLIC NOTICE

August 11, 2017

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Hazel Green, KY 41332

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Regulatory Compliance Director  
Enclosure 1

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PUBLIC NOTICE

August 11, 2017

Eric Lacy  
P.O. Box 1297  
Campton, KY 40353

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00320)

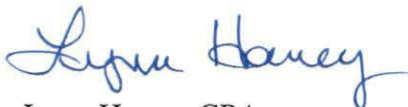
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Regulatory Compliance Director  
Enclosure 1



VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

August 11, 2017

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Hazel Green, KY 41332

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Lynn Haney, CPA  
Regulatory Compliance Director  
Enclosure 1

VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

August 11, 2017

Linda G. King  
P.O. Box 299  
Hazel Green, KY 41332

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00320)

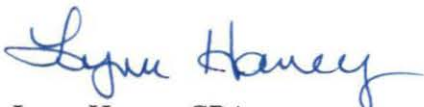
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Lynn Haney, CPA  
Regulatory Compliance Director  
Enclosure 1



VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

August 11, 2017

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Sincerely,



Lynn Haney, CPA  
Regulatory Compliance Director  
Enclosure 1

VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

August 11, 2017

Marcella and James K. Lawson  
P.O. Box 321  
Hazel Green, KY 41882

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00320)

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 Wolfe 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 808 Hazel Green Tower Road, Hazel Green, Wolfe 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,



Lynn Haney, CPA  
Regulatory Compliance Director  
Enclosure 1



# Appalachian Wireless Location Map



Site Name

Hazel Green Site

Location

808 Hazel Green Tower RD. Hazel Green

GPS Location

N 37 48 05.54084

W 83 24 46.5655



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

## EAST KENTUCKY NETWORK



<b>To:</b>	The Wolfe County News	<b>From:</b>	Raina Helton
	Attn: Classifieds		Regulatory Compliance Assistant
<b>Email:</b>	wolfenew@mrtc.com	<b>Date:</b>	August 3, 2017
<b>Re:</b>	PUBLIC NOTICE ADVERTISEMENT	<b>Pages:</b>	1

**Please place the following Public Notice Advertisement in The Wolfe County News to be ran on August 11, 2017.**

**PUBLIC NOTICE:**

RE: Public Service Commission of Kentucky (CASE NO. 2017-00320)

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 808 Hazel Green Tower Road, Hazel Green, Wolfe 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. 2017-00320.

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 11, 2017

Dennis Brooks, Judge Executive  
P.O. Box 429  
Campton, KY 41301

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00320)

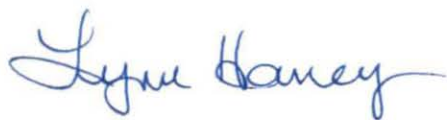
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Sincerely,



Lynn Haney  
Regulatory Compliance Director  
Enclosure



# Appalachian Wireless Location Map



Site Name

Hazel Green Site

Location

808 Hazel Green Tower RD. Hazel Green

GPS Location

N 37 48 05.54084

W 83 24 46.5655



230 Swartz Drive • Hazard • Kentucky • 41701

Phone (606) 551-1050

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**EAST KENTUCKY ENGINEERING, LLC.**

**APPALACHIAN WIRELESS  
Geotechnical Investigation on the  
Hazel Green Site  
Wolfe County, Kentucky  
EKYENG Project No. 165-000-0044**

PREPARED FOR:

Appalachian Wireless.  
101 Technology Trail  
Ivel, Kentucky 41642

PREPARED BY:

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



, 20215. June 26<sup>th</sup>, 2017





# **EAST KENTUCKY ENGINEERING, LLC.**

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## **EXECUTIVE SUMMARY**

### **1.0 INTRODUCTION**

### **2.0 PROJECT DESCRIPTION**

### **3.0 SITE DESCRIPTION**

#### **3.1 SURFACE MINING**

#### **3.2 UNDERGROUND MINING**

### **4.0 FIELD EXPLORATION**

#### **4.1 SITE INFORMATION**

#### **4.2 BORING DATA**

#### **4.3 GROUNDWATER**

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

### **5.0 DISCUSSION AND RECOMMENDATIONS**

#### **5.1 GENERAL**

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

#### **5.3 DRILLED PIER FOUNDATIONS RECOMMENDATIONS**

#### **5.4 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 – BORING DATA AND TESTING**

## **APPENDIX B – SEISMIC DATA**

## **APPENDIX C – PHOTOGRAPHS**

## **APPENDIX D – MAPS**



## EAST KENTUCKY ENGINEERING, LLC.

### EXECUTIVE SUMMARY

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

- Borings utilized for this study encountered sandy soils to a depth of 5.0 ft., then hard sandstone to a depth of 25 ft.
- The maximum estimated base elevation of tower mat foundation is 1096.0 ft.
- This site is adjacent to an existing tower on a ridge line.
- **The allowable bearing capacities of the underlying sandstone estimated at 10 tsf.**
- The 2015 International Building Code seismic site classification for this site is "A".
- If during the foundation design it becomes necessary to lower the base of the footer, alternate design recommendations are included in the section of this report.
- Close monitoring of the construction operations discussed herein will be critical in achieving the design subgrade support. We, therefore, recommend that EKYENG is retained to monitor this portion of the work.

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



## EAST KENTUCKY ENGINEERING, LLC.

### 1. INTRODUCTION

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

Four (4) borings were advanced to depths of 25 ft. Horn and Associates, Inc. provided drilling services to obtain these borings. Logs of the borings along with a boring location plan are included in Appendix A. The purpose of these services is to provide information and geotechnical engineering recommendations about subsurface conditions, earthwork, seismic considerations, groundwater conditions and foundation design.

### 2.0 PROJECT DESCRIPTION

The proposed communication facility will consist of a self-supporting tower of undetermined height and ancillary support areas. The footing area is estimated to be 40 ft. X 40 ft. with an estimated base of the tower footer elevation at 1096.0 ft. Based upon information provided, we estimate the structural loads will be similar to the following conditions;

CONDITION	LOAD
Total Shear	40 Kips
Axial Load	50 Kips

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









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### 3.0 SITE DESCRIPTION & HISTORICAL MINING

#### 3.1 GENERAL INFORMATION

The site location is on a ridge line adjacent to an existing tower site in Hazel Green in Wolfe County, Kentucky. The current surface elevation is approximately 1102.0 ft. Research on the historical mining was conducted by obtaining previous mine license maps from the "Kentucky Mine Mapping Information System" (KMMIS). Other sources, photographs, and interviews were also used to assist in evaluation historical mining. No historical mining data was found that would adversely impact this site.

### 4.0 FIELD EXPLORATION

#### 4.1 SITE INFORMATION

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

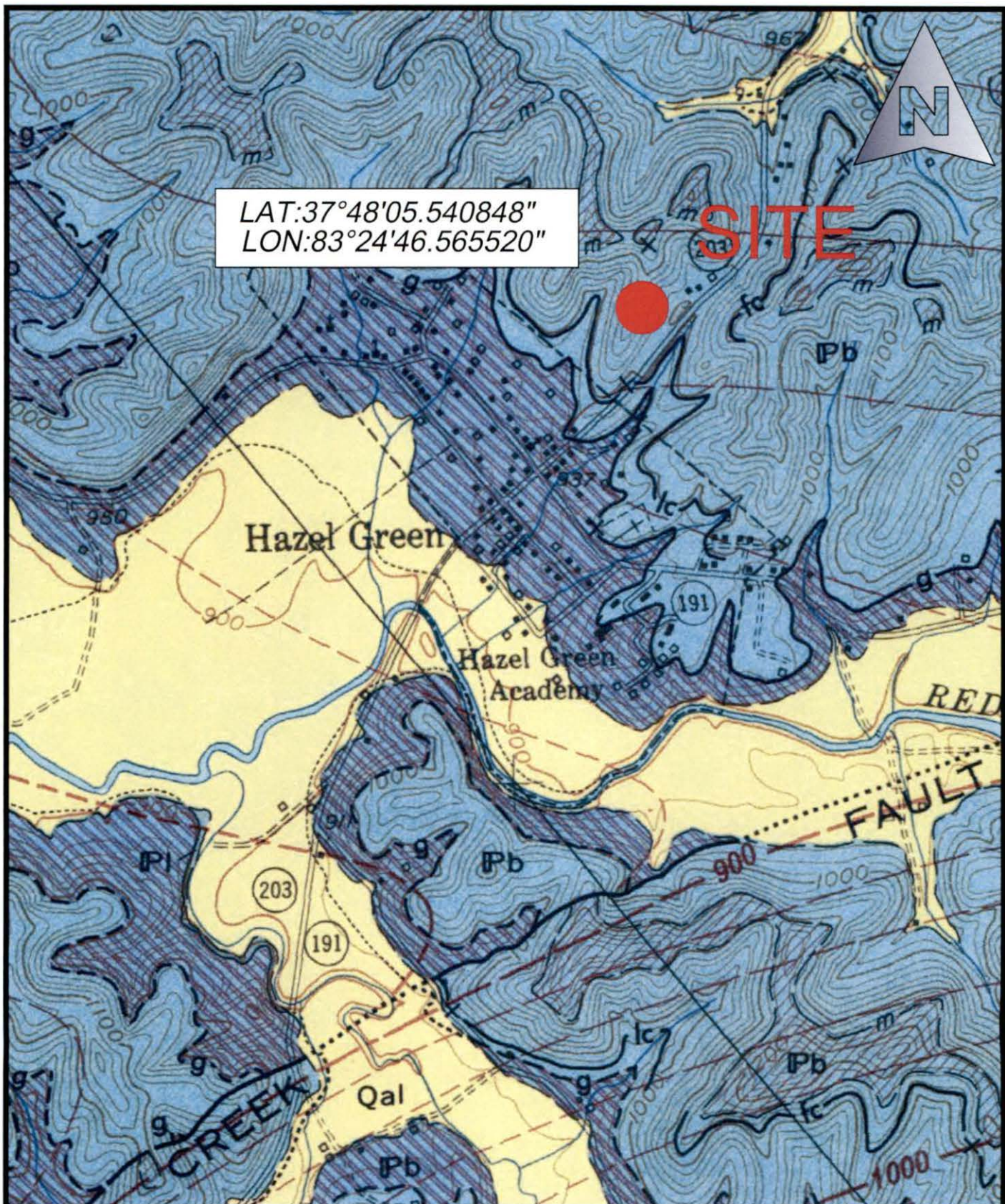
Visual inspections were conducted to evaluate the site lithology and type of materials immediately below the proposed tower site. The following soils and rock properties were found.

TABLE NO. 2

Depth ft.	Base Elevation ft.	Strata
4.0	1098.4	Topsoil
7.0	1095.4	Weathered Sandstone
25.0	1077.1	Grey / Brown Sandstone

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





Drawn: RDS	Date: 5/2/17
Job:165-043	Scale: 1"=1000'

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

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





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### 4.2 BORING DATA

Four (4) borings were made in the relative positions shown on the Site Map in Appendix E. The boring logs and resulting data are included in Appendix E. These borings were made with a track mounted boring rig using hollow-stem augers and employing standard penetration resistance methods (ASTM D-1586, which includes 140-pound hammer, 30-inch drop, and two-inch-O.D. split-spoon sampler) at maximum depth intervals of five feet or at major changes in stratum, whichever occurred first. The disturbed split-spoon samples were visually classified, logged, sealed in moisture-proof jars, and taken to the EKYENG laboratory for study. The depths where these "A"-type split-spoon samples were collected are noted on the boring logs. The results of the natural moisture contents by boring and interval are shown in Table 1.

TABLE 1  
RESULTS OF NATURAL MOISTURE CONTENT TESTS (ASTM D-4643)

BORING NO.	DEPTH INCREMENT, (FT.)	NATURAL MOISTURE CONTENT, %
B1	1.5-2.8	9.5%
B2	2.5-4.0	13.3%
B3	2.5-3.4	8.0 %
B4	2.5-3.3	10.0 %

The position at which the core was taken is indicated on the boring logs and shown on the site map in Appendix C. The corresponding Blow counts are shown in Table No. 2.



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TABLE NO. 2  
STANDARD PENETRATIONS

Boring	Run Interval	Blow Counts	Description
B1	1.5-2.8	6-16-50/3	Sandy Soils
B2	2.5-4.0	8-16-28	Sandy Soils
B3	2.5-3.4	25-50/0.4	Sandy Soils
B4	2.5-3.3	24-50/0.3	Sandy Soils

The borings encountered topsoils to a maximum depth of 4.5 ft. The 4 borings were extended by "NX" size rock core that were taken to confirm the presence of rock at the site and to determine its physical characteristics. The core was made with "NX" size diamond coring equipment. These borings are each 25.0 ft. in depth. The position at which the core was taken are indicated on the boring logs and shown on the boring location map in Appendix D. The corresponding Rock Quality Data Ratings (RQD) are shown in Table No. 2. This boring demonstrates the full geologic column at the site. Rock-quality designation (RQD) is a rough measure of the degree of jointing or fracture in a rock mass, measured as a percentage of the drill core in lengths of 10 cm or more. High-quality rock has an RQD of more than 75%, low quality of less than 50%. Rock quality designation (RQD) has several definitions

TABLE NO. 2  
ROCK QUALITY

Boring	Run Interval	RQD Values %	Description
B-1	3.5 - 8.5	31%	Weathered Sandstone
B-1	8.5 -13.5	45%	Sandstone
B-1	13.5 – 25.0	60%	Sandstone
B-2	4.5 – 9.5	100%	Sandstone



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Boring	Run Interval	RQD Values %	Description
B-2	9.5 – 15.0	80%	Sandstone
B-2	15.0-25.0	75%	Sandstone
B-3	4.5 - 9.5	27%	Weathered Sandstone
B-3	9.5 - 4.5	32%	Sandstone
B-3	14.5 - 25.0	90%	Sandstone
B-4	4.5 - 9.5	30%	Weather Sandstone
B-4	9.5 -15.0	30%	Sandstone
B-4	15.0 – 25.0	90%	Sandstone

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

### 4.3 GROUNDWATER

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

### 4.4 SEISMIC SITE CLASSIFICATION

Based on the encountered soil conditions at the project site, the site classification was determined to be "Site Class A" per the 2015 Kentucky Building Code. In addition, a  $S_{DS}$  coefficient of 0.103 g was calculated, and a  $S_{D1}$  coefficient of 0.046 g was also calculated for design based on the aforementioned building code.





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### 5.0 DISCUSSION AND RECOMMENDATIONS

#### 5.1 GENERAL

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

#### 5.2 SHALLOW MAT FOUNDATIONS RECOMMENDATIONS

If shallow foundations are used, we recommend that the site be excavated through the soils and weathered sandstone rock a minimum of 4 feet. The proposed foundation is located on a narrow ridge line and care should be taken to insure the entire foundation is placed in the sandstone formation. The allowable bearing capacity for this sandstone is 8 tsf. This value has been reduced due to limited information and the presence of stress relief fractures that will be present at the extents of the foundation area.

It is furthermore recommended that the slabs-on-grade be supported on 4 to 6-inch layer of relatively clean granular material such as sand and gravel or crushed stone. This is to help distribute concentrated loads and equalize moisture conditions beneath the slab. Proper drainage must be incorporated into this granular layer to preclude future wet areas in the finished slab-on-grade. However, all topsoil and/or other deleterious materials encountered during site preparation must be removed and replaced with 4000 psi. concrete below the foundation base. Provided that a minimum of 4 inches of granular material is placed below the new slab-on-grade, a modulus of subgrade reaction ( $k_{30}$ ) of 100 lbs./cu. in. can be used for design of the slabs.

Support structure for this tower can be placed as needed. It is recommended that test pits are examined to ensure that any of these structures are on the





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competent materials. If pockets of soft, loose or otherwise unsuitable material are encountered in the footing excavations and it is inconvenient to lower the footings, the proposed footing elevations may be re-established by backfilling after the undesirable material has been removed. The undercut excavation beneath each footing should extend to suitable bearing soils and the dimensions of the excavation base should be determined by imaginary planes extending outward and down on a 1 (vertical) to 1 (horizontal) slope from the base perimeter of the footing. The entire excavation should then be refilled with a well-compacted engineered fill, or lean concrete (Please note that the width of the lean concrete zone should be equal or wider than the width of the overlying footing element). Special care should be exercised to remove any sloughed, loose or soft materials near the base of the excavation slopes. In addition, special care should be taken to "tie-in" the compacted fill with the excavation slopes, with benches as necessary, to ensure that no pockets of loose or soft materials will be left in place along the excavation slopes below the foundation bearing level. All Federal, State, and Local regulations should be strictly adhered to relative to excavation side-slope geometry.

### 5.3 DRILLED PIER FOUNDATIONS RECOMMENDATIONS

If a large diameter drilled pier is used for foundation, based upon the available data and experience, we recommend the following design parameters.

TABLE NO. 3

Approx. Depth (ft.)	Allowable Skin Friction (psf.)	Allowable End Bearing Pressure (psf.)	Allowable Passive Pressure	Cohesion (psf.)	Internal Angle of Friction (Degrees)
0-4 Topsoil	Ignore	Ignore	Ignore	Ignore	Ignore



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Approx. Depth (ft.)	Allowable Skin Friction (psf.)	Allowable End Bearing Pressure (psf.)	Allowable Passive Pressure	Cohesion (psf.)	Internal Angle of Friction (Degrees)
4-25 Sandstone	1,500	20,000	1,500	15,000	-----

The top three feet of soils should be ignored due to potential frost action and construction disturbance. The presented cohesion has no safety factor. The skin friction and passive resistance have a factor of safety of 2. The allowable end bearing pressure has an approximate safety factor of 3. If the drilled piers are designed using the above design parameters and socketed into solid bedrock, settlements are not anticipated to exceed  $\frac{1}{4}$  inch.

### 5.4 BURIED UTILITIES

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



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### 6.0 WARRANTY

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

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

#### 6.1 SUBSURFACE EXPLORATION

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

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





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### **6.2 LABORATORY AND FIELD TESTS**

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

### **6.3 ANALYSIS AND RECOMMENDATIONS**

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

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

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

### **6.4 CONSTRUCTION MONITORING**

Construction monitoring is a vital element of complete geotechnical services. The field engineer/inspector is the owner's "representative" observing the work of the contractor, performing tests as required in the specifications, and reporting data developed from such tests and observations. The field engineer or



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

### **6.5 GENERAL**

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

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

This report has been prepared for the exclusive use of Appalachian Wireless, for specific application to the proposed cellular tower located on the Hazel Green Property located in Wolfe County, Kentucky. Specific design and construction recommendations have been provided in the various sections of the report. The report shall, therefore, be used in its entirety. This report is not a bidding document and shall not be used for that purpose. Anyone reviewing this report must interpret and draw their conclusions regarding specific construction techniques and methods were chosen. EKYENG is not responsible for the



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independent conclusions, opinions or recommendations made by others based on the field exploratory and laboratory test data presented in this report.





# EAST KENTUCKY ENGINEERING, LLC.

## 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.





## EAST KENTUCKY ENGINEERING, LLC.

### II - ENGINEERED FILL BENEATH STRUCTURES CLEARING AND GRADING SPECIFICATIONS

#### 1.0 GENERAL CONDITIONS

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

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

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

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

#### 2.0 SUBSURFACE CONDITIONS

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

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

#### 3.0 SITE PREPARATION

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

All cut and fill areas shall be properly stripped. Topsoil will be removed to its full depth and stockpiled for use in finish grading. Any rubbish, organic and other objectionable soils, and other deleterious material shall be disposed of off the site, or as directed by the Owner or his designated representative if on site disposal is provided. In no case shall such objectionable material be allowed in or under the fill unless specifically authorized in writing.





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

### **4.0 FORMATION OF FILL AREAS**

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

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

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

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

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



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

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

### **5.0 SLOPE RATIO AND STORM WATER RUN-OFF**

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

### **6.0 GRADING**

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

### **7.0 COMPACTING**

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

### **8.0 TESTING AND INSPECTION SERVICES**

Testing and inspection services will be provided by the Owner.





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### III GUIDELINES FOR EXCAVATIONS AND TRENCHES

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

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

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

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

2. Access and egress ramps must be designed by a "competent person" and structural ramps used for equipment must be designed by a "competent person" with qualified knowledge in structural design. In addition:
  - Ramps must be secured to prevent displacement;
  - Ramps used in lieu of steps must have cleats to prevent slipping; and
  - Trenching excavations four feet or greater in depth must have a stairway, ladder, ramps or other safe means to egress with lateral travel no more than 25 feet.
3. Workers must be provided with reflector garments, such as warning orange or red vests, when exposed to vehicular traffic.
4. Contractors must not allow workers to work under or near equipment when there is danger of falling debris, spillage or equipment-related injuries.





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5. Mobile equipment, operating adjacent to an open excavation or approaching the edge of an excavation, must have one of the following when the operator's view is obstructed:
  - Warning System
  - Mechanical Signals
  - Barricades
  - Stop Logs
  - Hand Signals
6. The contractor must check the atmosphere for hazardous gases and oxygen deficiencies when excavating four feet or greater around landfills, or when hazardous substances are stored nearby, and when the contractor expects there could be any exposure to the workers.
7. When hazardous atmospheric conditions exist, or when conditions could change, the contractor must make emergency rescue equipment readily available including breathing apparatus, safety harnesses with life lines and a basket stretcher.
8. When workers enter bell-bottom pier holes or other deep and confined excavations, the worker must wear (always while performing work in the confined space) a separate life line attached to a harness. The line must be attended by someone above while work is being performed. The worker must check for hazardous atmospheric conditions prior to entry.
9. The contractor must ensure that water does not accumulate in open excavations and must inspect the excavation prior to allowing workers to re-enter after heavy rains.
10. Adjacent structures (buildings, walls, etc.) must be supported or secured to prevent worker exposure to unsafe conditions and damage to existing structures.
11. A registered professional engineer must approve operations when a contractor underpins existing structures to ensure worker safety and prevent damage to existing structures.
12. Workers must not be exposed to loose soil and rock or materials in and around excavations. Materials, such as removed soil and rock, must not be stored closer than two feet from the edge of the excavation.
13. Daily inspections of the excavation, the adjacent areas and protective systems must be made by a "competent person" for evidence of possible cave-ins, indications of failure of protective systems, hazardous



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

14. Workers must not be exposed to fall hazards associated with excavations. Protective walkways or bridges with standard guard rails must be provided.
15. All wells, pits, shafts etc. must be barricaded or covered. After completion of work, all wells, pits, shafts etc. must be backfilled.



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### IV - GENERAL CONCRETE SPECIFICATIONS

#### 1.0 GENERAL

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

#### 2.0 SCOPE

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

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

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

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

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

#### 3.0 MATERIALS

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

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

1. Fine Aggregate: Sand shall be composed essentially of clean, hard, strong, durable grains free of structurally weak grains, organic matter, loam, clay, silt, salt, mica or other fine materials that may affect bonding of the cement paste.





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

### 4.0 FORM

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

### 5.0 INSERTS, ETC.

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



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### 6.0 REINFORCEMENT

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

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

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

### 7.0 CONCRETE

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

### 8.0 DEPOSITING CONCRETE

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

1. Remove from space to be occupied by concrete all debris, including snow, ice, and water unless otherwise permitted by Owner.
2. Provide diversion, satisfactory to Owner, of any flow of water to an excavation to avoid washing the freshly deposited concrete.
3. Coat the forms prior to placing of reinforcing steel as required in form work.
4. Secure firmly in correct position, all reinforcement and other items to be encased and remove therefrom all coating including ice and frost.

B. Transportation of Concrete from Batch Plant: The concrete shall be delivered to the site of the work and discharge shall be completed within 90 minutes after addition of the cement and water to the aggregates. Each batch of concrete delivered at the job site shall





## EAST KENTUCKY ENGINEERING, LLC.

be accompanied by a time slip issued at the batching plant, bearing the time of charging of the mixer drum with the cement and aggregates.

- C. Transporting of Concrete from Mixer to Place of Final Deposit: Transportation shall be done as rapidly as practical by means which shall prevent the separation or loss of the ingredients. If chutes are used, they shall be at a slope not flatter than one vertical to two horizontal. Buggies or carts shall be equipped with pneumatic rubber tires or surfaces of runways shall be sufficiently smooth or both so as not to cause separation or segregation of concrete ingredients. Concrete shall not be allowed to drop freely more than 4 feet. Where greater drops are required, canvas "elephant trunks" or galvanized iron chutes equipped with suitable hopper heads shall be employed and a sufficient number placed to ensure that the concrete may be effectively compacted into horizontal layers not exceeding 12 inches in thickness with minimum lateral movements.
- D. Depositing of Concrete: Depositing of concrete shall:
1. Proceed continuously after once starting until reaching the end of a section of construction joint location shown on the drawings, or as approved by the Owner. The operations shall be conducted so that no concrete is deposited on concrete sufficiently hardened to cause formation of seams, and planes of weakness.
  2. Be as near as practical to its final position in the forms.
  3. Proceed to maintain constantly a top surface which is approximately level.
  4. Be placed before initial set has occurred, and in no event after it has contained its water content for more than 90 minutes.
  5. Be thoroughly worked and compacted by means of suitable tools to provide impermeability, durability and strength and shall be thoroughly worked around reinforcements and embedded items and into corners of forms and to be free from voids, pockets or honeycombing. Care shall be taken to provide impermeability.





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- E. Vibration Equipment: Vibration equipment shall be of the appropriate type and shall, always, be adequate in number of units and power of each unit to properly consolidate all concrete.
- F. Monolithic Pours: Proper delivery of concrete shall be the Contractor's responsibility to make a mono-lithic pour without delays and changes of cold joints.

### 9.0 CURING

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

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

### 10.0 CONCRETE FINISHES

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

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

All exposed surfaces shall have defects corrected, protrusions removed, and holes filled.



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## V - DRILLED PIER INSTALLATION

### 1.0 DRILLING PROCEDURE

- 1.1 Drilled piers will be installed with large caisson drill rigs capable of torque and crowd forces sufficient to install drilled piers at the project site given the in-situ soil conditions.
- 1.2 The drill rig kelly bar and auger will be carefully and accurately placed over the centerline of the drilled pier. The Contractor is responsible for providing necessary surveying to verify drilled pier location before, during, and after the drilled pier installation.
- 1.3 The augers are advanced downwards as they are rotated such that drilling of the soil mass is efficiently accomplished. Depending on the subsurface conditions, and the requirements for the given project, a temporary steel casing should be installed at this time to preclude caving of the soil and/or broken rock mass being penetrated.

### 2.0 CASING INSTALLATION

- 2.1 The casing will be checked for centerline accuracy and plumbness by the Contractor's survey crew. During casing installation, the Contractor's survey crew will verify alignment with instruments. If plumbness and alignment are not within tolerance as determined by the Contractor's survey crew, the casing will be extracted and re-aligned as necessary.
- 2.2 The drill rig will remove soil and bedrock material from within the casing to the drilled pier design tip elevation. A steel casing or "Sonotube" shall be inserted into the borehole to preclude cave-ins and/or instability in the borehole.



## EAST KENTUCKY ENGINEERING, LLC.

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- 2.3 The bearing surface within the drilled pier will be inspected by a registered Professional Engineer before being approved for structural concreting.

### 3.0 INSTALLATION OF THE REBAR CAGE

- 3.1 An epoxy coated spiral reinforcing steel cage will be installed while in the drilled pier borehole.
- 3.2 To assist in assuring that the reinforcing steel cage does not settle during concrete pumping, a mat of reinforcing steel bars will be installed across the bottom of the reinforcing steel cage perpendicular to the vertical axis of the cage. The exact number of bars will be determined and installed by the Structural Engineer. The number of rebar boots used on the bottom of the cage will also be determined by the Structural Engineer.
- 3.3 The reinforcing steel cage will be lowered into the drilled pier borehole, while drilled pier spacers are placed at intervals as required by the Structural Engineer. The reinforcing steel cage will be checked for alignment by the Contractors survey crew.
- 3.4 The crane will remain attached to the reinforcing steel cage while the concrete pump outlet pipe is lowered to just above the bottom of the drilled pier. The concrete pump pipe sections will be welded together to assure that do not separate during pumping.

### 4.0 CONCRETING OF THE DRILLED PIER

- 4.1 Concrete pumping may commence once the bearing surface has been approved in accordance with Clause 2.3





## EAST KENTUCKY ENGINEERING, LLC.

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- 4.2 A three-inch trash pump will be used to pump slurry and/or water from within the casing and from above the newly pumped concrete.
- 4.3 The concrete pump outlet pipe will maintain at least ten (10) feet of embedment into the fresh concrete. The concrete level in the casing will be monitored.
- 4.4 The casing will be completely extracted with the crane and/or vibratory hammer. Caisson clamps on the vibratory hammer (if applicable) will be adjusted to the proper dimension to withdrawal the casing.
- 4.5 The concrete will be terminated at the top of drilled pier elevation and screeded flat.
- 4.6 The upper reinforcing steel dowel cage will be lowered into the concrete to the embedment elevation. If necessary, the concrete will be vibrated to assist in placement. Alignment will be verified by the Contractors survey crew and the cage will be sufficiently braced.



# EAST KENTUCKY ENGINEERING, LLC.

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APPENDIX A   BORING DATA
--------------------------



Boring 1

3.5 – 13.5



Boring 1

13.5 – 23.5





Boring 2

4.0-18.9



Boring 2

18.9 -25.0





Boring 4

4.0 - 19.2



Boring 4

19.2 - 25.0





7 Day Water Level \_\_\_\_\_  
Hammer Drop 30 in.

Project Name	APP WIRELESS TOWER	Hole Number	3	Total Depth	25.0
Federal Project No.	HAZEL GREEN, KY	Location	AS STAKED		
State Project No.		Surface Elevation	N/P		
Drilling/Sampling Method	HSA/NY	Date Started	6-13	Date Completed	6-13
Boring Diameter	8" / 3"	Driller	B.ing	Weather	

7 Day Water Level \_\_\_\_\_  
Hammer Drop 30 in.



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

## Page      of

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



**EAST KENTUCKY ENGINEERING, LLC.**

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

## User-Specified Input

**Report Title** Hazel Green Tower Site  
Tue June 27, 2017 17:25:49 UTC

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

**Site Coordinates** 37.8015°N, 83.4129°W

**Site Soil Classification** Site Class A – "Hard Rock"

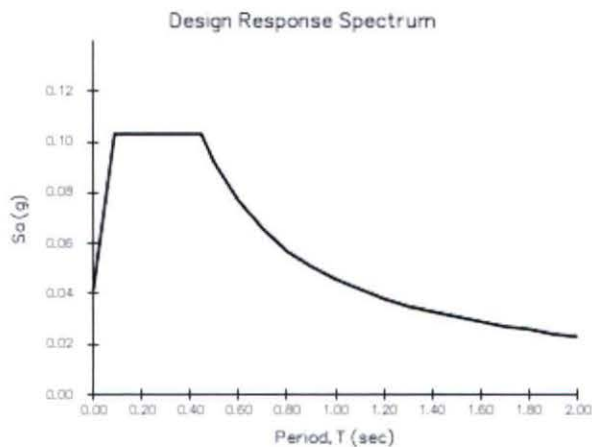
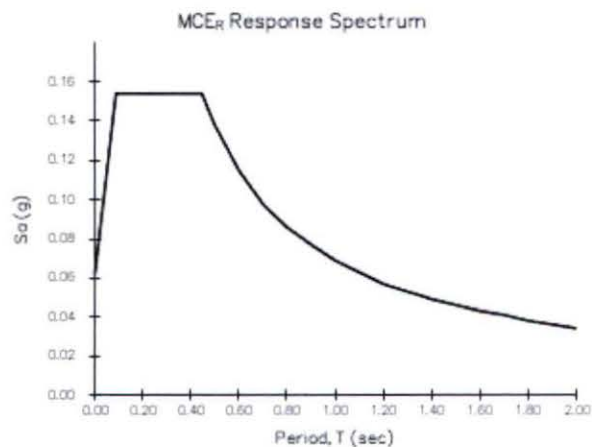
**Risk Category** IV (e.g. essential facilities)



## USGS-Provided Output

$S_s = 0.193 \text{ g}$	$S_{MS} = 0.154 \text{ g}$	$S_{DS} = 0.103 \text{ g}$
$S_1 = 0.086 \text{ g}$	$S_{M1} = 0.069 \text{ g}$	$S_{D1} = 0.046 \text{ g}$

For information on how the  $S_s$  and  $S_1$  values above have been calculated from probabilistic (risk-targeted) and deterministic ground motions in the direction of maximum horizontal response, please return to the application and select the "2009 NEHRP" building code reference document.



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





**EAST KENTUCKY ENGINEERING, LLC.**

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<b>APPENDIX C    PHOTOGRAPHS</b>
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## EAST KENTUCKY ENGINEERING, LLC.

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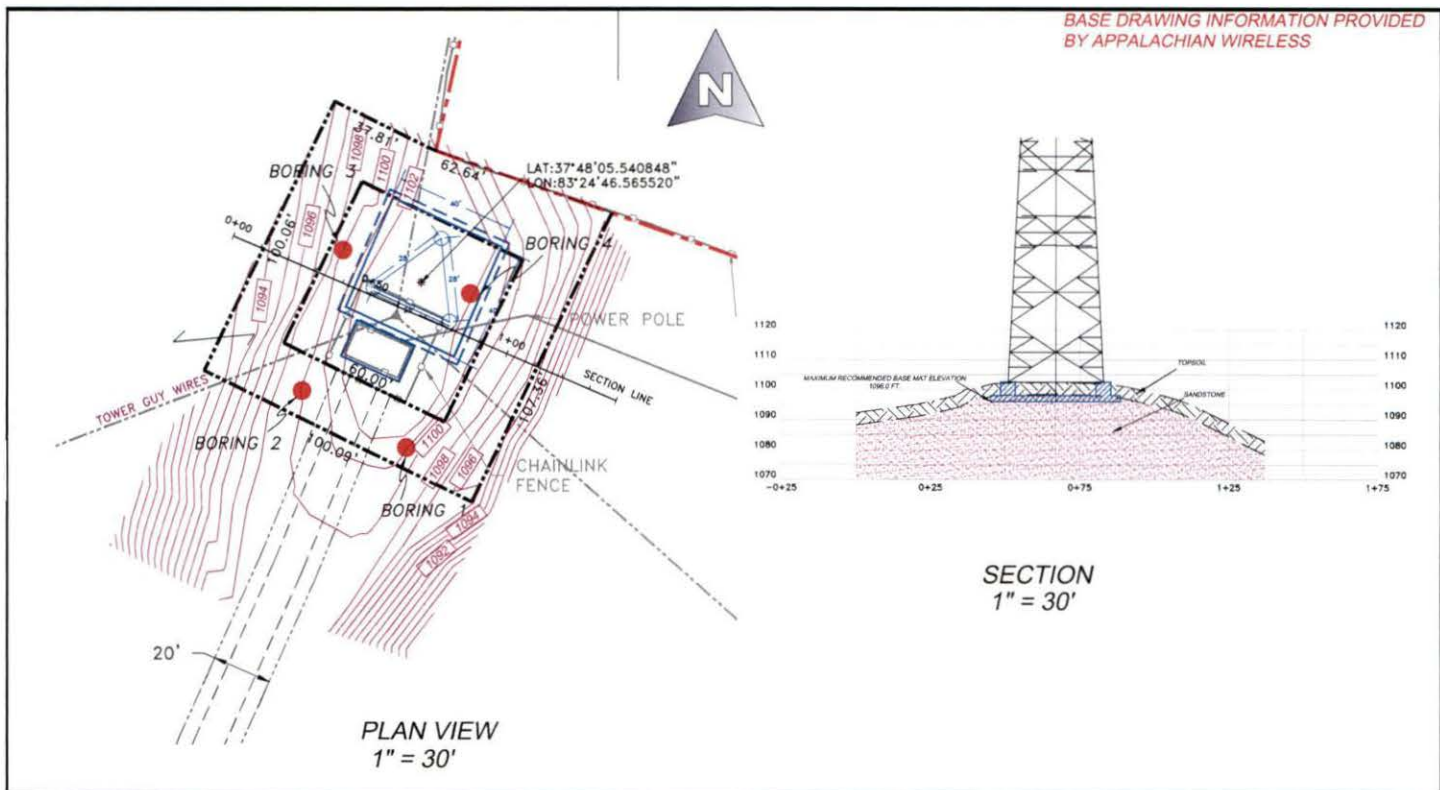


**EAST KENTUCKY ENGINEERING, LLC.**

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<b>APPENDIX D    MAPS</b>
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East Kentucky Engineering, LLC



Hazard Location  
230 Swartz Drive  
Hazard, KY 41701  
(606) 551-1050  
Email: rds@ekyeng.com

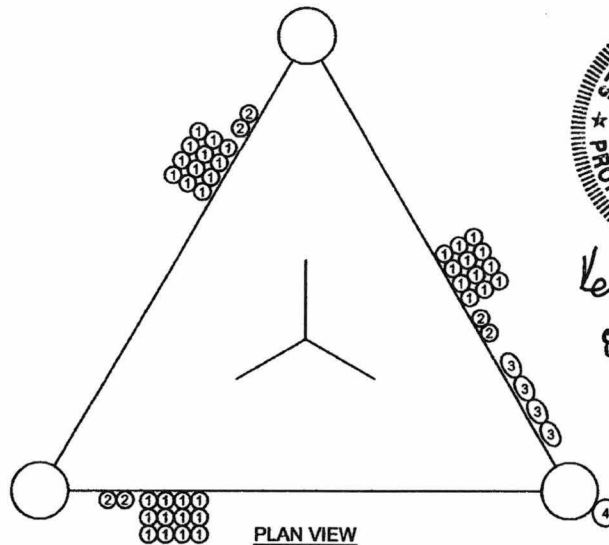
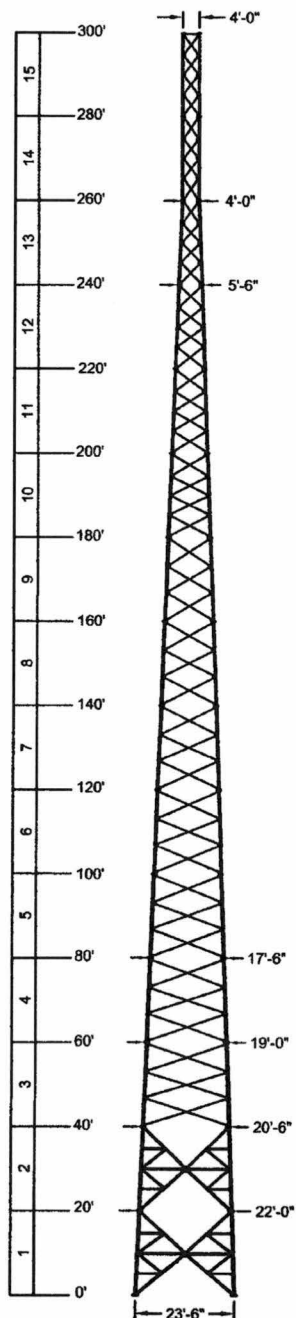


0 20' 40'



Drawn by: RDS Date: 5-2-2017  
Job #: 165-0043 Scale: NOTED  
File Location:

APPALACHIAN  
WIRELESS  
HAZEL GREEN TOWER SITE  
WOLF COUNTY, KENTUCKY



PLAN VIEW REF:

- 1) 15/8" HELIAX FEED LINES
- 2) 7/8" HYBRID FEED LINES
- 3) EW65 FEED LINES
- 4) STEP BOLTS

BASE REACTIONS:(FACTORED)

TOTAL SHEAR = 77 KIPS  
 AXIAL LOAD = 227 KIPS  
 UPLIFT / LEG = 551 KIPS  
 COMP. / LEG = 645 KIPS  
 O.T. MOMENT = 12469 FT-K

MEMBER INFORMATION

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



Keith M. Eaton  
 8-9-2017

DESIGNED APPURTENANCE LOADING  
 SHOWN ON SHEET "AA"

DESIGN NOTES:

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

APPROX. WEIGHT  
 63.3 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:	DESCRIPTION
				INCHES	TOWER OVERVIEW
				TOLERANCE BANDS:	APPALACHIAN WIRELESS
				X +3/32"-0 ANGLES +/- 2"	300' SELF SUPPORT TOWER
				XX +3/32"-0	HAZEL GREEN, WOLFE CO., KY
				XXX +1/16"-0 HOLES +Ø1/16"-0	
				DRAWN BY: JEA	FILE NAME:
				DATE: 8/8/2017	64876FT - A
				SCALE: NTS	SHEET A

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

# ANTENNA INFORMATION

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



Keith M. Eaton  
8-9-2017

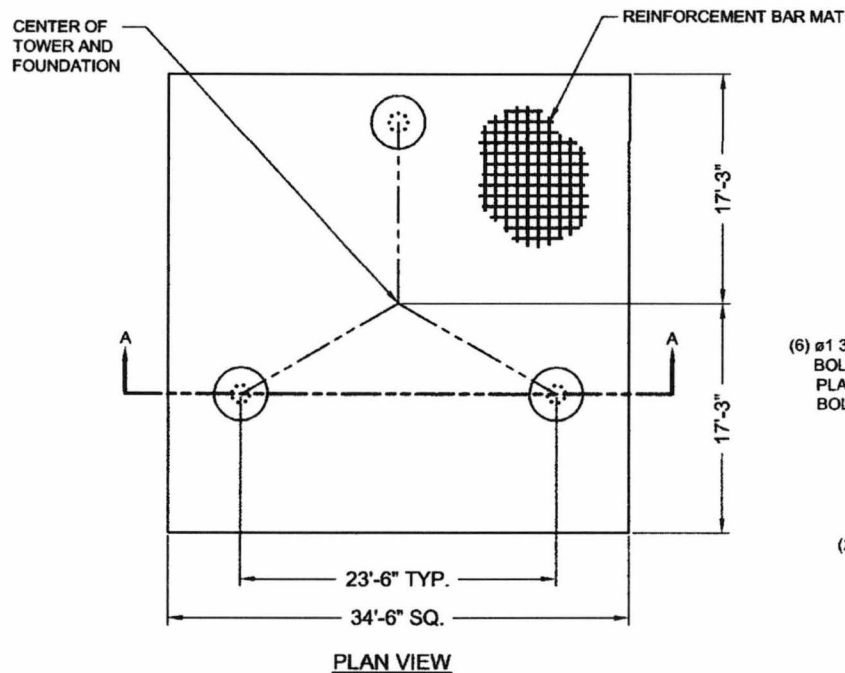
**ALLSTATE  
TOWER**

ALLSTATE TOWER INC.  
P.O. BOX 26  
HENDERSON, KY 42410  
PHONE: (270) 830-8512  
FAX: (270) 830-8475  
WWW.PTTG.COM

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REV #	DESCRIPTION	DATE	BY	UNLESS OTHERWISE NOTED DIMENSIONS ARE IN: <b>INCHES</b>	DESCRIPTION:
				TOLERANCE BANDS: X .+3/32"-0 ANGLES +/- 2° XX .+3/32"-0 XXX .+1/16"-0 HOLES .+0/-.16"-0	TOWER OVERVIEW APPALACHIAN WIRELESS 300' SELF SUPPORT TOWER HAZEL GREEN, WOLFE CO., KY
SCALE: NTS				DRAWN BY: JEA	FILE NAME:
				DATE: 8/8/2017	64876FT - A
					SHEET <b>AA</b>

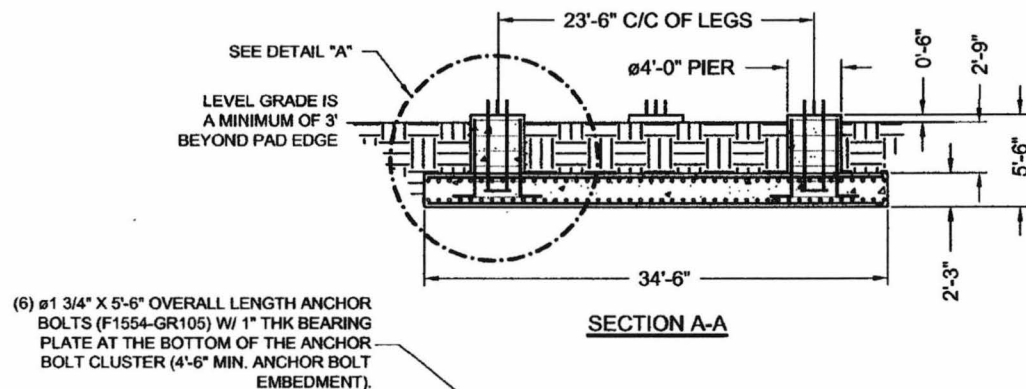




TOTAL VOLUME OF CONCRETE = 103.7 YD<sup>3</sup>

#### FOUNDATION INSTALLATION/DESIGN NOTES:

1. THIS FOUNDATION IS DESIGNED TO MEET ALL STANDARDS SET FORTH BY ACI 318: AMERICAN CONCRETE INSTITUTE, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, ANSI/TIA/EIA 222-G: STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. THIS FOUNDATION IS DESIGNED UTILIZING THE GEOTECHNICAL REPORT PERFORMED BY EAST KENTUCKY ENGINEERING, LLC.; DATED 06-26-17; PROJECT NO. 165-000-0044. 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.

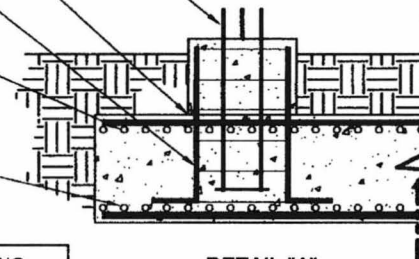


USE EPOXY BONDING AGENT WHEN POURED SEPARATELY

(24) #9 VERTICAL BARS w/ 6" HOOK W/ (4) #4 TIES EQ. SPACED.

(34) #6 HORIZONTAL BARS x 34'-0" LONG SPACED 12" O.C. EACH WAY AT TOP OF MAT. (TOTAL=68)

(45) #9 HORIZONTAL BARS x 34'-0" LONG SPACED 9" O.C. EACH WAY AT BOTTOM OF MAT. (TOTAL=90)



#### 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*  
8-9-2017

**ALLSTATE TOWER**

ALLSTATE TOWER INC.  
P.O. BOX 25  
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FAX: (270) 830-8475  
WWW.PTTG.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:	DESCRIPTION
				INCHES	
				TOLERANCE BANDS:	
				X ±3/32" I/O ANGLES ±.2"	
				XX ±3/32" I/O	
				XXX ±1/16" I/O HOLES ± Ø1/16" I/O	
				DRAWN BY: JEA	FILE NAME:
				DATE: 8/8/2017	
				SCALE: NTS	64876FT - B

PAD & PIER FOUNDATION DESIGN  
APPALACHIAN WIRELESS  
HAZEL GREEN, WOLFE CO., KY

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-12957-OE

Issued Date: 07/27/2017

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:	Tower Green Hazel
Location:	Hazel Green, KY
Latitude:	37-48-05.54N NAD 83
Longitude:	83-24-46.56W
Heights:	1104 feet site elevation (SE) 310 feet above ground level (AGL) 1414 feet above mean sea level (AMSL)

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

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

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

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

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

This determination expires on 01/27/2019 unless:

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

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

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

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

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

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

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power 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 (202) 267-0105, or [j.garver@faa.gov](mailto:j.garver@faa.gov). On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2017-ASO-12957-OE.



**Signature Control No: 336174153-339198929**

( DNE )

Jay Garver  
Specialist

Attachment(s)  
Frequency Data  
Map(s)

cc: FCC

# Frequency Data for ASN 2017-ASO-12957-OE

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







## KENTUCKY AIRPORT ZONING COMMISSION

## APPLICATION FOR PERMIT TO CONSTRUCT OR ALTER A STRUCTURE

<b>APPLICANT (name)</b> East Kentucky Network, LLC c/o LNGS		<b>PHONE</b> 703-584-8667	<b>FAX</b> 703-584-8692	<b>KY AERONAUTICAL STUDY #</b>	
<b>ADDRESS (street)</b> 8300 Greensboro Dr, #1200		<b>CITY</b> Tysons		<b>STATE</b> VA	<b>ZIP</b> 22102
<b>APPLICANT'S REPRESENTATIVE (name)</b> Ali Kuzehkanani		<b>PHONE</b> 703-584-8667	<b>FAX</b> 703-584-8692		
<b>ADDRESS (street)</b> 8300 Greensboro Dr, #1200		<b>CITY</b> Tysons		<b>STATE</b> VA	<b>ZIP</b> 22102
<b>APPLICATION FOR</b> <input type="checkbox"/> New Construction <input checked="" type="checkbox"/> Alteration <input type="checkbox"/> Existing				<b>WORK SCHEDULE</b>	
<b>DURATION</b> <input type="checkbox"/> Permanent <input type="checkbox"/> Temporary (months days )				Start 07/25/17 End 07/30/17	
<b>TYPE</b> <input type="checkbox"/> Crane <input type="checkbox"/> Building <input checked="" type="checkbox"/> Antenna Tower <input type="checkbox"/> Power Line <input type="checkbox"/> Water Tank <input type="checkbox"/> Landfill <input type="checkbox"/> Other		<b>MARKING/PAINTING/LIGHTING PREFERRED</b> <input type="checkbox"/> Red Lights & Paint <input type="checkbox"/> White- medium intensity <input type="checkbox"/> White- high intensity <input checked="" type="checkbox"/> Dual- red & medium intensity white <input type="checkbox"/> Dual- red & high intensity white <input type="checkbox"/> Other			
<b>LATITUDE</b> 37°48'05.54"		<b>LONGITUDE</b> 83°24'46.56"		<b>DATUM</b> <input checked="" type="checkbox"/> NAD83 <input type="checkbox"/> NAD27 <input type="checkbox"/> Other	
<b>NEAREST KENTUCKY</b> City Hazel Green County Wolfe		<b>NEAREST KENTUCKY PUBLIC USE OR MILITARY AIRPORT</b> Julian Carroll Airport			
<b>SITE ELEVATION (AMSL, feet)</b> 1104		<b>TOTAL STRUCTURE HEIGHT (AGL, feet)</b> 310		<b>CURRENT (FAA aeronautical study #)</b>	
<b>OVERALL HEIGHT (site elevation plus total structure height, feet)</b> 1414				<b>PREVIOUS (FAA aeronautical study #)</b>	
<b>DISTANCE (from nearest Kentucky public use or Military airport to structure)</b> 11.7 mi				<b>PREVIOUS (KY aeronautical study #)</b>	
<b>DIRECTION (from nearest Kentucky public use or Military airport to structure)</b> NE					
<b>DESCRIPTION OF LOCATION</b> (Attach USGS 7.5 minute quadrangle map or an airport layout drawing with the precise site marked and any certified survey.) Off of US-203, approx. 0.3 miles north of Hazel Green (Wolfe), KY					
<b>DESCRIPTION OF PROPOSAL</b> Replace the existing structure with a new 300' tower with top-mounted antennas (overall height of 310' AGL)					
<b>FAA Form 7460-1</b> (Has the "Notice of Construction or Alteration" been filed with the Federal Aviation Administration?) <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes, when? 06/23/17					
<b>CERTIFICATION</b> (I hereby certify that all the above entries, made by me, are true, complete, and correct to the best of my knowledge and belief.)					
<b>PENALTIES</b> (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.)					
<b>NAME</b> Ali Kuzehkanani	<b>TITLE</b> Dir of Engineering	<b>SIGNATURE</b> 		<b>DATE</b> 06/23/17	
<b>COMMISSION ACTION</b>		<input type="checkbox"/> Chairperson, KAZC <input type="checkbox"/> Administrator, KAZC			
<input type="checkbox"/> Approved		<b>SIGNATURE</b>		<b>DATE</b>	
<input type="checkbox"/> Disapproved					

### Driving Directions for Hazel Green

Starting in front of the Wolfe County Courthouse in Campton Kentucky. at the intersection of Court Street and Washington Street turn left onto Washington Street. Go to the traffic light and turn left onto 191 East. Drive 10.2 miles. Turn left at the gated gravel road (signs will be posted). Drive two-tenths of a mile (signs will be posted).

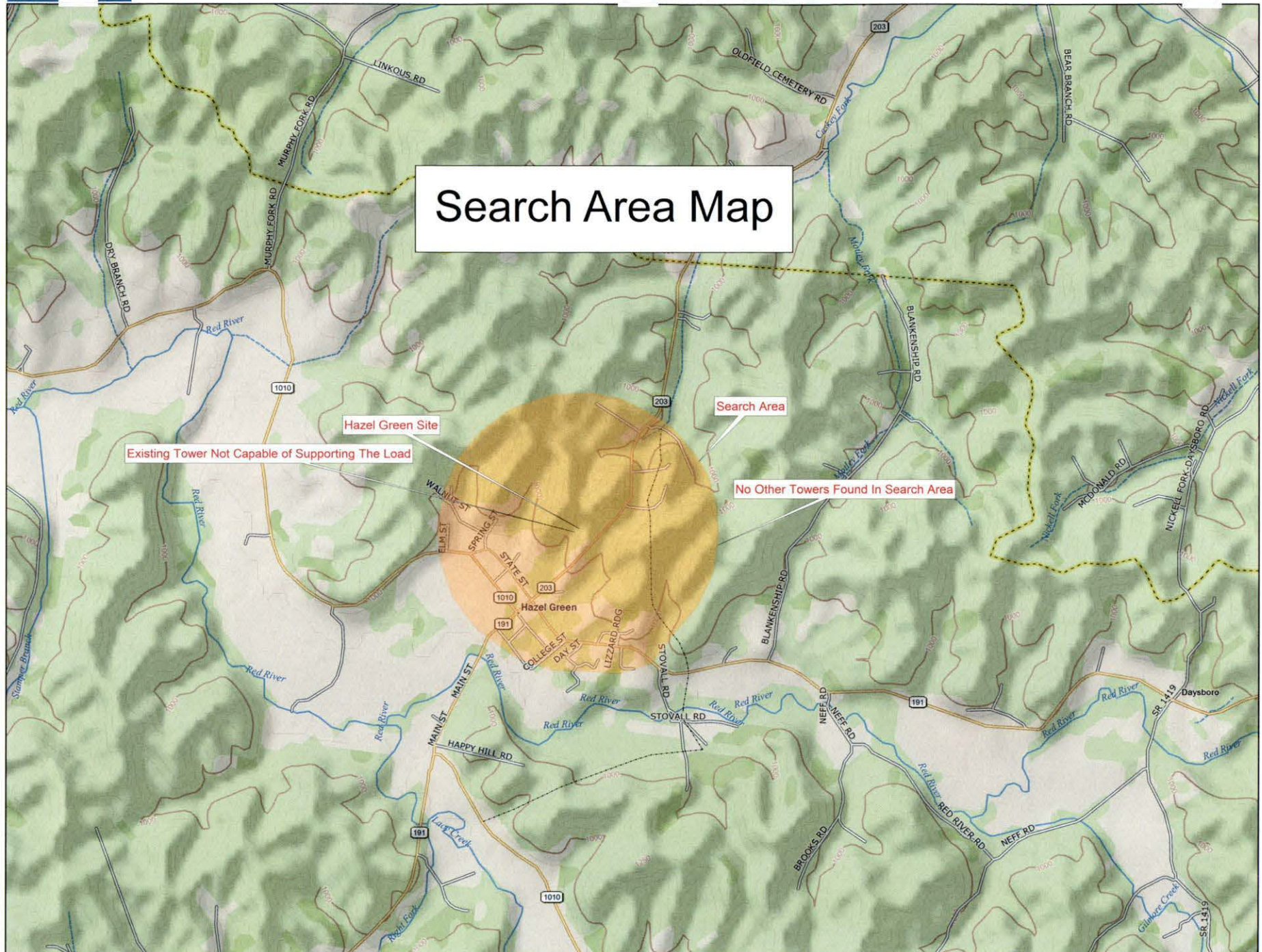
Daryl Bartley

Appalachian Wireless

606-791-0310



# Search Area Map



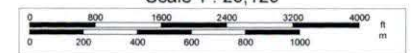
Data use subject to license.

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[www.delorme.com](http://www.delorme.com)



Scale 1 : 28,125



1" = 2,343.8 ft

Data Zoom 13-2



### MEMORANDUM OF LEASE

THIS MEMORANDUM OF LEASE is made and entered into on this 23<sup>rd</sup> day of May, 2017, with a commencement date of May 23<sup>rd</sup>, 2017 (the "**Commencement Date**"), by and between **ERIC LACY**, single, with an address of 27 Highway 203, Hazel Green, Kentucky 41332, hereinafter referred to as "**Lessor**", and **EAST KENTUCKY NETWORK, LLC D/B/A APPALACHIAN WIRELESS**, a Kentucky limited liability company, with a mailing address of 101 Technology Trail, Ivel, Kentucky, 41642, hereinafter referred to as "**Lessee**."

### WITNESSETH

1. **Demised Premises.** For good and valuable consideration, Lessor leased to Lessee, and Lessee has leased from Lessor that certain tract of real estate located in Wolfe County, Kentucky, and being a portion of the same land conveyed to Lessor by Deed dated April 26, 2011, and recorded on May 10, 2011, in Deed Book 131, Page 216, in the Wolfe County Clerk's Office, and also a portion of the same land conveyed to R.D. Davidson and Bonnie Davidson by Deed dated July 11, 1957, and recorded in the Wolfe County Clerk's Office in Deed Book 60, Page 401; said property is more particularly described as **Lot 1A and Lot 1B** (collectively, the "Premises") 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.

For purposes of clarification, by Deed dated September 30, 2016, of record in Deed Book 141, Page 15 (the "MRTC Deed") in the Wolfe County Clerk's Office, Mountain Rural Telephone

Cooperative Corporation, Inc. ("MRTC") conveyed to Lessee a certain tract of real estate more particularly described therein, being a portion of the same land conveyed to R.D. Davidson and Bonnie Davidson by Deed dated July 11, 1957, and recorded in the Wolfe County Clerk's Office in Deed Book 60, Page 401. MRTC also conveyed to Lessee a tower and other equipment located on Lot 1B. To the extent that there is any ambiguity, error, or mistake in the property description contained in the MRTC Deed or prior instruments to MRTC, this Agreement is intended, among other things, to confer a leasehold estate for Lot 1B to Lessee, in addition to any other rights or interests that Lessee has or may have under the MRTC Deed.

The Lessor has also granted unto Lessee full and complete rights of ingress, egress and regress to and from the Premises over any property owned by Lessor and other rights and easements for installation of utilities, installation of guy wires, maintenance, and other purposes.

2. **Term.** The term of this lease shall be perpetual from the commencement date of this Agreement until such time as Lessee, its successor(s) or assign(s) terminates the Agreement in writing, at the sole and exclusive option of Lessee, its successor(s) or assign(s). If Lessee, its successor(s) or assign(s) never terminates this Agreement in writing, then the term shall continue forever in perpetuity. This Agreement shall run with the land and shall be binding upon the heirs, successors, and assigns of Lessor, forever.

3. **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.

4. **Purpose.** This Memorandum of Lease is prepared solely for the purpose of recordation, and is not intended to, nor shall it be deemed to, modify any of the terms and conditions set forth in the Lease, nor to construe any of the rights, duties or responsibilities of

Lessor and Lessee. In the event of any conflict between the terms and conditions of this Memorandum and the terms and conditions of the Lease, the terms and conditions of the Lease shall supersede and control.

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

LESSOR:

  
ERIC LACY

COMMONWEALTH OF KENTUCKY,  
COUNTY OF Wolfe, TO WIT;

The foregoing instrument was acknowledged before me on this 23rd day of May, 2017, by Eric Lacy, Lessor.

  
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

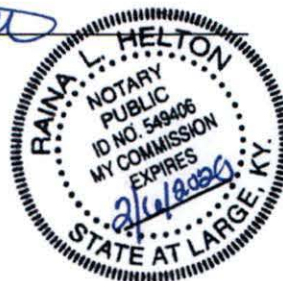
Its: CEO/ General Manager

COMMONWEALTH OF KENTUCKY  
COUNTY OF Floyd

The foregoing instrument was acknowledged before me on this 23<sup>rd</sup> day of May, 2017, by W.A. Gillum, CEO/General Manager of East Kentucky Network, LLC d/b/a Appalachian Wireless, Lessee.

Raina L. Helton  
Notary Public

My Commission Expires Feb 16, 2020

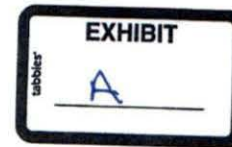


This instrument was prepared by:

Cindy D. McCarty

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

**LOT DESCRIPTION**  
Property of  
Eric Lacy  
P.O. Box 1297  
Campton, KY 40353  
Highway 203 in Wolfe County  
May 05, 2017



A certain tract of land on the north side of Kentucky State Highway 203 in Hazel Green, KY, in Wolfe County, KY. Being a part of the same property conveyed to Eric Lacy from Danny Lacy and Donna Lacy, his wife, and Brandy Lacy, a single person, by deed dated May 10, 2011 and of record in Deed Book 131, page 216, in the Office of the Wolfe County Clerk.

Lot 1A

Beginning at a set iron pin with cap marked LS2259 at a found fence corner on top of the ridge and having NAD83 KY SINGLE ZONE COORDINATES N:3823926.62 E:5596388.81, said point being on the property corner between Patrick Taulbee (Deed Book 119, page 61) and Eric Lacy (Deed Book 131, page 216); thence running down the hill with a old wire fence South 70 deg 40 min 23 sec East, a distance of 62.64 feet to a set iron pin with cap marked LS2259 at an old wire fence on the side of the hill; thence leaving the old wire fence and the property line of Patrick Taulbee, and severing the land of Eric Lacy, and running around the side of the hill South 25 deg 58 min 43 sec West, a distance of 107.36 feet to a set iron pin with cap marked LS2259 on the side of the hill; thence running up the hill, and across the ridge and an existing access road, North 64 deg 00 min 23 sec West, a distance of 100.09 feet to a set iron pin with cap marked LS2259 on the side of the hill; thence running around the side of the hill North 26 deg 01 min 06 sec East, a distance of 100.06 feet to set iron pin with cap marked LS2259 on the side of the hill; thence running back up the hill to the top of the ridge South 64 deg 03 min 40 sec East, a distance of 37.81 feet, to the point of the beginning. Containing a calculated area of 10240.5 square feet, or .235 acres. (Which includes the original Eastern Kentucky Network lot, containing 3605 square feet or .083 acres. Adding an additional 6635.5 square feet or .152 acres to the original lot.)

Lot 1B - The above lot fully encloses the East Kentucky Network lot further described as follows:

Beginning on a set iron pin with cap marked LS2259 with NAD83 KY SINGLE ZONE COORDINATES OF N:3823916.36', E:5596364.03', on the hillside; thence running across the hill South 64 deg 00 min 47 sec East a distance of 60.01 feet to a set iron pin with cap marked LS2259 on top of the hill; thence running with the hillside South 26 deg 00 min 33 sec West a distance of 60.00 feet to a set iron pin with cap marked LS2259 on top of the hill; thence running down the hill North 64 deg 00 min 47 sec West a distance of 59.97 feet to a set iron pin with cap marked LS2259 on the hillside; thence running with the side of the hill North 25 deg 59 min 59 sec East a distance of 60.04 feet to a set iron pin with cap marked LS2259 on the hillside which is also the point of the beginning. Containing a calculated area of 3605 sq ft or .083 acres.

Also to be included is an easement for the existing guy wires and guy wire anchors for the existing tower. The easement area being 10' on each side of the wires and extending 10' beyond the guy anchors.

Also to be included is a 20 foot wide right of way for an access road where the existing access road is now located and running from Highway 203 to the proposed lot.

Also to be included is a power line easement located where the existing power line is now located and running from the highway r.o.w. to the proposed lot. The easement area being 25' on each side of the power line.

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.

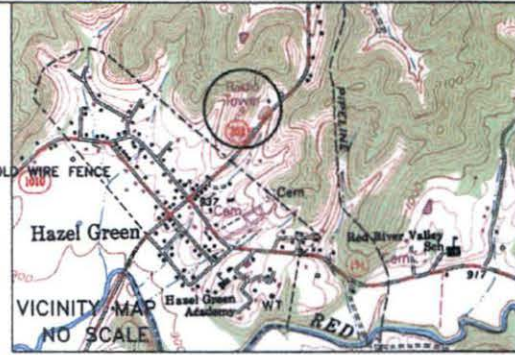
This survey was performed on May 05, 2017 by James W. Caudill, a Kentucky Licensed Professional Land Surveyor No. 2259.

*James W. Caudill*  
James W. Caudill, PLS #2259  
5-5-17





Beginning at a set lpc at old fence corner on ridge;  
 thence S 70°40'23" E a distance of 62.64' to a set lpc;  
 thence S 25°58'43" W a distance of 107.36' to a set lpc;  
 thence N 64°00'23" W a distance of 100.09' to a set lpc;  
 thence N 26°01'06" E a distance of 100.06' to a set lpc;  
 thence S 64°03'40" E a distance of 37.81' to a set lpc;  
 which is the point of beginning,  
 having an area of 10240.5 square feet, 0.235 acres



ERIC LACY  
088-03-011  
131/216

SET IRON PIN WITH CAP MARKED  
LS2259 AT FENCE CORNER

N:3823926.62  
E:5596388.81

SET IRON PIN WITH CAP  
MARKED LS2259 ON HILLSIDE

ADDED AREA  
6635.5 Sq. Feet  
0.152 Acres

TOTAL AREA  
10240.5 Sq. Feet  
0.235 Acres

SET IRON PIN WITH CAP  
MARKED LS2259 AT FENCE

PATRICK TAULBEE  
088-03-006  
119/61

SET IRON PIN  
WITH CAP MARKED  
LS2259 ON HILLSIDE

SET IRON PIN WITH ALUMINUM CAP  
MARKED LS2259 ON HILLSIDE

ERIC LACY  
088-03-011  
131/216

ERIC LACY  
088-03-011  
131/216

SURVEY STA SET FOUND  
IRON PIN WITH CAP (18" X .5" REBAR PLASTIC CAP MARKED LS2259)  
BOUNDARY LINE  
ACCESS ROAD  
PARENT TR LINE

TOWER GUY ANCHOR

RURAL 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 12001

James W. Caudill Z259 5-5-17  
NAME PLS# DATE



NAD83 KY SINGLE ZONE

EXHIBIT

B

## PLAT OF SURVEY

DRAWN BY	SURVEY DATE	SUBDIVISION OF THE PROPERTY OF ERIC LACY PO BOX 1297 CAMPTON, KY 40353 OFF HIGHWAY 203 DEED BOOK 131 PAGE 216
JWC	05/05/17	
APPROVED BY	DRAWING DATE	SURVEYED BY JAMES W. CAUDILL LS2259 2999 PERKINS/MADDEN ROAD AMBURGEY, KY 41773 PHONE 606-642-3217
	05/05/17	
SCALE	SHEET	
1" = 50'	1 OF 1	





Deed - 141  
ps - 15

RECEIVED

OCT 13 2016

WOLFE COUNTY CLERK  
STEPHEN OLIVER

**DEED**

THIS DEED is entered into and effective as of the 30 day of September, 2016, by and between **MOUNTAIN RURAL TELEPHONE COOPERATIVE CORPORATION, INC.**, a Kentucky corporation ("**Grantor**"), with a mailing address of P.O. Box 399, West Liberty, Kentucky 41472, and **EAST KENTUCKY NETWORK, LLC D/B/A APPALACHIAN WIRELESS**, a Kentucky limited liability company ("**Grantee**"), with a mailing address of 101 Technology Trail, Ivel, Kentucky 41642, which is the "in care of" address to which the property tax bill for 2016 may be sent.

W I T N E S S E T H

For and in consideration of the sum of Twenty Thousand Dollars (\$20,000.00), cash in hand paid, the receipt and sufficiency of which are hereby acknowledged, Grantor does hereby grant, sell, and convey to the Grantee, its successors and assigns, that certain real property situated in or near Hazel Green, Wolfe County, Kentucky, and bounded and described as follows, to wit:

BEGINNING at an iron pin in R. D. Davidson property; said point being north 77 1/2° west, 188.3 feet from the property corner between R. D. Davidson and State Highway 203; thence south 26° west, 60 feet to an iron pin; thence north 64° west, 60 feet to an iron pin; thence north 26° east, 60 feet to an iron pin; thence south 64° east, 60 feet to the point of beginning. See Exhibit A attached to the Deeds of record in Deed Book 71, Page 124, and Deed Book 71, Page 130 for a more definite description of said property.

This conveyance includes a right-of-way easement of twenty (20) feet in width previously conveyed to Grantor in the Deeds of record in Deed Book 71, Page 124, and Deed Book 71, Page 130 and shown on Exhibit B to said Deeds. This conveyance also includes each and every other easement, right-of-way, right, privilege, and other matter conveyed to Grantor in the Deeds of record in Deed Book 71, Page 124, and Deed Book 71, Page 130, including but not limited to an easement for the placement of guy lines or wires outside of the boundary of the property herein conveyed; the right to enter onto the adjacent property that formerly belonged to the prior grantor to

locate, set, and anchor said guy lines and wires and to repair, maintain, and/or replace the same; the right to ingress and egress to and from the property; and the full right and privilege to construct in, on and over or under any of the premises formerly owned by the prior grantor adjacent to the tract of proper herein conveyed, any structures, lines, or pertinences necessary for the proper maintenance and operation of the facility and to include any underground line or lines for the proper and suitable operation of the tower.

Being all of the same property, rights, and interests conveyed to Grantor from Bonnie Davidson by Deed dated May 11, 1979, and recorded on May 18, 1979, in the Wolfe County Clerk's Office in Deed Book 71, Page 130, and also the same property and rights conveyed to Grantor from Margery and James Lacy, husband and wife, by Deed dated May 17, 1979, and recorded on May 18, 1979, in the Wolfe County Clerk's Office in Deed Book 71, Page 124.

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

We the undersigned, do hereby certify, pursuant to KRS Chapter 382, that the above-stated consideration in the amount of \$20,000.00, is the true, correct and full consideration paid for the property herein conveyed. We further certify our understanding that falsification of the stated consideration or sale price of the property as a Class D felony, subject to one to five years imprisonment, and fines up to \$10,000.00.

IN TESTIMONY WHEREOF, the parties have hereunto subscribed their names as of the date set forth herein.

**GRANTOR:**

**MOUNTAIN RURAL TELEPHONE  
COOPERATIVE CORPORATION, INC.**



By: Jimmie Jones

Its: President



COMMONWEALTH OF KENTUCKY  
COUNTY OF Floyd:

I, Lynn Haney, a Notary Public in and for the County and State aforesaid, do hereby certify that the foregoing Deed and Consideration Certificate was this day produced, acknowledged, subscribed, and sworn to before me in the County and State aforesaid and signed by Jimmie Jones, in his/her capacity as the President of Mountain Rural Telephone Cooperative Corporation, Inc. Grantor, this 30 day of September, 2016.

Lynn Haney  
Notary Public



My Commission Expires: August 19, 2019

**GRANTEE:**

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

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

COMMONWEALTH OF KENTUCKY  
COUNTY OF Floyd:

I, Lynn Haney, a Notary Public in and for the County and State aforesaid, do hereby certify that the foregoing Consideration Certificate was this day produced, acknowledged, subscribed, and sworn to before me in the County and State aforesaid and signed by W.A. Gillum, in his capacity as the CEO/General Manager of East Kentucky Network, LLC d/b/a Appalachian Wireless, Grantee, this 30 day of September, 2016.

Lynn Haney  
Notary Public

My Commission Expires: August 19, 2019

This is to certify that this  
instrument was prepared by:

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



234474  
Filed on: 10/13/2016 1:47:11 PM  
Book: DEED Number: 141  
Pages: 15 - 17  
Steve Oliver, Wolfe County  
DC: BRENDA MOORE



APPALACHIAN WIRELESS  
101 TECHNOLOGY TRAIL  
IVEL, KY 41642  
PROPOSED TOWER SITE  
NEAR HAZEL GREEN  
OFF OF HIGHWAY 203  
IN WOLFE COUNTY

ERIC LACY  
088-03-011  
131/216

PROPOSED NEW TOWER  
LAT:37°48'05.540848"  
LON:83°24'46.565520"  
EL:1104'  
N:3823882.62  
E:5596383.93

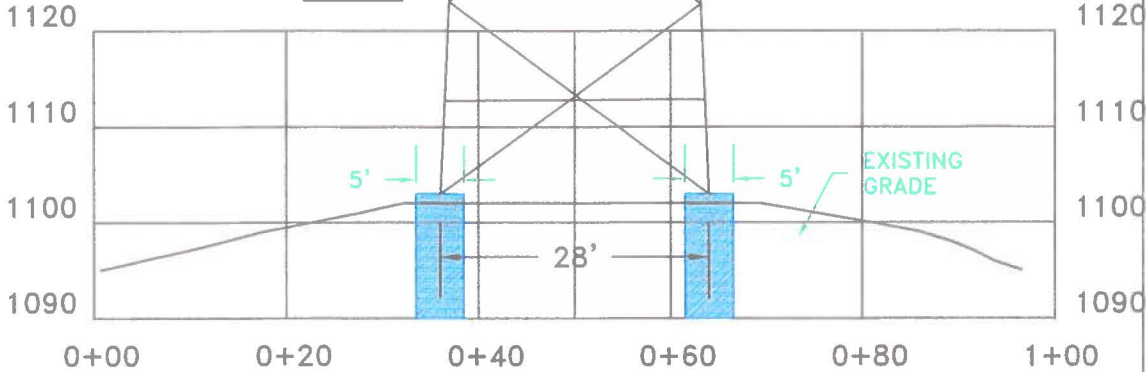
LINE	BEARING	DISTANCE
L1	N 60°56'07" E	90.93'
L2	N 64°08'36" E	63.25'
L3	N 68°04'51" E	78.70'
L4	N 78°47'00" E	84.19'
L5	S 81°37'07" W	58.14'
L6	S 70°00'59" W	68.08'
L7	S 56°18'58" W	65.40'

PATRICK TAULBEE  
088-03-006  
119/61

40 ft

20 ft

CROSS SECTION



CROSS SECTION

EXISTING GUY WIRE TOWER  
EQUIPMENT BUILDING  
EXISTING

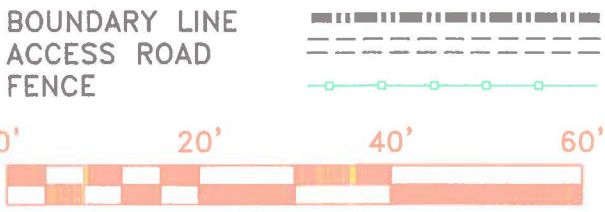
GUY ANCHOR

POWER POLE

POWER LINE

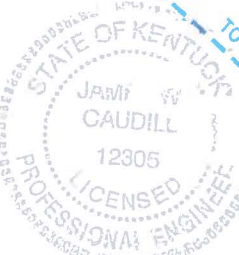
CHAINLINK FENCE

LEGEND



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  
N3823882.82 E5596383.93, EL 1102' EXISTING GRD  
TOP OF PROPOSED FOUNDATION EL1104'-TOP TOWER/EL1404'  
-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 6-19-17  
JAMES W. CAUDILL PE# DATE

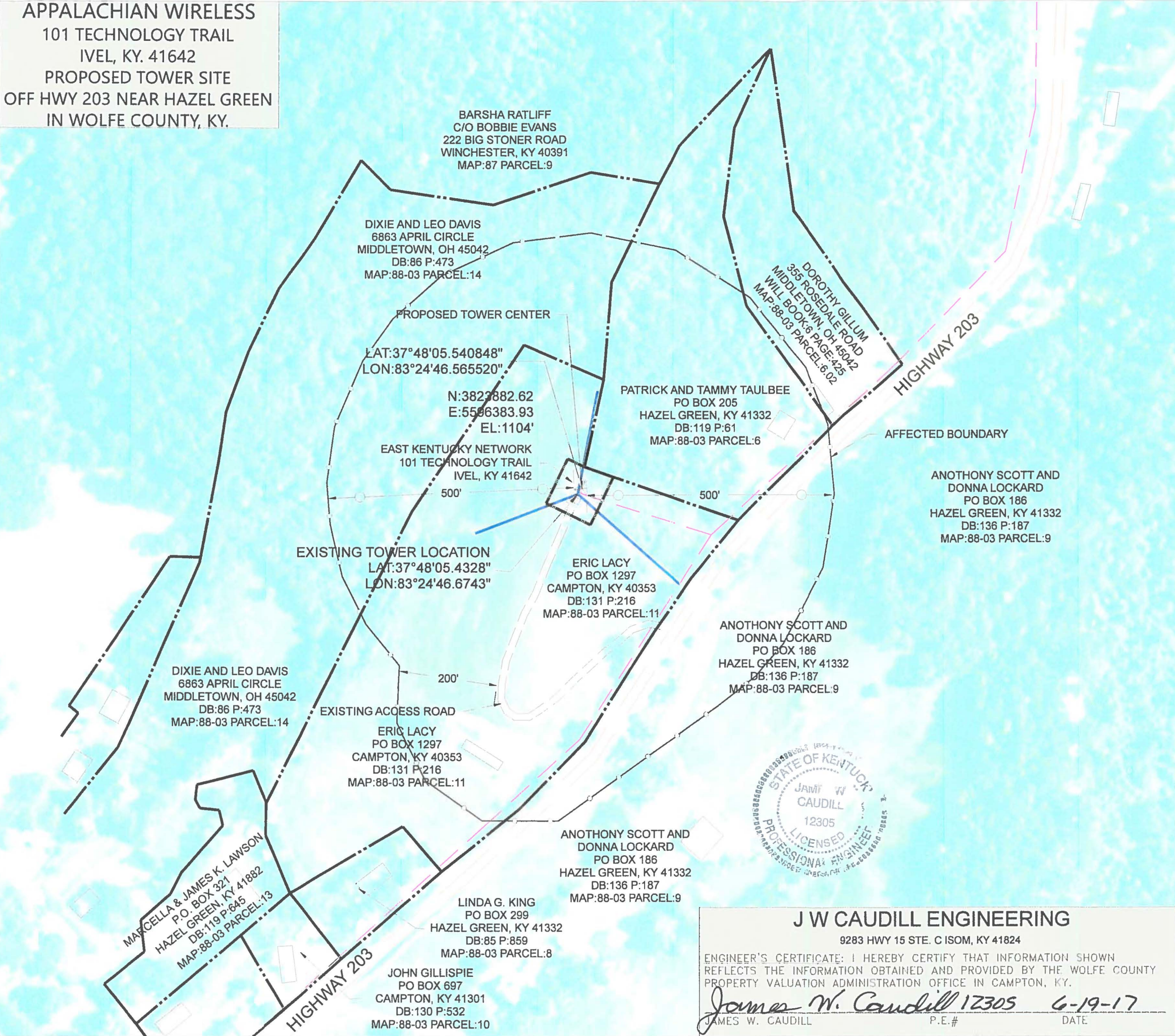
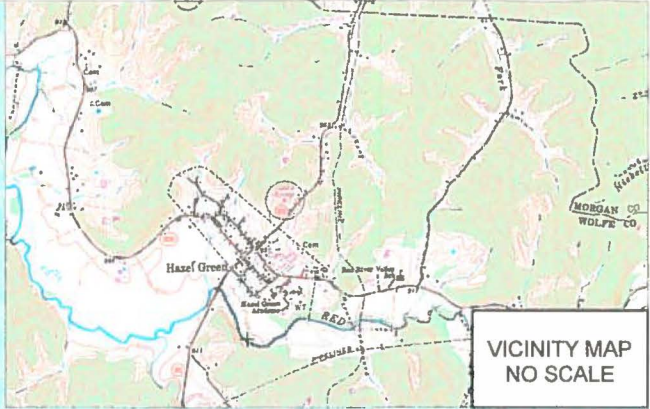


PROPOSED SITE PLAN AND STRUCTURE LOCATION  
HAZEL GREEN TOWER - APPALACHIAN WIRELESS

DRAWN JWC	DATE 06/19/2017	DETAIL SITE PLAN ERIC LACY TRACT NEAR HAZEL GREEN IN WOLFE COUNTY
APPROVED	DATE	
SCALE 1" = 20'	SHEET 2 of 3	PROJECT NO. HAZELGREEN/HG2C_20



APPALACHIAN WIRELESS  
101 TECHNOLOGY TRAIL  
IVEL, KY. 41642  
PROPOSED TOWER SITE  
OFF HWY 203 NEAR HAZEL GREEN  
IN WOLFE COUNTY, KY.



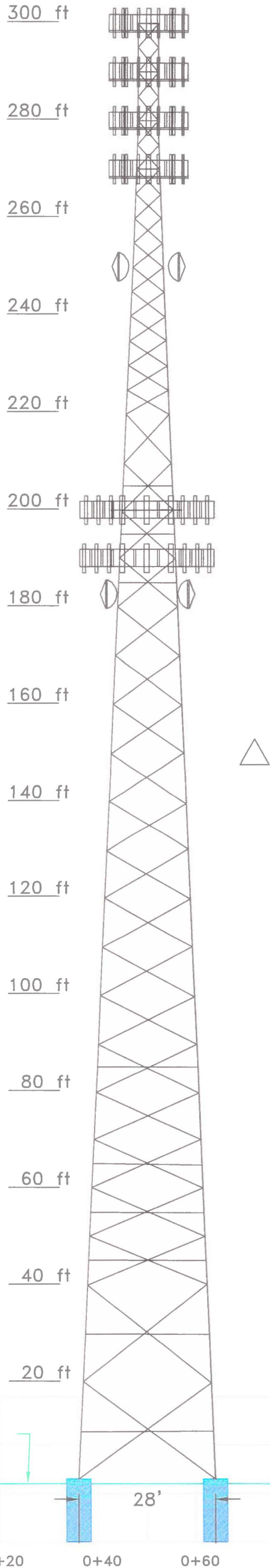
LEGEND	
IRON PIN WITH CAP (1/8" X .5" REBAR PLASTIC CAP MARKED LS2259)	
BOUNDARY LINE	---
ACCESS ROAD	---
HIGHWAY	---
POWERLINE	---

PROPOSED SITE PLAN AND STRUCTURE LOCATION  
HAZEL GREEN SITE - APPALACHIAN WIRELESS

DRAWN JWC	DATE 06/19/2017	STRUCTURES & PROPERTY OWNERS WITHIN 500' NEAR HAZEL GREEN IN WOLFE COUNTY
APPROVED	DATE	
SCALE 1" = 200'	SHEET 1 OF 3	PROJECT NO. HAZELGREEN/HGPVA200



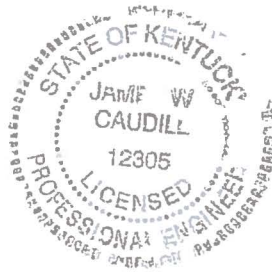
APPALACHIAN WIRELESS  
101 TECHNOLOGY TRAIL  
IVEL, KY. 41642  
PROPOSED TOWER SITE  
HAZEL GREEN IN WOLFE COUNTY



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 6-19-17  
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

06/19/2017  
SCALE 1" = 20'



PROPOSED SITE PLAN AND STRUCTURE LOCATION  
HAZEL GREEN TOWER – APPALACHIAN WIRELESS

DRAWN JWC	DATE 06/19/2017	DETAIL SITE PLAN ERIC LACY TRACT NEAR HAZEL GREEN IN WOLFE COUNTY
APPROVED	DATE	
SCALE 1" = 20'	SHEET 3 OF 3	PROJECT NO. HAZELGREEN/HG2C_20