

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

RECEIVED

FEB 22 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 2017-00048
CONSTRUCT A TOWER IN LETCHER COUNTY,)
KENTUCKY)

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

In an effort to improve service in Letcher County, pursuant to KRS 278.020 Subsection 1 and 807 KAR 5:001, East Kentucky Network, LLC is seeking the Commission's approval to construct a 300 foot telecommunications tower on a tract of land located near 3510 Highway 2036, Roxana, Letcher County, Kentucky (37°07'18.7773"N 82°57'12.1533"W). A map and detailed directions to the site can be found in Exhibit 7.

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

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

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

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

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

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

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

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

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

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

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

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

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

Two notice signs meeting the requirements prescribed by 807 KAR 5:063, Section 1(2), measuring at least two (2) feet in height and four (4) feet in width and containing all required language in letters of required height, have been posted, one at a visible location on the proposed site and one on the nearest public road. The two signs were posted on February 17, 2017, and will remain posted for at least two weeks after filing of this application as specified.

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

The proposed construction site is on a very rugged mountaintop some feet from the nearest structure. Prior to construction, the site was wooded.

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

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

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

Exhibit 11 contains a vertical sketch of the tower supplied by Jody G. Hunt, Kentucky registered professional engineer.

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

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

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

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

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

CONTACT INFORMATION:

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

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

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

Mailing Address:

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

1

2

3

4

5

6

7

8

9

10

11

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
Market			
Market	CMA452 - Kentucky 10 - Powell	Channel Block	B
Submarket	0	Phase	2
Dates			
Grant	08/30/2011	Expiration	10/01/2021
Effective	08/30/2011	Cancellation	

Five Year Buildout Date

10/17/1996

Control Points

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

Licensee

FRN	0001786607	Type	Limited Liability Company
-----	------------	------	---------------------------

Licensee

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

Contact

Lukas, Nace, Gutierrez & Sachs, LLP
Pamela L Gist Esq
8300 Greensboro Drive
McLean, VA 22102
P:(703)584-8665
F:(703)584-8695
E:pglist@fcclaw.com

Ownership and Qualifications

Radio Service Mobile
Type

Regulatory Status Common Carrier Interconnected Yes

Alien Ownership

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

Basic Qualifications

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

EXHIBIT II: LIST OF PROPERTY OWNERS:

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

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

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

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

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

Matthew Oakes and Amanda Oakes
James Phillip and Carrie Lee Kincaid
P.O. Box 106
Roxana, KY 41848

Lee Gentry
c/o Linda Egbers
1057 Arden Drive
Villa Hills, KY 41017

Lee Gentry
1057 Arden Drive
Villa Hills, KY 41017

James D. Hampton, et al
500 Smith Creek
Eolia, KY 40826

Nola and Jerome Caudill
990 Hwy 3408
Blackey, KY 41804

Monroe Cornett
c/o Jack Cornett
313 New Castle Lane
Winchester, KY 40391



VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

February 22, 2017

Matthew Oakes and Amanda Oakes
James Phillip and Carrie Lee Kincaid
P.O. Box 106
Roxana, KY 41848

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00048)

East Kentucky Network, LLC d/b/a Appalachian Wireless has applied to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct and operate a new facility to provide cellular telecommunications service in Letcher County. The facility will include a 300-foot self-supporting tower with attached antennas extending upwards, and an equipment shelter located on a tract of land near 3510 Highway 2036, Roxana, Letcher 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. 2017-00048 in your correspondence.

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

Sincerely,

Lynn Haney
Regulatory Compliance Director
Enclosure 1



VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

February 22, 2017

Lee Gentry
c/o Linda Egbers
1057 Arden Drive
Villa Hills, KY 41017

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00048)

East Kentucky Network, LLC d/b/a Appalachian Wireless has applied to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct and operate a new facility to provide cellular telecommunications service in Letcher County. The facility will include a 300-foot self-supporting tower with attached antennas extending upwards, and an equipment shelter located on a tract of land near 3510 Highway 2036, Roxana, Letcher 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. 2017-00048 in your correspondence.

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

Sincerely,

Lynn Haney
Regulatory Compliance Director
Enclosure 1



VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

February 22, 2017

Lee Gentry
1057 Arden Drive
Villa Hills, KY 41017

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00048)

East Kentucky Network, LLC d/b/a Appalachian Wireless has applied to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct and operate a new facility to provide cellular telecommunications service in Letcher County. The facility will include a 300-foot self-supporting tower with attached antennas extending upwards, and an equipment shelter located on a tract of land near 3510 Highway 2036, Roxana, Letcher 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. 2017-00048 in your correspondence.

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

Sincerely,

A handwritten signature in blue ink that reads "Lynn Haney". The signature is written in a cursive style.

Lynn Haney
Regulatory Compliance Director
Enclosure 1

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

EAST KENTUCKY
NETWORK



VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

February 22, 2017

James D. Hampton, et al
500 Smith Creek
Eolia, KY 40826

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00048)

East Kentucky Network, LLC d/b/a Appalachian Wireless has applied to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct and operate a new facility to provide cellular telecommunications service in Letcher County. The facility will include a 300-foot self-supporting tower with attached antennas extending upwards, and an equipment shelter located on a tract of land near 3510 Highway 2036, Roxana, Letcher 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. 2017-00048 in your correspondence.

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

Sincerely,

Lynn Haney
Regulatory Compliance Director
Enclosure 1

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



VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

February 22, 2017

Nola and Jerome Caudill
990 Hwy 3408
Blackey, KY 41804

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00048)

East Kentucky Network, LLC d/b/a Appalachian Wireless has applied to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct and operate a new facility to provide cellular telecommunications service in Letcher County. The facility will include a 300-foot self-supporting tower with attached antennas extending upwards, and an equipment shelter located on a tract of land near 3510 Highway 2036, Roxana, Letcher 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. 2017-00048 in your correspondence.

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

Sincerely,

Lynn Haney
Regulatory Compliance Director
Enclosure 1



VIA: U.S. CERTIFIED MAIL

PUBLIC NOTICE

February 22, 2017

Monroe Cornett
c/o Jack Cornett
313 New Castle Lane
Winchester, KY 40391

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00048)

East Kentucky Network, LLC d/b/a Appalachian Wireless has applied to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct and operate a new facility to provide cellular telecommunications service in Letcher County. The facility will include a 300-foot self-supporting tower with attached antennas extending upwards, and an equipment shelter located on a tract of land near 3510 Highway 2036, Roxana, Letcher 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. 2017-00048 in your correspondence.

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

Sincerely,

Lynn Haney
Regulatory Compliance Director
Enclosure 1

Appalachian Wireless Location Map



Site Name

Roxana Site

Location

3510 HWY 2036, Roxana KY.

GPS Location

N 37 07 18.7773

W 82 57 12.1533

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

EAST KENTUCKY
NETWORK



To: The Mountain Eagle
Attn: Classifieds

From: Raina Helton
Regulatory Compliance Assistant

Email: Pwalker_eagle@hotmail.com

Date: February 17, 2017

Re: PUBLIC NOTICE ADVERTISEMENT

Pages: 1

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

PUBLIC NOTICE:

RE: Public Service Commission of Kentucky (CASE NO. 2017-00048)

Public Notice is hereby given that East Kentucky Network, LLC, dba Appalachian Wireless has applied to the Kentucky Public Service Commission to construct a cellular telecommunications tower on a tract of land located near 3510 Highway 2036, Roxana, Letcher 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. 2017-00048.

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.

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

EAST KENTUCKY
NETWORK



VIA: U.S. CERTIFIED MAIL

February 22, 2017

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

RE: Public Notice-Public Service Commission of Kentucky (Case No. 2017-00048)

East Kentucky Network, LLC d/b/a Appalachian Wireless has applied to the Public Service Commission of Kentucky for a Certificate of Public Convenience and Necessity to construct and operate a new facility to provide cellular telecommunications service in Letcher County. The facility will include a 300-foot self-supporting tower with attached antennas extending upwards, and an equipment shelter located on a tract of land near 3510 Highway 2036, Roxana, Letcher County, Kentucky. A map showing the location of the proposed new facility is enclosed. This notice is being sent to you because you are the County Judge Executive of Letcher County.

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

Your comments and request for intervention should be addressed to: Executive Director's Office, Public Service Commission of Kentucky, P.O. Box 615, Frankfort, KY 40602. Please refer to Case No. 2017-00048 in your correspondence.

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

Sincerely,

Lynn Haney
Regulatory Compliance Director
Enclosure

Appalachian Wireless Location Map



Site Name

Roxana Site

Location

3510 HWY 2036, Roxana KY.

GPS Location

N 37 07 18.7773

W 82 57 12.1533

APPALACHIAN WIRELESS
Geotechnical Investigation on the
Roxana Tower Site
Letcher County, Kentucky
ERMC² Project No. 165-000-0032

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

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



_____, 20215, January 6th, 2017



EXECUTIVE SUMMARY

1.0 INTRODUCTION

2.0 PROJECT DESCRIPTION

3.0 SITE DESCRIPTION

3.1 GENERAL INFORMATION

3.2 SURFACE MINING

3.3 UNDERGROUND MINING

4.0 FIELD EXPLORATION

4.1 SITE INFORMATION

4.2 TRENCHING AND FIELD OBSERVATIONS

4.3 GROUNDWATER

4.4 SEISMIC SITE CLASSIFICATION

5.0 DISCUSSION AND RECOMMENDATIONS

5.1 GENERAL

5.2 FOUNDATIONS

5.3 SHALLOW FOUNDATIONS

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 – SEISMIC

APPENDIX B – PHOTOGRAPHS

APPENDIX C – MAPS



EXECUTIVE SUMMARY

A geotechnical investigation was performed on the Roxana Site, located in Letcher County, Kentucky. This site is not readily accessible. An estimated base elevation of the proposed tower footer of 1907.0 ft is used in this report. A location map is shown in Figure 1 of this report. Trench and visual inspections were used to determine the lithology and type of materials immediately above and below the proposed tower site. The following geotechnical considerations were identified:

- This area is forested. The site has not been previously disturbed. Soils, and sandstone was encountered on the site during the trenching. The soils varied from 3 feet to 4 feet in thickness. We are recommending that the base of the foundation be placed in the sandstone unit at an elevation of approximately 1907.0 ft. The minimum bearing capacities of this sandstone unit is predicted to be 8 tsf. To insure the foundations is bearing on competent rock we recommend placing the foundation base at a minimum elevation of 1900.0 ft.
- The 2015 International Building Code seismic site classification for this site is "A".
- Close monitoring of the construction operations discussed herein will be critical in achieving the design subgrade support. We therefore recommend that ERMC² be retained to monitor this portion of the work.

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



1. INTRODUCTION

Environmental Resources Management Consulting Company (ERMC²) was retained by Mr. Marty Thacker of Appalachian Wireless to prepare a geotechnical engineering report for the proposed tower site located near the North Fork of the Kentucky River and Kings Creek in Letcher County, Kentucky. A site location map is shown in Figure No. 1.

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

2.0 PROJECT DESCRIPTION

The proposed communication facility will consist of a self-supporting tower of undetermined height and ancillary support areas. Based upon information provided the foundation dimensions are to be approximately 38 ft. x 38 ft. We estimate the structural loads will be similar to the following conditions:

TABLE NO. 1

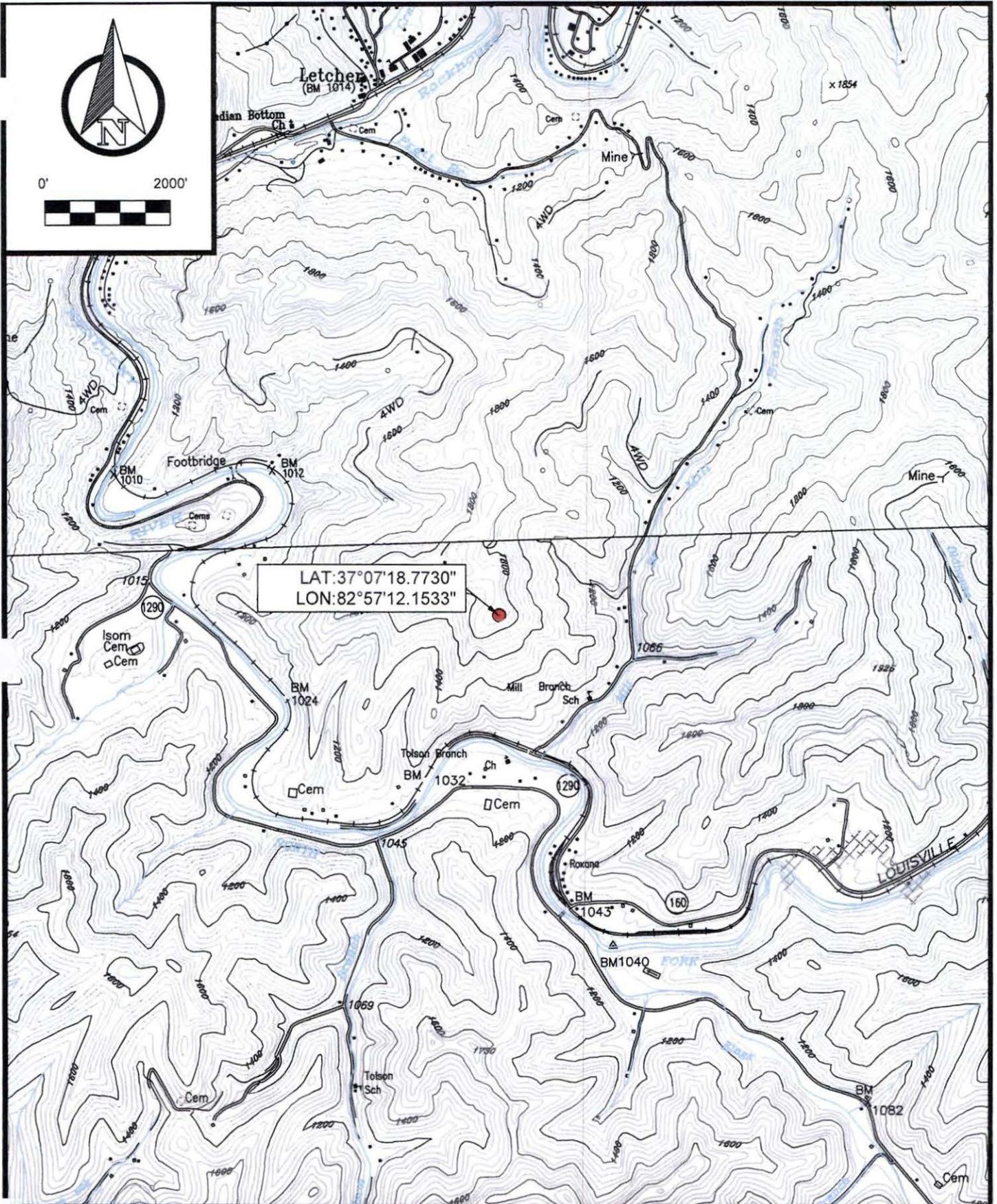
CONDITION	LOAD
Total Shear	40 Kips
Axial Load	50 Kips

It is expected that overturning will govern the structural design. If the loadings are significantly different than these expected values, ERMC² should be notified to re-evaluate the recommendations provided in this report.





0' 2000'



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

ROXANA TOWER SITE
APPALACHIAN WIRELESS
□ SGS □ AD SITE LOCATION MAP



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

3.0 SITE DESCRIPTION & HISTORICAL MINING

3.1 GENERAL INFORMATION

The site location is on an undisturbed Ridge in Letcher County, Kentucky. The current surface elevation is approximately 1920 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, were also used to try to evaluate historic mining.

3.2 SURFACE MINING

Surface mining was conducted adjacent to the tower site in the Hazard No. 4 Seam. This work appears to be pre SMCRA (Surface mining and Reclamation Control Act of 1977). Auger mining was also found in our research. No auger openings are under the tower our is within the area of influence of the footing. No subsidence issue are anticipated from the activities.

3.3 UNDERGROUND MINING

Our research found underground works that are underneath the proposed tower site. A final map was submitted on February 13th 2013. Based upon the map reviewed no secondary mining was conducted and the mine pillars are in place. These works are approximately 480. ft. below the proposed tower site. Site review revealed two sandstone units between these works and the proposed tower site. It is not anticipated that any subsidence issues will be present or develop from these workings. A map showing these findings is included in Appendix C of this report.

4.0 FIELD EXPLORATION

4.1 SITE INFORMATION

The proposed site is located on an undisturbed point in Letcher County, Kentucky. The site lies within the Roxana Quadrangle and is located Northeast of the confluence of the North Fork of the Kentucky Rives and Kings Creek. The site is in a wooded area and is not readily accessible by conventional exploratory equipment. An estimated pad





0' 400'

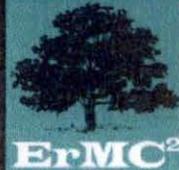


LAT:37°07'18.7730"
LON:82°57'12.1533"



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

ROXANA TOWER SITE
 APPALACHIAN WIRELESS
 GQ QUAD SITE LOCATION MAP



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

location was determined based upon the information provided. A survey stake was found on this site for the center of the tower location. Foundation dimensions were estimated to be 38 ft. x 38 ft. footer for the purpose of this report.

4.2 TRENCHING AND FIELD OBSERVATIONS

This investigation was conducted with assistance from Wendell Gay Construction with a track excavator. Trenching and visual inspection 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	Base Elevation	Strata
3.6	1915.4	Top Soils
30.4	1885.0	Sandstone

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

4.3 GROUNDWATER

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

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" Rock" per the 2015 International Building Code. In addition, a S_{DS} coefficient of 0.121g was calculated, and a S_{D1} coefficient of 0.049g was also calculated for design based on the aforementioned building code.



5.0 DISCUSSION AND RECOMMENDATIONS

5.1 GENERAL

The structure will be a self-supporting free standing 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 would attempt to overturn and can act in any directions.

5.2 FOUNDATIONS

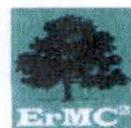
It is our understanding that the foundations for these structures can be designed to bear on low bearing pressure soils. This report demonstrates the different expected bearing capacities based upon the type of material encountered from the boring logs and sampling taken at the site.

The surface elevation of the proposed tower site has been estimated to be approximately 1919 ft. Approximately 3.6 ft. of sandy soil and soft clays are present at this site. Below this is a sandstone unit approximately 30 ft. thick.

5.3 SHALLOW FOUNDATIONS

We recommend a single spread footer foundation on competent rock. Based upon the field investigation, the base of the tower foundation should be placed into the sandstone at an elevation of approximately 1907.0 ft. **This will provide a minimum bearing capacity of 8 tsf.** To insure the foundations is bearing on competent rock we recommend placing the foundation base at a minimum elevation of 1900.0 ft.

The drawing provided did not have a base of footer elevation noted. 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. All topsoil and/or other deleterious materials encountered during site preparation must be removed and replaced with 2000 psi concrete. Provided that a minimum of 4 inches of granular material is placed below



the new slab-on-grade, a modulus of subgrade reaction (k30) of 100 lbs./cu. in. can be used for design of the slabs.

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 ERMC² 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 and / or trenching logs includes sampling information, description of the materials recovered, approximate depth of boundaries between soil and rock strata and groundwater data. These logs represent conditions specifically at the location and time the evaluation was made. The boundaries between different soil strata are indicated at specific depths; however, these depths are in fact approximate and are somewhat dependent upon the frequency of sampling (The transition between soil strata is often gradual). Free groundwater level readings are made at the times and under conditions stated on the logs (Groundwater levels change with time and season). The borehole does not always remain open sufficiently long enough for the measured water level to coincide with the groundwater table.



6.2 LABORATORY AND FIELD TESTS

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

6.3 ANALYSIS AND RECOMMENDATIONS

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

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

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

6.4 CONSTRUCTION MONITORING

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



site. The field inspector/engineer is responsible for his own safety but has no responsibility for the safety of other 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 Roxana Site in Letcher County, Kentucky. Specific design and construction recommendations have been provided in the various sections of the report. The report shall, therefore, be used in its entirety. This report is not a bidding document and shall not be used for that purpose. Anyone reviewing this report must interpret and draw their own conclusions regarding specific construction techniques and methods chosen. ERMC² is not responsible for the independent conclusions, opinions or recommendations made by others based on the field exploratory and laboratory test data presented in this report.



SPECIFICATIONS

I – GENERAL

1.0 STANDARDS AND DEFINITIONS

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

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

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

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

1.2 DEFINITIONS

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

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

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

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

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

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



2.0 GENERAL CONDITIONS

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

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

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

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

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

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



II - ENGINEERED FILL BENEATH STRUCTURES CLEARING AND GRADING SPECIFICATIONS

1.0 GENERAL CONDITIONS

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

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

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

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

2.0 SUBSURFACE CONDITIONS

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

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

3.0 SITE PREPARATION

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

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



shall such objectionable material be allowed in or under the fill unless specifically authorized in writing.

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

4.0 FORMATION OF FILL AREAS

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

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

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

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

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



benches. Proper drainage shall be maintained at all times during benching and filling of the benches, to insure that all water is drained away from the fill area.

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

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

5.0 SLOPE RATIO AND STORM WATER RUN-OFF

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

6.0 GRADING

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

7.0 COMPACTING

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

8.0 TESTING AND INSPECTION SERVICES

Testing and inspection services will be provided by the Owner.



III GUIDELINES FOR EXCAVATIONS AND TRENCHES

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

1. Check with the following utilities prior to breaking ground:

- Sewer
- Telephone
- Fuel
- Electric
- Water
- Gas
- Cable

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

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

2. Access and egress ramps must be designed by a "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.



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 (at all times while performing work in the confined space) a separate life line attached to a harness. The line must be attended by someone above while work is being performed. The worker must check for hazardous atmospheric conditions prior to entry.
9. The contractor must ensure that 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 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.



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.

2. Coarse Aggregate: Cement concrete shall consist of crushed rock or screened gravel and shall be composed essentially of clean, hard, strong and impermeable particles, resistant to wear and frost and free from deleterious amounts of organic matter, loam, clay, salts, mica, and soft, thin, elongated, laminated or disintegrated stone, and shall be inert to water and cement.
- B. Portland Cement: Portland cement shall conform to ASTM Specification C150. Type I or Type II Portland Cement shall be used provided that they are not intermixed during any one batch. Type II Portland Cement shall not be used unless indicated on the plans.
- C. Water: Water for mixing and curing shall be clean, fresh, and free from deleterious materials.
- D. Metal Reinforcement: Rebar shall be Grade 60 and with deformations conforming to ASTH Specification A305. Welded wire mesh shall conform to W4 x W4 size and be of Grade 60 steel.
- E. Admixtures: Except as herein noted, admixtures shall not be used.
1. Under adverse weather conditions only retarding or accelerating agents containing no chloride may be used.
 2. Air-Entraining Agent shall be used for all concrete will give an entrained air range of not less than 4 percent but no greater than 8 percent in the finished product. Under no circumstances shall the air-entraining be interground with cement.
 3. Approval in writing shall be required from Owner prior to the use of any admixture.

4.0 FORMS

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

5.0 INSERTS, ETC.

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



6.0 REINFORCEMENT

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

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

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

7.0 CONCRETE

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

8.0 DEPOSITING CONCRETE

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

1. Remove from space to be occupied by concrete all debris, including snow, ice, and water unless otherwise permitted by Owner.
2. Provide diversion, satisfactory to Owner, of any flow of water to an excavation so as to avoid washing the freshly deposited concrete.
3. 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 be accompanied by a time slip issued at the batching plant, bearing the time of charging of the mixer drum with the cement and aggregates.

- C. Transporting of Concrete from Mixer to Place of Final Deposit: Transportation shall be done as rapidly as practical by means which shall prevent the separation or loss of the ingredients. If chutes are used, they shall be at a slope not flatter than one vertical to two horizontal. Buggies or carts shall be equipped with pneumatic rubber tires or surfaces of runways shall be sufficiently smooth or both so as not to cause separation or segregation of concrete ingredients. Concrete shall not be allowed to drop freely more than 4 feet. Where greater drops are required, canvas "elephant trunks" or galvanized iron chutes equipped with suitable hopper heads shall be employed and a sufficient number placed to insure that the concrete may be effectively compacted into horizontal layers not exceeding 12 inches in thickness with minimum lateral movements.
- D. Depositing of Concrete: Depositing of concrete shall:
1. Proceed continuously after once starting until reaching the end of a section of construction joint location shown on the drawings, or as approved by the Owner. The operations shall be conducted so that no concrete is deposited on concrete sufficiently hardened to cause formation of seams, and planes of weakness.
 2. Be as near as practical to its final position in the forms.
 3. Proceed so as to maintain constantly a top surface which is approximately level.
 4. Be placed before initial set has occurred, and in no event after it has contained its water content for more than 90 minutes.
 5. Be thoroughly worked and compacted by means of suitable tools to provide impermeability, durability and strength and shall be thoroughly worked around reinforcements and embedded items and into corners of forms and so as to be free from voids, pockets or honeycombing. Particular care shall be taken to provide impermeability.
- E. Vibration Equipment: Vibration equipment shall be of the appropriate type and shall, at all times, be adequate in number of units and power of each unit to properly consolidate all concrete.
- F. Monolithic Pours: Proper delivery of concrete shall be the Contractor's responsibility in order to make a mono-lithic pour without delays and changes of cold joints.



9.0 CURING

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

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

10.0 CONCRETE FINISHES

Finishes of all exposed concrete shall be free of defects which impair its durability or adversely affect 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.



APPENDIX A SEISMIC



USGS Design Maps Summary Report

User-Specified Input

Report Title Roxana Tower Site
Fri January 6, 2017 18:04:38 UTC

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

Site Coordinates 37.12188°N, 82.95338°W

Site Soil Classification Site Class A - "Hard Rock"

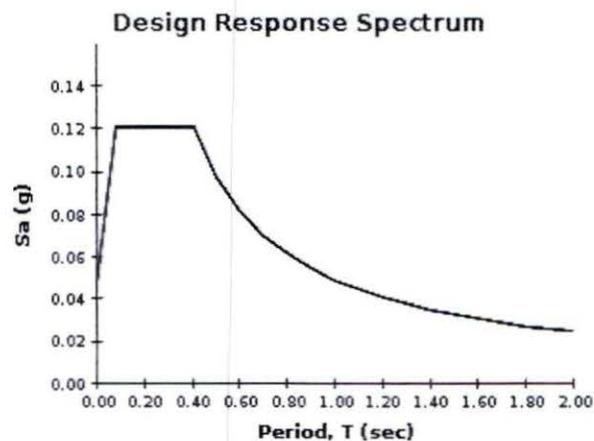
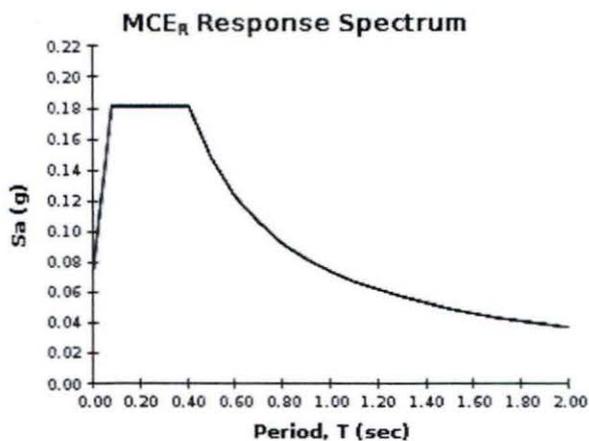
Risk Category IV (e.g. essential facilities)



GS-Provided Output

$S_S = 0.227 \text{ g}$	$S_{MS} = 0.181 \text{ g}$	$S_{DS} = 0.121 \text{ g}$
$S_1 = 0.092 \text{ g}$	$S_{M1} = 0.074 \text{ g}$	$S_{D1} = 0.049 \text{ g}$

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.

APPENDIX B PHOTOGRAPHS





APPENDIX C MAPS





0' 400'



Borehole #1 3641ft

Horizontal Borehole Drilled & Located By REI Drilling (see attached documentation)(previously provided).

KRCC MIN.

ELEVATIONS @ PORT

	BOTTOM+
ENTRY NO.1 -	1446.7
ENTRY NO.2 -	1445.9
ENTRY NO.3 -	1447.2
ENTRY NO.4 -	1446.0
ENTRY NO.5 -	1447.9

LAT:37°07'18.7730"
LON:82°57'12.1533"

NEAREST RAILROAD
L & N - 0.202 Miles
NEAREST HIGHWAY
KY State Rt. 1290 - 0.22 Miles

N 299,000

North Mains

JAMES HAMPTON ET AL MIN.

OREO FLESNOR MIN.

E 2,814,000

Clean Gas, Inc.
#998-39
Rec. #125812
E - 2,814,380.450
N - 301,140.580
EL. 1444.16

PORTAL LOCATION

Lat: -37° 07' 09.933"
Long -82° 57' 11.486"

Permanent Points

BM NO 1	BM NO 3	BM NO 2
RR SPIKE	RR SPIKE	RR SPIKE
N - 301,260.20	N - 298,112.29	N - 300,764.19
E - 2,813,063.10	E - 2,815,460.80	E - 2,813,524.96
EL. 1440.65	EL. 1469.1b	EL. 1438.58

SEAM DIP

E 2,816,000

Clean Gas, Inc.
#144
E: 1226

Clean Gas, Inc.
#144
Rec. #132432

WIND
DATE
SCALE
NEAREST
NEAREST

Drawn:	Date: 1/6/17
Job:	Scale: 1"=400'
Drawing: KNOWN PREVIOUS MINING	

ROXANA TOWER SITE
APPALACHIAN WIRELESS
HAZARD 4 SEAM MINING
SEAM @1440', ~480FT OF COVER



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



0' 400'

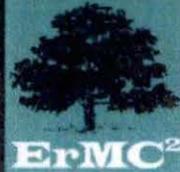


LAT:37°07'18.7730"
LON:82°57'12.1533"

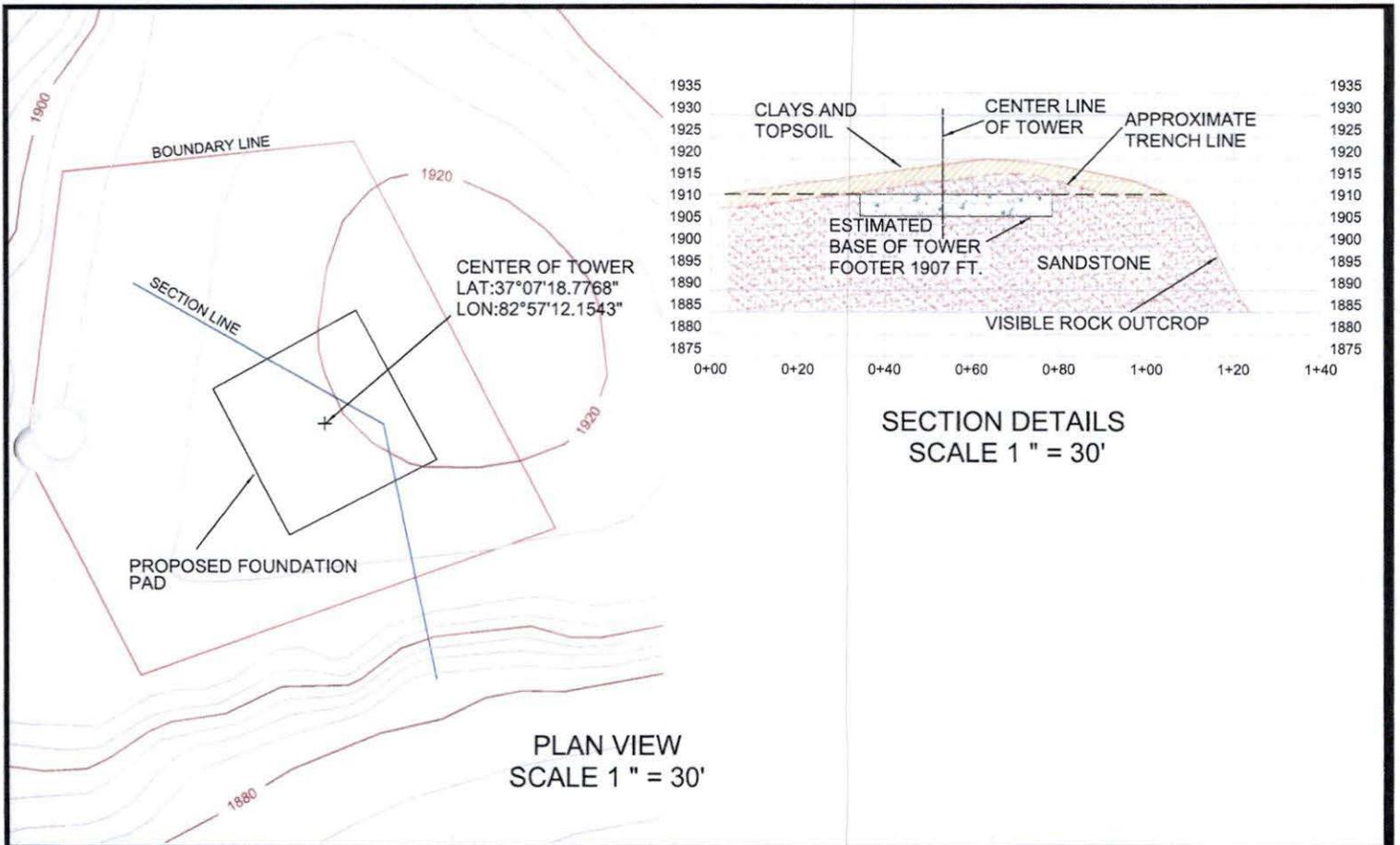


Drawn:	Date: 12/7/16
Job:	Scale: 1"=400'
Drawing: 2016 AERIAL SITE LOCATION MAP	

ROXANA TOWER SITE
APPALACHIAN WIRELESS
2016 AERIAL SITE LOCATION MAP



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



Drawn: RDS Date: 12/29/16

Job: 0032 Scale: 1" = 30'

Drawing:
Roxana Survey Adj. Nad 83



APPALACHIAN WIRELESS
ROXANA KENTUCKY
PLAN VIEW AND SECTION



230 Swartz Drive
Hazard, KY 41701
(606)436-1111
engineering@ermc2.us



World Tower
COMPANY, INC.

1213 Compressor Drive

P.O. Box 508

Mayfield, KY 42066

270-247-3642

FAX: 270-247-0909

E-mail: worldtower@worldtower.com

Web: www.worldtower.com

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

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

GENERAL NOTES

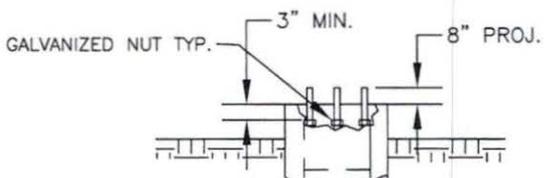
1. WELDED CONNECTIONS SHALL CONFORM TO THE LATEST REVISION OF THE AMERICAN WELDING SOCIETY AWS. D 1.1.
2. TOWER AND ALL FABRICATED ACCESSORIES ARE HOT-DIP GALVANIZED.
3. ALL BOLTS SHALL BE GALVANIZED ACCORDING TO THE STANDARD SPECIFICATION FOR ZINC COATING OF IRON AND STEEL HARDWARE ASTM A153.
4. LEG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



WORLD TOWER

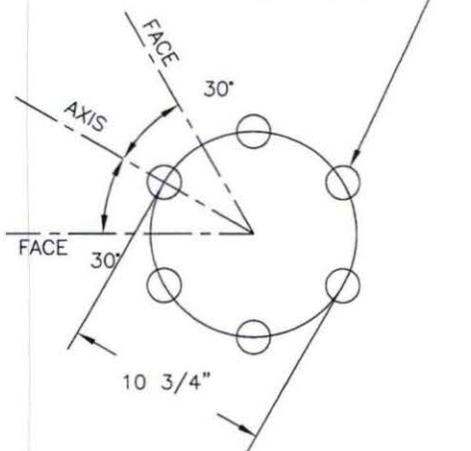
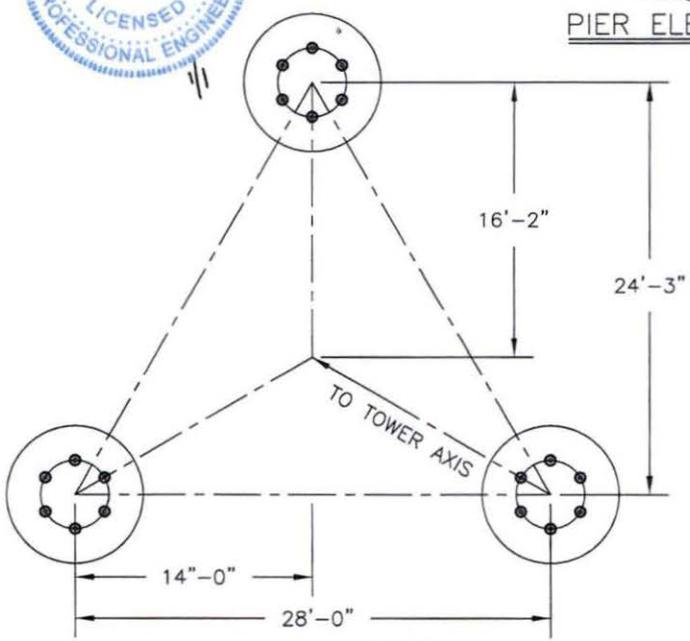
TITLE:			
300' MODEL WSST TOWER FOR: APPALACHIAN WIRELESS SITE: ROXANA LETCHER COUNTY, KY			
SCALE	DWN.	LKG	CKD.
FILE	DWG. NO.		DATE 1-16-17
	Q16781N		

GMA
 KY
 GRAHAM M.
 ANDRES
 29939
 LICENSED
 PROFESSIONAL ENGINEER



PIER ELEVATION

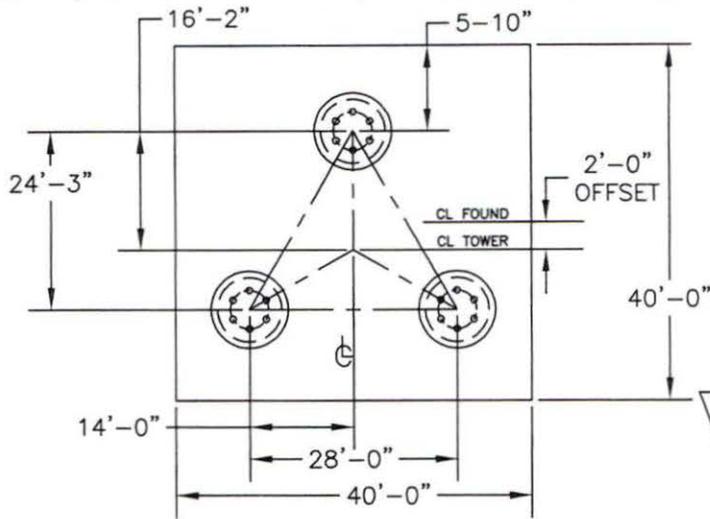
ANCHOR BOLTS
 (6) 1 1/2" ϕ X 144"
 (ASTM A354 GR. BC)
 EQUALLY SPACED WITH
 TOP TEMPLATE AND
 EMBEDDED PLATE



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

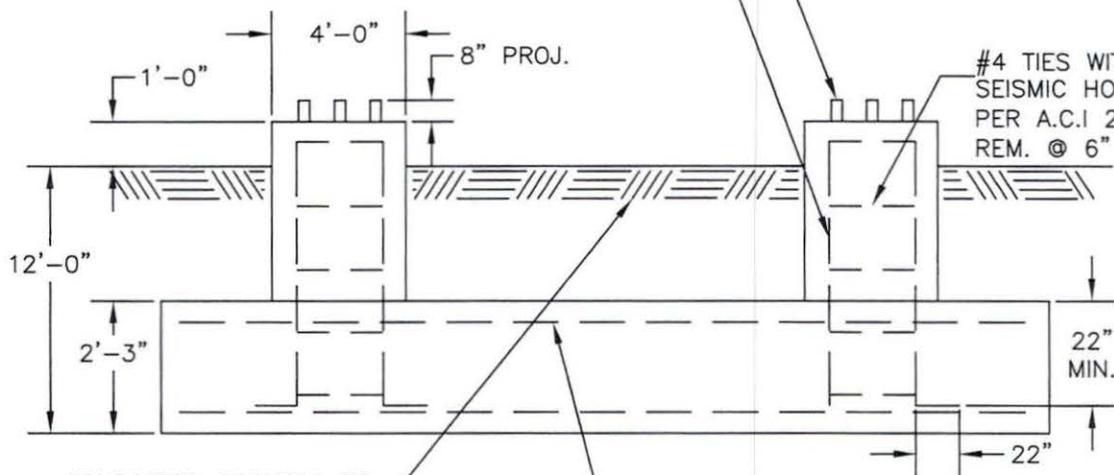
WORLD TOWER

SCALE	NONE	DWN.	LKG	CKD.	DATE	1-16-17
FILE		DWG. NO.	Q16781AB			



148.3 CU. YDS.
CONCRETE REQ'D.

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

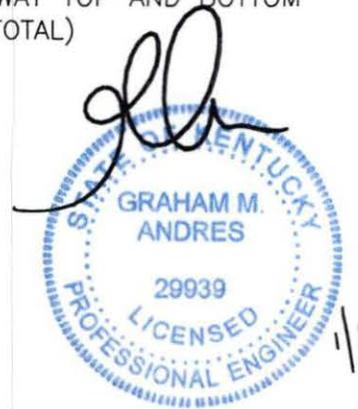


COMPACTED BACKFILL TO
ACHIEVE MIN. DENSITY OF
100 PCF

40-#10 REBARS
EACH WAY TOP AND BOTTOM
(160 TOTAL)

GENERAL NOTES

1. CONCRETE TO HAVE 4000 PSI MIN. COMPRESSIVE STRENGTH AFTER 28 DAYS.
2. ALL REINFORCEMENT STEEL IS DEFORMED AND MEETS THE STRENGTH REQUIREMENTS OF ASTM A615 GRADE 60.
3. EMBEDDED STEEL TO HAVE 3" MIN. CONCRETE COVER.
4. FOUNDATION DESIGN IS BASED ON CUSTOMER SUPPLIED SOIL DATA FROM ERM2. PROJECT NUMBER 165-000-0032 DATED JANUARY 6, 2017.



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

WORLD TOWER

SCALE NONE DWN. LKG CKD. DATE 1-16-17
FILE DWG. NO. Q16781F



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

Aeronautical Study No.
2016-ASO-27788-OE

Issued Date: 11/18/2016

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

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

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

Structure: Antenna Tower Roxana (Tower)
Location: Roxana, KY
Latitude: 37-07-18.77N NAD 83
Longitude: 82-57-12.15W
Heights: 1919 feet site elevation (SE)
310 feet above ground level (AGL)
2229 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.

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 05/18/2018 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.
- (c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

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

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

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

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

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.

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

If we can be of further assistance, please contact our office at (718) 553-2611. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2016-ASO-27788-OE.

Signature Control No: 308521055-310573915
Angelique Eersteling
Technician

(DNE)

Attachment(s)
Frequency Data

cc: FCC

Frequency Data for ASN 2016-ASO-27788-OE

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



KENTUCKY AIRPORT ZONING COMMISSION

MATTHEW BEVIN
Governor

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

December 16, 2016

APPROVAL OF APPLICATION

APPLICANT:

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

SUBJECT: AS-067-CPF-2016-083

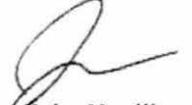
STRUCTURE: Antenna Tower
LOCATION: Roxana, KY
COORDINATES: 37° 7' 18.77" N / 82° 57' 12.15" W
HEIGHT: 310' AGL/2229' AMSL

The Kentucky Airport Zoning Commission has approved your application for a permit to construct 310' AGL/ 2229' AMSL Antenna Tower near Roxana, KY 37° 7' 18.77" N / 82° 57' 12.15" W.

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

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

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


John Houlihan
Administrator



An Equal Opportunity Employer M/F/D



KENTUCKY AIRPORT ZONING COMMISSION

MATTHEW BEVIN
Governor

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

CONSTRUCTION/ALTERATION STATUS REPORT

December 16, 2016

AERONAUTICAL STUDY NUMBER: AS-067-CPF-2016-083

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

This concerns the permit which was issued to you by the Kentucky Airport Zoning Commission on December 16, 2016. This permit is valid for a period of 18 Month(s) from its date of issuance. If construction is not completed within the said 18-Month period, this permit shall lapse and be void, and no work shall be performed without the issuance of a new permit. When appropriate, please indicate the status of the project in the place below and return this letter to John Houlihan, Administrator, Kentucky Airport Zoning Commission, 200 Mero Street 4th Floor Office of Audits, Frankfort, KY, 40622. 502-782-4044.

STRUCTURE: Antenna Tower
LOCATION: Roxana, KY
COORDINATES: 37° 7' 18.77" N / 82° 57' 12.15" W
HEIGHT: 310' AGL /2229'AMSL

CONSTRUCTION/ALTERATION STATUS

- 1. The project () is abandoned. () is not abandoned.
- 2. Construction status is as follows:
 Structure reached its greatest height of _____ ft. AGL
 _____ ft. AMSL on _____ (date).
 Date construction was completed. _____
 Type of obstruction marking/painting. _____
 Type of obstruction lighting. _____
 As built coordinates. _____
 Miscellaneous Information. _____
 DATE _____
 SIGNATURE/TITLE _____



KENTUCKY TRANSPORTATION CABINET
KENTUCKY AIRPORT ZONING COMMISSION

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

APPLICATION FOR PERMIT TO CONSTRUCT OR ALTER A STRUCTURE

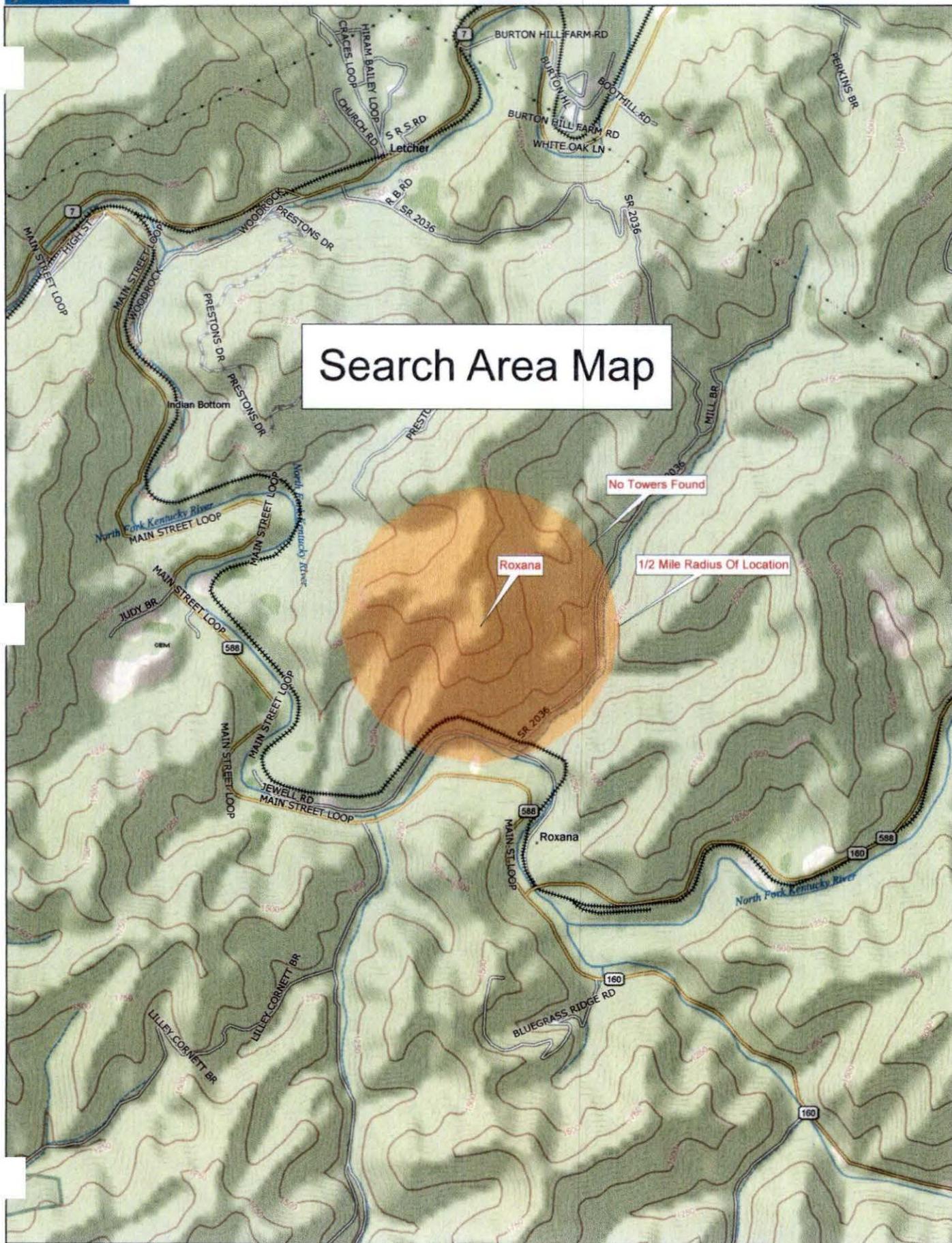
APPLICANT (name) East Kentucky Network, LLC c/o LNGS		PHONE 703-584-8667	FAX 703-584-8692	KY AERONAUTICAL STUDY # AS-667-CPF-2016-083
ADDRESS (street) 8300 Greensboro Dr, #1200		CITY McLean		STATE VA
APPLICANT'S REPRESENTATIVE (name) Ali Kuzehkanani		PHONE 703-584-8667	FAX 703-584-8692	ZIP 22102
ADDRESS (street) 8300 Greensboro Dr, #1200		CITY McLean		STATE VA
APPLICATION FOR <input checked="" type="checkbox"/> New Construction <input type="checkbox"/> Alteration <input type="checkbox"/> Existing		DURATION <input type="checkbox"/> Permanent <input type="checkbox"/> Temporary (months days)		WORK SCHEDULE Start 12/1/16 End 12/15/16
TYPE <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		MARKING/PAINTING/LIGHTING PREFERRED <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		
LATITUDE 37°07'18.77"		LONGITUDE 82°57'12.15"		DATUM <input checked="" type="checkbox"/> NAD83 <input type="checkbox"/> NAD27 <input type="checkbox"/> Other
NEAREST KENTUCKY City Roxana County Letcher		NEAREST KENTUCKY PUBLIC USE OR MILITARY AIRPORT Wendell H Ford Airport		
SITE ELEVATION (AMSL, feet) 1919		TOTAL STRUCTURE HEIGHT (AGL, feet) 310		CURRENT (FAA aeronautical study #)
OVERALL HEIGHT (site elevation plus total structure height, feet) 2229				PREVIOUS (FAA aeronautical study #)
DISTANCE (from nearest Kentucky public use or Military airport to structure) 25.0 mi				PREVIOUS (KY aeronautical study #)
DIRECTION (from nearest Kentucky public use or Military airport to structure) NW				
DESCRIPTION OF LOCATION (Attach USGS 7.5 minute quadrangle map or an airport layout drawing with the precise site marked and any certified survey.) Approx. 0.8 miles NNW of Roxana (Letcher), KY				
DESCRIPTION OF PROPOSAL A new 300' tower with top-mounted antennas (overall height of 310' AGL)				
FAA Form 7460-1 (Has the "Notice of Construction or Alteration" been filed with the Federal Aviation Administration?) <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes, when? 10/26/16				
CERTIFICATION (I hereby certify that all the above entries, made by me, are true, complete, and correct to the best of my knowledge and belief.)				
PENALTIES (Persons failing to comply with KRS 183.861 to 183.990 and 602 KAR 050 are liable for fines and/or imprisonment as set forth in KRS 183.990(3). Noncompliance with FAA regulations may result in further penalties.)				
NAME Ali Kuzehkanani	TITLE Dir of Engineering	SIGNATURE <i>Ali Kuzehkanani</i>		DATE 10/26/16
COMMISSION ACTION <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved				
SIGNATURE <i>[Signature]</i>			DATE 12-16-16	
<input checked="" type="checkbox"/> Chairperson, KAZC <input checked="" type="checkbox"/> Administrator, KAZC				

Driving Directions for Roxana

Beginning at the Letcher County Courthouse in Whitesburg, Kentucky at the intersection of Main Street and N Webb, turn right onto N Webb Street. N Webb will merge with Hazard street (Hwy 15); drive 4.8 miles and turn left onto 160 South. Drive 6.4 miles to the intersection of 160 South and 2036 North. Turn right onto 2036 north. Drive .6 miles (here a sign will be posted). Go through the gate and up the gravel hill. Drive .5 miles and you will crest the top of the hill. At the intersection turn right and drive approximately three hundred feet and the site road will start up the hill on your left. Drive up the road approximately one mile (signs will be posted here).

Prepared by:

Daryl Bartley
CELL SITE COMPLIANCE AGENT
East Kentucky Network, LLC
D/b/a Appalachian Wireless
(606) 791-0310 (cell)
(606) 339-1363 (fax)
dbartley@ekn.com



Search Area Map

No Towers Found

Roxana

1/2 Mile Radius Of Location

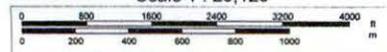
Data use subject to license.

© DeLorme. Topo North America™ 9.

www.delorme.com



Scale 1 : 28,125



1" = 2,343.8 ft

Data Zoom 13-0



MEMORANDUM OF LEASE

THIS MEMORANDUM OF LEASE is made and entered into on this 9 day of September, 2016, with a commencement date of September 1, 2016 (the "Commencement Date"), by and between **MATTHEW OAKS** and **AMANDA OAKS**, husband and wife, with a mailing address of P.O. Box 106, Roxana, Kentucky 41848, and **JAMES PHILLIP KINCAID** and **CARRIE LEE KINCAID**, husband and wife, with a mailing address of P.O. Box 105, Roxana, Kentucky 41848, hereinafter referred to as "**Lessors**", and **EAST KENTUCKY NETWORK, LLC D/B/A APPALACHIAN WIRELESS**, a Kentucky limited liability company, with a mailing address of 101 Technology Trail, Ivel, Kentucky, 41642, hereinafter referred to as "**Lessee**."

WITNESSETH

1. **Demised Premises.** For good and valuable consideration, Lessors leased to Lessee, and Lessee has leased from Lessors that certain tract of real estate located in Letcher County, Kentucky, and being a portion of the same land conveyed to Lessors by Deed dated April 24, 2013, and recorded on May 24, 2013, in Deed Book 420, Page 509, in the Letcher County Clerk's Office. Said property is more particularly described in the description **attached** hereto and made a part hereof as **Exhibit A** and the plat **attached** hereto and made a part hereof as **Exhibit B**, prepared by Steven Haywood, Licensed Professional Land Surveyor (hereinafter referred to as the "**Premises**"). The Lessors have also granted unto Lessee full and complete rights of ingress, egress and regress to and from the Premises over any property owned by Lessors and other associated rights for installation of utilities, maintenance, and other purposes.

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

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

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

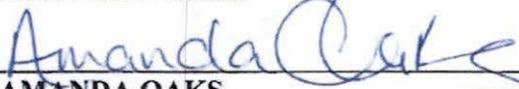
5. **Purpose.** This Memorandum of Lease is prepared solely for the purpose of recordation, and is not intended to, nor shall it be deemed to, modify any of the terms and conditions set forth in the Lease, nor to construe any of the rights, duties or responsibilities of Lessors and Lessee. In the event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

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

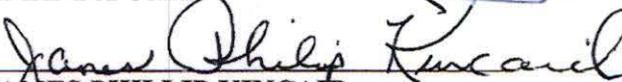
LESSORS:



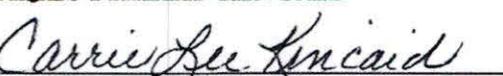
MATTHEW OAKS



AMANDA OAKS



JAMES PHILLIP KINCAID



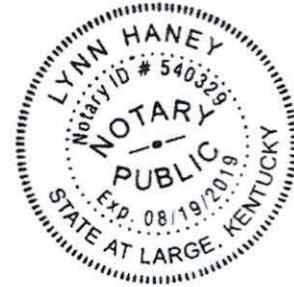
CARRIE LEE KINCAID

COMMONWEALTH OF KENTUCKY
COUNTY OF Floyd

The foregoing instrument was acknowledged before me on this 9 day of September, 2016, by **MATTHEW OAKS** and **AMANDA OAKS**, Lessors.

Lynn Haney
Notary Public

My Commission Expires August 19, 2019

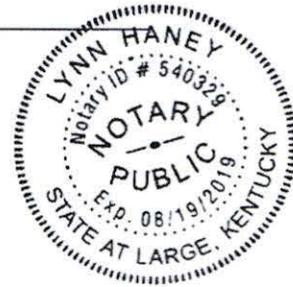


COMMONWEALTH OF KENTUCKY
COUNTY OF Floyd

The foregoing instrument was acknowledged before me on this 9 day of September, 2016, by **JAMES PHILLIP KINCAID** and **CARRIE LEE KINCAID**, Lessors.

Lynn Haney
Notary Public

My Commission Expires August 19, 2019



[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

LESSEE:

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

WA Gillum

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

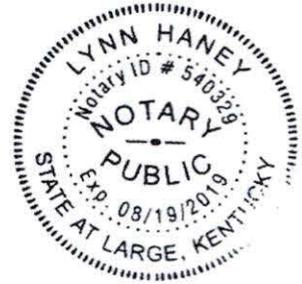
COMMONWEALTH OF KENTUCKY
COUNTY OF Floyd

The foregoing instrument was acknowledged before me on this 12 day of September, 2016, by W.A. Gillum, CEO/General Manager of EAST KENTUCKY NETWORK, LLC D/B/A APPALACHIAN WIRELESS.

Lynn Haney

Notary Public

My Commission Expires August 19, 2019



This instrument was prepared by:

Cindy D. McCarty

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

Description
Roxana, Kentucky
Tower Site

A certain tract of land located in the community of Roxana, Letcher County, Kentucky and being on Mill Branch of the North Fork of the Kentucky River and more particularly described as follows.

Unless stated otherwise any monument referred to herein as a Re-Bar and Cap is a set 1/2" steel re-bar eighteen (18") in length with a yellow plastic cap stamped Summit L.S. #2661. All bearings stated herein are referred to Grid North based on Kentucky Single Zone State Plane NAD 27

Beginning at a set Re-Bar and Cap near the top of ridge and being 5 feet from the boundary line between Matthew Oaks and others (D.B. 520 P. 509) and Lee Gentry (D.B. 394 P. 21) and being N 32°47'27" W a distance of 53.47 from a found plastic stake with a tack on a high knob which is a corner to Matthew Oaks et.al. (D.B. 520 P. 509, Lee Gentry (D.B. 394 P. 21 and D.B. 182 P. 205) and Jerome Caudill (D. 337 P. 563) and said beginning point has Kentucky South NAD 27 coordinates of N:299,188.63 E:2,815,235.38;

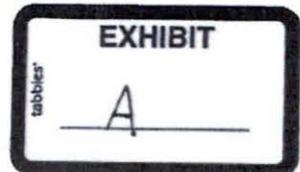
Thence, along the ridge and five feet off the property line S 27°25'30" E a distance of 53.23' to a set Re-Bar and Cap; Thence, leaving the parallel line and running down the hill S 27°25'30" E a distance of 46.77' to a set Re-Bar and Cap; Thence, down the ridge near the top of a rock cliff S 70°25'39" W a distance of 100.95' to a set Re-Bar and Cap; Thence, crossing the ridge N 27°25'30" W a distance of 57.01' to a set Re-Bar and Cap near the top of the rock cliff; Thence, running near the top of the rock cliff N 07°19'50" E a distance of 65.63' to a set Re-Bar and Cap; Thence, up the hill N 84°07'53" E a distance of 67.29' to the point of beginning and containing 0.23 acres more or less according to a survey completed on August 19, 2016 by persons under the direct supervision of Steven E. Haywood, PLS 2661 and being a portion of Tract 2 in the deed of conveyance from Gregory Fleenor and Jami Fleenor, his wife and Matthew Oaks and Amanda Oaks, his wife and James Phillip Kincaid and Carrie Lee Kincaid, his wife by deed dated April 24, 2013 and recorded in Deed Book 420 Page 509 in the records of the Letcher County Court Clerk's office.

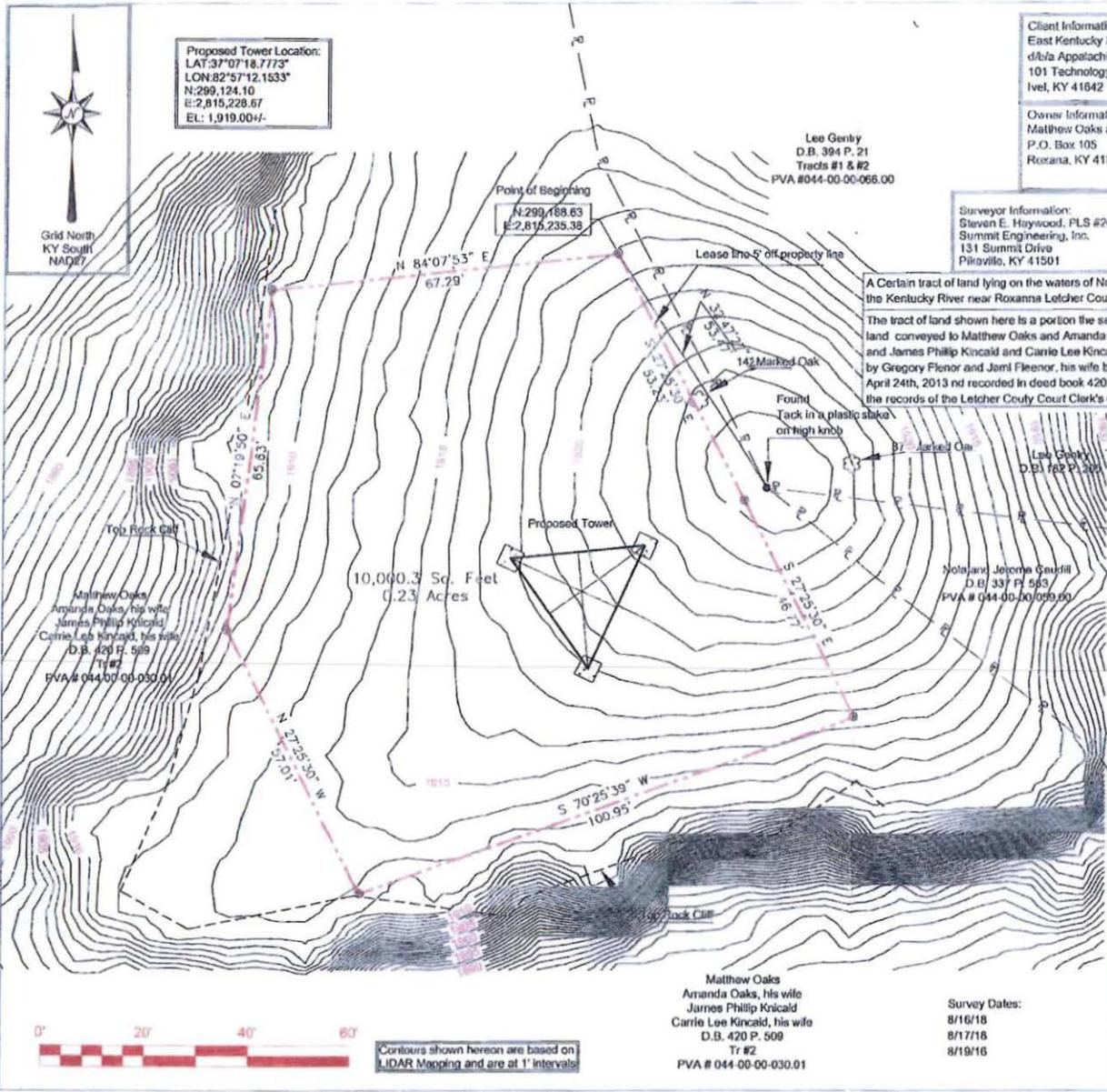

Steven E. Haywood, PLS #2661



Date: 8/22/2016

STATE OF KENTUCKY COUNTY OF LETCHER
I, WINSTON MEADE, CLERK OF LETCHER COUNTY, DO HEREBY CERTIFY
THAT THE FOREGOING Lease WAS ON THE 19 DAY OF
Sept 2016 ENTERED IN MY OFFICE RECORD AND THAT IT
AND THIS CERTIFICATE HAVE BEEN RECORDED IN Lease
BOOK Lease PAGE 819
WITNESS MY HAND THIS 19 DAY OF Sept 2016
WINSTON MEADE, CLERK BY Angie Back DC





Proposed Tower Location:
 LAT: 37°07'18.7773"
 LON: 82°57'12.1533"
 N: 299,124.10
 E: 2,815,228.67
 EL: 1,919.00 +/-

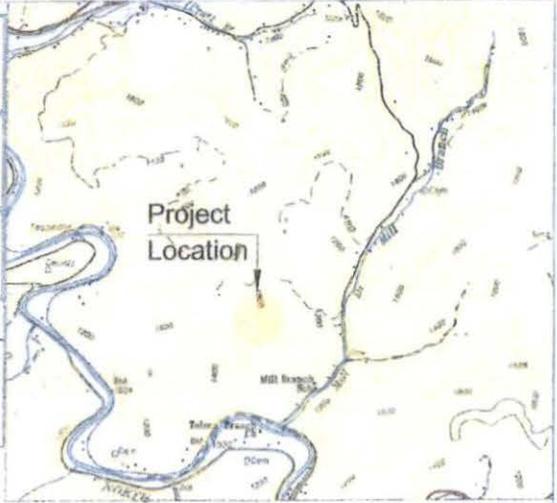
Grid North
 KY South
 NAD87

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

Owner Information:
 Matthew Oaks and others
 P.O. Box 105
 Rozana, KY 41548

Surveyor Information:
 Steven E. Haywood, PLS #2661
 Summit Engineering, Inc.
 131 Summit Drive
 Pikeville, KY 41501

A Certain tract of land lying on the waters of North Fork of the Kentucky River near Roxanna Letcher County, Kentucky. The tract of land shown here is a portion the same tract of land conveyed to Matthew Oaks and Amanda Oaks, his wife and James Phillip Kincaid and Carrie Lee Kincaid, his wife by Gregory Fleenor and Jenni Fleenor, his wife by deed dated April 24th, 2013 rd recorded in deed book 420 page 509 in the records of the Letcher County Court Clerk's office.



Project Location

Vicinity Map Not to Scale
 Blackly and Rozana 7 1/2 Quadrangel Map

Flood Hazard Information:
 The site shown hereon does not lie within a Flood Hazard Area.
 Firm Panel: 225 of 375
 Letcher County, Kentucky
 Map #21133C0225D
 Map Effective Date: March 16, 2016

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

10,000.3 Sq. Feet
 0.23 Acres

Matthew Oaks
 Amanda Oaks, his wife
 James Phillip Kincaid
 Carrie Lee Kincaid, his wife
 D.B. 420 P. 509
 Tr #2
 PVA # 044-00-00-030-01

Nole Jane Jerome Gaudill
 D.B. 337 P. 563
 PVA # 044-00-00-050-00

Matthew Oaks
 Amanda Oaks, his wife
 James Phillip Kincaid
 Carrie Lee Kincaid, his wife
 D.B. 420 P. 509
 Tr #2
 PVA # 044-00-00-030-01

Survey Dates:
 8/16/18
 8/17/18
 8/19/18



Contours shown hereon are based on LIDAR Mapping and are at 1' intervals

STATE OF KENTUCKY
 STEVE HAYWOOD
 3591
 LICENSED PROFESSIONAL LAND SURVEYOR

Surveyors Seal

SURVEYOR'S STATEMENTS

1. The survey shown hereon was conducted under my direct supervision.
2. The method used was random traverse with sideshots.
3. The mathematical error of closure was 1:5,000 minimum.
4. The bearings and distances were not adjusted for closure.
5. The basis for the bearings Grid North, KY South NAD 27
6. This is a rural survey.
7. This plot of survey represents a Boundary Survey and complies with 201 KAR 18:150

Steven E. Haywood 2661 8-22-16
 Steven E. Haywood LS No. 2661 Date

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

Plot Map
 Proposed Roxana Tower Site
 Mill Branch of the North Fork of the Kentucky River, Roxana, Letcher County, Kentucky

Scale: 1"=20' Drawn By: Chk By: Apprd. By:
 Plot Date: 22 AUGUST 2016 - 6:43 AM
 File Name: Z:\Est Ky Network\Roxxana\Roxxana Plot Map.dwg

SUMMIT ENGINEERING, INC.
 205 HANLEY BLVD
 P.O. BOX 3027
 PIKEVILLE, KY 21502
 606-432-1447

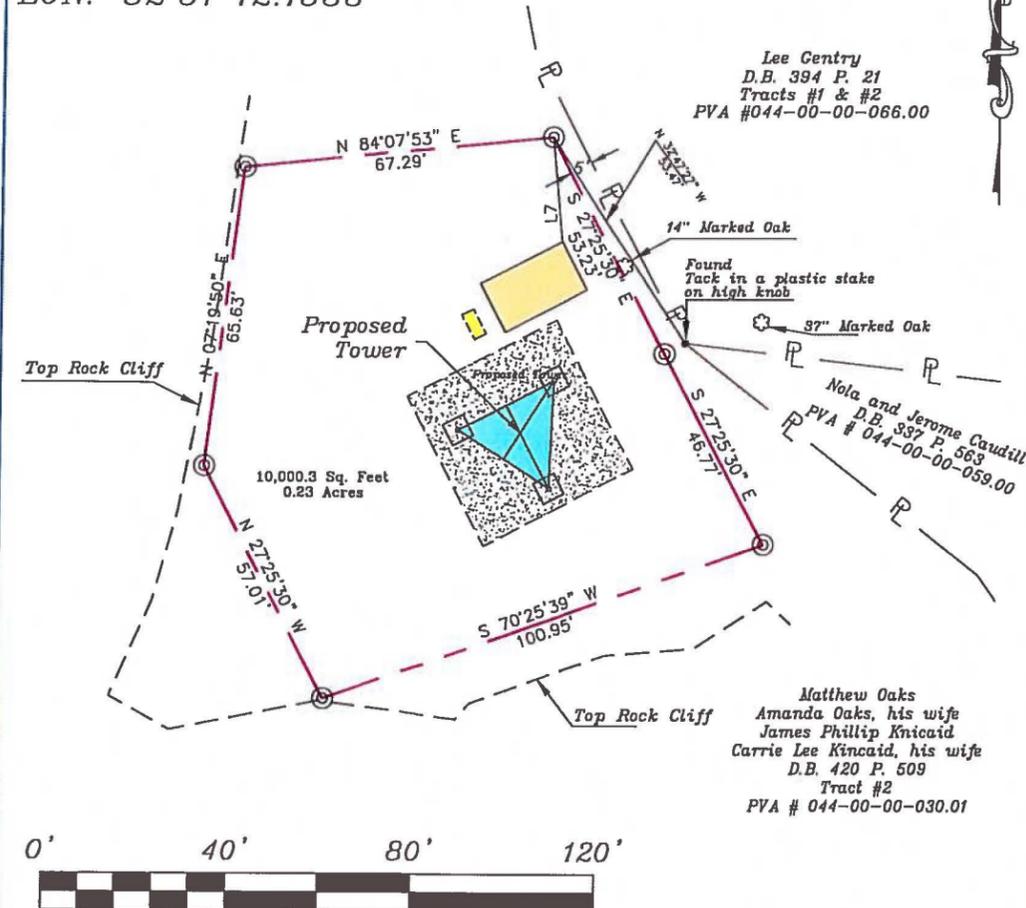
PIKEVILLE, LEITCHFIELD, HENDERSON, KY
 SOUTH CHARLESTON, WV

EXHIBIT
 B

ROXANA TOWER

SITE SURVEY WITH PROPOSED TOWER
& BUILDING LOCATION

CENTER OF TOWER
LAT: 37°07'18.7773"
LON: 82°57'12.1533"



Legend

- ⊙ 1/2" re-bar set with a plastic cap stamped Summit Engineering, L.S. #2661 unless otherwise noted.
- Boundary
- ▲ Proposed Tower Location

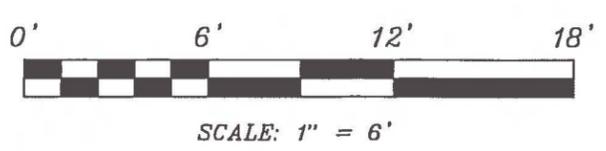
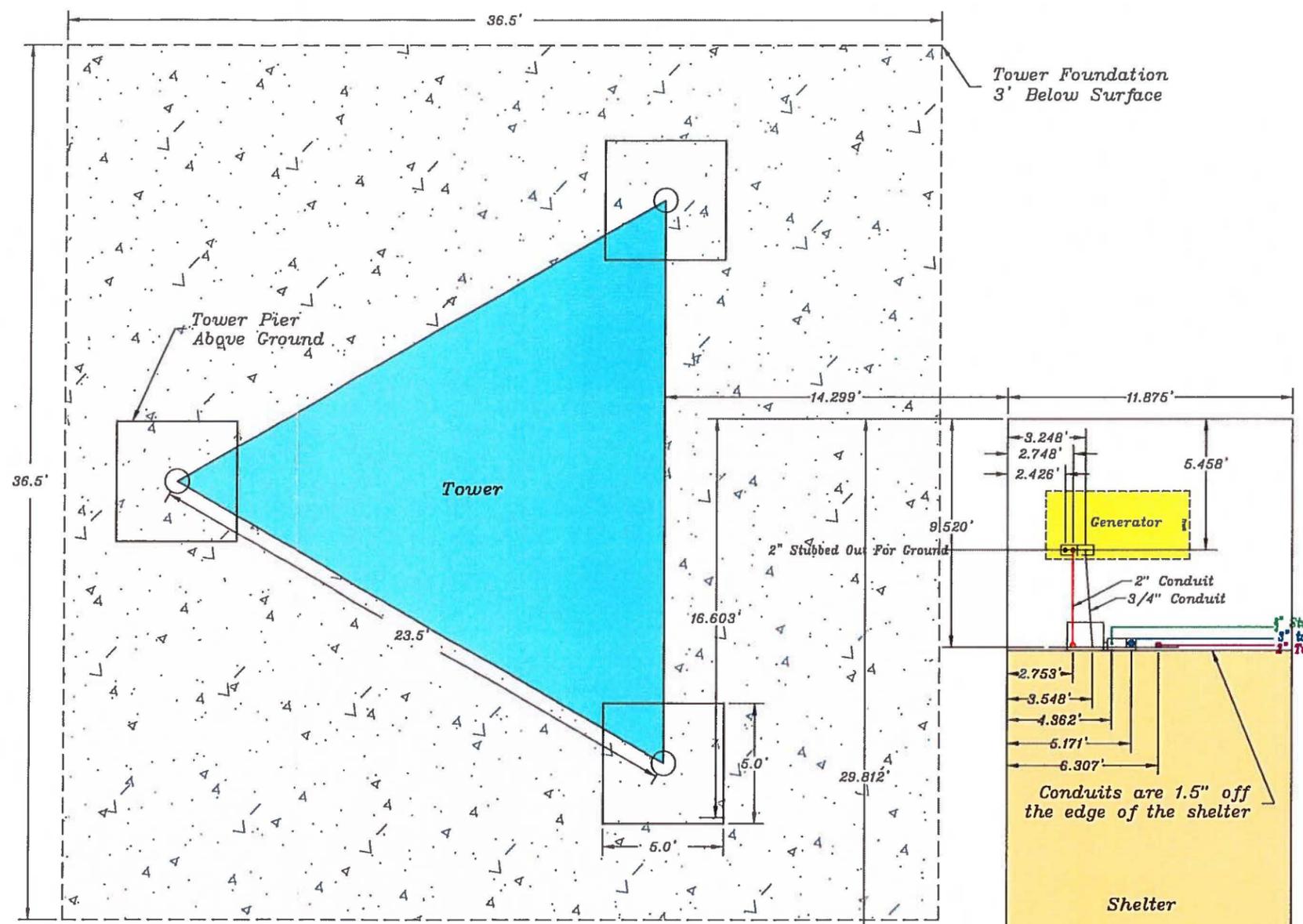
FAA Certification

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

Steven E. Haywood 2661 1-26-17
Steven E. Haywood, PLS #2661 Date

— NAD 27 KY South Zone
State Plane Coordinates
N: 299,124.10
E: 2,815,228.67
— EL: 1,919 (Existing Ground)

STATE OF KENTUCKY
STEVE HAYWOOD
2661
LICENSED PROFESSIONAL LAND SURVEYOR



STATE OF KENTUCKY
JODY G. HUNT
25374
LICENSED PROFESSIONAL ENGINEER

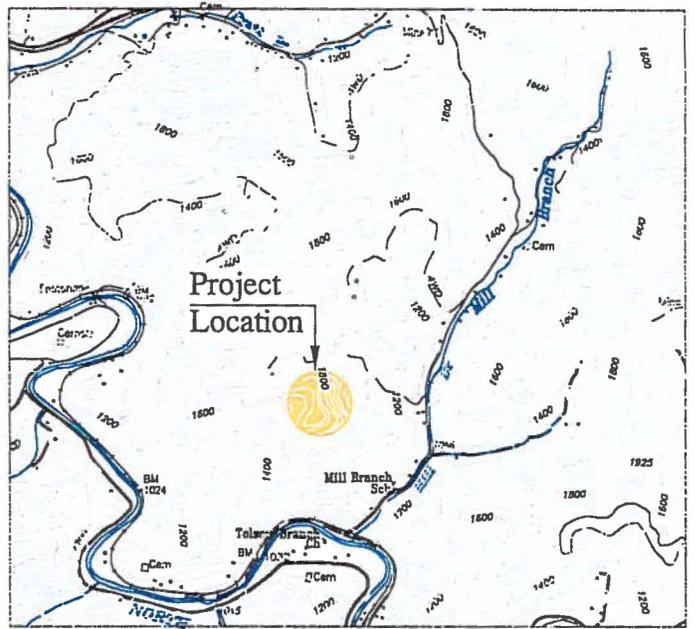
Jody Hunt 25374 1-26-17
Jody Hunt PE# 25374 DATE

EAST KENTUCKY NETWORK D/B/A APPALACHIAN WIRELESS 101 TECHNOLOGY TRAIL, IVEL, KY 41643			SUMMIT ENGINEERING, INC. 265 HAMBLEY BLVD. PIKEVILLE, KY, 41501 (606) 432-1447
Roxana Site Map Matthew Oaks Mill Branch of the North Fork of the Kentucky River, Roxana, Letcher County, KY			PIKEVILLE, KY LEXINGTON, KY SOUTH CHARLESTON, WV
Scale: As Noted	Drawn By: MAC	Chk By: MAC	Apprvd. By:
Plot Date: 25 JANUARY 2017 - 1:24 PM	PER. NO:		ATT:
File Name: Z:\East Ky Network\Roxanna\Roxana Site Map.dwg			

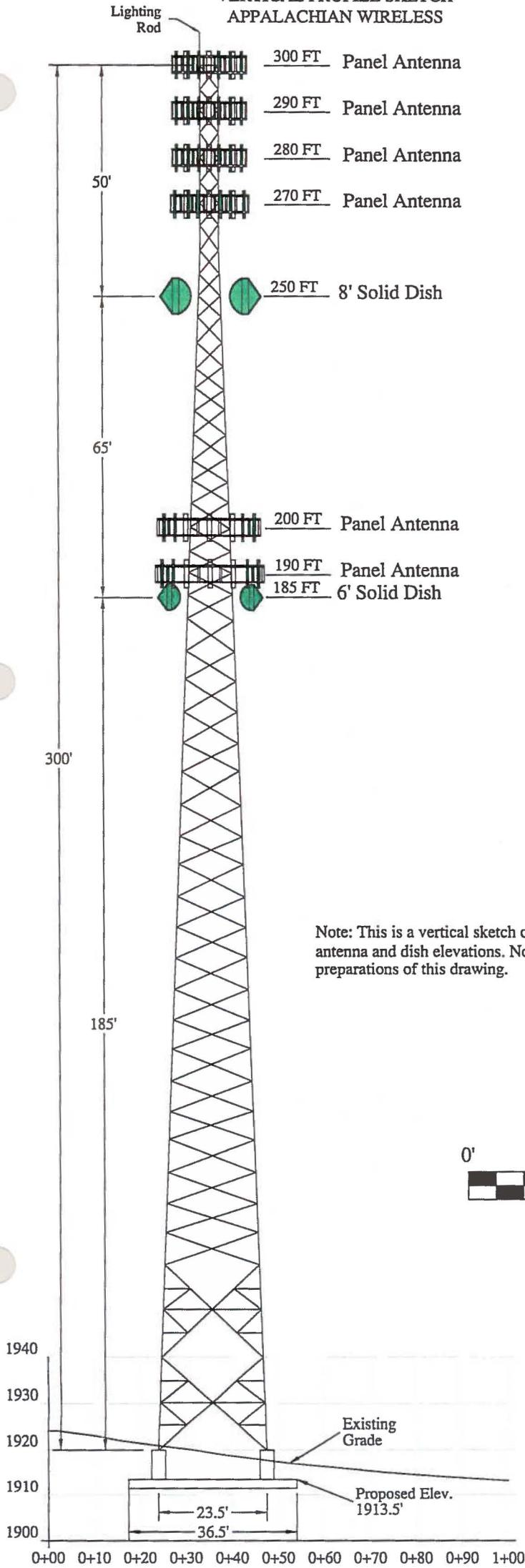
Application
CONTAINS
LARGE OR OVERSIZED
MAP(S)

RECEIVED ON:
02/22/2017

ROXANA TOWER
VERTICAL PROFILE SKETCH
APPALACHIAN WIRELESS



Vicinity Map Not to Scale
 Blackly and Roxana 7 1/2' Quadrangel Map



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



Graphic Scale
 1" = 30'



Jody G. Hunt 25374 1-26-17
 Jody G. Hunt PE #25374 Date

DATE: 1-26-2017	SCALE: 1"=30'	East Kentucky Network D/B/A/ Appalachian Wireless 101 Technology Trail, Ivel, KY 41642 Vertical Profile Sketch Roxana Tower	SUMMIT ENGINEERING, INC. 265 HAMBLEY BLVD. PIKEVILLE, KY. 41501 (606) 432-1447
DRAWN BY: MAC			