COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF	)	
NEW CINGULAR WIRELESS PCS, LLC,	)	
A DELAWARE LIMITED LIABILITY COMPANY,	)	
D/B/A AT&T MOBILITY	)	
FOR ISSUANCE OF A CERTIFICATE OF PUBLIC	)	CASE NO.: 2017-00369
CONVENIENCE AND NECESSITY TO CONSTRUCT	)	
A WIRELESS COMMUNICATIONS FACILITY	)	
IN THE COMMONWEALTH OF KENTUCKY	)	
IN THE COUNTY OF BUTLER	)	

SITE NAME: WELCOME RD

* * * * * * *

APPLICATION FOR
CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY
FOR CONSTRUCTION OF A WIRELESS COMMUNICATIONS FACILITY

New Cingular Wireless PCS, LLC, a Delaware limited liability company, d/b/a AT&T Mobility ("Applicant"), by counsel, pursuant to (i) KRS §§ 278.020, 278.040, 278.650, 278.665, and other statutory authority, and the rules and regulations applicable thereto, and (ii) the Telecommunications Act of 1996, respectfully submits this Application requesting issuance of a Certificate of Public Convenience and Necessity ("CPCN") from the Kentucky Public Service Commission ("PSC") to construct, maintain, and operate a Wireless Communications Facility ("WCF") to serve the customers of the Applicant with wireless communications services.

In support of this Application, Applicant respectfully provides and states the following information:

1. The complete name and address of the Applicant: New Cingular Wireless PCS, LLC, a Delaware limited liability company, d/b/a AT&T Mobility, having a local address of 601 West Chestnut Street, Louisville, Kentucky 40203.

2. Applicant proposes construction of an antenna tower for communications services, which is to be located in an area outside the jurisdiction of a planning commission, and Applicant submits this application to the PSC for a certificate of public convenience and necessity pursuant to KRS §§ 278.020(1), 278.040, 278.650, 278.665, and other statutory authority.

3. The Certificate of Authority filed with the Kentucky Secretary of State for the Applicant entity was attached to a prior application and is part of the case record for PSC case number 2011-00473 and is hereby incorporated by reference.

4. The Applicant operates on frequencies licensed by the Federal Communications Commission ("FCC") pursuant to applicable FCC requirements. A copy of the Applicant's FCC licenses to provide wireless services are attached to this Application or described as part of **Exhibit A**, and the facility will be constructed and operated in accordance with applicable FCC regulations.

5. The public convenience and necessity require the construction of the proposed WCF. The construction of the WCF will bring or improve the Applicant's services to an area currently not served or not adequately served by the Applicant by increasing coverage or capacity and thereby enhancing the public's access to innovative and competitive wireless communications services. The WCF will provide a necessary link in the Applicant's communications network that is designed to meet the increasing demands

for wireless services in Kentucky's wireless communications service area. The WCF is an integral link in the Applicant's network design that must be in place to provide adequate coverage to the service area.

6. To address the above-described service needs, Applicant proposes to construct a WCF at 5545 Caneyville Road, Morgantown, Kentucky (37°18'37.54" North latitude, 86°37'27.59" West longitude), on a parcel of land located entirely within the county referenced in the caption of this application. The property on which the WCF will be located is owned by Timothy & Cynthia Brooks pursuant to a Deed recorded at Deed Book 119, Page 361 in the office of the Butler County Clerk. The proposed WCF will consist of a 255-foot tall tower, with an approximately 15-foot tall lightning arrestor attached at the top, for a total height of 270-feet. The WCF will also include concrete foundations and a shelter or cabinets to accommodate the placement of the Applicant's radio electronics equipment and appurtenant equipment. The Applicant's equipment cabinet or shelter will be approved for use in the Commonwealth of Kentucky by the relevant building inspector. The WCF compound will be fenced and all access gate(s) will be secured. A description of the manner in which the proposed WCF will be constructed is attached as **Exhibit B** and **Exhibit C**.

7. A list of utilities, corporations, or persons with whom the proposed WCF is likely to compete is attached as **Exhibit D**.

8. The site development plan and a vertical profile sketch of the WCF signed and sealed by a professional engineer registered in Kentucky depicting the tower height, as well as a proposed configuration for the antennas of the Applicant has also been included

as part of **Exhibit B**.

9. Foundation design plans signed and sealed by a professional engineer registered in Kentucky and a description of the standards according to which the tower was designed are included as part of **Exhibit C**.

10. Applicant has considered the likely effects of the installation of the proposed WCF on nearby land uses and values and has concluded that there is no more suitable location reasonably available from which adequate services can be provided, and that there are no reasonably available opportunities to co-locate Applicant's antennas on an existing structure. When suitable towers or structures exist, Applicant attempts to co-locate on existing structures such as communications towers or other structures capable of supporting Applicant's facilities; however, no other suitable or available co-location site was found to be located in the vicinity of the site.

11. A copy of the Determination of No Hazard to Air Navigation issued by the Federal Aviation Administration ("FAA") is attached as **Exhibit E**.

12. A copy of the Kentucky Airport Zoning Commission ("KAZC") application to construct the tower is attached as **Exhibit F**.

13. A geotechnical engineering firm has performed soil boring(s) and subsequent geotechnical engineering studies at the WCF site. A copy of the geotechnical engineering report, signed and sealed by a professional engineer registered in the Commonwealth of Kentucky, is attached as **Exhibit G**. The name and address of the geotechnical engineering firm and the professional engineer registered in the Commonwealth of Kentucky who supervised the examination of this WCF site are included as part of this

exhibit.

14. Clear directions to the proposed WCF site from the County seat are attached as **Exhibit H**. The name and telephone number of the preparer of **Exhibit H** are included as part of this exhibit.

15. Applicant, pursuant to a written agreement, has acquired the right to use the WCF site and associated property rights. A copy of the agreement or an abbreviated agreement recorded with the County Clerk is attached as **Exhibit I**.

16. Personnel directly responsible for the design and construction of the proposed WCF are well qualified and experienced. The tower and foundation drawings for the proposed tower submitted as part of **Exhibit C** bear the signature and stamp of a professional engineer registered in the Commonwealth of Kentucky. All tower designs meet or exceed the minimum requirements of applicable laws and regulations.

17. The Construction Manager for the proposed facility is Don Murdock and the identity and qualifications of each person directly responsible for design and construction of the proposed tower are contained in **Exhibits B & C**.

18. As noted on the Survey attached as part of **Exhibit B**, the surveyor has determined that the site is not within any flood hazard area.

19. **Exhibit B** includes a map drawn to an appropriate scale that shows the location of the proposed tower and identifies every owner of real estate within 500 feet of the proposed tower (according to the records maintained by the County Property Valuation Administrator). Every structure and every easement within 500 feet of the proposed tower or within 200 feet of the access road including intersection with the public street system is

illustrated in **Exhibit B**.

20. Applicant has notified every person who, according to the records of the County Property Valuation Administrator, owns property which is within 500 feet of the proposed tower or contiguous to the site property, by certified mail, return receipt requested, of the proposed construction. Each notified property owner has been provided with a map of the location of the proposed construction, the PSC docket number for this application, the address of the PSC, and has been informed of his or her right to request intervention. A list of the notified property owners and a copy of the form of the notice sent by certified mail to each landowner are attached as **Exhibit J** and **Exhibit K**, respectively.

21. Applicant has notified the applicable County Judge/Executive by certified mail, return receipt requested, of the proposed construction. This notice included the PSC docket number under which the application will be processed and informed the County Judge/Executive of his/her right to request intervention. A copy of this notice is attached as **Exhibit L**.

22. Notice signs meeting the requirements prescribed by 807 KAR 5:063, Section 1(2) that measure at least 2 feet in height and 4 feet in width and that contain all required language in letters of required height, have been posted, one in a visible location on the proposed site and one on the nearest public road. Such signs shall remain posted for at least two weeks after filing of the Application, and a copy of the posted text is attached as **Exhibit M**. Notice of the location of the proposed facility has also been published in a newspaper of general circulation in the county in which the WCF is proposed to be located.

23. The general area where the proposed facility is to be located is rural with

large parcels.

24. The process that was used by the Applicant's radio frequency engineers in selecting the site for the proposed WCF was consistent with the general process used for selecting all other existing and proposed WCF facilities within the proposed network design area. Applicant's radio frequency engineers have conducted studies and tests in order to develop a highly efficient network that is designed to handle voice and data traffic in the service area. The engineers determined an optimum area for the placement of the proposed facility in terms of elevation and location to provide the best quality service to customers in the service area. A radio frequency design search area prepared in reference to these radio frequency studies was considered by the Applicant when searching for sites for its antennas that would provide the coverage deemed necessary by the Applicant. A map of the area in which the tower is proposed to be located which is drawn to scale and clearly depicts the necessary search area within which the site should be located pursuant to radio frequency requirements is attached as **Exhibit N**.

25. The tower must be located at the proposed location and proposed height to provide necessary service to wireless communications users in the subject area. In addition to expanding and improving voice and data service for AT&T mobile customers, this site will also support deployment of wireless local loop ("WLL") technology in the subject area. As a participant in the FCC's Connect America Fund Phase II (CAF II) program, AT&T is aggressively deploying WLL service infrastructure to bring expanded internet access to residential and business customers in rural and other underserved areas. WLL will support internet access at the high speeds required to use and enjoy the

most current business, education and entertainment technologies. Broadband service via WLL will be delivered from the tower to a dedicated antenna located at the home or business receiving service and will support downloads at 10 Mbps and uploads at 1 Mbps.

26. All Exhibits to this Application are hereby incorporated by reference as if fully set out as part of the Application.

27. All responses and requests associated with this Application may be directed to:

David A. Pike
Pike Legal Group, PLLC
1578 Highway 44 East, Suite 6
P. O. Box 369
Shepherdsville, KY 40165-0369
Telephone: (502) 955-4400
Telefax: (502) 543-4410
Email: dpike@pikelegal.com

WHEREFORE, Applicant respectfully request that the PSC accept the foregoing Application for filing, and having met the requirements of KRS §§ 278.020(1), 278.650, and 278.665 and all applicable rules and regulations of the PSC, grant a Certificate of Public Convenience and Necessity to construct and operate the WCF at the location set forth herein.

Respectfully submitted,

David A. Pike
Pike Legal Group, PLLC
1578 Highway 44 East, Suite 6
P. O. Box 369
Shepherdsville, KY 40165-0369
Telephone: (502) 955-4400
Telefax: (502) 543-4410
Email: dpike@pikelegal.com
Attorney for New Cingular Wireless PCS, LLC
d/b/a AT&T Mobility

LIST OF EXHIBITS

A - FCC License Documentation

B - Site Development Plan:

500' Vicinity Map
Legal Descriptions
Flood Plain Certification
Site Plan
Vertical Tower Profile

C - Tower and Foundation Design

D - Competing Utilities, Corporations, or Persons List

E - FAA

F - Kentucky Airport Zoning Commission

G - Geotechnical Report

H - Directions to WCF Site

I - Copy of Real Estate Agreement

J - Notification Listing

K - Copy of Property Owner Notification

L - Copy of County Judge/Executive Notice

M - Copy of Posted Notices

N - Copy of Radio Frequency Design Search Area

EXHIBIT A
FCC LICENSE DOCUMENTATION

ULS License

Cellular License - KNKN748 - NEW CINGULAR WIRELESS PCS, LLC

Call Sign	KNKN748	Radio Service	CL - Cellular
Status	Active	Auth Type	Regular

Market

Market	CMA445 - Kentucky 3 - Meade	Channel Block	A
Submarket	0	Phase	2

Dates

Grant	08/30/2011	Expiration	10/01/2021
Effective	06/13/2017	Cancellation	

Five Year Buildout Date

01/06/1997

Control Points

1 1650 Lyndon Farms Court, LOUISVILLE, KY
P: (502)329-4700

Licensee

FRN 0003291192 Type Limited Liability Company

Licensee

NEW CINGULAR WIRELESS PCS, LLC
208 S Akard St., RM 1016
Dallas, TX 75202
ATTN Leslie Wilson

P:(855)699-7073
F:(214)746-6410
E:FCCMW@att.com

Contact

AT&T MOBILITY LLC
MICHAEL P GOGGIN
1120 20TH STREET, NW, SUITE 1000
WASHINGTON, DC 20036
ATTN MICHAEL P. GOGGIN

P:(202)457-2055
F:(202)457-3073
E:MG7268@ATT.COM

Ownership and Qualifications

Radio Service Type Mobile

Regulatory Status Common Carrier Interconnected Yes

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

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

Demographics

Race

Ethnicity Gender

ULS License

PCS Broadband License - KNLG909 - NEW CINGULAR WIRELESS PCS, LLC

Call Sign	KNLG909	Radio Service	CW - PCS Broadband
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?

Reserved Spectrum

Reserved Spectrum

Market

Market	BTA052 - Bowling Green-Glasgow, KY	Channel Block	F
Submarket	0	Associated Frequencies (MHz)	001890.00000000-001895.00000000 001970.00000000-001975.00000000

Dates

Grant	07/25/2017	Expiration	08/21/2027
Effective	07/25/2017	Cancellation	

Buildout Deadlines

1st	08/21/2002	2nd	

Notification Dates

1st	10/05/2001	2nd	

Licensee

FRN	0003291192	Type	Limited Liability Company

Licensee

NEW CINGULAR WIRELESS PCS, LLC
208 S Akard St., RM 1016
Dallas, TX 75202
ATTN Leslie Wilson

P:(855)699-7073
F:(214)746-6410
E:FCCMW@att.com

Contact

AT&T MOBILITY LLC
Michael P Goggin
1120 20th Street, NW - Suite 1000
Washington, DC 20036
ATTN FCC Group

P:(202)457-2055
F:(202)457-3073
E:michael.p.goggin@att.com

Ownership and Qualifications

Radio Service Type	Mobile		
Regulatory Status	Common Carrier	Interconnected	Yes

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

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

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Gender

ULS License

PCS Broadband License - WPOI255 - NEW CINGULAR WIRELESS PCS, LLC

Call Sign	WPOI255	Radio Service	CW - PCS Broadband
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?

Reserved Spectrum

Reserved Spectrum

Market

Market	MTA026 - Louisville-Lexington-Evansvill	Channel Block	A
Submarket	19	Associated Frequencies (MHz)	001850.00000000-001865.00000000 001930.00000000-001945.00000000

Dates

Grant	05/27/2015	Expiration	06/23/2025
Effective	06/14/2017	Cancellation	

Buildout Deadlines

1st	06/23/2000	2nd	06/23/2005

Notification Dates

1st	07/07/2000	2nd	02/17/2005

Licensee

FRN	0003291192	Type	Limited Liability Company

Licensee

NEW CINGULAR WIRELESS PCS, LLC
208 S Akard St., RM 1016
Dallas, TX 75202
ATTN Leslie Wilson

P:(855)699-7073
F:(214)746-6410
E:FCCMW@att.com

Contact

AT&T MOBILITY LLC
Michael P Goggin
1120 20th Street, NW - Suite 1000
Washington, DC 20036
ATTN FCC Group

P:(202)457-2055
F:(202)457-3073
E:michael.p.goggin@att.com

Ownership and Qualifications

Radio Service Type	Mobile		
Regulatory Status	Common Carrier	Interconnected	Yes

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

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

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Gender

ULS License

AWS (1710-1755 MHz and 2110-2155 MHz) License - WQGD546 - New Cingular Wireless PCS, LLC

Call Sign	WQGD546	Radio Service	AW - AWS (1710-1755 MHz and 2110-2155 MHz)
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?

Reserved Spectrum

Reserved Spectrum

Market

Market	CMA445 - Kentucky 3 - Meade	Channel Block	A
Submarket	0	Associated Frequencies (MHz)	001710.00000000-001720.00000000 002110.00000000-002120.00000000

Dates

Grant	12/18/2006	Expiration	12/18/2021
Effective	06/14/2017	Cancellation	

Buildout Deadlines

1st 2nd

Notification Dates

1st 2nd

Licensee

FRN	0003291192	Type	Limited Liability Company

Licensee

New Cingular Wireless PCS, LLC
208 S Akard St., RM 1016
Dallas, TX 75202
ATTN Leslie Wilson

P:(855)699-7073
F:(214)746-6410
E:FCCMW@att.com

Contact

AT&T Mobility LLC

1120 20th Street, NW - Suite 1000
Washington, DC 20036
ATTN Michael P. Goggin

P:(202)457-2055
F:(202)457-3073
E:michael.p.goggin@att.com

Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Non-Common	Interconnected	No

Carrier

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

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

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Gender

ULS License

AWS (1710-1755 MHz and 2110-2155 MHz) License - WQGD758 - New Cingular Wireless PCS, LLC

Call Sign	WQGD758	Radio Service	AW - AWS (1710-1755 MHz and 2110-2155 MHz)
Status	Active	Auth Type	Regular

Rural Service Provider Bidding Credit

Is the Applicant seeking a Rural Service Provider (RSP) bidding credit?

Reserved Spectrum

Reserved Spectrum

Market

Market	BEA071 - Nashville, TN-KY	Channel Block	C
Submarket	0	Associated Frequencies (MHz)	001730.00000000-001735.00000000 002130.00000000-002135.00000000

Dates

Grant	12/18/2006	Expiration	12/18/2021
Effective	06/14/2017	Cancellation	

Buildout Deadlines

1st 2nd

Notification Dates

1st 2nd

Licensee

FRN	0003291192	Type	Limited Liability Company

Licensee

New Cingular Wireless PCS, LLC
208 S Akard St., RM 1016
Dallas, TX 75202
ATTN Leslie Wilson

P:(855)699-7073
F:(214)746-6410
E:FCCMW@att.com

Contact

AT&T Mobility LLC

1120 20th Street, NW - Suite 1000
Washington, DC 20036
ATTN Michael P. Goggin

P:(202)457-2055
F:(202)457-3073
E:michael.p.goggin@att.com

Ownership and Qualifications

Radio Service Type	Mobile		
Regulatory Status	Common Carrier	Interconnected	Yes

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

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

Tribal Land Bidding Credits
This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Gender

EXHIBIT B

SITE DEVELOPMENT PLAN:

500' VICINITY MAP
LEGAL DESCRIPTIONS
FLOOD PLAIN CERTIFICATION
SITE PLAN
VERTICAL TOWER PROFILE

SITE NAME:

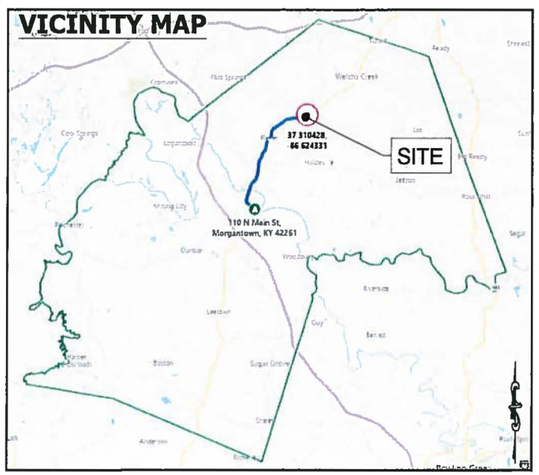
WELCOME RD

SITE NUMEER:

KYL03684

PROPOSED RAW LAND SITE WITH PROPOSED 255' SELF-SUPPORT TOWER WITH A 15' LIGHTNING ARRESTOR AND INSTALLATION OF A 12'-0" x 12'-0" PREFABRICATED SHELTER AND GENERATOR

VICINITY MAP



DIRECTIONS

FROM 110 N MAIN ST, MORGANTOWN, KY 42261

1. DEPART KY-2161 / N MAIN ST TOWARD E G L SMITH ST 161 FT
2. TURN RIGHT ONTO US-231 / KY-79 / KY-403 / W G L SMITH ST 2.4 MI
3. TURN RIGHT ONTO KY-79 / KY-70 / CANEYVILLE RD 5.6 MI
4. ARRIVE AT KY-79 / 5545 CANEYVILLE RD ON THE LEFT

PROJECT SCOPE OF WORK

ZONING DRAWINGS FOR:
CONSTRUCTION OF A PROPOSED UNMANNED TELECOMMUNICATIONS FACILITY.
SITE WORK: PROPOSED TOWER, UNMANNED EQUIPMENT SHELTER AND GENERATOR ON A CONCRETE FOUNDATIONS, AND UTILITY INSTALLATIONS.

PROJECT INFORMATION

COUNTY:	BUTLER
SITE ADDRESS:	5545 CANEYVILLE ROAD MORGANTOWN, KY 42261
APPLICANT:	NEW CINGULAR WIRELESS PCS, LLC, A DELAWARE LIMITED LIABILITY COMPANY, D/B/A AT&T MOBILITY 601 WEST CHESTNUT ST. LOUISVILLE, KY 40203
LATITUDE:	37° 18' 37.54"
LONGITUDE:	-86° 37' 27.59"

DRAWING INDEX

CONTACT INFORMATION

FIRE DEPARTMENT:
MORGANTOWN FIRE DEPARTMENT
PHONE: 270-526-3722

POLICE DEPARTMENT:
BUTLER COUNTY SHERIFF
PHONE: 270-526-3676

ELECTRIC COMPANY:
WARREN RECC
PHONE: 270-526-3384

TELEPHONE COMPANY:
AT&T
PHONE: 800-288-2020

BUILDING CODES AND STANDARDS

CONTRACTOR'S WORK SHALL COMPLY WITH ALL APPICABLE NATIONAL, STATE AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION FOR THE LOCATION.

CONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

* AMERICAN CONCRETE INSTITUTE 318
* AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL OF STEEL CONSTRUCTION
* TELECOMMUNICATIONS INDUSTRY ASSOCIATION TIA-222
* STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND SUPPORTING STRUCTURES TIA-601
* COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS
* INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS IEEE-81, IEEE 1100, IEEE C62.41
* ANSI T1.311, FOR TELECOM - DC POWER SYSTEMS - TELECOM, ENVIRONMENTAL PROTECTION
* 2014 KENTUCKY BUILDING CODE
* 2014 NEC

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN.

CAUTION

THE UTILITIES SHOWN HEREON ARE FOR THE CONTRACTOR'S CONVENIENCE ONLY. THERE MAY BE OTHER UTILITIES NOT SHOWN ON THESE PLANS. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS SHOWN AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL UTILITIES WITHIN THE LIMITS OF THE WORK. ALL DAMAGE MADE TO EXISTING UTILITIES BY THE CONTRACTOR SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

FOR EMERGENCIES CALL: 911

811 Know what's below. Call before you dig. www.call811.com

at&t

MasTec

IRISH TOWER
GENERAL CONSTRUCTION | ENGINEERING | PROJECT MANAGEMENT
4603 Bermuda Drive Sugar Land, TX 77479
Voice: (281) 795-2651 | Fax: (866) 598-3136
irishtower.com

ZONING DRAWINGS
NOT FOR CONSTRUCTION

DRAWN BY:	DL
CHECKED BY:	JRG

REV	DATE	DESCRIPTION
0	04/05/17	ISSUED FOR ZONING
1	09/01/17	ISSUED FOR ZONING

STATE OF KENTUCKY
JACOB GORALSKI
30698
LICENSED PROFESSIONAL ENGINEER
9/1/2017

ENG. PERMIT # 4363

FA #
13800714
SITE#
KYL03684
SITE NAME:
WELCOME RD
SITE ADDRESS:
5545 CANEYVILLE ROAD
MORGANTOWN, KY 42261

SHEET TITLE
TITLE SHEET & PROJECT INFORMATION

SHEET NUMBER
T-1

PROPOSED LEASE AREA

ALL THAT TRACT OR PARCEL OF LAND LYING IN THE COUNTY OF BUTLER, STATE OF KENTUCKY, CONSISTING OF A 100 FEET BY 100 FEET LEASE AREA, COMMENCING AT A FOUND FENCE POST, THAT IS 1,145 FEET NORTHWESTERLY OF THE INTERSECTION OF (KY 79) CANEYVILLE ROAD AND COUNTY ROAD, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THENCE SOUTH 41 DEGREES 13 MINUTES 16 SECONDS WEST, A DISTANCE OF 79.98 FEET TO THE POINT OF BEGINNING;
THENCE SOUTH 16 DEGREES 55 MINUTES 45 SECONDS WEST, A DISTANCE OF 100.00 FEET;
THENCE NORTH 73 DEGREES 04 MINUTES 15 SECONDS WEST, A DISTANCE OF 100.00 FEET;
THENCE NORTH 16 DEGREES 55 MINUTES 45 SECONDS EAST, A DISTANCE OF 100.00 FEET;
THENCE SOUTH 73 DEGREES 04 MINUTES 15 SECONDS EAST, A DISTANCE OF 100.00 FEET TO THE POINT OF BEGINNING.

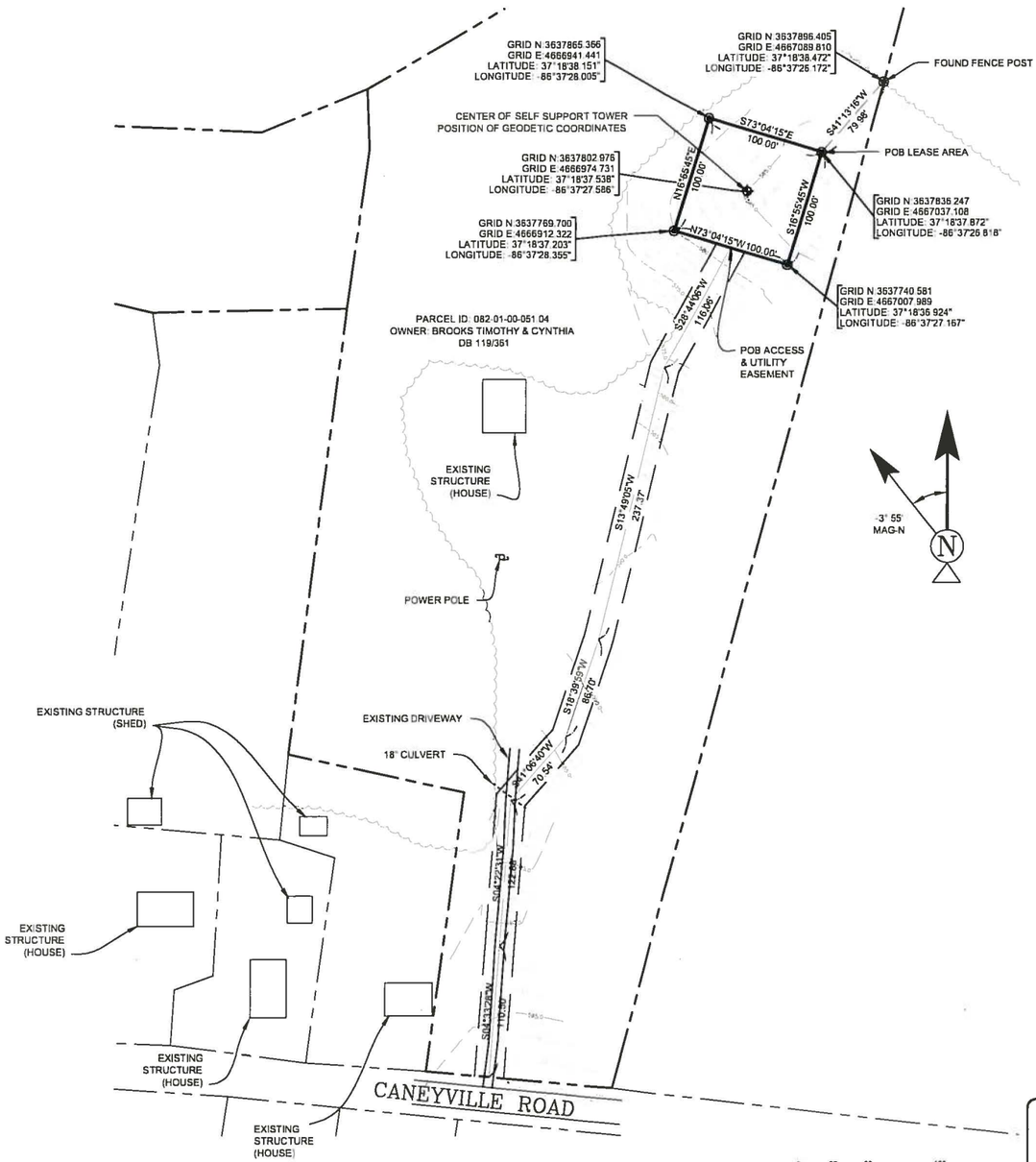
10,000 SQUARE FEET OR 0.2295 ACRES, MORE OR LESS

PROPOSED ACCESS & UTILITY EASEMENT

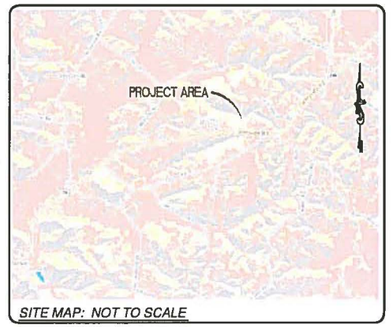
ALL THAT TRACT OR PARCEL OF LAND LYING IN THE COUNTY OF BUTLER, STATE OF KENTUCKY, CONSISTING OF A 25 FEET WIDE ACCESS AND UTILITY EASEMENT COMMENCING AT A FOUND FENCE POST, THAT IS 1,145 FEET NORTHWESTERLY OF THE INTERSECTION OF (KY 79) CANEYVILLE ROAD AND COUNTY ROAD, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THENCE SOUTH 41 DEGREES 13 MINUTES 16 SECONDS WEST, A DISTANCE OF 79.98 FEET;
THENCE SOUTH 16 DEGREES 55 MINUTES 45 SECONDS WEST, A DISTANCE OF 100.00 FEET;
THENCE NORTH 73 DEGREES 04 MINUTES 15 SECONDS WEST, A DISTANCE OF 50.00 FEET TO THE POINT OF BEGINNING OF A 25 FEET WIDE ACCESS AND UTILITY EASEMENT LYING 12.50 FEET ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE;

THENCE SOUTH 28 DEGREES 44 MINUTES 06 SECONDS WEST, A DISTANCE OF 116.06 FEET;
THENCE SOUTH 13 DEGREES 49 MINUTES 05 SECONDS WEST, A DISTANCE OF 237.37 FEET;
THENCE SOUTH 18 DEGREES 39 MINUTES 59 SECONDS WEST, A DISTANCE OF 86.70 FEET,
THENCE SOUTH 41 DEGREES 06 MINUTES 40 SECONDS WEST, A DISTANCE OF 70.54 FEET,
THENCE SOUTH 04 DEGREES 22 MINUTES 31 SECONDS WEST, A DISTANCE OF 122.96 FEET; THENCE SOUTH 04 DEGREES 33 MINUTES 28 SECONDS WEST, A DISTANCE OF 110.50 FEET TO THE POINT OF TERMINUS.



SCALE: 1 inch = 60 ft.
PAPER SIZE 22x34
SCALE: 1 inch = 120 ft.
PAPER SIZE 11x17



SITE MAP: NOT TO SCALE

BENCHMARK

ELEVATION ESTABLISHED FROM GPS OBSERVATIONS CONSTRAINED TO OPUS SOLUTIONS, APPLYING GEOID 12A SEPARATIONS NAVD88 DATUM,

BASIS OF BEARINGS

BEARINGS SHOWED HEREON ARE BASED UPON U.S. STATE PLANE NAD83 COORDINATE SYSTEM *KENTUCKY SINGLE ZONE US FOOT*, DETERMINED BY GPS OBSERVATIONS, COMPLETED ON 3.10.17

UTILITY NOTES

SURVEYOR DOES NOT GUARANTEE THAT ALL UTILITIES ARE SHOWN OR THEIR LOCATIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND DEVELOPER TO CONTACT LOCAL 811 AND ANY OTHER INVOLVED AGENCIES TO LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION. REMOVAL, RELOCATION AND/ OR REPLACEMENT IS THE RESPONSIBILITY OF THE CONTRACTOR.

SURVEYOR NOTES

NO SEARCH OF PUBLIC RECORDS HAS BEEN COMPLETED TO DETERMINE ANY DEFECTS AND/OR AMBIGUITIES IN THE TITLE OF THE PARENT PARCEL.

THIS SURVEY IS FOR THE PROPOSED LEASE AREA AND THE PROPOSED ACCESS AND UTILITY EASEMENT ONLY, AND ONLY A PARTIAL BOUNDARY SURVEY OF THE PARENT TRACT HAS BEEN PERFORMED

THIS PROPERTY IS SUBJECT TO ANY RECORD EASEMENTS AND/OR RIGHT OF WAY SHOWN HEREON OR NOT.

THIS SURVEY IS NOT INTENDED FOR LAND TRANSFER.

SURVEYOR HAS NOT PERFORMED A SEARCH OF PUBLIC RECORDS TO DETERMINE ANY DEFECT IN TITLE ISSUED. THE BOUNDARY SHOWN HEREON IS PLOTTED FROM RECORD INFORMATION AND DOES NOT CONSTITUTE A BOUNDARY SURVEY OF THE PROPERTY.

THIS SURVEY PLAN WAS PERFORMED UNDER THE AUTHORITY OF KENTUCKY REVISED STATUTES (201 KAR 18, 150), AND IS NOT TO BE CONSIDERED A GENERAL PROPERTY BOUNDARY SURVEY AS DEFINED WITH KENTUCKY REVISED STATUES. DIMENSIONS (IF SHOWN) ALONG THE PERIMETER OF THE LANDOWNER'S PROPERTY ARE PROVIDED UNDER THIS SURVEYOR'S SCOPE OF SERVICES WITH AT&T AND ARE TO BE CONSIDERED FOR REFERENCE ONLY. THE EXACT LOCATION OF THE LANDOWNER'S PROPERTY MAY DIFFER UPON THE PREPARATION OF A FULL BOUNDARY SURVEY IN ACCORDANCE WITH THE REQUIREMENTS ESTABLISHED BY THE STATE OF KENTUCKY.

THIS SURVEY WAS PERFORMED WITH A CARLSON BRx5+ DUAL FREQUENCY, REAL TIME KINEMATIC GLOBAL POSITIONING SYSTEM ROVER AND BASE STATION H/W B181301475O1133 & B181301475O1126 SERIAL NUMBERS. REDUNDANT AND REPETITIVE MEASUREMENTS WERE TAKENTO INSURE CORRECT POSITIONS OF ALL DATA POINTS....A TOLERANCE OF 0.04' FOR POSITIONAL ACCURACY.

SITE INFO

TAX PARCEL NO: 082-01-00-051.04

PROPERTY OWNER: BROOKS TIMOTHY & CYNTHIA

SOURCE OF TITLE: DB 119/361

LAND SURVEYOR'S CERTIFICATE

I, A. CLAY ROBINSON, HEREBY CERTIFY THAT I AM A LICENSED PROFESSIONAL LAND SURVEYOR LICENSED IN COMPLIANCE WITH THE LAWS OF THE COMMONWEALTH OF KENTUCKY. I FURTHER CERTIFY THAT THIS PLAT AND THE SURVEY ON THE GROUND WERE PERFORMED BY PERSONS UNDER MY DIRECT SUPERVISION, AND THAT THE DIRECTIONAL AND LINEAR MEASUREMENTS BEING WITNESSED BY MONUMENTS SHOWN HEREON ARE TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE. THE "RURAL" SURVEY, AND THE PLAT ON WHICH IT IS BASED, MEETS ALL SPECIFICATION AS STATES IN KAR 201-18:150.

SIGNED: A Clay Robinson 3.27.17

DATE

TITLE REPORT INFO

A TITLE REPORT WAS NOT PROVIDED AT THE TIME THIS SURVEY WAS PERFORMED. ANY EASEMENTS OR OTHER ITEMS CONTAINED WITHIN THE TITLE REPORT WHICH MAY AFFECT THE LEASE AREA HAVE NOT BEEN PLOTTED.

811 Know what's below. Call before you dig.

FAA COORDINATE POINT

CENTER OF SELF SUPPORT TOWER (NAD83)
LATITUDE 37° 18' 37.54" NORTH
LONGITUDE 86° 37' 27.59" WEST
ELEVATION 585.2' (NAVD88)

1-A ACCURACY CERTIFICATION

THE HORIZONTAL ACCURACY OF THE LATITUDE AND LONGITUDE OF THE GEODETIC COORDINATES FALL WITHIN TWENTY (20) FEET. THE ELEVATIONS (NAVD88) OF THE GROUND AND FIXTURES FALL WITHIN THREE (3) FEET.

FLOOD INFORMATION

THE PROPOSED LEASE AREA SHOWN HEREON IS NOT LOCATED IN A 100-YEAR FLOOD PLAIN PER FLOOD HAZARD BOUNDARY MAP, COMMUNITY-PANEL NO. 21031C0115D, DATED 01.08.2014. THE PROPOSED LEASE AREA IS LOCATED IN ZONE "X".

LEGEND

POB	POINT OF BEGINNING	1000	SPOT ELEVATION
POT	POINT OF TERMINUS		POSITION OF GEODETIC COORDINATES
PUE	PUBLIC UTILITY EASEMENT	WV	WATER CONTROL VALVE
ROW	RIGHT OF WAY		FIRE HYDRANT
DW	DRIVEWAY		POWER POLE
SW	SIDEWALK	EMH	ELECTRIC MANHOLE
	SET ½"x24" IR CAPPED: #3219 OR FOUND AS NOTED	T	TELCO MANHOLE

OHE OVERHEAD ELECTRIC — PROPERTY LINE — BARBED WIRE FENCE

at&t

MasTec

IRISH TOWER
GENERAL CONSTRUCTION | ENGINEERING | PROJECT MANAGEMENT
4603 Bermuda Drive, Sugar Land TX 77479
Voice: (281) 796 2651 | Fax: (866) 598 3136
Irishtower.com

DRAWN BY:	MB
CHECKED BY:	JC / ACR

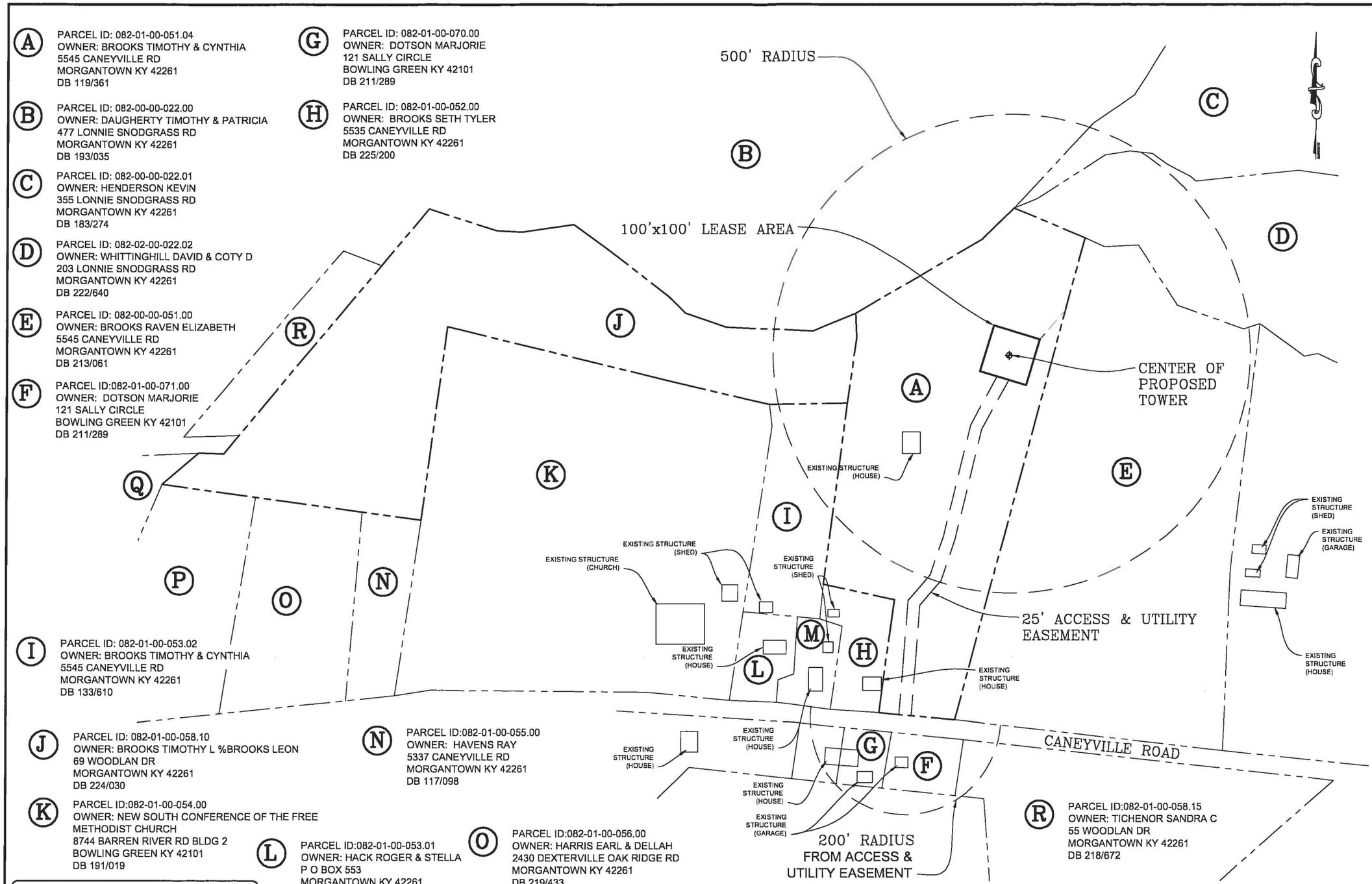
REV.	DATE	DESCRIPTION
A	3.19.17	REVIEW

STATE of KENTUCKY
A. CLAY ROBINSON
3219
LICENSED PROFESSIONAL LAND SURVEYOR

FA #
13800714
SITE #
KYL03684
SITE NAME:
WELCOME RD
SITE ADDRESS:
5545 CANEYVILLE RD
MORGANTOWN KY 42261
BUTLER COUNTY

SHEET TITLE
TOPOGRAPHIC SITE SURVEY

SHEET NUMBER
B-1



A PARCEL ID: 082-01-00-051.04
OWNER: BROOKS TIMOTHY & CYNTHIA
5545 CANEYVILLE RD
MORGANTOWN KY 42261
DB 119/361

B PARCEL ID: 082-00-00-022.00
OWNER: DAUGHERTY TIMOTHY & PATRICIA
477 LONNIE SNODGRASS RD
MORGANTOWN KY 42261
DB 193/035

C PARCEL ID: 082-00-00-022.01
OWNER: HENDERSON KEVIN
355 LONNIE SNODGRASS RD
MORGANTOWN KY 42261
DB 183/274

D PARCEL ID: 082-02-00-022.02
OWNER: WHITTINGHILL DAVID & COTY D
203 LONNIE SNODGRASS RD
MORGANTOWN KY 42261
DB 222/640

E PARCEL ID: 082-00-00-051.00
OWNER: BROOKS RAVEN ELIZABETH
5545 CANEYVILLE RD
MORGANTOWN KY 42261
DB 213/061

F PARCEL ID:082-01-00-071.00
OWNER: DOTSON MARJORIE
121 SALLY CIRCLE
BOWLING GREEN KY 42101
DB 211/289

G PARCEL ID: 082-01-00-070.00
OWNER: DOTSON MARJORIE
121 SALLY CIRCLE
BOWLING GREEN KY 42101
DB 211/289

H PARCEL ID: 082-01-00-052.00
OWNER: BROOKS SETH TYLER
5535 CANEYVILLE RD
MORGANTOWN KY 42261
DB 225/200

I PARCEL ID: 082-01-00-053.02
OWNER: BROOKS TIMOTHY & CYNTHIA
5545 CANEYVILLE RD
MORGANTOWN KY 42261
DB 133/610

J PARCEL ID: 082-01-00-058.10
OWNER: BROOKS TIMOTHY L %BROOKS LEON
69 WOODLAN DR
MORGANTOWN KY 42261
DB 224/030

K PARCEL ID:082-01-00-054.00
OWNER: NEW SOUTH CONFERENCE OF THE FREE METHODIST CHURCH
8744 BARREN RIVER RD BLDG 2
BOWLING GREEN KY 42101
DB 191/019

L PARCEL ID:082-01-00-053.01
OWNER: HACK ROGER & STELLA
P O BOX 553
MORGANTOWN KY 42261
DB 156/286

M PARCEL ID:082-01-00-053.00
OWNER: NEIGHBORS CHRIS & TAWNYA
5501 CANEYVILLE RD
MORGANTOWN KY 42261
DB 223/109

N PARCEL ID:082-01-00-055.00
OWNER: HAVENS RAY
5337 CANEYVILLE RD
MORGANTOWN KY 42261
DB 117/098

O PARCEL ID:082-01-00-056.00
OWNER: HARRIS EARL & DELLAH
2430 DEXTERVILLE OAK RIDGE RD
MORGANTOWN KY 42261
DB 219/433

P PARCEL ID:082-01-00-057.00
OWNER: HARRIS DELLAH & EARL
2430 DEXTERVILLE OAK RIDGE RD
MORGANTOWN KY 42261
DB 211/208

Q PARCEL ID:082-01-00-058.09
OWNER: SMITH SHAWN DAVID & ANDREA ELLEN
16 WOODLAN DR
MORGANTOWN KY 42261
DB 217/319

R PARCEL ID:082-01-00-058.15
OWNER: TICHENOR SANDRA C
55 WOODLAN DR
MORGANTOWN KY 42261
DB 218/672

SURVEYOR NOTES

1. ALL INFORMATION SHOWN HEREON WAS OBTAINED AT THE TIME OF THE FIELD SURVEY AND FROM BUTLER COUNTY PROPERTY VALUATION OFFICE. RECORDS MAY NOT REFLECT THE CURRENT OWNERS AND ADDRESSES DUE TO THE INACCURACIES AND THE TIME LAPSE IN UPDATING FILES.

2. THIS MAP IS FOR GENERAL INFORMATION PURPOSES ONLY AND DOES CONSTITUTE A BOUNDARY SURVEY.

3. THIS MAP IS NOT FOR RECORDING OR PROPERTY TRANSFER.

SCALE: 1 inch = 200 ft.
PAPER SIZE 22x34
SCALE: 1 inch = 400 ft.
PAPER SIZE 11x17

SITE INFO

TAX PARCEL NO: 082-01-00-051.04

PROPERTY OWNER: BROOKS TIMOTHY & CYNTHIA

SOURCE OF TITLE: DB 119/361

at&t

MasTec

IRISH TOWER
GENERAL CONSTRUCTION | ENGINEERING | PROJECT MANAGEMENT
4603 Bermuda Drive, Sugar Land TX 77479
Voice (281) 796 2651 | Fax (866) 598 3136
irishtower.com

DRAWN BY: MD
CHECKED BY: JC/ALR

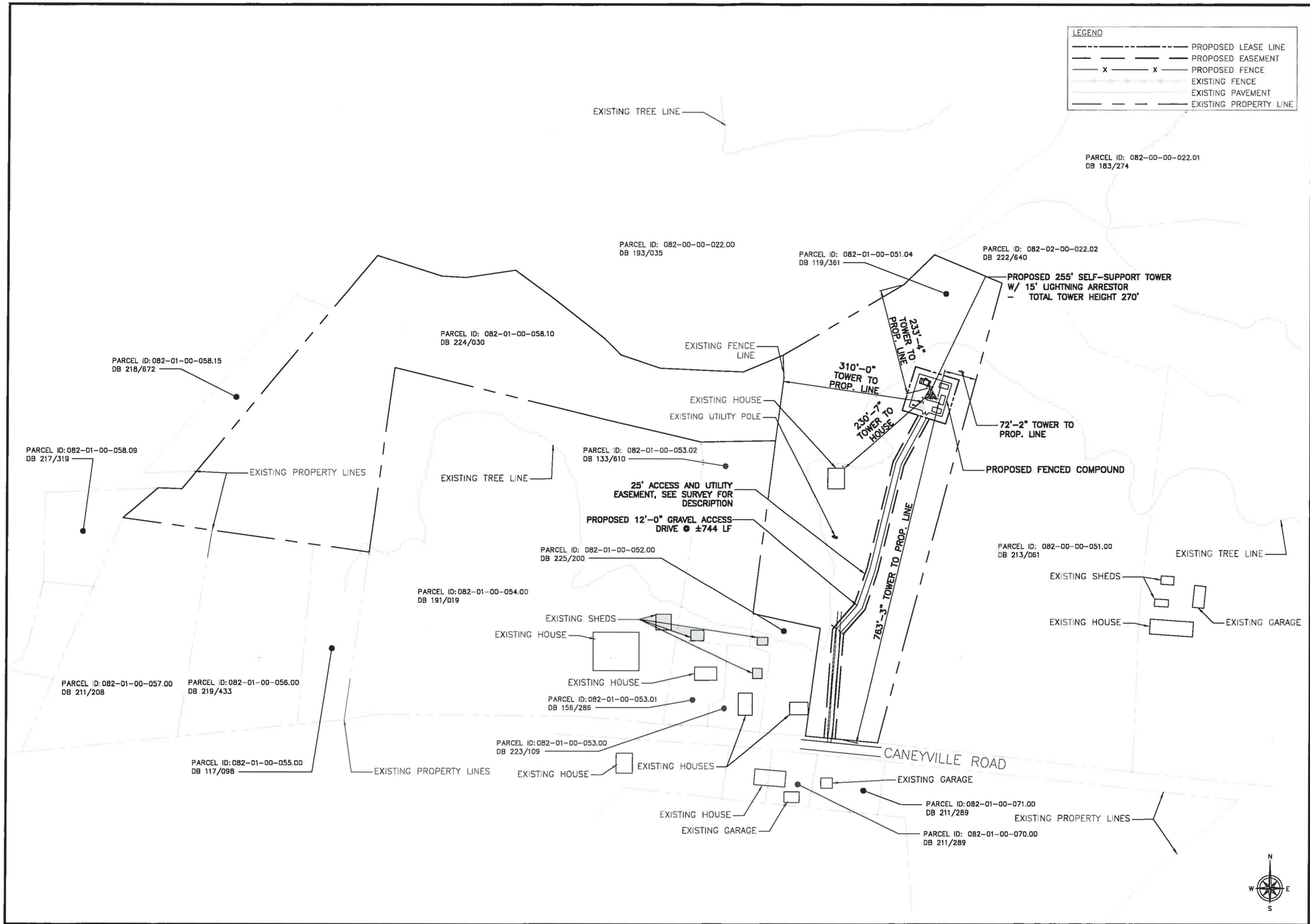
REV.	DATE	DESCRIPTION
A	3.19.17	REVIEW

STATE of KENTUCKY
A. CLAY ROBINSON
33
LICENSED PROFESSIONAL LAND SURVEYOR

FA #
13800714
SITE #
KYL03684
SITE NAME:
WELCOME RD
SITE ADDRESS
5545 CANEYVILLE RD
MORGANTOWN KY 42261
BUTLER COUNTY

SHEET TITLE
500' RADIUS & ABUTTER'S MAP

SHEET NUMBER
B-2



OVERALL SITE LAYOUT

22"x34" SCALE: 1" = 100'-0"
11"x17" SCALE: 1" = 200'-0"
100' 50' 0' 100'

1

at&t

MasTec

IRISH TOWER
GENERAL CONSTRUCTION | ENGINEERING | PROJECT MANAGEMENT
4603 Bermuda Drive. Sugar Land. TX 77479
Voice: (281) 799-2551 | Fax: (866) 598-3136
irishtower.com

ZONING DRAWINGS
NOT FOR CONSTRUCTION

DRAWN BY:	DL
CHECKED BY:	JRG

REV	DATE	DESCRIPTION
0	04/05/17	ISSUED FOR ZONING
1	09/01/17	ISSUED FOR ZONING

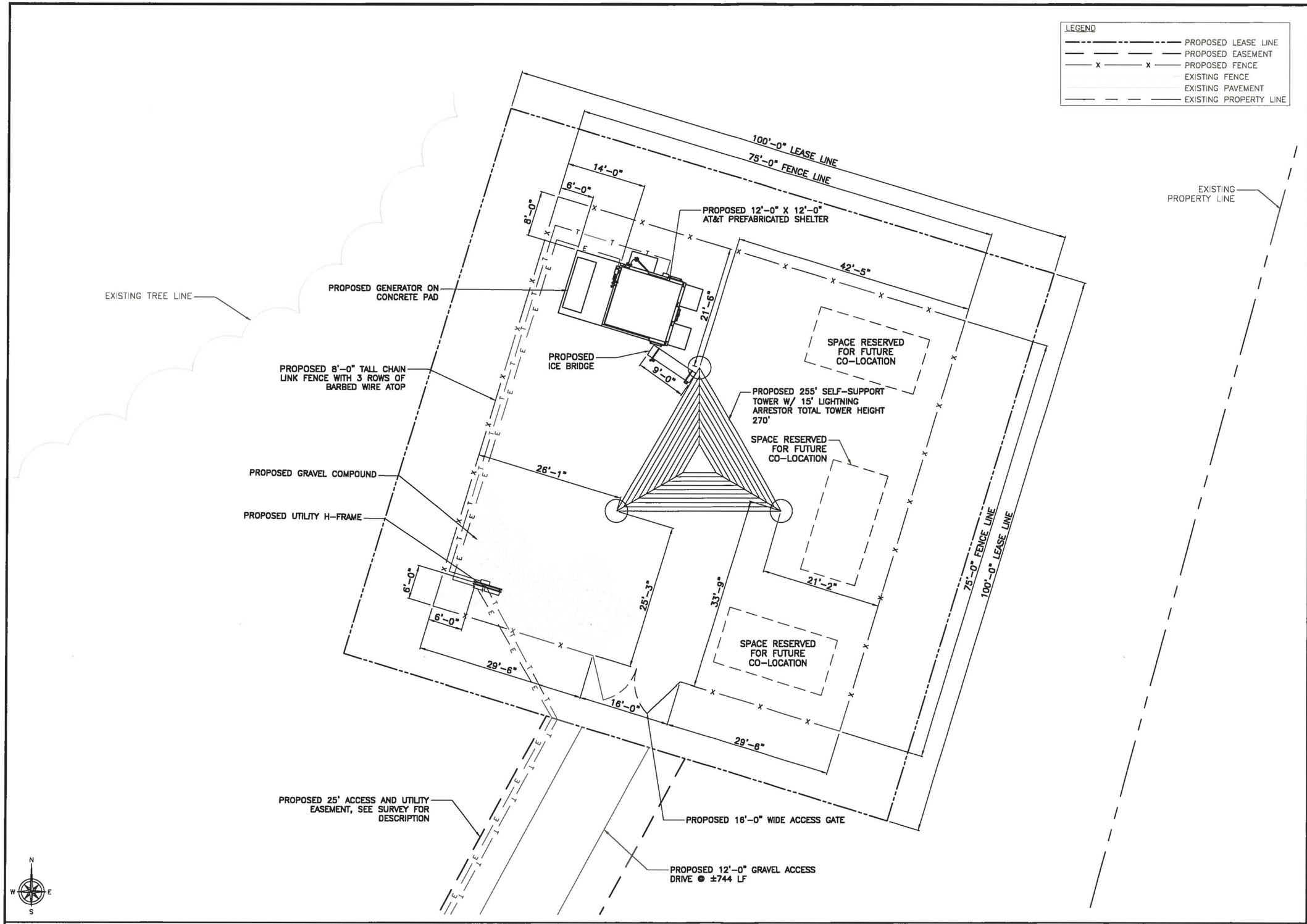
STATE OF KENTUCKY
JACOB GORALSKI
30698
LICENSED PROFESSIONAL ENGINEER
9/1/2017

ENG. PERMIT # 4363

FA #
13800714
SITE#
KYL03684
SITE NAME:
WELCOME RD
SITE ADDRESS:
5545 CANEYVILLE ROAD
MORGANTOWN, KY 42261

SHEET TITLE
OVERALL SITE LAYOUT

SHEET NUMBER
C-1



ENLARGED COMPOUND LAYOUT

22"x34" SCALE: 1/8" = 1'-0"
11"x17" SCALE: 1/16" = 1'-0"
8' 6' 4' 2' 0" 8'

1

at&t

MasTec

IRISH TOWER
GENERAL CONSTRUCTION | ENGINEERING | PROJECT MANAGEMENT
4603 Bermuda Drive, Sugar Land, TX 77479
Voice: (281) 795-2551 | Fax: (866) 598-3136
irishtower.com

ZONING DRAWINGS
NOT FOR CONSTRUCTION

DRAWN BY:	DL
CHECKED BY:	JRG

REV	DATE	DESCRIPTION
0	04/05/17	ISSUED FOR ZONING
1	09/01/17	ISSUED FOR ZONING

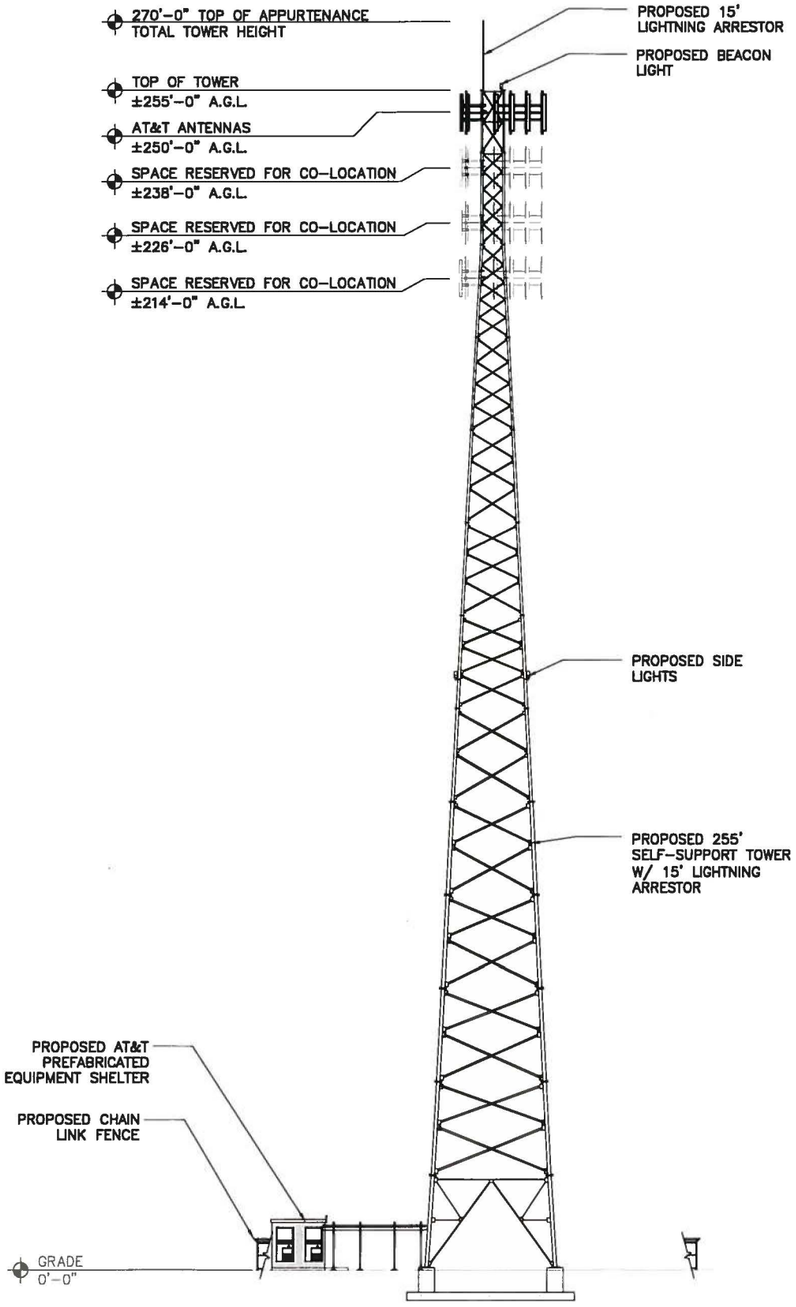
STATE OF KENTUCKY
JACOB GORALSKI
30696
LICENSED PROFESSIONAL ENGINEER
9/1/2017

ENG. PERMIT # 4363

FA #
13800714
SITE#
KYL03684
SITE NAME:
WELCOME RD
SITE ADDRESS:
5545 CANEYVILLE ROAD
MORGANTOWN, KY 42261

SHEET TITLE
ENLARGED COMPOUND LAYOUT

SHEET NUMBER
C-2



TOWER ELEVATION

22"x34" SCALE: 1/16" = 1'-0"
11"x17" SCALE: 1/32" = 1'-0"
0' 8' 16' 32'

1

at&t

MasTec

IRISH TOWER
GENERAL CONSTRUCTION | ENGINEERING | PROJECT MANAGEMENT
4603 Bermuda Drive, Sugar Land, TX 77479
Voice: (281) 796-2651 | Fax: (866) 598-3136
irishtower.com

ZONING DRAWINGS
NOT FOR CONSTRUCTION

DRAWN BY:	DL
CHECKED BY:	JRG

REV	DATE	DESCRIPTION
0	04/05/17	ISSUED FOR ZONING
1	09/01/17	ISSUED FOR ZONING

STATE OF KENTUCKY
JACOB GORALSKI
30696
LICENSED PROFESSIONAL ENGINEER
9/1/2017

ENG. PERMIT # 4363

FA #
13800714
SITE #
KYL03684
SITE NAME:
WELCOME RD
SITE ADDRESS:
5545 CANEYVILLE ROAD
MORGANTOWN, KY 42261

SHEET TITLE
TOWER ELEVATION

SHEET NUMBER
C-3

EXHIBIT C
TOWER AND FOUNDATION DESIGN

Sabre Industries™
Towers and Poles

Structural Design Report

255' S3TL Series HD1 Self-Supporting Tower
Site: Welcome Rd, KY
Site Number: KYL03684

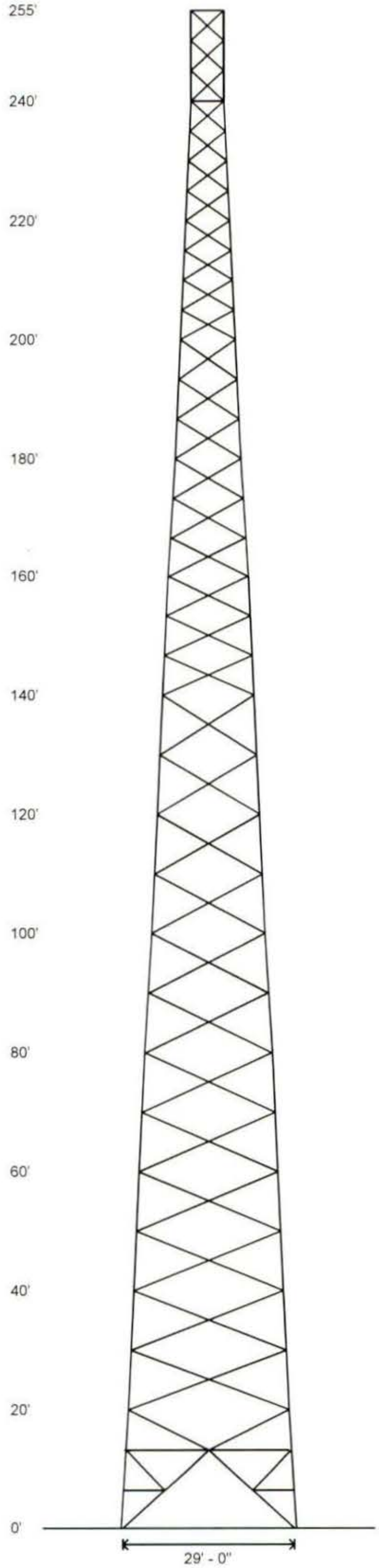
Prepared for: AT&T
by: Sabre Towers & Poles ™

Job Number: 169686

August 31, 2017

8/31/17

	1	2	3	4	5	6	7	8	9	10	11	12	13
Legs	12.75 OD X .375			A	8.625 OD X .500			B	C	D	E	F	G
Diagonals	H	L 4 X 4 X 5/16	L 4 X 4 X 1/4			I	J	L 3 X 3 X 3/16		K	L	L 2 X 2 X 3/16	M
Horizontals	I	NONE										N	NONE M
Internals	O	NONE											
Sub-Diagonals	P	NONE											
Sub-Horizontals	L	NONE											
Brace Bolts	(2) 3/4"	(2) 5/8"		(1) 3/4"					(1) 5/8"				
Top Face Width	27'	25'	23'	21'	19'	17'	15'	13'	11'	9'	7'	5'	
Panel Count/Height	Q R	12 @ 10'						9 @ 6.6667'			11 @ 5'		
Section Weight	7129	6556	5877	6207	5173	4518	4305	3211	3017	2421	1900	1375	565



Base Reactions

Total Foundation		Individual Footing	
Shear (kips)	96.53	Shear (kips)	58.79
Axial (kips)	248.02	Compression (kips)	639
Moment (ft-kips)	15218	Uplift (kips)	561
Torsion (ft-kips)	39.55		

Material List

Display	Value
A	10.75 OD X .500
B	8.625 OD X .322
C	5.563 OD X .500
D	5.563 OD X .375
E	4.500 OD X .337
F	3.500 OD X .300
G	2.375 OD X .154
H	L 5 X 3 1/2 X 5/16 (SLV)
I	L 3 1/2 X 3 1/2 X 1/4
J	L 3 1/2 X 3 X 1/4 (SLV)
K	L 2 1/2 X 2 1/2 X 1/4
L	L 2 1/2 X 2 1/2 X 3/16
M	L 2 X 2 X 1/8
N	L 2 X 2 X 3/16
O	L 3 X 3 X 1/4
P	L 3 X 3 X 3/16
Q	1 @ 13.333'
R	1 @ 6.667'

Notes

1) All legs are A500 (50 ksi Min. Yield).
2) All braces are A572 Grade 50.
3) All brace bolts are A325-X.
4) The tower model is S3TL Series HD1.
5) Transmission lines are to be attached to standard 12 hole waveguide ladders with stackable hangers.
6) Azimuths are relative (not based on true north).
7) Foundation loads shown are maximums.
8) (6) 1 3/4" dia. F1554 grade 105 anchor bolts per leg. Minimum 65.5" embedment from top of concrete to top of nut.
9) All unequal angles are oriented with the short leg vertical.
10) Weights shown are estimates. Final weights may vary.
11) This tower was designed for a basic wind speed of 89 mph with 0" of radial ice, and 30 mph with 3/4" of radial ice, in accordance with ANSI/TIA-222-G, Structure Class II, Exposure Category C, Topographic Category 1.
12) The foundation loads shown are factored loads.
13) The tower design meets the requirements for an Ultimate Wind Speed of 115 mph (Risk Category II), in accordance with the 2012 International Building Code.
14) Tower Rating: 98.99%

Sabre Industries Towers and Poles

Sabre Communications Corporation
7101 Southbridge Drive
P.O. Box 658
Sioux City, IA 51102-0658
Phone: (712) 258-6690
Fax: (712) 279-0814

Job:	169686
Customer:	AT&T
Site Name:	Welcome Rd, KY KYL03684
Description:	255' S3TL
Date:	8/31/2017 By: REB

Designed Appurtenance Loading

Elev	Description	Tx-Line
260	(1) Extendible Lightning Rod	
250	(1) 278 Sq. FT. EPA /6000# (No Ice)	(18) 1 5/8"
238	(1) 208 sq. ft. EPA 4000# (no ice)	(18) 1 5/8"

Elev	Description	Tx-Line
226	(1) 208 sq. ft. EPA 4000# (no ice)	(18) 1 5/8"
214	(1) 208 sq. ft. EPA 4000# (no ice)	(18) 1 5/8"

Sabre Industries
Towers and Poles

Sabre Communications Corporation
7101 Southbridge Drive
P.O. Box 658
Sioux City, IA 51102-0658
Phone: (712) 258-6690
Fax: (712) 279-0814

Job:	**169686**
Customer:	AT&T
Site Name:	Welcome Rd, KY KYL03684
Description:	255' S3TL
Date:	8/31/2017 By: REB

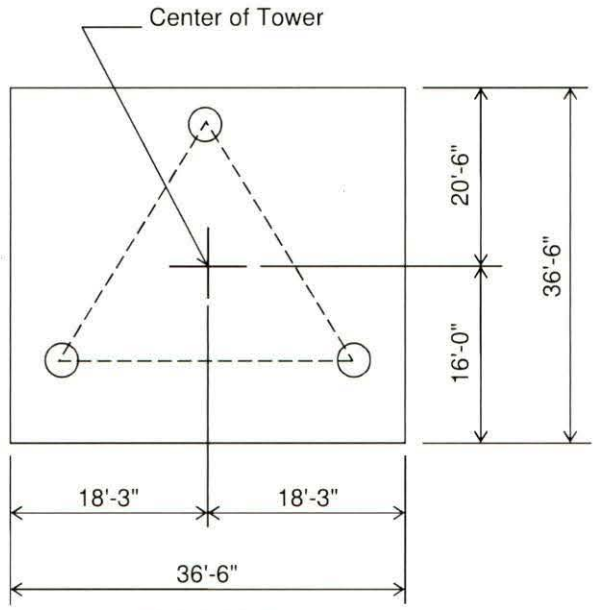
Sabre Industries
Towers and Poles

No.: 169686

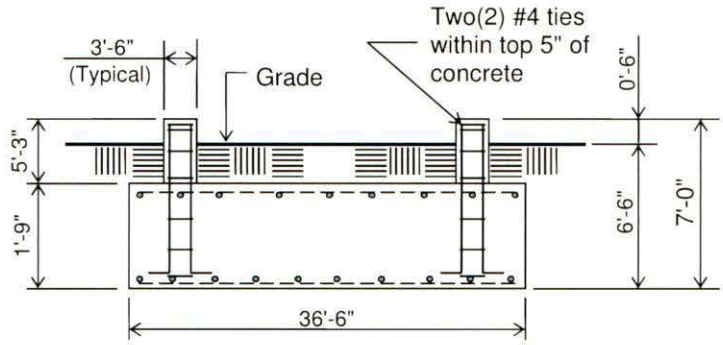
Date: 8/31/17
By: REB

Customer: AT&T
Site: Welcome Rd, KY KYL03684

255 ft. Model S3TL Series HD1 Self Supporting Tower At
89 mph Wind with no ice and 30 mph Wind with 0.75 in. Ice per ANSI/TIA-222-G.
Antenna Loading per Page 1



PLAN VIEW



ELEVATION VIEW

(91.96 Cu. Yds.)
(1 REQD.; NOT TO SCALE)

CAUTION: Center of tower is not in center of slab.

Notes:

1). Concrete shall have a minimum 28-day compressive strength of 4500 PSI, in accordance with ACI 318-11.

2). Rebar to conform to ASTM specification A615 Grade 60.

3). All rebar to have a minimum of 3" concrete cover.

4). All exposed concrete corners to be chamfered 3/4".

5). The foundation design is based on the geotechnical report by ECS project no. 26:3125-B1, dated: 5/2/17

6). See the geotechnical report for compaction requirements, if specified.

7). The foundation is based on the following factored loads:
Factored download (kips) = 100.1
Factored overturn (kip-ft) = 15217.8
Factored shear (kips) = 96.53

8). 4.75 ft of soil cover is required over the entire area of the foundation slab.

Rebar Schedule per Mat and per Pier	
Pier	(16) #9 vertical rebar w/ hooks at bottom w/ #4 Rebar ties, two (2) within top 5" of pier then 11" C/C
Mat	(59) #10 horizontal rebar evenly spaced each way top and bottom. (236 total)

7101 Southbridge Dr - P.O. Box 658 - Sioux City, IA 51102-0658 - Phone 712.258.6690 - Fax 712.258.8250

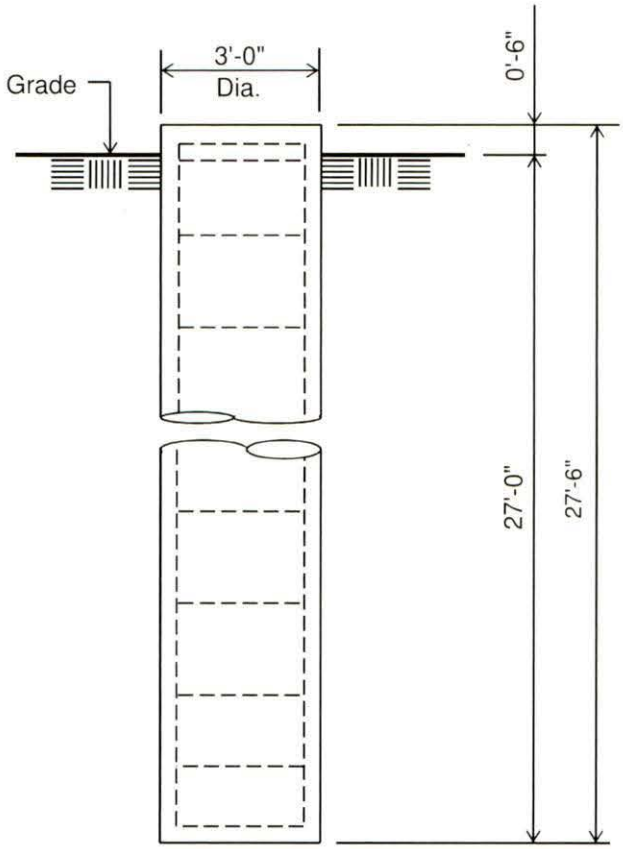
Sabre Industries™
Towers and Poles

No.: 169686

Date: 8/31/17
By: REB

Customer: AT&T
Site: Welcome Rd, KY KYL03684

255 ft. Model S3TL Series HD1 Self Supporting Tower At
89 mph Wind with no ice and 30 mph Wind with 0.75 in. Ice per ANSI/TIA-222-G.
Antenna Loading per Page 1



ELEVATION VIEW
(7.2 Cu. Yds. each)
(3 REQUIRED; NOT TO SCALE)

Notes:

1). Concrete shall have a minimum 28-day compressive strength of 4500 PSI, in accordance with ACI 318-11.

2). Rebars to conform to ASTM specification A615 Grade 60.

3). All rebar to have a minimum of 3" concrete cover.

4). All exposed concrete corners to be chamfered 3/4".

5). The foundation design is based on the geotechnical report by ECS project no. 26:3125-B1, dated: 5/2/17

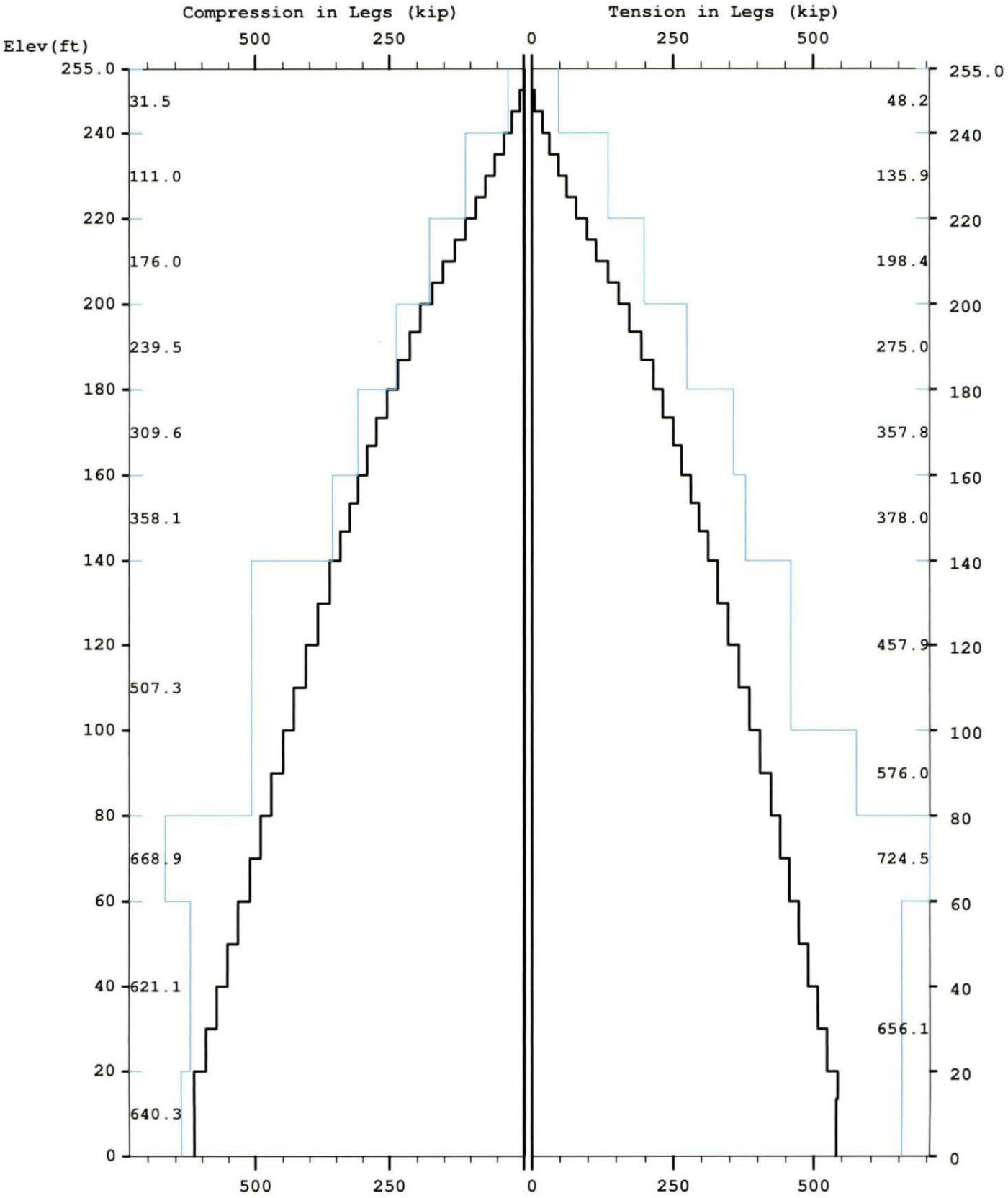
6). See the geotechnical report for drilled pier installation requirements, if specified.

7). The foundation is based on the following factored loads:
Factored uplift (kips) = 561
Factored download (kips) = 639
Factored shear (kips) = 59

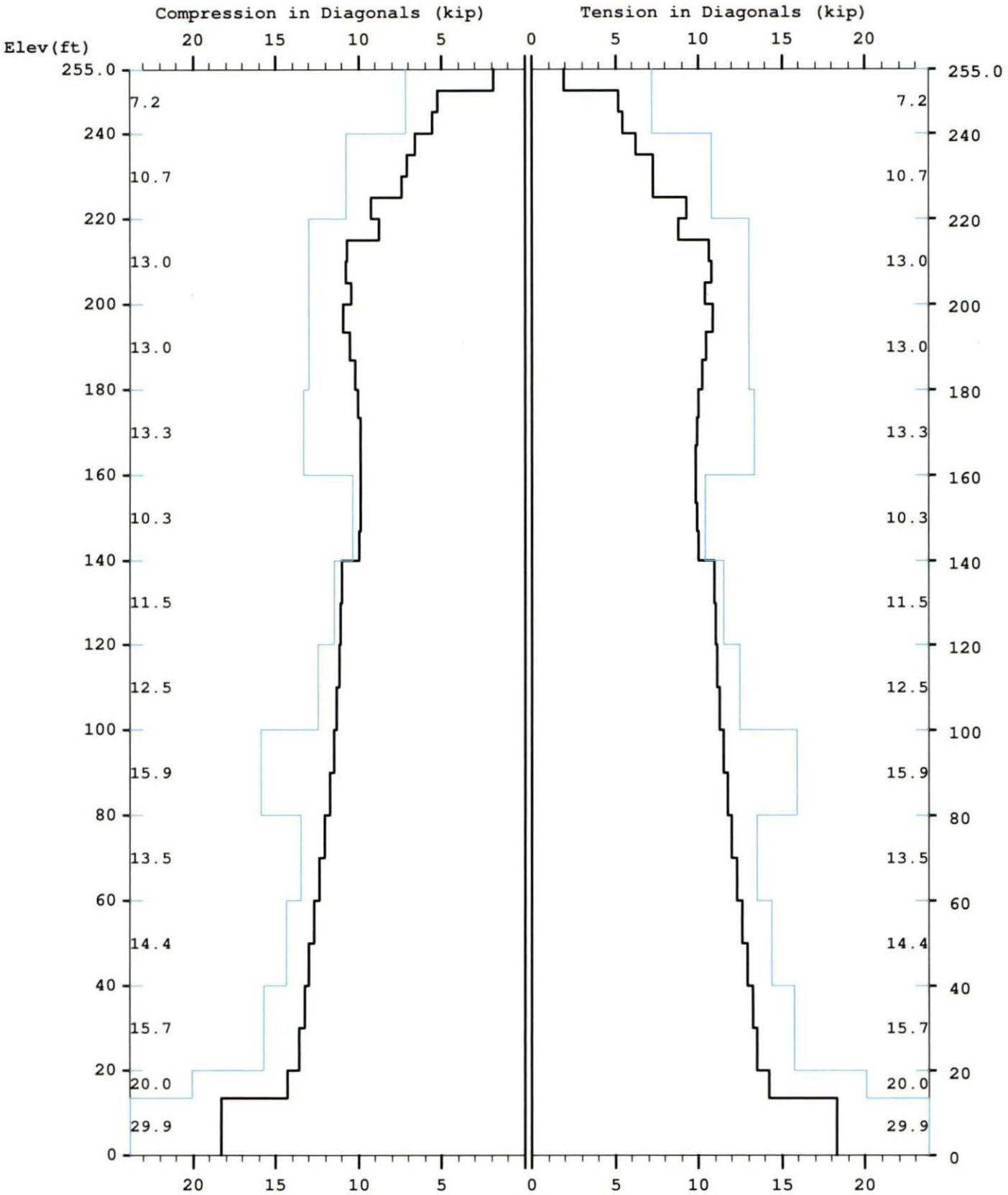
Rebar Schedule per Pier	
Pier	(14) #11 vertical rebar w/#4 ties, two (2) within top 5" of pier then 9" C/C

7101 Southbridge Dr - P.O. Box 658 - Sioux City, IA 51102-0658 - Phone 712.258.6690 - Fax 712.258.8250

Maximum

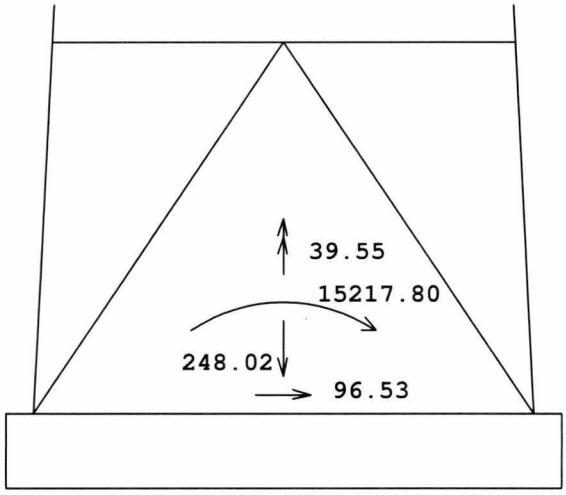

Compression in Legs (kip)
Tension in Legs (kip)
Elev(ft)
500
250
0
250
500
255.0
240
220
200
180
160
140
120
100
80
60
40
20
0
31.5
111.0
176.0
239.5
309.6
358.1
507.3
668.9
621.1
640.3
48.2
135.9
198.4
275.0
357.8
378.0
457.9
576.0
724.5
656.1

Maximum

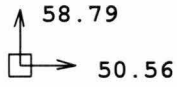

Compression in Diagonals (kip)
Tension in Diagonals (kip)
Elev(ft)
20 15 10 5 0 5 10 15 20
255.0
240
220
200
180
160
140
120
100
80
60
40
20
0
7.2
10.7
13.0
13.0
13.3
10.3
11.5
12.5
15.9
13.5
14.4
15.7
20.0
29.9

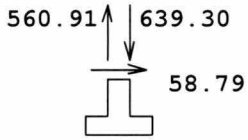
Maximum

TOTAL FOUNDATION LOADS (kip, ft-kip)



INDIVIDUAL FOOTING LOADS (kip)





Latticed Tower Analysis (Unguyed) (c)2013 Guymast Inc. 416-736-7453
Processed under license at:

Sabre Towers and Poles on: 25 aug 2017 at: 15:35:57

MAST GEOMETRY (ft)

PANEL TYPE	NO.OF LEGS	ELEV.AT BOTTOM	ELEV.AT TOP	F.W..AT BOTTOM	F.W..AT TOP	TYPICAL PANEL HEIGHT
X	3	250.00	255.00	5.00	5.00	5.00
X	3	240.00	250.00	5.00	5.00	5.00
X	3	235.00	240.00	5.50	5.00	5.00
X	3	220.00	235.00	7.00	5.50	5.00
X	3	200.00	220.00	9.00	7.00	5.00
X	3	180.00	200.00	11.00	9.00	6.67
X	3	160.00	180.00	13.00	11.00	6.67
X	3	140.00	160.00	15.00	13.00	6.67
X	3	120.00	140.00	17.00	15.00	10.00
X	3	100.00	120.00	19.00	17.00	10.00
X	3	80.00	100.00	21.00	19.00	10.00
X	3	60.00	80.00	23.00	21.00	10.00
X	3	40.00	60.00	25.00	23.00	10.00
X	3	20.00	40.00	27.00	25.00	10.00
V	3	13.33	20.00	27.67	27.00	6.67
A	3	0.00	13.33	29.00	27.67	13.33

MEMBER PROPERTIES

MEMBER TYPE	BOTTOM ELEV ft	TOP ELEV ft	X-SECTN AREA in.sq	RADIUS OF GYRAT in	ELASTIC MODULUS ksi	THERMAL EXPANSN /deg
LE	240.00	255.00	1.075	0.787	29000.	0.0000117
LE	220.00	240.00	3.016	0.787	29000.	0.0000117
LE	200.00	220.00	4.407	0.787	29000.	0.0000117
LE	180.00	200.00	6.111	0.787	29000.	0.0000117
LE	160.00	180.00	7.952	0.787	29000.	0.0000117
LE	140.00	160.00	8.399	0.787	29000.	0.0000117
LE	80.00	140.00	12.763	0.787	29000.	0.0000117
LE	60.00	80.00	16.101	0.787	29000.	0.0000117
LE	0.00	60.00	14.579	0.787	29000.	0.0000117
DI	240.00	255.00	0.484	0.626	29000.	0.0000117
DI	220.00	240.00	0.715	0.626	29000.	0.0000117
DI	200.00	220.00	0.902	0.626	29000.	0.0000117
DI	180.00	200.00	1.188	0.626	29000.	0.0000117
DI	140.00	180.00	1.090	0.626	29000.	0.0000117
DI	120.00	140.00	1.562	0.626	29000.	0.0000117
DI	100.00	120.00	1.688	0.626	29000.	0.0000117
DI	40.00	100.00	1.938	0.626	29000.	0.0000117
DI	13.33	40.00	2.402	0.626	29000.	0.0000117
DI	0.00	13.33	2.559	0.626	29000.	0.0000117
HO	250.00	255.00	0.484	0.626	29000.	0.0000117
HO	235.00	240.00	0.715	0.626	29000.	0.0000117
HO	0.00	13.33	1.688	0.626	29000.	0.0000117
BR	0.00	13.33	1.438	0.000	29000.	0.0000117

FACTORED MEMBER RESISTANCES

BOTTOM ELEV ft	TOP ELEV ft	LEGS COMP kip	LEGS TENS kip	DIAGONALS COMP kip	DIAGONALS TENS kip	HORIZONTALS COMP kip	HORIZONTALS TENS kip	INT BRACING COMP kip	INT BRACING TENS kip
250.0	255.0	31.48	48.15	7.16	7.16	5.73	5.73	0.00	0.00
240.0	250.0	31.48	48.15	7.16	7.16	0.00	0.00	0.00	0.00
235.0	240.0	110.98	135.90	10.74	10.74	8.38	8.38	0.00	0.00
220.0	235.0	110.98	135.90	10.74	10.74	0.00	0.00	0.00	0.00
200.0	220.0	175.98	198.45	13.03	13.03	0.00	0.00	0.00	0.00
180.0	200.0	239.46	274.95	13.00	13.00	0.00	0.00	0.00	0.00

						169686			
160.0	180.0	309.64	357.75	13.34	13.34	0.00	0.00	0.00	0.00
140.0	160.0	358.08	378.00	10.34	10.34	0.00	0.00	0.00	0.00
120.0	140.0	507.33	457.90	11.47	11.47	0.00	0.00	0.00	0.00
100.0	120.0	507.33	457.90	12.46	12.46	0.00	0.00	0.00	0.00
80.0	100.0	507.33	576.00	15.85	15.85	0.00	0.00	0.00	0.00
60.0	80.0	668.86	724.50	13.50	13.50	0.00	0.00	0.00	0.00
40.0	60.0	621.06	656.10	14.39	14.39	0.00	0.00	0.00	0.00
20.0	40.0	621.06	656.10	15.70	15.70	0.00	0.00	0.00	0.00
13.3	20.0	640.29	656.10	20.02	20.02	0.00	0.00	0.00	0.00
0.0	13.3	640.29	656.10	29.94	29.94	11.16	11.16	7.41	7.41

==========

* Only 3 condition(s) shown in full
* Some wind loads may have been derived from full-scale wind tunnel testing

==========

LOADING CONDITION A ==========

89 mph wind with no ice. Wind Azimuth: 0◆

MAST LOADING
============

LOAD TYPE	ELEV	APPLY..LOAD..AT RADIUS	AZI	LOAD AZI	.....FORCES..... HORIZ	DOWN	.....MOMENTS..... VERTICAL	TORSNAL
	ft	ft			kip	kip	ft-kip	ft-kip
C	260.0	0.00	0.0	0.0	0.28	0.15	0.00	0.00
C	250.0	0.00	0.0	0.0	10.00	7.20	0.00	0.00
C	238.0	0.00	0.0	0.0	7.41	4.80	0.00	0.00
C	226.0	0.00	0.0	0.0	7.33	4.80	0.00	0.00
C	214.0	0.00	0.0	0.0	7.24	4.80	0.00	0.00
D	255.0	0.00	180.0	0.0	0.07	0.04	0.00	0.00
D	250.0	0.00	180.0	0.0	0.07	0.04	0.00	0.00
D	250.0	0.00	42.0	0.0	0.13	0.06	0.06	0.10
D	240.0	0.00	42.0	0.0	0.13	0.06	0.06	0.10
D	240.0	0.00	64.4	0.0	0.16	0.12	0.06	0.11
D	235.0	0.00	64.4	0.0	0.16	0.12	0.06	0.11
D	235.0	0.00	79.5	0.0	0.17	0.12	0.06	0.11
D	230.0	0.00	79.5	0.0	0.17	0.12	0.06	0.11
D	230.0	0.00	83.3	0.0	0.18	0.13	0.05	0.10
D	225.0	0.00	83.3	0.0	0.18	0.13	0.05	0.10
D	225.0	0.00	92.0	0.0	0.20	0.15	0.04	0.06
D	220.0	0.00	92.0	0.0	0.20	0.15	0.04	0.06
D	220.0	0.00	89.2	0.0	0.22	0.18	0.05	0.06
D	215.0	0.00	89.2	0.0	0.22	0.18	0.05	0.06
D	215.0	0.00	353.1	0.0	0.23	0.20	0.01	0.04
D	210.0	0.00	353.1	0.0	0.23	0.20	0.01	0.04
D	210.0	0.00	322.3	0.0	0.23	0.20	0.02	0.04
D	200.0	0.00	322.2	0.0	0.24	0.21	0.02	0.04
D	200.0	0.00	322.4	0.0	0.23	0.23	0.02	0.04
D	180.0	0.00	321.9	0.0	0.24	0.24	0.02	0.04
D	180.0	0.00	322.4	0.0	0.24	0.26	0.02	0.04
D	160.0	0.00	321.9	0.0	0.25	0.26	0.02	0.04
D	160.0	0.00	322.4	0.0	0.26	0.27	0.02	0.04
D	140.0	0.00	322.0	0.0	0.26	0.27	0.02	0.04
D	140.0	0.00	322.3	0.0	0.24	0.33	0.02	0.04
D	110.0	0.00	322.3	0.0	0.25	0.34	0.02	0.04
D	110.0	0.00	322.3	0.0	0.25	0.35	0.02	0.04
D	80.0	0.00	322.3	0.0	0.26	0.37	0.02	0.03
D	80.0	0.00	322.4	0.0	0.26	0.42	0.02	0.03
D	40.0	0.00	322.3	0.0	0.27	0.41	0.02	0.03
D	40.0	0.00	322.4	0.0	0.25	0.45	0.02	0.03
D	20.0	0.00	322.3	0.0	0.25	0.45	0.02	0.03
D	20.0	0.00	322.4	0.0	0.20	0.42	0.02	0.02
D	13.3	0.00	322.4	0.0	0.20	0.42	0.02	0.02
D	13.3	0.00	322.4	0.0	0.23	0.49	0.02	0.02
D	0.0	0.00	322.4	0.0	0.23	0.49	0.02	0.02

SUPPRESS PRINTING
=================

...FOR THIS LOADING..				.....MAXIMUMS.....			
LOADS	DISPL	MEMBER	FOUNDN	ALL	DISPL	MEMBER	FOUNDN

INPUT	FORCES	LOADS			FORCES	LOADS	
no	yes	yes	yes	no	no	no	no

LOADING CONDITION M

89 mph wind with no ice. Wind Azimuth: 0♦

MAST LOADING

LOAD TYPE	ELEV ft	APPLY..LOAD..AT RADIUS ft	AZI	LOAD AZI	.....FORCES..... HORIZ kip	DOWN kip	.....MOMENTS..... VERTICAL ft-kip	TORSNAL ft-kip
C	260.0	0.00	0.0	0.0	0.28	0.12	0.00	0.00
C	250.0	0.00	0.0	0.0	10.00	5.40	0.00	0.00
C	238.0	0.00	0.0	0.0	7.41	3.60	0.00	0.00
C	226.0	0.00	0.0	0.0	7.33	3.60	0.00	0.00
C	214.0	0.00	0.0	0.0	7.24	3.60	0.00	0.00
D	255.0	0.00	180.0	0.0	0.07	0.03	0.00	0.00
D	250.0	0.00	180.0	0.0	0.07	0.03	0.00	0.00
D	250.0	0.00	42.0	0.0	0.13	0.04	0.04	0.10
D	240.0	0.00	42.0	0.0	0.13	0.04	0.04	0.10
D	240.0	0.00	64.4	0.0	0.16	0.09	0.04	0.11
D	235.0	0.00	64.4	0.0	0.16	0.09	0.04	0.11
D	235.0	0.00	79.5	0.0	0.17	0.09	0.04	0.11
D	230.0	0.00	79.5	0.0	0.17	0.09	0.04	0.11
D	230.0	0.00	83.3	0.0	0.18	0.10	0.04	0.10
D	225.0	0.00	83.3	0.0	0.18	0.10	0.04	0.10
D	225.0	0.00	92.0	0.0	0.20	0.11	0.03	0.06
D	220.0	0.00	92.0	0.0	0.20	0.11	0.03	0.06
D	220.0	0.00	89.2	0.0	0.22	0.13	0.04	0.06
D	215.0	0.00	89.2	0.0	0.22	0.13	0.04	0.06
D	215.0	0.00	351.6	0.0	0.23	0.15	0.01	0.04
D	200.0	0.00	316.7	0.0	0.24	0.15	0.02	0.04
D	200.0	0.00	322.4	0.0	0.23	0.17	0.02	0.04
D	180.0	0.00	321.9	0.0	0.24	0.18	0.02	0.04
D	180.0	0.00	322.4	0.0	0.24	0.19	0.02	0.04
D	160.0	0.00	321.9	0.0	0.25	0.20	0.02	0.04
D	160.0	0.00	322.4	0.0	0.26	0.20	0.02	0.04
D	140.0	0.00	322.0	0.0	0.26	0.21	0.02	0.04
D	140.0	0.00	322.3	0.0	0.24	0.25	0.02	0.04
D	110.0	0.00	322.3	0.0	0.25	0.26	0.02	0.04
D	110.0	0.00	322.3	0.0	0.25	0.26	0.02	0.04
D	80.0	0.00	322.3	0.0	0.26	0.28	0.02	0.03
D	80.0	0.00	322.4	0.0	0.26	0.31	0.02	0.03
D	40.0	0.00	322.3	0.0	0.27	0.31	0.02	0.03
D	40.0	0.00	322.4	0.0	0.25	0.33	0.02	0.03
D	20.0	0.00	322.3	0.0	0.25	0.34	0.02	0.03
D	20.0	0.00	322.4	0.0	0.20	0.31	0.02	0.02
D	13.3	0.00	322.4	0.0	0.20	0.31	0.02	0.02
D	13.3	0.00	322.4	0.0	0.23	0.36	0.02	0.02
D	0.0	0.00	322.4	0.0	0.23	0.36	0.02	0.02

SUPPRESS PRINTING

	...FOR THIS LOADING..			.....MAXIMUMS.....			
LOADS INPUT	DISPL	MEMBER FORCES	FOUNDN LOADS	ALL	DISPL	MEMBER FORCES	FOUNDN LOADS
no	yes	yes	yes	no	no	no	no

LOADING CONDITION Y

30 mph wind with 0.75 ice. Wind Azimuth: 0♦

MAST LOADING
============

LOAD TYPE	ELEV ft	APPLY..LOAD..AT RADIUS ft	AZI	LOAD AZI	.....FORCES..... HORIZ kip	DOWN kip	.....MOMENTS..... VERTICAL ft-kip	TORSNAL ft-kip
C	260.0	0.00	0.0	0.0	0.05	0.30	0.00	0.00
C	250.0	0.00	0.0	0.0	1.24	18.22	0.00	0.00
C	238.0	0.00	0.0	0.0	1.49	12.11	0.00	0.00
C	226.0	0.00	0.0	0.0	1.47	12.07	0.00	0.00
C	214.0	0.00	0.0	0.0	1.44	12.03	0.00	0.00
D	255.0	0.00	180.0	0.0	0.01	0.18	0.00	0.00
D	250.0	0.00	180.0	0.0	0.01	0.18	0.00	0.00
D	250.0	0.00	42.0	0.0	0.01	0.25	0.22	0.01
D	240.0	0.00	42.0	0.0	0.01	0.25	0.22	0.01
D	240.0	0.00	69.8	0.0	0.02	0.39	0.20	0.01
D	235.0	0.00	69.8	0.0	0.02	0.39	0.20	0.01
D	235.0	0.00	89.5	0.0	0.02	0.39	0.21	0.01
D	230.0	0.00	89.5	0.0	0.02	0.39	0.21	0.01
D	230.0	0.00	91.0	0.0	0.02	0.42	0.18	0.01
D	225.0	0.00	91.0	0.0	0.02	0.42	0.18	0.01
D	225.0	0.00	86.8	0.0	0.02	0.50	0.12	0.00
D	220.0	0.00	86.8	0.0	0.02	0.50	0.12	0.00
D	220.0	0.00	84.3	0.0	0.02	0.55	0.13	0.00
D	215.0	0.00	84.3	0.0	0.02	0.55	0.13	0.00
D	215.0	0.00	345.5	0.0	0.02	0.61	0.05	0.00
D	210.0	0.00	345.5	0.0	0.02	0.61	0.05	0.00
D	210.0	0.00	322.4	0.0	0.02	0.63	0.08	0.00
D	180.0	0.00	321.9	0.0	0.02	0.66	0.08	0.00
D	180.0	0.00	322.4	0.0	0.02	0.70	0.08	0.00
D	160.0	0.00	321.9	0.0	0.02	0.72	0.08	0.00
D	160.0	0.00	322.4	0.0	0.02	0.74	0.08	0.00
D	140.0	0.00	322.0	0.0	0.03	0.76	0.08	0.00
D	140.0	0.00	322.3	0.0	0.02	0.78	0.08	0.00
D	110.0	0.00	322.3	0.0	0.02	0.81	0.08	0.00
D	110.0	0.00	322.3	0.0	0.02	0.82	0.08	0.00
D	80.0	0.00	322.3	0.0	0.03	0.87	0.08	0.00
D	80.0	0.00	322.4	0.0	0.03	0.92	0.07	0.00
D	20.0	0.00	322.3	0.0	0.02	0.96	0.07	0.00
D	20.0	0.00	322.4	0.0	0.02	0.90	0.08	0.00
D	13.3	0.00	322.4	0.0	0.02	0.90	0.08	0.00
D	13.3	0.00	322.4	0.0	0.02	1.17	0.10	0.00
D	0.0	0.00	322.4	0.0	0.02	1.17	0.10	0.00

SUPPRESS PRINTING
=================

LOADS INPUT	...FOR THIS LOADING.. DISPL	MEMBER FORCES	FOUNDN LOADS	.....MAXIMUMS..... ALL	DISPL	MEMBER FORCES	FOUNDN LOADS
no	yes	yes	yes	no	no	no	no

==========

MAXIMUM MAST DISPLACEMENTS:
===========================

ELEV ft	------DEFLECTIONS (ft)----- NORTH	EAST	DOWN	--TILTS (DEG)--- NORTH	EAST	TWIST DEG
255.0	3.594 G	3.455 J	0.047 G	1.831 G	1.762 J	-0.102 F
250.0	3.435 G	3.302 J	0.045 G	1.834 G	1.765 J	-0.102 F
245.0	3.270 G	3.144 J	0.042 G	1.812 G	1.744 J	-0.101 F
240.0	3.112 G	2.992 J	0.039 G	1.747 G	1.680 J	-0.097 F
235.0	2.958 G	2.843 J	0.037 G	1.713 G	1.647 J	-0.093 F
230.0	2.807 G	2.699 J	0.035 e	1.666 G	1.602 J	-0.089 F
225.0	2.662 G	2.559 J	0.034 e	1.609 G	1.548 J	-0.084 F
220.0	2.519 G	2.422 J	0.033 e	1.542 G	1.483 J	-0.080 F
215.0	2.385 G	2.293 J	0.033 e	1.491 G	1.434 J	-0.077 F
210.0	2.253 G	2.165 J	0.032 i	1.432 G	1.378 J	-0.073 F
205.0	2.128 G	2.045 J	0.031 i	1.369 G	1.317 J	-0.070 R
200.0	2.007 G	1.929 J	0.030 i	1.300 G	1.251 J	-0.067 R

193.3	1.857 G	1.784 J	0.029 i	1.231 G	1.184 J	-0.064 R
186.7	1.713 G	1.646 J	0.028 i	1.157 G	1.113 J	-0.060 R
180.0	1.580 G	1.519 J	0.027 i	1.081 G	1.040 J	-0.057 R
173.3	1.453 G	1.396 J	0.026 i	1.021 G	0.983 J	-0.054 R
166.7	1.334 G	1.282 J	0.025 i	0.962 G	0.925 J	-0.051 N
160.0	1.221 G	1.173 J	0.024 i	0.901 G	0.866 J	-0.049 N
153.3	1.116 G	1.071 J	0.023 i	0.843 G	0.811 J	-0.046 N
146.7	1.017 G	0.976 J	0.022 i	0.785 G	0.755 J	-0.043 N
140.0	0.924 G	0.887 J	0.021 i	0.727 G	0.699 J	-0.040 N
130.0	0.797 G	0.766 J	0.020 i	0.669 G	0.643 J	-0.037 N
120.0	0.681 G	0.654 J	0.018 i	0.612 G	0.588 J	0.033 T
110.0	0.575 G	0.552 J	0.017 i	0.554 G	0.532 J	0.030 T
100.0	0.479 G	0.460 J	0.016 i	0.497 G	0.477 J	0.027 T
90.0	0.393 G	0.377 J	0.014 e	0.439 G	0.422 J	0.024 T
80.0	0.317 G	0.304 J	0.013 e	0.382 G	0.367 J	0.022 T
70.0	0.249 G	0.239 J	0.012 e	0.338 G	0.324 J	0.019 T
60.0	0.189 G	0.181 J	0.010 e	0.293 G	0.282 J	0.016 T
50.0	0.137 G	0.131 J	0.009 e	0.244 G	0.235 J	0.013 T
40.0	0.092 G	0.088 J	0.007 e	0.196 G	0.188 J	0.009 T
30.0	0.052 G	0.050 J	0.006 Y	0.146 G	0.140 J	0.007 T
20.0	0.019 G	0.018 J	0.004 Y	0.096 G	0.092 J	0.004 T
13.3	0.008 G	0.007 J	0.003 Y	0.065 G	0.062 J	0.003 T
0.0	0.000 A	0.000 A	0.000 A	0.000 A	0.000 A	0.000 A

MAXIMUM TENSION IN MAST MEMBERS (kip)
==========

ELEV ft	LEGS	DIAG	HORIZ	BRACE
255.0	----------		1.20 A	0.00 A
	0.84 S	1.92 G		
250.0	----------		0.20 G	0.00 A
	4.83 M	5.18 H		
245.0	----------		0.26 I	0.00 A
	18.39 M	5.45 N		
240.0	----------		0.55 K	0.00 A
	31.02 M	6.26 M		
235.0	----------		0.16 A	0.00 A
	46.94 M	7.23 H		
230.0	----------		0.12 A	0.00 A
	62.27 M	7.23 T		
225.0	----------		0.06 Y	0.00 A
	78.60 M	9.24 H		
220.0	----------		0.22 A	0.00 A
	97.53 M	8.76 N		
215.0	----------		0.04 a	0.00 A
	114.08 M	10.60 N		
210.0	----------		0.24 A	0.00 A
	134.98 M	10.77 B		
205.0	----------		0.05 A	0.00 A
	152.72 M	10.37 T		
200.0	----------		0.20 A	0.00 A
	173.61 M	10.88 T		
193.3	----------		0.07 A	0.00 A
	193.99 M	10.46 N		
186.7	----------		0.18 A	0.00 A
	214.28 M	10.18 R		
180.0	----------		0.07 A	0.00 A
	232.06 M	9.99 X		
173.3	----------		0.12 A	0.00 A
	249.75 M	9.89 X		
166.7	----------		0.07 A	0.00 A
	265.76 M	9.83 X		
160.0	----------		0.10 A	0.00 A
	281.74 M	9.83 R		
153.3	----------		0.09 A	0.00 A
	296.52 M	9.87 P		
146.7	----------		0.09 A	0.00 A
	311.33 M	9.95 V		
140.0	----------		0.09 A	0.00 A
	328.40 M	10.96 P		
130.0	----------		0.11 A	0.00 A
	348.80 M	11.01 V		
120.0	----------		0.08 A	0.00 A
	367.88 M	11.11 P		
110.0	----------		0.10 A	0.00 A
	386.76 M	11.27 V		

100.0	----------	0.06 A	0.00 A
	404.74 M 11.47 P		
90.0	----------	0.09 A	0.00 A
	422.61 M 11.72 P		
80.0	----------	0.06 A	0.00 A
	439.83 M 11.99 P		
70.0	----------	0.06 A	0.00 A
	456.94 M 12.29 P		
60.0	----------	0.06 A	0.00 A
	473.63 M 12.60 V		
50.0	----------	0.06 A	0.00 A
	490.30 M 12.93 P		
40.0	----------	0.05 O	0.00 A
	506.61 M 13.24 V		
30.0	----------	0.08 S	0.00 A
	522.75 M 13.52 V		
20.0	----------	0.15 A	0.00 A
	541.53 M 14.18 V		
13.3	----------	0.83 U	0.00 D
	540.37 M 18.27 V		
0.0	----------	0.00 A	0.00 A

MAXIMUM COMPRESSION IN MAST MEMBERS (kip)

ELEV ft	LEGS	DIAG	HORIZ	BRACE
255.0	----------		-1.21 G	0.00 A
	-1.02 A	-1.90 A		
250.0	----------		-0.19 M	0.00 A
	-9.37 G	-5.20 B		
245.0	----------		-0.18 O	0.00 A
	-23.14 G	-5.55 H		
240.0	----------		-0.50 Q	0.00 A
	-37.61 G	-6.61 G		
235.0	----------		-0.10 S	0.00 A
	-55.74 G	-7.11 N		
230.0	----------		-0.11 S	0.00 A
	-71.84 G	-7.38 H		
225.0	----------		-0.02 S	0.00 A
	-91.19 G	-9.26 B		
220.0	----------		-0.20 S	0.00 A
	-110.81 G	-8.79 B		
215.0	----------		-0.01 U	0.00 A
	-130.32 G	-10.73 G		
210.0	----------		-0.21 S	0.00 A
	-152.72 G	-10.76 T		
205.0	----------		-0.03 S	0.00 A
	-171.26 G	-10.42 B		
200.0	----------		-0.18 S	0.00 A
	-193.28 G	-10.89 B		
193.3	----------		-0.05 S	0.00 A
	-214.91 G	-10.50 B		
186.7	----------		-0.16 S	0.00 A
	-236.55 G	-10.20 L		
180.0	----------		-0.05 S	0.00 A
	-255.70 G	-10.03 F		
173.3	----------		-0.10 S	0.00 A
	-274.86 G	-9.91 L		
166.7	----------		-0.06 S	0.00 A
	-292.34 G	-9.86 F		
160.0	----------		-0.09 S	0.00 A
	-309.86 G	-9.85 L		
153.3	----------		-0.08 S	0.00 A
	-326.19 G	-9.90 J		
146.7	----------		-0.08 S	0.00 A
	-342.61 G	-9.97 J		
140.0	----------		-0.08 S	0.00 A
	-361.82 G	-11.02 J		
130.0	----------		-0.10 S	0.00 A
	-385.04 G	-11.05 J		
120.0	----------		-0.07 S	0.00 A
	-406.94 G	-11.16 D		

110.0	----------	-0.08 S	0.00 A
	-428.75 G -11.31 J		
100.0	----------	-0.05 S	0.00 A
	-449.71 G -11.52 D		
90.0	----------	-0.08 S	0.00 A
	-470.67 G -11.76 J		
80.0	----------	-0.05 S	0.00 A
	-491.15 G -12.05 D		
70.0	----------	-0.05 S	0.00 A
	-511.71 G -12.34 J		
60.0	----------	-0.05 S	0.00 A
	-531.83 G -12.65 D		
50.0	----------	-0.05 S	0.00 A
	-551.97 G -12.97 J		
40.0	----------	-0.06 I	0.00 A
	-571.87 G -13.27 D		
30.0	----------	-0.09 A	0.00 A
	-591.73 G -13.56 J		
20.0	----------	-0.13 S	0.00 A
	-613.90 G -14.25 D		
13.3	----------	-1.00 C	0.00 V
	-615.44 G -18.32 D		
0.0	----------	0.00 A	0.00 A

MAXIMUM INDIVIDUAL FOUNDATION LOADS: (kip)

LOAD---COMPONENTS				TOTAL
NORTH	EAST	DOWN	UPLIFT	SHEAR
58.79 G	50.56 K	639.30 G	-560.91 M	58.79 G

MAXIMUM TOTAL LOADS ON FOUNDATION : (kip & kip-ft)

HORIZONTAL			DOWN	OVERTURNING			TORSION
NORTH	EAST	TOTAL @ 0.0		NORTH	EAST	TOTAL @ 0.0	
96.5 G	92.1 J	96.5 G	248.0 Y	15217.8 G	14593.4 J	15217.8 G	39.6 T

Latticed Tower Analysis (Unguyed) (c)2013 Guymast Inc. 416-736-7453
Processed under license at:

Sabre Towers and Poles on: 25 aug 2017 at: 15:36:34

********** Service Load Condition **********

* Only 1 condition(s) shown in full
* Some wind loads may have been derived from full-scale wind tunnel testing

LOADING CONDITION A

60 mph wind with no ice. Wind Azimuth: 0

MAST LOADING
============

LOAD TYPE	ELEV ft	APPLY..LOAD..AT RADIUS ft	AZI	LOAD AZI	.....FORCES..... HORIZ kip	DOWN kip	.....MOMENTS..... VERTICAL ft-kip	TORSNAL ft-kip
C	260.0	0.00	0.0	0.0	0.08	0.13	0.00	0.00
C	250.0	0.00	0.0	0.0	2.84	6.00	0.00	0.00
C	238.0	0.00	0.0	0.0	2.10	4.00	0.00	0.00
C	226.0	0.00	0.0	0.0	2.08	4.00	0.00	0.00
C	214.0	0.00	0.0	0.0	2.06	4.00	0.00	0.00
D	255.0	0.00	180.0	0.0	0.02	0.03	0.00	0.00
D	250.0	0.00	180.0	0.0	0.02	0.03	0.00	0.00
D	250.0	0.00	42.0	0.0	0.04	0.05	0.05	0.03
D	240.0	0.00	42.0	0.0	0.04	0.05	0.05	0.03
D	240.0	0.00	64.4	0.0	0.05	0.10	0.05	0.03
D	235.0	0.00	64.4	0.0	0.05	0.10	0.05	0.03
D	235.0	0.00	79.5	0.0	0.05	0.10	0.05	0.03
D	225.0	0.00	83.3	0.0	0.05	0.11	0.04	0.03
D	225.0	0.00	92.0	0.0	0.06	0.13	0.04	0.02
D	220.0	0.00	92.0	0.0	0.06	0.13	0.04	0.02
D	220.0	0.00	89.2	0.0	0.06	0.15	0.04	0.02
D	215.0	0.00	89.2	0.0	0.06	0.15	0.04	0.02
D	215.0	0.00	353.1	0.0	0.07	0.16	0.01	0.01
D	210.0	0.00	353.1	0.0	0.07	0.16	0.01	0.01
D	210.0	0.00	322.3	0.0	0.07	0.17	0.02	0.01
D	200.0	0.00	322.2	0.0	0.07	0.17	0.02	0.01
D	200.0	0.00	322.4	0.0	0.07	0.19	0.02	0.01
D	180.0	0.00	321.9	0.0	0.07	0.20	0.02	0.01
D	180.0	0.00	322.4	0.0	0.07	0.21	0.02	0.01
D	160.0	0.00	321.9	0.0	0.07	0.22	0.02	0.01
D	160.0	0.00	322.4	0.0	0.07	0.22	0.02	0.01
D	140.0	0.00	322.0	0.0	0.08	0.23	0.02	0.01
D	140.0	0.00	322.3	0.0	0.07	0.28	0.02	0.01
D	110.0	0.00	322.3	0.0	0.07	0.29	0.02	0.01
D	110.0	0.00	322.3	0.0	0.07	0.29	0.02	0.01
D	80.0	0.00	322.3	0.0	0.08	0.31	0.02	0.01
D	80.0	0.00	322.4	0.0	0.08	0.35	0.02	0.01
D	40.0	0.00	322.3	0.0	0.08	0.34	0.02	0.01
D	40.0	0.00	322.4	0.0	0.07	0.37	0.02	0.01
D	20.0	0.00	322.3	0.0	0.07	0.38	0.02	0.01
D	20.0	0.00	322.4	0.0	0.06	0.35	0.02	0.01
D	13.3	0.00	322.4	0.0	0.06	0.35	0.02	0.01
D	13.3	0.00	322.4	0.0	0.07	0.41	0.02	0.01
D	0.0	0.00	322.4	0.0	0.07	0.41	0.02	0.01

SUPPRESS PRINTING
=================

LOADS INPUT	...FOR THIS LOADING.. DISPL	MEMBER FORCES	FOUNDN LOADS	.....MAXIMUMS..... ALL	DISPL	MEMBER FORCES	FOUNDN LOADS
no	yes	yes	yes	no	no	no	no

==========

MAXIMUM MAST DISPLACEMENTS:
===========================

ELEV ft	------DEFLECTIONS (ft)----- NORTH	EAST	DOWN	--TILTS (DEG)--- NORTH	EAST	TWIST DEG
255.0	1.028 G	-0.989 D	0.015 G	0.523 G	-0.504 D	-0.029 F
250.0	0.983 G	-0.945 D	0.015 G	0.524 G	-0.505 D	-0.029 F
245.0	0.936 G	-0.900 D	0.014 G	0.518 G	-0.498 D	-0.029 F
240.0	0.890 G	-0.856 D	0.013 G	0.499 G	-0.480 D	-0.028 F
235.0	0.846 G	-0.814 D	0.013 G	0.489 G	-0.471 D	-0.026 F
230.0	0.803 G	-0.773 D	0.013 G	0.476 G	-0.458 D	-0.025 F
225.0	0.762 G	-0.732 D	0.012 G	0.460 G	-0.442 D	-0.024 F
220.0	0.721 G	-0.693 D	0.012 G	0.440 G	-0.424 D	-0.023 F
215.0	0.683 G	-0.657 D	0.012 G	0.426 G	-0.410 D	-0.022 F
210.0	0.645 G	-0.620 D	0.011 G	0.409 G	-0.394 D	-0.021 F
205.0	0.609 G	-0.586 D	0.011 G	0.391 G	-0.376 D	-0.020 F
200.0	0.575 G	-0.552 D	0.010 G	0.372 G	-0.358 D	-0.019 F

193.3	0.532 G	-0.511 D	0.010 G	0.352 G	-0.338 D	-0.018 F
186.7	0.491 G	-0.472 D	0.009 G	0.331 G	-0.318 D	-0.017 F
180.0	0.453 G	-0.435 D	0.009 G	0.309 G	-0.297 D	-0.016 F
173.3	0.416 G	-0.400 D	0.009 G	0.292 G	-0.281 D	-0.015 F
166.7	0.382 G	-0.367 D	0.008 G	0.275 G	-0.265 D	0.015 H
160.0	0.350 G	-0.336 D	0.008 G	0.258 G	-0.248 D	0.014 H
153.3	0.320 G	-0.307 D	0.008 G	0.241 G	-0.232 D	0.013 H
146.7	0.291 G	-0.280 D	0.007 G	0.225 G	-0.216 D	0.012 H
140.0	0.265 G	-0.254 D	0.007 G	0.208 G	-0.200 D	0.011 H
130.0	0.229 G	-0.220 D	0.007 G	0.192 G	-0.184 D	0.010 H
120.0	0.196 G	-0.188 D	0.006 G	0.175 G	-0.168 D	0.009 H
110.0	0.165 G	-0.158 D	0.006 G	0.159 G	-0.153 D	0.009 H
100.0	0.138 G	0.132 J	0.005 G	0.142 G	-0.137 D	0.008 H
90.0	0.113 G	0.108 J	0.005 G	0.126 G	-0.121 D	0.007 H
80.0	0.091 G	0.087 J	0.004 G	0.110 G	-0.105 D	0.006 H
70.0	0.072 G	0.069 J	0.004 G	0.097 G	-0.093 D	0.005 H
60.0	0.054 G	0.052 J	0.003 G	0.084 G	-0.081 D	0.004 H
50.0	0.039 G	0.038 J	0.003 G	0.070 G	-0.067 D	0.004 H
40.0	0.026 G	0.025 J	0.002 G	0.056 G	-0.054 D	0.003 H
30.0	0.015 G	-0.014 D	0.002 G	0.042 G	-0.040 D	0.002 H
20.0	0.005 G	-0.005 D	0.001 G	0.028 G	-0.026 D	0.001 H
13.3	0.002 G	-0.002 D	0.001 G	0.019 G	-0.018 D	0.001 H
0.0	0.000 A	0.000 A	0.000 A	0.000 A	0.000 A	0.000 A

MAXIMUM TENSION IN MAST MEMBERS (kip)

ELEV ft	LEGS	DIAG	HORIZ	BRACE
255.0	----------		0.34 A	0.00 A
	0.19 G	0.56 G		
250.0	----------		0.06 G	0.00 A
	0.00 A	1.48 H		
245.0	----------		0.10 I	0.00 A
	3.68 A	1.53 B		
240.0	----------		0.17 K	0.00 A
	6.70 A	1.69 A		
235.0	----------		0.06 A	0.00 A
	10.54 A	2.10 H		
230.0	----------		0.04 A	0.00 A
	14.71 A	2.01 B		
225.0	----------		0.03 A	0.00 A
	18.36 A	2.62 H		
220.0	----------		0.07 A	0.00 A
	23.59 A	2.48 H		
215.0	----------		0.01 C	0.00 A
	27.33 A	2.97 B		
210.0	----------		0.08 A	0.00 A
	32.82 A	3.06 B		
205.0	----------		0.02 A	0.00 A
	37.68 A	2.93 B		
200.0	----------		0.07 A	0.00 A
	43.33 A	3.09 H		
193.3	----------		0.02 A	0.00 A
	48.84 A	2.96 B		
186.7	----------		0.06 A	0.00 A
	54.29 A	2.90 L		
180.0	----------		0.02 A	0.00 A
	59.04 A	2.84 L		
173.3	----------		0.04 A	0.00 A
	63.73 A	2.82 L		
166.7	----------		0.02 A	0.00 A
	67.97 A	2.80 L		
160.0	----------		0.03 A	0.00 A
	72.17 A	2.81 L		
153.3	----------		0.03 A	0.00 A
	76.05 A	2.82 D		
146.7	----------		0.03 A	0.00 A
	79.92 A	2.86 J		
140.0	----------		0.03 A	0.00 A
	84.32 A	3.14 D		
130.0	----------		0.04 A	0.00 A
	89.49 A	3.16 D		
120.0	----------		0.03 A	0.00 A
	94.30 A	3.19 D		
110.0	----------		0.03 A	0.00 A
	99.03 A	3.25 D		

100.0	----------		0.02 A	0.00 A
	103.50 A	3.31 D		
90.0	----------		0.03 A	0.00 A
	107.92 A	3.38 D		
80.0	----------		0.02 A	0.00 A
	112.11 A	3.46 D		
70.0	----------		0.02 A	0.00 A
	116.22 A	3.55 D		
60.0	----------		0.02 A	0.00 A
	120.20 A	3.63 J		
50.0	----------		0.02 A	0.00 A
	124.18 A	3.72 J		
40.0	----------		0.01 C	0.00 A
	128.01 A	3.81 D		
30.0	----------		0.02 G	0.00 A
	131.74 A	3.89 D		
20.0	----------		0.05 A	0.00 A
	136.42 A	4.07 J		
13.3	----------		0.21 I	0.00 I
	135.13 A	5.26 D		
0.0	----------		0.00 A	0.00 A

MAXIMUM COMPRESSION IN MAST MEMBERS (kip)

ELEV ft	LEGS	DIAG	HORIZ	BRACE
255.0	----------		-0.35 G	0.00 A
	-0.35 A	-0.54 A		
250.0	----------		-0.05 A	0.00 A
	-4.08 G	-1.50 B		
245.0	----------		-0.03 C	0.00 A
	-8.05 G	-1.62 H		
240.0	----------		-0.12 E	0.00 A
	-12.72 G	-1.98 G		
235.0	----------		-0.01 G	0.00 A
	-18.52 G	-1.99 B		
230.0	----------		-0.03 G	0.00 A
	-23.30 G	-2.15 H		
225.0	----------		0.00 A	0.00 A
	-29.70 G	-2.64 B		
220.0	----------		-0.05 G	0.00 A
	-35.42 G	-2.51 H		
215.0	----------		0.00 A	0.00 A
	-41.83 G	-3.07 G		
210.0	----------		-0.05 G	0.00 A
	-48.59 G	-3.05 B		
205.0	----------		0.00 G	0.00 A
	-54.03 G	-2.98 B		
200.0	----------		-0.04 G	0.00 A
	-60.54 G	-3.10 B		
193.3	----------		-0.01 G	0.00 A
	-66.98 G	-3.01 H		
186.7	----------		-0.04 G	0.00 A
	-73.45 G	-2.92 L		
180.0	----------		-0.01 G	0.00 A
	-79.21 G	-2.88 L		
173.3	----------		-0.02 G	0.00 A
	-85.01 G	-2.84 L		
166.7	----------		-0.01 G	0.00 A
	-90.33 G	-2.84 L		
160.0	----------		-0.02 G	0.00 A
	-95.67 G	-2.83 L		
153.3	----------		-0.02 G	0.00 A
	-100.69 G	-2.86 J		
146.7	----------		-0.02 G	0.00 A
	-105.74 G	-2.87 D		
140.0	----------		-0.02 G	0.00 A
	-111.71 G	-3.19 D		
130.0	----------		-0.02 G	0.00 A
	-119.02 G	-3.20 D		
120.0	----------		-0.02 G	0.00 A
	-125.95 G	-3.24 D		

110.0	----------	-0.02 G	0.00 A
	-132.88 G	-3.29 D	
100.0	----------	-0.01 G	0.00 A
	-139.60 G	-3.36 D	
90.0	----------	-0.02 G	0.00 A
	-146.33 G	-3.43 D	
80.0	----------	-0.01 G	0.00 A
	-152.98 G	-3.51 J	
70.0	----------	-0.01 G	0.00 A
	-159.69 G	-3.59 J	
60.0	----------	-0.01 G	0.00 A
	-166.26 G	-3.68 D	
50.0	----------	-0.01 G	0.00 A
	-172.83 G	-3.77 D	
40.0	----------	-0.02 I	0.00 A
	-179.36 G	-3.85 D	
30.0	----------	-0.03 A	0.00 A
	-185.90 G	-3.93 D	
20.0	----------	-0.03 G	0.00 A
	-192.95 G	-4.13 D	
13.3	----------	-0.32 C	0.00 K
	-194.24 G	-5.30 D	
0.0	----------	0.00 A	0.00 A

MAXIMUM INDIVIDUAL FOUNDATION LOADS: (kip)

LOAD---COMPONENTS				TOTAL
NORTH	EAST	DOWN	UPLIFT	SHEAR
17.93 G	15.43 K	201.69 G	-140.40 A	17.93 G

MAXIMUM TOTAL LOADS ON FOUNDATION : (kip & kip-ft)

HORIZONTAL			DOWN	OVERTURNING			TORSION
NORTH	EAST	TOTAL @ 0.0		NORTH	EAST	TOTAL @ 0.0	
27.7 G	-26.5 D	27.7 G	83.4 G	4367.1 G	-4189.3 D	4367.1 G	11.2 H

MAT FOUNDATION DESIGN BY SABRE TOWERS & POLES

Tower Description 255' S3TL Series HD1
Customer AT&T
Project Number 169686
Date 8/31/2017
Engineer REB

Overall Loads:			
Factored Moment (ft-kips)	15217.80	Anchor Bolt Count (per leg)	6
Factored Axial (kips)	248.02		
Factored Shear (kips)	96.53		
Individual Leg Loads:		Tower eccentric from mat (ft)=	2.25
Factored Uplift (kips)	561.00		
Factored Download (kips)	639.00		
Factored Shear (kips)	59.00		
Width of Tower (ft)	29	Allowable Bearing Pressure (ksf)	4.00
Ultimate Bearing Pressure	8.00	Safety Factor	2.00
Bearing Φs	0.75		
Bearing Design Strength (ksf)	6	Max. Factored Net Bearing Pressure (ksf)	5.16
Water Table Below Grade (ft)	999		
Width of Mat (ft)	36.5	Minimum Mat Width (ft)	35.51
Thickness of Mat (ft)	1.75		
Depth to Bottom of Slab (ft)	6.5		
Bolt Circle Diameter (in)	18		
Top of Concrete to Top of Bottom Threads (in)	65.5		
Diameter of Pier (ft)	3.5	Minimum Pier Diameter (ft)	2.83
Ht. of Pier Above Ground (ft)	0.5	Equivalent Square b (ft)	3.10
Ht. of Pier Below Ground (ft)	4.75		
Quantity of Bars in Mat	59		
Bar Diameter in Mat (in)	1.27		
Area of Bars in Mat (in^2)	74.74		
Spacing of Bars in Mat (in)	7.43	Recommended Spacing (in)	6 to 12
Quantity of Bars Pier	16		
Bar Diameter in Pier (in)	1.128		
Tie Bar Diameter in Pier (in)	0.5		
Spacing of Ties (in)	11		
Area of Bars in Pier (in^2)	15.99	Minimum Pier A_s (in^2)	6.93
Spacing of Bars in Pier (in)	6.61	Recommended Spacing (in)	5 to 12
f'c (ksi)	4.5		
fy (ksi)	60		
Unit Wt. of Soil (kcf)	0.115		
Unit Wt. of Concrete (kcf)	0.15		
Volume of Concrete (yd^3)	91.96		

MAT FOUNDATION DESIGN BY SABRE TOWERS & POLES (CONTINUED)

Two-Way Shear:

Average d (in)	16.73		
ϕv_c (ksi)	0.228	v_u (ksi)	0.222
$\phi v_c = \phi(2 + 4/\beta_c)f'_c{}^{1/2}$	0.342		
$\phi v_c = \phi(\alpha_s d/b_o+2)f'_c{}^{1/2}$	0.323		
$\phi v_c = \phi 4f'_c{}^{1/2}$	0.228		
Shear perimeter, b_o (in)	182.25		
β_c	1		

Stability:

Overturning Design Strength (ft-k)	18898.4	Factored Overturning Moment (ft-k)	15893.5

One-Way Shear:

ϕV_c (kips)	835.7	V_u (kips)	771.4

Pier Design:

Design Tensile Strength (kips)	863.4	Tu (kips)	561.0
ϕV_n (kips)	91.8	V_u (kips)	59.0
$\phi V_c=\phi 2(1+N_u/(500A_g))f'_c{}^{1/2}b_w d$	30.6		
V_s (kips)	72.0	*** V_s max = 4 $f'_c{}^{1/2}b_w d$ (kips)	378.7
Maximum Spacing (in)	11.15	(Only if Shear Ties are Required)	
Actual Hook Development (in)	15.46	Req'd Hook Development l_{dh} (in)	12.23
		*** Ref. ACI 11.5.5 & 11.5.6.3	

Anchor Bolt Pull-Out:

$\phi P_c=\phi\lambda(2/3)f'_c{}^{1/2}(2.8A_{SLOPE}+ 4A_{FLAT})$	208.9	P_u (kips)	561.0
Pier Rebar Development Length (in)	54.56	Required Length of Development (in)	32.78

Flexure in Slab:

ϕM_n (ft-kips)	5176.6	M_u (ft-kips)	5097.2
a (in)	2.68		
Steel Ratio	0.01020		
β_1	0.825		
Maximum Steel Ratio (ρ_t)	0.0197		
Minimum Steel Ratio	0.0018		
Rebar Development in Pad (in)	107.15	Required Development in Pad (in)	22.65

Condition	1 is OK, 0 Fails
Minimum Mat Width	1
Maximum Soil Bearing Pressure	1
Pier Area of Steel	1
Pier Shear	1
Two-Way Shear	1
Overturning	1
Anchor Bolt Pull-Out	1
Flexure	1
Steel Ratio	1
Length of Development in Pad	1
Interaction Diagram Visual Check	1
One-Way Shear	1
Hook Development	1
Minimum Mat Depth	1

DRILLED STRAIGHT PIER DESIGN BY SABRE TOWERS & POLES

Tower Description 255' S3TL Series HD1
Customer Name AT&T
Job Number 169686
Date 8/31/2017
Engineer REB

Factored Uplift (kips)	561	Anchor Bolt Count (per leg)	6
Factored Download (kips)	639		
Factored Shear (kips)	59		
Ultimate Bearing Pressure	100		
Bearing Φs	0.75		
Bearing Design Strength (ksf)	75		
Water Table Below Grade (ft)	999		
Bolt Circle Diameter (in)	18		
Top of Concrete to Top of Bottom Threads (in)	65.5		
Pier Diameter (ft)	3	Minimum Pier Diameter (ft)	2.83
Ht. Above Ground (ft)	0.5		
Pier Length Below Ground (ft)	27		
Quantity of Bars	14		
Bar Diameter (in)	1.41		
Tie Bar Diameter (in)	0.5		
Spacing of Ties (in)	9		
Area of Bars (in^2)	21.86	Minimum Area of Steel (in^2)	5.09
Spacing of Bars (in)	6.19		
f'c (ksi)	4.5		
fy (ksi)	60		
Unit Wt. of Concrete (kcf)	0.15		
Download Friction Φs	0.75		
Uplift Friction Φs	0.75		
Volume of Concrete (yd^3)	7.20		
Skin Friction Factor for Uplift	1	Length to Ignore Download (ft)	
Ignore Bottom Length in Download?	☐	0	

Depth at Bottom of Layer (ft)	Ult. Skin Friction (ksf)	(Ult. Skin Friction)*(Uplift Factor)	γ (kcf)
3	0.00	0.00	0.11
5.5	1.00	1.00	0.11
18	2.00	2.00	0.11
50	6.00	6.00	0.11
0	0.00	0.00	0
0	0.00	0.00	0
0	0.00	0.00	0
0	0.00	0.00	0
0	0.00	0.00	0
0	0.00	0.00	0

Download:

Factored Net Weight of Concrete (kips)	0.6		
Bearing Design Strength (kips)	530.1		
Skin Friction Design Strength (kips)	576.1		
Download Design Strength (kips)	1106.2	Factored Net Download (kips)	639.6

DRILLED STRAIGHT PIER DESIGN BY SABRE TOWERS & POLES (CONTINUED)

Uplift:			
Nominal Skin Friction (kips)	768.1		
Wc, Weight of Concrete (kips)	29.2		
W_R, Soil Resistance (kips)	973.9		
ΦsWr+0.9Wc (kips)	756.7		
Uplift Design Strength (kips)	602.3	Factored Uplift (kips)	561.0
Pier Design:			
Design Tensile Strength (kips)	1180.5	Tu (kips)	561.0
ϕV_n (kips)	64.1	V_u (kips)	59.0
$\phi V_c=\phi 2(1+N_u/(500A_g))f'_c{}^{1/2}b_wd$ (kips)	0.0		
V_s (kips)	75.4	*** V_s max = 4 $f'_c{}^{1/2}b_wd$ (kips)	278.2
Maximum Spacing (in)	13.01	(Only if Shear Ties are Required)	
		*** Ref. ACI 11.5.5 & 11.5.6.3	
Anchor Bolt Pull-Out:			
$\phi P_c=\phi\lambda(2/3)f'_c{}^{1/2}(2.8A_{SLOPE}+4A_{FLAT})$	153.6	P_u (kips)	561.0
Rebar Development Length (in)	57.71	Required Length of Development (in)	29.97

Condition	1 is OK, 0 Fails
Download	1
Uplift	1
Area of Steel	1
Shear	1
Anchor Bolt Pull-Out	1
Interaction Diagram Visual Check	1

MasTec
Network Solutions

August 14th[h], 2017
Kentucky Public Service Commission
211 Sower Blvd.
P.O. Box 615
Frankfort, KY 40602-0615

RE: Site Name – Welcome Rd
Proposed Cell Tower
37 18 37.54 North Latitude, 86 37 27.59 West Longitude

Dear Commissioners:

The Project / Construction Manager for the proposed new communications facility will be Don Murdock. His contact information is (615) 207-8280 or Don.Murdock@mastec.com

Don has been in the industry completing civil construction and constructing towers since 2009. He has worked at Mastec Network Solutions since 2009 completing project and construction management on new site build projects.

Thank you,

Don Murdock, Sr. Project Manager – Tennessee/Kentucky Market
MasTec Network Solutions
(615) 207-8280

EXHIBIT D
COMPETING UTILITIES, CORPORATIONS, OR PERSONS LIST

KY Public Service Commission

Master Utility Search

- Search for the utility of interest by using any single or combination of criteria.
- Enter Partial names to return the closest match for Utility Name and Address/City/Contact entries.

Utility ID	Utility Name	Address/City/Contact	Utility Type	Status
				Active

Search

	Utility ID	Utility Name	Utility Type	Class	City	State
View	4107900	365 Wireless, LLC	Cellular	D	Atlanta	GA
View	4109300	Access Point, Inc.	Cellular	D	Cary	NC
View	4108300	Air Voice Wireless, LLC	Cellular	A	Bloomfield Hill	MI
View	4110650	Alliant Technologies of KY, L.L.C.	Cellular	C	Morristown	NJ
View	44451184	Alltel Communications, LLC	Cellular	A	Basking Ridge	NJ
View	4107800	American Broadband and Telecommunications Company	Cellular	C	Toledo	OH
View	4108650	AmeriMex Communications Corp.	Cellular	D	Dunedin	FL
View	4105100	AmeriVision Communications, Inc. d/b/a Affinity 4	Cellular	D	Virginia Beach	VA
View	4110700	Andrew David Balholm dba Norcell	Cellular	C	Clayton	WA
View	4107400	Bandwidth.com, Inc.	Cellular	A	Raleigh	NC
View	4108600	BCN Telecom, Inc.	Cellular	D	Morristown	NJ
View	4110550	Blue Casa Mobile, LLC	Cellular	D	Santa Barbara	CA
View	4108750	Blue Jay Wireless, LLC	Cellular	C	Carrollton	TX
View	4202300	Bluegrass Wireless, LLC	Cellular	A	Elizabethtown	KY
View	4107600	Boomerang Wireless, LLC	Cellular	B	Hiawatha	IA
View	4105500	BullsEye Telecom, Inc.	Cellular	D	Southfield	MI
View	4110050	CampusSims, Inc.	Cellular	D	Boston	MA

View	4100700	Cellco Partnership dba Verizon Wireless	Cellular	A	Basking Ridge	NJ
View	4106600	Cintex Wireless, LLC	Cellular	D	Rockville	MD
View	4101900	Consumer Cellular, Incorporated	Cellular	A	Portland	OR
View	4106400	Credo Mobile, Inc.	Cellular	A	San Francisco	CA
View	4108850	Cricket Wireless, LLC	Cellular	A	San Antonio	TX
View	4001900	CTC Communications Corp. d/b/a EarthLink Business I	Cellular	D	Grand Rapids	MI
View	10640	Cumberland Cellular Partnership	Cellular	A	Elizabethtown	KY
View	4101000	East Kentucky Network, LLC dba Appalachian Wireless	Cellular	A	Ivel	KY
View	4002300	Easy Telephone Service Company dba Easy Wireless	Cellular	D	Ocala	FL
View	4109500	Enhanced Communications Group, LLC	Cellular	D	Bartlesville	OK
View	4110450	Excellus Communications, LLC	Cellular	D	Chattanooga	TN
View	4105900	Flash Wireless, LLC	Cellular	C	Concord	NC
View	4104800	France Telecom Corporate Solutions L.L.C.	Cellular	D	Oak Hill	VA
View	4109350	Global Connection Inc. of America	Cellular	D	Norcross	GA
View	4102200	Globalstar USA, LLC	Cellular	B	Covington	LA
View	4109600	Google North America Inc.	Cellular	B	Mountain View	CA
View	33350363	Granite Telecommunications, LLC	Cellular	D	Quincy	MA
View	4106000	GreatCall, Inc. d/b/a Jitterbug	Cellular	A	San Diego	CA
View	10630	GTE Wireless of the Midwest dba Verizon Wireless	Cellular	A	Basking Ridge	NJ
View	4110600	Horizon River Technologies, LLC	Cellular	C	Atlanta	GA
View	4103100	i-Wireless, LLC	Cellular	A	Newport	KY
View	4109800	IM Telecom, LLC d/b/a Infiniti Mobile	Cellular	D	Tulsa	OK
View	22215360	KDDI America, Inc.	Cellular	D	New York	NY
View	10872	Kentucky RSA #1 Partnership	Cellular	A	Basking Ridge	NJ
View	10680	Kentucky RSA #3 Cellular General	Cellular	A	Elizabethtown	KY
View	10681	Kentucky RSA #4 Cellular General	Cellular	A	Elizabethtown	KY
View	4109750	Konatel, Inc. dba telecom.mobi	Cellular	D	Johnstown	PA
View	4107300	Lycamobile USA, Inc.	Cellular	D	Newark	NJ
View	4108800	MetroPCS Michigan, LLC	Cellular	A	Bellevue	WA
View	4109650	Mitel Cloud Services, Inc.	Cellular	D	Mesa	AZ
View	4202400	New Cingular Wireless PCS, LLC dba AT&T Mobility, PCS	Cellular	A	San Antonio	TX

View	10900	New Par dba Verizon Wireless	Cellular	A	Basking Ridge	NJ
View	4000800	Nextel West Corporation	Cellular	D	Overland Park	KS
View	4001300	NPCR, Inc. dba Nextel Partners	Cellular	D	Overland Park	KS
View	4001800	OnStar, LLC	Cellular	A	Detroit	MI
View	4110750	Onvoy Spectrum, LLC	Cellular	C	Plymouth	MN
View	4109050	Patriot Mobile LLC	Cellular	D	Southlake	TX
View	4110250	Plintron Technologies USA LLC	Cellular	D	Bellevue	WA
View	33351182	PNG Telecommunications, Inc. dba PowerNet Global Communications	Cellular	D	Cincinnati	OH
View	4202100	Powertel/Memphis, Inc. dba T-Mobile	Cellular	A	Bellevue	WA
View	4107700	Puretalk Holdings, LLC	Cellular	A	Covington	GA
View	4106700	Q Link Wireless, LLC	Cellular	A	Dania	FL
View	4108700	Ready Wireless, LLC	Cellular	B	Hiawatha	IA
View	4110350	Regional Strategic Partners LLC	Cellular	D	Buford	GA
View	4110500	Republic Wireless, Inc.	Cellular	D	Raleigh	NC
View	4106200	Rural Cellular Corporation	Cellular	A	Basking Ridge	NJ
View	4108550	Sage Telecom Communications, LLC dba TruConnect	Cellular	D	Los Angeles	CA
View	4109150	SelecTel, Inc. d/b/a SelecTel Wireless	Cellular	D	Freemont	NE
View	4106300	SI Wireless, LLC	Cellular	A	Carbondale	IL
View	4110150	Spectrotel, Inc. d/b/a Touch Base Communications	Cellular	D	Neptune	NJ
View	4200100	Sprint Spectrum, L.P.	Cellular	A	Atlanta	GA
View	4200500	SprintCom, Inc.	Cellular	A	Atlanta	GA
View	4109550	Stream Communications, LLC	Cellular	D	Dallas	TX
View	4110200	T C Telephone LLC d/b/a Horizon Cellular	Cellular	D	Red Bluff	CA
View	4202200	T-Mobile Central, LLC dba T-Mobile	Cellular	A	Bellevue	WA
View	4002500	TAG Mobile, LLC	Cellular	D	Carrollton	TX
View	4109700	Telecom Management, Inc. dba Pioneer Telephone	Cellular	D	South Portland	ME
View	4107200	Telefonica USA, Inc.	Cellular	D	Miami	FL
View	4108900	Telrite Corporation dba Life Wireless	Cellular	D	Covington	GA
View	4108450	Tempo Telecom, LLC	Cellular	D	Kansas City	MO
View	4109950	The People's Operator USA, LLC	Cellular	D	New York	NY
View	4109000	Ting, Inc.	Cellular	A	Toronto	ON
View	4110400	Torch Wireless Corp.	Cellular	D	Jacksonville	FL
View	4103300	Touchtone Communications, Inc.	Cellular	D	Whippany	NJ

View	4104200	TracFone Wireless, Inc.	Cellular	D	Miami	FL
View	4002000	Truphone, Inc.	Cellular	D	Durham	NC
View	4110300	UVNV, Inc.	Cellular	D	Costa Mesa	CA
View	4105700	Virgin Mobile USA, L.P.	Cellular	A	Atlanta	GA
View	4110800	Visible Service LLC	Cellular	C	Lone Tree	CO
View	4200600	West Virginia PCS Alliance, L.C.	Cellular	A	Waynesboro	VA
View	4106500	WiMacTel, Inc.	Cellular	D	Palo Alto	CA
View	4110100	Windward Wireless LLC	Cellular	D	Suwanee	GA
View	4109900	Wireless Telecom Cooperative, Inc. dba theWirelessFreeway	Cellular	D	Louisville	KY

EXHIBIT E
FAA

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

Aeronautical Study No.
2017-ASO-17134-OE

Issued Date: 09/05/2017

Dave Cundiff (LA)
AT&T
208 S Akard
Room 1016
Dallas, TX 75202

**** 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 Welcome Road - 13800714
Location:	Morgantown, KY
Latitude:	37-18-37.54N NAD 83
Longitude:	86-37-27.59W
Heights:	586 feet site elevation (SE)
	270 feet above ground level (AGL)
	856 feet above mean sea level (AMSL)

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

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

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

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

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

This determination expires on 03/05/2019 unless:

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

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

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

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

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

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

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power, except those frequencies specified in the Colo Void Clause Coalition; Antenna System Co-Location; Voluntary Best Practices, effective 21 Nov 2007, will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.This determination includes all previously filed frequencies and power for this structure.

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

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

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

If we can be of further assistance, please contact our office at (202) 267-0105, or j.garver@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2017-ASO-17134-OE.

Signature Control No: 341391345-342980847 (DNE)
Jay Garver
Specialist

Attachment(s)
Frequency Data
Map(s)

cc: FCC

Frequency Data for ASN 2017-ASO-17134-OE

LOW FREQUENCY	HIGH FREQUENCY	FREQUENCY UNIT	ERP	ERP UNIT
6	7	GHz	55	dBW
6	7	GHz	42	dBW
10	11.7	GHz	55	dBW
10	11.7	GHz	42	dBW
17.7	19.7	GHz	55	dBW
17.7	19.7	GHz	42	dBW
21.2	23.6	GHz	55	dBW
21.2	23.6	GHz	42	dBW
614	698	MHz	1000	W
614	698	MHz	2000	W
698	806	MHz	1000	W
806	901	MHz	500	W
806	824	MHz	500	W
824	849	MHz	500	W
851	866	MHz	500	W
869	894	MHz	500	W
896	901	MHz	500	W
901	902	MHz	7	W
929	932	MHz	3500	W
930	931	MHz	3500	W
931	932	MHz	3500	W
932	932.5	MHz	17	dBW
935	940	MHz	1000	W
940	941	MHz	3500	W
1670	1675	MHz	500	W
1710	1755	MHz	500	W
1850	1910	MHz	1640	W
1850	1990	MHz	1640	W
1930	1990	MHz	1640	W
1990	2025	MHz	500	W
2110	2200	MHz	500	W
2305	2360	MHz	2000	W
2305	2310	MHz	2000	W
2345	2360	MHz	2000	W
2496	2690	MHz	500	W

Verified Map for ASN 2017-ASO-17134-OE

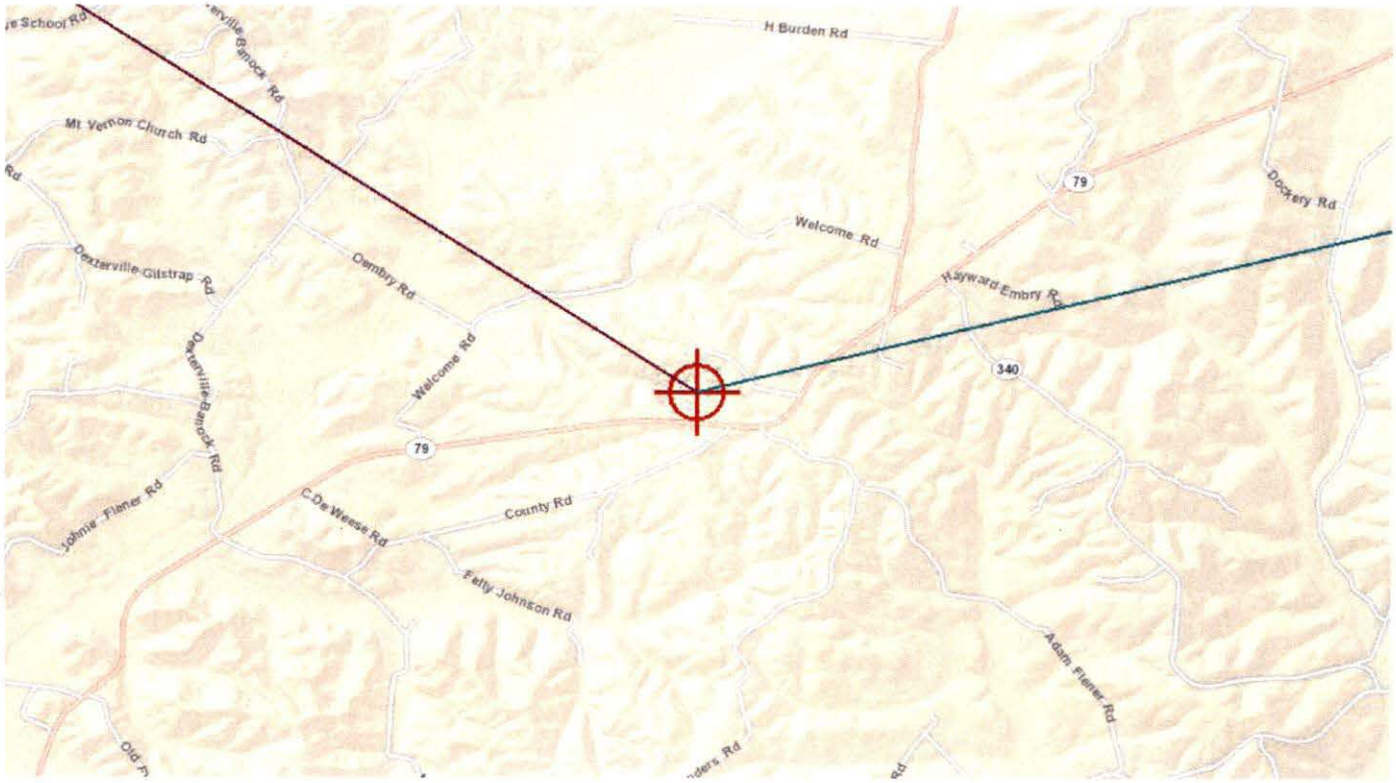


EXHIBIT F
KENTUCKY AIRPORT ZONING COMMISSION

KENTUCKY TRANSPORTATION CABINET

KENTUCKY AIRPORT ZONING COMMISSION

APPLICATION FOR PERMIT TO CONSTRUCT OR ALTER A STRUCTURE

APPLICANT (*name*) John Monday	**PHONE** 855-699-7073	**FAX** 972-907-1131	**KY AERONAUTICAL STUDY #**
ADDRESS (*street*) 3300 E. Renner Road, B3132	**CITY** Richardson	**STATE** TX	**ZIP** 75082
APPLICANT'S REPRESENTATIVE (*name*) Roy Johnson	**PHONE** 502-445-2475	**FAX** 502-222-4266	
ADDRESS (*street*) 3605 Mattingly Road	**CITY** Buckner	**STATE** KY	**ZIP** 40010
APPLICATION FOR [X] New Construction [ ] Alteration [ ] Existing **DURATION** [ ] Permanent [ ] Temporary (*months* *days*)		**WORK SCHEDULE** Start End TBD	
TYPE [ ] Crane [ ] Building [X] Antenna Tower [ ] Power Line [ ] Water Tank [ ] Landfill [ ] Other	**MARKING/PAINTING/LIGHTING PREFERRED** [ ] Red Lights & Paint [ ] White- medium intensity [ ] White- high intensity [X] Dual- red & medium intensity white [ ] Dual- red & high intensity white [ ] Other		
LATITUDE 37° 18′ 37·54 ″	**LONGITUDE** 86° 37′ 27·59 ″	**DATUM** [X] NAD83 [ ] NAD27 [ ] Other	
NEAREST KENTUCKY City Morgantown County Butler	**NEAREST KENTUCKY PUBLIC USE OR MILITARY AIRPORT** JQD Ohio County		
SITE ELEVATION (AMSL, *feet*) 586	**TOTAL STRUCTURE HEIGHT** (AGL, *feet*) 270	**CURRENT** (*FAA aeronautical study #*) 2017-ASO-17134-OE	
OVERALL HEIGHT (*site elevation plus total structure height, feet*) 856		**PREVIOUS** (*FAA aeronautical study #*)	
DISTANCE (*from nearest Kentucky public use or Military airport to structure*) 13.96 NM		**PREVIOUS** (*KY aeronautical study #*) AS-016-JQD-2017-056	
DIRECTION (*from nearest Kentucky public use or Military airport to structure*) Southeast			

DESCRIPTION OF LOCATION (*Attach USGS 7.5 minute quadrangle map or an airport layout drawing with the precise site marked and any certified survey.*)

1A and Quad attached

DESCRIPTION OF PROPOSAL

AT&T proposes to construct a 255' cell tower with a 15' lightning rod for an overall height of 270'. This application is to correct the ground elevation to match the FAA determination.

FAA Form 7460-1 (*Has the "Notice of Construction or Alteration" been filed with the Federal Aviation Administration?*)

[ ] No [X] Yes, when? 8/21/17

CERTIFICATION (*I hereby certify that all the above entries, made by me, are true, complete, and correct to the best of my knowledge and belief.*)

PENALITIES (*Persons failing to comply with KRS 183.861 to 183.990 and 602 KAR 050 are liable for fines and/or imprisonment as set forth in KRS 183.990(3). Noncompliance with FAA regulations may result in further penalties.*)

NAME	**TITLE**	**SIGNATURE**	**DATE**
Michelle Ward	Sr. Real Estate Mgr.	Michelle Ward	09/11/17

COMMISSION ACTION

[ ] Chairperson, KAZC
[ ] Administrator, KAZC

[ ] Approved
[ ] Disapproved

SIGNATURE

DATE

EXHIBIT G
GEOTECHNICAL REPORT

May 2, 2017

Mr. Jacob Goralski, P.E.
Irish Tower, LLC
4603 Bermuda Drive,
Sugar Land, TX 77479

ECS Project No. 26:3125-B1

Reference: Report of Subsurface Exploration and Geotechnical Engineering Services
Welcome Road Tower
5545 Caneyville Road
Morgantown, Kentucky

Dear Mr. Goralski:

ECS Southeast, LLP (ECS) has completed the subsurface exploration for the proposed construction of a self-supported tower located on 5545 Caneyville Road, approximately 2,200 feet northwest of the intersection with Adam Flener Road in Morgantown, Kentucky. The purpose of these services was to explore the subsurface soil and groundwater conditions at the site, and to develop geotechnical recommendations pertaining to foundation support of the structure. This report explains our understanding of the project, documents our findings, and presents our conclusions and geotechnical engineering recommendations to serve as an aid during the design and construction of the project.

PROJECT INFORMATION AND PROPOSED CONSTRUCTION

The project will consist of the construction of a new 255+-foot tall self-supported tower with a 15-foot lightning arrestor and fenced equipment compound. The proposed tower site is located in a grassy area. See the attached Site Location Diagram (Figure 1) and Boring Location Diagram (Figure 2). We have received preliminary site plans showing the site boundaries and proposed tower location. No loading information was provided for the tower. Based on information provided from the client, the current elevation at the center of the tower is approximately 580 feet MSL. To achieve the proposed grading at the tower site, we anticipate that negligible cut and fill will be required. We do not anticipate that any significant stormwater management (SWM) facilities or site retaining walls will be required for this project.

EXPLORATION PROCEDURES

The site subsurface conditions were explored on April 19, 2017 through the completion of three Standard Penetration Test (SPT) borings drilled 35 feet from the staked center of the tower location. The borings were drilled to auger refusal. The approximate boring locations are shown on the attached Boring Location diagram (Figure 2). The boring locations were based on a survey stake-out that was performed by others. Prior to drilling, underground utilities were cleared through the Kentucky 811system.

A CME 55 truck-mounted drill rig was utilized to complete the SPT borings. The drill rig utilized 3 ¼ inch hollow stem augers to advance the borehole. Representative soil samples were secured by means of conventional split-barrel sampling procedures (ASTM D1586). In this procedure, a 2-inch O.D., split-barrel sampler is driven into the soil a distance of 18 inches by a 140-pound hammer falling 30 inches. The number of blows required to drive the sampler through the final

12-inch interval, after initial setting of 6 inches, is termed the Standard Penetration Test (SPT) value or N-value, and is indicated for each sample on the attached boring log.

The SPT values can be used as a qualitative indication of the in-place relative density of cohesionless soils, and as a relative indication of consistency in cohesive soils. This indication is qualitative, since many factors can significantly affect the standard penetration resistance value and prevent a direct correlation between drill crews, drill rigs, drilling procedures, and hammer-rod-sampler assemblies. The drill rig utilized an automatic hammer to drive the sampler.

Field logs of the soil encountered at the boring locations were maintained by the drilling crew. After recovery, each geotechnical sample was removed from the sampler and visually classified by the driller. Representative portions of each soil sample were then sealed in plastic bags and transported to our laboratory in Nashville (Franklin), Tennessee for further visual examination. Observations for groundwater were made during sampling and upon completion of the drilling operations. After completion of the drilling operations, the boreholes were backfilled with auger cuttings and excess soil was mounded at the surface.

CLASSIFICATION AND LABORATORY TESTING PROCEDURES

A geotechnical engineer classified each soil sample on the basis of texture and plasticity in accordance with the Unified Soil Classification System (ASTM D 2487). The group symbols for each soil type are indicated in parentheses following the soil descriptions on the boring logs summary. A brief explanation of the Unified Soil Classification System (USCS) is included with this report. The engineer grouped the various soil types into the major zones noted on the boring logs. The stratification lines designating the interfaces between materials on the exploration records are approximate; in situ, the transitions may be gradual.

The soil samples will be retained in our laboratory for a period of 60 days, after which, they will be discarded unless other instructions are received as to their disposition.

SITE GEOLOGY

The USGS Geologic Map of the Welchs Creek Quadrangle (1976) indicates this particular site is underlain by the Tradewater and Caseyville formations. This formation is typically a fine-grained, thin to thick-bedded, grayish yellow to yellowish brown, locally cross-bedded sandstone. This formation often contains lenses of olive gray to yellowish-green silty shale, particularly near the top or bottom of the formation.

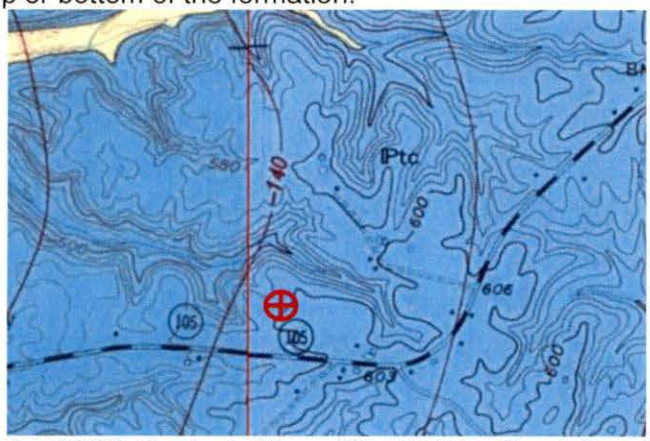


Figure 1 - USGS Geologic Map of the Welchs Creek Quadrangle
(approximate site location highlighted)

SUBSURFACE CONDITIONS

The subsurface conditions discussed in the following paragraphs, and those shown on the boring logs, represent an estimate of the subsurface conditions based on interpretation of the exploration data using normally accepted geotechnical engineering judgments. It should be noted that the transition between different soil strata is often less distinct than what is shown on the exploration records.

In general, the exploration revealed approximately 4 to 5 inches of topsoil overlying lean clay (CL) to depths ranging from approximately 12 to 18 feet. SPT N-values for the lean clay materials varied from 12 to 100+ blows per foot (bpf). Auger refusal was encountered at each boring location at depths ranging from approximately 12 to 18 feet below the existing ground surface. The encountered conditions are shown on the attached boring logs.

Groundwater was not encountered at the time of our exploration. It should be noted that groundwater can vary on a seasonal basis due to precipitation, evaporation, surface run-off, area stream levels and other factors not immediately apparent at the time of this exploration. It is also possible for groundwater to exist in a perched condition within the soil overburden or at the soil/rock interface.

ANALYSIS AND RECOMMENDATIONS

General

The following recommendations have been developed on the basis of the previously described project information and subsurface conditions identified during this study. If there are any changes to the project characteristics, or if differing subsurface conditions are encountered during construction, ECS should be consulted so that the recommendations of this report can be reviewed and revised, as necessary.

Subgrade Preparation

Vegetation, topsoil, and all other soft, unsuitable, or deleterious material should be removed from the existing ground surface at the foundation areas. These operations should extend at least 5 feet beyond the edge of planned structures, where practical. After examining the exposed soils, loose and yielding areas should be identified by proofrolling with an approved piece of equipment, such as a loaded dump truck, having an axle weight of at least 10 tons. Unsuitable or unstable subgrade materials may require moisture conditioning, in-place densification, or removal and replacement with new engineered fill.

Engineered Fill

The first layer of fill should be placed in a relatively uniform horizontal lift and be adequately keyed into the stripped and scarified subgrade soils. Fill materials should be free of organics, wet/frozen materials, or other deleterious materials. Engineered fill materials should consist of low to moderately plastic clays and silts, or coarse grained material such as sand and gravel, with a maximum Liquid Limit no greater than 50, and a maximum Plasticity Index no greater than 30. In general, we recommend material to be used as engineered fill have a Standard Proctor maximum dry density of at least 90 pcf. Engineered soil fill should be placed in maximum loose lifts of 8 inches and compacted to at least 95 percent of the Standard Proctor (ASTM D698) maximum dry density. Soil engineered fill should be compacted within 2 percentage points of the optimum moisture content, per the Standard Proctor method. Soil fill should not contain rock material greater than 4 inches in diameter.

Fill operations should be observed on a full-time basis by an experienced engineering technician to determine the required degree of compaction is being achieved. We recommend that a minimum of one compaction test per 2,500 square-foot area be performed for each lift of engineered fill for structural areas, and that at least one test per lift per 100 linear feet of utility trench backfill.

Equipment Shelter Foundations

Based upon our findings, the equipment shelter may be supported by a turned-down monolithic slab-on-grade with foundation elements bearing on the undisturbed natural residual soils or properly-compacted engineered fill. These foundations can be designed for a maximum net allowable soil bearing pressure of up to 3,000 psf. For footings constructed in accordance with the requirements outlined in this report, maximum total settlement is expected to be less than 1 inch (plus any consolidation settlement from new fill loads). Maximum differential settlement is expected to be half the total settlement. Shallow foundations should be designed to bear at least 18 inches below the final exterior grades. The slab-on-grade may be designed using a modulus of subgrade reaction of 100 pounds per cubic inch (pci). A layer of free draining gravel may be used underlying the slab to serve as a leveling pad and provide a capillary break. All slab and foundation subgrades should be evaluated immediately prior to concrete placement by ECS to verify that the exposed subgrades are capable of satisfactorily supporting the design loads.

Self-support Tower Foundation

The proposed tower can be supported on drilled shaft (caisson) foundations. Based on previous experience with tower structures, we anticipate that wind loading, associated uplift resistance, and lateral loading may control the sizing and depth of the pole foundation. We have provided estimated soil parameters at various depths to aid in drilled shaft foundation design in the attached Geotechnical Data Form.

Uplift forces can be resisted by the factored weight of the shaft and the side shear along the circumference of the shaft (skin friction). The compression forces can be resisted by the side shear along the circumference of the shaft and the end bearing capacity. In determining the dimensions of the drilled shafts, we recommend that a minimum factor of safety of 1.25 with regard to the weight of the concrete should be used in conjunction with the presented allowable side shear values. For uplift and compression, we recommend no contribution to resisting loads be considered from side shear within 5 feet of the ground surface, soft clay or from potentially liquefiable zones.

Considering the subsurface conditions encountered, casing of the excavation may be required, depending on the condition of the soils and the ground water elevation at the time of construction. Once the bearing level is reached, all loose materials and any accumulated water seepage should be removed prior to placement of pier reinforcing cage and concrete. Up to 1 inch of water standing in the base of the pier is acceptable at the time of concrete placement and an inflow rate of 1 inch per 5 minutes is also acceptable. Higher inflow rates, which could likely be encountered, may require additional control or that drilled shaft concrete be placed by tremie method. The drilled shaft contractor should be prepared to handle such a condition and to ensure suitable end bearing conditions.

The drilled shaft concrete should be placed in intimate contact with undisturbed natural soil/rock. To reduce the potential for arching, we recommend the drilled shaft concrete mix be designed for a slump of 5 to 7 inches. Provided water seepage is minimal, our experience and current research in the field indicates that the drilled shafts can be constructed by "free fall" placement of concrete without affecting the strength and quality of concrete. The concrete should "free fall"

without hitting the sides of the casing or reinforcing steel. The use of a hopper or other suitable device is recommended to control concrete placement and direct it toward the center of the shaft. The placement of concrete in the cased shaft should proceed until the concrete level is above the external fluid level and should be maintained above this level throughout casing removal. However, if significant seepage is present within the excavation or if slurry is used, it will be necessary to place the concrete by tremie method, and we recommend a concrete slump of 7 to 9 inches for this method of concrete placement.

The shaft design and construction procedures should be reviewed with the foundation contractor prior to the start of construction. If you desire, we would be pleased to review the plans and specifications for the project once they are completed so we may have the opportunity to comment on the impact of the soil/rock and groundwater conditions on the final design.

Pad and Pier Recommendations: Based on the subsurface conditions, a pad and pier foundation approach would also be reasonable. We recommend that the foundations be at least 4 feet below existing grades and can be designed for a net allowable bearing capacity of 4,000 psf. Base friction and passive earth pressures can be used to resist lateral loads. The friction coefficient between the foundation bottom and underlying rock can be assumed to be 0.40. Passive earth pressures along the edge of the foundation can be calculated using a fluid equivalent of 300 pcf. Passive resistant should only be used where the soils adjacent to the foundation will not be eroded or removed in the future.

The foundation design and construction procedures should be reviewed with the foundation contractor prior to the start of construction. If you desire, we would be pleased to review the plans and specifications for the project once they are completed so we may have the opportunity to comment on the impact of the soil/rock and groundwater conditions on the final design.

Seismic Site Classification

Based on our interpretation of the International Building Code (IBC) 2012, it is our opinion that a Seismic Site Class "C" is appropriate for this site. In accordance with IBC 2012 and United States Geological Survey's (USGS) Seismic Hazard Curves and Uniform Hazard Response Spectra program, the following parameters may be used in design:

- Latitude: 37.31052, Longitude: -86.62412
- S_s = 0.322, S_1 = 0.146
- S_{MS} = 0.386, S_{M1} = 0.242
- S_{DS} = 0.258, S_{D1} = 0.161
  *Spectral accelerations were determined from USGS National Seismic Hazard Maps

General Construction Considerations

Positive site drainage should be maintained during earthwork operations and should help maintain the integrity of the soil. Placement of fill on the near surface soils which have become saturated may be very difficult. When wet, these soils will degrade quickly with disturbance from contractor operations and will be extremely difficult to stabilize for fill placement.

The surficial soils are considered moderately erodible. All erosion and sedimentation shall be controlled in accordance with Best Management Practices and current County requirements. At the appropriate time, we would be pleased to provide a proposal for NPDES monitoring and construction materials testing related services.

CLOSING

Our professional services have been performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. ECS is not responsible for the conclusions, opinions, or recommendations made by others based on these data. No third party is given the right to rely on this report without express written permission.

The scope of services for this study does not include environmental assessment or investigation for the presence or absence of wetlands, hazardous or toxic materials in the soil or groundwater within or beyond the site studied. Any statements in this report regarding odors, staining of soils, or other unusual conditions observed are strictly for the information of our client.

We appreciate this opportunity to be of service to you during the design phase of this project. If you have any questions with regard to the information and recommendations presented in this report, please do not hesitate to contact us.

Respectfully,

ECS SOUTHEAST, LLP

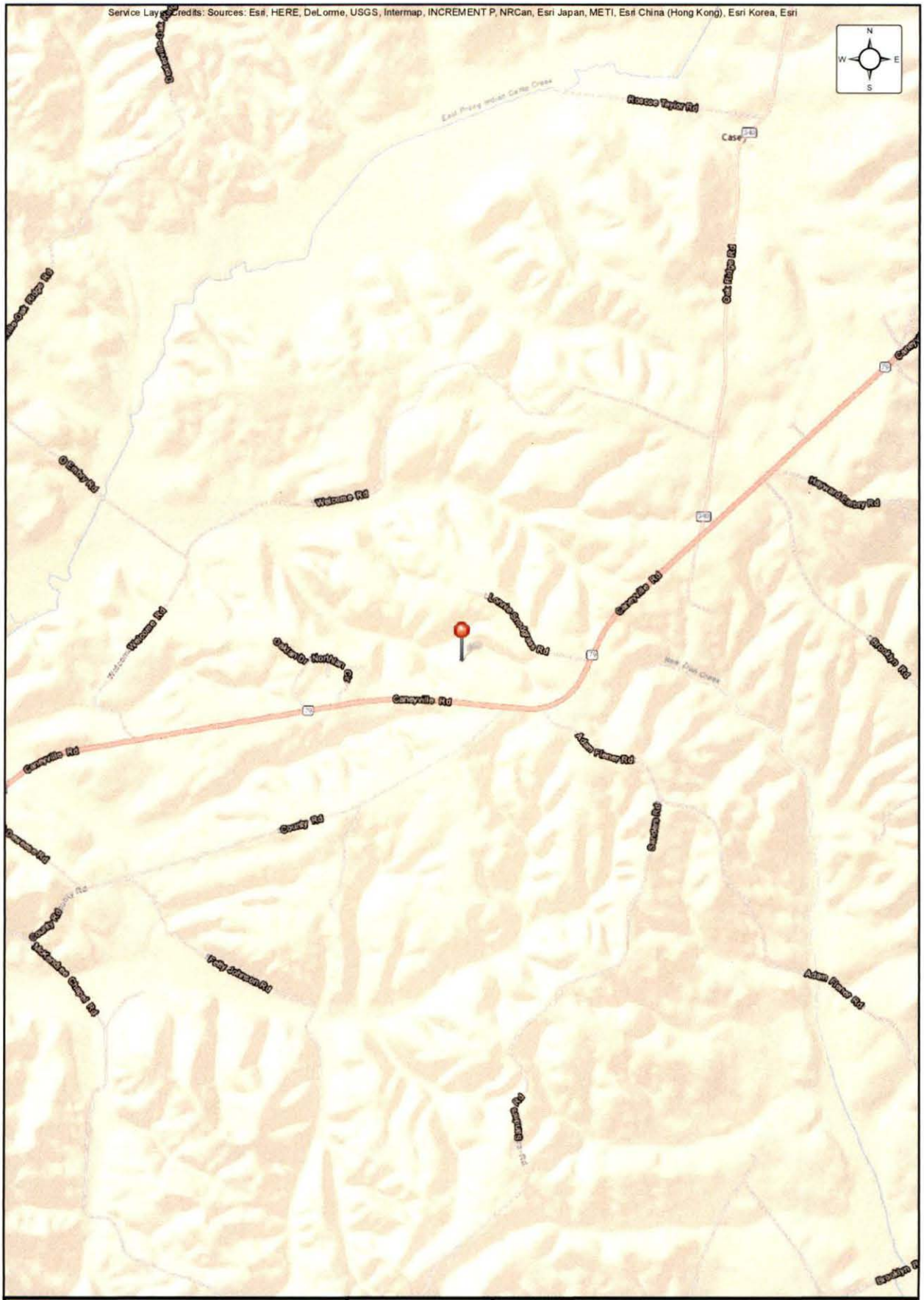
Brooke Ferry

Brooke Ferry, E.I.
Geotechnical Project Manager

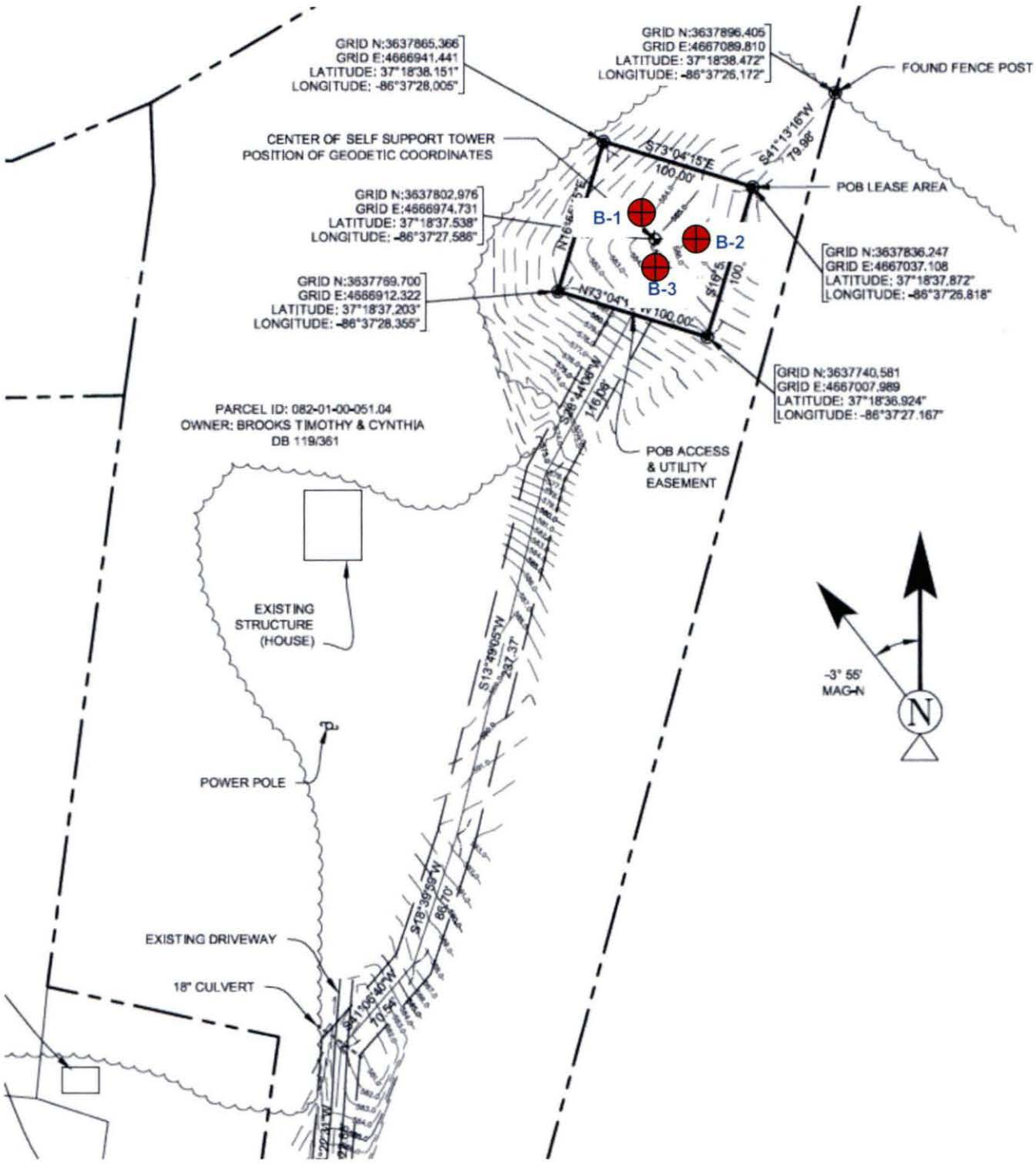
Donald L. Anderson
Principal Reviewer

Mark D. Luskin, P.E..
Engineering Manager

Attachments: Figure 1: Site Location Map
Figure 2: Boring Location Diagrams
Geotechnical Data Form
SPT Boring Log (B-1 to B-3)
Reference Notes for Boring Logs
USGS Summary Report



SITE LOCATION DIAGRAM **IRISH TOWER, LLC**	ECS™	**IRISH TOWER SITES-WELCOME RD TOWER** **MORGANTOWN KY**	ENGINEER: B. FERRY SCALE: NTS PROJECT NO.: 26:3125-B1 SHEET: 1 OF 1 DATE: 4/18/2017



Irish Towers – Welcome Road Tower
5545 Caneyville Road
Morgantown, KY
ECS Project No. 26:3125-B1

Figure 2: Boring Location Diagram

Boring Locations

Borings placed 35' from center stake

GEOTECHNICAL DATA FORM

Background Information

Client: Irish Tower, LLC
Project: Welcome Road Tower
Location: 5545 Caneyville Road, Morgantown, Kentucky

ECS Project No.: 26:3125-B1
Type: Self Supported
Height: 255'+/-

Subsurface Conditions

Depth (feet)	Soil Behavior Type	Average N (spt)	Relative Density/Consistency	USCS Classification
0 - 3	LEAN CLAY	12	Stiff	CL
3 - 5.5	LEAN CLAY	50	Very Hard	CL
5.5 - 18	LEAN CLAY	100+	Very Hard	CL
18+	SANDSTONE Bedrock	50/0	-	-

Estimated Soil Parameters for LPILE

Depth (feet)	LPILE Soil Type	γ (pcf)	S_u (psf)	ϕ' (°)	K* (pci)	E_{50}*
0 - 3	Stiff Clay	115	1000	-	100	0.007
3 - 5.5	Very Hard Clay	125	2000	-	500	0.0015
5.5 - 18	Very Hard Clay	125	4000	-	1000	0.0015
18+	Sandstone Bedrock	135	5000+	-	2000	0.001

γ= In-situ Soil Density
S_u= Undrained Shear Strength
ϕ'= Effective Friction Angle
K= Horizontal Subgrade Reaction

*Parameters estimated from values suggested in LPILE user manual.

Foundation Recommendations

For Drilled Shaft Foundations**

Depth (ft)	Allowable End Bearing (KSF)
0 - 3	3
3 - 5.5	4
5.5 - 18	8
*18+	50

Depth Interval	Allowable Average Side Friction (PSF)
0 - 3	-
3 - 5.5	500
5.5 - 18	1000
*18+	3000

**Ignore in top 5 feet in design, minimum embedment depth of 10% tower height applies.
*Paramaters were increased with embedment depth due to anticipated increase in bedrock quality

Construction Criteria

1) Proofroll site prior to construction to detect unsuitable soil near the surface.
2) Compact building pads/roadway subgrade and each 8 inch lift of approved fill to 95% maximum dry density in accordance with ASTM D698 standard proctor.
3) Approved fill materials are soils with less than 3% organics, less than 50 liquid limit and less than 30 plastic index.
4) Foundation construction should be observed by Geotechnical Engineer.
5) Drilled shaft foundations should be installed in accordance with the requirements of the Deep Foundation Institute and monitored by the Geotechnical Engineer.

CLIENT	Job #:	BORING #	SHEET
Irish Tower, LLC	26:3125-B1	B-1	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
Irish Tower Sites - Welcome Road Tower	

SITE LOCATION: 5545 Caneyville Rd, Morgantown, KY

NORTHING | EASTING | STATION

CALIBRATED PENETROMETER TONS/FT²

ROCK QUALITY DESIGNATION & RECOVERY
RQD% - — - REC% ——

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

STANDARD PENETRATION BLOWS/FT

DESCRIPTION OF MATERIAL — ENGLISH UNITS

BOTTOM OF CASING | LOSS OF CIRCULATION

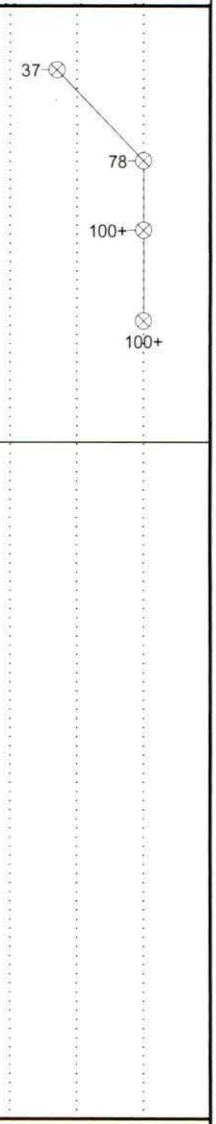
SURFACE ELEVATION 580

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	ELEVATION (FT)	BLOWS/6"
0					580	
	S-1	SS	18	18		7 17 20
	S-2	SS	18	18		21 37 41
5					575	
	S-3	SS	4	4		50/4
	S-4	SS	4	4		50/4
10					570	
15					565	
20					560	
25					555	
30					550	

Topsoil Depth [4"]

(CL) LEAN CLAY, trace sand, light brown, moist, hard to very hard

AUGER REFUSAL @ 12'



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL WS ☐ WD ☒	BORING STARTED 04/19/17	CAVE IN DEPTH
WL(SHW) WL(ACR)	BORING COMPLETED 04/19/17	HAMMER TYPE Auto
WL	RIG Truck FOREMAN Russell Shelton	DRILLING METHOD HSA/SPT

CLIENT	Job #:	BORING #	SHEET
Irish Tower, LLC	26:3125-B1	B-2	1 OF 1

PROJECT NAME	ARCHITECT-ENGINEER
Irish Tower Sites - Welcome Road Tower	

SITE LOCATION: 5545 Caneyville Rd, Morgantown, KY

NORTHING | EASTING | STATION

CALIBRATED PENETROMETER TONS/FT²

ROCK QUALITY DESIGNATION & RECOVERY
RQD% - — - REC% ——

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

STANDARD PENETRATION BLOWS/FT

DESCRIPTION OF MATERIAL — ENGLISH UNITS

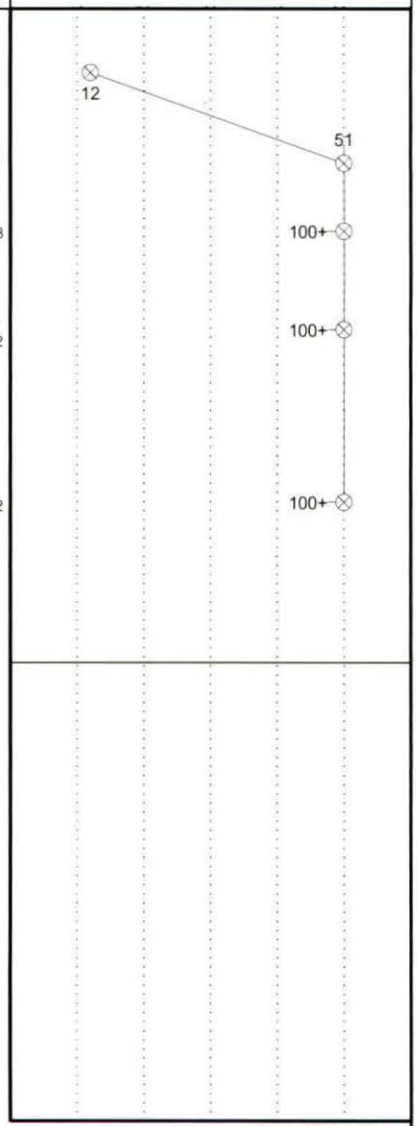
BOTTOM OF CASING | LOSS OF CIRCULATION

SURFACE ELEVATION 580

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0						580	
	S-1	SS	18	18			3 5 7
	S-2	SS	18	18			10 17 34
5						575	
	S-3	SS	3	3			50/3
	S-4	SS	8	8			37 50/2
10						570	
	S-5	SS	2	2			50/2
15						565	
20						560	
25						555	
30						550	

Topsoil Depth [5"]
(CL) LEAN CLAY, trace sand, light brown, moist, stiff to very hard

END OF BORING @ 18'



THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL WS ☐ WD ☒	BORING STARTED 04/19/17	CAVE IN DEPTH
WL(SHW) WL(ACR)	BORING COMPLETED 04/19/17	HAMMER TYPE Auto
WL	RIG Truck FOREMAN Russell Shelton	DRILLING METHOD HSA/SPT

CLIENT	Job #:	BORING #	SHEET
Irish Tower, LLC	26:3125-B1	B-3	1 OF 1

PROJECT NAME: Irish Tower Sites - Welcome Road Tower

ARCHITECT-ENGINEER:

SITE LOCATION: 5545 Caneyville Rd, Morgantown, KY

NORTHING | EASTING | STATION

CALIBRATED PENETROMETER TONS/FT²

ROCK QUALITY DESIGNATION & RECOVERY
RQD% - - - REC% ——

PLASTIC LIMIT% | WATER CONTENT% | LIQUID LIMIT%

STANDARD PENETRATION BLOWS/FT

DESCRIPTION OF MATERIAL — ENGLISH UNITS

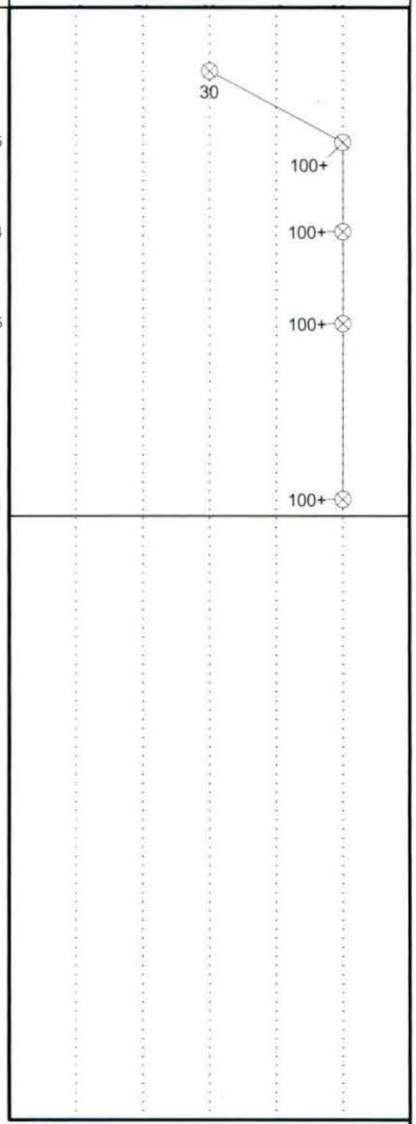
BOTTOM OF CASING | LOSS OF CIRCULATION

SURFACE ELEVATION 580

DEPTH (FT)	SAMPLE NO.	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	WATER LEVELS	ELEVATION (FT)	BLOWS/6"
0						580	
	S-1	SS	18	18			5 10 20
	S-2	SS	5	5			50/5
5						575	
	S-3	SS	4	4			50/4
	S-4	SS	5	5			50/5
10						570	
	S-5	SS	1	1			50/1
15						565	
20						560	
25						555	
30						550	

Topsoil Depth [4"]
(CL) LEAN CLAY, trace sand, light brown, moist, hard to very hard

AUGER REFUSAL @ 14'

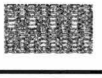


THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL.

WL WS ☐ WD ☒	BORING STARTED 04/19/17	CAVE IN DEPTH
WL(SHW) WL(ACR)	BORING COMPLETED 04/19/17	HAMMER TYPE Auto
WL	RIG Truck FOREMAN Russell Shelton	DRILLING METHOD HSA/SPT

REFERENCE NOTES FOR BORING LOGS

MATERIAL[1,2]

		ASPHALT
		CONCRETE
		GRAVEL
		TOPSOIL
		VOID
		BRICK
		AGGREGATE BASE COURSE
	FILL[3]	MAN-PLACED SOILS
	GW	**WELL-GRADED GRAVEL** gravel-sand mixtures, little or no fines
	GP	**POORLY-GRADED GRAVEL** gravel-sand mixtures, little or no fines
	GM	**SILTY GRAVEL** gravel-sand-silt mixtures
	GC	**CLAYEY GRAVEL** gravel-sand-clay mixtures
	SW	**WELL-GRADED SAND** gravelly sand, little or no fines
	SP	**POORLY-GRADED SAND** gravelly sand, little or no fines
	SM	**SILTY SAND** sand-silt mixtures
	SC	**CLAYEY SAND** sand-clay mixtures
	ML	**SILT** non-plastic to medium plasticity
	MH	**ELASTIC SILT** high plasticity
	CL	**LEAN CLAY** low to medium plasticity
	CH	**FAT CLAY** high plasticity
	OL	**ORGANIC SILT or CLAY** non-plastic to low plasticity
	OH	**ORGANIC SILT or CLAY** high plasticity
	PT	**PEAT** highly organic soils

DRILLING SAMPLING SYMBOLS & ABBREVIATIONS

SS	Split Spoon Sampler	PM	Pressuremeter Test
ST	Shelby Tube Sampler	RD	Rock Bit Drilling
WS	Wash Sample	RC	Rock Core, NX, BX, AX
BS	Bulk Sample of Cuttings	REC	Rock Sample Recovery %
PA	Power Auger (no sample)	RQD	Rock Quality Designation %
HSA	Hollow Stem Auger		

PARTICLE SIZE IDENTIFICATION

DESIGNATION		PARTICLE SIZES
Boulders		12 inches (300 mm) or larger
Cobbles		3 inches to 12 inches (75 mm to 300 mm)
Gravel:	Coarse	¾ inch to 3 inches (19 mm to 75 mm)
	Fine	4.75 mm to 19 mm (No. 4 sieve to ¾ inch)
Sand:	Coarse	2.00 mm to 4.75 mm (No. 10 to No. 4 sieve)
	Medium	0.425 mm to 2.00 mm (No. 40 to No. 10 sieve)
	Fine	0.074 mm to 0.425 mm (No. 200 to No. 40 sieve)
Silt & Clay ("Fines")		<0.074 mm (smaller than a No. 200 sieve)

COHESIVE SILTS & CLAYS

UNCONFINED COMPRESSIVE STRENGTH, Q_P[4]	SPT[5] (BPF)	CONSISTENCY[7] (COHESIVE)
<0.25	<3	Very Soft
0.25 - <0.50	3 - 4	Soft
0.50 - <1.00	5 - 8	Medium Stiff
1.00 - <2.00	9 - 15	Stiff
2.00 - <4.00	16 - 30	Very Stiff
4.00 - 8.00	31 - 50	Hard
>8.00	>50	Very Hard

GRAVELS, SANDS & NON-COHESIVE SILTS

SPT[5]	DENSITY
<5	Very Loose
5 - 10	Loose
11 - 30	Medium Dense
31 - 50	Dense
>50	Very Dense

RELATIVE AMOUNT[7]	COARSE GRAINED (%)[8]	FINE GRAINED (%)[8]
Trace	≤5	≤5
Dual Symbol *(ex: SW-SM)*	10	10
With	15 - 20	15 - 25
Adjective *(ex: "Silty")*	≥25	≥30

WATER LEVELS[6]

▽	WL	Water Level (WS)(WD) (WS) While Sampling (WD) While Drilling
▽	SHW	Seasonal High WT
▼	ACR	After Casing Removal
▽	SWT	Stabilized Water Table
	DCI	Dry Cave-In
	WCI	Wet Cave-In

[1] *Classifications and symbols per ASTM D 2488-09 (Visual-Manual Procedure) unless noted otherwise.*

[2] *To be consistent with general practice, "POORLY GRADED" has been removed from GP, GP-GM, GP-GC, SP, SP-SM, SP-SC soil types on the boring logs.*

[3] *Non-ASTM designations are included in soil descriptions and symbols along with ASTM symbol [Ex: (SM-**FILL**)].*

[4] *Typically estimated via pocket penetrometer or Torvane shear test and expressed in tons per square foot (tsf).*

[5] *Standard Penetration Test (SPT) refers to the number of hammer blows (blow count) of a 140 lb. hammer falling 30 inches on a 2 inch OD split spoon sampler required to drive the sampler 12 inches (ASTM D 1586). "N-value" is another term for "blow count" and is expressed in blows per foot (bpf).*

[6] *The water levels are those levels actually measured in the borehole at the times indicated by the symbol. The measurements are relatively reliable when augering, without adding fluids, in granular soils. In clay and cohesive silts, the determination of water levels may require several days for the water level to stabilize. In such cases, additional methods of measurement are generally employed.*

[7] *Minor deviation from ASTM D 2488-09 Note 16.*

[8] *Percentages are estimated to the nearest 5% per ASTM D 2488-09.*

USGS Design Maps Summary Report

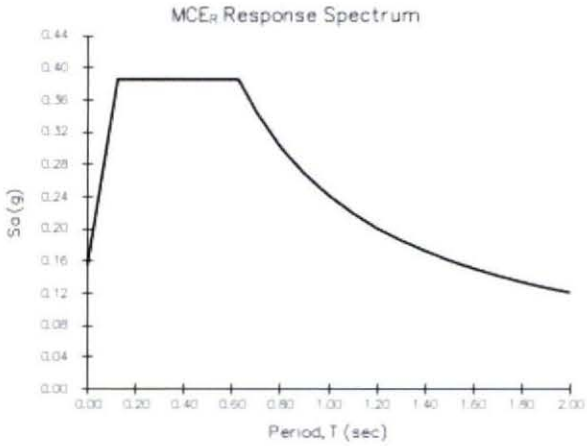
User–Specified Input

Report Title	Welcome Road Tower Mon April 24, 2017 21:24:59 UTC
Building Code Reference Document	2012/2015 International Building Code (which utilizes USGS hazard data available in 2008)
Site Coordinates	37.31052°N, 86.62412°W
Site Soil Classification	Site Class C – "Very Dense Soil and Soft Rock"
Risk Category	I/II/III

USGS–Provided Output

S_S =	0.322 g	S_{MS} =	0.386 g	S_{DS} =	0.258 g
S_1 =	0.146 g	S_{M1} =	0.242 g	S_{D1} =	0.161 g

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



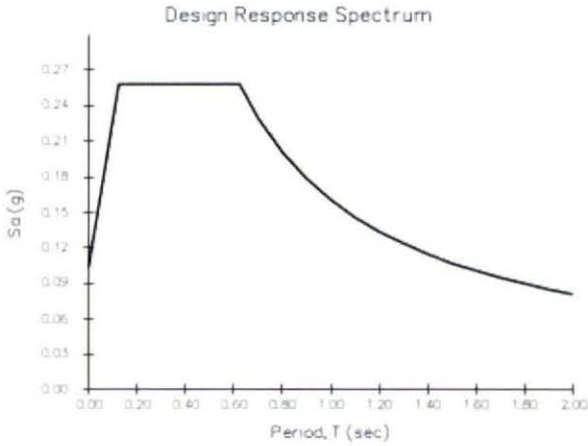


EXHIBIT H
DIRECTIONS TO WCF SITE

Driving Directions to Proposed Welcome Rd Tower Site

1. Beginning at the offices of the Butler County Clerk located at 110 North Main Street, Morgantown, KY, head southwest on North Main Street and travel approximately 157 feet.
2. Turn right at the 1st cross street onto US-231 N/W G L Smith St.
3. Continue travelling on US-231 N/W G L Smith St and travel approximately 2.4 miles.
4. Turn right onto KY-70 E/KY-79N and travel approximately 5.5 miles.
5. The site will be on the left at 5545 Caneyville Rd in Morgantown, KY.
6. The site coordinates are
    a. North 37 deg 18 min 37.54 sec
    b. West 86 deg 37 min 27.59 sec

Prepared by:
Robert Grant
Pike Legal Group PLLC
1578 Highway 44 East, Suite 6
P.O. Box 369
Shepherdsville, KY 40165-3069
Telephone: 502-955-4400 or 800-516-4293

EXHIBIT I
COPY OF REAL ESTATE AGREEMENT

Market: Evansville
Cell Site Number: KYL03684
Cell Site Name: Welcome Road
Fixed Asset Number: 13800714

OPTION AND LEASE AGREEMENT

THIS OPTION AND LEASE AGREEMENT ("**Agreement**"), dated as of the latter of the signature dates below (the "**Effective Date**"), is entered into by Timothy Lee Brooks and Cynthia L. Brooks, a married couple, having a mailing address of 5545 Caneyville Road, Morgantown, KY 42261 ("**Landlord**") and New Cingular Wireless PCS, LLC, a Delaware limited liability company, having a mailing address of 575 Morosgo Drive NE, Atlanta, GA 30324 ("**Tenant**").

BACKGROUND

Landlord owns or controls that certain plot, parcel or tract of land, as described on **Exhibit 1**, together with all rights and privileges arising in connection therewith, located at 5545 Caneyville Road, Morgantown, KY 42261, in the County of Butler, State of Kentucky (collectively, the "**Property**"). Tenant desires to use a portion of the Property in connection with its federally licensed communications business. Landlord desires to grant to Tenant the right to use a portion of the Property in accordance with this Agreement.

The parties agree as follows:

1. **OPTION TO LEASE.**

(a) Landlord grants to Tenant an option (the "**Option**") to lease a certain portion of the Property containing approximately 10,000 square feet including the air space above such ground space, as described on attached **Exhibit 1** (the "**Premises**"), for the placement of Tenant's Communication Facility.

(b) During the Option Term, and during the term of this Agreement, Tenant and its agents, engineers, surveyors and other representatives will have the right to enter upon the Property to inspect, examine, conduct soil borings, drainage testing, material sampling, radio frequency testing and other geological or engineering tests or studies of the Property (collectively, the "**Tests**"), to apply for and obtain licenses, permits, approvals, or other relief required of or deemed necessary or appropriate at Tenant's sole discretion for its use of the Premises and include, without limitation, applications for zoning variances, zoning ordinances, amendments, special use permits, and construction permits (collectively, the "**Government Approvals**"), initiate the ordering and/or scheduling of necessary utilities, and otherwise to do those things on or off the Property that, in the opinion of Tenant, are necessary in Tenant's sole discretion to determine the physical condition of the Property, the environmental history of the Property, Landlord's title to the Property and the feasibility or suitability of the Property for Tenant's Permitted Use, all at Tenant's expense. Tenant will not be liable to Landlord or any third party on account of any pre-existing defect or condition on or with respect to the Property, whether or not such defect or condition is disclosed by Tenant's inspection. Tenant will restore the Property to its condition as it existed at the commencement of the Option Term, reasonable wear and tear and loss by casualty or other causes beyond Tenant's control excepted.

(c) In consideration of Landlord granting Tenant the Option, Tenant agrees to pay Landlord the sum of [redacted] within forty five (45) business days of the Effective Date. The Option will be for an initial term of one (1) year commencing on the Effective Date (the "**Initial Option Term**") and may be renewed by Tenant for an additional one (1) year (the "**Renewal Option Term**") upon written notification to Landlord and the payment of an additional [redacted] no later than five (5) days prior to the expiration date of the Initial Option Term. The Initial Option Term and any Renewal Option Term are collectively referred to as the "**Option Term**."

(d) The Option may be sold, assigned or transferred at any time by Tenant to an Affiliate (as that term is hereinafter defined) of Tenant or to any third party agreeing to be subject to the terms hereof. Otherwise,

the Option may not be sold, assigned or transferred without the written consent of Landlord, such consent not to be unreasonably withheld, conditioned or delayed. From and after the date the Option has been sold, assigned or transferred by Tenant to an Affiliate or a third party agreeing to be subject to the terms hereof, Tenant shall immediately be released from any and all liability under this Agreement, including the payment of any rental or other sums due, without any further action.

(e) During the Option Term, Tenant may exercise the Option by notifying Landlord in writing. If Tenant exercises the Option then Landlord leases the Premises to Tenant subject to the terms and conditions of this Agreement. If Tenant does not exercise the Option during the Initial Option Term or any extension thereof, this Agreement will terminate and the parties will have no further liability to each other.

(f) If during the Option Term, or during the term of this Agreement the Option is exercised, Landlord decides to subdivide, sell, or change the status of the zoning of the Premises, Property or any of Landlord's contiguous, adjoining or surrounding property (the **"Surrounding Property,"**) or in the event of foreclosure, Landlord shall immediately notify Tenant in writing. Landlord agrees that during the Option Term, or during the Term of this Agreement if the Option is exercised, Landlord shall not initiate or consent to any change in the zoning of the Premises, Property or Surrounding Property or impose or consent to any other use or restriction that would prevent or limit Tenant from using the Premises for the Permitted Use. Any and all terms and conditions of this Agreement that by their sense and context are intended to be applicable during the Option Term shall be so applicable.

2. **PERMITTED USE.** Tenant may use the Premises for the transmission and reception of communications signals and the installation, construction, maintenance, operation, repair, replacement and upgrade of its communications fixtures and related equipment, cables, accessories and improvements, which may include a suitable support structure, associated antennas, equipment shelters or cabinets and fencing and any other items necessary to the successful and secure use of the Premises (collectively, the "**Communication Facility**"), as well as the right to test, survey and review title on the Property; Tenant further has the right but not the obligation to add, modify and/or replace equipment in order to be in compliance with any current or future federal, state or local mandated application, including, but not limited to, emergency 911 communication services, at no additional cost to Tenant or Landlord (collectively, the "**Permitted Use**"). Landlord and Tenant agree that any portion of the Communication Facility that may be conceptually described on **Exhibit 1** will not be deemed to limit Tenant's Permitted Use. If **Exhibit 1** includes drawings of the initial installation of the Communication Facility, Landlord's execution of this Agreement will signify Landlord's approval of **Exhibit 1**. For a period of ninety (90) days following the start of construction, Landlord grants Tenant, its subtenants, licensees and sublicensees, the right to use such portions of Landlord's contiguous, adjoining or Surrounding Property as described on **Exhibit 1** as may reasonably be required during construction and installation of the Communication Facility. Tenant has the right to install and operate transmission cables from the equipment shelter or cabinet to the antennas, electric lines from the main feed to the equipment shelter or cabinet and communication lines from the Property's main entry point to the equipment shelter or cabinet, and to make other improvements, alterations, upgrades or additions appropriate for Tenant's Permitted Use, including the right to construct a fence around the Premises and undertake any other appropriate means to secure the Premises at Tenant's expense. Tenant has the right to modify, supplement, replace, upgrade, expand the equipment, increase the number of antennas or relocate the Communication Facility within the Premises at any time during the term of this Agreement. Tenant will be allowed to make such alterations to the Property in order to ensure that Tenant's Communication Facility complies with all applicable federal, state or local laws, rules or regulations.

3. **TERM.**

(a) The initial lease term will be five (5) years (the "**Initial Term**"), commencing on the effective date of written notification by Tenant to Landlord of Tenant's exercise of the Option (the "**Term Commencement Date**"). The Initial Term will terminate on the fifth (5^{th}) anniversary of the Term Commencement Date.

(b) This Agreement will automatically renew for four (4) additional five (5) year term(s) (each five (5) year term shall be defined as an "**Extension Term**"), upon the same terms and conditions unless Tenant

notifies Landlord in writing of Tenant's intention not to renew this Agreement at least sixty (60) days prior to the expiration of the Initial Term or then-existing Extension Term.

(c) Unless (i) Landlord or Tenant notifies the other in writing of its intention to terminate this Agreement at least six (6) months prior to the expiration of the final Extension Term, or (ii) the Agreement is terminated as otherwise permitted by this Agreement prior to the end of the final Extension Term, then upon the expiration of the final Extension Term, this Agreement shall continue in force upon the same covenants, terms and conditions for a further term of one (1) year, and for annual terms thereafter ("**Annual Term**") until terminated by either party by giving to the other written notice of its intention to so terminate at least six (6) months prior to the end of any such Annual Term. Monthly rental during such Annual Terms shall be equal to the Rent paid for the last month of the final Extension Term. If Tenant remains in possession of the Premises after the termination of this Agreement, then Tenant will be deemed to be occupying the Premises on a month-to-month basis (the "**Holdover Term**"), subject to the terms and conditions of this Agreement.

(d) The Initial Term, any Extension Terms, any Annual Terms and any Holdover Term are collectively referred to as the Term (the "**Term**").

4. **RENT.**

(a) Commencing on the first day of the month following the date that Tenant commences construction (the "**Rent Commencement Date**"), Tenant will pay Landlord on or before the fifth (5th) day of each calendar month in advance [redacted] (the "**Rent**"), at the address set forth above. In any partial month occurring after the Rent Commencement Date, Rent will be prorated. The initial Rent payment will be forwarded by Tenant to Landlord within forty-five (45) days after the Rent Commencement Date.

(b) In year one (1) of each Extension Term, the monthly Rent will increase by [redacted] over the Rent paid during the previous five (5) year term.

(c) All charges payable under this Agreement such as utilities and taxes shall be billed by Landlord within one (1) year from the end of the calendar year in which the charges were incurred; any charges beyond such period shall not be billed by Landlord, and shall not be payable by Tenant. The foregoing shall not apply to monthly Rent which is due and payable without a requirement that it be billed by Landlord. The provisions of this subsection shall survive the termination or expiration of this Agreement.

5. **APPROVALS.**

(a) Landlord agrees that Tenant's ability to use the Premises is contingent upon the suitability of the Premises and Property for Tenant's Permitted Use and Tenant's ability to obtain and maintain all Government Approvals. Landlord authorizes Tenant to prepare, execute and file all required applications to obtain Government Approvals for Tenant's Permitted Use under this Agreement and agrees to reasonably assist Tenant with such applications and with obtaining and maintaining the Government Approvals.

(b) Tenant has the right to obtain a title report or commitment for a leasehold title policy from a title insurance company of its choice and to have the Property surveyed by a surveyor of its choice.

(c) Tenant may also perform and obtain, at Tenant's sole cost and expense, soil borings, percolation tests, engineering procedures, environmental investigation or other tests or reports on, over, and under the Property, necessary to determine if Tenant's use of the Premises will be compatible with Tenant's engineering specifications, system, design, operations or Government Approvals.

6. **TERMINATION.** This Agreement may be terminated, without penalty or further liability, as follows:

(a) by either party on thirty (30) days prior written notice, if the other party remains in default under Section 15 of this Agreement after the applicable cure periods;

(b) by Tenant upon written notice to Landlord, if Tenant is unable to obtain or maintain, any required approval(s) or the issuance of a license or permit by any agency, board, court or other governmental authority necessary for the construction or operation of the Communication Facility as now or hereafter intended by Tenant; or if Tenant determines, in its sole discretion that the cost of or delay in obtaining or retaining the same is commercially unreasonable;

(c) by Tenant, upon written notice to Landlord, if Tenant determines, in its sole discretion, due to the title report results or survey results, that the condition of the Premises is unsatisfactory for its intended uses;

(d) by Tenant upon written notice to Landlord for any reason or no reason, at any time prior to commencement of construction by Tenant; or

(e) by Tenant upon sixty (60) days' prior written notice to Landlord for any reason or no reason, so long as Tenant pays Landlord a termination fee equal to three (3) months' Rent, at the then-current rate, provided, however, that no such termination fee will be payable on account of the termination of this Agreement by Tenant under any termination provision contained in any other Section of this Agreement, including the following: 5 Approvals, 6(a) Termination, 6(b) Termination, 6(c) Termination, 6(d) Termination, 11(d) Environmental, 18 Condemnation, or 19 Casualty.

7. **INSURANCE.**

(a) During the Term, Tenant will carry, at its own cost and expense, the following insurance: (i) workers' compensation insurance as required by law; and (ii) commercial general liability (CGL) insurance with respect to its activities on the Property, such insurance to afford protection of up to [redacted] per occurrence and [redacted] general aggregate, based on Insurance Services Office (ISO) Form CG 00 01 or a substitute form providing substantially equivalent coverage. Tenant's CGL insurance shall contain a provision including Landlord as an additional insured. Such additional insured coverage:

(i) shall be limited to bodily injury, property damage or personal and advertising injury caused, in whole or in part, by Tenant, its employees, agents or independent contractors;

(ii) shall not extend to claims for punitive or exemplary damages arising out of the acts or omissions of Landlord, its employees, agents or independent contractors or where such coverage is prohibited by law or to claims arising out of the gross negligence of Landlord, its employees, agents or independent contractors; and

(iii) shall not exceed Tenant's indemnification obligation under this Agreement, if any.

(b) Notwithstanding the foregoing, Tenant shall have the right to self-insure the coverages required in subsection (a). In the event Tenant elects to self-insure its obligation to include Landlord as an additional insured, the following provisions shall apply (in addition to those set forth in subsection (a)):

(i) Landlord shall promptly and no later than thirty (30) days after notice thereof provide Tenant with written notice of any claim, demand, lawsuit, or the like for which it seeks coverage pursuant to this Section and provide Tenant with copies of any demands, notices, summonses, or legal papers received in connection with such claim, demand, lawsuit, or the like;

(ii) Landlord shall not settle any such claim, demand, lawsuit, or the like without the prior written consent of Tenant; and

(iii) Landlord shall fully cooperate with Tenant in the defense of the claim, demand, lawsuit, or the like.

8. INTERFERENCE.

(a) Prior to or concurrent with the execution of this Agreement, Landlord has provided or will provide Tenant with a list of radio frequency user(s) and frequencies used on the Property as of the Effective Date. Tenant warrants that its use of the Premises will not interfere with those existing radio frequency uses on the Property, as long as those existing radio frequency user(s) operate and continue to operate within their respective frequencies and in accordance with all applicable laws and regulations.

(b) Landlord will not grant, after the date of this Agreement, a lease, license or any other right to any third party, if the exercise of such grant may in any way adversely affect or interfere with the Communication Facility, the operations of Tenant or the rights of Tenant under this Agreement. Landlord will notify Tenant in writing prior to granting any third party the right to install and operate communications equipment on the Property.

(c) Landlord will not, nor will Landlord permit its employees, tenants, licensees, invitees, agents or independent contractors to, interfere in any way with the Communication Facility, the operations of Tenant or the rights of Tenant under this Agreement. Landlord will cause such interference to cease within twenty-four (24) hours after receipt of notice of interference from Tenant. In the event any such interference does not cease within the aforementioned cure period, Landlord shall cease all operations which are suspected of causing interference (except for intermittent testing to determine the cause of such interference) until the interference has been corrected.

(d) For the purposes of this Agreement, "interference" may include, but is not limited to, any use on the Property or Surrounding Property that causes electronic or physical obstruction with, or degradation of, the communications signals from the Communication Facility.

9. INDEMNIFICATION.

(a) Tenant agrees to indemnify, defend and hold Landlord harmless from and against any and all injury, loss, damage or liability (or any claims in respect of the foregoing), costs or expenses (including reasonable attorneys' fees and court costs) arising directly from the installation, use, maintenance, repair or removal of the Communication Facility or Tenant's breach of any provision of this Agreement, except to the extent attributable to the negligent or intentional act or omission of Landlord, its employees, agents or independent contractors.

(b) Landlord agrees to indemnify, defend and hold Tenant harmless from and against any and all injury, loss, damage or liability (or any claims in respect of the foregoing), costs or expenses (including reasonable attorneys' fees and court costs) arising directly from the actions or failure to act of Landlord, its employees or agents, or Landlord's breach of any provision of this Agreement, except to the extent attributable to the negligent or intentional act or omission of Tenant, its employees, agents or independent contractors.

(c) The indemnified party: (i) shall promptly provide the indemnifying party with written notice of any claim, demand, lawsuit, or the like for which it seeks indemnification pursuant to this Section and provide the indemnifying party with copies of any demands, notices, summonses, or legal papers received in connection with such claim, demand, lawsuit, or the like; (ii) shall not settle any such claim, demand, lawsuit, or the like without the prior written consent of the indemnifying party; and (iii) shall fully cooperate with the indemnifying party in the defense of the claim, demand, lawsuit, or the like. A delay in notice shall not relieve the indemnifying party of its indemnity obligation, except (1) to the extent the indemnifying party can show it was prejudiced by the delay; and (2) the indemnifying party shall not be liable for any settlement or litigation expenses incurred before the time when notice is given.

10. WARRANTIES.

(a) Tenant and Landlord each acknowledge and represent that it is duly organized, validly existing and in good standing and has the right, power and authority to enter into this Agreement and bind itself hereto through the party set forth as signatory for the party below.

(b) Landlord represents, warrants and agrees that: (i) Landlord solely owns the Property as a legal lot in fee simple, or controls the Property by lease or license; (ii) the Property is not and will not be encumbered by any liens, restrictions, mortgages, covenants, conditions, easements, leases, or any other agreements of record or not of record, which would adversely affect Tenant's Permitted Use and enjoyment of the Premises under this

Agreement; (iii) as long as Tenant is not in default then Landlord grants to Tenant sole, actual, quiet and peaceful use, enjoyment and possession of the Premises without hindrance or ejection by any persons lawfully claiming under Landlord; (iv) Landlord's execution and performance of this Agreement will not violate any laws, ordinances, covenants or the provisions of any mortgage, lease or other agreement binding on Landlord; and (v) if the Property is or becomes encumbered by a deed to secure a debt, mortgage or other security interest, Landlord will provide promptly to Tenant a mutually agreeable subordination, non-disturbance and attornment agreement executed by Landlord and the holder of such security interest.

11. **ENVIRONMENTAL.**

(a) Landlord represents and warrants that, except as may be identified in **Exhibit 11** attached to this Agreement, (i) the Property, as of the date of this Agreement, is free of hazardous substances, including asbestos-containing materials and lead paint, and (ii) the Property has never been subject to any contamination or hazardous conditions resulting in any environmental investigation, inquiry or remediation. Landlord and Tenant agree that each will be responsible for compliance with any and all applicable governmental laws, rules, statutes, regulations, codes, ordinances, or principles of common law regulating or imposing standards of liability or standards of conduct with regard to protection of the environment or worker health and safety, as may now or at any time hereafter be in effect, to the extent such apply to that party's activity conducted in or on the Property.

(b) Landlord and Tenant agree to hold harmless and indemnify the other from, and to assume all duties, responsibilities and liabilities at the sole cost and expense of the indemnifying party for, payment of penalties, sanctions, forfeitures, losses, costs or damages, and for responding to any action, notice, claim, order, summons, citation, directive, litigation, investigation or proceeding ("**Claims**"), to the extent arising from that party's breach of its obligations or representations under Section 11(a). Landlord agrees to hold harmless and indemnify Tenant from, and to assume all duties, responsibilities and liabilities at the sole cost and expense of Landlord for, payment of penalties, sanctions, forfeitures, losses, costs or damages, and for responding to any Claims, to the extent arising from subsurface or other contamination of the Property with hazardous substances prior to the effective date of this Agreement or from such contamination caused by the acts or omissions of Landlord during the Term. Tenant agrees to hold harmless and indemnify Landlord from, and to assume all duties, responsibilities and liabilities at the sole cost and expense of Tenant for, payment of penalties, sanctions, forfeitures, losses, costs or damages, and for responding to any Claims, to the extent arising from hazardous substances brought onto the Property by Tenant.

(c) The indemnifications of this Section 11 specifically include reasonable costs, expenses and fees incurred in connection with any investigation of Property conditions or any clean-up, remediation, removal or restoration work required by any governmental authority. The provisions of this Section 11 will survive the expiration or termination of this Agreement.

(d) In the event Tenant becomes aware of any hazardous substances on the Property, or any environmental, health or safety condition or matter relating to the Property, that, in Tenant's sole determination, renders the condition of the Premises or Property unsuitable for Tenant's use, or if Tenant believes that the leasing or continued leasing of the Premises would expose Tenant to undue risks of liability to a government agency or other third party, Tenant will have the right, in addition to any other rights it may have at law or in equity, to terminate this Agreement upon written notice to Landlord.

12. **ACCESS.** At all times throughout the Term of this Agreement, and at no additional charge to Tenant, Tenant and its employees, agents, and subcontractors, will have twenty-four (24) hour per day, seven (7) day per week pedestrian and vehicular access ("**Access**") to and over the Property, from an open and improved public road to the Premises, for the installation, maintenance and operation of the Communication Facility and any utilities serving the Premises. As may be described more fully in **Exhibit 1**, Landlord grants to Tenant an easement for such Access and Landlord agrees to provide to Tenant such codes, keys and other instruments necessary for such Access at no additional cost to Tenant. Upon Tenant's request, Landlord will execute a separate recordable easement evidencing this right. Landlord shall execute a letter granting Tenant Access to the Property substantially in the form attached as **Exhibit 12**; upon Tenant's request, Landlord shall execute additional letters during the Term. Landlord acknowledges that in the event Tenant cannot obtain Access to the

Premises, Tenant shall incur significant damage. If Landlord fails to provide the Access granted by this Section 12, such failure shall be a default under this Agreement. In connection with such default, in addition to any other rights or remedies available to Tenant under this Agreement or at law or equity, Landlord shall pay Tenant, as liquidated damages and not as a penalty [redacted] in consideration of Tenant's damages until Landlord cures such default. Landlord and Tenant agree that Tenant's damages in the event of a denial of Access are difficult, if not impossible, to ascertain, and the liquidated damages set forth above are a reasonable approximation of such damages.

13. **REMOVAL/RESTORATION.** All portions of the Communication Facility brought onto the Property by Tenant will be and remain Tenant's personal property and, at Tenant's option, may be removed by Tenant at any time during the Term. Landlord covenants and agrees that no part of the Communication Facility constructed, erected or placed on the Premises by Tenant will become, or be considered as being affixed to or a part of, the Property, it being the specific intention of the Landlord that all improvements of every kind and nature constructed, erected or placed by Tenant on the Premises will be and remain the property of the Tenant and may be removed by Tenant at any time during the Term. Within one hundred twenty (120) days after the termination of this Agreement, Tenant will, to the extent reasonable, restore the Premises to its condition at the commencement of the Agreement, reasonable wear and tear and loss by casualty or other causes beyond Tenant's control excepted. Footings, foundations, and concrete will be removed to a depth of two-foot below grade. Notwithstanding the foregoing, Tenant will not be responsible for the replacement of any trees, shrubs, or other vegetation, nor will Tenant be required to remove from the Premises or the Property any underground utilities.

14. **MAINTENANCE/UTILITIES.**

(a) Tenant will keep and maintain the Premises in good condition, reasonable wear and tear and damage from the elements excepted. Landlord will maintain and repair the Property and access thereto and all areas of the Premises where Tenant does not have exclusive control, in good and tenantable condition, subject to reasonable wear and tear and damage from the elements. Landlord will be responsible for maintenance of landscaping on the Property, including any landscaping installed by Tenant as a condition of this Agreement or any required permit. Not withstanding the foregoing, Tenant shall be responsible for the construction, maintenance, and upkeep of any Tenant constructed access road or culverts installed on the Property to the Communication Facility. Any damage Tenant causes to the main access road into the property during construction, Tenant will repair at its own cost and expense.

(b) Tenant will be responsible for paying on a monthly or quarterly basis all utilities charges for electricity, telephone service or any other utility used or consumed by Tenant on the Premises. In the event Tenant cannot secure its own metered electrical supply, Tenant will have the right, at its own cost and expense, to submeter from Landlord. When submetering is required under this Agreement, Landlord will read the meter and provide Tenant with an invoice and usage data on a monthly basis. Landlord agrees that it will not include a markup on the utility charges. Landlord further agrees to provide the usage data and invoice on forms provided by Tenant and to send such forms to such address and/or agent designated by Tenant. Tenant will remit payment within forty-five (45) days of receipt of the usage data and required forms. As noted in Section 4(c) above, any utility fee recovery by Landlord is limited to a twelve (12) month period. If Tenant submeters electricity from Landlord, Landlord agrees to give Tenant at least twenty-four (24) hours advance notice of any planned interruptions of said electricity. Landlord acknowledges that Tenant provides a communication service which requires electrical power to operate and must operate twenty-four (24) hours per day, seven (7) days per week. If the interruption is for an extended period of time, in Tenant's reasonable determination, Landlord agrees to allow Tenant the right to bring in a temporary source of power for the duration of the interruption. Landlord will not be responsible for interference with, interruption of or failure, beyond the reasonable control of Landlord, of such services to be furnished or supplied by Landlord.

(c) Landlord hereby grants to any company providing utility or similar services, including electric power and telecommunications, to Tenant an easement over the Property, from an open and improved public road to the Premises, and upon the Premises, for the purpose of constructing, operating and maintaining such

lines, wires, circuits, and conduits, associated equipment cabinets and such appurtenances thereto, as such companies may from time to time require in order to provide such services to the Premises. Upon Tenant's or the service company's request, Landlord will execute a separate recordable easement evidencing this grant, at no cost to Tenant or the service company.

15. DEFAULT AND RIGHT TO CURE.

(a) The following will be deemed a default by Tenant and a breach of this Agreement: (i) non-payment of Rent if such Rent remains unpaid for more than thirty (30) days after written notice from Landlord of such failure to pay; or (ii) Tenant's failure to perform any other term or condition under this Agreement within forty-five (45) days after written notice from Landlord specifying the failure. No such failure, however, will be deemed to exist if Tenant has commenced to cure such default within such period and provided that such efforts are prosecuted to completion with reasonable diligence. Delay in curing a default will be excused if due to causes beyond the reasonable control of Tenant. If Tenant remains in default beyond any applicable cure period, Landlord will have the right to exercise any and all rights and remedies available to it under law and equity.

(b) The following will be deemed a default by Landlord and a breach of this Agreement: (i) Landlord's failure to provide Access to the Premises as required by Section 12 of this Agreement within twenty-four (24) hours after written notice of such failure; (ii) Landlord's failure to cure an interference problem as required by Section 8 of this Agreement within twenty-four (24) hours after written notice of such failure; or (iii) Landlord's failure to perform any term, condition or breach of any warranty or covenant under this Agreement within forty-five (45) days after written notice from Tenant specifying the failure. No such failure, however, will be deemed to exist if Landlord has commenced to cure the default within such period and provided such efforts are prosecuted to completion with reasonable diligence. Delay in curing a default will be excused if due to causes beyond the reasonable control of Landlord. If Landlord remains in default beyond any applicable cure period, Tenant will have: (i) the right to cure Landlord's default and to deduct the costs of such cure from any monies due to Landlord from Tenant, and (ii) any and all other rights available to it under law and equity.

16. **ASSIGNMENT/SUBLEASE.** Tenant will have the right to assign, sell or transfer its interest under this Agreement, in whole or part, without Landlord's consent, to: (a) Tenant's Affiliate, (b) to any entity with a net worth of at least [redacted] or (c) any entity that acquires all or substantially all of the Tenant's assets in the market as defined by the Federal Communications Commission in which the Property is located. Upon notification to Landlord of such assignment, transfer or sale, Tenant will be relieved of all future performance, liabilities and obligations under this Agreement. Tenant shall have the right to sublease the Premises, in whole or in part, without Landlord's consent. Tenant may not otherwise assign this Agreement without Landlord's consent, Landlord's consent not to be unreasonably withheld, conditioned or delayed.

17. **NOTICES.** All notices, requests and demands hereunder will be given by first class certified or registered mail, return receipt requested, or by a nationally recognized overnight courier, postage prepaid, to be effective when properly sent and received, refused or returned undelivered. Notices will be addressed to the parties as follows:

If to Tenant: New Cingular Wireless PCS, LLC
Attn: Network Real Estate Administration
Re: Cell Site #KYL03684; Cell Site Name: Welcome Road (KY)
Fixed Asset No.: 13800714
575 Morosgo Drive NE
Atlanta, GA 30324

With a copy to:

New Cingular Wireless PCS, LLC
Attn: Legal Department
Re: Cell Site #KYL03684; Cell Site Name: Welcome Road (**KY**)
Fixed Asset No.: 13800714
208 S. Akard Street
Dallas, TX 75202-4206

The copy sent to the Legal Department is an administrative step which alone does not constitute legal notice.

If to Landlord: Timothy Lee Brooks and Cynthia L. Brooks
5545 Caneyville Road
Morgantown, KY 42261

Either party hereto may change the place for the giving of notice to it by thirty (30) days' prior written notice to the other as provided herein.

18. **CONDEMNATION.** In the event Landlord receives notification of any condemnation proceedings affecting the Property, Landlord will provide notice of the proceeding to Tenant within forty-eight (48) hours. If a condemning authority takes all of the Property, or a portion sufficient, in Tenant's sole determination, to render the Premises unsuitable for Tenant, this Agreement will terminate as of the date the title vests in the condemning authority. The parties will each be entitled to pursue their own separate awards in the condemnation proceeds, which for Tenant will include, where applicable, the value of its Communication Facility, moving expenses, prepaid Rent, and business dislocation expenses. Tenant will be entitled to reimbursement for any prepaid Rent on a prorata basis.

19. **CASUALTY.** Landlord will provide notice to Tenant of any casualty or other harm affecting the Property within forty-eight (48) hours of the casualty or other harm. If any part of the Communication Facility or Property is damaged by casualty or other harm as to render the Premises unsuitable, in Tenant's sole determination, then Tenant may terminate this Agreement by providing written notice to Landlord, which termination will be effective as of the date of such casualty or other harm. Upon such termination, Tenant will be entitled to collect all insurance proceeds payable to Tenant on account thereof and to be reimbursed for any prepaid Rent on a prorata basis. Landlord agrees to permit Tenant to place temporary transmission and reception facilities on the Property, but only until such time as Tenant is able to activate a replacement transmission facility at another location; notwithstanding the termination of the Agreement, such temporary facilities will be governed by all of the terms and conditions of this Agreement, including Rent. If Landlord or Tenant undertakes to rebuild or restore the Premises and/or the Communication Facility, as applicable, Landlord agrees to permit Tenant to place temporary transmission and reception facilities on the Property at no additional Rent until the reconstruction of the Premises and/or the Communication Facility is completed. If Landlord determines not to rebuild or restore the Property, Landlord will notify Tenant of such determination within thirty (30) days after the casualty or other harm. If Landlord does not so notify Tenant, and Tenant decides not to terminate under this Section, then Landlord will promptly rebuild or restore any portion of the Property interfering with or required for Tenant's Permitted Use of the Premises to substantially the same condition as existed before the casualty or other harm. Landlord agrees that the Rent shall be abated until the Property and/or the Premises are rebuilt or restored, unless Tenant places temporary transmission and reception facilities on the Property.

20. **WAIVER OF LANDLORD'S LIENS.** Landlord waives any and all lien rights it may have, statutory or otherwise, concerning the Communication Facility or any portion thereof. The Communication Facility shall be

deemed personal property for purposes of this Agreement, regardless of whether any portion is deemed real or personal property under applicable law; Landlord consents to Tenant's right to remove all or any portion of the Communication Facility from time to time in Tenant's sole discretion and without Landlord's consent.

21. TAXES.

(a) Landlord shall be responsible for timely payment of all taxes and assessments levied upon the lands, improvements and other property of Landlord, including any such taxes that may be calculated by the taxing authority using any method, including the income method. Tenant shall be responsible for any taxes and assessments attributable to and levied upon Tenant's leasehold improvements on the Premises if and as set forth in this Section 21. Nothing herein shall require Tenant to pay any inheritance, franchise, income, payroll, excise, privilege, rent, capital stock, stamp, documentary, estate or profit tax, or any tax of similar nature, that is or may be imposed upon Landlord.

(b) In the event Landlord receives a notice of assessment with respect to which taxes or assessments are imposed on Tenant's leasehold improvements on the Premises, Landlord shall provide Tenant with copies of each such notice immediately upon receipt, but in no event later than thirty (30) days after the date of such notice of assessment. If Landlord does not provide such notice or notices to Tenant within such time period, Landlord shall be responsible for payment of the tax or assessment set forth in the notice, and Landlord shall not have the right to reimbursement of such amount from Tenant. If Landlord provides a notice of assessment to Tenant within such time period and requests reimbursement from Tenant as set forth below, then Tenant shall reimburse Landlord for the tax or assessments identified on the notice of assessment on Tenant's leasehold improvements, which has been paid by Landlord. If Landlord seeks reimbursement from Tenant, Landlord shall, no later than thirty (30) days after Landlord's payment of the taxes or assessments for the assessed tax year, provide Tenant with written notice including evidence that Landlord has timely paid same, and Landlord shall provide to Tenant any other documentation reasonably requested by Tenant to allow Tenant to evaluate the payment and to reimburse Landlord.

(c) For any tax amount for which Tenant is responsible under this Agreement, Tenant shall have the right to contest, in good faith, the validity or the amount thereof using such administrative, appellate or other proceedings as may be appropriate in the jurisdiction, and may defer payment of such obligations, pay same under protest, or take such other steps as Tenant may deem appropriate. This right shall include the ability to institute any legal, regulatory or informal action in the name of Landlord, Tenant, or both, with respect to the valuation of the Premises. Landlord shall cooperate with respect to the commencement and prosecution of any such proceedings and will execute any documents required therefor. The expense of any such proceedings shall be borne by Tenant and any refunds or rebates secured as a result of Tenant's action shall belong to Tenant, to the extent the amounts were originally paid by Tenant. In the event Tenant notifies Landlord by the due date for assessment of Tenant's intent to contest the assessment, Landlord shall not pay the assessment pending conclusion of the contest, unless required by applicable law.

(d) Landlord shall not split or cause the tax parcel on which the Premises are located to be split, bifurcated, separated or divided without the prior written consent of Tenant.

(e) Tenant shall have the right but not the obligation to pay any taxes due by Landlord hereunder if Landlord fails to timely do so, in addition to any other rights or remedies of Tenant. In the event that Tenant exercises its rights under this Section 21(e) due to such Landlord default, Tenant shall have the right to deduct such tax amounts paid from any monies due to Landlord from Tenant as provided in Section 15(b), provided that Tenant may exercise such right without having provided to Landlord notice and the opportunity to cure per Section 15(b).

(f) Any tax-related notices shall be sent to Tenant in the manner set forth in Section 17 and, in addition, of a copy of any such notices shall be sent to the following address. Promptly after the Effective Date of this Agreement, Landlord shall provide the following address to the taxing authority for the authority's use in the

event the authority needs to communicate with Tenant. In the event that Tenant's tax addresses changes by notice to Landlord, Landlord shall be required to provide Tenant's new tax address to the taxing authority or authorities.

New Cingular Wireless PCS, LLC
Attn: Network Real Estate Administration -- Taxes
Re: Cell Site #KYL03684; Cell Site Name: Welcome Road (KY)
Fixed Asset No: 13800714
575 Morosgo Drive NE
Atlanta, GA 30324

(g) Notwithstanding anything to the contrary contained in this Section 21, Tenant shall have no obligation to reimburse any tax or assessment for which the Landlord is reimbursed or rebated by a third party.

22. **SALE OF PROPERTY**

(a) Landlord shall not be prohibited from the selling, leasing or use of any of the Property or the Surrounding Property except as provided below.

(b) If Landlord, at any time during the Term of this Agreement, decides to rezone or sell, subdivide or otherwise transfer all or any part of the Premises, or all or any part of the Property or Surrounding Property, to a purchaser other than Tenant, Landlord shall promptly notify Tenant in writing, and such rezoning, sale, subdivision or transfer shall be subject to this Agreement and Tenant's rights hereunder. In the event of a change in ownership, transfer or sale of the Property, within ten (10) days of such transfer, Landlord or its successor shall send the documents listed below in this subsection (b) to Tenant. Until Tenant receives all such documents, Tenant shall not be responsible for any failure to make payments under this Agreement and reserves the right to hold payments due under this Agreement.

i. Old deed to Property
ii. New deed to Property
iii. Bill of Sale or Transfer
iv. Copy of current Tax Bill
v. New IRS Form W-9
vi. Completed and Signed AT&T Payment Direction Form
vii. Full contact information for new Landlord including phone number(s)

(c) Landlord agrees not to sell, lease or use any areas of the Property or Surrounding Property for the installation, operation or maintenance of other wireless communications facilities if such installation, operation or maintenance would interfere with Tenant's Permitted Use or communications equipment as determined by radio propagation tests performed by Tenant in its sole discretion. Landlord or Landlord's prospective purchaser shall reimburse Tenant for any costs and expenses of such testing. If the radio frequency propagation tests demonstrate levels of interference unacceptable to Tenant, Landlord shall be prohibited from selling, leasing or using any areas of the Property or the Surrounding Property for purposes of any installation, operation or maintenance of any other wireless communications facility or equipment.

(d) The provisions of this Section shall in no way limit or impair the obligations of Landlord under this Agreement, including interference and access obligations.

23. **RENTAL STREAM OFFER.** If at any time after the date of this Agreement, Landlord receives a bona fide written offer from a third party seeking an assignment or transfer of Rent payments associated with this Agreement ("**Rental Stream Offer**"), Landlord shall immediately furnish Tenant with a copy of the Rental Stream Offer. Tenant shall have the right within twenty (20) days after it receives such copy to match the Rental Stream Offer and agree in writing to match the terms of the Rental Stream Offer. Such writing shall be in the form of a contract substantially similar to the Rental Stream Offer. If Tenant chooses not to exercise this right or fails to provide written notice to Landlord within the twenty (20) day period, Landlord may assign the

right to receive Rent payments pursuant to the Rental Stream Offer, subject to the terms of this Agreement. If Landlord attempts to assign or transfer Rent payments without complying with this Section, the assignment or transfer shall be void. Tenant shall not be responsible for any failure to make payments under this Agreement and reserves the right to hold payments due under this Agreement until Landlord complies with this Section.

24. MISCELLANEOUS.

(a) **Amendment/Waiver.** This Agreement cannot be amended, modified or revised unless done in writing and signed by Landlord and Tenant. No provision may be waived except in a writing signed by both parties. The failure by a party to enforce any provision of this Agreement or to require performance by the other party will not be construed to be a waiver, or in any way affect the right of either party to enforce such provision thereafter.

(b) **Memorandum/Short Form Lease.** Contemporaneously with the execution of this Agreement, the parties will execute a recordable Memorandum or Short Form of Lease substantially in the form attached as **Exhibit 24b**. Either party may record this Memorandum or Short Form of Lease at any time during the Term, in its absolute discretion. Thereafter during the Term of this Agreement, either party will, at any time upon fifteen (15) business days' prior written notice from the other, execute, acknowledge and deliver to the other a recordable Memorandum or Short Form of Lease.

(c) **Limitation of Liability.** Except for the indemnity obligations set forth in this Agreement, and otherwise notwithstanding anything to the contrary in this Agreement, Tenant and Landlord each waives any claims that each may have against the other with respect to consequential, incidental or special damages, however caused, based on any theory of liability.

(d) **Compliance with Law**. Tenant agrees to comply with all federal, state and local laws, orders, rules and regulations ("**Laws**") applicable to Tenant's use of the Communication Facility on the Property. Landlord agrees to comply with all Laws relating to Landlord's ownership and use of the Property and any improvements on the Property.

(e) **Bind and Benefit**. The terms and conditions contained in this Agreement will run with the Property and bind and inure to the benefit of the parties, their respective heirs, executors, administrators, successors and assigns.

(f) **Entire Agreement.** This Agreement and the exhibits attached hereto, all being a part hereof, constitute the entire agreement of the parties hereto and will supersede all prior offers, negotiations and agreements with respect to the subject matter of this Agreement. Exhibits are numbered to correspond to the Section wherein they are first referenced. Except as otherwise stated in this Agreement, each party shall bear its own fees and expenses (including the fees and expenses of its agents, brokers, representatives, attorneys, and accountants) incurred in connection with the negotiation, drafting, execution and performance of this Agreement and the transactions it contemplates.

(g) **Governing Law.** This Agreement will be governed by the laws of the state in which the Premises are located, without regard to conflicts of law.

(h) **Interpretation.** Unless otherwise specified, the following rules of construction and interpretation apply: (i) captions are for convenience and reference only and in no way define or limit the construction of the terms and conditions hereof; (ii) use of the term "including" will be interpreted to mean "including but not limited to"; (iii) whenever a party's consent is required under this Agreement, except as otherwise stated in this Agreement or as same may be duplicative, such consent will not be unreasonably withheld, conditioned or delayed; (iv) exhibits are an integral part of this Agreement and are incorporated by reference into this Agreement; (v) use of the terms "termination" or "expiration" are interchangeable; (vi) reference to a default will take into consideration any applicable notice, grace and cure periods; (vii) to the extent there is any issue with respect to any alleged, perceived or actual ambiguity in this Agreement, the ambiguity shall not be resolved on the basis of who drafted the Agreement; (viii) the singular use of words includes the plural where appropriate and (ix) if any provision of this Agreement is held invalid, illegal or unenforceable, the remaining provisions of this Agreement shall remain in full force if the overall purpose of the Agreement is not rendered impossible and the original purpose, intent or consideration is not materially impaired.

(i) **Affiliates.** All references to "Tenant" shall be deemed to include any Affiliate of New Cingular Wireless PCS, LLC using the Premises for any Permitted Use or otherwise exercising the rights of Tenant pursuant to this Agreement. "Affiliate" means with respect to a party to this Agreement, any person or entity that (directly or indirectly) controls, is controlled by, or under common control with, that party. "Control" of a person or entity means the power (directly or indirectly) to direct the management or policies of that person or entity, whether through the ownership of voting securities, by contract, by agency or otherwise.

(j) **Survival.** Any provisions of this Agreement relating to indemnification shall survive the termination or expiration hereof. In addition, any terms and conditions contained in this Agreement that by their sense and context are intended to survive the termination or expiration of this Agreement shall so survive.

(k) **W-9.** As a condition precedent to payment, Landlord agrees to provide Tenant with a completed IRS Form W-9, or its equivalent, upon execution of this Agreement and at such other times as may be reasonably requested by Tenant, including, any change in Landlord's name or address.

(l) **Execution/No Option.** The submission of this Agreement to any party for examination or consideration does not constitute an offer, reservation of or option for the Premises based on the terms set forth herein. This Agreement will become effective as a binding Agreement only upon the handwritten legal execution, acknowledgment and delivery hereof by Landlord and Tenant. This Agreement may be executed in two (2) or more counterparts, all of which shall be considered one and the same agreement and shall become effective when one or more counterparts have been signed by each of the parties. All parties need not sign the same counterpart.

(m) **Attorneys' Fees.** In the event that any dispute between the parties related to this Agreement should result in litigation, the prevailing party in such litigation shall be entitled to recover from the other party all reasonable fees and expenses of enforcing any right of the prevailing party, including without limitation, reasonable attorneys' fees and expenses. Prevailing party means the party determined by the court to have most nearly prevailed even if such party did not prevail in all matters. This provision will not be construed to entitle any party other than Landlord, Tenant and their respective Affiliates to recover their fees and expenses.

(n) **WAIVER OF JURY TRIAL.** EACH PARTY, TO THE EXTENT PERMITTED BY LAW, KNOWINGLY, VOLUNTARILY AND INTENTIONALLY WAIVES ITS RIGHT TO A TRIAL BY JURY IN ANY ACTION OR PROCEEDING UNDER ANY THEORY OF LIABILITY ARISING OUT OF OR IN ANY WAY CONNECTED WITH THIS AGREEMENT OR THE TRANSACTIONS IT CONTEMPLATES.

[SIGNATURES AND ACKNOWLEDGMENTS APPEAR ON NEXT PAGES]

IN WITNESS WHEREOF, the parties have caused this Agreement to be effective as of the last date written below.

"LANDLORD"

Timothy Lee Brooks and Cynthia L. Brooks

By: Timothy Lee Brooks
Print Name: Timothy Lee Brooks
Its:
Date: 4-18-17

By: Cynthia L. Brooks
Print Name: Cynthia L. Brooks
Its:
Date: 4-18-17

LANDLORD ACKNOWLEDGMENT

STATE OF KENTUCKY)

) ss:

COUNTY OF BUTLER)

On the 18th day of April, 2017 before me, personally appeared Timothy Lee Brooks and Cynthia L. Brooks, who acknowledged under oath, that he/she/they is/are the person/officer named in the within instrument, and that he/she/they executed the same in his/her/their stated capacity as the voluntary act and deed of the Landlord for the purposes therein contained.

Melissa Iler
Notary Public: Melissa Iler
My Commission Expires: 4 27 2019
ID 531860

"TENANT"
New Cingular Wireless PCS, LLC,
a Delaware limited liability company
By: AT&T Mobility Corporation
Its: Manager

By: _____
Print Name: Bryan Coleman
Its: Area Manager Network Engineering
Gulf States/TNKY Site Acquisition
Date: 5/18/2017

TENANT ACKNOWLEDGMENT

STATE OF ALABAMA)
) ss:
COUNTY OF JEFFERSON)

On the 18 day of May, 2017, before me personally appeared Bryan Coleman and acknowledged under oath that he is the Area Manager Network Engineering Gulf States/TNKY Site Acquisition of AT&T Mobility Corporation, the Manager of New Cingular Wireless PCS, LLC, the Tenant named in the attached instrument, and as such was authorized to execute this instrument on behalf of the Tenant.

KATHY M. MCLAUGHLIN
NOTARY PUBLIC
ALABAMA STATE AT LARGE

_____
Notary Public: Kathy M. McLaughlin
My Commission Expires: 10-26-2020

EXHIBIT 1

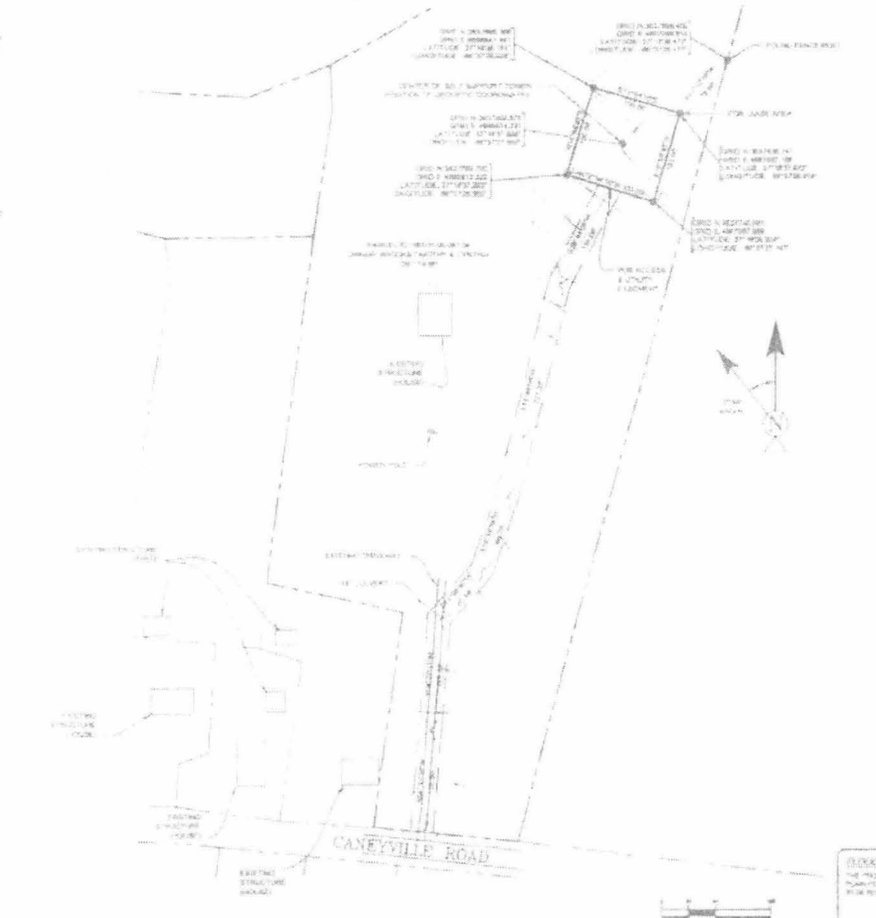
DESCRIPTION OF PREMISES

to the Option and Lease Agreement dated May 18, 2017, by and between Timothy Lee Brooks and Cynthia L. Brooks, a married couple, as Landlord, and New Cingular Wireless PCS, LLC, a Delaware limited liability company, as Tenant.

The Property is legally described as follows:

DB 119, Pg 361

BEGINNING on an iron pin set in the North right of way line of Kentucky Highway No. 79, and a new corner for Leon Brooks; thence with the new line for Leon Brooks N 11 degrees 35 min. E 1,061.00 feet to an iron pin in the center of a branch; thence with the meanders of the said branch but when reduced to a straight line N 69 degrees 45 minutes W 225.00 feet to an iron pin; thence still with the meanders of the branch but when reduced to a straight line S 48 degrees 35 minutes W 305.00 feet to an iron pin; thence with the line of Renfrow, passing Renfrow's corner and with the line of Guilaran S 2 degrees 00 minutes W 670.00 feet to a sugar tree, corner to Troy Evans Estate lot; thence with the line of Troy Evans S 69 degrees 30 minutes E 150.00 feet to an iron pin; thence with another line of Troy Evans S 6 degrees 30 minutes W 200.00 feet to an iron post set in the north right of way line of Kentucky Highway No. 79; thence with the right of way line of the aforesaid Highway S 86 degrees 50 minutes E 144.00 feet to the beginning, containing 7.44 acres, more or less.



LEGEND

POB	POINT OF BEGINNING		SPOT ELEVATION
POT	POINT OF TERMINUS		POSITION OF GEODETIC COORDINATES
PUE	PUBLIC UTILITY EASEMENT		WATER CONTROL VALVE
ROW	RIGHT OF WAY		FIRE HYDRANT
DW	DRIVEWAY		POWER POLE
SW	SIDEWALK		ELECTRIC MANHOLE
	SET 5/8"x24" IR CAPPED #3219 OR FOUND AS NOTED		TELCO MANHOLE

OVERHEAD ELECTRIC — PROPERTY LINE — BARBED WIRE FENCE

LAND SURVEYOR'S CERTIFICATE

3.27.17

at&t

MasTec

IRISH TOWER

13800714

KYL03684

WELCOME RD

5545 CANEYVILLE RD
MORGANTOWN KY 42261
BUTLER COUNTY

TOPOGRAPHIC
SITE
SURVEY

B-1

Timothy L Brooks
Cynthia Brooks

EXHIBIT 11

ENVIRONMENTAL DISCLOSURE

Landlord represents and warrants that the Property, as of the date of this Agreement, is free of hazardous substances except as follows:

1. NONE.

EXHIBIT 12

STANDARD ACCESS LETTER

[FOLLOWS ON NEXT PAGE]

[Landlord Letterhead]

DATE

Building Staff / Security Staff
Landlord, Lessee, Licensee
Street Address
City, State, Zip

Re: Authorized Access granted to AT&T

Dear Building and Security Staff,

Please be advised that we have signed a lease with AT&T permitting AT&T to install, operate and maintain telecommunications equipment at the property. The terms of the lease grant AT&T and its representatives, employees, agents and subcontractors ("representatives") 24 hour per day, 7 day per week access to the leased area.

To avoid impact on telephone service during the day, AT&T representatives may be seeking access to the property outside of normal business hours. AT&T representatives have been instructed to keep noise levels at a minimum during their visit.

Please grant the bearer of a copy of this letter access to the property and to leased area. Thank you for your assistance.

Timothy Lee Brooks
Landlord Signature

EXHIBIT J
NOTIFICATION LISTING

Welcome Rd – Notice List

BROOKS TIMOTHY & CYNTHIA
5545 CANEYVILLE RD
MORGANTOWN KY 42261

DAUGHERTY TIMOTHY & PATRICIA
477 LONNIE SNODGRASS RD
MORGANTOWN KY 42261

HENDERSON KEVIN
355 LONNIE SNODGRASS RD
MORGANTOWN KY 42261

WHITTINGHILL DAVID & COTY D
203 LONNIE SNODGRASS RD
MORGANTOWN KY 42261

BROOKS RAVEN ELIZABETH
5545 CANEYVILLE RD
MORGANTOWN KY 42261

DOTSON MARJORIE
121 SALLY CIRCLE
BOWLING GREEN KY 42101

BROOKS SETH TYLER %JAMES LEE KIPER
2051 HUDSON RD
CANEYVILLE KY 42721

BROOKS TIMOTHY L %BROOKS LEON
69 WOODLAN DR
MORGANTOWN KY 42261

NEW SOUTH CONFERENCE OF THE FREE METHODIST CHURCH
8744 BARREN RIVER RD BLDG 2
BOWLING GREEN KY 42101

HACK ROGER & STELLA
P O BOX 553
MORGANTOWN KY 42261

NEIGHBORS CHRIS & TAWNYA
5501 CANEYVILLE RD
MORGANTOWN KY 42261

HAVENS RAY
5337 CANEYVILLE RD
MORGANTOWN KY 42261

HARRIS EARL & DELLAH
2430 DEXTERVILLE OAK RIDGE RD
MORGANTOWN KY 42261

SMITH SHAWN DAVID & ANDREA ELLEN
16 WOODLAN DR
MORGANTOWN KY 42261

TICHENOR SANDRA C
55 WOODLAN DR
MORGANTOWN KY 42261

Hon. David Fields
Butler County Judge Executive
P.O. Box 626
Morgantown, KY 42261

EXHIBIT K
COPY OF PROPERTY OWNER NOTIFICATION

PIKE
LEGAL

1578 Highway 44 East, Suite 6
P.O. Box 369
Shepherdsville, KY 40165-0369
Phone (502) 955-4400 or (800) 516-4293
Fax (502) 543-4410 or (800) 541-4410

Notice of Proposed Construction of
Wireless Communications Facility
Site Name: Welcome Rd

Dear Landowner:

New Cingular Wireless PCS, LLC, a Delaware limited liability company, d/b/a AT&T Mobility has filed an application with the Kentucky Public Service Commission ("PSC") to construct a new wireless communications facility on a site located at 5545 Caneyville Road, Morgantown, Kentucky (37°18'37.54" North latitude, 86°37'27.59" West longitude). The proposed facility will include a 255-foot tall antenna tower, plus a 15-foot lightning arrestor and related ground facilities. This facility is needed to provide improved coverage for wireless communications in the area.

This notice is being sent to you because the Butler County Property Valuation Administrator's records indicate that you may own property that is within a 500' radius of the proposed tower site or contiguous to the property on which the tower is to be constructed. You have a right to submit testimony to the Kentucky Public Service Commission ("PSC"), either in writing or to request intervention in the PSC's proceedings on the application. You may contact the PSC for additional information concerning this matter at: Kentucky Public Service Commission, Executive Director, 211 Sower Boulevard, P.O. Box 615, Frankfort, Kentucky 40602. Please refer to docket number 2017-00369 in any correspondence sent in connection with this matter.

In addition to expanding and improving voice and data service for AT&T mobile customers, this site will also provide wireless local loop ("WLL") broadband internet service to homes and businesses in the area. WLL will support internet access at the high speeds required to use and enjoy the most current business, education and entertainment technologies.

We have attached a map showing the site location for the proposed tower. AT&T Mobility's radio frequency engineers assisted in selecting the proposed site for the facility, and they have determined it is the proper location and elevation needed to provide quality service to wireless customers in the area. Please feel free to contact us toll free at (800) 516-4293 if you have any comments or questions about this proposal.

Sincerely,
David A. Pike
Attorney for Applicant

enclosure

Driving Directions to Proposed Welcome Rd Tower Site

1. Beginning at the offices of the Butler County Clerk located at 110 North Main Street, Morgantown, KY, head southwest on North Main Street and travel approximately 157 feet.
2. Turn right at the 1st cross street onto US-231 N/W G L Smith St.
3. Continue travelling on US-231 N/W G L Smith St and travel approximately 2.4 miles.
4. Turn right onto KY-70 E/KY-79N and travel approximately 5.5 miles.
5. The site will be on the left at 5545 Caneyville Rd in Morgantown, KY.
6. The site coordinates are
    a. North 37 deg 18 min 37.54 sec
    b. West 86 deg 37 min 27.59 sec

Prepared by:
Robert Grant
Pike Legal Group PLLC
1578 Highway 44 East, Suite 6
P.O. Box 369
Shepherdsville, KY 40165-3069
Telephone: 502-955-4400 or 800-516-4293

EXHIBIT L
COPY OF COUNTY JUDGE/EXECUTIVE NOTICE

PIKE
LEGAL

1578 Highway 44 East, Suite 6
P.O. Box 369
Shepherdsville, KY 40165-0369
Phone (502) 955-4400 or (800) 516-4293
Fax (502) 543-4410 or (800) 541-4410

VIA CERTIFIED MAIL

Hon. David Fields
Butler County Judge Executive
P.O. Box 626
Morgantown, KY 42261

RE: Notice of Proposal to Construct Wireless Communications Facility
Kentucky Public Service Commission Docket No. 2017-00369
Site Name: Welcome Rd

Dear Judge Fields:

New Cingular Wireless PCS, LLC, a Delaware limited liability company, d/b/a AT&T Mobility has filed an application with the Kentucky Public Service Commission ("PSC") to construct a new wireless communications facility on a site located at 5545 Caneyville Road, Morgantown, Kentucky (37°18'37.54" North latitude, 86°37'27.59" West longitude). The proposed facility will include a 255-foot tall antenna tower, plus a 15-foot lightning arrestor and related ground facilities. This facility is needed to provide improved coverage for wireless communications in the area.

You have a right to submit comments to the PSC or to request intervention in the PSC's proceedings on the application. You may contact the PSC at: Executive Director, Public Service Commission, 211 Sower Boulevard, P.O. Box 615, Frankfort, Kentucky 40602. Please refer to docket number 2017-00369 in any correspondence sent in connection with this matter.

In addition to expanding and improving voice and data service for AT&T mobile customers, this site will also provide wireless local loop ("WLL") broadband internet service to homes and businesses in the area. WLL will support internet access at the high speeds required to use and enjoy the most current business, education and entertainment technologies.

We have attached a map showing the site location for the proposed tower. AT&T Mobility's radio frequency engineers assisted in selecting the proposed site for the facility, and they have determined it is the proper location and elevation needed to provide quality service to wireless customers in the area. Please feel free to contact us with any comments or questions you may have.

Sincerely,
David A. Pike
Attorney for Applicant
enclosure

Driving Directions to Proposed Welcome Rd Tower Site

1. Beginning at the offices of the Butler County Clerk located at 110 North Main Street, Morgantown, KY, head southwest on North Main Street and travel approximately 157 feet.
2. Turn right at the 1st cross street onto US-231 N/W G L Smith St.
3. Continue travelling on US-231 N/W G L Smith St and travel approximately 2.4 miles.
4. Turn right onto KY-70 E/KY-79N and travel approximately 5.5 miles.
5. The site will be on the left at 5545 Caneyville Rd in Morgantown, KY.
6. The site coordinates are
    a. North 37 deg 18 min 37.54 sec
    b. West 86 deg 37 min 27.59 sec

Prepared by:
Robert Grant
Pike Legal Group PLLC
1578 Highway 44 East, Suite 6
P.O. Box 369
Shepherdsville, KY 40165-3069
Telephone: 502-955-4400 or 800-516-4293

EXHIBIT M
COPY OF POSTED NOTICES

SITE NAME: WELCOME ROAD
NOTICE SIGNS

The signs are at least (2) feet by four (4) feet in size, of durable material, with the text printed in black letters at least one (1) inch in height against a white background, except for the word "**tower**," which is at least four (4) inches in height.

New Cingular Wireless PCS, LLC, a Delaware limited liability company, d/b/a AT&T Mobility proposes to construct a telecommunications **tower** on this site. If you have questions, please contact Pike Legal Group, PLLC, P.O. Box 369, Shepherdsville, KY 40165; telephone: (800) 516-4293, or the Executive Director, Public Service Commission, 211 Sower Boulevard, PO Box 615, Frankfort, Kentucky 40602. Please refer to docket number 2017-00369 in your correspondence.

New Cingular Wireless PCS, LLC, a Delaware limited liability company, d/b/a AT&T Mobility proposes to construct a telecommunications **tower** near this site. If you have questions, please contact Pike Legal Group, PLLC, P.O. Box 369, Shepherdsville, KY 40165; telephone: (800) 516-4293, or the Executive Director, Public Service Commission, 211 Sower Boulevard, PO Box 615, Frankfort, Kentucky 40602. Please refer to docket number 2017-00369 in your correspondence.

PIKE LEGAL

1578 Highway 44 East, Suite 6
P.O. Box 369
Shepherdsville, KY 40165-0369
Phone (502) 955-4400 or (800) 516-4293
Fax (502) 543-4410 or (800) 541-4410

VIA TELEFAX: 270-526-3111

The Butler County Banner – Green River Republican
Attn: Public Notice Ad Placement
120 E. Ohio Street
Morgantown, KY 42261

RE: Legal Notice Advertisement
Site Name: Welcome Road

Dear Butler County Banner – Green River Republican:

Please publish the following legal notice advertisement in the next edition of *The Butler County Banner – Green River Republican*:

NOTICE

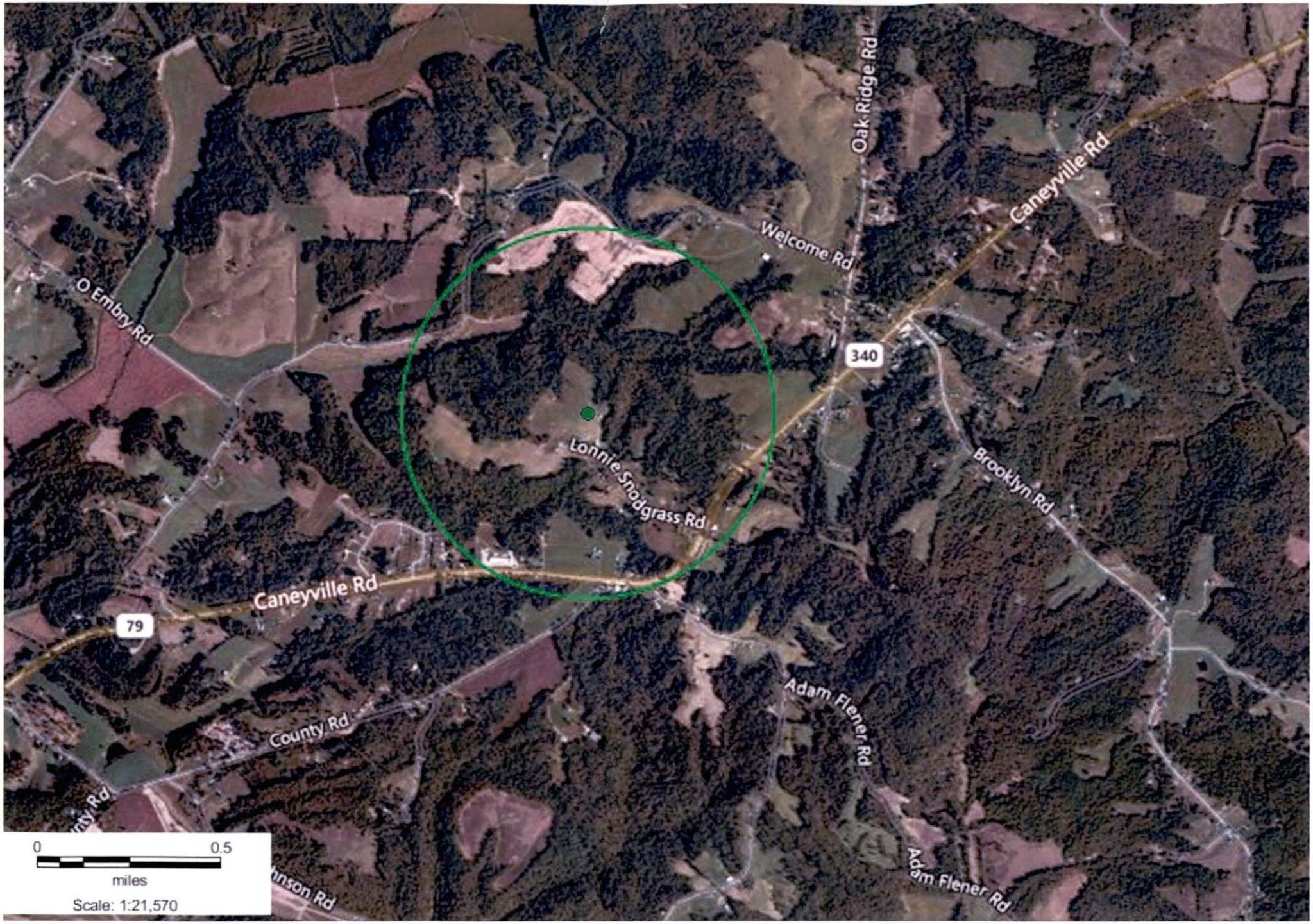
New Cingular Wireless PCS, LLC, a Delaware limited liability company, d/b/a AT&T Mobility has filed an application with the Kentucky Public Service Commission ("PSC") to construct a new wireless communications facility on a site located at 5545 Caneyville Road, Morgantown, Kentucky (37°18'37.54" North latitude, 86°37'27.59" West longitude). You may contact the PSC for additional information concerning this matter at: Kentucky Public Service Commission, Executive Director, 211 Sower Boulevard, P.O. Box 615, Frankfort, Kentucky 40602. Please refer to docket number 2017-00369 in any correspondence sent in connection with this matter.

After this advertisement has been published, please forward a tearsheet copy, affidavit of publication, and invoice to Pike Legal Group, PLLC, P. O. Box 369, Shepherdsville, KY 40165. Please call me at (800) 516-4293 if you have any questions. Thank you for your assistance.

Sincerely,

Robert Grant
Pike Legal Group, PLLC

EXHIBIT N
COPY OF RADIO FREQUENCY DESIGN SEARCH AREA



.at: 37.314559
.on: -86.622846
!adius: .5 miles

Welcome Rd Search Area