

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

In the Matter of:

APPLICATION OF VERTICAL BRIDGE DEVELOPMENT, LLC AND)
NEW CINGULAR WIRELESS PCS, LLC DBA AT&T MOBILITY)
FOR ISSUANCE OF A CERTIFICATE OF PUBLIC)
CONVENIENCE AND NECESSITY TO CONSTRUCT) **CASE:**
A WIRELESS COMMUNICATIONS FACILITY AT) **2020-00270**
STATE ROUTE 2194W, HICKORY)
GRAVES COUNTY, KENTUCKY 42051)

SITE NAME: US-KY-5040 / WORKMAN ROAD

**APPLICATION FOR CERTIFICATE
OF PUBLIC CONVENIENCE AND NECESSITY
TO CONSTRUCT A WIRELESS COMMUNICATIONS FACILITY**

Vertical Bridge Development, LLC, a Delaware limited liability company, and New Cingular Wireless PCS, LLC, a Delaware limited liability company dba AT&T Mobility (“Applicant”), by counsel, pursuant to (i) KRS §§ 278.020, 278.040, 278.665 and the rules and regulations applicable thereto, and (ii) the Telecommunications Act of 1996, respectfully submits this Application requesting the 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 telecommunication services. In support of this Application, Applicant respectfully provides and states the following:

1. The complete name and addresses of the Applicant are: Vertical Bridge Development, LLC, a Delaware limited liability company, 750 Park of Commerce Drive, Suite 200, Boca Raton, FL 33487 and New Cingular Wireless

PCS, LLC, a Delaware limited liability company dba AT&T Mobility, 601 West Chestnut Street, Louisville, KY 40203.

2. A copy of the Certificate of Authorization for New Cingular Wireless PCS, LLC is attached as **Exhibit A**. A copy of the Certificate of Authorization for Vertical Bridge Development, LLC is also included as part of **Exhibit A**.

3. Applicant proposes construction of an antenna tower in Graves County, Kentucky, in an area which is outside the jurisdiction of a planning commission and Applicant submits the Application to the PSC for a CPCN pursuant to KRS §§ 278.020(1), 278.040, 278.650, and 278.665, and other statutory authority.

4. 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 enhancing coverage and/or capacity and thereby increasing the public's access to wireless communication services. 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.

5. To address the above-described service needs, Applicant proposes to construct a WCF at State Route 2194 W, Hickory, Kentucky 42051 (36° 50' 23.71" North Latitude, 88° 40' 32.73" West Longitude (NAD 83)), in an area entirely within Graves County. The property in which the WCF will be located is currently owned by Elvis Zeak Rambo and Judy C. Rambo, pursuant to Deed of record in Deed Book 463, Page 744 in the Office of the Graves County Clerk and subject to an Option and Lease Agreement and First Amendment to Option and Lease Agreement, copies of both attached as **Exhibit I**. The proposed WCF will consist of a 300-foot guyed tower with an approximately 10-foot tall lightning arrestor attached to the top of the tower for a total height of 310 feet. The WCF

will also include concrete foundations to accommodate the placement of a prefabricated equipment platform. The WCF compound will be fenced and all access gate(s) will be secured. A detailed site development plan and survey, signed and sealed by a professional land surveyor registered in Kentucky is attached as **Exhibit B**.

6. A detailed description of the manner in which the WCF will be constructed is included in the site plan and a vertical tower profile signed and sealed by a professional engineer registered in Kentucky is attached as **Exhibits B and C**. Foundation design plans and a description of the standards according to which the tower was designed which have been signed and sealed by a professional engineer registered in Kentucky are attached as **Exhibit D**.

7. A geotechnical engineering report was performed at the WCF site by EGSci Consulting Inc., dated August 5, 2020 and is attached as **Exhibit E**. The name and address of the geotechnical engineering firm and the professional engineer registered in Kentucky who prepared the report are included as part of **Exhibit E**.

8. A list of public utilities, corporations, and/or persons with whom the proposed WCF is likely to compete is attached as **Exhibit F**.

9. A copy of the Federal Aviation Administration's Determination of No Hazard to Air Navigation is attached as **Exhibit G**. The Kentucky Airport Zoning Commission Approval of Application is also attached as **Exhibit G**.

10. The Applicant operates on frequencies licensed by the Federal Communications Commission ("FCC") pursuant to applicable federal requirements. Copies of the license(s) are attached as **Exhibit H**. The WCF has been designed and will be built and operated in accordance with all applicable

FCC and FAA regulations. Appropriate FCC required signage will be posted on the site.

11. Based on the review of Federal Emergency Management Agency Flood Insurance Rate Map, the licensed, professional land surveyor has noted in **Exhibit B** that the Flood Insurance Rate Map (FIRM) No. 21083C0150C dated December 3, 2009, indicates that the proposed WCF is located within Zone X an area of minimal flood hazard.

12. Personnel directly responsible for the design and construction of the proposed WCF are well qualified and experienced. The Construction Manager for the WCF is Andy Smith and his credentials are included in **Exhibit D**.

13. Clear directions to the proposed WCF site from the county seat are attached as **Exhibit I**, including the name and telephone number of the preparer.

14. Applicant has notified, by certified mail, return receipt requested, every person of the proposed construction who, according to the records of the Graves County Property Valuation Administrator, owns property which is within 500 feet of the proposed tower or is contiguous to the site property as shown on scaled drawing attached as **Exhibit J**. Applicant included in said notices the docket number under which the Application will be processed and informed each person of his or her right to request intervention. A list of the property owners who received notices along with the notices are attached as **Exhibit J**. The drawing found in **Exhibit J** also depicts every structure and easement within 500' of the proposed tower and/or 200' within the access road including the intersection with the public right of way.

15. Applicant has notified the Graves County Judge Executive by certified mail, return receipt requested, of the proposed construction. The notice

included the docket number under which the Application will be processed and informed the Graves County Judge Executive of his right to request intervention. A copy of the notice is attached as **Exhibit K**.

16. Pursuant to 807 KAR 5:063, Applicant affirms that two notice signs measuring at least two feet by four feet in size with all required language in letters of required height have been posted in a visible location on the proposed site and on the nearest road. A copy of the posted text found on the signs is attached as **Exhibit L**. Such signs shall remain posted for at least two weeks after filing the Application. Notice of the proposed construction has been posted in a newspaper of general circulation in the county in which the construction is proposed (*The Mayfield Messenger*).

17. The site of the proposed WCF is located in a rural area near Hickory, Kentucky. The current use of the property is agriculture.

18. Applicant has considered the likely effects of the proposed construction on nearby land uses and values and has concluded that there is no more suitable location reasonably available from which adequate service to the area can be provided. Applicant carefully evaluated locations within the search area for co-location opportunities and found no suitable towers or other existing structures that met the requirements necessary in providing adequate service to the area. A statement from Applicant's RF Deployment Engineer is attached as **Exhibit N**. When suitable towers or structures exist, Applicant has attempted to co-locate on towers designed to host multiple wireless service providers' facilities or existing structures, such as a telecommunications tower or another suitable structure capable of supporting the Applicant's facilities.

19. A map of the area in which the proposed WCF is located, that is drawn to scale and that clearly depicts the search area in which a site should, pursuant to radio frequency requirements, be located is attached as **Exhibit M**.

20. Correspondence and communication regarding this Application should be directed to:

Todd R. Briggs
Briggs Law Office, PSC
10200 Forest Green Blvd
Suite 112
Louisville, KY 40223
(844) 331-3402
todd@briggslawoffice.net

WHEREFORE, Applicant respectfully requests that the PSC accept the foregoing application for filing and enter an order granting a Certificate of Public Convenience and Necessity to Applicant for construction and operation of the proposed WCF and providing for such other relief as is necessary and appropriate.

Respectfully submitted,

Todd R. Briggs
Briggs Law Office, PSC
10200 Forest Green Blvd
Suite 112
Louisville, KY 40223
Telephone (844) 331-3402
Counsel for Applicant

LIST OF EXHIBITS

Exhibit A	Certificate(s) of Authorization
Exhibit B	Site Development Plan and Survey
Exhibit C	Vertical Tower Profile
Exhibit D	Structural and Foundation Design Report
Exhibit E	Geotechnical Engineering Report
Exhibit F	Competing Utilities List
Exhibit G	FAA Determination of No Hazard to Air Navigation KAZC Approval Letter
Exhibit H	FCC Documentation
Exhibit I	Directions to Site Copy of Lease Agreement
Exhibit J	Notification Listing Abutter's Map Copy of Property Owner Notices
Exhibit K	Copy of County Judge Executive Notice
Exhibit L	Copy of Posted Notices
Exhibit M	Map of Search Area

Exhibit A
Certificate(s) of Authorization

Commonwealth of Kentucky
Michael G. Adams, Secretary of State

Michael G. Adams
Secretary of State
P. O. Box 718
Frankfort, KY 40602-0718
(502) 564-3490
<http://www.sos.ky.gov>

Certificate of Authorization

Authentication number: 235408
Visit <https://web.sos.ky.gov/ftshow/certvalidate.aspx> to authenticate this certificate.

I, Michael G. Adams, Secretary of State of the Commonwealth of Kentucky, do hereby certify that according to the records in the Office of the Secretary of State,

NEW CINGULAR WIRELESS PCS, LLC

, a limited liability company authorized under the laws of the state of Delaware, is authorized to transact business in the Commonwealth of Kentucky, and received the authority to transact business in Kentucky on October 14, 1999.

I further certify that all fees and penalties owed to the Secretary of State have been paid; that an application for certificate of withdrawal has not been filed; and that the most recent annual report required by KRS 14A.6-010 has been delivered to the Secretary of State.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Official Seal at Frankfort, Kentucky, this 26th day of August, 2020, in the 229th year of the Commonwealth.



Michael G. Adams

Michael G. Adams
Secretary of State
Commonwealth of Kentucky
235408/0481848

Commonwealth of Kentucky
Michael G. Adams, Secretary of State

Michael G. Adams
Secretary of State
P. O. Box 718
Frankfort, KY 40602-0718
(502) 564-3490
<http://www.sos.ky.gov>

Certificate of Authorization

Authentication number: 235487
Visit <https://web.sos.ky.gov/ftshow/certvalidate.aspx> to authenticate this certificate.

I, Michael G. Adams, Secretary of State of the Commonwealth of Kentucky, do hereby certify that according to the records in the Office of the Secretary of State,

VERTICAL BRIDGE DEVELOPMENT, LLC

, a limited liability company authorized under the laws of the state of Delaware, is authorized to transact business in the Commonwealth of Kentucky, and received the authority to transact business in Kentucky on June 10, 2019.

I further certify that all fees and penalties owed to the Secretary of State have been paid; that an application for certificate of withdrawal has not been filed; and that the most recent annual report required by KRS 14A.6-010 has been delivered to the Secretary of State.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Official Seal at Frankfort, Kentucky, this 28th day of August, 2020, in the 229th year of the Commonwealth.



Michael G. Adams

Michael G. Adams
Secretary of State
Commonwealth of Kentucky
235487/1061433

Exhibit B
Site Development Plan and Survey

verticalbridge

WORKMAN / KY-5040 300' GUYED TOWER

verticalbridge

750 PARK OF COMMERCE DRIVE
SUITE 200
BOCA RATON, FL 33487

PLANS PREPARED BY:

Kimley»Horn

655 NORTH FRANKLIN STREET, SUITE 150
TAMPA, FL 33602
PHONE (813) 620-1460
WWW.KIMLEY-HORN.COM

REV: DATE: DESCRIPTION: BY:

REV	DATE	DESCRIPTION	BY
1	08/25/2020	REVISED PER COMMENTS	NAP
0	06/10/2020	FINAL	RRJ

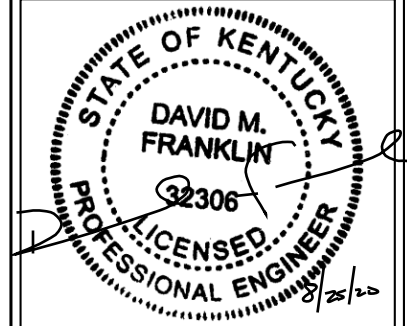
DRAWN BY: CHECKED BY:

RRJ RRJ

KHA PROJECT NUMBER:

140064062

ENGINEER SEAL:



PROJECT INFORMATION:

WORKMAN
KY-5040

1882 STATE ROUTE 2194 W
HICKORY, KY 42051
GRAVES COUNTY

SHEET TITLE:

TITLE SHEET

SHEET NUMBER:

T-1

SITE INFORMATION

SITE NAME: WORKMAN
SITE NUMBER: KY-5040
ADDRESS: 1882 STATE ROUTE 2194 W
HICKORY, KY 42051
PROPERTY OWNER: ELVIS ZEAK & JUDY C. RAMBO
APPLICANT: VERTICAL BRIDGE DEVELOPMENT, LLC
PARCEL NUMBER: 069.00.00.083.03
ACREAGE OF PARENT PARCEL: PARCEL ACREAGE 22.33± AC
ACREAGE OF PROPOSED LEASE AREA: 0.2296 ACRES
PARCEL'S ZONING DISTRICT: N/A
PARCEL'S FUTURE LAND USE: N/A
SITE TYPE: RAWLAND
COUNTY: GRAVES
JURISDICTION: GRAVES COUNTY
SITE COORDINATES: N 36° 50' 23.71" (LAT)
W 88° 40' 32.73" (LON)
STRUCTURE TYPE: GUYED TOWER
TOWER HEIGHT: 300' AGL
STRUCTURE HEIGHT: 310' AGL
**THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION;
THEREFORE, THERE IS NO HANDICAP ACCESS REQUIRED.**
**THE PROPOSED FACILITY IS NOT INTENDED FOR PERMANENT
EMPLOYEE OCCUPANCY; THEREFORE, ADDITIONAL SITE PARKING IS
NOT REQUIRED.**
**OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND
INSPECTION BY TECHNICIANS APPROXIMATELY ONCE A MONTH.**
**DOES NOT REQUIRE POTABLE WATER, SEPTIC TANKS OR SANITARY
SERVICE.**

CODE NOTE

THE PROFESSIONAL ENGINEER SIGNATURE AND SEAL ON THIS PAGE IS INCORPORATED ON PAGES/SHEETS ATTACHED HERETO TO THE EXTENT REQUIRED BY 807 KAR 5:063(1)(1)(H).

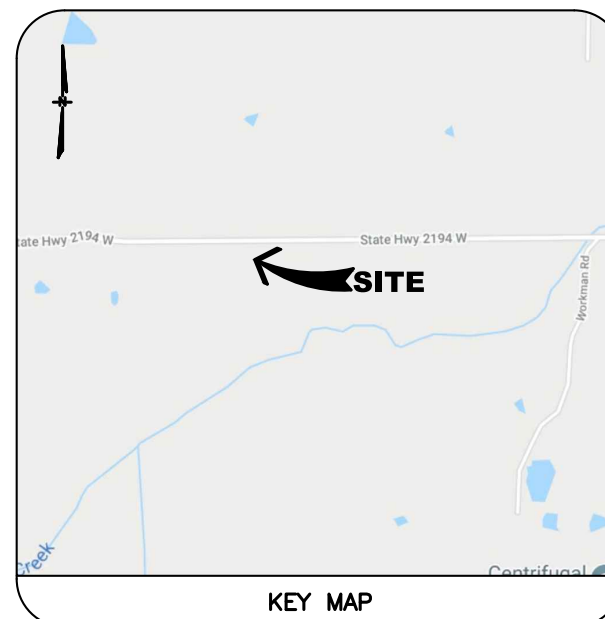
PROJECT SCOPE OF WORK:

THIS PROJECT CONSISTS OF A 300' GUYED TOWER WITH FOUNDATION, FENCING, AND ASSOCIATED GROUND WORK.

DIRECTIONS:

PROCEED FROM GRAVES COUNTY (101 E SOUTH ST, MAYFIELD, KY), HEAD WEST ON E SOUTH ST TOWARD W SOUTH ST 177 FT / TURN RIGHT ONTO US-45 / S 7TH ST 1 MI / TURN LEFT ONTO KY-121 / S CASTLEMAN BYP TOWARD HOSPITAL / WICKLIFFE 4.8 MI / TURN RIGHT ONTO KY-440 0.6 MI / BEAR RIGHT ONTO KY-945 1.6 MI / BEAR RIGHT ONTO KY-2194 / MERIDIAN RD 0.9 MI / TURN RIGHT TO STAY ON KY-2194 / STATE ROUTE 2194 W 0.1 MI / DESTINATION IS ON THE RIGHT.

THE CONTRACTOR MUST VERIFY ALL FIELD MEASUREMENTS AND CONDITIONS PRIOR TO BID AND TO COMMENCEMENT OF CONSTRUCTION.



SHEET INDEX

SHEET NO.	SHEET DESCRIPTION
T-1	TITLE SHEET
SV-1	SURVEY (BY OTHERS)
SV-2	SURVEY (BY OTHERS)
SV-3	SURVEY (BY OTHERS)
SV-4	SURVEY (BY OTHERS)
SV-5	SURVEY (BY OTHERS)
A-1	AERIAL SITE PLAN
Z-1	SETBACK PLAN
Z-2	OVERALL SITE PLAN
Z-3	ENLARGED SITE PLAN
Z-4	FENCE AND SIGN DETAILS
Z-5	TOWER ELEVATION

BUILDING CODES AND STANDARDS

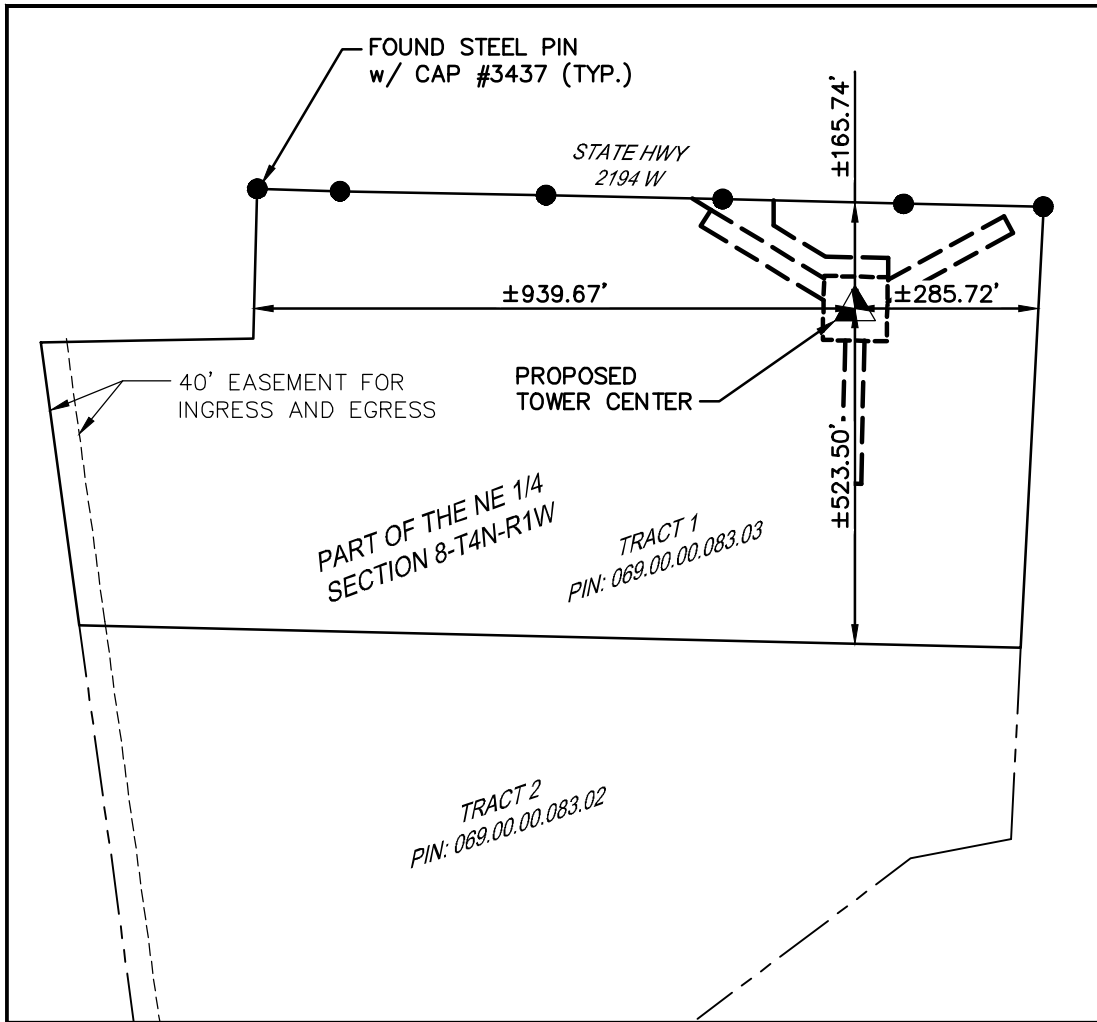
ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

KENTUCKY BUILDING CODE: KBC 2018
BUILDING/DWELLING CODE: KBC 2018
STRUCTURAL CODE: KBC 2018
PLUMBING CODE: KBC 2018
MECHANICAL CODE: KBC 2018
ELECTRIC CODE: NEC 2017
FIRE/LIFE SAFETY CODE: KBC 2018
DESIGN WIND SPEED: 115 MPH
RISK CATEGORY: II
EXPOSURE CATEGORY: C

RISK CATEGORY DESIGN WIND SPEEDS ARE BASED ON ASCE 7-10 CRITERIA FOR A 3-SECOND GUST. REFER TO STRUCTURAL ANALYSIS IN THE EVENT A CONFLICT ARISES BETWEEN STANDARD REQUIREMENTS AND LISTED CODES, THE MORE RESTRICTIVE REQUIREMENT WILL TAKE PRECEDENCE.



WWW.811NOW.COM



DESCRIPTION OF PARENT PARCEL

SEE SHEET SUR-5

SCHEDULE 'B' - SECTION II ITEMS

- ITEM 1: PLAT RECORDED IN PLAT BOOK C, PAGE 219. (DOES NOT AFFECT PROPOSED LEASE AREA OR EASEMENTS)
- ITEM 2: PLAT RECORDED IN MAP BOOK 5, PAGE 129. (DOES NOT AFFECT PROPOSED LEASE AREA OR EASEMENTS)
- ITEM 3: RIGHT-OF-WAY DEED IN FAVOR OF THE COUNTY OF GRAVES, KENTUCKY, SET FORTH IN INSTRUMENT RECORDED ON 09/11/1973 IN DEED BOOK 220, PAGE 605. (DOES NOT AFFECT PROPOSED LEASE AREA OR EASEMENTS)

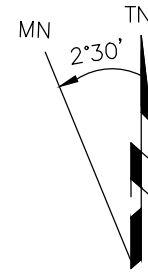
TOWER INFORMATION

TOWER TYPE	HEIGHT	RATIO
GUYED	310.0'	80%

SITE SURVEY

PROPERTY OWNERS: ELVIS ZEAK & JUDY C. RAMBO

TN=TRUE NORTH
 MN=MAGNETIC NORTH
 (MAGNETIC DECLINATION TAKEN FROM NATIONAL GEODETIC SURVEY WEB SITE FOR THIS AREA, 05/08/2018) CHANGING BY 0'5" WEST PER YEAR (PLUS OR MINUS 0'21'.)



GEOGRAPHIC COORDINATES

LATITUDE:	36°50'23.71"	NAD83
LONGITUDE:	88°40'32.73"	NAD83
SITE ELEVATION:	428 FEET	NAVD88

UTILITY NOTE

THE LOCATIONS OF UTILITY MAINS, STRUCTURES, AND SERVICE CONNECTIONS PLOTTED ON THIS DRAWING ARE APPROXIMATE ONLY AND WERE OBTAINED FROM RECORDS MADE AVAILABLE TO SURVEYOR THERE MAY BE OTHER EXISTING UTILITY MAINS, STRUCTURES, AND SERVICE CONNECTIONS NOT KNOWN TO SURVEYOR AND NOT SHOWN ON THIS DRAWING.

GENERAL NOTES

NO ZONING OR PERMITTING IN GRAVES COUNTY BUT BECAUSE OF THIS, THE FILING REQUIREMENTS AND PROCEDURES UNDER THE KENTUCKY REVISED STATUTES (KRS) MUST BE FOLLOWED. AN APPLICATION FOR CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY IS REQUIRED THROUGH THE KENTUCKY PUBLIC SERVICE COMMISSION (PSC).

ACCORDING TO THE FLOOD INSURANCE RATE MAP COMMUNITY-PANEL NUMBER 21083C0150C, PUBLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY AND WITH AN EFFECTIVE DATE OF DECEMBER 03, 2009, THIS SITE APPEARS TO BE LOCATED IN ZONE "X" (AREA OF MINIMAL FLOOD HAZARD), TO THE BEST OF MY KNOWLEDGE AND BELIEF. THE SURVEYOR UTILIZED THE ABOVE REFERENCED FLOODPLAIN PANEL FOR THIS DETERMINATION; FURTHERMORE, THE SURVEYOR DOES NOT CERTIFY THAT REVISED FLOODPLAIN INFORMATION HAS NOT BEEN PUBLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY OR SOME OTHER SOURCE.

A FULL BOUNDARY SURVEY WAS NOT PERFORMED ON THE PARENT PARCEL SHOWN ON THIS SHEET. ONLY MONUMENTS SHOWN AS "FOUND" WERE USED TO DESCRIBE THE EASEMENTS AND LEASE AREA.

THIS SURVEY WAS PREPARED WITH THE AID OF A TITLE REPORT, PREPARED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, AS COMMITMENT NUMBER 26976295, WITH AN EFFECTIVE DATE OF APRIL 2, 2018, WHICH SHOWS DEEDS, CHAIN OF TITLE, TAXES, AND EASEMENTS OF RECORD OF DESCRIBED PARENT PARCEL.

PARENT PARCEL

SCALE: 1"=300'



SECTION 8, TOWNSHIP 4 NORTH, RANGE 1

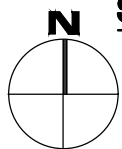


SURVEYOR'S NOTES

BEARINGS ARE BASED ON THE KENTUCKY STATE PLANE COORDINATE SYSTEM, SOUTH ZONE (NAD83) FROM STATIC GPS OPERATIONS.

SITE BENCHMARK:

BM STEEL PIN w/ CAP #3437 ON NORTH PROPERTY LINE APPROXIMATELY 180' NORTHEAST OF PROPOSED TOWER CENTER ELEVATION=439.08' (NAVD 88)



STATE of KENTUCKY

THOMAS A. YOUNG
3850

LICENSED PROFESSIONAL LAND SURVEYOR

I HEREBY CERTIFY THAT THIS LAND SURVEYING DOCUMENT WAS PREPARED AND THE RELATED SURVEY WORK WAS PERFORMED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF KENTUCKY.

SIGNATURE: _____

NAME: THOMAS A. YOUNG

DATE: _____ LICENSE NUMBER: 3850

MY LICENSE RENEWAL DATE IS: JUNE 30, 2018

PAGES, SHEETS OR DIVISIONS COVERED BY THIS SEAL: _____
 SUR-1, SUR-2, SUR-3, SUR-4, SUR-5



A	05/16/18	INTERNAL REVIEW
B	05/18/18	90% REVIEW
C	05/20/18	REV. EASEMENT

US-KY-5040B-9LV0976
 1882 STATE ROUTE 2194 W
 HICKORY, KY 42051
 NEW SITE BUILD - GUYED TOWER

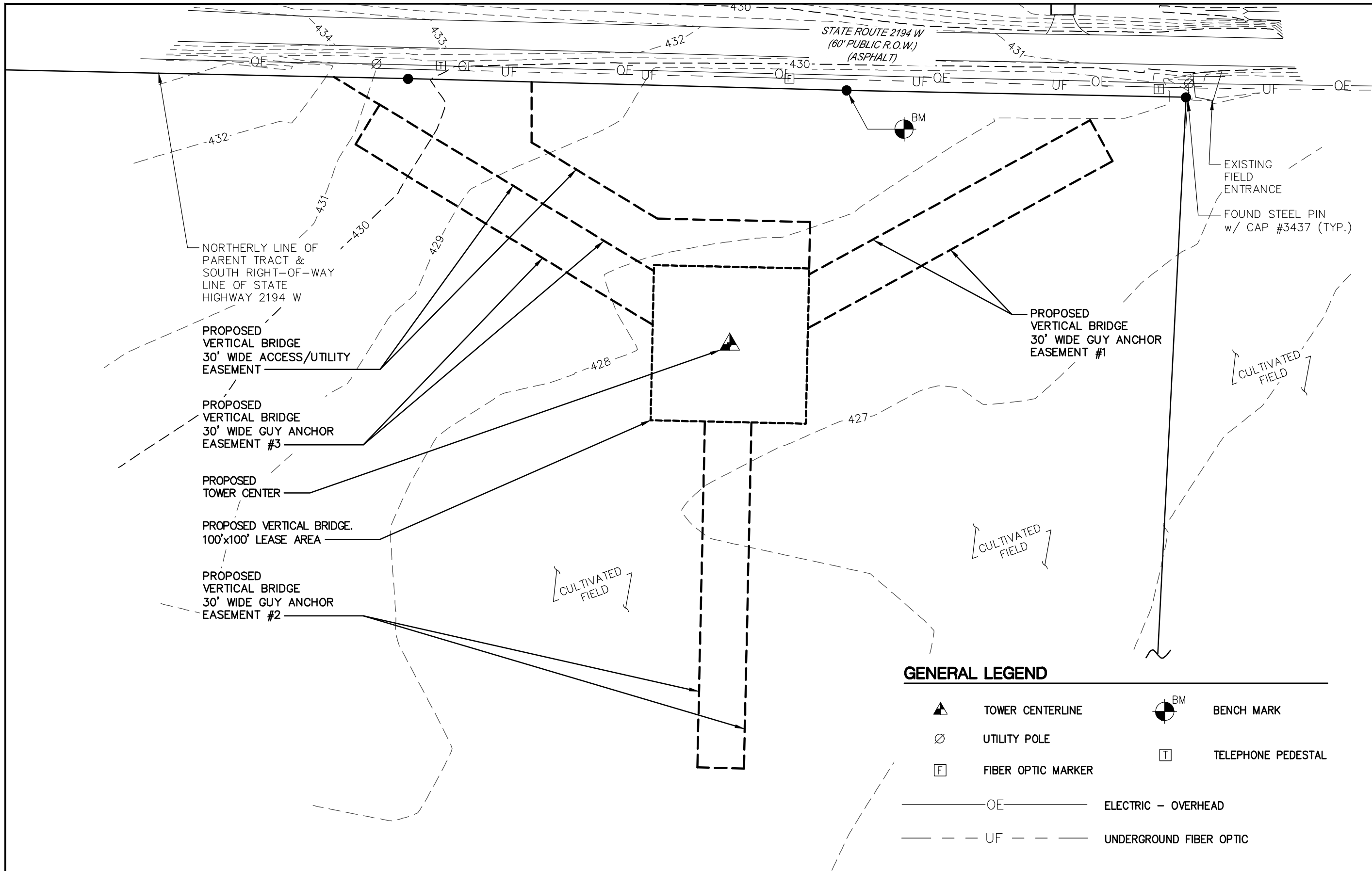
SHEET TITLE
 SITE SURVEY

SHEET NUMBER
 SUR-1

VICINITY MAP

SCALE: NONE

PROJ #: 18-29-16
 DWG BY: JD
 CHKD BY: JMD

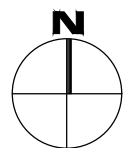


GENERAL LEGEND

- TOWER CENTERLINE
- UTILITY POLE
- FIBER OPTIC MARKER
- OE ————— ELECTRIC - OVERHEAD
- UF - - - - - UNDERGROUND FIBER OPTIC
- BM BENCH MARK
- TELEPHONE PEDESTAL

SITE PLAN

SCALE: 1" = 60'



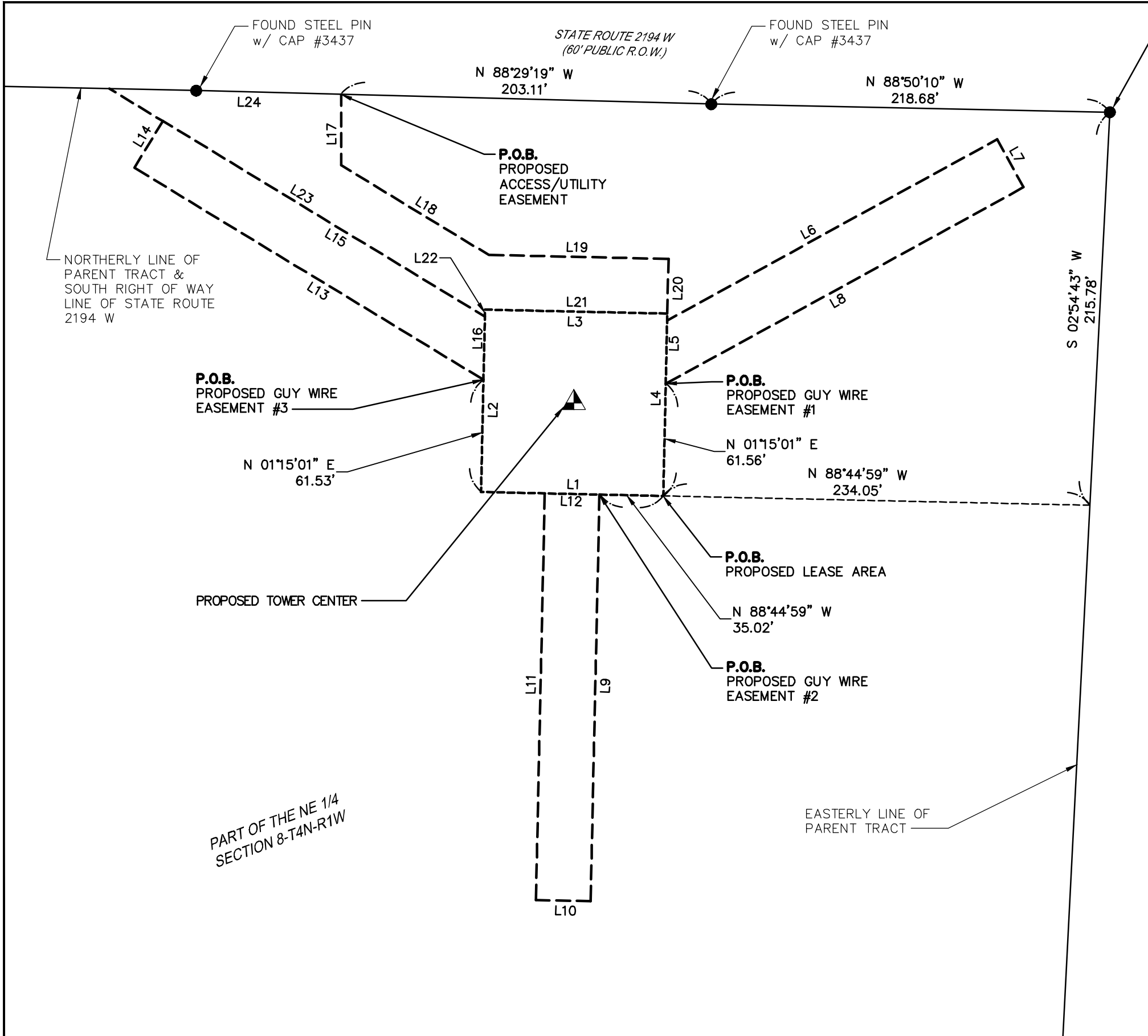
A	05/16/18	INTERNAL REVIEW
B	05/18/18	90% REVIEW
C	05/20/18	REV. EASEMENT

US-KY-5040B-9LV0976
 1882 STATE ROUTE 2194 W
 HICKORY, KY 42051
 NEW SITE BUILD - GUYED TOWER

PROJ #: 18-29-16 DWG BY: JD CHKD BY: JMD

SHEET TITLE
SITE PLAN

SHEET NUMBER
SUR-2



BOUNDARY LEGEND

- FOUND IRON PIN (AS NOTED)
- XX.XX' MEASURED DISTANCE
- P.O.C.** POINT OF COMMENCEMENT
- P.O.B.** POINT OF BEGINNING

PROPOSED LEASE AREA LINE TABLE

LINE	DIRECTION	LENGTH
L1	N 88°44'59" W	100.00'
L2	N 01°15'01" E	100.00'
L3	S 88°44'59" E	100.00'
L4	S 01°15'01" W	100.00'

PROPOSED GUY WIRE EASEMENT #3 LINE TABLE

LINE	DIRECTION	LENGTH
L13	N 58°44'51" W	223.95'
L14	N 31°15'09" E	30.00'
L15	S 58°44'51" E	206.63'
L16	S 01°15'01" W	34.64'

PROPOSED GUY WIRE EASEMENT #1 LINE TABLE

LINE	DIRECTION	LENGTH
L5	N 01°15'01" E	34.64'
L6	N 61°14'32" E	206.57'
L7	S 28°45'28" E	30.00'
L8	S 61°14'32" W	223.90'

PROPOSED ACCESS/UTILITY EASEMENT LINE TABLE

LINE	DIRECTION	LENGTH
L17	N 00°00'00" E	38.92'
L18	S 58°44'51" E	94.73'
L19	S 88°44'59" E	98.60'
L20	S 01°15'01" W	30.00'
L21	N 88°44'59" W	100.00'
L22	S 01°15'01" W	3.83'
L23	N 58°44'51" W	240.96'
L24	S 88°34'51" E	127.19'

PROPOSED GUY WIRE EASEMENT #2 LINE TABLE

LINE	DIRECTION	LENGTH
L9	S 01°15'01" W	223.00'
L10	N 88°44'59" W	30.00'
L11	N 01°15'01" E	223.00'
L12	S 88°44'59" E	30.00'

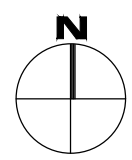
A	05/16/18	INTERNAL REVIEW
B	05/18/18	90% REVIEW
C	05/20/18	REV. EASEMENT

US-KY-5040B-9LV0976
 1882 STATE ROUTE 2194 W
 HICKORY, KY 42051
 NEW SITE BUILD - GUYED TOWER

PROJ #: 18-29-16
 DWG BY: JD
 CHKD BY: JMD

LEASE AREA & EASEMENTS

SCALE: 1" = 60'



SHEET TITLE
LEASE AREA & EASEMENTS

SHEET NUMBER
SUR-3

DESCRIPTION OF LEASE AREA

A PARCEL OF LAND, BEING A PART OF AND LYING ENTIRELY WITHIN A 22.33 ACRE PARCEL DESCRIBED AS TRACT 1 ON PLAT OF RECORD IN PLAT C, PAGE 219, IN THE GRAVES COUNTY CLERK'S OFFICE AND BEING LOCATED ON THE SOUTH SIDE OF STATE ROUTE 2194 WEST APPROXIMATELY 2.0 MILES WEST OF THE HICKORY COMMUNITY OF GRAVES COUNTY, KENTUCKY AND IS MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID TRACT 1;

THENCE ALONG AND UPON THE EAST LINE OF SAID TRACT 1 SOUTH 02°54'43" WEST, A DISTANCE OF 215.78 FEET;

THENCE LEAVING SAID EAST LINE NORTH 88°44'59" WEST, A DISTANCE OF 234.05 FEET TO THE **POINT-OF-BEGINNING**;

THENCE CONTINUING NORTH 88°44'59" WEST, A DISTANCE OF 100.00 FEET (L1);

THENCE NORTH 01°15'01" EAST, A DISTANCE OF 100.00 FEET (L2);

THENCE SOUTH 88°44'59" EAST, A DISTANCE OF 100.00 FEET (L3);

THENCE NORTH 01°15'01" WEST, A DISTANCE OF 100.00 FEET (L4), TO THE **POINT-OF-BEGINNING**;

CONTAINING 10,000 SQUARE FEET (0.23 ACRES) MORE OR LESS.

DESCRIPTION OF GUY WIRE EASEMENT #1

A PARCEL OF LAND, BEING A PART OF AND LYING ENTIRELY WITHIN A 22.33 ACRE PARCEL DESCRIBED AS TRACT 1 ON PLAT OF RECORD IN PLAT C, PAGE 219, IN THE GRAVES COUNTY CLERK'S OFFICE AND BEING LOCATED ON THE SOUTH SIDE OF STATE ROUTE 2194 WEST APPROXIMATELY 2.0 MILES WEST OF THE HICKORY COMMUNITY OF GRAVES COUNTY, KENTUCKY AND IS MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID TRACT 1;

THENCE ALONG AND UPON THE EAST LINE OF SAID TRACT 1 SOUTH 02°54'43" WEST, A DISTANCE OF 215.78 FEET;

THENCE LEAVING SAID EAST LINE NORTH 88°44'59" WEST, A DISTANCE OF 234.05 FEET TO THE SOUTHEAST CORNER OF THE PROPOSED LEASE AREA;

THENCE ALONG AND UPON THE EAST LINE OF SAID LEASE AREA NORTH 01°15'01" EAST, A DISTANCE OF 61.56 FEET TO THE **POINT-OF-BEGINNING**;

THENCE CONTINUING ALONG AND UPON SAID EAST LINE NORTH 01°15'01" EAST, A DISTANCE OF 36.64 FEET (L5);

THENCE LEAVING SAID EAST LINE NORTH 61°14'32" EAST, A DISTANCE OF 206.57 FEET (L6);

THENCE SOUTH 28°45'28" EAST, A DISTANCE OF 30.00 FEET (L7);

THENCE SOUTH 61°14'32" WEST, A DISTANCE OF 223.90 FEET (L8), TO A POINT ON SAID EAST LINE, ALSO BEING THE **POINT-OF-BEGINNING**;

CONTAINING 6,457 SQUARE FEET (0.15 ACRES) MORE OR LESS.

DESCRIPTION OF GUY WIRE EASEMENT #2

A PARCEL OF LAND, BEING A PART OF AND LYING ENTIRELY WITHIN A 22.33 ACRE PARCEL DESCRIBED AS TRACT 1 ON PLAT OF RECORD IN PLAT C, PAGE 219, IN THE GRAVES COUNTY CLERK'S OFFICE AND BEING LOCATED ON THE SOUTH SIDE OF STATE ROUTE 2194 WEST APPROXIMATELY 2.0 MILES WEST OF THE HICKORY COMMUNITY OF GRAVES COUNTY, KENTUCKY AND IS MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID TRACT 1;

THENCE ALONG AND UPON THE EAST LINE OF SAID TRACT 1 SOUTH 02°54'43" WEST, A DISTANCE OF 215.78 FEET;

THENCE LEAVING SAID EAST LINE NORTH 88°44'59" WEST, A DISTANCE OF 234.05 FEET TO THE SOUTHEAST CORNER OF THE PROPOSED LEASE AREA;

THENCE CONTINUING ALONG AND UPON THE SOUTH LINE OF SAID LEASE AREA NORTH 88°44'59" WEST, A DISTANCE OF 35.02 FEET TO THE **POINT-OF-BEGINNING**;

THENCE THENCE LEAVING SAID SOUTH LINE SOUTH 01°15'01" WEST, A DISTANCE OF 223.00 FEET (L9);

THENCE NORTH 88°44'59" WEST, A DISTANCE OF 30.00 FEET (L10);

THENCE NORTH 01°15'01" EAST, A DISTANCE OF 223.00 FEET (L11), TO A POINT ON SAID SOUTH LINE;

THENCE ALONG AND UPON SAID SOUTH LINE SOUTH 88°44'59" EAST, A DISTANCE OF 30.00 FEET (L12), TO THE **POINT-OF-BEGINNING**;

CONTAINING 6,690 SQUARE FEET (0.16 ACRES) MORE OR LESS.

DESCRIPTION OF GUY WIRE EASEMENT #3

A PARCEL OF LAND, BEING A PART OF AND LYING ENTIRELY WITHIN A 22.33 ACRE PARCEL DESCRIBED AS TRACT 1 ON PLAT OF RECORD IN PLAT C, PAGE 219, IN THE GRAVES COUNTY CLERK'S OFFICE AND BEING LOCATED ON THE SOUTH SIDE OF STATE ROUTE 2194 WEST APPROXIMATELY 2.0 MILES WEST OF THE HICKORY COMMUNITY OF GRAVES COUNTY, KENTUCKY AND IS MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID TRACT 1;

THENCE ALONG AND UPON THE EAST LINE OF SAID TRACT 1 SOUTH 02°54'43" WEST, A DISTANCE OF 215.78 FEET;

THENCE LEAVING SAID EAST LINE NORTH 88°44'59" WEST, A DISTANCE OF 234.05 FEET TO THE SOUTHEAST CORNER OF THE PROPOSED LEASE AREA;

THENCE CONTINUING ALONG AND UPON THE SOUTH LINE OF SAID LEASE AREA NORTH 88°44'59" WEST, A DISTANCE OF 100.00 FEET (L1), TO THE SOUTHWEST CORNER OF SAID LEASE AREA;

THENCE ALONG AND UPON THE WEST LINE OF SAID LEASE AREA NORTH 01°15'01" EAST, A DISTANCE OF 61.53 FEET, TO THE **POINT-OF-BEGINNING**;

THENCE LEAVING SAID EAST LINE NORTH 58°44'51" WEST, A DISTANCE OF 223.95 (L13);

THENCE NORTH 31°15'09" EAST, A DISTANCE OF 30.00 FEET (L14);

THENCE SOUTH 58°44'51" EAST, A DISTANCE OF 206.63 FEET (L15), TO A POINT ON SAID WEST LINE;

THENCE ALONG AND UPON SAID WEST LINE SOUTH 01°15'01" WEST, A DISTANCE OF 34.64 FEET (L16), TO THE **POINT-OF-BEGINNING**;

CONTAINING 6,458 SQUARE FEET (0.15 ACRES) MORE OR LESS.

DESCRIPTION OF ACCESS/UTILITY EASEMENT

A PARCEL OF LAND, BEING A PART OF AND LYING ENTIRELY WITHIN A 22.33 ACRE PARCEL DESCRIBED AS TRACT 1 ON PLAT OF RECORD IN PLAT C, PAGE 219, IN THE GRAVES COUNTY CLERK'S OFFICE AND BEING LOCATED ON THE SOUTH SIDE OF STATE ROUTE 2194 WEST APPROXIMATELY 2.0 MILES WEST OF THE HICKORY COMMUNITY OF GRAVES COUNTY, KENTUCKY AND IS MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID TRACT 1;

THENCE ALONG AND UPON THE NORTH LINE OF SAID TRACT 1 NORTH 88°50'10" WEST, A DISTANCE OF 218.68 FEET, TO AN ANGLE POINT;

THENCE CONTINUING ALONG AND UPON SAID NORTH LINE NORTH 88°29'19" WEST, A DISTANCE OF 203.11 FEET TO THE **POINT-OF-BEGINNING**;

THENCE LEAVING SAID NORTH LINE SOUTH 00°00'00" WEST, A DISTANCE OF 38.92 FEET (L17);

THENCE SOUTH 58°44'51" EAST, A DISTANCE OF 94.73 FEET (L18);

THENCE SOUTH 88°44'59" EAST, A DISTANCE OF 98.60 FEET (L19);

THENCE SOUTH 01°15'01" WEST, A DISTANCE OF 30.00 FEET (L20), TO THE NORTHEAST CORNER OF THE PROPOSED LEASE AREA;

THENCE ALONG AND UPON THE NORTH LINE OF SAID LEASE AREA NORTH 88°44'59" WEST, A DISTANCE OF 100.00 FEET (L21), TO THE NORTHWEST CORNER OF SAID LEASE AREA;

THENCE ALONG AND UPON THE WEST LINE OF SAID LEASE AREA SOUTH 01°15'01" WEST, A DISTANCE OF 3.83 FEET (L22);

THENCE LEAVING SAID WEST LINE NORTH 58°44'51" WEST, A DISTANCE OF 240.96 FEET (L23) TO A POINT ON THE NORTH LINE OF SAID TRACT 1;

THENCE ALONG AND UPON SAID NORTH LINE SOUTH 88°34'51" EAST, A DISTANCE OF 127.19 FEET (L24), TO THE **POINT-OF-BEGINNING**;

CONTAINING 10,485.93 SQUARE FEET (0.24 ACRES) MORE OR LESS.

verticalbridge

A	05/16/18	INTERNAL REVIEW
B	05/18/18	90% REVIEW
C	05/20/18	REV. EASEMENT

US-KY-5040B-9LV0976
1882 STATE ROUTE 2194 W
HICKORY, KY 42051
NEW SITE BUILD - GUYED TOWER

PROJ #: 18-29-16

DWG BY: JD

CHKD BY: JMD

SHEET TITLE
LINE TABLES & DESCRIPTIONS

SHEET NUMBER
SUR-4

DESCRIPTION OF PARENT PARCEL

(PER GENERAL WARRANTY DEED RECORDED IN THE GRAVES COUNTY RECORDERS' OFFICE IN BOOK 463, PAGE 744.)

AN INTEREST IN LAND, SAID INTEREST BEING OVER A PORTION OF THE FOLLOWING DESCRIBED PARENT PARCEL:

THE FOLLOWING DESCRIBED REAL ESTATE LYING IN GRAVES COUNTY, KENTUCKY, VIZ:

BEING A 22.33 ACRE PARCEL DESCRIBED AS TRACT 1 ON PLAT OF RECORD IN PLAT C, PAGE 219, IN THE GRAVES COUNTY CLERK'S OFFICE AND BEING LOCATED ON THE SOUTH SIDE OF STATE ROUTE 2194 WEST APPROXIMATELY 2.0 MILES WEST OF THE HICKORY COMMUNITY OF GRAVES COUNTY, KENTUCKY AND MORE PARTICULARLY DESCRIBED AS BEGINNING AT THE PROPOSED NORTHEAST CORNER OF THE PROPERTY HEREIN CONVEYED, SAID CORNER BEING A 1/2" DIA. X 24" ING. STEEL PIN AND SURVEYORS CAP #3437 SET IN THE SOUTH RIGHT-OF-WAY LINE OF STATE ROUTE 2194 AND LYING ON A BEARING OF S 87 DEG. 16 MIN. 44 SEC. W - 2781.05 FEET FROM A P.K. NAIL SET AT THE INTERSECTION OF THE CENTERLINE OF STATE ROUTE 2194 WEST AND THE CENTERLINE OF A 5' DIA. C.M.P.

THENCE S 00 DEG. 01 MIN. 55 SEC. E - 690.01 FEET ALONG THE EAST LINE OF THE PROPERTY HEREIN DESCRIBED AND BEING THE WEST LINE OF THE SAMMY L. WORKMAN, BETTY JOYCE WHITLOW, AND NANCY JEAN COURTNEY PROPERTY AS DESCRIBED IN DEED BOOK 437, PAGE 155 TO A 1/2" DIA. X 24" ING. STEEL PIN AND SURVEYORS CAP #3437 SET, SAID PIN BEING THE PROPOSED SOUTHEAST CORNER OF THE PROPERTY HEREIN DESCRIBED;

THENCE S 88 DEG. 26 MIN. 53 SEC. W - 1471.49 FEET ALONG A SEVERANCE LINE TO A 1/2" DIA. X 24" ING. STEEL PIN AND SURVEYORS CAP #3437 SET IN THE EAST LINE OF THE CARL JONES AND WIFE, SYNDAL JONES, PROPERTY (DB 189, PAGE 457), SAID PIN BEING THE PROPOSED SOUTHWEST CORNER OF THE PROPERTY HEREIN DESCRIBED;

THENCE N 10 DEG. 44 MIN. 17 SEC. W - 445.53 FEET GENERALLY ALONG A FENCE AND BEING THE EAST LINE OF THE PREVIOUSLY MENTIONED JONES PROPERTY TO A 1/2" DIA. X 24' ING. STEEL PIN AND SURVEYORS CAP #3437 SET;

THENCE N 86 DEG. 04 MIN. 48 SEC. E - 331.78 FEET ALONG A SEVERANCE LINE TO A 1/2" DIA. X 24" ING. STEEL PIN AND SURVEYORS CAP #3437 SET;

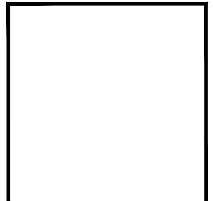
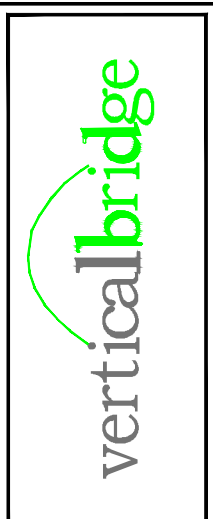
THENCE N 01 DEG. 25 MIN. 20 SEC. W - 234.25 FEET ALONG A SEVERANCE LINE TO A 1/2" DIA. X 24" ING. STEEL PIN AND SURVEYORS CAP #3437 SET IN THE SOUTH RIGHT-OF-WAY LINE OF STATE ROUTE 2194 WEST, SAID PIN BEING THE PROPOSED NORTHWEST CORNER OF THE PROPERTY HEREIN DESCRIBED;

THENCE ALONG THE SOUTH RIGHT-OF-WAY LINE OF STATE ROUTE 2194 WEST THE FOLLOWING FIVE (5) CALLS:

- (1) N 88 DEG. 43 MIN. 36 SEC. E - 129.57 FEET TO A POINT;
- (2) N 88 DEG. 08 MIN. 24 SEC. E - 321.91 FEET TO A POINT;
- (3) N 88 DEG. 19 MIN. 19 SEC. E - 276.09 FEET TO A POINT;
- (4) N 88 DEG. 34 MIN. 03 SEC. E - 282.65 FEET TO A POINT;
- (5) N 88 DEG. 13 MIN. 12 SEC. E - 218.68 FEET TO THE POINT OF BEGINNING.

AND BEING A PORTION OF THE SAME PROPERTY CONVEYED TO E Z RAMBO FROM W A CLARK AND EMMA M CLARK BY INDENTURE DATED OCTOBER 24, 1939 AND RECORDED NOVEMBER 06, 1939 IN DEED BOOK 117, PAGE 434; AND FURTHER CONVEYED TO FRANCES CHRISTENE RAMBO FROM E. Z. RAMBO BY WARRANTY DEED DATED JANUARY 12, 1965 AND RECORDED JANUARY 18, 1965 IN DEED BOOK 194, PAGE 6; AND FURTHER CONVEYED TO BETTY JANE STEINER, SYNDAL LOU JONES, LINDA SUE HILL AND ELVIS ZEAQ RAMBO FROM E. Z. RAMBO AND FRANCES CHRISTINE RAMBO BY DEED DATED APRIL 29, 1999 AND RECORDED JULY 20, 1999 IN DEED BOOK 382, PAGE 245; AND FURTHER CONVEYED TO ELVIS ZEAQ RAMBO AND JUDY C. RAMBO FROM BETTY JANE STEINER AND WILLIAM G. STEINER, SYNDAL LOU JONES AND CARL JONES, LINDA SUE HILL AND JAMES R. HILL, AND ELVIS ZEAQ RAMBO AND JUDY C. RAMBO BY GENERAL WARRANTY DEED DATED DECEMBER 21, 2010 AND RECORDED DECEMBER 28, 2010 IN DEED BOOK 463, PAGE 744.

TAX PARCEL NO. 069.00.00.083.03



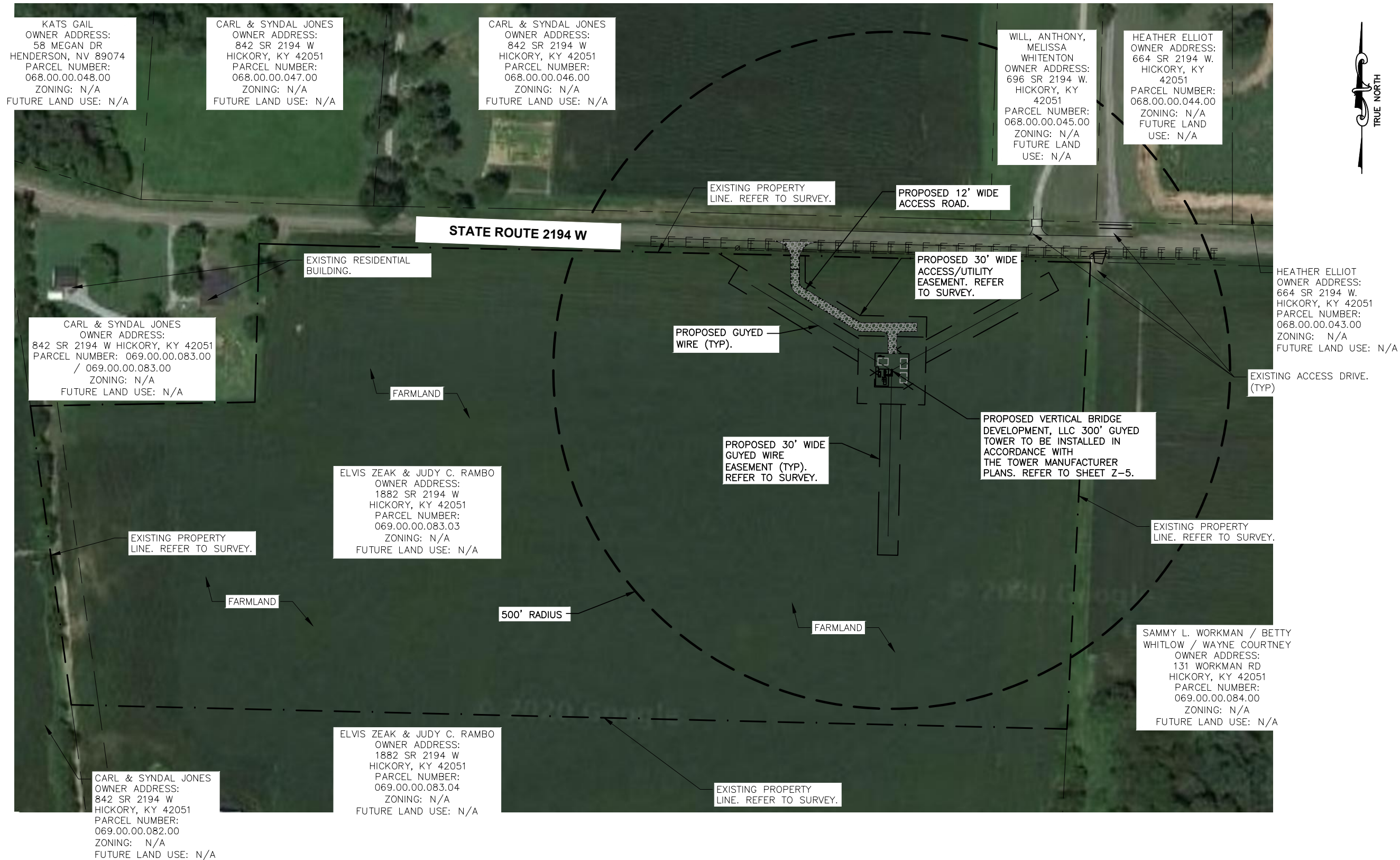
A	05/16/18	INTERNAL REVIEW
B	05/18/18	90% REVIEW
C	05/20/18	REV. EASEMENT

US-KY-5040B-9LV0976
 1882 STATE ROUTE 2194 W
 HICKORY, KY 42051
 NEW SITE BUILD - GUYED TOWER

PROJ #: 18-29-16
 DWG BY: JD
 CHKD BY: JMD

SHEET TITLE
DESCRIPTIONS

SHEET NUMBER
SUR-5



KATS GAIL
OWNER ADDRESS:
58 MEGAN DR
HENDERSON, NV 89074
PARCEL NUMBER:
068.00.00.048.00
ZONING: N/A
FUTURE LAND USE: N/A

CARL & SYNDAL JONES
OWNER ADDRESS:
842 SR 2194 W
HICKORY, KY 42051
PARCEL NUMBER:
068.00.00.047.00
ZONING: N/A
FUTURE LAND USE: N/A

CARL & SYNDAL JONES
OWNER ADDRESS:
842 SR 2194 W
HICKORY, KY 42051
PARCEL NUMBER:
068.00.00.046.00
ZONING: N/A
FUTURE LAND USE: N/A

WILL, ANTHONY,
MELISSA
WHITENTON
OWNER ADDRESS:
696 SR 2194 W.
HICKORY, KY
42051
PARCEL NUMBER:
068.00.00.045.00
ZONING: N/A
FUTURE LAND
USE: N/A

HEATHER ELLIOT
OWNER ADDRESS:
664 SR 2194 W.
HICKORY, KY
42051
PARCEL NUMBER:
068.00.00.044.00
ZONING: N/A
FUTURE LAND
USE: N/A

HEATHER ELLIOT
OWNER ADDRESS:
664 SR 2194 W.
HICKORY, KY 42051
PARCEL NUMBER:
068.00.00.043.00
ZONING: N/A
FUTURE LAND USE: N/A

CARL & SYNDAL JONES
OWNER ADDRESS:
842 SR 2194 W HICKORY, KY 42051
PARCEL NUMBER: 069.00.00.083.00
/ 069.00.00.083.00
ZONING: N/A
FUTURE LAND USE: N/A

ELVIS ZEAK & JUDY C. RAMBO
OWNER ADDRESS:
1882 SR 2194 W
HICKORY, KY 42051
PARCEL NUMBER:
069.00.00.083.03
ZONING: N/A
FUTURE LAND USE: N/A

SAMMY L. WORKMAN / BETTY
WHITLOW / WAYNE COURTNEY
OWNER ADDRESS:
131 WORKMAN RD
HICKORY, KY 42051
PARCEL NUMBER:
069.00.00.084.00
ZONING: N/A
FUTURE LAND USE: N/A

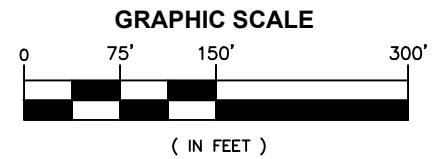
CARL & SYNDAL JONES
OWNER ADDRESS:
842 SR 2194 W
HICKORY, KY 42051
PARCEL NUMBER:
069.00.00.082.00
ZONING: N/A
FUTURE LAND USE: N/A

ELVIS ZEAK & JUDY C. RAMBO
OWNER ADDRESS:
1882 SR 2194 W
HICKORY, KY 42051
PARCEL NUMBER:
069.00.00.083.04
ZONING: N/A
FUTURE LAND USE: N/A

NOTES:

- ALL INFORMATION SHOWN HEREON WAS OBTAINED FROM THE RECORDS OF GRAVES PVA ON JUNE 8, 2020, WHICH MAY NOT REFLECT THE CURRENT OWNERS AND ADDRESSES DUE TO THE INACCURACIES AND TIME LAPSE IN UPDATING FILES. KIMLEY-HORN AND GRAVES PVA EXPRESSLY DISCLAIMS ANY WARRANTY FOR THE CONTENT AND ANY ERRORS CONTAINED IN THEIR FILES.
- THE MAP IS FOR GENERAL INFORMATIONAL PURPOSES ONLY AND IS NOT A BOUNDARY SURVEY.
- NOT FOR RECORDING OR PROPERTY TRANSFER.

AERIAL SITE PLAN
SCALE: 1"=150'
SCALE BASED ON 11"x17" ONLY



verticalbridge

750 PARK OF COMMERCE DRIVE
SUITE 200
BOCA RATON, FL 33487

PLANS PREPARED BY:

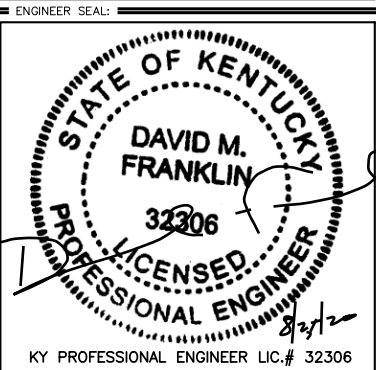
Kimley»Horn

655 NORTH FRANKLIN STREET, SUITE 150
TAMPA, FL 33602
PHONE (813) 620-1460
WWW.KIMLEY-HORN.COM

REV.	DATE	DESCRIPTION	BY
1	08/25/2020	REVISED PER COMMENTS	NAP
0	06/10/2020	FINAL	RRJ

DRAWN BY: RRJ CHECKED BY: RRJ

KHA PROJECT NUMBER: 140064062



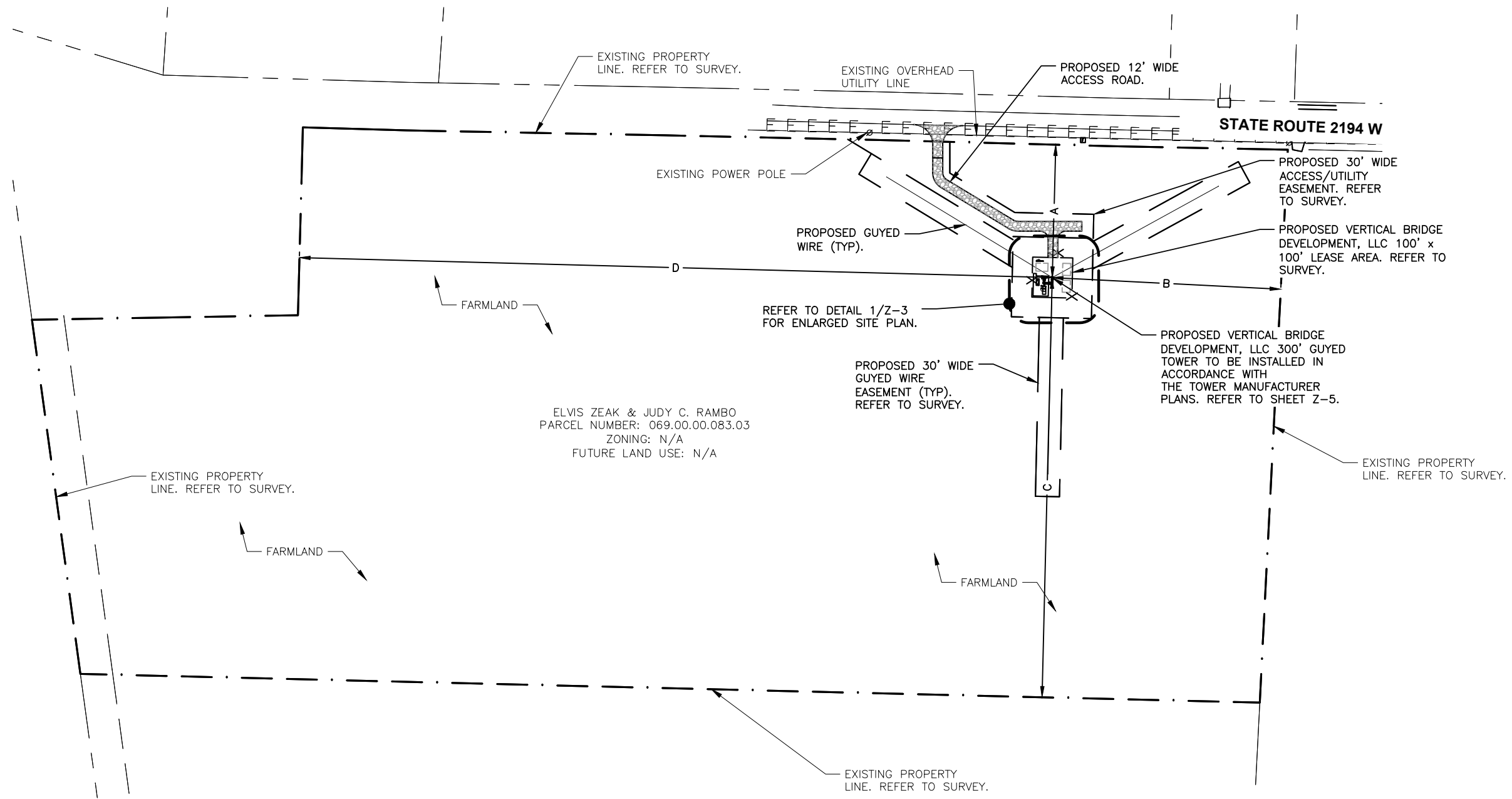
PROJECT INFORMATION:
WORKMAN
KY-5040
1882 STATE ROUTE 2194 W
HICKORY, KY 42051
GRAVES COUNTY

SHEET TITLE:
**AERIAL
SITE PLAN**

SHEET NUMBER:
A-1

SETBACK TABLE			
DESIGNATION	DIRECTION	REQUIRED SETBACK	ACTUAL SETBACK
A	NORTH	N/A	±165.74'
B	EAST	N/A	±285.72'
C	SOUTH	N/A	±523.50'
D	WEST	N/A	±939.67'

FLOOD ZONE INFORMATION
 FLOOD ZONE: X
 PANEL NUMBER: 21083C0150C
 DATE: 12/03/2009
 FLOOD ELEV. (IF APPLICABLE): N/A



ELVIS ZEAH & JUDY C. RAMBO
 PARCEL NUMBER: 069.00.00.083.03
 ZONING: N/A
 FUTURE LAND USE: N/A

REFER TO DETAIL 1/Z-3
 FOR ENLARGED SITE PLAN.

PROPOSED 30' WIDE
 GUYED WIRE
 EASEMENT (TYP).
 REFER TO SURVEY.

PROPOSED VERTICAL BRIDGE
 DEVELOPMENT, LLC 300' GUYED
 TOWER TO BE INSTALLED IN
 ACCORDANCE WITH
 THE TOWER MANUFACTURER
 PLANS. REFER TO SHEET Z-5.

PROPOSED 30' WIDE
 ACCESS/UTILITY
 EASEMENT. REFER
 TO SURVEY.

EXISTING PROPERTY
 LINE. REFER TO SURVEY.

EXISTING OVERHEAD
 UTILITY LINE

PROPOSED 12' WIDE
 ACCESS ROAD.

STATE ROUTE 2194 W

EXISTING POWER POLE

PROPOSED GUYED
 WIRE (TYP).

FARMLAND

EXISTING PROPERTY
 LINE. REFER TO SURVEY.

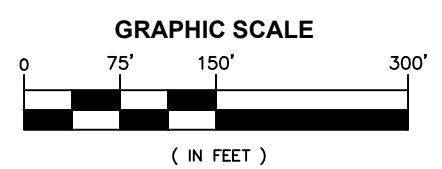
FARMLAND

FARMLAND

EXISTING PROPERTY
 LINE. REFER TO SURVEY.

EXISTING PROPERTY
 LINE. REFER TO SURVEY.

1
Z-1
SETBACK PLAN
 SCALE: 1"=150'
 SCALE BASED ON 11"x17" ONLY



verticalbridge
 750 PARK OF COMMERCE DRIVE
 SUITE 200
 BOCA RATON, FL 33487

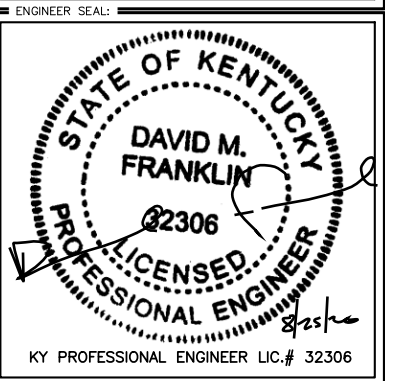
PLANS PREPARED BY:

Kimley»Horn
 655 NORTH FRANKLIN STREET, SUITE 150
 TAMPA, FL 33602
 PHONE (813) 620-1460
 WWW.KIMLEY-HORN.COM

REV.	DATE	DESCRIPTION	BY
1	08/25/2020	REVISED PER COMMENTS	NAP
0	06/10/2020	FINAL	RRJ

DRAWN BY: RRJ CHECKED BY: RRJ

KHA PROJECT NUMBER: 140064062



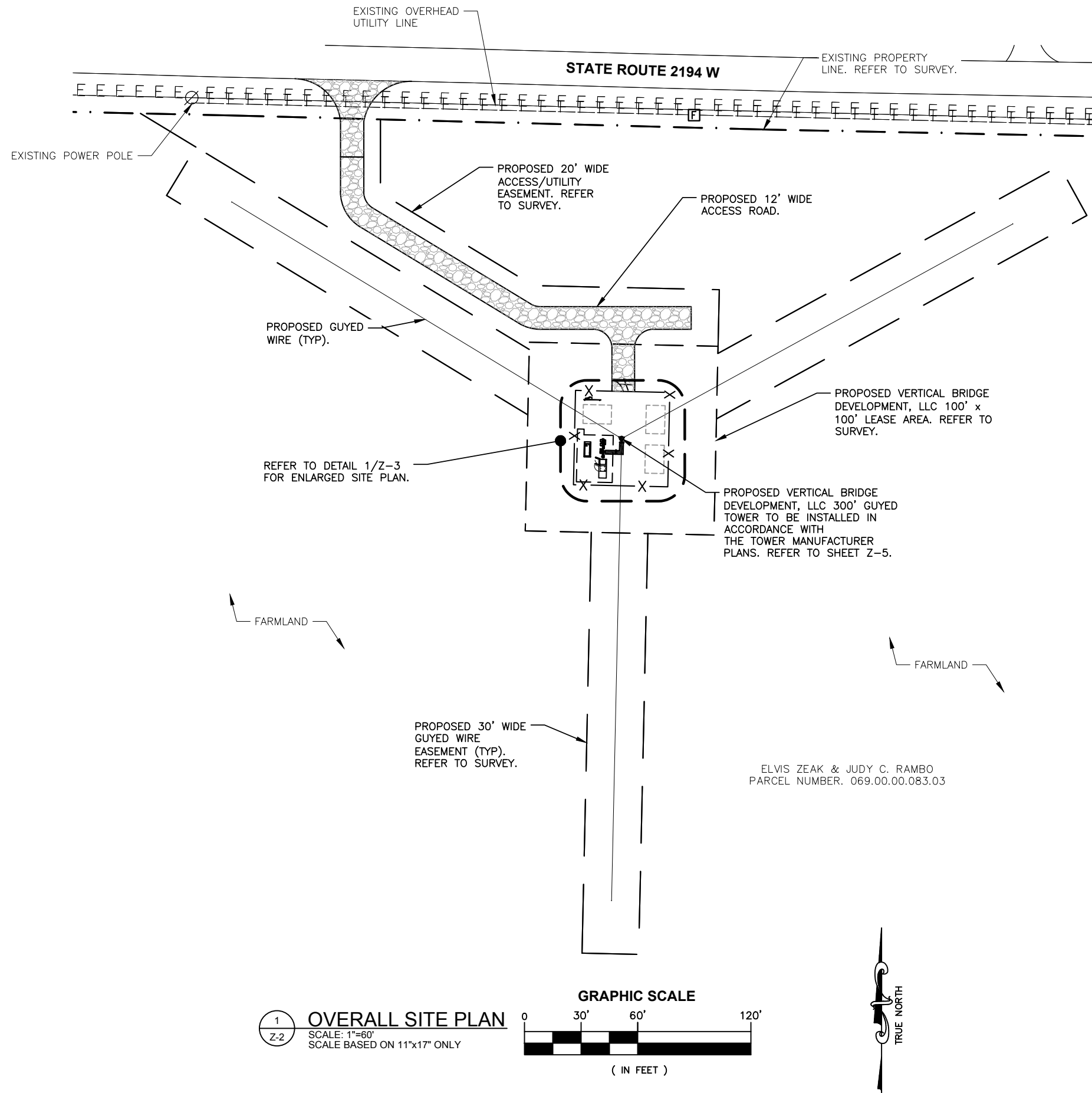
PROJECT INFORMATION:
 WORKMAN
 KY-5040
 1882 STATE ROUTE 2194 W
 HICKORY, KY 42051
 GRAVES COUNTY

SHEET TITLE:
SETBACK PLAN

SHEET NUMBER:
Z-1

NOTES:

- DEVELOPED AREA:**
 PROPOSED 100' x 100' LEASE AREA = 10,000 SQ. FT.
 PROPOSED GRAVEL DRIVE = ±3,872 SQ. FT.
 PROPOSED 50' x 50' GRAVEL COMPOUND = 2,500 SQ. FT.
 TOTAL IMPERVIOUS AREA = 6,372 SQ. FT.
- REFER TO SURVEY FOR LEGAL DESCRIPTION OF LEASE AREA AND ALL EASEMENTS. (AREA = ±25,237 SQ. FT.)
- TOWER SHALL BE DESIGNED FOR FOUR (4) CARRIERS.
- TOWER SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF EIA/TIA 222-G STANDARDS AS WELL AS ALL LOCAL BUILDING CODES.



1 OVERALL SITE PLAN
 Z-2 SCALE: 1"=60'
 SCALE BASED ON 11"x17" ONLY



750 PARK OF COMMERCE DRIVE
 SUITE 200
 BOCA RATON, FL 33487

PLANS PREPARED BY:



655 NORTH FRANKLIN STREET, SUITE 150
 TAMPA, FL 33602
 PHONE (813) 620-1460
 WWW.KIMLEY-HORN.COM

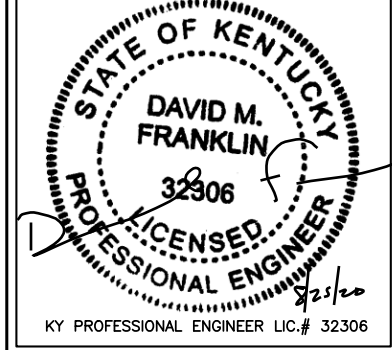
REV. DATE DESCRIPTION BY:

REV.	DATE	DESCRIPTION	BY
1	08/25/2020	REVISED PER COMMENTS	NAP
0	06/10/2020	FINAL	RRJ

DRAWN BY: RRJ CHECKED BY: RRJ

KHA PROJECT NUMBER: 140064062

ENGINEER SEAL:



PROJECT INFORMATION:

WORKMAN
 KY-5040
 1882 STATE ROUTE 2194 W
 HICKORY, KY 42051
 GRAVES COUNTY

SHEET TITLE: OVERALL SITE PLAN

SHEET NUMBER: Z-2

PLANS PREPARED BY:

REV: DATE: DESCRIPTION: BY:

REV	DATE	DESCRIPTION	BY
1	08/25/2020	REVISED PER COMMENTS	NAP
0	06/10/2020	FINAL	RRJ

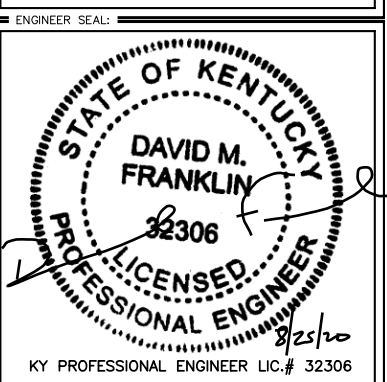
DRAWN BY: CHECKED BY:

RRJ RRJ

KHA PROJECT NUMBER:

140064062

ENGINEER SEAL:



PROJECT INFORMATION:

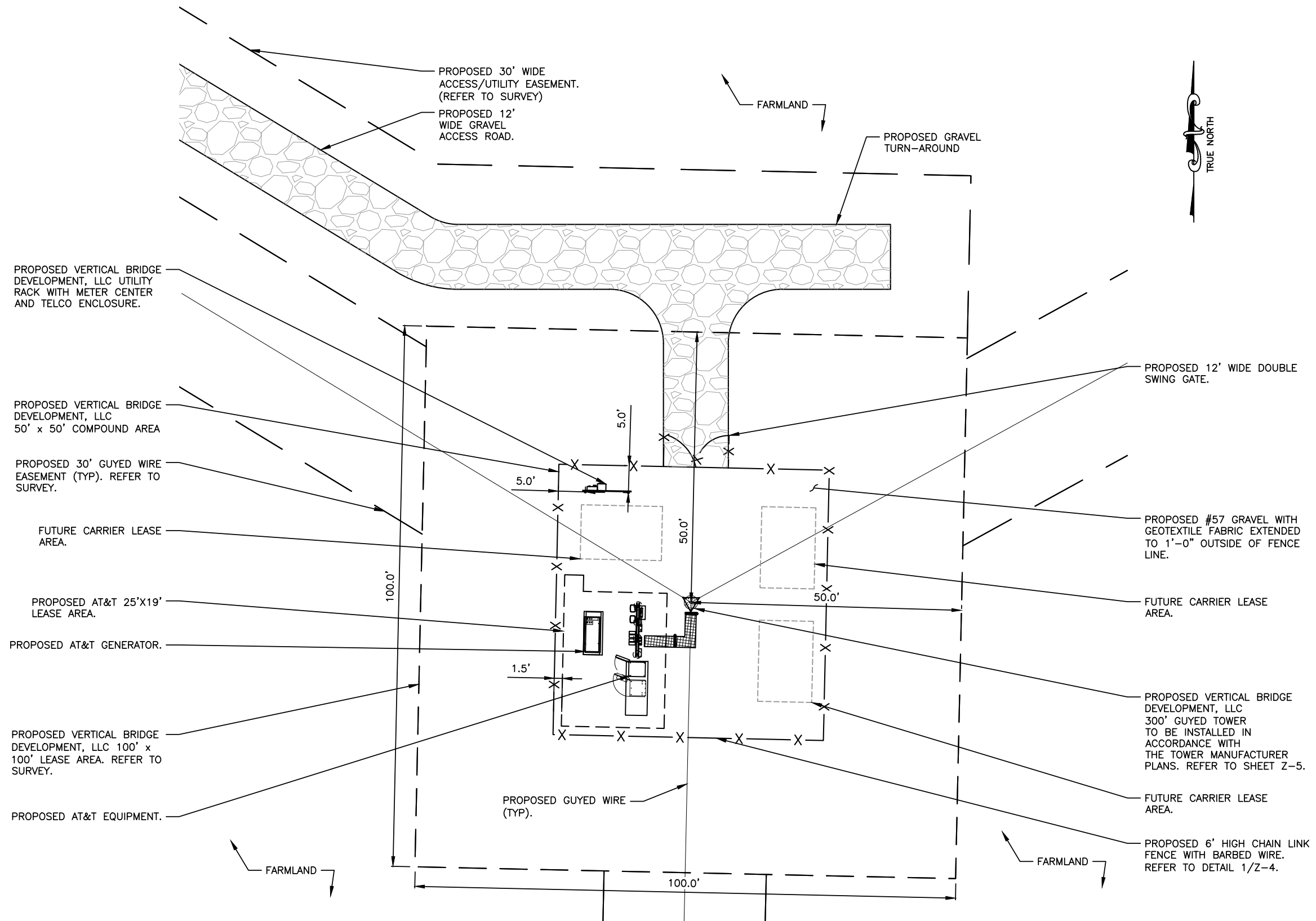
WORKMAN
KY-5040
1882 STATE ROUTE 2194 W
HICKORY, KY 42051
GRAVES COUNTY

SHEET TITLE:

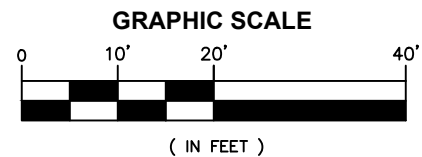
ENLARGED SITE PLAN

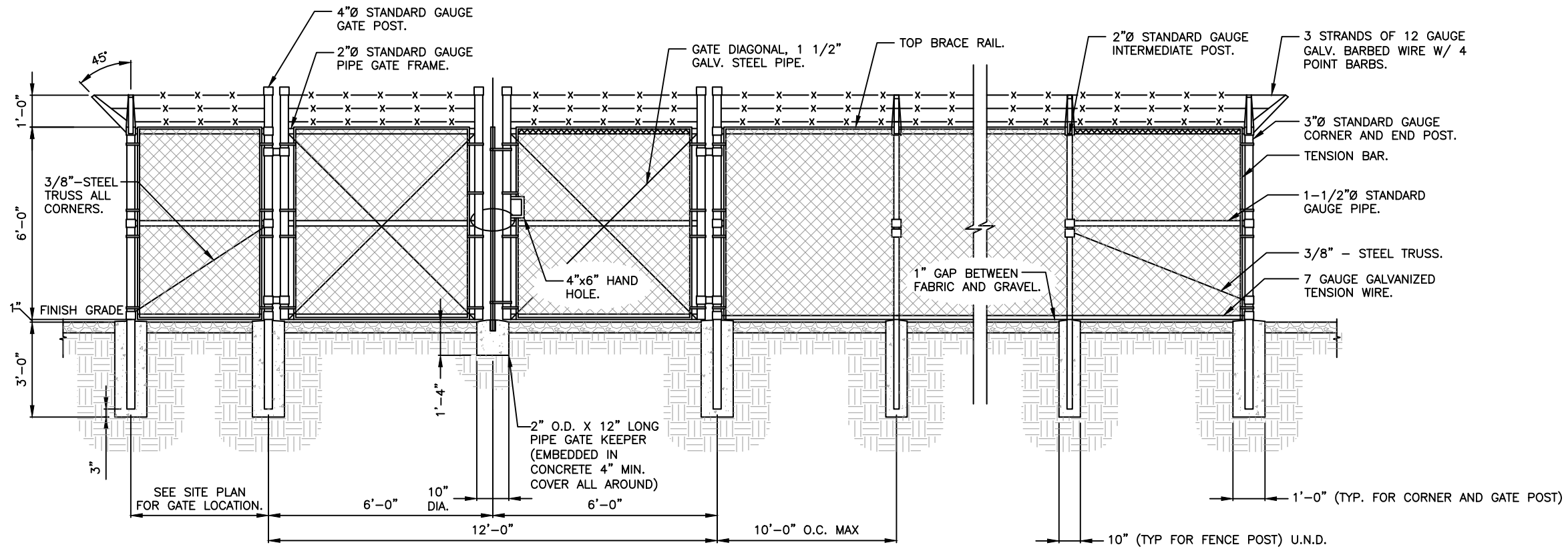
SHEET NUMBER:

Z-3



1 ENLARGED SITE PLAN
Z-3 SCALE: 1"=20'
SCALE BASED ON 11"x17" ONLY





1 FENCE DETAIL
Z-4 SCALE: N.T.S.

PLANS PREPARED BY:

REV: DATE: DESCRIPTION: BY:

REV	DATE	DESCRIPTION	BY
1	08/25/2020	REVISED PER COMMENTS	NAP
0	06/10/2020	FINAL	RRJ

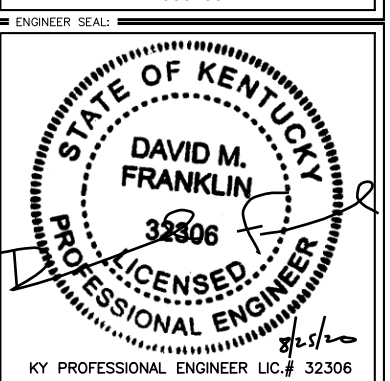
DRAWN BY: CHECKED BY:

RRJ RRJ

KHA PROJECT NUMBER:

140064062

ENGINEER SEAL:



PROJECT INFORMATION:

WORKMAN
KY-5040

1882 STATE ROUTE 2194 W
HICKORY, KY 42051
GRAVES COUNTY

SHEET TITLE:

FENCE AND
SIGN DETAILS

SHEET NUMBER:

Z-4

Exhibit C
Vertical Tower Profile

PLANS PREPARED BY:

REV: DATE: DESCRIPTION: BY:

REV	DATE	DESCRIPTION	BY
1	08/25/2020	REVISED PER COMMENTS	NAP
0	06/10/2020	FINAL	RRJ

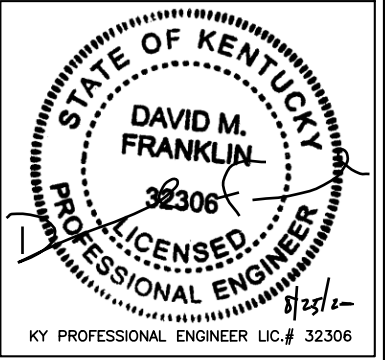
DRAWN BY: CHECKED BY:

RRJ	RRJ
-----	-----

KHA PROJECT NUMBER:

140064062

ENGINEER SEAL:



PROJECT INFORMATION:

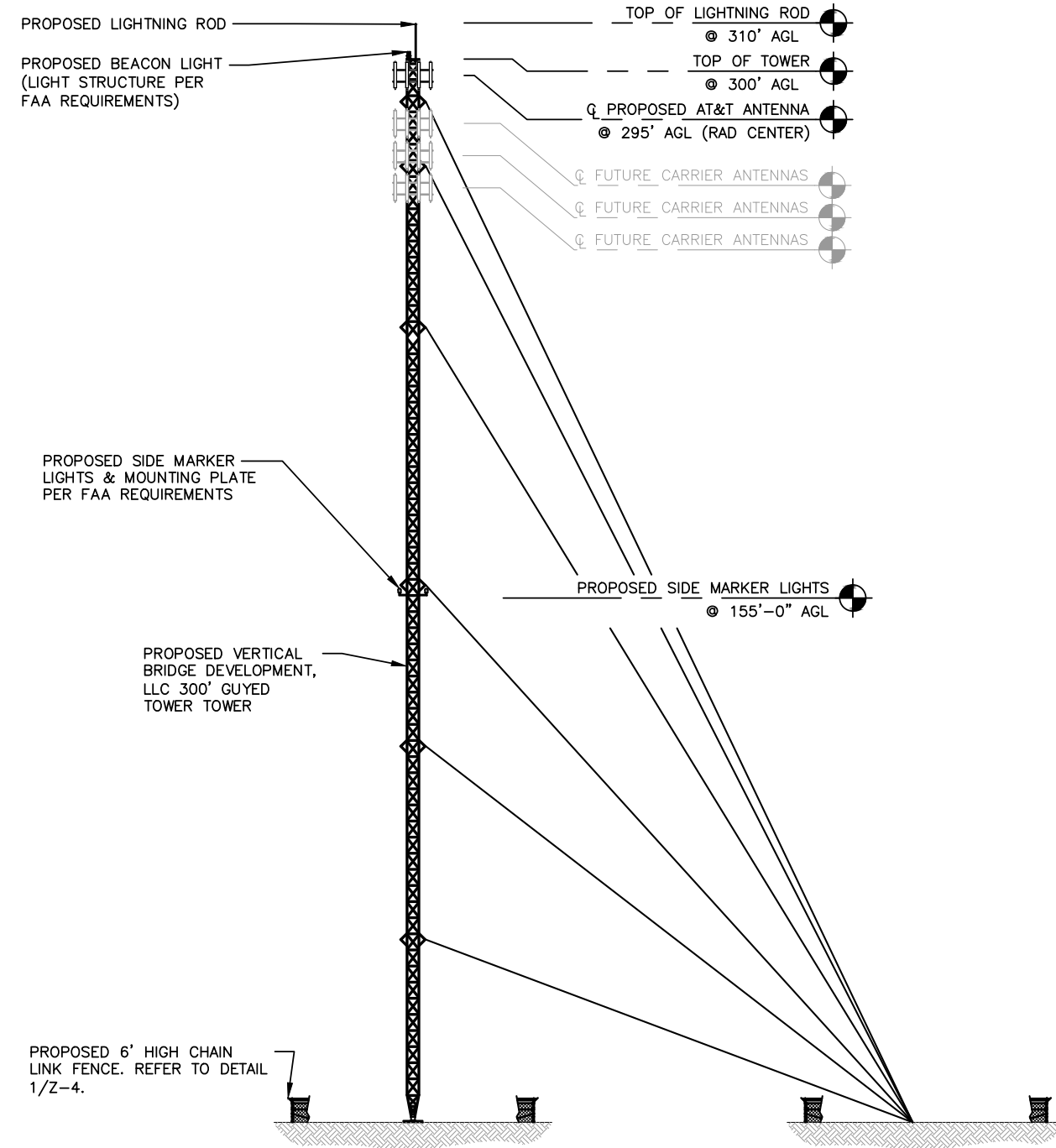
WORKMAN KY-5040
1882 STATE ROUTE 2194 W HICKORY, KY 42051 GRAVES COUNTY

SHEET TITLE:

TOWER ELEVATION

SHEET NUMBER:

Z-5



2
Z-5
TOWER ELEVATION
SCALE: N.T.S.

Exhibit D
Structural and Foundation Design Report



August 18, 2020

RE: **Case No.: 2020-00270**
Proposed Wireless Communications
Facility 36° 50' 23.71" N, 88° 40' 32.73" W
Graves County, KY
US-KY-5040 Woorkman Road

Dear Commissioners:

The Project / Construction Manager for the proposed Wireless Communications Facility will be **Andy Smith**. His contact information is:

Andy Smith
Construction Manager
Vertical Bridge Development, LLC
M: 843-412-9109
ASmith@verticalbridge.com

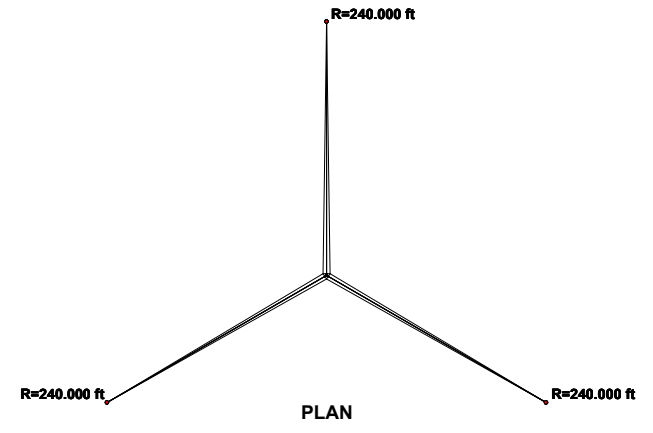
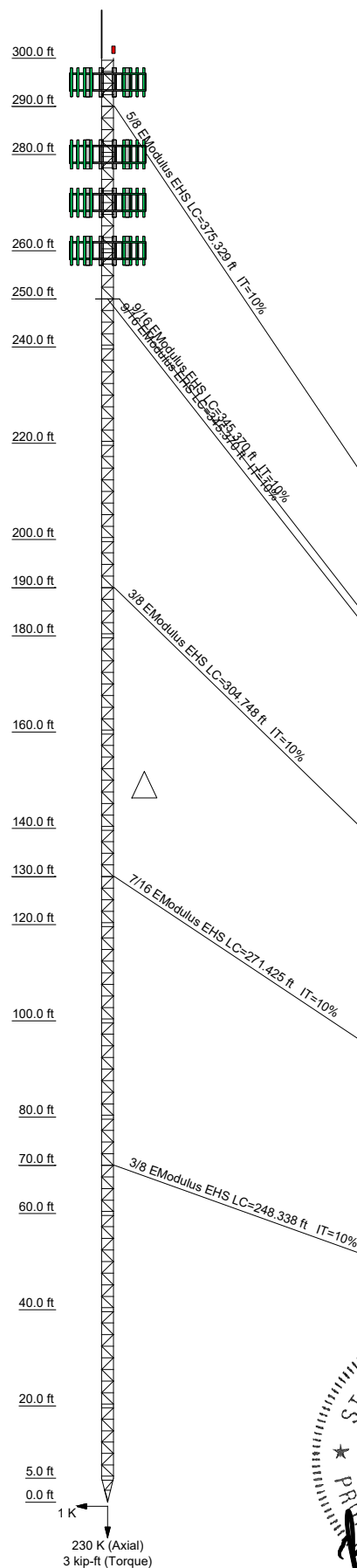
Mr. Smith has been in the industry completing civil construction and tower construction management for NSB projects (New Site Build) since 2004. Mr. Smith has been employed with Vertical Bridge Development since 2015.

Thank you,

Andy Smith

Andy Smith, Construction Manager – TN/KY Market
Vertical Bridge Development, LLC

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16
Legs	SR 1 1/2	SR 1 3/4	SR 2	SR 1	SR 1 1/8	SR 875	SR 75	SR 1 3/4	A529-50	SR 875	SR 875	SR 75	SR 2	SR 2	SR 875	A
Leg Grade																
Diagonals																
Diagonal Grade																
Top Girts																
Bottom Girts																
Horizontals																
Top Guy Pull-Offs																
Face Width (ft)																
# Panels @ (ft)																
Weight (K)																



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 1"x10'	300	Sector1(CaAa=13333.33 Sq.in)No Ice (Carrier 3)	270
Top Beacon	300	Sector2(CaAa=13333.33 Sq.in)No Ice (Carrier 3)	270
Sector1(CaAa=13333.33 Sq.in)No Ice (Carrier 1)	295	Sector3(CaAa=13333.33 Sq.in)No Ice (Carrier 3)	270
Sector2(CaAa=13333.33 Sq.in)No Ice (Carrier 1)	295	Sector1(CaAa=10000 Sq.in)No Ice (Carrier 4)	260
Sector3(CaAa=13333.33 Sq.in)No Ice (Carrier 1)	295	Sector2(CaAa=10000 Sq.in)No Ice (Carrier 4)	260
Sector1(CaAa=10000 Sq.in)No Ice (Carrier 2)	280	Sector2(CaAa=10000 Sq.in)No Ice (Carrier 4)	260
Sector2(CaAa=10000 Sq.in)No Ice (Carrier 2)	280		
Sector2(CaAa=10000 Sq.in)No Ice (Carrier 2)	280		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	SR 1	B	2 @ 2.11458

MATERIAL STRENGTH

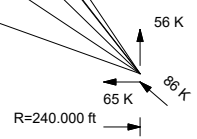
GRADE	Fy	Fu	GRADE	Fy	Fu
A529-50	50 ksi	65 ksi			

TOWER DESIGN NOTES

1. Tower is located in Graves County, Kentucky.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 106 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 30 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. Please see feedline plan for proper feedline placement. Deviation from plan may reduce tower capacity.



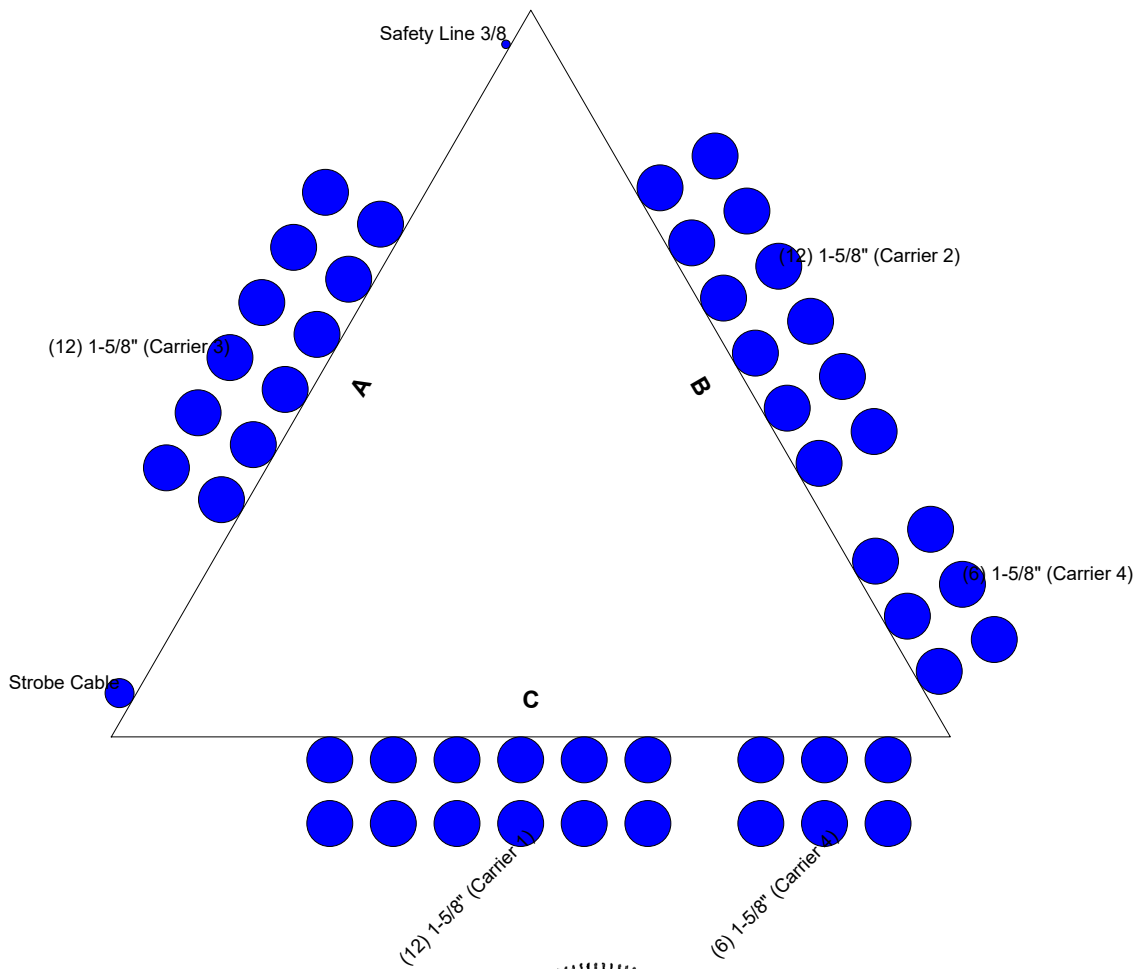
ALL REACTIONS ARE FACTORED



B+T Group
 1717 S. Boulder Ave, Ste 300
 Tulsa, OK 74119
 Phone: (918) 587-4630
 FAX: (918) 295-0265

Job:	ATS #8546 - Workman (Site# US-KY-5040)		
Project:	300' 36G/36.83991944, -88.6757583		
Client:	Vertical Bridge	Drawn by:	JLandon
Code:	TIA-222-H	Date:	08/19/20
Path:		Scale:	NTS
		Dwg No.:	E-1

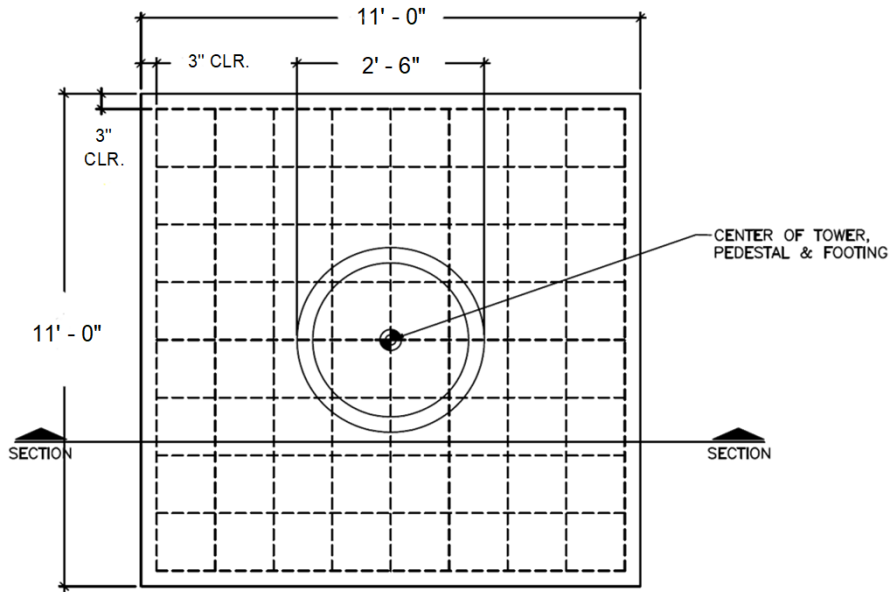
Feed Line Plan



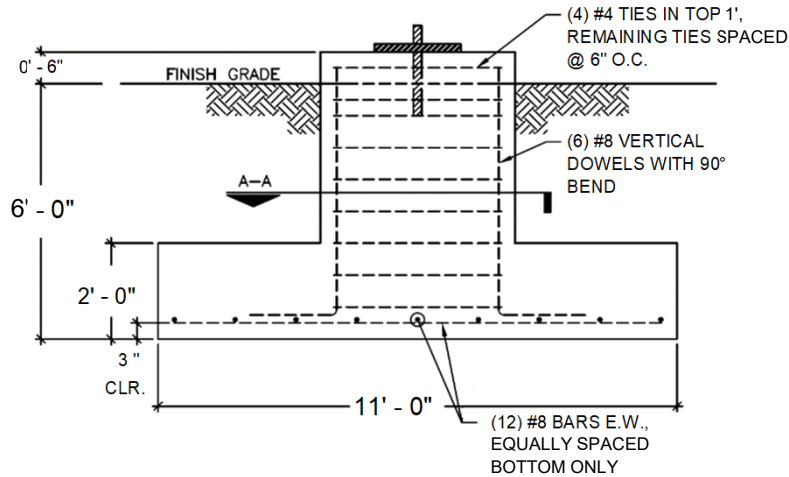
ARCOSA
TELECOM STRUCTURES

B+T Group
1717 S. Boulder Ave, Ste 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

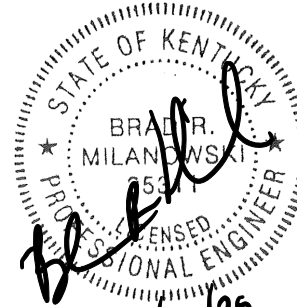
Job: ATS #8546 - Workman (Site# US-KY-5040)		
Project: 300' 36G/36.83991944, -88.6757583		
Client: Vertical Bridge	Drawn by: J.Landon	App'd:
Code: TIA-222-H	Date: 08/19/20	Scale: NTS
Path:		Dwg No. E-7



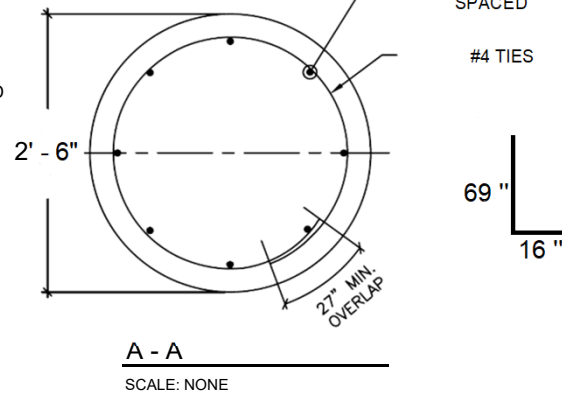
PLAN VIEW
SCALE: NONE



SECTION
SCALE: NONE



8/19/20



A - A
SCALE: NONE

NOTES:

1. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
2. REINFORCEMENT STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-615 (GRADE 60) EXCEPT THAT TIES MAY BE ASTM-615 (GRADE 40).
3. CONCRETE VOLUME = 9.69 CY
4. GEOTECHNICAL PROPERTIES PROVIDED BY:
- EGSCI CONSULTING, INC.
- PROJECT NO. 20.US-KY-5040
- DATE: AUGUST 05, 2020
5. THE CONTRACTOR SHALL THOROUGHLY REVIEW THE GEOTECH REPORT FOR THIS PROJECT AND FOLLOW THE RECOMMENDATIONS IN THAT REPORT WHEN CONSTRUCTING THE FOUNDATION.
6. THIS FOUNDATION HAS BEEN DESIGNED IN ACCORDANCE WITH THE TIA-222-H STANDARD, SPECIFICALLY FOR THE TOWER AND SOIL CONDITIONS REFERENCED ABOVE. IF ANYTHING DIFFERS THIS DESIGN SHALL BE CONSIDERED INVALID AND MUST BE REDESIGNED PRIOR TO CONSTRUCTION.

BASE REACTIONS: (FACTORED LOADS)

VERTICAL	230.0	KIPS
HORIZONTAL	1.0	KIPS

ISSUED FOR:

REV	DATE	DESCRIPTION
0	8/19/2020	Construction

ARCOSA TELECOM STRUCTURES, LLC
CLIENT #: 8546
4020 TULL AVE.
MUSKOGEE, OK 74403

Sheet Title:

**300'-0" GUYED TOWER
BASE FOUNDATION**

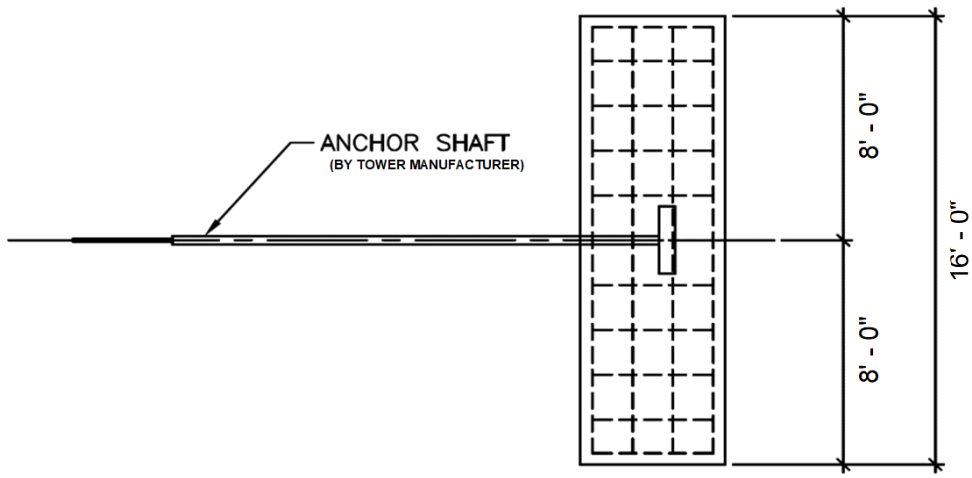
Site Name:	WORKMAN
Project No.:	144855.001.01
Date:	8/19/2020
Drawn by:	JL

Drawing No.	Rev:
144855.001.01	0



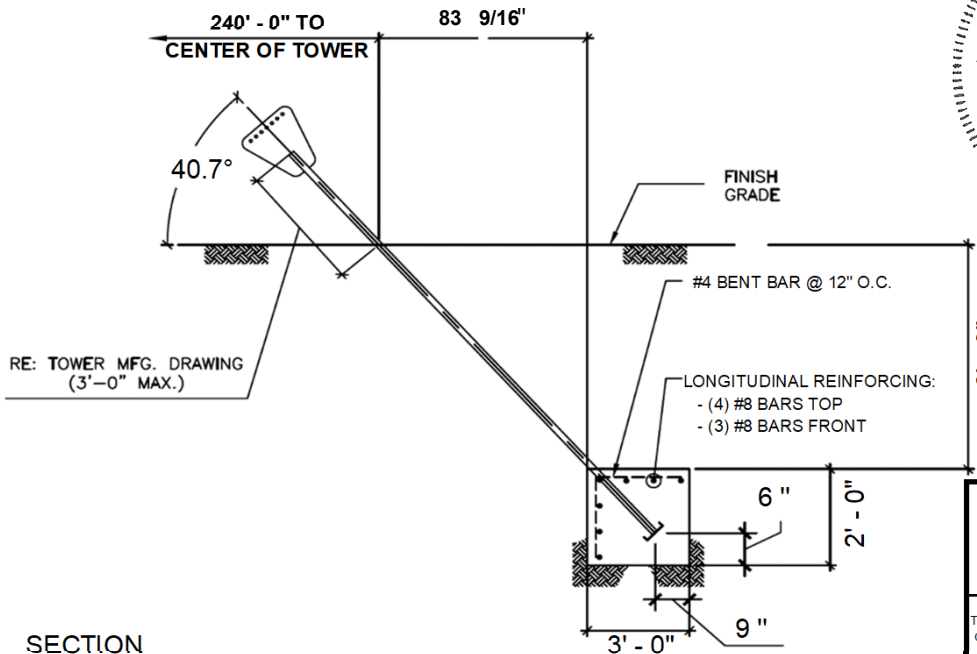
B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

STIPULATION FOR REUSE
THIS DRAWING WAS SPECIFICALLY DESIGNED FOR USE BY THE CUSTOMER MENTIONED ABOVE AT THE SPECIFIED LOCATION. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF A PROPERLY LICENSED ENGINEER.



Plan View

SCALE: NONE



SECTION

SCALE: NONE



STIPULATION FOR REUSE
 THIS DRAWING WAS SPECIFICALLY DESIGNED FOR USE BY THE CUSTOMER MENTIONED ABOVE AT THE SPECIFIED LOCATION. USE OF THIS DRAWING FOR REFERENCE OR EXAMPLE ON ANOTHER PROJECT REQUIRES THE SERVICES OF A PROPERLY LICENSED ENGINEER.

NOTES:

1. ANCHOR ROD BY TOWER MANUFACTURER
2. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
3. REINFORCEMENT STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-615 (GRADE 60) EXCEPT THAT TIES MAY BE ASTM-615 (GRADE 40). WITH 3" MIN. CLRCOVER
4. TOTAL CONCRETE VOLUME = 3.56 CY PER ANCHOR
5. GEOTECHNICAL PROPERTIES PROVIDED BY:
 - EGSCI CONSULTING, INC.
 - PROJECT NO. 20.US-KY-5040
 - DATE: AUGUST 05, 2020
6. THE CONTRACTOR SHALL THOROUGHLY REVIEW THE GEOTECH REPORT FOR THIS PROJECT AND FOLLOW THE RECOMMENDATIONS IN THAT REPORT WHEN CONSTRUCTING THE FOUNDATION.
7. THIS FOUNDATION HAS BEEN DESIGNED IN ACCORDANCE WITH THE TIA-222-H STANDARD, SPECIFICALLY FOR THE TOWER AND SOIL CONDITIONS REFERENCED ABOVE. IF ANYTHING DIFFERS, THIS DESIGN SHALL BE CONSIDERED INVALID AND MUST BE REDESIGNED PRIOR TO CONSTRUCTION.

GUY ANCHOR REACTIONS: (FACTORED LOADS)

VERTICAL	56.0 KIPS
HORIZONTAL	65.0 KIPS

ISSUED FOR:		
REV	DATE	DESCRIPTION
0	8/19/2020	Construction

ARCOSA TELECOM STRUCTURES, LLC
 CLIENT # 8546
 4020 TULL AVE.
 MUSKOGEE, OK 74403

Sheet Title:
300'-0" GUYED TOWER ANCHOR FOUNDATION

Site Name:	WORKMAN
Project No.:	144855.001.01
Date:	8/19/2020
Drawn by:	JL

Drawing No.	Rev:
144855.001.01	0

<p>tnxTower</p> <p>B+T Group 1717 S. Boulder Ave, Ste 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	Job ATS #8546 - Workman (Site# US-KY-5040)	Page 1 of 50
	Project 300' 36G/36.83991944, -88.6757583	Date 11:45:04 08/19/20
	Client Vertical Bridge	Designed by JLandon

Tower Input Data

The main tower is a 3x guyed tower with an overall height of 300.000 ft above the ground line.

The base of the tower is set at an elevation of 0.000 ft above the ground line.

The face width of the tower is 3.000 ft at the top and tapered at the base.

This tower is designed using the TIA-222-H standard.

The following design criteria apply:

Tower is located in Graves County, Kentucky.

Tower base elevation above sea level: 431.000 ft.

Basic wind speed of 106 mph.

Risk Category II.

Exposure Category C.

Simplified Topographic Factor Procedure for wind speed-up calculations is used.

Topographic Category: 1.

Crest Height: 0.000 ft.

Nominal ice thickness of 1.500 in.

Ice thickness is considered to increase with height.

Ice density of 56.000 pcf.

A wind speed of 30 mph is used in combination with ice.

Temperature drop of 50.000 °F.

Deflections calculated using a wind speed of 60 mph.

Please see feedline plan for proper feedline placement. Deviation from plan may reduce tower capacity..

Pressures are calculated at each section.

Safety factor used in guy design is 1.

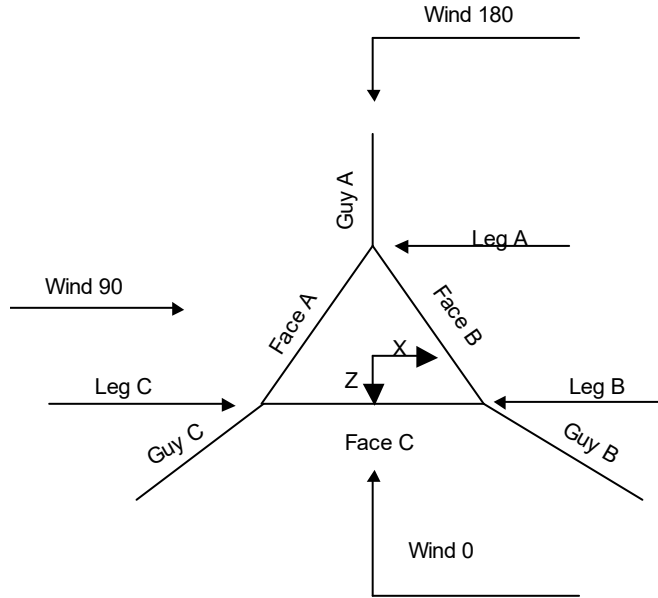
Stress ratio used in tower member design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

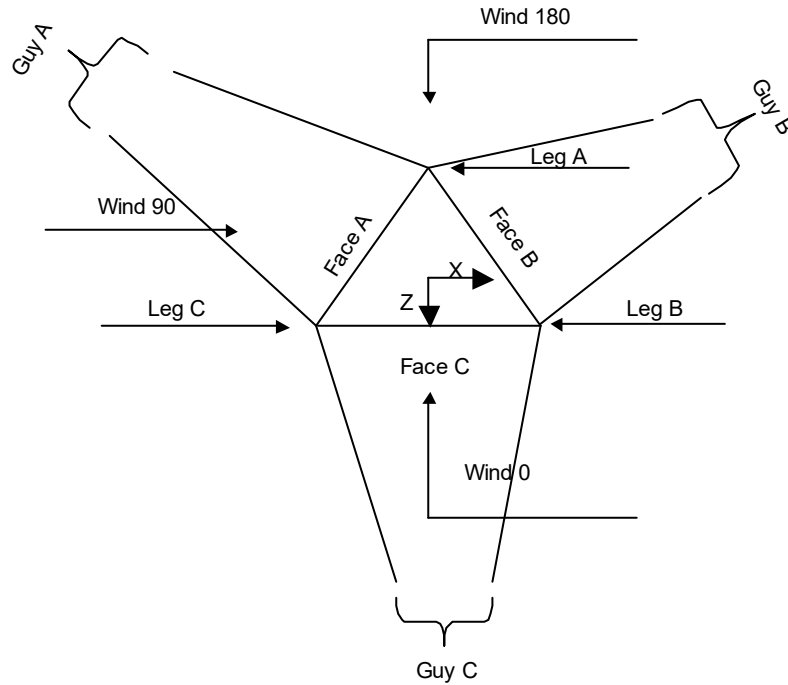
Options

- | | | |
|--|---|---|
| <ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile √ Include Bolts In Member Capacity √ Leg Bolts Are At Top Of Section √ Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric | <ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area √ Use Clear Spans For KL/r √ Retension Guys To Initial Tension √ Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. √ Autocalc Torque Arm Areas Add IBC .6D+W Combination √ Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder Ignore KL/ry For 60 Deg. Angle Legs | <ul style="list-style-type: none"> Use ASCE 10 X-Brace Ly Rules √ Calculate Redundant Bracing Forces Ignore Redundant Members in FEA √ SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feed Line Torque √ Include Angle Block Shear Check Use TIA-222-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <li style="text-align: center;">Poles Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known |
|--|---|---|

Job	ATS #8546 - Workman (Site# US-KY-5040)	Page	2 of 50
Project	300' 36G/36.83991944, -88.6757583	Date	11:45:04 08/19/20
Client	Vertical Bridge	Designed by	JLandon



Corner & Starmount Guyed Tower



Face Guyed

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	300.000-280.000			3.000	1	20.000
T2	280.000-260.000			3.000	1	20.000
T3	260.000-240.000			3.000	1	20.000
T4	240.000-220.000			3.000	1	20.000
T5	220.000-200.000			3.000	1	20.000
T6	200.000-180.000			3.000	1	20.000
T7	180.000-160.000			3.000	1	20.000
T8	160.000-140.000			3.000	1	20.000
T9	140.000-120.000			3.000	1	20.000
T10	120.000-100.000			3.000	1	20.000
T11	100.000-80.000			3.000	1	20.000
T12	80.000-60.000			3.000	1	20.000
T13	60.000-40.000			3.000	1	20.000
T14	40.000-20.000			3.000	1	20.000
T15	20.000-5.000			3.000	1	15.000
T16	5.000-0.000			3.000	1	5.000

tnxTower B+T Group 1717 S. Boulder Ave, Ste 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	ATS #8546 - Workman (Site# US-KY-5040)	Page	4 of 50
	Project	300' 36G/36.83991944, -88.6757583	Date	11:45:04 08/19/20
	Client	Vertical Bridge	Designed by	JLandon

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	300.000-280.000	2.404	K Brace Right	No	Yes	4.625	4.625
T2	280.000-260.000	2.404	K Brace Right	No	Yes	4.625	4.625
T3	260.000-240.000	2.404	K Brace Right	No	Yes	4.625	4.625
T4	240.000-220.000	2.404	K Brace Right	No	Yes	4.625	4.625
T5	220.000-200.000	2.404	K Brace Right	No	Yes	4.625	4.625
T6	200.000-180.000	2.404	K Brace Right	No	Yes	4.625	4.625
T7	180.000-160.000	2.404	K Brace Right	No	Yes	4.625	4.625
T8	160.000-140.000	2.404	K Brace Right	No	Yes	4.625	4.625
T9	140.000-120.000	2.404	K Brace Right	No	Yes	4.625	4.625
T10	120.000-100.000	2.404	K Brace Right	No	Yes	4.625	4.625
T11	100.000-80.000	2.404	K Brace Right	No	Yes	4.625	4.625
T12	80.000-60.000	2.404	K Brace Right	No	Yes	4.625	4.625
T13	60.000-40.000	2.404	K Brace Right	No	Yes	4.625	4.625
T14	40.000-20.000	2.404	K Brace Right	No	Yes	4.625	4.625
T15	20.000-5.000	2.372	K Brace Right	No	Yes	4.625	4.625
T16	5.000-0.000	2.115	K Brace Right	No	Yes	4.625	4.625

Tower Section Geometry (cont'd)

Tower Elevation	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
ft						
300.000-280.000	T1 Solid Round	1 1/2	A529-50 (50 ksi)	Solid Round	.875	A529-50 (50 ksi)
280.000-260.000	T2 Solid Round	1 3/4	A529-50 (50 ksi)	Solid Round	1	A529-50 (50 ksi)
260.000-240.000	T3 Solid Round	2	A529-50 (50 ksi)	Solid Round	1 1/8	A529-50 (50 ksi)
240.000-220.000	T4 Solid Round	1 3/4	A529-50 (50 ksi)	Solid Round	.875	A529-50 (50 ksi)
220.000-200.000	T5 Solid Round	1 3/4	A529-50 (50 ksi)	Solid Round	.75	A529-50 (50 ksi)
200.000-180.000	T6 Solid Round	1 3/4	A529-50 (50 ksi)	Solid Round	.75	A529-50 (50 ksi)
180.000-160.000	T7 Solid Round	1 3/4	A529-50 (50 ksi)	Solid Round	.75	A529-50 (50 ksi)
160.000-140.000	T8 Solid Round	1 3/4	A529-50 (50 ksi)	Solid Round	.75	A529-50 (50 ksi)
140.000-120.000	T9 Solid Round	1 3/4	A529-50 (50 ksi)	Solid Round	.875	A529-50 (50 ksi)
120.000-100.000	T10 Solid Round	1 3/4	A529-50 (50 ksi)	Solid Round	.875	A529-50 (50 ksi)
100.000-80.000	T11 Solid Round	1 3/4	A529-50 (50 ksi)	Solid Round	.75	A529-50 (50 ksi)
80.000-60.000	T12 Solid Round	1 3/4	A529-50 (50 ksi)	Solid Round	.75	A529-50 (50 ksi)
60.000-40.000	T13 Solid Round	2	A529-50 (50 ksi)	Solid Round	.75	A529-50 (50 ksi)
40.000-20.000	T14 Solid Round	2	A529-50 (50 ksi)	Solid Round	.75	A529-50 (50 ksi)

tnxTower B+T Group 1717 S. Boulder Ave, Ste 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	ATS #8546 - Workman (Site# US-KY-5040)	Page	5 of 50
	Project	300' 36G/36.83991944, -88.6757583	Date	11:45:04 08/19/20
	Client	Vertical Bridge	Designed by	JLandon

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T15 20.000-5.000	Solid Round	2	A529-50 (50 ksi)	Solid Round	.875	A529-50 (50 ksi)
T16 5.000-0.000	Solid Round	2	A529-50 (50 ksi)	Solid Round	1	A529-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 300.000-280.000	Solid Round	3/4	A529-50 (50 ksi)	Solid Round	3/4	A529-50 (50 ksi)
T2 280.000-260.000	Solid Round	3/4	A529-50 (50 ksi)	Solid Round	3/4	A529-50 (50 ksi)
T3 260.000-240.000	Solid Round	3/4	A529-50 (50 ksi)	Solid Round	3/4	A529-50 (50 ksi)
T4 240.000-220.000	Solid Round	3/4	A529-50 (50 ksi)	Solid Round	3/4	A529-50 (50 ksi)
T5 220.000-200.000	Solid Round	3/4	A529-50 (50 ksi)	Solid Round	3/4	A529-50 (50 ksi)
T6 200.000-180.000	Solid Round	3/4	A529-50 (50 ksi)	Solid Round	3/4	A529-50 (50 ksi)
T7 180.000-160.000	Solid Round	3/4	A529-50 (50 ksi)	Solid Round	3/4	A529-50 (50 ksi)
T8 160.000-140.000	Solid Round	3/4	A529-50 (50 ksi)	Solid Round	3/4	A529-50 (50 ksi)
T9 140.000-120.000	Solid Round	3/4	A529-50 (50 ksi)	Solid Round	3/4	A529-50 (50 ksi)
T10 120.000-100.000	Solid Round	3/4	A529-50 (50 ksi)	Solid Round	3/4	A529-50 (50 ksi)
T11 100.000-80.000	Solid Round	3/4	A529-50 (50 ksi)	Solid Round	3/4	A529-50 (50 ksi)
T12 80.000-60.000	Solid Round	3/4	A529-50 (50 ksi)	Solid Round	3/4	A529-50 (50 ksi)
T13 60.000-40.000	Solid Round	3/4	A529-50 (50 ksi)	Solid Round	3/4	A529-50 (50 ksi)
T14 40.000-20.000	Solid Round	3/4	A529-50 (50 ksi)	Solid Round	3/4	A529-50 (50 ksi)
T15 20.000-5.000	Solid Round	3/4	A529-50 (50 ksi)	Solid Round	3/4	A529-50 (50 ksi)
T16 5.000-0.000	Solid Round	3/4	A529-50 (50 ksi)	Solid Round	3/4	A529-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 300.000-280.000	None	Flat Bar		A36 (36 ksi)	Solid Round	3/4	A529-50 (50 ksi)

<p>tnxTower</p> <p>B+T Group 1717 S. Boulder Ave, Ste 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	Job	Page	
	ATS #8546 - Workman (Site# US-KY-5040)		6 of 50
	Project	Date	
	300' 36G/36.83991944, -88.6757583	11:45:04 08/19/20	
Client	Designed by		
	Vertical Bridge	JLandon	

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
280.000-260.000	T2 None	Flat Bar		A36 (36 ksi)	Solid Round	3/4	A529-50 (50 ksi)
260.000-240.000	T3 None	Flat Bar		A36 (36 ksi)	Solid Round	3/4	A529-50 (50 ksi)
240.000-220.000	T4 None	Flat Bar		A36 (36 ksi)	Solid Round	3/4	A529-50 (50 ksi)
220.000-200.000	T5 None	Flat Bar		A36 (36 ksi)	Solid Round	3/4	A529-50 (50 ksi)
200.000-180.000	T6 None	Flat Bar		A36 (36 ksi)	Solid Round	3/4	A529-50 (50 ksi)
180.000-160.000	T7 None	Flat Bar		A36 (36 ksi)	Solid Round	3/4	A529-50 (50 ksi)
160.000-140.000	T8 None	Flat Bar		A36 (36 ksi)	Solid Round	3/4	A529-50 (50 ksi)
140.000-120.000	T9 None	Flat Bar		A36 (36 ksi)	Solid Round	3/4	A529-50 (50 ksi)
120.000-100.000	T10 None	Flat Bar		A36 (36 ksi)	Solid Round	3/4	A529-50 (50 ksi)
100.000-80.000	T11 None	Flat Bar		A36 (36 ksi)	Solid Round	3/4	A529-50 (50 ksi)
80.000-60.000	T12 None	Flat Bar		A36 (36 ksi)	Solid Round	3/4	A529-50 (50 ksi)
60.000-40.000	T13 None	Flat Bar		A36 (36 ksi)	Solid Round	3/4	A529-50 (50 ksi)
40.000-20.000	T14 None	Flat Bar		A36 (36 ksi)	Solid Round	3/4	A529-50 (50 ksi)
T15 20.000-5.000	None	Flat Bar		A36 (36 ksi)	Solid Round	3/4	A529-50 (50 ksi)
T16 5.000-0.000	None	Flat Bar		A36 (36 ksi)	Solid Round	3/4	A529-50 (50 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
300.000-280.000	T1 0.000	0.000	A36 (36 ksi)	1	1	1	36.000	36.000	36.000
280.000-260.000	T2 0.000	0.000	A36 (36 ksi)	1	1	1	36.000	36.000	36.000
260.000-240.000	T3 0.000	0.000	A36 (36 ksi)	1	1	1	36.000	36.000	36.000
240.000-220.000	T4 0.000	0.000	A36 (36 ksi)	1	1	1	36.000	36.000	36.000
220.000-200.000	T5 0.000	0.000	A36 (36 ksi)	1	1	1	36.000	36.000	36.000
200.000-180.000	T6 0.000	0.000	A36 (36 ksi)	1	1	1	36.000	36.000	36.000

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Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	K Factors ¹									
			Legs	X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace		
				X Y	X Y	X Y	X Y	X Y	X Y	X Y		
00												
T8 160.000-140.000	No	Yes	1	1	1	1	1	1	1	1	1	1
T9 140.000-120.000	No	Yes	1	1	1	1	1	1	1	1	1	1
T10 120.000-100.000	No	Yes	1	1	1	1	1	1	1	1	1	1
T11 100.000-80.000	No	Yes	1	1	1	1	1	1	1	1	1	1
T12 80.000-60.000	No	Yes	1	1	1	1	1	1	1	1	1	1
T13 60.000-40.000	No	Yes	1	1	1	1	1	1	1	1	1	1
T14 40.000-20.000	No	Yes	1	1	1	1	1	1	1	1	1	1
T15 20.000-5.000	No	Yes	1	1	1	1	1	1	1	1	1	1
T16 5.000-0.000	No	Yes	1	1	1	1	1	1	1	1	1	1

¹Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 300.000-280.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T2 280.000-260.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T3 260.000-240.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T4 240.000-220.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T5 220.000-200.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T6 200.000-180.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">B+T Group 1717 S. Boulder Ave, Ste 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	Job		ATS #8546 - Workman (Site# US-KY-5040)		Page		9 of 50	
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Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T7 180.000-160.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T8 160.000-140.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T9 140.000-120.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T10 120.000-100.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T11 100.000-80.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T12 80.000-60.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T13 60.000-40.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T14 40.000-20.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T15 20.000-5.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75
T16 5.000-0.000	0.000	1	0.000	1	0.000	1	0.000	1	0.000	0.75	0.000	1	0.000	0.75

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 300.000-280.000	Flange	0.750	0	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
T2 280.000-260.000	Flange	0.750	3	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
T3 260.000-240.000	Flange	0.750	3	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
T4 240.000-220.000	Flange	0.750	3	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
T5 220.000-200.000	Flange	0.750	3	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0
T6 200.000-180.000	Flange	0.750	3	0.000	0	0.000	0	0.000	0	0.625	0	0.000	0	0.625	0

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Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T7 180.000-160.000	Flange	0.750 A325N	3	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T8 160.000-140.000	Flange	0.750 A325N	3	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T9 140.000-120.000	Flange	0.750 A325N	3	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T10 120.000-100.000	Flange	0.750 A325N	3	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T11 100.000-80.000	Flange	0.750 A325N	3	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T12 80.000-60.000	Flange	0.750 A325N	3	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T13 60.000-40.000	Flange	0.750 A325N	3	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T14 40.000-20.000	Flange	0.750 A325N	3	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T15 20.000-5.000	Flange	0.750 A325N	3	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0
T16 5.000-0.000	Flange	0.750 A325N	3	0.000 A325N	0	0.000 A325N	0	0.000 A325N	0	0.625 A325N	0	0.000 A325N	0	0.625 A325N	0

Guy Data

Guy Elevation ft	Guy Grade	Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L _u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
70	EHS	A 3/8	1.540	10%	21000.000	0.273	248.125	240.000	0.000	0.000	100%
		B EModulus 3/8	1.540	10%	21000.000	0.273	248.125	240.000	0.000	0.000	100%
		C EModulus 3/8	1.540	10%	21000.000	0.273	248.125	240.000	0.000	0.000	100%
130	EHS	A 7/16	2.080	10%	21000.000	0.399	271.213	240.000	0.000	0.000	100%
		B EModulus 7/16	2.080	10%	21000.000	0.399	271.213	240.000	0.000	0.000	100%
		C EModulus 7/16	2.080	10%	21000.000	0.399	271.213	240.000	0.000	0.000	100%
190	EHS	A 3/8	1.540	10%	21000.000	0.273	304.484	240.000	0.000	0.000	100%
		B EModulus 3/8	1.540	10%	21000.000	0.273	304.484	240.000	0.000	0.000	100%
		C EModulus 3/8	1.540	10%	21000.000	0.273	304.484	240.000	0.000	0.000	100%

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250	EHS	A	9/16	3.500	10%	21000.000	0.671	345.096	240.000	0.000	0.000	100%
		B	EModulus	3.500	10%	21000.000	0.671	345.096	240.000	0.000	0.000	100%
		C	9/16	3.500	10%	21000.000	0.671	345.096	240.000	0.000	0.000	100%
			EModulus									
			9/16									
			EModulus									
290	EHS	A	5/8	4.240	10%	21000.000	0.813	375.029	240.000	0.000	0.000	100%
		B	EModulus	4.240	10%	21000.000	0.813	375.029	240.000	0.000	0.000	100%
		C	5/8	4.240	10%	21000.000	0.813	375.029	240.000	0.000	0.000	100%
			EModulus									
			5/8									
			EModulus									

Guy Data (cont'd)

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
70	Corner						
130	Corner						
190	Corner						
250	Torque Arm	6.000	0.000	Channel	A529-50 (50 ksi)	Channel	C12x20.7
290	Corner						

Guy Data (cont'd)

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
70.000	A572-50 (50 ksi)	Solid Round			Yes	A529-50 (50 ksi)	Flat Bar	4x5/8
130.000	A572-50 (50 ksi)	Solid Round			Yes	A529-50 (50 ksi)	Flat Bar	4x5/8
190.000	A572-50 (50 ksi)	Solid Round			Yes	A529-50 (50 ksi)	Flat Bar	4x5/8
250.000	A572-50 (50 ksi)	Solid Round			Yes	A529-50 (50 ksi)	Flat Bar	4x5/8
290.000	A572-50 (50 ksi)	Solid Round			Yes	A529-50 (50 ksi)	Flat Bar	4x5/8

Guy Data (cont'd)

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
70	0.068	0.068	0.068		5.429	5.429	5.429	
					4.0 sec/pulse	4.0 sec/pulse	4.0 sec/pulse	

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Guy Elevation	Cable Weight A	Cable Weight B	Cable Weight C	Cable Weight D	Tower Intercept A	Tower Intercept B	Tower Intercept C	Tower Intercept D
ft	K	K	K	K	ft	ft	ft	ft
130	0.108	0.108	0.108		6.975	6.975	6.975	
					4.6 sec/pulse	4.6 sec/pulse	4.6 sec/pulse	
190	0.083	0.083	0.083		8.090	8.090	8.090	
					4.9 sec/pulse	4.9 sec/pulse	4.9 sec/pulse	
250	0.232	0.232	0.232		11.160	11.160	11.160	
					5.8 sec/pulse	5.8 sec/pulse	5.8 sec/pulse	
290	0.305	0.305	0.305		13.134	13.134	13.134	
					6.3 sec/pulse	6.3 sec/pulse	6.3 sec/pulse	

Guy Data (cont'd)

Guy Elevation	Calc K	Calc K	Torque Arm		Pull Off		Diagonal	
			K _x	K _y	K _x	K _y	K _x	K _y
70	No	No			0.8	0.8	1	1
130	No	No			0.8	0.8	1	1
190	No	No			0.8	0.8	1	1
250	No	No	1	1	0.8	0.8	1	1
290	No	No			0.8	0.8	1	1

Guy Data (cont'd)

Guy Elevation	Torque-Arm				Pull Off				Diagonal			
	Bolt Size	Number	Net Width	U	Bolt Size	Number	Net Width	U	Bolt Size	Number	Net Width	U
70	0.625	0	0.000	0.75	0.625	0	0.000	1	0.625	0	0.000	1
	A325N				A325N				A325N			
130	0.625	0	0.000	0.75	0.625	0	0.000	1	0.625	0	0.000	1
	A325N				A325N				A325N			
190	0.000	0	0.000	0.75	0.625	0	0.000	1	0.625	0	0.000	1
	A325N				A325N				A325N			
250	0.000	0	0.000	0.75	0.625	0	0.000	1	0.625	0	0.000	1
	A325N				A325N				A325N			
290	0.625	0	0.000	0.75	0.625	0	0.000	1	0.625	0	0.000	1
	A325N				A325N				A325N			

Guy Pressures

Guy Elevation	Guy Location	z	q _z	q _z	Ice Thickness
ft		ft	ksf	Ice ksf	in
70	A	35.000	0.024	0.002	1.509
	B	35.000	0.024	0.002	1.509
	C	35.000	0.024	0.002	1.509
130	A	65.000	0.028	0.002	1.605
	B	65.000	0.028	0.002	1.605

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Guy Elevation ft	Guy Location	z ft	q _z ksf	q _z Ice ksf	Ice Thickness in
190	C	65.000	0.028	0.002	1.605
	A	95.000	0.030	0.002	1.667
	B	95.000	0.030	0.002	1.667
250	C	95.000	0.030	0.002	1.667
	A	125.000	0.032	0.003	1.714
	B	125.000	0.032	0.003	1.714
290	C	125.000	0.032	0.003	1.714
	A	145.000	0.033	0.003	1.739
	B	145.000	0.033	0.003	1.739
	C	145.000	0.033	0.003	1.739

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
1-5/8" (Carrier 1) **	C	No	No	Ar (CaAa)	295.000 - 10.000	0.000	0.05	12	6	0.750	1.980		0.001
1-5/8" (Carrier 2) **	B	No	No	Ar (CaAa)	280.000 - 10.000	0.000	-0.05	12	6	0.750	1.980		0.001
1-5/8" (Carrier 3) **	A	No	No	Ar (CaAa)	270.000 - 10.000	0.000	0	12	6	0.750	1.980		0.001
1-5/8" (Carrier 4) **	C	No	No	Ar (CaAa)	260.000 - 10.000	0.000	-0.35	6	3	0.750	1.980		0.001
1-5/8" (Carrier 4) **	B	No	No	Ar (CaAa)	260.000 - 10.000	0.000	0.35	6	3	0.750	1.980		0.001
Safety Line 3/8	A	No	No	Ar (CaAa)	300.000 - 10.000	0.000	0.45	1	1	0.375	0.375		0.000
Strobe Cable	A	No	No	Ar (CaAa)	300.000 - 10.000	0.000	-0.45	1	1	1.250	1.250		0.001

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
T1	300.000-280.000	A	0.000	0.000	3.250	0.000	0.018
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	35.640	0.000	0.130
T2	280.000-260.000	A	0.000	0.000	27.010	0.000	0.105
		B	0.000	0.000	47.520	0.000	0.173
		C	0.000	0.000	47.520	0.000	0.173
T3	260.000-240.000	A	0.000	0.000	50.770	0.000	0.191
		B	0.000	0.000	71.280	0.000	0.259
		C	0.000	0.000	71.280	0.000	0.259
T4	240.000-220.000	A	0.000	0.000	50.770	0.000	0.191
		B	0.000	0.000	71.280	0.000	0.259
		C	0.000	0.000	71.280	0.000	0.259
T5	220.000-200.000	A	0.000	0.000	50.770	0.000	0.191

tnxTower B+T Group 1717 S. Boulder Ave, Ste 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	ATS #8546 - Workman (Site# US-KY-5040)	Page	14 of 50
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	Client	Vertical Bridge	Designed by	JLandon

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
T6	200.000-180.000	B	0.000	0.000	71.280	0.000	0.259
		C	0.000	0.000	71.280	0.000	0.259
		A	0.000	0.000	50.770	0.000	0.191
T7	180.000-160.000	B	0.000	0.000	71.280	0.000	0.259
		C	0.000	0.000	71.280	0.000	0.259
		A	0.000	0.000	50.770	0.000	0.191
T8	160.000-140.000	B	0.000	0.000	71.280	0.000	0.259
		C	0.000	0.000	71.280	0.000	0.259
		A	0.000	0.000	50.770	0.000	0.191
T9	140.000-120.000	B	0.000	0.000	71.280	0.000	0.259
		C	0.000	0.000	71.280	0.000	0.259
		A	0.000	0.000	50.770	0.000	0.191
T10	120.000-100.000	B	0.000	0.000	71.280	0.000	0.259
		C	0.000	0.000	71.280	0.000	0.259
		A	0.000	0.000	50.770	0.000	0.191
T11	100.000-80.000	B	0.000	0.000	71.280	0.000	0.259
		C	0.000	0.000	71.280	0.000	0.259
		A	0.000	0.000	50.770	0.000	0.191
T12	80.000-60.000	B	0.000	0.000	71.280	0.000	0.259
		C	0.000	0.000	71.280	0.000	0.259
		A	0.000	0.000	50.770	0.000	0.191
T13	60.000-40.000	B	0.000	0.000	71.280	0.000	0.259
		C	0.000	0.000	71.280	0.000	0.259
		A	0.000	0.000	50.770	0.000	0.191
T14	40.000-20.000	B	0.000	0.000	71.280	0.000	0.259
		C	0.000	0.000	71.280	0.000	0.259
		A	0.000	0.000	50.770	0.000	0.191
T15	20.000-5.000	B	0.000	0.000	35.640	0.000	0.130
		C	0.000	0.000	35.640	0.000	0.130
		A	0.000	0.000	25.385	0.000	0.096
T16	5.000-0.000	B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.000
		A	0.000	0.000	0.000	0.000	0.000

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
T1	300.000-280.000	A	1.864	0.000	0.000	18.163	0.000	0.262
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	39.595	0.000	0.826
T2	280.000-260.000	A	1.851	0.000	0.000	44.410	0.000	0.807
		B		0.000	0.000	52.706	0.000	1.096
		C		0.000	0.000	52.706	0.000	1.096
T3	260.000-240.000	A	1.837	0.000	0.000	70.556	0.000	1.347
		B		0.000	0.000	87.415	0.000	1.705
		C		0.000	0.000	87.415	0.000	1.705
T4	240.000-220.000	A	1.821	0.000	0.000	70.334	0.000	1.338
		B		0.000	0.000	87.208	0.000	1.695
		C		0.000	0.000	87.208	0.000	1.695
T5	220.000-200.000	A	1.805	0.000	0.000	70.094	0.000	1.328
		B		0.000	0.000	86.984	0.000	1.684
		C		0.000	0.000	86.984	0.000	1.684
T6	200.000-180.000	A	1.787	0.000	0.000	69.832	0.000	1.317
		B		0.000	0.000	86.740	0.000	1.672

<p>tnxTower</p> <p>B+T Group 1717 S. Boulder Ave, Ste 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265</p>	Job	ATS #8546 - Workman (Site# US-KY-5040)	Page	15 of 50
	Project	300' 36G/36.83991944, -88.6757583	Date	11:45:04 08/19/20
	Client	Vertical Bridge	Designed by	JLandon

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
T7	180.000-160.000	C		0.000	0.000	86.740	0.000	1.672
		A	1.767	0.000	0.000	69.544	0.000	1.305
		B		0.000	0.000	86.472	0.000	1.659
		C		0.000	0.000	86.472	0.000	1.659
T8	160.000-140.000	A	1.745	0.000	0.000	69.224	0.000	1.292
		B		0.000	0.000	86.173	0.000	1.645
		C		0.000	0.000	86.173	0.000	1.645
T9	140.000-120.000	A	1.720	0.000	0.000	68.862	0.000	1.277
		B		0.000	0.000	85.837	0.000	1.629
		C		0.000	0.000	85.837	0.000	1.629
T10	120.000-100.000	A	1.692	0.000	0.000	68.447	0.000	1.260
		B		0.000	0.000	85.451	0.000	1.610
		C		0.000	0.000	85.451	0.000	1.610
T11	100.000-80.000	A	1.658	0.000	0.000	67.958	0.000	1.240
		B		0.000	0.000	84.995	0.000	1.589
		C		0.000	0.000	84.995	0.000	1.589
T12	80.000-60.000	A	1.617	0.000	0.000	67.359	0.000	1.216
		B		0.000	0.000	84.437	0.000	1.563
		C		0.000	0.000	84.437	0.000	1.563
T13	60.000-40.000	A	1.564	0.000	0.000	66.581	0.000	1.185
		B		0.000	0.000	83.713	0.000	1.529
		C		0.000	0.000	83.713	0.000	1.529
T14	40.000-20.000	A	1.486	0.000	0.000	65.449	0.000	1.141
		B		0.000	0.000	82.659	0.000	1.480
		C		0.000	0.000	82.659	0.000	1.480
T15	20.000-5.000	A	1.361	0.000	0.000	31.820	0.000	0.536
		B		0.000	0.000	40.488	0.000	0.701
		C		0.000	0.000	40.488	0.000	0.701
T16	5.000-0.000	A	1.159	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.000

Feed Line Center of Pressure

Section	Elevation ft	CP _X in	CP _Z in	CP _X Ice in	CP _Z Ice in
T1	300.000-280.000	-1.633	3.089	-1.350	0.781
T2	280.000-260.000	-0.306	-2.264	-0.622	-1.207
T3	260.000-240.000	2.344	-0.558	1.431	-0.041
T4	240.000-220.000	2.460	-0.583	1.567	-0.047
T5	220.000-200.000	2.472	-0.586	1.588	-0.049
T6	200.000-180.000	2.403	-0.572	1.520	-0.050
T7	180.000-160.000	2.472	-0.586	1.609	-0.055
T8	160.000-140.000	2.472	-0.586	1.621	-0.059
T9	140.000-120.000	2.392	-0.569	1.546	-0.059
T10	120.000-100.000	2.460	-0.583	1.638	-0.067
T11	100.000-80.000	2.472	-0.586	1.668	-0.073
T12	80.000-60.000	2.403	-0.572	1.617	-0.077
T13	60.000-40.000	2.440	-0.578	1.696	-0.089
T14	40.000-20.000	2.440	-0.578	1.737	-0.103
T15	20.000-5.000	2.212	-0.523	1.526	-0.108
T16	5.000-0.000	0.000	0.000	0.000	0.000

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Client	Vertical Bridge	Designed by	JLandon

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T1	1	1-5/8"	280.00 - 295.00	0.6000	0.4144
T1	10	Safety Line 3/8	280.00 - 300.00	0.6000	0.4144
T1	11	Strobe Cable	280.00 - 300.00	0.6000	0.4144
T2	1	1-5/8"	260.00 - 280.00	0.6000	0.4331
T2	3	1-5/8"	260.00 - 280.00	0.6000	0.4331
T2	5	1-5/8"	260.00 - 270.00	0.6000	0.4331
T2	10	Safety Line 3/8	260.00 - 280.00	0.6000	0.4331
T2	11	Strobe Cable	260.00 - 280.00	0.6000	0.4331
T3	1	1-5/8"	240.00 - 260.00	0.6000	0.3991
T3	3	1-5/8"	240.00 - 260.00	0.6000	0.3991
T3	5	1-5/8"	240.00 - 260.00	0.6000	0.3991
T3	7	1-5/8"	240.00 - 260.00	0.6000	0.3991
T3	8	1-5/8"	240.00 - 260.00	0.6000	0.3991
T3	10	Safety Line 3/8	240.00 - 260.00	0.6000	0.3991
T3	11	Strobe Cable	240.00 - 260.00	0.6000	0.3991
T4	1	1-5/8"	220.00 - 240.00	0.6000	0.4435
T4	3	1-5/8"	220.00 - 240.00	0.6000	0.4435
T4	5	1-5/8"	220.00 - 240.00	0.6000	0.4435
T4	7	1-5/8"	220.00 - 240.00	0.6000	0.4435
T4	8	1-5/8"	220.00 - 240.00	0.6000	0.4435
T4	10	Safety Line 3/8	220.00 - 240.00	0.6000	0.4435
T4	11	Strobe Cable	220.00 - 240.00	0.6000	0.4435
T5	1	1-5/8"	200.00 - 220.00	0.6000	0.4512
T5	3	1-5/8"	200.00 - 220.00	0.6000	0.4512
T5	5	1-5/8"	200.00 - 220.00	0.6000	0.4512
T5	7	1-5/8"	200.00 - 220.00	0.6000	0.4512
T5	8	1-5/8"	200.00 - 220.00	0.6000	0.4512
T5	10	Safety Line 3/8	200.00 - 220.00	0.6000	0.4512

Job	ATS #8546 - Workman (Site# US-KY-5040)	Page	17 of 50
Project	300' 36G/36.83991944, -88.6757583	Date	11:45:04 08/19/20
Client	Vertical Bridge	Designed by	JLandon

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T5	11	Strobe Cable	200.00 - 220.00	0.6000	0.4512
T6	1	1-5/8"	180.00 - 200.00	0.6000	0.4287
T6	3	1-5/8"	180.00 - 200.00	0.6000	0.4287
T6	5	1-5/8"	180.00 - 200.00	0.6000	0.4287
T6	7	1-5/8"	180.00 - 200.00	0.6000	0.4287
T6	8	1-5/8"	180.00 - 200.00	0.6000	0.4287
T6	10	Safety Line 3/8	180.00 - 200.00	0.6000	0.4287
T6	11	Strobe Cable	180.00 - 200.00	0.6000	0.4287
T7	1	1-5/8"	160.00 - 180.00	0.6000	0.4589
T7	3	1-5/8"	160.00 - 180.00	0.6000	0.4589
T7	5	1-5/8"	160.00 - 180.00	0.6000	0.4589
T7	7	1-5/8"	160.00 - 180.00	0.6000	0.4589
T7	8	1-5/8"	160.00 - 180.00	0.6000	0.4589
T7	10	Safety Line 3/8	160.00 - 180.00	0.6000	0.4589
T7	11	Strobe Cable	160.00 - 180.00	0.6000	0.4589
T8	1	1-5/8"	140.00 - 160.00	0.6000	0.4634
T8	3	1-5/8"	140.00 - 160.00	0.6000	0.4634
T8	5	1-5/8"	140.00 - 160.00	0.6000	0.4634
T8	7	1-5/8"	140.00 - 160.00	0.6000	0.4634
T8	8	1-5/8"	140.00 - 160.00	0.6000	0.4634
T8	10	Safety Line 3/8	140.00 - 160.00	0.6000	0.4634
T8	11	Strobe Cable	140.00 - 160.00	0.6000	0.4634
T9	1	1-5/8"	120.00 - 140.00	0.6000	0.4382
T9	3	1-5/8"	120.00 - 140.00	0.6000	0.4382
T9	5	1-5/8"	120.00 - 140.00	0.6000	0.4382
T9	7	1-5/8"	120.00 - 140.00	0.6000	0.4382
T9	8	1-5/8"	120.00 - 140.00	0.6000	0.4382
T9	10	Safety Line 3/8	120.00 - 140.00	0.6000	0.4382
T9	11	Strobe Cable	120.00 - 140.00	0.6000	0.4382
T10	1	1-5/8"	100.00 - 120.00	0.6000	0.4698
T10	3	1-5/8"	100.00 - 120.00	0.6000	0.4698

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Project	300' 36G/36.83991944, -88.6757583	Date	11:45:04 08/19/20
Client	Vertical Bridge	Designed by	JLandon

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T10	5	1-5/8"	100.00 - 120.00	0.6000	0.4698
T10	7	1-5/8"	100.00 - 120.00	0.6000	0.4698
T10	8	1-5/8"	100.00 - 120.00	0.6000	0.4698
T10	10	Safety Line 3/8	100.00 - 120.00	0.6000	0.4698
T10	11	Strobe Cable	100.00 - 120.00	0.6000	0.4698
T11	1	1-5/8"	80.00 - 100.00	0.6000	0.4812
T11	3	1-5/8"	80.00 - 100.00	0.6000	0.4812
T11	5	1-5/8"	80.00 - 100.00	0.6000	0.4812
T11	7	1-5/8"	80.00 - 100.00	0.6000	0.4812
T11	8	1-5/8"	80.00 - 100.00	0.6000	0.4812
T11	10	Safety Line 3/8	80.00 - 100.00	0.6000	0.4812
T11	11	Strobe Cable	80.00 - 100.00	0.6000	0.4812
T12	1	1-5/8"	60.00 - 80.00	0.6000	0.4645
T12	3	1-5/8"	60.00 - 80.00	0.6000	0.4645
T12	5	1-5/8"	60.00 - 80.00	0.6000	0.4645
T12	7	1-5/8"	60.00 - 80.00	0.6000	0.4645
T12	8	1-5/8"	60.00 - 80.00	0.6000	0.4645
T12	10	Safety Line 3/8	60.00 - 80.00	0.6000	0.4645
T12	11	Strobe Cable	60.00 - 80.00	0.6000	0.4645
T13	1	1-5/8"	40.00 - 60.00	0.6000	0.4936
T13	3	1-5/8"	40.00 - 60.00	0.6000	0.4936
T13	5	1-5/8"	40.00 - 60.00	0.6000	0.4936
T13	7	1-5/8"	40.00 - 60.00	0.6000	0.4936
T13	8	1-5/8"	40.00 - 60.00	0.6000	0.4936
T13	10	Safety Line 3/8	40.00 - 60.00	0.6000	0.4936
T13	11	Strobe Cable	40.00 - 60.00	0.6000	0.4936
T14	1	1-5/8"	20.00 - 40.00	0.6000	0.5096
T14	3	1-5/8"	20.00 - 40.00	0.6000	0.5096
T14	5	1-5/8"	20.00 - 40.00	0.6000	0.5096
T14	7	1-5/8"	20.00 - 40.00	0.6000	0.5096
T14	8	1-5/8"	20.00 - 40.00	0.6000	0.5096
T14	10	Safety Line 3/8	20.00 - 40.00	0.6000	0.5096
T14	11	Strobe Cable	20.00 - 40.00	0.6000	0.5096
T15	1	1-5/8"	10.00 - 20.00	0.6000	0.5277
T15	3	1-5/8"	10.00 - 20.00	0.6000	0.5277
T15	5	1-5/8"	10.00 - 20.00	0.6000	0.5277
T15	7	1-5/8"	10.00 - 20.00	0.6000	0.5277
T15	8	1-5/8"	10.00 - 20.00	0.6000	0.5277
T15	10	Safety Line 3/8	10.00 - 20.00	0.6000	0.5277
T15	11	Strobe Cable	10.00 - 20.00	0.6000	0.5277

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C_{AA} Front	C_{AA} Side	Weight
			ft	°	ft	ft ²	ft ²	K
			ft					
			ft					

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Client	Vertical Bridge	Designed by	JLandon

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	CAAA Front ft ²	CAAA Side ft ²	Weight K
Lightning Rod 1"x10'	C	From Leg	0.000 0.000 5.000	0.000	300.000	No Ice 1.000 1/2" Ice 2.017 1" Ice 3.050 2" Ice 5.148	1.000 2.017 3.050 5.148	0.040 0.049 0.065 0.116
Top Beacon	B	From Leg	0.000 0.000 1.000	0.000	300.000	No Ice 2.700 1/2" Ice 3.100 1" Ice 3.500 2" Ice 4.300	2.700 3.100 3.500 4.300	0.050 0.070 0.090 0.130
**								
Sector1(CaAa=13333.33 Sq.in)No Ice (Carrier 1)	A	From Leg	4.000 0.000 0.000	0.000	295.000	No Ice 92.600 1/2" Ice 115.750 1" Ice 138.900 2" Ice 185.200	62.040 77.550 93.060 124.080	0.700 1.400 2.100 3.500
Sector2(CaAa=13333.33 Sq.in)No Ice (Carrier 1)	B	From Leg	4.000 0.000 0.000	0.000	295.000	No Ice 92.600 1/2" Ice 115.750 1" Ice 138.900 2" Ice 185.200	62.040 77.550 93.060 124.080	0.700 1.400 2.100 3.500
Sector3(CaAa=13333.33 Sq.in)No Ice (Carrier 1)	C	From Leg	4.000 0.000 0.000	0.000	295.000	No Ice 92.600 1/2" Ice 115.750 1" Ice 138.900 2" Ice 185.200	62.040 77.550 93.060 124.080	0.700 1.400 2.100 3.500
**								
Sector1(CaAa=10000 Sq.in)No Ice (Carrier 2)	A	From Leg	4.000 0.000 0.000	0.000	280.000	No Ice 69.440 1/2" Ice 86.800 1" Ice 104.160 2" Ice 138.880	46.525 58.156 69.787 93.050	0.700 1.400 2.100 3.500
Sector2(CaAa=10000 Sq.in)No Ice (Carrier 2)	B	From Leg	4.000 0.000 0.000	0.000	280.000	No Ice 69.440 1/2" Ice 86.800 1" Ice 104.160 2" Ice 138.880	46.525 58.156 69.787 93.050	0.700 1.400 2.100 3.500
Sector2(CaAa=10000 Sq.in)No Ice (Carrier 2)	C	From Leg	4.000 0.000 0.000	0.000	280.000	No Ice 69.440 1/2" Ice 86.800 1" Ice 104.160 2" Ice 138.880	46.525 58.156 69.787 93.050	0.700 1.400 2.100 3.500
**								
Sector1(CaAa=13333.33 Sq.in)No Ice (Carrier 3)	A	From Leg	4.000 0.000 0.000	0.000	270.000	No Ice 92.600 1/2" Ice 115.750 1" Ice 138.900 2" Ice 185.200	62.040 77.550 93.060 124.080	0.700 1.400 2.100 3.500
Sector2(CaAa=13333.33 Sq.in)No Ice (Carrier 3)	B	From Leg	4.000 0.000 0.000	0.000	270.000	No Ice 92.600 1/2" Ice 115.750 1" Ice 138.900 2" Ice 185.200	62.040 77.550 93.060 124.080	0.700 1.400 2.100 3.500
Sector3(CaAa=13333.33 Sq.in)No Ice (Carrier 3)	C	From Leg	4.000 0.000 0.000	0.000	270.000	No Ice 92.600 1/2" Ice 115.750 1" Ice 138.900 2" Ice 185.200	62.040 77.550 93.060 124.080	0.700 1.400 2.100 3.500
**								
Sector1(CaAa=10000 Sq.in)No Ice (Carrier 4)	A	From Leg	4.000 0.000 0.000	0.000	260.000	No Ice 69.440 1/2" Ice 86.800 1" Ice 104.160 2" Ice 138.880	46.525 58.156 69.787 93.050	0.700 1.400 2.100 3.500
Sector2(CaAa=10000 Sq.in)No Ice (Carrier 4)	B	From Leg	4.000 0.000 0.000	0.000	260.000	No Ice 69.440 1/2" Ice 86.800 1" Ice 104.160 2" Ice 138.880	46.525 58.156 69.787 93.050	0.700 1.400 2.100 3.500
Sector2(CaAa=10000)	C	From Leg	4.000	0.000	260.000	No Ice 69.440	46.525	0.700

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz Lateral	Vert					
			ft	ft	°	ft	ft ²	ft ²	K
Sq.in)No Ice (Carrier 4)			0.000			1/2" Ice	86.800	58.156	1.400
			0.000			1" Ice	104.160	69.787	2.100
						2" Ice	138.880	93.050	3.500
**									

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy
5	1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy
6	1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy
10	1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy
11	1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy
12	1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy
13	1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy
14	1.2 Dead+1.0 Ice+1.0 Temp+Guy
15	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
16	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
17	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
18	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
19	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
20	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
21	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
22	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
23	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
24	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
25	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
26	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
27	Dead+Wind 0 deg - Service+Guy
28	Dead+Wind 30 deg - Service+Guy
29	Dead+Wind 60 deg - Service+Guy
30	Dead+Wind 90 deg - Service+Guy
31	Dead+Wind 120 deg - Service+Guy
32	Dead+Wind 150 deg - Service+Guy
33	Dead+Wind 180 deg - Service+Guy
34	Dead+Wind 210 deg - Service+Guy
35	Dead+Wind 240 deg - Service+Guy
36	Dead+Wind 270 deg - Service+Guy
37	Dead+Wind 300 deg - Service+Guy
38	Dead+Wind 330 deg - Service+Guy

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Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft	
T1	300 - 280	Leg	Max Tension	8	9.264	0.003	0.043	
			Max. Compression	4	-23.597	0.315	-0.144	
			Max. Mx	11	-9.400	-0.365	-0.017	
			Max. My	2	-18.211	0.022	-0.357	
			Max. Vy	11	-1.911	0.156	0.003	
		Diagonal	Max. Vx	2	-1.910	-0.015	0.150	
			Max Tension	5	5.773	0.000	0.000	
			Max. Compression	11	-5.782	0.000	0.000	
			Max. Mx	20	-0.726	0.013	0.000	
			Max. My	9	2.972	0.000	0.000	
			Max. Vy	20	0.013	0.000	0.000	
			Max. Vx	9	-0.000	0.000	0.000	
			Horizontal	Max Tension	8	2.311	0.000	0.000
				Max. Compression	2	-2.311	0.000	0.000
				Max. Mx	15	0.572	0.009	0.000
		Max. My		9	0.377	0.000	-0.000	
		Max. Vy		15	0.012	0.000	0.000	
		Top Girt	Max. Vx	9	0.000	0.000	0.000	
			Max Tension	9	0.074	0.000	0.000	
			Max. Compression	3	-0.073	0.000	0.000	
			Max. Mx	21	-0.006	0.009	0.000	
			Max. My	9	-0.009	0.000	-0.000	
		Bottom Girt	Max. Vy	21	0.012	0.000	0.000	
			Max. Vx	9	0.000	0.000	0.000	
			Max Tension	8	1.921	0.000	0.000	
			Max. Compression	2	-1.652	0.000	0.000	
			Max. Mx	21	-0.099	0.009	0.000	
		Guy A	Max. My	9	-1.243	0.000	-0.000	
			Max. Vy	21	0.012	0.000	0.000	
			Max. Vx	9	0.000	0.000	0.000	
			Bottom Tension	9	23.379			
			Top Tension	9	23.610			
			Top Cable Vert	9	18.344			
			Top Cable Norm	9	14.864			
			Top Cable Tan	9	0.013			
			Bot Cable Vert	9	-17.807			
			Bot Cable Norm	9	15.147			
		Guy B	Bot Cable Tan	9	0.287			
			Bottom Tension	13	23.277			
			Top Tension	13	23.508			
			Top Cable Vert	13	18.266			
			Top Cable Norm	13	14.798			
			Top Cable Tan	13	0.013			
			Bot Cable Vert	13	-17.729			
			Bot Cable Norm	13	15.082			
			Bot Cable Tan	13	0.288			
			Guy C	Bottom Tension	3	23.363		
		Top Tension		3	23.594			
		Top Cable Vert		3	18.332			
		Top Cable Norm		3	14.854			
Top Cable Tan	3	0.013						
Bot Cable Vert	3	-17.794						
Bot Cable Norm	3	15.137						
Bot Cable Tan	3	0.287						
Top Guy Pull-Off	Max Tension	3		7.604	0.000	0.000		
	Max. Compression	1		0.000	0.000	0.000		
	Max. Mx	15	3.238	0.027	0.000			
			Max. My	9	6.678	0.000	-0.000	

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft		
T2	280 - 260	Leg	Max. Vy	15	-0.036	0.000	0.000		
			Max. Vx	9	0.000	0.000	0.000		
			Max Tension	8	5.235	0.106	1.099		
			Max. Compression	2	-35.228	-0.021	0.105		
			Max. Mx	5	-29.131	1.249	-0.022		
			Max. My	2	-30.695	-0.210	-1.176		
		Diagonal	Max. Vy	5	3.478	-0.091	-0.066		
			Max. Vx	2	-3.323	-0.021	0.105		
			Max Tension	3	8.376	0.000	0.000		
			Max. Compression	9	-8.591	0.000	0.000		
			Max. Mx	20	0.843	0.014	0.000		
			Max. My	9	3.869	0.000	0.000		
		Horizontal	Max. Vy	20	-0.015	0.000	0.000		
			Max. Vx	9	-0.000	0.000	0.000		
			Max Tension	8	2.344	0.000	0.000		
			Max. Compression	10	-2.203	0.000	0.000		
			Max. Mx	15	0.369	0.009	0.000		
			Max. My	9	0.431	0.000	-0.000		
		Top Girt	Max. Vy	15	0.012	0.000	0.000		
			Max. Vx	9	0.000	0.000	0.000		
			Max Tension	3	0.275	0.000	0.000		
			Max. Compression	9	-0.255	0.000	0.000		
			Max. Mx	15	0.077	0.009	0.000		
			Max. My	9	-0.255	0.000	-0.000		
		Bottom Girt	Max. Vy	15	0.012	0.000	0.000		
			Max. Vx	9	0.000	0.000	0.000		
			Max Tension	10	3.135	0.000	0.000		
			Max. Compression	4	-2.704	0.000	0.000		
			Max. Mx	14	0.056	0.009	0.000		
			Max. My	9	2.785	0.000	-0.000		
		T3	260 - 240	Leg	Max. Vy	14	0.012	0.000	0.000
					Max. Vx	9	0.000	0.000	0.000
					Max Tension	8	47.947	-0.001	0.001
Max. Compression	2				-85.845	0.248	0.006		
Max. Mx	11				8.314	2.020	-0.018		
Max. My	2				-3.956	-0.306	1.998		
Diagonal	Max. Vy			5	4.968	-2.005	-0.115		
	Max. Vx			2	-4.813	-0.306	1.998		
	Max Tension			9	13.242	0.000	0.000		
	Max. Compression			3	-13.438	0.000	0.000		
	Max. Mx			22	1.968	0.015	0.000		
	Max. My			3	6.465	0.000	-0.000		
Horizontal	Max. Vy			22	-0.016	0.000	0.000		
	Max. Vx			3	0.000	0.000	0.000		
	Max Tension			3	2.111	0.000	0.000		
	Max. Compression			9	-2.067	0.000	0.000		
	Max. Mx			15	0.640	0.009	0.000		
	Max. My			9	1.307	0.000	-0.000		
Top Girt	Max. Vy			15	-0.011	0.000	0.000		
	Max. Vx			9	0.000	0.000	0.000		
	Max Tension			4	4.874	0.000	0.000		
	Max. Compression			10	-5.165	0.000	0.000		
	Max. Mx			14	0.080	0.009	0.000		
	Max. My			9	-4.519	0.000	-0.000		
Bottom Girt	Max. Vy			14	-0.011	0.000	0.000		
	Max. Vx			9	0.000	0.000	0.000		
	Max Tension			9	2.636	0.000	0.000		
	Max. Compression			3	-2.463	0.000	0.000		
	Max. Mx			15	0.162	0.009	0.000		
	Max. My			9	-0.400	0.000	-0.000		
					Max. Vy	15	-0.011	0.000	0.000

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	9	0.000	0.000	0.000
		Guy A	Bottom Tension	9	18.769		
			Top Tension	9	18.934		
			Top Cable Vert	9	13.796		
			Top Cable Norm	9	12.967		
			Top Cable Tan	9	0.001		
			Bot Cable Vert	9	-13.383		
			Bot Cable Norm	9	13.158		
			Bot Cable Tan	9	0.216		
		Guy B	Bottom Tension	13	18.139		
			Top Tension	13	18.303		
			Top Cable Vert	13	13.344		
			Top Cable Norm	13	12.528		
			Top Cable Tan	13	0.006		
			Bot Cable Vert	13	-12.931		
			Bot Cable Norm	13	12.719		
			Bot Cable Tan	13	0.211		
		Guy C	Bottom Tension	3	18.756		
			Top Tension	3	18.921		
			Top Cable Vert	3	13.787		
			Top Cable Norm	3	12.958		
			Top Cable Tan	3	0.001		
			Bot Cable Vert	3	-13.374		
			Bot Cable Norm	3	13.149		
			Bot Cable Tan	3	0.216		
		Top Guy Pull-Off	Max Tension	3	11.949	0.000	0.000
			Max. Compression	9	-11.698	0.000	0.000
			Max. Mx	15	-1.090	0.026	0.000
			Max. My	9	4.177	0.000	-0.000
			Max. Vy	15	-0.035	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
		Torque Arm Top	Max Tension	7	13.674	0.000	0.000
			Max. Compression	11	-6.359	0.000	0.000
			Max. Mx	13	-0.067	-39.473	0.000
			Max. My	9	-3.334	-22.376	-0.000
			Max. Vy	13	13.195	-39.473	0.000
			Max. Vx	9	-0.000	-22.376	-0.000
T4	240 - 220	Leg	Max Tension	8	9.440	-0.113	-0.179
			Max. Compression	2	-71.494	-0.353	-0.475
			Max. Mx	4	-39.711	0.552	-0.372
			Max. My	3	-26.444	0.431	-0.624
			Max. Vy	4	-1.865	-0.166	0.012
			Max. Vx	3	1.892	-0.130	0.104
		Diagonal	Max Tension	8	4.809	0.000	0.000
			Max. Compression	4	-5.037	0.000	0.000
			Max. Mx	22	-0.337	0.012	0.000
			Max. My	9	-3.617	0.000	0.000
			Max. Vy	22	-0.013	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
		Horizontal	Max Tension	2	1.187	0.000	0.000
			Max. Compression	2	-1.187	0.000	0.000
			Max. Mx	19	0.704	0.008	0.000
			Max. My	9	1.047	0.000	-0.000
			Max. Vy	19	0.011	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
		Top Girt	Max Tension	3	2.347	0.000	0.000
			Max. Compression	9	-2.211	0.000	0.000
			Max. Mx	15	0.055	0.008	0.000
			Max. My	9	0.445	0.000	-0.000
			Max. Vy	15	-0.011	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T5	220 - 200	Bottom Girt	Max Tension	9	1.659	0.000	0.000
			Max. Compression	3	-1.478	0.000	0.000
			Max. Mx	19	0.174	0.008	0.000
			Max. My	9	0.179	0.000	-0.000
			Max. Vy	19	0.011	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
		Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	23	-50.679	0.077	0.126
			Max. Mx	4	-28.091	0.371	-0.285
			Max. My	3	-26.511	0.344	-0.516
			Max. Vy	10	0.968	0.075	-0.084
			Max. Vx	3	1.185	0.021	-0.060
		Diagonal	Max Tension	9	3.068	0.000	0.000
			Max. Compression	3	-3.263	0.000	0.000
			Max. Mx	18	-0.337	0.011	0.000
			Max. My	9	-1.605	0.000	0.000
			Max. Vy	18	-0.011	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
		Horizontal	Max Tension	23	0.871	0.000	0.000
			Max. Compression	23	-0.871	0.000	0.000
			Max. Mx	19	0.749	0.008	0.000
			Max. My	9	0.722	0.000	-0.000
			Max. Vy	19	-0.011	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
Top Girt	Max Tension	3	1.485	0.000	0.000		
	Max. Compression	9	-1.393	0.000	0.000		
	Max. Mx	19	0.014	0.008	0.000		
	Max. My	9	-0.102	0.000	-0.000		
	Max. Vy	19	-0.011	0.000	0.000		
	Max. Vx	9	0.000	0.000	0.000		
Bottom Girt	Max Tension	9	0.793	0.000	0.000		
	Max. Compression	3	-0.608	0.000	0.000		
	Max. Mx	19	0.133	0.008	0.000		
	Max. My	9	0.793	0.000	-0.000		
	Max. Vy	19	-0.011	0.000	0.000		
	Max. Vx	9	0.000	0.000	0.000		
T6	200 - 180	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	19	-55.295	-0.119	0.201
			Max. Mx	10	-35.801	0.439	-0.314
			Max. My	9	-31.202	0.366	-0.451
			Max. Vy	10	0.988	0.439	-0.314
			Max. Vx	3	1.007	-0.201	0.300
		Diagonal	Max Tension	10	2.783	0.000	0.000
			Max. Compression	2	-3.206	0.000	0.000
			Max. Mx	18	-0.104	0.011	0.000
			Max. My	9	-2.722	0.000	0.000
			Max. Vy	18	-0.011	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
		Horizontal	Max Tension	19	0.958	0.000	0.000
			Max. Compression	19	-0.958	0.000	0.000
			Max. Mx	15	0.953	0.008	0.000
			Max. My	9	0.689	0.000	-0.000
			Max. Vy	15	0.011	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
		Top Girt	Max Tension	3	0.819	0.000	0.000
			Max. Compression	9	-0.715	0.000	0.000
			Max. Mx	19	0.059	0.008	0.000
			Max. My	9	-0.715	0.000	-0.000
			Max. Vy	19	0.011	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
Bottom Girt	Max Tension	9	1.383	0.000	0.000		

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	3	-1.210	0.000	0.000
			Max. Mx	15	0.208	0.008	0.000
			Max. My	9	-0.203	0.000	-0.000
			Max. Vy	15	0.011	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
		Guy A	Bottom Tension	9	7.950		
			Top Tension	9	8.001		
			Top Cable Vert	9	5.038		
			Top Cable Norm	9	6.216		
			Top Cable Tan	9	0.014		
			Bot Cable Vert	9	-4.864		
			Bot Cable Norm	9	6.288		
			Bot Cable Tan	9	0.094		
		Guy B	Bottom Tension	11	7.715		
			Top Tension	11	7.766		
			Top Cable Vert	11	4.893		
			Top Cable Norm	11	6.031		
			Top Cable Tan	11	0.015		
			Bot Cable Vert	11	-4.719		
			Bot Cable Norm	11	6.104		
			Bot Cable Tan	11	0.093		
		Guy C	Bottom Tension	3	7.955		
			Top Tension	3	8.005		
			Top Cable Vert	3	5.040		
			Top Cable Norm	3	6.219		
			Top Cable Tan	3	0.014		
			Bot Cable Vert	3	-4.866		
			Bot Cable Norm	3	6.292		
			Bot Cable Tan	3	0.094		
		Top Guy Pull-Off	Max Tension	3	3.413	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	25	1.858	0.026	0.000
			Max. My	9	2.850	0.000	-0.000
			Max. Vy	25	-0.034	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
T7	180 - 160	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	19	-55.729	0.085	-0.151
			Max. Mx	11	-29.968	-0.371	0.002
			Max. My	3	-31.298	0.292	-0.468
			Max. Vy	10	0.994	0.059	-0.094
			Max. Vx	3	0.991	0.047	-0.087
		Diagonal	Max Tension	10	2.382	0.000	0.000
			Max. Compression	2	-2.671	0.000	0.000
			Max. Mx	23	-0.161	0.010	0.000
			Max. My	9	-0.633	0.000	0.000
			Max. Vy	23	-0.011	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
		Horizontal	Max Tension	19	0.960	0.000	0.000
			Max. Compression	19	-0.960	0.000	0.000
			Max. Mx	17	0.937	0.008	0.000
			Max. My	9	0.729	0.000	-0.000
			Max. Vy	17	-0.011	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
		Top Girt	Max Tension	3	1.222	0.000	0.000
			Max. Compression	9	-1.089	0.000	0.000
			Max. Mx	15	-0.006	0.008	0.000
			Max. My	9	0.281	0.000	-0.000
			Max. Vy	15	-0.011	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
		Bottom Girt	Max Tension	9	0.456	0.000	0.000
			Max. Compression	3	-0.331	0.000	0.000

tnxTower B+T Group 1717 S. Boulder Ave, Ste 300 Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job	ATS #8546 - Workman (Site# US-KY-5040)	Page	26 of 50
	Project	300' 36G/36.83991944, -88.6757583	Date	11:45:04 08/19/20
	Client	Vertical Bridge	Designed by	JLandon

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T8	160 - 140	Leg	Max. Mx	17	0.144	0.008	0.000
			Max. My	9	0.433	0.000	-0.000
			Max. Vy	17	-0.011	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	19	-58.212	0.090	-0.159
			Max. Mx	5	-35.281	0.508	-0.121
			Max. My	8	-29.121	-0.007	0.543
			Max. Vy	5	1.212	0.041	-0.092
			Max. Vx	8	1.244	0.048	0.063
			Max Tension	3	2.762	0.000	0.000
			Max. Compression	9	-3.298	0.000	0.000
		Diagonal	Max. Mx	23	-0.369	0.010	0.000
			Max. My	9	1.396	0.000	0.000
			Max. Vy	23	-0.011	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
			Max Tension	19	1.001	0.000	0.000
			Max. Compression	19	-1.001	0.000	0.000
			Max. Mx	24	0.970	0.008	0.000
			Max. My	9	0.720	0.000	-0.000
			Max. Vy	24	-0.011	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
			Max Tension	3	0.568	0.000	0.000
			Max. Compression	9	-0.357	0.000	0.000
		Horizontal	Max. Mx	17	0.054	0.008	0.000
			Max. My	9	-0.357	0.000	-0.000
			Max. Vy	17	-0.011	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
			Max Tension	10	1.193	0.000	0.000
			Max. Compression	4	-1.132	0.000	0.000
			Max. Mx	24	0.186	0.008	0.000
			Max. My	9	1.076	0.000	-0.000
			Max. Vy	24	-0.011	0.000	0.000
Max. Vx	9		0.000	0.000	0.000		
Max Tension	10		1.193	0.000	0.000		
Max. Compression	4		-1.132	0.000	0.000		
Top Girt	Max. Mx	24	0.186	0.008	0.000		
	Max. My	9	1.076	0.000	-0.000		
	Max. Vy	24	-0.011	0.000	0.000		
	Max. Vx	9	0.000	0.000	0.000		
	Max Tension	10	1.193	0.000	0.000		
	Max. Compression	4	-1.132	0.000	0.000		
	Max. Mx	24	0.186	0.008	0.000		
	Max. My	9	1.076	0.000	-0.000		
	Max. Vy	24	-0.011	0.000	0.000		
	Max. Vx	9	0.000	0.000	0.000		
	Max Tension	10	1.193	0.000	0.000		
	Max. Compression	4	-1.132	0.000	0.000		
Bottom Girt	Max. Mx	24	0.186	0.008	0.000		
	Max. My	9	1.076	0.000	-0.000		
	Max. Vy	24	-0.011	0.000	0.000		
	Max. Vx	9	0.000	0.000	0.000		
	Max Tension	10	1.193	0.000	0.000		
	Max. Compression	4	-1.132	0.000	0.000		
	Max. Mx	24	0.186	0.008	0.000		
	Max. My	9	1.076	0.000	-0.000		
	Max. Vy	24	-0.011	0.000	0.000		
	Max. Vx	9	0.000	0.000	0.000		
	Max Tension	10	1.193	0.000	0.000		
	Max. Compression	4	-1.132	0.000	0.000		
T9	140 - 120	Leg	Max. Mx	1	0.000	0.000	0.000
			Max. Compression	15	-63.188	0.103	-0.178
			Max. Mx	10	-40.028	0.657	-0.391
			Max. My	2	-40.613	-0.013	0.723
			Max. Vy	10	1.537	0.657	-0.391
			Max. Vx	2	1.633	-0.047	0.629
		Diagonal	Max Tension	2	3.532	0.000	0.000
			Max. Compression	10	-4.158	0.000	0.000
			Max. Mx	23	0.291	0.011	0.000
			Max. My	9	1.342	0.000	0.000
			Max. Vy	23	-0.012	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
Horizontal	Max Tension	15	1.088	0.000	0.000		
	Max. Compression	15	-1.088	0.000	0.000		
	Max. Mx	18	1.078	0.008	0.000		
	Max. My	9	0.800	0.000	-0.000		
	Max. Vy	18	0.010	0.000	0.000		
	Max. Vx	9	0.000	0.000	0.000		
Top Girt	Max Tension	4	1.361	0.000	0.000		
	Max. Compression	10	-1.121	0.000	0.000		
	Max. Mx	24	0.028	0.008	0.000		
	Max. My	9	-0.982	0.000	-0.000		
	Max. Vy	24	0.010	0.000	0.000		
	Max. Vx	9	0.000	0.000	0.000		
Bottom Girt	Max Tension	9	1.600	0.000	0.000		
	Max. Compression	2	-1.624	0.000	0.000		
	Max. Mx	23	0.359	0.008	0.000		

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	Project	300' 36G/36.83991944, -88.6757583	Date	11:45:04 08/19/20
	Client	Vertical Bridge	Designed by	JLandon

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	9	-1.101	0.000	-0.000
			Max. Vy	23	0.010	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
		Guy A	Bottom Tension	9	11.895		
			Top Tension	9	11.946		
			Top Cable Vert	9	5.770		
			Top Cable Norm	9	10.460		
			Top Cable Tan	9	0.009		
			Bot Cable Vert	9	-5.595		
			Bot Cable Norm	9	10.496		
			Bot Cable Tan	9	0.100		
		Guy B	Bottom Tension	11	11.442		
			Top Tension	11	11.493		
			Top Cable Vert	11	5.555		
			Top Cable Norm	11	10.061		
			Top Cable Tan	11	0.008		
			Bot Cable Vert	11	-5.381		
			Bot Cable Norm	11	10.097		
			Bot Cable Tan	11	0.099		
		Guy C	Bottom Tension	3	11.898		
			Top Tension	3	11.949		
			Top Cable Vert	3	5.772		
			Top Cable Norm	3	10.463		
			Top Cable Tan	3	0.010		
			Bot Cable Vert	3	-5.597		
			Bot Cable Norm	3	10.499		
			Bot Cable Tan	3	0.101		
		Top Guy Pull-Off	Max Tension	3	5.709	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	23	2.988	0.025	0.000
			Max. My	9	4.710	0.000	-0.000
			Max. Vy	23	-0.034	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
T10	120 - 100	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	25	-69.180	0.105	-0.188
			Max. Mx	5	-34.764	0.632	-0.048
			Max. My	2	-42.964	0.064	-0.638
			Max. Vy	10	1.546	0.065	-0.112
			Max. Vx	2	1.632	-0.123	-0.000
		Diagonal	Max Tension	7	3.475	0.000	0.000
			Max. Compression	2	-3.731	0.000	0.000
			Max. Mx	23	0.556	0.011	0.000
			Max. My	9	-0.744	0.000	0.000
			Max. Vy	23	-0.012	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
		Horizontal	Max Tension	25	1.188	0.000	0.000
			Max. Compression	25	-1.188	0.000	0.000
			Max. Mx	24	1.181	0.008	0.000
			Max. My	9	0.940	0.000	-0.000
			Max. Vy	24	0.010	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
		Top Girt	Max Tension	2	1.670	0.000	0.000
			Max. Compression	9	-1.300	0.000	0.000
			Max. Mx	23	-0.128	0.008	0.000
			Max. My	9	1.203	0.000	-0.000
			Max. Vy	23	0.010	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
		Bottom Girt	Max Tension	3	0.711	0.000	0.000
			Max. Compression	10	-0.529	0.000	0.000
			Max. Mx	16	0.334	0.008	0.000
			Max. My	9	-0.439	0.000	-0.000

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	Project	300' 36G/36.83991944, -88.6757583	Date	11:45:04 08/19/20
	Client	Vertical Bridge	Designed by	JLandon

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T11	100 - 80	Leg	Max. Vy	16	0.010	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	25	-72.201	0.107	-0.194
			Max. Mx	11	-43.109	-0.349	-0.040
			Max. My	3	-43.275	0.278	-0.380
		Diagonal	Max. Vy	4	0.625	0.059	-0.080
			Max. Vx	3	-0.685	0.075	-0.117
			Max Tension	3	1.303	0.000	0.000
			Max. Compression	4	-1.901	0.000	0.000
			Max. Mx	16	-0.414	0.010	0.000
			Max. My	9	1.239	0.000	0.000
		Horizontal	Max. Vy	16	0.010	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
			Max Tension	25	1.245	0.000	0.000
			Max. Compression	25	-1.245	0.000	0.000
			Max. Mx	16	1.161	0.008	0.000
			Max. My	9	0.985	0.000	-0.000
		Top Girt	Max. Vy	16	0.010	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
			Max Tension	10	0.556	0.000	0.000
			Max. Compression	3	-0.453	0.000	0.000
			Max. Mx	20	-0.082	0.008	0.000
			Max. My	9	0.503	0.000	-0.000
		Bottom Girt	Max. Vy	20	0.010	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
			Max Tension	3	0.814	0.000	0.000
			Max. Compression	9	-0.631	0.000	0.000
			Max. Mx	17	0.225	0.008	0.000
			Max. My	9	0.215	0.000	-0.000
T12	80 - 60	Leg	Max. Vy	17	0.010	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
			Max Tension	1	0.000	0.000	0.000
			Max. Compression	25	-77.324	0.105	-0.217
			Max. Mx	6	-57.282	-0.364	-0.133
			Max. My	3	-58.016	-0.023	0.462
		Diagonal	Max. Vy	11	1.026	0.355	-0.142
			Max. Vx	3	1.180	0.132	0.007
			Max Tension	3	3.102	0.000	0.000
			Max. Compression	3	-3.596	0.000	0.000
			Max. Mx	16	-1.006	0.009	0.000
			Max. My	9	1.180	0.000	0.000
		Horizontal	Max. Vy	16	0.010	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
			Max Tension	25	1.328	0.000	0.000
			Max. Compression	25	-1.328	0.000	0.000
			Max. Mx	25	1.162	0.007	0.000
			Max. My	9	1.035	0.000	-0.000
		Top Girt	Max. Vy	25	0.010	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
			Max Tension	9	0.953	0.000	0.000
			Max. Compression	3	-0.802	0.000	0.000
			Max. Mx	17	-0.015	0.007	0.000
			Max. My	9	-0.152	0.000	-0.000
		Bottom Girt	Max. Vy	17	0.010	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
			Max Tension	3	1.300	0.000	0.000
			Max. Compression	9	-0.856	0.000	0.000
			Max. Mx	14	0.213	0.007	0.000
			Max. My	9	-0.856	0.000	-0.000
			Max. Vy	14	0.010	0.000	0.000

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	Project	300' 36G/36.83991944, -88.6757583	Date	11:45:04 08/19/20
	Client	Vertical Bridge	Designed by	JLandon

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	9	0.000	0.000	0.000
		Guy A	Bottom Tension	9	7.595		
			Top Tension	9	7.614		
			Top Cable Vert	9	2.181		
			Top Cable Norm	9	7.295		
			Top Cable Tan	9	0.000		
			Bot Cable Vert	9	-2.088		
			Bot Cable Norm	9	7.302		
			Bot Cable Tan	9	0.053		
		Guy B	Bottom Tension	11	7.301		
			Top Tension	11	7.320		
			Top Cable Vert	11	2.099		
			Top Cable Norm	11	7.012		
			Top Cable Tan	11	0.000		
			Bot Cable Vert	11	-2.006		
			Bot Cable Norm	11	7.020		
			Bot Cable Tan	11	0.053		
		Guy C	Bottom Tension	3	7.595		
			Top Tension	3	7.614		
			Top Cable Vert	3	2.181		
			Top Cable Norm	3	7.295		
			Top Cable Tan	3	0.000		
			Bot Cable Vert	3	-2.088		
			Bot Cable Norm	3	7.302		
			Bot Cable Tan	3	0.054		
		Top Guy Pull-Off	Max Tension	3	4.049	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	14	2.405	0.024	0.000
			Max. My	9	3.337	0.000	-0.000
			Max. Vy	14	-0.032	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
T13	60 - 40	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	25	-80.542	0.134	-0.250
			Max. Mx	5	-17.940	0.521	-0.093
			Max. My	9	-15.521	-0.156	0.620
			Max. Vy	11	1.024	-0.040	-0.131
			Max. Vx	3	1.190	0.278	-0.451
		Diagonal	Max Tension	3	3.071	0.000	0.000
			Max. Compression	9	-3.338	0.000	0.000
			Max. Mx	16	-0.728	0.009	0.000
			Max. My	9	-0.017	0.000	0.000
			Max. Vy	16	-0.009	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
		Horizontal	Max Tension	25	1.386	0.000	0.000
			Max. Compression	25	-1.386	0.000	0.000
			Max. Mx	14	1.247	0.007	0.000
			Max. My	9	1.203	0.000	-0.000
			Max. Vy	14	-0.009	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
		Top Girt	Max Tension	9	1.023	0.000	0.000
			Max. Compression	3	-1.099	0.000	0.000
			Max. Mx	14	0.067	0.007	0.000
			Max. My	9	1.023	0.000	-0.000
			Max. Vy	14	-0.009	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
		Bottom Girt	Max Tension	3	0.642	0.000	0.000
			Max. Compression	9	-0.366	0.000	0.000
			Max. Mx	14	0.278	0.007	0.000
			Max. My	9	-0.255	0.000	-0.000
			Max. Vy	14	-0.009	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000

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	Project	300' 36G/36.83991944, -88.6757583	Date	11:45:04 08/19/20
	Client	Vertical Bridge	Designed by	JLandon

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T14	40 - 20	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	25	-80.557	0.131	-0.203
			Max. Mx	11	-43.185	-0.488	-0.051
			Max. My	3	-43.311	0.435	-0.565
			Max. Vy	10	-1.184	0.061	-0.163
			Max. Vx	3	-1.137	0.093	-0.127
		Diagonal	Max Tension	10	2.617	0.000	0.000
			Max. Compression	2	-3.472	0.000	0.000
			Max. Mx	24	-0.141	0.008	0.000
			Max. My	9	0.694	0.000	0.000
			Max. Vy	24	0.009	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
		Horizontal	Max Tension	25	1.395	0.000	0.000
			Max. Compression	25	-1.395	0.000	0.000
			Max. Mx	23	1.355	0.007	0.000
			Max. My	9	1.196	0.000	-0.000
			Max. Vy	23	-0.009	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
		Top Girt	Max Tension	9	0.635	0.000	0.000
			Max. Compression	3	-0.521	0.000	0.000
			Max. Mx	14	0.090	0.007	0.000
			Max. My	9	0.391	0.000	-0.000
			Max. Vy	14	-0.009	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
		Bottom Girt	Max Tension	3	1.464	0.000	0.000
			Max. Compression	9	-1.108	0.000	0.000
			Max. Mx	14	0.285	0.007	0.000
			Max. My	9	0.288	0.000	-0.000
			Max. Vy	14	-0.009	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
T15	20 - 5	Leg	Max Tension	1	0.000	0.000	0.000
			Max. Compression	25	-80.211	0.206	-0.180
			Max. Mx	24	-77.670	3.847	2.183
			Max. My	22	-77.531	0.028	-4.417
			Max. Vy	17	11.948	-3.801	2.245
			Max. Vx	21	13.732	-0.001	-4.415
		Diagonal	Max Tension	9	4.021	0.000	0.000
			Max. Compression	3	-4.554	0.000	0.000
			Max. Mx	24	0.242	0.009	0.000
			Max. My	9	1.833	0.000	0.000
			Max. Vy	24	-0.009	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
		Horizontal	Max Tension	25	1.383	0.000	0.000
			Max. Compression	25	-1.383	0.000	0.000
			Max. Mx	14	1.309	0.006	0.000
			Max. My	9	1.037	0.000	-0.000
			Max. Vy	14	0.008	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
		Top Girt	Max Tension	9	1.493	0.000	0.000
			Max. Compression	3	-1.356	0.000	0.000
			Max. Mx	14	0.100	0.006	0.000
			Max. My	9	-0.115	0.000	-0.000
			Max. Vy	14	0.008	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
		Bottom Girt	Max Tension	15	8.324	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	14	7.994	0.006	0.000
			Max. My	9	4.609	0.000	-0.000
			Max. Vy	14	0.008	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
T16	5 - 0	Leg	Max Tension	1	0.000	0.000	0.000

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	24	-82.310	0.157	0.504
			Max. Mx	26	-77.827	4.427	-0.007
			Max. My	3	-49.680	-0.314	2.962
			Max. Vy	15	12.973	-0.881	0.072
			Max. Vx	3	-5.052	-0.198	2.920
		Diagonal	Max Tension	3	2.780	0.000	0.000
			Max. Compression	3	-14.609	0.000	0.000
			Max. Mx	15	-0.062	0.005	0.000
			Max. My	9	-3.139	0.000	0.000
			Max. Vy	15	-0.007	0.000	0.000
			Max. Vx	9	-0.000	0.000	0.000
		Horizontal	Max Tension	24	1.487	0.000	0.000
			Max. Compression	24	-1.487	0.000	0.000
			Max. Mx	14	1.454	0.001	0.000
			Max. My	9	1.003	0.000	-0.000
			Max. Vy	14	-0.003	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
		Top Girt	Max Tension	23	8.292	0.000	0.000
			Max. Compression	1	0.000	0.000	0.000
			Max. Mx	14	8.040	0.004	0.000
			Max. My	9	5.173	0.000	-0.000
			Max. Vy	14	-0.006	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000
		Bottom Girt	Max Tension	3	4.291	0.000	0.000
			Max. Compression	9	-0.576	0.000	0.000
			Max. Mx	17	3.265	0.000	0.000
			Max. Vy	17	-0.001	0.000	0.000
			Max. Vx	9	0.000	0.000	0.000

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K	
Mast	Max. Vert	19	230.046	0.230	0.135	
	Max. H _x	12	105.214	1.028	0.589	
	Max. H _z	4	105.898	-1.039	0.595	
	Max. M _x	1	0.000	0.007	0.004	
	Max. M _z	1	0.000	0.007	0.004	
	Max. Torsion	9	2.925	-0.162	-0.598	
	Min. Vert	1	65.451	0.007	0.004	
	Min. H _x	4	105.898	-1.039	0.595	
	Min. H _z	8	106.180	-0.006	-1.198	
	Min. M _x	1	0.000	0.007	0.004	
	Min. M _z	1	0.000	0.007	0.004	
	Min. Torsion	3	-3.358	-0.597	0.161	
	Guy C @ 240 ft Elev 0 ft Azimuth 240 deg	Max. Vert	10	-0.915	-0.599	0.346
		Max. H _x	10	-0.915	-0.599	0.346
	Max. H _z	3	-56.279	-55.598	33.188	
	Min. Vert	3	-56.279	-55.598	33.188	
	Min. H _x	3	-56.279	-55.598	33.188	
	Min. H _z	10	-0.915	-0.599	0.346	
Guy B @ 240 ft Elev 0 ft Azimuth 120 deg	Max. Vert	6	-0.926	0.612	0.353	

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Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Guy A @ 240 ft Elev 0 ft Azimuth 0 deg	Max. H _x	11	-54.911	55.046	30.702
	Max. H _z	13	-55.315	54.387	32.483
	Min. Vert	13	-55.315	54.387	32.483
	Min. H _x	6	-0.926	0.612	0.353
	Min. H _z	6	-0.926	0.612	0.353
	Max. Vert	2	-0.908	0.000	-0.686
	Max. H _x	11	-28.561	1.558	-32.440
	Max. H _z	2	-0.908	0.000	-0.686
	Min. Vert	9	-56.283	0.942	-64.743
	Min. H _x	5	-28.572	-1.559	-32.452
	Min. H _z	9	-56.283	0.942	-64.743

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	65.451	-0.007	-0.004	0.000	0.000	0.089
1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy	137.252	-0.004	0.041	0.000	0.000	1.613
1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy	127.746	0.597	-0.161	0.000	0.000	3.358
1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy	105.898	1.039	-0.595	0.000	0.000	1.944
1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy	125.792	0.468	-0.409	0.000	0.000	-0.218
1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy	134.918	0.027	0.014	0.000	0.000	0.352
1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy	126.385	-0.113	0.609	0.000	0.000	0.863
1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy	106.180	0.006	1.198	0.000	0.000	-1.450
1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy	127.751	0.162	0.598	0.000	0.000	-2.925
1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy	136.551	0.038	-0.023	0.000	0.000	-1.299
1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy	125.760	-0.484	-0.406	0.000	0.000	0.611
1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy	105.214	-1.028	-0.589	0.000	0.000	-0.010
1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy	126.346	-0.595	-0.220	0.000	0.000	-0.459
1.2 Dead+1.0 Ice+1.0 Temp+Guy	228.560	-0.035	-0.022	0.000	0.000	0.369
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	230.031	-0.035	0.215	0.000	0.000	0.493
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	229.500	-0.135	0.166	0.000	0.000	0.652
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	228.991	-0.208	0.081	0.000	0.000	0.502
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	229.504	-0.238	-0.025	0.000	0.000	0.317
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	230.046	-0.230	-0.135	0.000	0.000	0.383
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	229.512	-0.138	-0.196	0.000	0.000	0.443

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Load Combination	Vertical	Shear _x	Shear _z	Overturning Moment, M _x	Overturning Moment, M _z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
deg+1.0 Ice+1.0 Temp+1.0 Guy						
1.2 Dead+1.0 Wind 180	229.000	-0.033	-0.223	0.000	0.000	0.249
deg+1.0 Ice+1.0 Temp+1.0 Guy						
1.2 Dead+1.0 Wind 210	229.507	0.077	-0.202	0.000	0.000	0.090
deg+1.0 Ice+1.0 Temp+1.0 Guy						
1.2 Dead+1.0 Wind 240	230.033	0.170	-0.141	0.000	0.000	0.241
deg+1.0 Ice+1.0 Temp+1.0 Guy						
1.2 Dead+1.0 Wind 270	229.479	0.169	-0.026	0.000	0.000	0.425
deg+1.0 Ice+1.0 Temp+1.0 Guy						
1.2 Dead+1.0 Wind 300	228.963	0.133	0.076	0.000	0.000	0.359
deg+1.0 Ice+1.0 Temp+1.0 Guy						
1.2 Dead+1.0 Wind 330	229.480	0.062	0.157	0.000	0.000	0.298
deg+1.0 Ice+1.0 Temp+1.0 Guy						
Dead+Wind 0 deg - Service+Guy	69.589	-0.007	-0.540	0.000	0.000	0.659
Dead+Wind 30 deg - Service+Guy	69.130	0.272	-0.475	0.000	0.000	1.339
Dead+Wind 60 deg - Service+Guy	68.631	0.467	-0.278	0.000	0.000	0.719
Dead+Wind 90 deg - Service+Guy	68.852	0.525	-0.009	0.000	0.000	-0.069
Dead+Wind 120 deg - Service+Guy	69.179	0.446	0.257	0.000	0.000	0.154
Dead+Wind 150 deg - Service+Guy	68.933	0.257	0.459	0.000	0.000	0.361
Dead+Wind 180 deg - Service+Guy	68.665	-0.006	0.544	0.000	0.000	-0.469
Dead+Wind 210 deg - Service+Guy	69.130	-0.274	0.473	0.000	0.000	-1.143
Dead+Wind 240 deg - Service+Guy	69.461	-0.469	0.263	0.000	0.000	-0.522
Dead+Wind 270 deg - Service+Guy	68.842	-0.538	-0.008	0.000	0.000	0.260
Dead+Wind 300 deg - Service+Guy	68.535	-0.466	-0.269	0.000	0.000	0.038
Dead+Wind 330 deg - Service+Guy	68.919	-0.277	-0.464	0.000	0.000	-0.169

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.000	-34.068	0.000	-0.000	34.068	0.000	0.002%
2	0.000	-40.558	-56.987	-0.000	40.558	56.978	0.014%
3	28.613	-40.266	-49.559	-28.613	40.265	49.549	0.014%
4	49.029	-39.974	-28.307	-49.032	39.974	28.303	0.008%
5	55.706	-40.266	0.000	-55.699	40.265	0.005	0.014%
6	48.037	-40.558	27.734	-48.029	40.558	-27.730	0.013%
7	28.002	-40.266	48.502	-27.994	40.265	-48.497	0.014%
8	0.000	-39.974	56.913	-0.005	39.974	-56.913	0.007%
9	-28.613	-40.266	49.559	28.604	40.265	-49.554	0.014%
10	-49.094	-40.558	28.344	49.086	40.558	-28.340	0.014%
11	-55.706	-40.266	0.000	55.698	40.265	0.005	0.014%
12	-47.972	-39.974	-27.697	47.974	39.973	27.694	0.005%
13	-28.002	-40.266	-48.502	28.003	40.265	48.492	0.014%
14	0.000	-168.697	0.000	-0.002	168.697	-0.002	0.002%
15	0.000	-168.880	-9.998	0.000	168.880	9.997	0.001%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
16	5.003	-168.697	-8.665	-5.003	168.697	8.664	0.001%
17	8.641	-168.514	-4.989	-8.640	168.514	4.988	0.001%
18	9.915	-168.697	0.000	-9.914	168.697	0.001	0.001%
19	8.580	-168.880	4.954	-8.579	168.880	-4.953	0.001%
20	4.966	-168.697	8.601	-4.965	168.697	-8.600	0.001%
21	0.000	-168.514	9.994	-0.000	168.514	-9.993	0.001%
22	-5.003	-168.697	8.665	5.002	168.697	-8.664	0.001%
23	-8.644	-168.880	4.991	8.643	168.880	-4.990	0.001%
24	-9.915	-168.697	0.000	9.914	168.697	0.001	0.001%
25	-8.577	-168.514	-4.952	8.576	168.514	4.951	0.001%
26	-4.966	-168.697	-8.601	4.966	168.697	8.600	0.001%
27	-0.000	-34.162	-18.259	-0.000	34.162	18.257	0.005%
28	9.168	-34.068	-15.879	-9.168	34.068	15.877	0.005%
29	15.709	-33.975	-9.070	-15.708	33.975	9.068	0.005%
30	17.848	-34.068	0.000	-17.847	34.068	0.001	0.004%
31	15.391	-34.162	8.886	-15.389	34.162	-8.885	0.006%
32	8.972	-34.068	15.540	-8.971	34.068	-15.539	0.004%
33	0.000	-33.975	18.235	-0.000	33.975	-18.233	0.005%
34	-9.168	-34.068	15.879	9.166	34.068	-15.878	0.005%
35	-15.730	-34.162	9.082	15.728	34.162	-9.081	0.005%
36	-17.848	-34.068	0.000	17.847	34.068	0.001	0.004%
37	-15.370	-33.975	-8.874	15.369	33.975	8.873	0.004%
38	-8.972	-34.068	-15.540	8.972	34.068	15.538	0.004%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	7	0.00000001	0.00008660
2	Yes	31	0.00012595	0.00013484
3	Yes	30	0.00014439	0.00014770
4	Yes	24	0.00014740	0.00009921
5	Yes	30	0.00013946	0.00014014
6	Yes	31	0.00011878	0.00012543
7	Yes	30	0.00013974	0.00014012
8	Yes	24	0.00013480	0.00009083
9	Yes	30	0.00014431	0.00014731
10	Yes	31	0.00012531	0.00013442
11	Yes	30	0.00013955	0.00014018
12	Yes	17	0.00010663	0.00014510
13	Yes	30	0.00013963	0.00013999
14	Yes	12	0.00015000	0.00008785
15	Yes	30	0.00014163	0.00004010
16	Yes	29	0.00012654	0.00003573
17	Yes	25	0.00013107	0.00004449
18	Yes	28	0.00014044	0.00004062
19	Yes	30	0.00012652	0.00003653
20	Yes	28	0.00014013	0.00004063
21	Yes	25	0.00013736	0.00004751
22	Yes	29	0.00012909	0.00003736
23	Yes	30	0.00014430	0.00004144
24	Yes	29	0.00000001	0.00003579
25	Yes	25	0.00014031	0.00004787
26	Yes	29	0.00000001	0.00003402
27	Yes	23	0.00011438	0.00005213
28	Yes	21	0.00013494	0.00006085

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29	Yes	13	0.00000001	0.00008141
30	Yes	21	0.00010728	0.00004748
31	Yes	22	0.00014254	0.00006289
32	Yes	21	0.00000001	0.00004656
33	Yes	13	0.00000001	0.00008363
34	Yes	21	0.00013428	0.00006051
35	Yes	23	0.00011633	0.00005267
36	Yes	21	0.00010714	0.00004733
37	Yes	13	0.00000001	0.00007979
38	Yes	21	0.00000001	0.00004679

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	300 - 280	7.837	27	0.184	0.567
T2	280 - 260	7.125	27	0.189	0.567
T3	260 - 240	6.259	27	0.209	0.568
T4	240 - 220	5.586	27	0.116	0.629
T5	220 - 200	5.338	27	0.058	0.799
T6	200 - 180	5.216	35	0.048	0.976
T7	180 - 160	5.166	35	0.043	1.113
T8	160 - 140	5.072	35	0.071	1.212
T9	140 - 120	4.818	35	0.081	1.266
T10	120 - 100	4.596	35	0.049	1.287
T11	100 - 80	4.359	35	0.084	1.285
T12	80 - 60	3.883	35	0.139	1.242
T13	60 - 40	3.229	35	0.177	1.174
T14	40 - 20	2.396	35	0.232	1.083
T15	20 - 5	1.290	35	0.287	0.962
T16	5 - 0	0.328	35	0.309	0.869

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
300.000	Lightning Rod 1"x10'	27	7.837	0.184	0.567	64829
295.000	Sector1(CaAa=13333.33 Sq.in)No Ice	27	7.670	0.183	0.568	64829
290.000	Guy	27	7.499	0.182	0.568	32414
280.000	Sector1(CaAa=10000 Sq.in)No Ice	27	7.125	0.189	0.567	18180
270.000	Sector1(CaAa=13333.33 Sq.in)No Ice	27	6.696	0.208	0.565	81963
260.000	Sector1(CaAa=10000 Sq.in)No Ice	27	6.259	0.209	0.568	22800
250.000	Guy	27	5.873	0.170	0.586	12031
190.000	Guy	35	5.186	0.043	1.049	90138
130.000	Guy	35	4.698	0.065	1.279	33505
70.000	Guy	35	3.574	0.158	1.202	31978

Maximum Tower Deflections - Design Wind

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	300 - 280	49.400	2	1.109	1.235
T2	280 - 260	44.819	2	1.121	1.259
T3	260 - 240	39.824	2	1.150	1.298
T4	240 - 220	35.612	2	0.813	1.478
T5	220 - 200	32.992	2	0.558	1.930
T6	200 - 180	31.153	10	0.438	2.375
T7	180 - 160	29.713	10	0.347	2.722
T8	160 - 140	28.297	10	0.384	2.970
T9	140 - 120	26.501	10	0.420	3.074
T10	120 - 100	24.931	10	0.357	3.124
T11	100 - 80	23.287	10	0.512	3.146
T12	80 - 60	20.611	10	0.767	3.040
T13	60 - 40	16.973	10	0.988	2.880
T14	40 - 20	12.362	10	1.243	2.679
T15	20 - 5	6.565	10	1.482	2.379
T16	5 - 0	1.663	10	1.573	2.126

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
300.000	Lightning Rod 1"x10'	2	49.400	1.109	1.235	21138
295.000	Sector1(CaAa=13333.33 Sq.in)No Ice	2	48.288	1.105	1.241	21138
290.000	Guy	2	47.162	1.103	1.247	10569
280.000	Sector1(CaAa=10000 Sq.in)No Ice	2	44.819	1.121	1.259	5949
270.000	Sector1(CaAa=13333.33 Sq.in)No Ice	2	42.320	1.165	1.272	32815
260.000	Sector1(CaAa=10000 Sq.in)No Ice	2	39.824	1.150	1.298	5717
250.000	Guy	2	37.534	1.007	1.356	3256
190.000	Guy	10	30.396	0.383	2.560	12901
130.000	Guy	10	25.679	0.380	3.101	10076
70.000	Guy	10	18.903	0.866	2.942	5306

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T2	280	Leg	A325N	0.750	3	2.715	30.101	0.090	✓	1 Bolt Tension
T3	260	Leg	A325N	0.750	3	4.003	30.101	0.133	✓	1 Bolt Tension
T4	240	Leg	A325N	0.750	3	7.944	30.101	0.264	✓	1 Bolt Tension
T5	220	Leg	A325N	0.750	3	5.431	30.101	0.180	✓	1 Bolt Tension
T6	200	Leg	A325N	0.750	3	5.631	30.101	0.187	✓	1 Bolt Tension
T7	180	Leg	A325N	0.750	3	6.128	30.101	0.204	✓	1 Bolt Tension
T8	160	Leg	A325N	0.750	3	6.194	30.101	0.206	✓	1 Bolt Tension

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Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T9	140	Leg	A325N	0.750	3	6.470	30.101	0.215 ✓	1	Bolt Tension
T10	120	Leg	A325N	0.750	3	7.023	30.101	0.233 ✓	1	Bolt Tension
T11	100	Leg	A325N	0.750	3	7.688	30.101	0.255 ✓	1	Bolt Tension
T12	80	Leg	A325N	0.750	3	8.024	30.101	0.267 ✓	1	Bolt Tension
T13	60	Leg	A325N	0.750	3	8.593	30.101	0.285 ✓	1	Bolt Tension
T14	40	Leg	A325N	0.750	3	8.951	30.101	0.297 ✓	1	Bolt Tension
T15	20	Leg	A325N	0.750	3	8.912	30.101	0.296 ✓	1	Bolt Tension
T16	5	Leg	A325N	0.750	3	8.648	30.101	0.287 ✓	1	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T1	290.000 (A) (855)	5/8 EModulus EHS	4.240	42.400	23.610	25.440	1.000	1.077 ✓
	290.000 (B) (854)	5/8 EModulus EHS	4.240	42.400	23.508	25.440	1.000	1.082 ✓
	290.000 (C) (850)	5/8 EModulus EHS	4.240	42.400	23.594	25.440	1.000	1.078 ✓
T3	250.000 (A) (846)	9/16 EModulus EHS	3.500	35.000	18.934	21.000	1.000	1.109 ✓
	250.000 (A) (847)	9/16 EModulus EHS	3.500	35.000	18.300	21.000	1.000	1.148 ✓
	250.000 (B) (842)	9/16 EModulus EHS	3.500	35.000	18.303	21.000	1.000	1.147 ✓
	250.000 (B) (843)	9/16 EModulus EHS	3.500	35.000	18.080	21.000	1.000	1.162 ✓
	250.000 (C) (835)	9/16 EModulus EHS	3.500	35.000	18.103	21.000	1.000	1.160 ✓
	250.000 (C) (836)	9/16 EModulus EHS	3.500	35.000	18.921	21.000	1.000	1.110 ✓
	250.000 (C) (836)	9/16 EModulus EHS	3.500	35.000	18.921	21.000	1.000	1.110 ✓
T6	190.000 (A) (834)	3/8 EModulus EHS	1.540	15.400	8.001	9.240	1.000	1.155 ✓
	190.000 (B) (833)	3/8 EModulus EHS	1.540	15.400	7.766	9.240	1.000	1.190 ✓
	190.000 (C) (829)	3/8 EModulus EHS	1.540	15.400	8.005	9.240	1.000	1.154 ✓

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	Client	Vertical Bridge	Designed by	JLandon

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T9	130.000 (A) (828)	7/16 EModulus EHS	2.080	20.800	11.946	12.480	1.000	1.045 ✓
	130.000 (B) (827)	7/16 EModulus EHS	2.080	20.800	11.493	12.480	1.000	1.086 ✓
	130.000 (C) (823)	7/16 EModulus EHS	2.080	20.800	11.949	12.480	1.000	1.044 ✓
T12	70.000 (A) (822)	3/8 EModulus EHS	1.540	15.400	7.614	9.240	1.000	1.214 ✓
	70.000 (B) (821)	3/8 EModulus EHS	1.540	15.400	7.320	9.240	1.000	1.262 ✓
	70.000 (C) (817)	3/8 EModulus EHS	1.540	15.400	7.614	9.240	1.000	1.214 ✓

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	1 1/2	20.000	2.404	76.9 K=1.00	1.767	-21.780	51.596	0.422 ¹ ✓
T2	280 - 260	1 3/4	20.000	2.404	65.9 K=1.00	2.405	-30.695	78.769	0.390 ¹ ✓
T3	260 - 240	2	20.000	2.404	57.7 K=1.00	3.142	-85.845	110.838	0.775 ¹ ✓
T4	240 - 220	1 3/4	20.000	2.404	65.9 K=1.00	2.405	-68.509	78.769	0.870 ¹ ✓
T5	220 - 200	1 3/4	20.000	2.404	65.9 K=1.00	2.405	-50.283	78.769	0.638 ¹ ✓
T6	200 - 180	1 3/4	20.000	2.404	65.9 K=1.00	2.405	-55.295	78.769	0.702 ¹ ✓
T7	180 - 160	1 3/4	20.000	2.404	65.9 K=1.00	2.405	-55.436	78.769	0.704 ¹ ✓
T8	160 - 140	1 3/4	20.000	2.404	65.9 K=1.00	2.405	-57.770	78.769	0.733 ¹ ✓
T9	140 - 120	1 3/4	20.000	2.404	65.9 K=1.00	2.405	-62.791	78.769	0.797 ¹ ✓
T10	120 - 100	1 3/4	20.000	2.404	65.9 K=1.00	2.405	-68.581	78.769	0.871 ¹ ✓
T11	100 - 80	1 3/4	20.000	2.404	65.9 K=1.00	2.405	-71.867	78.769	0.912 ¹ ✓
T12	80 - 60	1 3/4	20.000	2.404	65.9	2.405	-76.665	78.769	0.973 ¹ ✓

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T13	60 - 40	2	20.000	2.404	K=1.00 57.7	3.142	-80.035	110.838	0.722 ¹
T14	40 - 20	2	20.000	2.404	K=1.00 57.7	3.142	-80.546	110.838	0.727 ¹
T15	20 - 5	2	15.000	2.372	K=1.00 56.9	3.142	-79.865	111.556	0.716 ¹
T16	5 - 0	2	5.292	2.238	K=1.00 53.7	3.142	-82.310	114.489	0.719 ¹

¹ P_u / φP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	.875	3.844	3.684	K=0.70 141.5	0.601	-5.782	6.788	0.852 ¹
T2	280 - 260	1	3.844	3.657	K=0.70 122.9	0.785	-8.591	11.750	0.731 ¹
T3	260 - 240	1 1/8	3.844	3.631	K=0.70 108.4	0.994	-13.438	18.934	0.710 ¹
T4	240 - 220	.875	3.844	3.657	K=0.70 140.4	0.601	-5.037	6.888	0.731 ¹
T5	220 - 200	.75	3.844	3.657	K=0.70 163.8	0.442	-3.263	3.718	0.878 ¹
T6	200 - 180	.75	3.844	3.657	K=0.70 163.8	0.442	-3.206	3.718	0.862 ¹
T7	180 - 160	.75	3.844	3.657	K=0.70 163.8	0.442	-2.671	3.718	0.718 ¹
T8	160 - 140	.75	3.844	3.657	K=0.70 163.8	0.442	-3.298	3.718	0.887 ¹
T9	140 - 120	.875	3.844	3.657	K=0.70 140.4	0.601	-4.158	6.888	0.604 ¹
T10	120 - 100	.875	3.844	3.657	K=0.70 140.4	0.601	-3.731	6.888	0.542 ¹
T11	100 - 80	.75	3.844	3.657	K=0.70 163.8	0.442	-1.901	3.718	0.511 ¹
T12	80 - 60	.75	3.844	3.657	K=0.70 163.8	0.442	-3.596	3.718	0.967 ¹
T13	60 - 40	.75	3.844	3.631	K=0.70 162.6	0.442	-3.338	3.773	0.885 ¹
T14	40 - 20	.75	3.844	3.631	K=0.70 162.6	0.442	-3.472	3.773	0.920 ¹
T15	20 - 5	.875	3.824	3.612	K=0.70 138.7	0.601	-4.554	7.063	0.645 ¹
T16	5 - 0	1	2.314	1.904	K=0.99 90.1	0.785	-14.608	19.517	0.749 ¹

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	Client	Vertical Bridge	Designed by	JLandon

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
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¹ P_u / φP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	3/4	3.000	2.875	128.8 K=0.70	0.442	-2.311	6.016	0.384 ¹ ✓
T2	280 - 260	3/4	3.000	2.854	127.9 K=0.70	0.442	-2.203	6.104	0.361 ¹ ✓
T3	260 - 240	3/4	3.000	2.833	126.9 K=0.70	0.442	-2.067	6.194	0.334 ¹ ✓
T4	240 - 220	3/4	3.000	2.854	127.9 K=0.70	0.442	-1.187	6.104	0.194 ¹ ✓
T5	220 - 200	3/4	3.000	2.854	127.9 K=0.70	0.442	-0.871	6.104	0.143 ¹ ✓
T6	200 - 180	3/4	3.000	2.854	127.9 K=0.70	0.442	-0.958	6.104	0.157 ¹ ✓
T7	180 - 160	3/4	3.000	2.854	127.9 K=0.70	0.442	-0.960	6.104	0.157 ¹ ✓
T8	160 - 140	3/4	3.000	2.854	127.9 K=0.70	0.442	-1.001	6.104	0.164 ¹ ✓
T9	140 - 120	3/4	3.000	2.854	127.9 K=0.70	0.442	-1.088	6.104	0.178 ¹ ✓
T10	120 - 100	3/4	3.000	2.854	127.9 K=0.70	0.442	-1.188	6.104	0.195 ¹ ✓
T11	100 - 80	3/4	3.000	2.854	127.9 K=0.70	0.442	-1.245	6.104	0.204 ¹ ✓
T12	80 - 60	3/4	3.000	2.854	127.9 K=0.70	0.442	-1.328	6.104	0.218 ¹ ✓
T13	60 - 40	3/4	3.000	2.833	126.9 K=0.70	0.442	-1.386	6.194	0.224 ¹ ✓
T14	40 - 20	3/4	3.000	2.833	126.9 K=0.70	0.442	-1.395	6.194	0.225 ¹ ✓
T15	20 - 5	3/4	3.000	2.833	126.9 K=0.70	0.442	-1.383	6.194	0.223 ¹ ✓
T16	5 - 0	3/4	1.500	1.333	89.3 K=1.05	0.442	-1.487	11.095	0.134 ¹ ✓

¹ P_u / φP_n controls

Top Girt Design Data (Compression)

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	Client	Vertical Bridge	Designed by	JLandon

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	3/4	3.000	2.875	128.8 K=0.70	0.442	-0.073	6.016	0.012 ¹ ✓
T2	280 - 260	3/4	3.000	2.854	127.9 K=0.70	0.442	-0.255	6.104	0.042 ¹ ✓
T3	260 - 240	3/4	3.000	2.833	126.9 K=0.70	0.442	-5.165	6.194	0.834 ¹ ✓
T4	240 - 220	3/4	3.000	2.854	127.9 K=0.70	0.442	-2.211	6.104	0.362 ¹ ✓
T5	220 - 200	3/4	3.000	2.854	127.9 K=0.70	0.442	-1.393	6.104	0.228 ¹ ✓
T6	200 - 180	3/4	3.000	2.854	127.9 K=0.70	0.442	-0.715	6.104	0.117 ¹ ✓
T7	180 - 160	3/4	3.000	2.854	127.9 K=0.70	0.442	-1.089	6.104	0.178 ¹ ✓
T8	160 - 140	3/4	3.000	2.854	127.9 K=0.70	0.442	-0.357	6.104	0.058 ¹ ✓
T9	140 - 120	3/4	3.000	2.854	127.9 K=0.70	0.442	-1.121	6.104	0.184 ¹ ✓
T10	120 - 100	3/4	3.000	2.854	127.9 K=0.70	0.442	-1.300	6.104	0.213 ¹ ✓
T11	100 - 80	3/4	3.000	2.854	127.9 K=0.70	0.442	-0.453	6.104	0.074 ¹ ✓
T12	80 - 60	3/4	3.000	2.854	127.9 K=0.70	0.442	-0.802	6.104	0.131 ¹ ✓
T13	60 - 40	3/4	3.000	2.833	126.9 K=0.70	0.442	-1.099	6.194	0.177 ¹ ✓
T14	40 - 20	3/4	3.000	2.833	126.9 K=0.70	0.442	-0.521	6.194	0.084 ¹ ✓
T15	20 - 5	3/4	3.000	2.833	126.9 K=0.70	0.442	-1.356	6.194	0.219 ¹ ✓

¹ P_u / φP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	3/4	3.000	2.875	128.8 K=0.70	0.442	-1.652	6.016	0.275 ¹ ✓
T2	280 - 260	3/4	3.000	2.854	127.9 K=0.70	0.442	-2.704	6.104	0.443 ¹ ✓
T3	260 - 240	3/4	3.000	2.833	126.9 K=0.70	0.442	-2.463	6.194	0.398 ¹ ✓
T4	240 - 220	3/4	3.000	2.854	127.9 K=0.70	0.442	-1.478	6.104	0.242 ¹ ✓
T5	220 - 200	3/4	3.000	2.854	127.9 K=0.70	0.442	-0.608	6.104	0.100 ¹ ✓
T6	200 - 180	3/4	3.000	2.854	127.9 K=0.70	0.442	-1.210	6.104	0.198 ¹ ✓

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	Client	Vertical Bridge	Designed by	JLandon

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T7	180 - 160	3/4	3.000	2.854	127.9 K=0.70	0.442	-0.331	6.104	0.054 ¹ ✓
T8	160 - 140	3/4	3.000	2.854	127.9 K=0.70	0.442	-1.132	6.104	0.185 ¹ ✓
T9	140 - 120	3/4	3.000	2.854	127.9 K=0.70	0.442	-1.624	6.104	0.266 ¹ ✓
T10	120 - 100	3/4	3.000	2.854	127.9 K=0.70	0.442	-0.529	6.104	0.087 ¹ ✓
T11	100 - 80	3/4	3.000	2.854	127.9 K=0.70	0.442	-0.631	6.104	0.103 ¹ ✓
T12	80 - 60	3/4	3.000	2.854	127.9 K=0.70	0.442	-0.856	6.104	0.140 ¹ ✓
T13	60 - 40	3/4	3.000	2.833	126.9 K=0.70	0.442	-0.366	6.194	0.059 ¹ ✓
T14	40 - 20	3/4	3.000	2.833	126.9 K=0.70	0.442	-1.108	6.194	0.179 ¹ ✓
T16	5 - 0	3/4	0.231	0.065	4.5 K=1.10	0.442	-0.576	19.850	0.029 ¹ ✓

¹ P_u / φP_n controls

Top Guy Pull-Off Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T3	260 - 240	4x5/8	3.000	2.833	150.8 K=0.80	2.500	-11.698	24.850	0.471 ¹ ✓

¹ P_u / φP_n controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T3	260 - 240 (837)	C12x20.7	3.000	2.917	43.8 K=1.00	6.090	-6.104	238.176	0.026
T3	260 - 240 (838)	C12x20.7	3.000	2.917	43.8 K=1.00	6.090	-6.120	238.176	0.026
T3	260 - 240 (844)	C12x20.7	3.000	2.917	43.8 K=1.00	6.090	-6.359	238.176	0.027
T3	260 - 240 (845)	C12x20.7	3.000	2.917	43.8 K=1.00	6.090	-6.348	238.176	0.027
T3	260 - 240 (848)	C12x20.7	3.000	2.917	43.8 K=1.00	6.090	-6.307	238.176	0.026
T3	260 - 240 (849)	C12x20.7	3.000	2.917	43.8	6.090	-6.324	238.176	0.027

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	Client	Vertical Bridge	Designed by	JLandon

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
K=1.00									

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{ux} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M _{uy} kip-ft	φM _{uy} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
T3	260 - 240 (837)	C12x20.7	-38.830	94.764	0.410	-0.000	9.731	0.000
T3	260 - 240 (838)	C12x20.7	-38.921	94.764	0.411	0.000	9.731	0.000
T3	260 - 240 (844)	C12x20.7	-38.994	94.764	0.411	0.000	9.731	0.000
T3	260 - 240 (845)	C12x20.7	-38.924	94.764	0.411	-0.000	9.731	0.000
T3	260 - 240 (848)	C12x20.7	-39.066	94.764	0.412	-0.000	9.731	0.000
T3	260 - 240 (849)	C12x20.7	-39.174	94.764	0.413	0.000	9.731	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	Ratio $\frac{M_{uy}}{\phi M_{uy}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T3	260 - 240 (837)	C12x20.7	0.026	0.410	0.000	0.423	1.000	4.8.1 ✓
T3	260 - 240 (838)	C12x20.7	0.026	0.411	0.000	0.424	1.000	4.8.1 ✓
T3	260 - 240 (844)	C12x20.7	0.027	0.411	0.000	0.425	1.000	4.8.1 ✓
T3	260 - 240 (845)	C12x20.7	0.027	0.411	0.000	0.424	1.000	4.8.1 ✓
T3	260 - 240 (848)	C12x20.7	0.026	0.412	0.000	0.425	1.000	4.8.1 ✓
T3	260 - 240 (849)	C12x20.7	0.027	0.413	0.000	0.427	1.000	4.8.1 ✓

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	1 1/2	20.000	2.404	76.9	1.767	9.264	79.522	0.116 ¹
T2	280 - 260	1 3/4	20.000	0.385	10.6	2.405	5.235	108.238	0.048 ¹

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T3	260 - 240	2	20.000	2.404	57.7	3.142	47.947	141.372	0.339 ¹
T4	240 - 220	1 3/4	20.000	0.385	10.6	2.405	9.440	108.238	0.087 ¹

¹ P_u / φP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	.875	3.844	3.684	202.1	0.601	5.773	27.059	0.213 ¹
T2	280 - 260	1	3.844	3.657	175.6	0.785	8.376	35.343	0.237 ¹
T3	260 - 240	1 1/8	3.844	3.631	154.9	0.994	13.242	44.731	0.296 ¹
T4	240 - 220	.875	3.844	3.657	200.6	0.601	4.809	27.059	0.178 ¹
T5	220 - 200	.75	3.844	3.657	234.1	0.442	3.068	19.880	0.154 ¹
T6	200 - 180	.75	3.844	3.657	234.1	0.442	2.783	19.880	0.140 ¹
T7	180 - 160	.75	3.844	3.657	234.1	0.442	2.382	19.880	0.120 ¹
T8	160 - 140	.75	3.844	3.657	234.1	0.442	2.762	19.880	0.139 ¹
T9	140 - 120	.875	3.844	3.657	200.6	0.601	3.532	27.059	0.131 ¹
T10	120 - 100	.875	3.844	3.657	200.6	0.601	3.475	27.059	0.128 ¹
T11	100 - 80	.75	3.844	3.657	234.1	0.442	1.303	19.880	0.066 ¹
T12	80 - 60	.75	3.844	3.657	234.1	0.442	3.102	19.880	0.156 ¹
T13	60 - 40	.75	3.844	3.631	232.4	0.442	3.071	19.880	0.154 ¹
T14	40 - 20	.75	3.844	3.631	232.4	0.442	2.617	19.880	0.132 ¹
T15	20 - 5	.875	3.824	3.612	198.1	0.601	4.021	27.059	0.149 ¹
T16	5 - 0	1	3.027	2.616	125.6	0.785	2.780	35.343	0.079 ¹

¹ P_u / φP_n controls

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	Client	Vertical Bridge	Designed by	JLandon

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	3/4	3.000	2.875	184.0	0.442	2.311	19.880	0.116 ¹
T2	280 - 260	3/4	3.000	2.854	182.7	0.442	2.344	19.880	0.118 ¹
T3	260 - 240	3/4	3.000	2.833	181.3	0.442	2.111	19.880	0.106 ¹
T4	240 - 220	3/4	3.000	2.854	182.7	0.442	1.187	19.880	0.060 ¹
T5	220 - 200	3/4	3.000	2.854	182.7	0.442	0.871	19.880	0.044 ¹
T6	200 - 180	3/4	3.000	2.854	182.7	0.442	0.958	19.880	0.048 ¹
T7	180 - 160	3/4	3.000	2.854	182.7	0.442	0.960	19.880	0.048 ¹
T8	160 - 140	3/4	3.000	2.854	182.7	0.442	1.001	19.880	0.050 ¹
T9	140 - 120	3/4	3.000	2.854	182.7	0.442	1.088	19.880	0.055 ¹
T10	120 - 100	3/4	3.000	2.854	182.7	0.442	1.188	19.880	0.060 ¹
T11	100 - 80	3/4	3.000	2.854	182.7	0.442	1.245	19.880	0.063 ¹
T12	80 - 60	3/4	3.000	2.854	182.7	0.442	1.328	19.880	0.067 ¹
T13	60 - 40	3/4	3.000	2.833	181.3	0.442	1.386	19.880	0.070 ¹
T14	40 - 20	3/4	3.000	2.833	181.3	0.442	1.395	19.880	0.070 ¹
T15	20 - 5	3/4	3.000	2.833	181.3	0.442	1.383	19.880	0.070 ¹
T16	5 - 0	3/4	1.500	1.333	85.3	0.442	1.487	19.880	0.075 ¹

¹ P_u / φP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	3/4	3.000	2.875	184.0	0.442	0.074	19.880	0.004 ¹
T2	280 - 260	3/4	3.000	2.854	182.7	0.442	0.275	19.880	0.014 ¹
T3	260 - 240	3/4	3.000	2.833	181.3	0.442	4.874	19.880	0.245 ¹
T4	240 - 220	3/4	3.000	2.854	182.7	0.442	2.347	19.880	0.118 ¹

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T5	220 - 200	3/4	3.000	2.854	182.7	0.442	1.485	19.880	0.075 ¹ ✓
T6	200 - 180	3/4	3.000	2.854	182.7	0.442	0.819	19.880	0.041 ¹ ✓
T7	180 - 160	3/4	3.000	2.854	182.7	0.442	1.222	19.880	0.061 ¹ ✓
T8	160 - 140	3/4	3.000	2.854	182.7	0.442	0.568	19.880	0.029 ¹ ✓
T9	140 - 120	3/4	3.000	2.854	182.7	0.442	1.361	19.880	0.068 ¹ ✓
T10	120 - 100	3/4	3.000	2.854	182.7	0.442	1.670	19.880	0.084 ¹ ✓
T11	100 - 80	3/4	3.000	2.854	182.7	0.442	0.556	19.880	0.028 ¹ ✓
T12	80 - 60	3/4	3.000	2.854	182.7	0.442	0.953	19.880	0.048 ¹ ✓
T13	60 - 40	3/4	3.000	2.833	181.3	0.442	1.023	19.880	0.051 ¹ ✓
T14	40 - 20	3/4	3.000	2.833	181.3	0.442	0.635	19.880	0.032 ¹ ✓
T15	20 - 5	3/4	3.000	2.833	181.3	0.442	1.493	19.880	0.075 ¹ ✓
T16	5 - 0	3/4	2.769	2.602	166.5	0.442	8.292	19.880	0.417 ¹ ✓

¹ P_u / φP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	3/4	3.000	2.875	184.0	0.442	1.921	19.880	0.097 ¹ ✓
T2	280 - 260	3/4	3.000	2.854	182.7	0.442	3.135	19.880	0.158 ¹ ✓
T3	260 - 240	3/4	3.000	2.833	181.3	0.442	2.636	19.880	0.133 ¹ ✓
T4	240 - 220	3/4	3.000	2.854	182.7	0.442	1.659	19.880	0.083 ¹ ✓
T5	220 - 200	3/4	3.000	2.854	182.7	0.442	0.793	19.880	0.040 ¹ ✓
T6	200 - 180	3/4	3.000	2.854	182.7	0.442	1.383	19.880	0.070 ¹ ✓
T7	180 - 160	3/4	3.000	2.854	182.7	0.442	0.456	19.880	0.023 ¹ ✓
T8	160 - 140	3/4	3.000	2.854	182.7	0.442	1.193	19.880	0.060 ¹ ✓

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T9	140 - 120	3/4	3.000	2.854	182.7	0.442	1.600	19.880	0.081 ¹
T10	120 - 100	3/4	3.000	2.854	182.7	0.442	0.711	19.880	0.036 ¹
T11	100 - 80	3/4	3.000	2.854	182.7	0.442	0.814	19.880	0.041 ¹
T12	80 - 60	3/4	3.000	2.854	182.7	0.442	1.300	19.880	0.065 ¹
T13	60 - 40	3/4	3.000	2.833	181.3	0.442	0.642	19.880	0.032 ¹
T14	40 - 20	3/4	3.000	2.833	181.3	0.442	1.464	19.880	0.074 ¹
T15	20 - 5	3/4	3.000	2.833	181.3	0.442	8.324	19.880	0.419 ¹
T16	5 - 0	3/4	0.231	0.065	4.1	0.442	4.291	19.880	0.216 ¹

¹ P_u / φP_n controls

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	300 - 280	4x5/8	3.000	2.875	191.2	2.500	7.604	112.500	0.068 ¹
T3	260 - 240	4x5/8	3.000	2.833	188.4	2.500	11.949	112.500	0.106 ¹
T6	200 - 180	4x5/8	3.000	2.854	189.8	2.500	3.413	112.500	0.030 ¹
T9	140 - 120	4x5/8	3.000	2.854	189.8	2.500	5.709	112.500	0.051 ¹
T12	80 - 60	4x5/8	3.000	2.854	189.8	2.500	4.049	112.500	0.036 ¹

¹ P_u / φP_n controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T3	260 - 240 (837)	C12x20.7	3.000	2.917	43.8	4.568	5.663	222.666	0.025
T3	260 - 240 (838)	C12x20.7	3.000	2.917	43.8	4.568	0.052	222.666	0.000
T3	260 - 240 (844)	C12x20.7	3.000	2.917	43.8	4.568	6.166	222.666	0.028
T3	260 - 240 (845)	C12x20.7	3.000	2.917	43.8	4.568	5.538	222.666	0.025
T3	260 - 240 (848)	C12x20.7	3.000	2.917	43.8	4.568	0.078	222.666	0.000

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio P _u / φP _n
T3	260 - 240 (849)	C12x20.7	3.000	2.917	43.8	4.568	5.401	222.666	0.024

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{ux} kip-ft	Ratio M _{ux} / φM _{ux}	M _{uy} kip-ft	φM _{uy} kip-ft	Ratio M _{uy} / φM _{uy}
T3	260 - 240 (837)	C12x20.7	-33.910	94.764	0.358	-0.000	9.731	0.000
T3	260 - 240 (838)	C12x20.7	-39.340	94.764	0.415	0.000	9.731	0.000
T3	260 - 240 (844)	C12x20.7	-35.222	94.764	0.372	-0.000	9.731	0.000
T3	260 - 240 (845)	C12x20.7	-34.301	94.764	0.362	-0.000	9.731	0.000
T3	260 - 240 (848)	C12x20.7	-39.254	94.764	0.414	-0.000	9.731	0.000
T3	260 - 240 (849)	C12x20.7	-33.978	94.764	0.359	0.000	9.731	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio P _u / φP _n	Ratio M _{ux} / φM _{ux}	Ratio M _{uy} / φM _{uy}	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T3	260 - 240 (837)	C12x20.7	0.025	0.358	0.000	0.371	1.000	4.8.1 ✓
T3	260 - 240 (838)	C12x20.7	0.000	0.415	0.000	0.415	1.000	4.8.1 ✓
T3	260 - 240 (844)	C12x20.7	0.028	0.372	0.000	0.386	1.000	4.8.1 ✓
T3	260 - 240 (845)	C12x20.7	0.025	0.362	0.000	0.374	1.000	4.8.1 ✓
T3	260 - 240 (848)	C12x20.7	0.000	0.414	0.000	0.414	1.000	4.8.1 ✓
T3	260 - 240 (849)	C12x20.7	0.024	0.359	0.000	0.371	1.000	4.8.1 ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	φP _{allow} K	% Capacity	Pass Fail
T1	300 - 280	Leg	1 1/2	2	-21.780	51.596	42.2	Pass
T2	280 - 260	Leg	1 3/4	57	-30.695	78.769	39.0	Pass
T3	260 - 240	Leg	2	111	-85.845	110.838	77.5	Pass
T4	240 - 220	Leg	1 3/4	165	-68.509	78.769	87.0	Pass
T5	220 - 200	Leg	1 3/4	217	-50.283	78.769	63.8	Pass
T6	200 - 180	Leg	1 3/4	272	-55.295	78.769	70.2	Pass
T7	180 - 160	Leg	1 3/4	326	-55.436	78.769	70.4	Pass
T8	160 - 140	Leg	1 3/4	380	-57.770	78.769	73.3	Pass
T9	140 - 120	Leg	1 3/4	434	-62.791	78.769	79.7	Pass
T10	120 - 100	Leg	1 3/4	488	-68.581	78.769	87.1	Pass

tnxTower

B+T Group
1717 S. Boulder Ave, Ste 300
Tulsa, OK 74119
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Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T11	100 - 80	Leg	1 3/4	542	-71.867	78.769	91.2	Pass
T12	80 - 60	Leg	1 3/4	596	-76.665	78.769	97.3	Pass
T13	60 - 40	Leg	2	650	-80.035	110.838	72.2	Pass
T14	40 - 20	Leg	2	704	-80.546	110.838	72.7	Pass
T15	20 - 5	Leg	2	758	-79.865	111.556	71.6	Pass
T16	5 - 0	Leg	2	800	-82.310	114.489	71.9	Pass
T1	300 - 280	Diagonal	.875	40	-5.782	6.788	85.2	Pass
T2	280 - 260	Diagonal	1	66	-8.591	11.750	73.1	Pass
T3	260 - 240	Diagonal	1 1/8	162	-13.438	18.934	71.0	Pass
T4	240 - 220	Diagonal	.875	214	-5.037	6.888	73.1	Pass
T5	220 - 200	Diagonal	.75	268	-3.263	3.718	87.8	Pass
T6	200 - 180	Diagonal	.75	299	-3.206	3.718	86.2	Pass
T7	180 - 160	Diagonal	.75	377	-2.671	3.718	71.8	Pass
T8	160 - 140	Diagonal	.75	390	-3.298	3.718	88.7	Pass
T9	140 - 120	Diagonal	.875	442	-4.158	6.888	60.4	Pass
T10	120 - 100	Diagonal	.875	539	-3.731	6.888	54.2	Pass
T11	100 - 80	Diagonal	.75	550	-1.901	3.718	51.1	Pass
T12	80 - 60	Diagonal	.75	618	-3.596	3.718	96.7	Pass
T13	60 - 40	Diagonal	.75	702	-3.338	3.773	88.5	Pass
T14	40 - 20	Diagonal	.75	713	-3.472	3.773	92.0	Pass
T15	20 - 5	Diagonal	.875	767	-4.554	7.063	64.5	Pass
T16	5 - 0	Diagonal	1	808	-14.608	19.517	74.9	Pass
T1	300 - 280	Horizontal	3/4	44	-2.311	6.016	38.4	Pass
T2	280 - 260	Horizontal	3/4	87	-2.203	6.104	36.1	Pass
T3	260 - 240	Horizontal	3/4	140	-2.067	6.194	33.4	Pass
T4	240 - 220	Horizontal	3/4	176	-1.187	6.104	19.4	Pass
T5	220 - 200	Horizontal	3/4	229	-0.871	6.104	14.3	Pass
T6	200 - 180	Horizontal	3/4	283	-0.958	6.104	15.7	Pass
T7	180 - 160	Horizontal	3/4	343	-0.960	6.104	15.7	Pass
T8	160 - 140	Horizontal	3/4	397	-1.001	6.104	16.4	Pass
T9	140 - 120	Horizontal	3/4	445	-1.088	6.104	17.8	Pass
T10	120 - 100	Horizontal	3/4	500	-1.188	6.104	19.5	Pass
T11	100 - 80	Horizontal	3/4	553	-1.245	6.104	20.4	Pass
T12	80 - 60	Horizontal	3/4	607	-1.328	6.104	21.8	Pass
T13	60 - 40	Horizontal	3/4	661	-1.386	6.194	22.4	Pass
T14	40 - 20	Horizontal	3/4	715	-1.395	6.194	22.5	Pass
T15	20 - 5	Horizontal	3/4	775	-1.383	6.194	22.3	Pass
T16	5 - 0	Horizontal	3/4	812	-1.487	11.095	13.4	Pass
T1	300 - 280	Top Girt	3/4	5	-0.073	6.016	1.2	Pass
T2	280 - 260	Top Girt	3/4	60	-0.255	6.104	4.2	Pass
T3	260 - 240	Top Girt	3/4	114	-5.165	6.194	83.4	Pass
T4	240 - 220	Top Girt	3/4	167	-2.211	6.104	36.2	Pass
T5	220 - 200	Top Girt	3/4	221	-1.393	6.104	22.8	Pass
T6	200 - 180	Top Girt	3/4	276	-0.715	6.104	11.7	Pass
T7	180 - 160	Top Girt	3/4	329	-1.089	6.104	17.8	Pass
T8	160 - 140	Top Girt	3/4	384	-0.357	6.104	5.8	Pass
T9	140 - 120	Top Girt	3/4	438	-1.121	6.104	18.4	Pass
T10	120 - 100	Top Girt	3/4	491	-1.300	6.104	21.3	Pass
T11	100 - 80	Top Girt	3/4	546	-0.453	6.104	7.4	Pass
T12	80 - 60	Top Girt	3/4	599	-0.802	6.104	13.1	Pass
T13	60 - 40	Top Girt	3/4	654	-1.099	6.194	17.7	Pass
T14	40 - 20	Top Girt	3/4	707	-0.521	6.194	8.4	Pass
T15	20 - 5	Top Girt	3/4	761	-1.356	6.194	21.9	Pass
T16	5 - 0	Top Girt	3/4	803	8.292	19.880	41.7	Pass
T1	300 - 280	Bottom Girt	3/4	8	-1.652	6.016	27.5	Pass
T2	280 - 260	Bottom Girt	3/4	63	-2.704	6.104	44.3	Pass
T3	260 - 240	Bottom Girt	3/4	116	-2.463	6.194	39.8	Pass
T4	240 - 220	Bottom Girt	3/4	170	-1.478	6.104	24.2	Pass
T5	220 - 200	Bottom Girt	3/4	225	-0.608	6.104	10.0	Pass
T6	200 - 180	Bottom Girt	3/4	278	-1.210	6.104	19.8	Pass
T7	180 - 160	Bottom Girt	3/4	333	-0.331	6.104	5.4	Pass

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Project	300' 36G/36.83991944, -88.6757583	Date	11:45:04 08/19/20
Client	Vertical Bridge	Designed by	JLandon

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail	
T8	160 - 140	Bottom Girt	3/4	387	-1.132	6.104	18.5	Pass	
T9	140 - 120	Bottom Girt	3/4	440	-1.624	6.104	26.6	Pass	
T10	120 - 100	Bottom Girt	3/4	495	-0.529	6.104	8.7	Pass	
T11	100 - 80	Bottom Girt	3/4	548	-0.631	6.104	10.3	Pass	
T12	80 - 60	Bottom Girt	3/4	603	-0.856	6.104	14.0	Pass	
T13	60 - 40	Bottom Girt	3/4	655	-0.366	6.194	5.9	Pass	
T14	40 - 20	Bottom Girt	3/4	710	-1.108	6.194	17.9	Pass	
T15	20 - 5	Bottom Girt	3/4	764	8.324	19.880	41.9	Pass	
T16	5 - 0	Bottom Girt	3/4	805	4.291	19.880	21.6	Pass	
T1	300 - 280	Guy A@290	5/8 EModulus	855	23.610	25.440	92.8	Pass	
T3	260 - 240	Guy A@250	9/16 EModulus	846	18.934	21.000	90.2	Pass	
T6	200 - 180	Guy A@190	3/8 EModulus	834	8.001	9.240	86.6	Pass	
T9	140 - 120	Guy A@130	7/16 EModulus	828	11.946	12.480	95.7	Pass	
T12	80 - 60	Guy A@70	3/8 EModulus	822	7.614	9.240	82.4	Pass	
T1	300 - 280	Guy B@290	5/8 EModulus	854	23.508	25.440	92.4	Pass	
T3	260 - 240	Guy B@250	9/16 EModulus	842	18.303	21.000	87.2	Pass	
T6	200 - 180	Guy B@190	3/8 EModulus	833	7.766	9.240	84.0	Pass	
T9	140 - 120	Guy B@130	7/16 EModulus	827	11.493	12.480	92.1	Pass	
T12	80 - 60	Guy B@70	3/8 EModulus	821	7.320	9.240	79.2	Pass	
T1	300 - 280	Guy C@290	5/8 EModulus	850	23.594	25.440	92.7	Pass	
T3	260 - 240	Guy C@250	9/16 EModulus	836	18.921	21.000	90.1	Pass	
T6	200 - 180	Guy C@190	3/8 EModulus	829	8.005	9.240	86.6	Pass	
T9	140 - 120	Guy C@130	7/16 EModulus	823	11.949	12.480	95.7	Pass	
T12	80 - 60	Guy C@70	3/8 EModulus	817	7.614	9.240	82.4	Pass	
T1	300 - 280	Top Guy Pull-Off@290	4x5/8	851	7.604	112.500	6.8	Pass	
T3	260 - 240	Top Guy Pull-Off@250	4x5/8	840	-11.698	24.850	47.1	Pass	
T6	200 - 180	Top Guy Pull-Off@190	4x5/8	830	3.413	112.500	3.0	Pass	
T9	140 - 120	Top Guy Pull-Off@130	4x5/8	824	5.709	112.500	5.1	Pass	
T12	80 - 60	Top Guy Pull-Off@70	4x5/8	818	4.049	112.500	3.6	Pass	
T3	260 - 240	Torque Arm Top@250	C12x20.7	849	-6.324	238.176	42.7	Pass	
							Summary		
							Leg (T12)	97.3	Pass
							Diagonal (T12)	96.7	Pass
							Horizontal (T1)	38.4	Pass
							Top Girt (T3)	83.4	Pass
							Bottom Girt (T2)	44.3	Pass
							Guy A (T9)	95.7	Pass
							Guy B (T1)	92.4	Pass
							Guy C (T9)	95.7	Pass
							Top Guy Pull-Off (T3)	47.1	Pass
							Torque Arm Top (T3)	42.7	Pass
							Bolt Checks	29.7	Pass
							RATING =	97.3	Pass

Exhibit E
Geotechnical Engineering Report



Engineering, Geophysics & Geosciences

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August 5, 2020

Kentucky COA: 3525

EGSci Project #: 20.US-KY-5040

GEOTECHNICAL INVESTIGATION FOR A PROPOSED TOWER SITE

Project: Proposed Tower Site: US-KY-5040 Workman Road

Location: Hickory, Kentucky

Prepared for:

Vertical Bridge Development, LLC
750 Park of Commerce Drive
Suite 200
Boca Raton, FL 33487

Prepared by:

EGSci Consulting Inc.
1455 Lincoln Parkway
Suite 500
Atlanta, GA 30346



Engineering, Geophysics & Geosciences

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August 5, 2020

EGSci Project #: 20.US-KY-5040

Vertical Bridge Development, LLC
750 Park of Commerce Drive
Suite 200
Boca Raton, FL 33487

Re: Geotechnical Investigation
Site: US-KY-5040 Workman Road
State Route 2194 W
Hickory, KY 42051
Latitude: N36.839919
Longitude: W88.675758

Type of Tower: Proposed Guyed

EGSci Consulting Inc. (EGSci) is pleased to submit to Vertical Bridge Development, LLC (Vertical Bridge) this letter report summarizing our limited geotechnical investigation of a proposed telecommunications site (referenced herein as project site) in Graves County, Kentucky. The objective of the investigation was to conduct a subsurface exploration at the project site to characterize and evaluate the subsurface conditions in support of the foundation design analysis for a proposed telecommunications tower.

PROJECT AND SITE DESCRIPTION

The project site is located approximately 0.9 miles west of the intersection of State Route 2194 West and U.S. Highway 45 in Hickory, Graves County, Kentucky. At the time of this investigation, the project site consisted of a parcel of relatively level crop field. Figure 1 shows the project site location, as indicated on the U.S. Geological Survey's (USGS) 1996 Hickory, Kentucky 7.5-minute topographic quadrangle map.

GEOTECHNICAL INVESTIGATION

The geotechnical investigation was conducted on July 28, 2020 and consisted of four soil test borings, positioned at the proposed foundation element locations (staked by others prior to our investigation). The soil test borings were advanced using a CME 45 drill rig to termination depths of 20 feet (B-1, B-2, and B-4) and 25 feet (B-3) below ground surface (BGS). Groundwater conditions were observed in the boreholes during drilling. Soil samples were collected and transported to EGSci's facility for further examination and are discarded thirty days after completion of fieldwork. The approximate soil boring locations are represented on Figure 1, and the detailed boring logs are attached to this report.

Field and Laboratory Procedures

Standard Penetration Test (SPT) Borings: All SPT borings were performed in accordance with the American Society for Testing and Materials (ASTM) Standard D1586: Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils. This sampling technique involves driving a split spoon (split-barrel) sampler into the soil using a 140-pound hammer, free falling 30 inches. The number of hammer blows required to drive the sampler one foot (after an initial seating of six inches) is termed the N-value or penetration resistance. The penetration resistance provides a general indication of soil density and/or consistency. The boring was advanced using hollow stem augers. An automatic hammer was utilized for the Standard Penetration Tests at the project site.

Soil Classification: The samples retrieved from the split spoon sampler were visually examined and classified in general accordance with the guidelines of ASTM D2487: Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).

Laboratory Soil Resistivity: Laboratory soil resistivity testing was performed on one shallow soil sample in accordance with ASTM G57: Standard Test Method for Field Measurement of Soil Resistivity Using the Wenner Four-Electrode Method. A Miller Soilbox and Nilson 400 Soil Resistance Meter were utilized for this test. The sample tested was collected from Boring B-3 at an approximate depth of 3 to 4 feet BGS and yielded soil resistivity of 8,850 ohms-cm.

Subsurface Conditions

The subsurface conditions encountered in the boring drilled at the project site are shown in detail on the boring log attached to this report. Soil boundaries indicated have been inferred from the results of non-continuous sampling and observations of drilling resistance, which can typically represent transitions from one soil type to another, rather than exact planes of stratigraphic change. The conditions summarized in a boring log are location-specific and conditions may differ beyond the boring location.

Groundwater was not encountered during drilling; however, many samples were observed as very moist to wet when classified. Thus, perched water conditions may be present at the project site and should be anticipated during construction. Seasonal fluctuations and precipitation may affect the groundwater and/or perched water levels at the project site. A groundwater monitoring program would be required to establish long-term groundwater conditions at the project site, which is beyond the scope of this investigation.

Regional Geology

According to the USGS digital geologic map of the State of Kentucky, the geology of the project site area is characterized by the Tertiary to Quaternary Continental deposits and loess, undifferentiated.

GEOTECHNICAL ANALYSIS AND RECOMMENDATIONS

The geotechnical design parameters presented below are to assist in design and analysis of the proposed tower and ancillary structure foundation systems. These design values are based on in-

situ conditions observed in the soil test borings and evaluation of subsurface samples. The following sections present our general design and construction recommendations.

Ancillary Structures

Ancillary structures (such as equipment shelters) may be constructed on shallow foundations bearing at or below the frost depth. The maximum net ultimate bearing resistance for foundations bearing on suitable natural soils or new structural fill shall be 2.0 kips per square foot (ksf). We recommend undercutting to remove any soft soil and/or topsoil layers and replacing with structural fill, as described in the subsequent sections. *The shelter foundation should be designed in accordance with the various applicable codes.*

Tower Mast Foundation

Based on the geotechnical investigation performed by EGSci, a generalized subsurface profile was developed for the conditions encountered at the project site near the proposed tower center. A shallow foundation system is feasible for supporting the proposed tower mast. The recommended geotechnical design parameters for the proposed tower foundation system are presented in Table 1. *The selected foundation system should be designed and constructed in accordance with the various applicable codes.*

Table 1: Recommended Geotechnical Parameters for the Proposed Tower Foundation System

Depth		Material Type for Analysis Purposes	Angle of Internal Friction	Total Unit Weight	Undrained Shear Strength	Coefficient of Passive Pressure	Net Ultimate Bearing Resistance
From	To						
(feet)	(feet)						(Degrees)
0	3.5	Cohesive	0	95	250	1.0	-
3.5	6	Cohesive	0	105	750	1.0	4,500
6	8.5	Cohesive	0	105	1,000	1.0	6,000
8.5	13.5	Cohesive	0	105	1,000	1.0	6,000
13.5	18.5	Cohesionless	35	125	-	3.7	15,000
18.5	25	Cohesionless	39	130	-	4.4	15,000

Note: Nominal bearing resistance values are provided above; the appropriate reduction factors should be applied per applicable design code.

Anchor Foundations

A generalized subsurface profile was developed for the conditions encountered near the proposed guyed anchor foundations at the project site. The recommended geotechnical design parameters are presented in Table 2. *The selected foundation system should be designed and constructed in accordance with the various applicable codes.*

Table 2: Recommended Geotechnical Parameters for the Anchor Foundations (B-1, B-2, and B-4)

Depth		Material Type for Analysis Purposes	Angle of Internal Friction	Total Unit Weight	Undrained Shear Strength	Coefficient of Passive Pressure	Ultimate Skin Friction
From	To						
(feet)	(feet)		(Degrees)	(pcf)	(psf)		(psf)
0	3.5	Cohesive	0	95	250	1.0	-
3.5	6	Cohesive	0	95	250	1.0	100
6	8.5	Cohesive	0	105	1,000	1.0	400
8.5	13.5	Cohesive	0	105	1,000	1.0	400
13.5	18.5	Cohesionless	30	115	-	3.0	475
18.5	20	Cohesionless	33	120	-	3.4	600

Note: Skin friction for depths above 3 feet BGS should be neglected. Nominal skin friction values are provided above; the appropriate reduction factors should be applied per applicable design code.

Frost Depth

The regional design frost depth at the project site is 20 inches, which is based on values from the Naval Facilities Engineering Command Soil Mechanics Design Manual (NAVFAC DM 7.01), as reported by the Telecommunications Industry Association Structural Standard for Antenna Supporting Structures and Antennas (ANSI/TIA-222-G).

Seismic Site Class

Based on the subsurface data encountered in our boring, the International Building Code (IBC) Seismic Site Class is Site Class D. The Seismic Site Class is based on average properties of subsurface materials to a depth of 100 feet BGS. Because soil test borings to 100 feet were not performed at this site, it is necessary to estimate the Seismic Site Class based on the boring performed and the regional geology.

Construction Inspection and Considerations

In general, foundation recommendations contained in this report are contingent upon inspection by a geotechnical engineer or experienced designated inspector at the time of construction on a full-time basis. Inspections should include observations for compliance with recommendations and/or testing (e.g. in-place density tests), as required. Based on the field observations of the geotechnical engineer or inspector, additional recommendations may be required.

The foundation excavations should be inspected and approved by a qualified geotechnical engineer or geotechnical inspector immediately prior to placing reinforcement steel or concrete. Foundation areas should be level and free of loose soil, standing water, and debris. Loose or soft soils should be removed and replaced with suitable fill material. If the foundation excavations are kept open for a long time, the bearing soils may be softened by water intrusion or exposure. If bearing soils are softened, they must be removed and replaced before placement of concrete.

Additional construction considerations are as follows:

- *The contractor is responsible for the means and methods of construction and adhering to all project related safety standards such as Occupational Safety and Health Administration (OSHA).*
- *For construction purposes, groundwater and/or perched water levels may vary and should be assumed to be shallow due to the potential for seasonal fluctuations and precipitation. Thus, the contractor's means and methods for foundation construction should consider and anticipate shallow water conditions.*
- As only minor cuts and fill will be made at the equipment building site, compaction of the upper soils in the building area, as well as any fill placed, is recommended to provide uniformity and limit settlement.
- Due to the presence of silty and clayey material in the upper layers, flowable fill may be utilized as an alternate to structural fill. The flowable fill should meet the requirements set in local specifications for similar materials.
- Structural fill or general site fill necessary for site grading or backfill material should be placed in 8-inch thick layers, moisture conditioned, and compacted to a minimum of 98% of the Standard Proctor Maximum Density (the standard proctor test for the imported fill is to be completed by the contractor's geotechnical/material testing engineer). All imported fill should be clean soil (free of roots and debris and should contain less than 10% by dry weight passing #200).
- A representative sample of the imported fill should be collected by the geotechnical engineering inspector *at the time of construction* for laboratory testing to evaluate the grain size distribution and Atterberg limit characteristics to determine if the imported fill is suitable for use as structural fill. A standard proctor test must be performed on the representative sample of material (imported fill *or* on-site material deemed suitable for structural fill) to be used in the engineered (or structural) fill operations.
- Foundations for the Ancillary Structures placed at or below frost depth on suitable natural soils or new structural fill compacted to at least 98% of the Standard Proctor Maximum Dry Density should be designed for a maximum net ultimate bearing resistance of 2.0 ksf. We recommend undercutting to remove any soft soil and/or topsoil layers and replacing with structural fill, as described herein. This bearing resistance is based on an allowable settlement of up to 1 inch.
- We recommend that the groundwater or perched water (if encountered) be kept at least 3 feet below the excavation until the structure has been installed.

Shallow foundations designed and constructed based on these recommendations should experience total settlements less than 1 inch. Differential settlements are expected to be one-third to one-half of the total settlements. Most of the total settlement should occur shortly after the dead loads are applied with little settlement after construction.

QUALIFICATION OF RECOMMENDATIONS

This report is for the exclusive use of Vertical Bridge and the designers of the project described herein and is applicable to this project. The conclusions and recommendations have been prepared by the generally accepted standards of Geotechnical Engineering practice in the State of Kentucky practicing under similar conditions subject to the time limits, and financial and physical constraints applicable to the services. No other warranty is expressed or implied. EGSci is not responsible for the conclusions, opinions and recommendations of others. Any re-use of this document, particularly by third parties, without our express written permission is solely at their own risk.

Environmental services and/or concerns were not included in our scope of work and have not been addressed in this report.

The analysis and recommendations presented in this report are based on the data obtained from the soil borings, exploration and testing program performed at the location shown in Figure 1 and past experience. Soil conditions may differ beyond those at the boring location and are not reflected in this report. If variations in soil conditions become apparent during excavation, the recommendations and conclusions presented herein may need to be re-evaluated based on on-site observations. We recommend that the contractor notify EGSci as soon as possible regarding variations in soil conditions from those presented herein.

If the design or location of the structure presented herein changes, the recommendations and conclusions presented in this report will not be valid. EGSci must review the changes and modify or approve the recommendations and conclusions.

EGSci Consulting Inc. appreciates the opportunity to work with Vertical Bridge on this project. If you have any questions or require additional information regarding this report, please do not hesitate to contact us.

Very truly yours,

EGSci Consulting Inc.



8/5/2020

Handwritten signature of Shelly Keary in cursive.

Shelly Keary, M.Sc.
Project Geotechnical Engineer

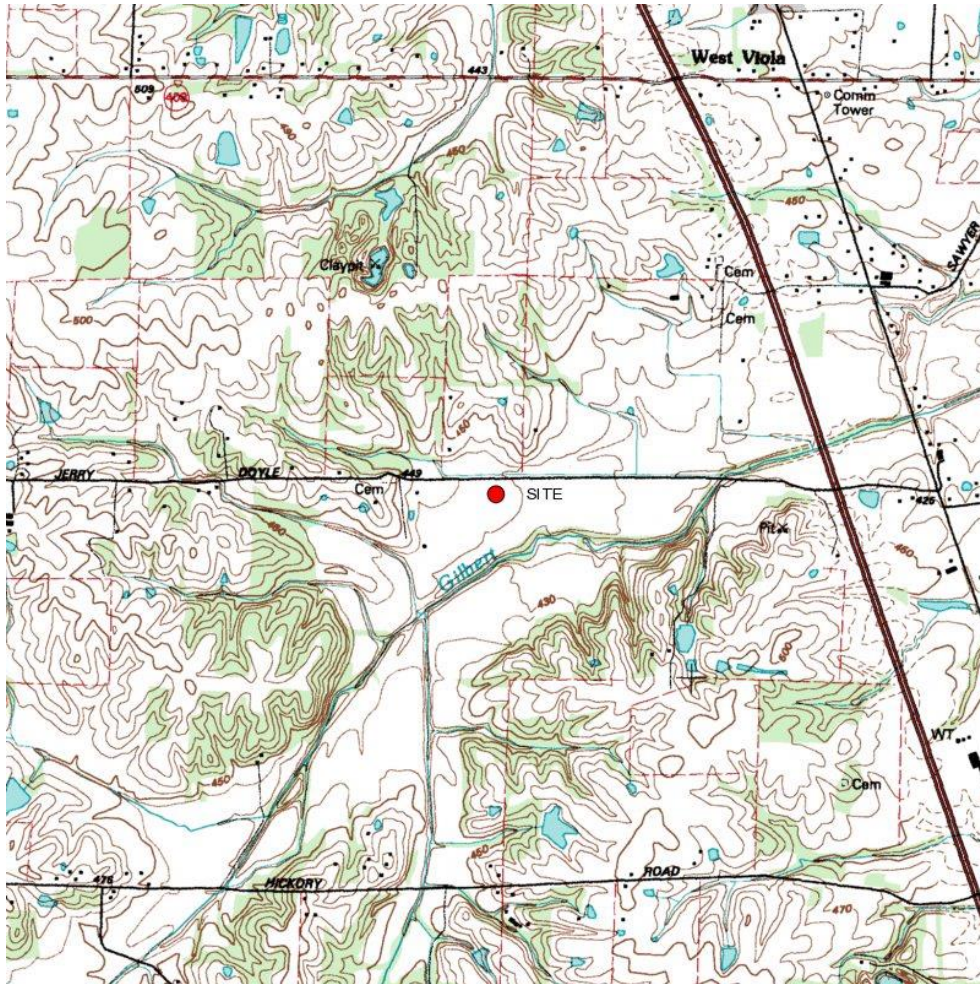
Handwritten signature of Mike Khalil in cursive.

Mike Khalil, M.Sc., P.E. (KY #24975)
Principal Engineer

Attachments

- Site Figures
- Key to Soil Classification
- Log of Borings

Note: Boring locations were staked, by others, prior to EGSci's field investigation. Site features below are for reference only, should be considered approximate, and have not been surveyed by EGSci.



Source: USGS Topographic Map
Hickory, Kentucky; Year: 1996
Scale: Not to Scale



Source: Google Earth Imagery
Scale: Not to Scale
⊕ Approximate Boring Location

CONSULTANT



CLIENT



Geotechnical Investigation

FIGURE 1

SITE: US-KY-5040 Workman Road
Site Location Map and Boring Location Plan

KEY TO SOIL CLASSIFICATION

TERMS AND DESCRIPTIONS

Soil Description	Range of Proportion
Trace	0 – 5 %
Little	5 – 12 %
Some	12 - 30 %
And	30 – 50 %

SAMPLE TYPES

AS	Auger Sample
DO	Drive Open
DS	Denison sample
PS	Pitcher sample
RC	Rock core
TO	Thin-walled, open
TP	Thin-walled, piston
WS	Wash sample

Relative Density of Cohesionless Soils	SPT N-value
Very Loose	0 to 4
Loose	4 to 10
Compact	10 to 30
Dense	30 to 50
Very Dense	Over 50

SOIL TESTS

Moisture Content	M
Atterberg Limits	A
Grain Size	G
Unconfined Compression	U
Triaxial Shear (UU, CU, CD)	T
Direct Shear	D
Organic	O
pH	PH
Permeability	P
Consolidation	C
Specific Gravity	SG
Compaction	Com
Pinhole Dispersion	PD

Consistency of Cohesive Soils	Undrained Shear Strength (psf)
Very soft	Less than 250
Soft	250 to 500
Firm	500 to 1,000
Stiff	1,000 to 2,000
Very stiff	2,000 to 4,000
Hard	Over 4,000

PENETRATION RESISTANCE

Standard Penetration Resistance (ASTM D1586) “N” = the number of blows required to drive a 2 inch OD split spoon sampler one foot using a 140 lb. hammer falling 30 inches.

Unified Soil Classification System

Criteria for Assigning Group Symbols and Names			Soil Classification Generalized Group Descriptions	
COARSE-GRAINED SOILS More than 50% retained on the No. 200 sieve	GRAVELS More than 50% of coarse fraction retained on No.4 Sieve	CLEAN GRAVELS Less than 5% fines	GW	Well-graded Gravels
		GRAVELS WITH FINES More than 12% fines	GP	Poorly-graded Gravels
			GM	Gravel and Silt Mixtures
	SANDS 50% or more of coarse fraction passes No.4 Sieve	CLEAN SANDS Less than 5% fines	GC	Gravel and Clay Mixtures
		SANDS WITH FINES More than 12% fines	SW	Well-graded Sands
			SP	Poorly-graded Sands
FINE-GRAINED SOILS 50% or more passes the No. 200 sieve	SILTS AND CLAYS Liquid limit less than 50	INORGANIC	SM	Sand and Silt Mixtures
			SC	Sand and Clay Mixtures
		SILTS AND CLAYS Liquid limit greater than 50	INORGANIC	CL
	ML			Non-plastic and Low-Plasticity Silts
	ORGANIC		OL	Non-plastic and Low-Plasticity Organic Clays Non-plastic and Low-Plasticity Organic Silts
	HIGHLY ORGANIC SOILS Primarily organic matter, dark in color, and organic odor	ORGANIC	CH	High-plasticity Clays
MH			High-plasticity Silts	
OH			High-plasticity Organic Silts and Clays	
		PT	Peat	






PROJECT: **US-KY-5040 Workman Road**
 PROJECT LOCATION: **State Route 2194 W; Hickory, KY 42051**
 CLIENT: **Vertical Bridge**

LOG OF BORING B-1
 SHEET 1 of 1

DRILLING DATE: **7/28/2020**

DRILL RIG: **CME 45 with Automatic Hammer**

DRILLING METHOD: **Hollow Stem Auger**






DEPTH (feet)	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	NUMBER	TYPE	SPT BLOWS per 6 inches or ROCK CORE REC. and RQD	N-VALUE (bpf) (uncorrected)	NOTES
0.2	Topsoil	CH						Groundwater was not encountered during drilling.
	Moist, stiff, gray, brown, and light brown, medium to high plasticity Silty CLAY, with trace fine to medium Sand.			1	DO	3-3-4	7	
				2	DO	3-3-5	8	
5								
6	Slightly moist to moist, stiff, tan and gray, medium plasticity Silty CLAY, with trace fine to coarse Sand.	CL-CH		3	DO	4-5-6	11	
8.5	Moist, stiff, brown, fine to medium Sandy, low plasticity Silty CLAY, with trace Gravel-sized Noduli.	CL		4	DO	5-5-6	11	
10								
13.5	Moist, dense, orange-brown, fine to coarse Gravelly SAND with little Fines, and some pockets of brown, Clayey, fine to coarse Sand.	SW-SC		5	DO	12-14-18	32	
15								
18.5	Moist, dense, orange-brown and brown, Silty fine to medium SAND, with some layers of Clayey and Silty fine to medium Sand.	SM-SC		6	DO	14-17-23	40	
20	Boring terminated at 20 ft. BGS.							
25								

PROJECT: **US-KY-5040 Workman Road**
 PROJECT LOCATION: **State Route 2194 W; Hickory, KY 42051**
 CLIENT: **Vertical Bridge**

LOG OF BORING B-2
 SHEET 1 of 1

DRILLING DATE: **7/28/2020** DRILL RIG: **CME 45 with Automatic Hammer**

DRILLING METHOD: **Hollow Stem Auger**

DEPTH (feet)	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	NUMBER	TYPE	SPT BLOWS per 6 inches or ROCK CORE REC. and RQD	N-VALUE (bpf) (uncorrected)	NOTES
0.2	Topsoil	CL-CH						Groundwater was not encountered during drilling.
	Very moist to wet, firm, gray and brown, medium plasticity Silty CLAY, with little fine to coarse Sand.			1	DO	2-2-2	4	
3.5	S2: soft, with little fine Gravel-sized Noduli			2	DO	1-1-1	2	
5								
6	Moist, stiff to very stiff, gray-brown, fine to medium Sandy, low plasticity Silty CLAY, with some fine Gravel.	CL		3	DO	5-6-8	14	
8.5	Moist, very stiff, gray, tan, and brown, medium to high plasticity CLAY, with trace fine to coarse Sand, and trace fine Gravel.	CH		4	DO	5-7-8	15	
10								
13.5	Moist, compact, gray, light brown, and tan, fine to coarse GRAVEL, with some fine to coarse Sandy, medium plasticity Silty Clay.	GC		5	DO	4-6-10	16	
15								
18.5	Very moist, compact, grayish-orange, Silty and Clayey, fine to medium SAND, with trace fine Gravel.	SM-SC		6	DO	6-8-15	23	
20	Boring terminated at 20 ft. BGS.							
25								

PROJECT: **US-KY-5040 Workman Road**
 PROJECT LOCATION: **State Route 2194 W; Hickory, KY 42051**
 CLIENT: **Vertical Bridge**








LOG OF BORING B-3

SHEET 1 of 1

DRILLING DATE: **7/28/2020**

DRILL RIG: **CME 45 with Automatic Hammer**

DRILLING METHOD: **Hollow Stem Auger**

DEPTH (feet)	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	NUMBER	TYPE	SPT BLOWS per 6 inches or ROCK CORE REC. and RQD	N-VALUE (bpf) (uncorrected)	NOTES
0.2	Topsoil	CL-CH						Groundwater was not encountered during drilling.
3.5	Moist, firm, brown-gray and brown, medium plasticity Silty CLAY, with little to trace fine to coarse Sand, and trace fine Gravel-sized Noduli.	CL-CH		1	DO	3-3-3	6	
5	Moist, firm to stiff, brown-gray and brown, low to medium plasticity Silty CLAY, with some fine to coarse Sand, and trace fine Gravel-sized Noduli.	CL		2	DO	2-3-3	6	
8.5	Moist, stiff, light brown and gray, fine to coarse Gravelly and Sandy, medium plasticity Silty CLAY.	CL-CH		3	DO	4-5-5	10	
10				4	DO	4-5-5	10	
13.5	Moist, compact, purple-gray and light brown, fine to coarse GRAVEL, with some Clayey fine to coarse Sand.	GC		5	DO	7-12-15	27	
15								
18.5	Very moist, dense, gray and light brown, fine to medium SAND, with little Fines, trace coarse Sand, trace fine Gravel, and little pockets of Clayey fine to coarse Sand.	SP-SC		6	DO	9-17-23	40	
20								
23.5	S7: very moist to wet, no pockets of Clayey fine to coarse Sand.			7	DO	8-14-22	36	
25	Boring terminated at 25 ft. BGS.							

PROJECT: **US-KY-5040 Workman Road**
 PROJECT LOCATION: **State Route 2194 W; Hickory, KY 42051**
 CLIENT: **Vertical Bridge**

LOG OF BORING B-4

SHEET 1 of 1

DRILLING DATE: **7/28/2020**

DRILL RIG: **CME 45 with Automatic Hammer**

DRILLING METHOD: **Hollow Stem Auger**





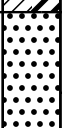
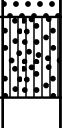
DEPTH (feet)	MATERIAL DESCRIPTION	USCS	GRAPHIC LOG	NUMBER	TYPE	SPT BLOWS per 6 inches or ROCK CORE REC. and RQD	N-VALUE (bpf) (uncorrected)	NOTES
0.2	Topsoil	CL-CH						Groundwater was not encountered during drilling.
	Very moist, soft to firm, gray-brown, medium plasticity Silty CLAY, with little fine to coarse Sand, and trace fine Gravel.	CL-CH		1	DO	1-1-2	3	
3.5	Slightly moist to moist, stiff, gray-brown, low plasticity Silty CLAY, with little fine Sand, and little fine Gravel-sized Noduli.	CL		2	DO	4-5-6	11	
5								
6	S3: light brown, no Gravel-sized Noduli			3	DO	7-7-7	14	
8.5	Slightly moist to moist, stiff, gray and light brown, medium plasticity Silty CLAY, with some fine to medium Sand, and little fine to coarse Gravel.	CL-CH		4	DO	4-5-6	11	
10								
13.5	Very moist, dense, purple-gray and light brown, fine to coarse SAND and fine to coarse GRAVEL, with little Fines.	SW		5	DO	14-18-19	37	
15								
18.5	Very moist to wet, dense, yellow-brown and brown, Silty fine to medium SAND, with little pockets of light orange, Silty and Clayey fine to medium Sand.	SM		6	DO	11-16-22	38	
20	Boring terminated at 20 ft. BGS.							
25								

Exhibit F
Competing Utilities List

Navigation

Reports

PSC Home

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
<input type="text"/>	<input type="text"/>	<input type="text"/>	(400) Paging <input type="text"/>	Active <input type="text"/>
<input type="button" value="Search"/>				

	Utility ID	Utility Name	Utility Type	Class	City	State
<input type="button" value="View"/>	4111300	2600Hz, Inc. dba ZSWITCH	Cellular	D	San Francisco	CA
<input type="button" value="View"/>	4108300	Air Voice Wireless, LLC	Cellular	B	Bloomfield Hill	MI
<input type="button" value="View"/>	4110650	Alliant Technologies of KY, L.L.C.	Cellular	D	Morristown	NJ
<input type="button" value="View"/>	4111900	ALLNETAIR, INC.	Cellular	C	West Palm Beach	FL
<input type="button" value="View"/>	44451184	Alltel Corporation d/b/a Verizon Wireless	Cellular	A	Lisle	IL
<input type="button" value="View"/>	4110850	AltaWorx, LLC	Cellular	D	Fairhope	AL
<input type="button" value="View"/>	4107800	American Broadband and Telecommunications Company	Cellular	D	Toledo	OH
<input type="button" value="View"/>	4108650	AmeriMex Communications Corp.	Cellular	D	Dunedin	FL
<input type="button" value="View"/>	4105100	AmeriVision Communications, Inc. d/b/a Affinity 4	Cellular	D	Virginia Beach	VA
<input type="button" value="View"/>	4110700	Andrew David Balholm dba Norcell	Cellular	D	Buford	GA
<input type="button" value="View"/>	4105700	Assurance Wireless USA, L.P.	Cellular	A	Atlanta	GA
<input type="button" value="View"/>	4108600	BCN Telecom, Inc.	Cellular	D	Morristown	NJ
<input type="button" value="View"/>	4106000	Best Buy Health, Inc. d/b/a GreatCall d/b/a Jitterbug	Cellular	A	San Diego	CA
<input type="button" value="View"/>	4110550	Blue Casa Mobile, LLC	Cellular	D	Santa Barbara	CA
<input type="button" value="View"/>	4111050	BlueBird Communications, LLC	Cellular	D	New York	NY
<input type="button" value="View"/>	4202300	Bluegrass Wireless, LLC	Cellular	A	Elizabethtown	KY

View	4107600	Boomerang Wireless, LLC	Cellular	D	Hiawatha	IA
View	4105500	BullsEye Telecom, Inc.	Cellular	D	Southfield	MI
View	4100700	Cellco Partnership dba Verizon Wireless	Cellular	A	Basking Ridge	NJ
View	4111150	Comcast OTR1, LLC	Cellular	C	Phoeniexville	PA
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	4111500	CSC Wireless, LLC d/b/a Altice Wireless	Cellular	D	Long Island City	NY
View	10640	Cumberland Cellular Partnership	Cellular	A	Elizabethtown	KY
View	4111650	DataBytes, Inc.	Cellular	D	Rogers	AR
View	4112000	DISH Wireless L.L.C.	Cellular	C	Englewood	CO
View	4111200	Dynalink Communications, Inc.	Cellular	C	Brooklyn	NY
View	4111800	Earthlink, LLC	Cellular	C	Atlanta	GA
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	4111750	Gabb Wireless, Inc.	Cellular	D	Provo	UT
View	4109350	Global Connection Inc. of America	Cellular	D	Norcross	GA
View	4102200	Globalstar USA, LLC	Cellular	B	Covington	LA
View	4112050	GLOTELL US, Corp.	Cellular	C	Hallandale	FL
View	4109600	Google North America Inc.	Cellular	A	Mountain View	CA
View	33350363	Granite Telecommunications, LLC	Cellular	D	Quincy	MA
View	10630	GTE Wireless of the Midwest dba Verizon Wireless	Cellular	A	Basking Ridge	NJ
View	4111350	HELLO MOBILE TELECOM LLC	Cellular	D	Dania Beach	FL
View	4103100	i-Wireless, LLC	Cellular	B	Newport	KY
View	4109800	IM Telecom, LLC d/b/a Infiniti Mobile	Cellular	D	Dallas	TX
View	4111950	J Rhodes Enterprises LLC	Cellular	C	Gulf Breeze	FL
View	22215360	KDDI America, Inc.	Cellular	D	Staten Island	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	Cellular	A	Elizabethtown	KY

		General				
View	4109550	Kynect Communications, LLC	Cellular	D	Dallas	TX
View	4111250	Liberty Mobile Wireless, LLC	Cellular	D	Sunny Isles Beach	FL
View	4111400	Locus Telecommunications, LLC	Cellular	A	Fort Lee	NJ
View	4107300	Lycamobile USA, Inc.	Cellular	D	Newark	NJ
View	4108800	MetroPCS Michigan, LLC	Cellular	A	Bellevue	WA
View	4111700	Mint Mobile, LLC	Cellular	D	Costa Mesa	CA
View	4109650	Mitel Cloud Services, Inc.	Cellular	D	Mesa	AZ
View	4111850	Mobi, Inc.	Cellular	C	Honolulu	HI
View	4202400	New Cingular Wireless PCS, LLC dba AT&T Mobility, PCS	Cellular	A	San Antonio	TX
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	D	Chicago	IL
View	4109050	Patriot Mobile LLC	Cellular	D	Irving	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	4107700	Puretalk Holdings, LLC	Cellular	A	Covington	GA
View	4106700	Q Link Wireless, LLC	Cellular	A	Dania	FL
View	4108700	Ready Wireless, LLC	Cellular	C	Hiawatha	IA
View	4110500	Republic Wireless, Inc.	Cellular	A	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	Fremont	NE
View	4110150	Spectrotel, Inc. d/b/a Touch Base Communications	Cellular	D	Neptune	NJ
View	4111450	Spectrum Mobile, LLC	Cellular	A	St. Louis	MO
View	4200100	Sprint Spectrum, L.P.	Cellular	A	Atlanta	GA
View	4200500	SprintCom, Inc.	Cellular	A	Atlanta	GA
View	4111600	STX Group LLC dba Twigby	Cellular	D	Murfreesboro	TN
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	Plano	TX
View	4109700	Telecom Management, Inc. dba Pioneer Telephone	Cellular	D	Portland	ME
View	4107200	Telefonica USA, Inc.	Cellular	D	Miami	FL
View	4108900	Telrite Corporation	Cellular	D	Covington	GA

View	4108450	Tempo Telecom, LLC	Cellular	B	Atlanta	GA
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. d/b/a Mint Mobile	Cellular	D	Costa Mesa	CA
View	4110800	Visible Service LLC	Cellular	D	Basking Ridge	NJ
View	4106500	WiMacTel, Inc.	Cellular	D	Palo Alto	CA
View	4110950	Wing Tel Inc.	Cellular	D	New York	NY

Exhibit G

FAA Determination of No Hazard to Air Navigation
KAZC Approval Letter



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

Aeronautical Study No.
 2020-ASO-9879-OE

Issued Date: 04/27/2020

Richard Hickey
 Vertical Bridge Development, LLC
 750 Park of Commerce Drive
 Suite 200
 Boca Raton, FL 33487

**** 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 US-KY-5040 Workman Road
 Location: Hickory, KY
 Latitude: 36-50-23.71N NAD 83
 Longitude: 88-40-32.73W
 Heights: 428 feet site elevation (SE)
 320 feet above ground level (AGL)
 748 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 2, Obstruction Marking and Lighting, a med-dual system - Chapters 4,8(M-Dual),&12.

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

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

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

This determination expires on 10/27/2021 unless:

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

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

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

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

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

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

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

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

If we can be of further assistance, please contact our office at (718) 553-2611, or angelique.eersteling@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2020-ASO-9879-OE.

Signature Control No: 435808824-437774840
Angelique Eersteling
Technician

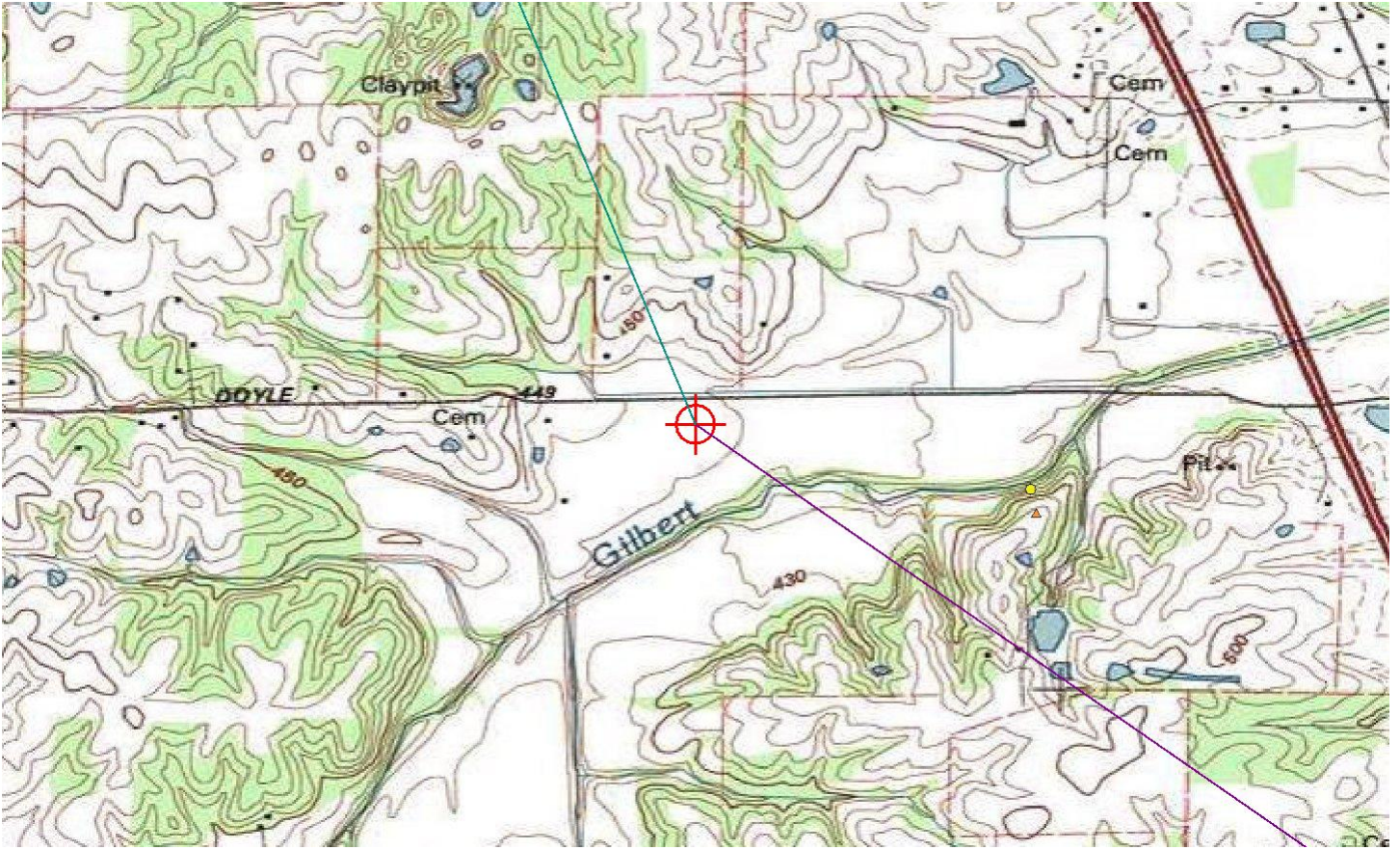
(DNE)

Attachment(s)
Frequency Data
Map(s)

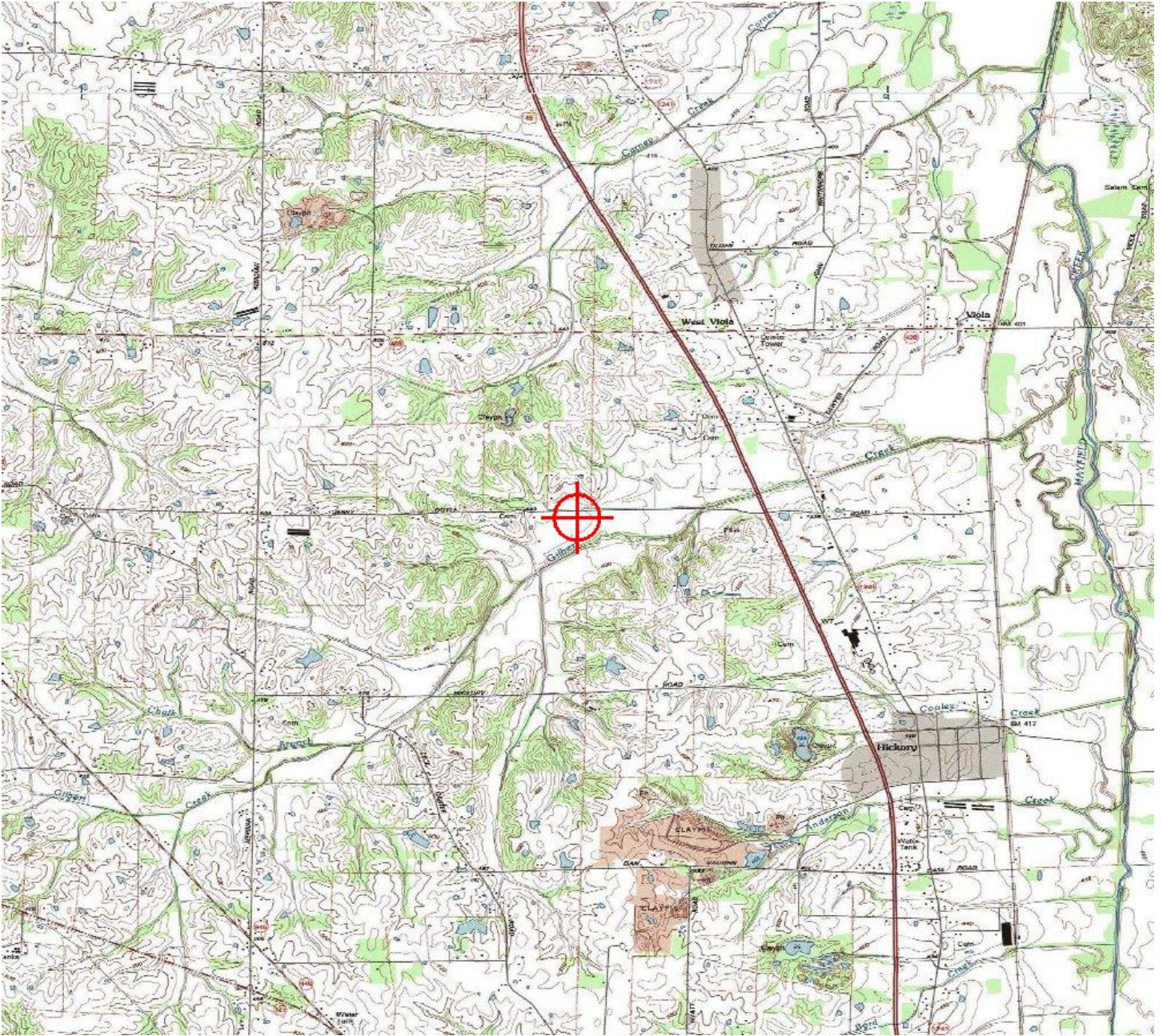
cc: FCC

Frequency Data for ASN 2020-ASO-9879-OE

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



TOPO Map for ASN 2020-ASO-9879-OE





KENTUCKY AIRPORT ZONING COMMISSION

ANDY BESHEAR
Governor

Office of Audits, 200 Mero Street, 4th floor
Frankfort, KY 40622
www.transportation.ky.gov
502-782-4043

APPROVAL OF APPLICATION

August 13, 2020

APPLICANT

Vertical Bridge Development, LLC
Todd Briggs
750 Park of Commerce Dr.
Boca Raton, FL 33487

SUBJECT: AS-GRAVES-M25-2020-093

STRUCTURE: Antenna Tower
LOCATION: Hickory, KY
COORDINATES: 36° 50' 23.71" N / 88° 40' 32.73" W
HEIGHT: 320" AGL/738" AMSL

The Kentucky Airport Zoning Commission has approved your application for a permit to construct 320" AGL/738" AMSL Antenna Tower near Hickory, KY 36° 50' 23.71" N / 88° 40' 32.73" W.

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

Dual - Red & Medium Intensity White Obstruction Lighting Required

Randall S. Royer

Randall S. Royer, Executive Director
Office of Audits
Acting Administrator
Randall.Royer@ky.gov
Jason.Salazar-Munoz@ky.gov



An Equal Opportunity Employer M/F/D

Exhibit H
FCC Documentation

ULS License

700 MHz Lower Band (Blocks C, D) License - WPYZ907 - New Cingular Wireless PCS, LLC

Call Sign	WPYZ907	Radio Service	WZ - 700 MHz Lower Band (Blocks C, D)
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	CMA443 - Kentucky 1 - Fulton	Channel Block	C
Submarket	0	Associated Frequencies (MHz)	000710.00000000- 000716.00000000 000740.00000000- 000746.00000000

Dates

Grant	07/25/2019	Expiration	06/13/2029
Effective	07/25/2019	Cancellation	

Buildout Deadlines

1st	06/13/2019	2nd	
-----	------------	-----	--

Notification Dates

1st	09/13/2018	2nd	09/13/2018
-----	------------	-----	------------

Licensee

FRN	0003291192	Type	Limited Liability Company
-----	------------	------	---------------------------

Licensee

New Cingular Wireless PCS, LLC 208 S Akard St. Dallas, TX 75202 ATTN Cecil J Mathew	P:(855)699-7073 F:(214)746-6410 E:FCCMW@att.com
--	---

Contact

AT&T Mobility LLC Cecil J Mathew 208 S Akard St. Dallas, TX 75202	P:(855)699-7073 F:(214)746-6410 E:FCCMW@att.com
--	---

Ownership and Qualifications

Radio Service Type	Fixed, Mobile, Radio Location		
Regulatory Status	Common Carrier	Interconnected	Yes

ULS License

700 MHz Lower Band (Blocks A, B & E) License - WQIZ370 - New Cingular Wireless PCS, LLC

Call Sign	WQIZ370	Radio Service	WY - 700 MHz Lower Band (Blocks A, B & E)
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	CMA443 - Kentucky 1 - Fulton	Channel Block	B
Submarket	0	Associated Frequencies (MHz)	000704.00000000-000710.00000000-000734.00000000-000740.00000000

Dates

Grant	08/02/2019	Expiration	06/13/2029
Effective	08/02/2019	Cancellation	

Buildout Deadlines

1st	12/13/2016	2nd	06/13/2019
-----	------------	-----	------------

Notification Dates

1st	09/27/2013	2nd	03/18/2019
-----	------------	-----	------------

Licensee

FRN	0003291192	Type	Limited Liability Company
-----	------------	------	---------------------------

Licensee

New Cingular Wireless PCS, LLC 208 S Akard St., Dallas, TX 75202 ATTN Cecil J. Mathew	P:(855)699-7073 F:(214)746-6410 E:FCCMW@att.com
--	---

Contact

AT&T Mobility LLC Cecil J Mathew 208 S Akard St., RM 1015 Dallas, TX 75202	P:(855)699-7073 F:(214)746-6410 E:FCCMW@att.com
---	---

Ownership and Qualifications

Radio Service Type	Fixed, Mobile		
Regulatory Status	Common Carrier	Interconnected	Yes

ULS License

Wireless Communications Service License - KNLB283 - New Cingular Wireless PCS, LLC

Call Sign	KNLB283	Radio Service	WS - Wireless Communications Service
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	MEA026 - Memphis-Jackson	Channel Block	A
Submarket	0	Associated Frequencies (MHz)	002305.00000000-002310.00000000-002350.00000000-002355.00000000

Dates

Grant	02/07/2020	Expiration	07/21/2027
Effective	02/07/2020	Cancellation	

Buildout Deadlines

1st	03/13/2017	2nd	09/13/2019
-----	------------	-----	------------

Notification Dates

1st	02/27/2017	2nd	08/13/2019
-----	------------	-----	------------

Licensee

FRN	0003291192	Type	Limited Liability Company
-----	------------	------	---------------------------

Licensee

New Cingular Wireless PCS, LLC 208 S. Akard St., RM 1016 Dallas, TX 75202 ATTN Leslie A. 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	P:(202)457-2055 F:(202)457-3073 E:michael.p.goggin@att.com
---	--

Ownership and Qualifications

Radio Service Type

Regulatory Status

Interconnected

ULS License

AWS (1710-1755 MHz and 2110-2155 MHz) License - WQGD759 - New Cingular Wireless PCS, LLC

Call Sign	WQGD759	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	BEA073 - Memphis, TN-AR-MS-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	08/31/2018	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 1015 Dallas, TX 75202 ATTN Cecil J Mathew	P:(855)699-7073 F:(214)746-6410 E:FCCMW@att.com
---	---

Contact

AT&T Mobility LLC Cecil J Mathew 208 S Akard St., RM 1015 Dallas, TX 75202 ATTN Michael P. Goggin	P:(855)699-7073 F:(214)746-6410 E:FCCMW@att.com
---	---

Ownership and Qualifications

Radio Service Type	Mobile		
Regulatory Status	Common Carrier	Interconnected	Yes

ULS License

AWS (1710-1755 MHz and 2110-2155 MHz) License - WQGD606 - New Cingular Wireless PCS, LLC

Call Sign	WQGD606	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	BEA072 - Paducah, KY-IL	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	02/20/2019	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 1015 Dallas, TX 75202 ATTN Cecil J Mathew	P:(855)699-7073 F:(214)746-6410 E:FCCMW@att.com
--	---

Contact

AT&T Mobility LLC Cecil J Mathew 208 S Akard St., RM 1015 Dallas, TX 75202 ATTN Michael P. Goggin	P:(855)699-7073 F:(214)746-6410 E:FCCMW@att.com
---	---

Ownership and Qualifications

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

ULS License

AWS (1710-1755 MHz and 2110-2155 MHz) License - WQGD472 - New Cingular Wireless PCS, LLC

Call Sign	WQGD472	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	CMA443 - Kentucky 1 - Fulton	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	08/31/2018	Cancellation	

Buildout Deadlines

1st	2nd
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Notification Dates

1st	2nd
-----	-----

Licensee

FRN	0003291192	Type	Limited Liability Company
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Licensee

New Cingular Wireless PCS, LLC 208 S Akard St., RM 1015 Dallas, TX 75202 ATTN Cecil J Mathew	P:(855)699-7073 F:(214)746-6410 E:FCCMW@att.com
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Contact

AT&T Mobility LLC Cecil J Mathew 208 S Akard St., RM 1015 Dallas, TX 75202 ATTN Michael P. Goggin	P:(855)699-7073 F:(214)746-6410 E:FCCMW@att.com
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Ownership and Qualifications

Radio Service Type	Fixed, Mobile
Regulatory Status	Common Carrier, Interconnected Yes

ULS License

Wireless Communications Service License - KNLB235 - New Cingular Wireless PCS, LLC

Call Sign	KNLB235	Radio Service	WS - Wireless Communications Service
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	MEA026 - Memphis-Jackson	Channel Block	B
Submarket	0	Associated Frequencies (MHz)	002310.00000000-002315.00000000-002355.00000000-002360.00000000

Dates

Grant	02/07/2020	Expiration	07/21/2027
Effective	02/07/2020	Cancellation	

Buildout Deadlines

1st	03/13/2017	2nd	09/13/2019
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Notification Dates

1st	02/27/2017	2nd	08/12/2019
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Licensee

FRN	0003291192	Type	Limited Liability Company
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Licensee

New Cingular Wireless PCS, LLC 208 S. Akard St., RM 1016 Dallas, TX 75202 ATTN Leslie A. Wilson	P:(855)699-7073 F:(214)746-6410 E:FCCMW@att.com
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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
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Ownership and Qualifications

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

Exhibit I
Directions to Site
Copy of Lease Agreement



Directions to Proposed Site from County Seat (101 East South Street, Mayfield):

Proceed West on E. South Street approximately 167 feet to S. 7th Street, turn right onto S. 7th Street and proceed on US-45 (North Paducah Road) for approximately 7 miles to State Route 2194W, turn left onto State Route 2194W and proceed approximately 0.9 mile to proposed site on left.

Prepared by: Todd Briggs (844) 331-3402

Landlord:
Elvis Zeak Rambo
Judy C. Rambo
1882 State Route 2194
West Hickory, KY 42051

Tenant:
BRT Group, LLC
P. O. Box 812530
Boca Raton, FL 33481
Site #: US-KY-5040
Site Name: Workman Road

OPTION AND LEASE AGREEMENT

This **OPTION AND LEASE AGREEMENT** (this “**Agreement**”) is made this 13th day of APRIL, 2018 (the “**Effective Date**”), by and between Elvis Zeak Rambo and Judy C. Rambo, husband and wife (“**Landlord**”), whose address is 1882 State Route 2194 West, Hickory, KY, 42051, and BRT Group, LLC, a Delaware limited liability company (“**Tenant**”), whose address is P. O. Box 812530, Boca Raton, FL 33481.

WHEREAS, Landlord owns certain real property located in the County of Graves, in the state or commonwealth of Kentucky, that is more particularly described and/or depicted in **Exhibit 1** attached hereto (the “**Property**”); and,

WHEREAS, Tenant desires to lease from Landlord a certain portion of the Property measuring approximately 100’ x 100’ (approximately 10,000 square feet) and to obtain easements for guy wires, guy anchors, utilities and access, as applicable (the “**Premises**”), which Premises is more particularly described and/or depicted in **Exhibit 2** attached hereto, for the placement of Tenant’s Communications Facilities (defined below).

NOW THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto agree:

1. **OPTION TO LEASE.**

(a) As of the Effective Date, Landlord grants to Tenant the exclusive option to lease the Premises (the “**Option**”) during the Option Period (defined below). At any time during the Option Period and Term (defined below), 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, 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 including, 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 under this Agreement, all at Tenant’s expense. Tenant shall be authorized to apply for Government Approvals on behalf of Landlord and Landlord agrees to reasonably cooperate with such applications. 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 Period, reasonable wear and tear and casualty not caused by Tenant excepted. In addition, Tenant shall indemnify, defend and hold Landlord harmless from and against any and all injury, loss, damage or claims arising directly out of Tenant’s Tests.

(b) In consideration of Landlord granting Tenant the Option, Tenant agrees to pay Landlord the sum of [REDACTED] within thirty (30) days of the full execution of this Agreement. The Option Period will be for an initial term of one (1) year from the Effective Date (the “**Initial Option Period**”) and may be renewed by Tenant for one (1) additional year (the “**Renewal Option**”) upon written notification to Landlord and the payment of an additional [REDACTED] prior to the expiration date of the Initial Option Period. Unless utilized independently, the Initial Option Period and any Renewal Option Period shall be referred to as the “**Option Period.**”

(c) During the Option Period, Tenant may commence the Initial Term (defined below) of this Agreement by notifying Landlord in writing. If Tenant commences the Initial Term, then Landlord leases the Premises to Tenant subject to the terms and conditions of this Agreement. If Tenant does not commence the Initial Term during the Option Period, this Agreement will terminate and the parties will have no further liability to each other.

(d) During the Option Period or the Term, Landlord shall not take any action to change the zoning status or land use of the Property which would diminish, impair, or adversely affect the use of the Premises by Tenant for its permitted uses hereunder.

2. **TERM.**

(a) The Initial Term (defined below) shall commence on the first day of the month in which Tenant begins construction if such construction commences on or before the 15th day of the month, or the first day of the month after Tenant commences construction if such construction commences after the 15th day of the month (the “**Commencement Date**”). Unless extended or sooner terminated as herein provided, the initial term shall be for a period of five (5) years following the Commencement Date (“**Initial Term**”).

(b) Tenant shall have the option to extend the term of this Agreement for nine (9) successive terms of five (5) years each (each a “**Renewal Term**”). Each Renewal Term shall commence automatically, unless Tenant delivers notice to Landlord, not less than thirty (30) days prior to the end of the then-current Term, of Tenant’s intent not to renew. For purposes of this Agreement, “**Term**” shall mean the Initial Term and any applicable Renewal Term(s).

3. **RENT.**

(a) Beginning on the Commencement Date, Tenant shall pay to Landlord a monthly rent payment of [REDACTED] (“**Rent**”), at the address set forth above on or before the fifth (5th) day of each calendar month in advance. Rent will be prorated for any partial month. The initial payment of Rent will be forwarded by Tenant to Landlord within thirty (30) days from the Commencement Date.

(b) Beginning on the commencement date of the first Renewal Term and each five-year anniversary of each Renewal Term thereafter throughout the remainder of the Term and Renewal Term(s), if any, the Rent shall be increased by an amount equal to [REDACTED] of the amount of the Rent for the previous Term or previous Renewal Term, as the case may be, which sum shall be payable in equal monthly installments in advance as herein set forth.

4. **TAXES.** Tenant shall pay any personal property taxes assessed on, or any portion of such taxes attributable to, the Communication Facilities located on the Premises. Landlord shall pay when due all real property taxes and all other fees and assessments attributable to the Property and Premises. Tenant shall pay as additional rent any increase in real property taxes levied against the Premises, which are directly attributable to Tenant’s use of the Premises (but not, however, taxes attributable to periods prior to the

Commencement Date such as roll-back or greenbelt assessments) if Landlord furnishes proof of such increase to Tenant (such increase, the "**Landlord Tax Reimbursement**"). In the event that Landlord fails to pay when due any taxes affecting the Premises or any easement relating to the Premises, Tenant shall have the right but not the obligation to pay such taxes and deduct the full amount of the taxes paid by Tenant on Landlord's behalf from future installments of Rent. Notwithstanding the foregoing, Tenant shall not have the obligation to pay any tax, assessment, or charge that Tenant is disputing in good faith in appropriate proceedings prior to a final determination that such tax is properly assessed, provided that no lien attaches to the Property. In addition, Tenant shall not have the obligation to pay or reimburse Landlord for the Landlord Tax Reimbursement if Landlord has not provided proof of such amount and demand therefor within one (1) year of the date such amount is due and payable by Landlord.

5. USE. The Premises are being leased for the purpose of erecting, installing, operating and maintaining radio or communications towers, transmitting and receiving equipment, antennas, dishes, mounting structures, equipment shelters and other supporting structures, and related equipment (collectively, the "**Communication Facilities**"). Tenant may, subject to the foregoing, make any improvement, alteration or modification to the Premises as are deemed appropriate by Tenant for the permitted use herein. Tenant shall have the right to clear the Premises of any trees, vegetation, or undergrowth which interferes with Tenant's use of the Premises for the intended purposes. Tenant shall have the exclusive right to install and operate upon the Premises communications towers, buildings, equipment, antennas, dishes, fencing, and other accessories related thereto, and to alter, supplement, and/or modify same as may be necessary.

6. ACCESS AND UTILITIES. During the Term, Tenant, and its guests, agents, customers, lessees, sublessees and assigns shall have the unrestricted, exclusive right to use, and shall have free and unfettered access to, the Premises seven (7) days a week, twenty-four (24) hours a day. Landlord for itself, its successors and assigns, hereby grants and conveys unto Tenant, its customers, employees, agents, invitees, sublessees, sublicensees, successors and assigns a nonexclusive easement (a) for ingress and egress, and (b) for the construction, installation, operation and maintenance of overhead and underground electric and other utility facilities (including fiber, backhaul, wires, poles, guys, cables, conduits and appurtenant equipment), with the right to reconstruct, improve, add to, enlarge, change and remove such facilities, over, across and through any easement for the benefit of and access to the Premises, subject to the terms and conditions herein set forth. Landlord agrees to cooperate with Tenant's efforts to obtain such utilities and services. If there are utilities already existing on the Premises which serve the Premises, Tenant may utilize such utilities and services. Upon Tenant's request, Landlord shall execute and deliver to Tenant requisite recordable documents evidencing the easements contemplated hereunder within fifteen (15) days of Tenant's request, and Landlord shall obtain the consent and joinder of Landlord's mortgagee to any such grant, if applicable.

7. EQUIPMENT, FIXTURES AND REMOVAL. The Communications Facilities shall at all times be the personal property of Tenant and/or its subtenants and licensees, as applicable. Tenant or its customers shall have the right to erect, install, maintain, and operate on the Premises such equipment, structures, fixtures, signs, and personal property as Tenant may deem necessary or appropriate, and such property, including the equipment, structures, fixtures, signs, and personal property currently on the Premises, shall not be deemed to be part of the Premises, but shall remain the property of Tenant or its customers. Within ninety (90) days after the expiration or earlier termination of this Agreement (the "**Removal Period**"), Tenant shall remove its improvements and restore the Premises to grade and perform all obligations under this Agreement during the Removal Period, including without limitation, the payment of Rent at the rate in effect upon the expiration or termination of this Agreement. Any property not so removed shall be deemed abandoned and may be removed and disposed of by Landlord in such manner as

Landlord shall determine, without any obligation on the part of Landlord to account to Tenant for any proceeds therefrom.

8. ASSIGNMENT AND SUBLEASE. Tenant may assign this Agreement to any person or entity, including Lender (defined below), at any time without the prior written consent of Landlord. Upon such assignment, Tenant will be relieved of all liability hereunder. Tenant shall have the exclusive right to sublease or grant licenses without Landlord's consent to use the Communication Facilities, but no such sublease or license shall relieve or release Tenant from its obligations under this Agreement. Landlord may assign this Agreement only in its entirety and only to any person or entity who or which acquires fee title to the Property, subject to Section 15. Landlord may not subdivide the Property without Tenant's prior written consent.

9. COVENANTS, WARRANTIES AND REPRESENTATIONS.

(a) Landlord warrants and represents that it is the owner in fee simple of the Property, free and clear of all liens and encumbrances except as to those which may have been disclosed to Tenant in writing prior to the execution hereof, and that it alone has full right to lease the Premises for the Term.

(b) Landlord shall pay promptly, when due, any other amounts or sums due and owing with respect to its ownership and operation of the Property, including, without limitation, judgments, taxes, liens, mortgage payments and other similar encumbrances. If Landlord fails to make any payments required under this Agreement, or breaches any other obligation or covenant under this Agreement, Tenant may (without obligation), after providing ten (10) days written notice to Landlord, make such payment or perform such obligation on behalf of Landlord and offset such payment (including any reasonable attorneys' fees incurred in connection with Tenant performing such obligation) against payments of Rent.

(c) Landlord shall not do or knowingly permit anything that will interfere with or negate any special use permit or approval pertaining to the Premises or cause Tenant's use of the Premises to be in nonconformance with applicable local, state, or federal laws. Landlord shall cooperate with Tenant in any effort by Tenant to obtain certificates, permits, licenses and other approvals that may be required by any governmental authorities. Landlord agrees to execute any necessary applications, consents or other documents as may be reasonably necessary for Tenant to apply for and obtain the proper zoning approvals required to use and maintain the Premises and the Communication Facilities.

(d) To the best of Landlord's knowledge, Landlord has complied and shall comply with all laws with respect to the Property. No asbestos-containing thermal insulation or products containing PCB, formaldehyde, chlordane, or heptachlor or other hazardous materials have been placed on or in the Property by Landlord or, to the knowledge of Landlord, by any prior owner or user of the Property. To the knowledge of Landlord, there has been no release of or contamination by hazardous materials on the Property.

(e) Tenant shall have access to all utilities required for the operation of Tenant's improvements on the Premises that are existing on the Property.

(f) There currently exist no licenses, sublicenses, or other agreements, written or oral, granting to any party or parties the right of use or occupancy of any portion of the Property; there are no outstanding options or rights of first refusal to purchase the Property or any portion thereof or interest therein, or any equity or interest in Landlord if Landlord is an entity; and there are no parties (other than Landlord) in possession of the Property except as to those that may have been disclosed to Tenant in writing prior to the execution hereof.

10. HOLD OVER TENANCY. Should Tenant or any assignee, sublessee or licensee of Tenant hold over the Premises or any part thereof after the expiration of this Agreement, such holdover shall constitute and be construed as a tenancy from month-to-month only, but otherwise upon the same terms and conditions.

11. INDEMNITIES. The parties agree to indemnify, defend and hold harmless the other party, its parent company or other affiliates, successors, assigns, officers, directors, shareholders, agents and employees (collectively, "**Indemnified Persons**") from and against all claims and liabilities (including reasonable attorneys' fees and court costs) ("**Losses**") caused by or arising out of (a) such party's breach of any of its obligations, covenants, representations or warranties contained herein, or (b) such party's acts or omissions with regard to this Agreement; provided, however, in no event shall a party indemnify the other party for any such Losses to the extent arising from the gross negligence or willful misconduct of the party seeking indemnification. However, in the event of an Indemnified Person's contributory negligence or other fault, the Indemnified Person shall not be indemnified hereunder to the extent that the Indemnified Person's negligence or other fault caused such claim or liability. Tenant will indemnify Landlord from and against any mechanic's liens or liens of contractors and sub-contractors engaged by or through Tenant.

12. WAIVERS.

(a) Landlord hereby waives any and all lien rights it may have, statutory or otherwise, in and to the Communication Facilities or any portion thereof, regardless of whether or not such is deemed real or personal property under applicable laws. Landlord will not assert any claim whatsoever against Tenant for loss of anticipatory profits or any other indirect, special, incidental or consequential damages incurred by Landlord as a result of the construction, maintenance, operation or use of the Premises by Tenant.

(b) EACH PARTY HERETO WAIVES ANY AND ALL CLAIMS AGAINST THE OTHER FOR ANY LOSS, COST, DAMAGE, EXPENSE, INJURY OR OTHER LIABILITY WHICH IS IN THE NATURE OF INDIRECT, SPECIAL, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES WHICH ARE SUFFERED OR INCURRED AS THE RESULT OF, ARISE OUT OF, OR ARE IN ANY WAY CONNECTED TO THE PERFORMANCE OF THE OBLIGATIONS UNDER THIS AGREEMENT.

13. INSURANCE. Tenant shall insure against property damage and bodily injury arising by reason of occurrences on or about the Premises in the amount of not less than \$1,000,000. The insurance coverage provided for herein may be maintained pursuant to master policies of insurance covering other communication facilities of Tenant and its corporate affiliates. All insurance policies required to be maintained by Tenant hereunder shall be with responsible insurance companies, authorized to do business in the State or Commonwealth where the Premises are located if required by law, and shall provide for cancellation only upon ten (10) days' prior written notice to Landlord. Tenant shall evidence such insurance coverage by delivering to Landlord, if requested, a copy of a certificate of insurance of such policies issued by the insurance companies underwriting such risks.

14. INTERFERENCE. During the Term, Landlord, its successors and assigns, will not grant any ground lease, license, or easement with respect to the Premises. In addition, during the Option Period and the Term, Landlord, its successors and assigns, will not grant any ground lease, license, or easement with respect to the Property (outside of the Premises) and any property adjacent or contiguous to the Property that is fee owned by Landlord: (a) for any of the uses contemplated in Section 5 herein; or (b) if such lease, license, or easement would detrimentally impact the Communication Facilities or Tenant's economic opportunities at the Premises, or the use thereof. Landlord shall not cause or permit the construction of radio or communications towers on the Property or on any other property of Landlord adjacent or contiguous to or in the immediate vicinity of the Property, except for towers constructed by Tenant. Landlord and Tenant intend by this Agreement for Tenant (and persons deriving rights by, through, or under

Tenant) to be the sole parties to market, use, or sublease any portion of the Property for communications or broadcast facilities during the Option Period and the Term. Landlord agrees that this restriction on the use of the Property is commercially reasonable, not an undue burden on Landlord, not injurious to the public interest, and shall be specifically enforceable by Tenant (and persons deriving rights by, through or under Tenant) in a court of competent jurisdiction. The foregoing restriction shall run with the land and be binding on the successors and assigns of Landlord.

15. RIGHT OF FIRST REFUSAL. In the event that Landlord determines to sell, transfer, license or otherwise convey any interest, whether fee simple interest, easement interest, leasehold, or otherwise, and whether direct or indirect by way of transfer of ownership interests in Landlord if Landlord is an entity, which interest underlies or affects any or all of the Premises (the "**ROFR Property**") to any third party, during the Option Period or Term, Landlord shall offer Tenant a right of first refusal to purchase the Premises (or such larger portion of Landlord's property that encompasses the Premises, if applicable) or such interest proposed to be conveyed. Landlord shall provide a copy of any offer to purchase or acquire, or any executed purchase agreement or letter of intent ("**Offer**"), to Tenant which copy shall include, at a minimum, the purchase or acquisition price, proposed closing date, and financing terms ("**Minimum Terms**"). Within thirty (30) days of receipt of such Offer, Tenant shall provide written notice to Landlord of Tenant's election to purchase the ROFR Property on the same Minimum Terms; provided, the closing date shall be no sooner than sixty (60) days after Tenant's purchase election notice. In such event, Landlord agrees to sell the ROFR Property to Tenant subject to Tenant's payment of the purchase price and compliance with a purchase and sale agreement to be negotiated in good faith between Landlord and Tenant. If Tenant provides written notice that it does not elect to exercise its rights of first refusal to purchase the ROFR Property, or if Tenant does not provide notice of its election within the thirty (30) day period, Tenant shall be deemed to have waived such right of first refusal only with respect to the specific Offer presented (and any subsequent Offers shall again be subject to Tenant's continuing right of first refusal hereunder), and Landlord shall be permitted to consummate the sale of the ROFR Property in accordance with the strict terms of the Offer ("**Permitted Sale**"). If Landlord does not consummate the Permitted Sale within ninety (90) days of the date of Tenant's waiver of its rights of first refusal, such Offer shall be deemed to have lapsed.

16. SECURITY. The parties recognize and agree that Tenant shall have the right to safeguard and protect its improvements located upon or within the Premises. Consequently, Tenant may elect, at its expense, to construct such enclosures and/or fences as Tenant reasonably determines to be necessary to secure its improvements, including the tower(s), building(s), guy anchors, and related improvements situated upon the Premises. Tenant may also undertake any other appropriate means to restrict access to its communications towers, buildings, **guy anchors, guy wires**, and related improvements, including, without limitation, posting signs for security purposes.

17. FORCE MAJEURE. The time for performance by Landlord or Tenant of any term, provision, or covenant of this Agreement shall be deemed extended by time lost due to delays resulting from acts of God, strikes, civil riots, floods, material or labor restrictions by governmental authority, and any other cause not within the control of Landlord or Tenant, as the case may be.

18. CONDEMNATION. Notwithstanding any provision of this Agreement to the contrary, in the event of condemnation of the Premises, Landlord and Tenant shall be entitled to separate awards with respect to the Premises, in the amount determined by the court conducting such condemnation proceedings based upon Landlord's and Tenant's respective interests in the Premises. If a separate condemnation award is not determined by such court, Landlord shall permit Tenant to participate in the allocation and distribution of the award. In no event shall the condemnation award to Landlord exceed the unimproved value of the Premises, without taking into account the improvements located thereon, and in no event shall this Agreement be terminated or modified (other than an abatement of rent) due to a casualty or condemnation without the prior written consent of Lender.

19. DEFAULT. The failure of Tenant or Landlord to perform any of the covenants of this Agreement shall constitute a default. The non-defaulting party shall give the other written notice of such default, and the defaulting party shall cure such default within thirty (30) days after receipt of such notice. In the event any such default cannot reasonably be cured within such thirty (30) day period, if the defaulting party shall proceed promptly after the receipt of such notice to cure such default, and shall pursue curing such default with due diligence, the time for curing shall be extended for such period of time as may be necessary to complete such curing, however, in no event shall this extension of time be in excess of sixty (60) days, unless agreed upon by the non-defaulting party.

20. REMEDIES. Should the defaulting party fail to cure a default under this Agreement, the other party shall have all remedies available either at law or in equity, including the right to terminate this Agreement. In the event Landlord elects to terminate this Agreement due to a default by Tenant, Landlord shall continue to honor all sublease and sublicense commitments made by Tenant through the expiration of the term of any such commitment, it being intended hereby that each such commitment shall survive the early termination of this Agreement.

21. ATTORNEYS' FEES. If there is any legal proceeding between Landlord or Tenant arising from or based on this Agreement, the unsuccessful party to such action or proceeding shall pay to the prevailing party all costs and expenses, including reasonable attorneys' fees and disbursements, incurred by such prevailing party in such action or proceeding and in any appeal in connection therewith. If such prevailing party recovers a judgment in any such action, proceeding or appeal, such costs, expenses and attorneys' fees and disbursements shall be included in and as a part of such judgment.

22. ADDITIONAL TERMINATION RIGHT. If at any time during the Term, Tenant determines, in Tenant's sole and absolute discretion, with or without cause, that the Premises is no longer suitable or desirable for Tenant's intended use and/or purposes, Tenant shall have the right to terminate this Agreement upon sixty (60) days prior written notice to Landlord.

23. PRIOR AGREEMENTS. The parties hereby covenant, recognize and agree that the terms and provisions of this Agreement shall constitute the sole embodiment of the arrangement between the parties with regard to the Premises, and that all other written or unwritten agreements, contracts, or leases by and between the parties with regard to the Premises are hereby terminated, superseded and replaced by the terms hereof.

24. SUBORDINATION, NON-DISTURBANCE AND ATTORNMENT. In the event the Property is encumbered by a mortgage or deed of trust or other security instrument of any kind (a "**Landlord Mortgage**"), Landlord, within fifteen (15) days following Tenant's request or immediately prior to the creation of any encumbrance created after the date this Agreement is fully executed, will obtain from the holder of each such Landlord Mortgage a fully-executed subordination, non-disturbance and attornment agreement (an "**SNDA**") in recordable form, which shall be prepared or approved by Tenant. The holder of every such Landlord Mortgage shall, in the SNDA, agree that in the event of a foreclosure, or conveyance in lieu of foreclosure of Landlord's interest in the Premises, such Landlord Mortgage holder shall recognize and confirm the validity and existence of this Agreement and Tenant shall have the right to continue its use and occupancy of the Premises in accordance with the provisions of this Agreement, provided Tenant is not in default of this Agreement beyond applicable notice and cure periods.

25. LENDER'S RIGHTS.

(a) Landlord agrees to recognize the leases/licenses of all subtenants and sublicensees and will permit each of them to remain in occupancy of its premises notwithstanding any default hereunder by Tenant so long as each such respective subtenant or sublicensee is not in default under the lease/license covering its premises. Landlord agrees to execute such documents as any such subtenant and/or sublicensee might reasonably require, including customary subordination, non-disturbance and attornment agreements

and/or Landlord recognition agreements, to further memorialize the foregoing, and further agrees to use Landlord's best efforts to also cause its lenders to similarly acknowledge, in writing, subtenant/sublicensee's right to continue to occupy its premises as provided above.

(b) Landlord consents to the granting by Tenant of a lien and security interest in Tenant's interest in this Agreement and all of Tenant's personal property and fixtures attached to the real property described herein, and furthermore consents to the exercise by Lender of its rights of foreclosure with respect to its lien and security interest. Landlord agrees to recognize Lender as Tenant hereunder upon any such exercise by Lender of its rights of foreclosure.

(c) Landlord hereby agrees to give Lender written notice of any breach or default of the terms of this Agreement within fifteen (15) days after the occurrence thereof at the address set forth in Section 29. Landlord further agrees that no default under this Agreement shall be deemed to have occurred unless such notice to Lender is also given and that, in the event of any such breach or default under the terms of this Agreement, Lender shall have the right, to the same extent, for the same period and with the same effect, as Tenant, plus an additional ninety (90) days after any applicable grace period to cure or correct any such default.

(d) Landlord acknowledges that nothing contained herein shall be deemed or construed to obligate Lender to take any action hereunder, or to perform or discharge any obligation, duty or liability of Tenant under this Agreement. No Lender shall become liable under the provisions of this Agreement or any lease executed pursuant to Section 26 hereof unless and until such time as it becomes, and then only for as long as it remains, the owner of the leasehold estate created hereby or thereby.

(e) Tenant shall have the right from time to time to mortgage or otherwise encumber Tenant's interest in this Agreement; provided, however, in no event shall there be more than one such mortgage or encumbrance outstanding at any one time. If Tenant shall so mortgage (each a "Tenant Mortgage") Tenant's interest in this Agreement to one or more lenders (any such lender, and any successor, assign, designee or nominee of such lender, hereinafter a "Lender"), Tenant or such Lender shall give Landlord prompt notice of such Tenant Mortgage and furnish Landlord with a complete and correct copy of such Tenant Mortgage, certified as such by Tenant or such Lender, together with the name and address of such Lender.

(f) This Agreement shall not be amended or modified without the consent of any Lender. In the event that a Lender shall become the owner of such leasehold estate, such Lender shall not be bound by any modification or amendment of this Agreement made subsequent to the date of a Tenant Mortgage unless Lender shall have consented to such modification or amendment at the time it was made.

26. RIGHT TO NEW LEASE.

(a) In the case of termination of this Agreement for any reason, or in the event this Agreement is rejected or disaffirmed pursuant to any bankruptcy, insolvency or other law affecting creditor's rights, Landlord shall give prompt notice thereof to Lender at the address set forth in Section 29 or as may be provided to Landlord by Tenant following the Commencement Date. Thereafter, Landlord, upon written request of Lender, and within thirty (30) days after the receipt of such request, shall promptly execute and deliver a new lease of the Premises and assignment of all subleases and sublicenses to Lender or its designee or nominee, for the remainder of the Term upon all the covenants, conditions, limitations and agreements contained herein (including, without limitation, options to extend the Term) except for such provisions which must be modified to reflect such termination, rejection or disaffirmance and the passage of time, provided that such Lender (i) shall pay to Landlord, simultaneously with the delivery of such new lease, all unpaid rent due under this Agreement up to and including the date of the commencement of the term of

such new lease and all reasonable expenses, including, without limitation, reasonable attorneys' fees and disbursements and court costs, incurred by Landlord in connection with the default by Tenant, the termination of this Agreement and the preparation of the new lease, and (ii) shall cure all defaults existing under this Agreement which are susceptible to being cured by such Lender promptly and with due diligence after the delivery of such new lease. Notwithstanding anything to the contrary contained herein, provided such Lender shall have otherwise complied with the provisions of this Section, such Lender shall have no obligation to cure any defaults which are not susceptible to being cured by such Lender (for example, the bankruptcy of Tenant).

(b) For so long as Lender shall have the right to enter into a new lease with Landlord pursuant to this Section, Landlord shall not enter into a new lease of the Premises with any person or entity other than Lender, without the prior written consent of Lender.

27. ADDITIONAL PROVISIONS.

(a) The parties hereto agree that (i) Tenant is in possession of the Premises notwithstanding the fact that Tenant has subleased, or may in the future sublease, certain of the improvements thereon to third parties and (ii) the requirements of Section 365(h) of Title II of the United States Code (the Bankruptcy Code) with respect to Tenant's possession of the leasehold under this Agreement are satisfied. Accordingly, the right of Tenant to remain in possession of the leasehold under this Agreement shall continue notwithstanding any rejection of this Agreement in any bankruptcy proceeding involving Landlord, or any other actions by any party in such a proceeding. This provision, while included in this Agreement, has been separately negotiated and shall constitute a separate contract between the parties as well as a part of this Agreement. The provisions of this Section are for the benefit of Tenant and its assigns, including, without limitation, Lender. The parties hereto also agree that Lender is a party in interest and shall have the right to appear as a party in any proceeding brought under any bankruptcy law or under any other law which may affect this Agreement.

(b) The provisions of Sections 25 and 26 hereof shall survive the termination, rejection or disaffirmance of this Agreement and shall continue in full force and effect thereafter to the same extent as if such Sections were a separate and independent contract made by Landlord, Tenant and Lender and, from the effective date of such termination, rejection or disaffirmance of this Agreement to the date of execution and delivery of such new lease, Lender may use and enjoy the leasehold estate created by this Agreement without hindrance by Landlord. The aforesaid agreement of Landlord to enter into a new lease with Lender shall be deemed a separate agreement between Landlord and such Lender, separate and apart from this Agreement as well as a part of this Agreement, and shall be unaffected by the rejection of this Agreement in any bankruptcy proceeding by any party.

(c) Landlord shall have no right and expressly waives any right arising under applicable law, in and to the rentals payable to Tenant, if any, under any lease of the Premises, which rentals may be assigned by Tenant to Lender.

(d) If a Tenant Mortgage is in effect, (i) this Agreement shall not be modified or amended by the parties hereto, or terminated or surrendered by Tenant, nor shall Landlord accept any such termination or surrender of this Agreement by Tenant, without the prior written consent of Lender and (ii) Landlord shall not have the right to terminate this Agreement in the event of a casualty or condemnation without the prior written consent of Lender.

(e) The provisions of Sections 25 and 26 hereof are for the benefit of Lender and may be relied upon and shall be enforceable by Lender as if Lender were a party to this Agreement.

(f) Landlord shall, within ten (10) days of the request of Tenant or any Lender or prospective Lender, provide an estoppel certificate as to any matters reasonably requested by Tenant or Lender.

(g) The right to extend or renew this Agreement and any right of first refusal to purchase the Premises may be exercisable by the holder of a Tenant Mortgage and, before the expiration of any periods to exercise such a right, Landlord must provide to Lender at least thirty (30) days prior written notice before the expiration of the right to so extend or renew in order to extinguish Lender's right to so extend, renew or purchase.

(h) Under no circumstances shall the fee estate of Landlord and the leasehold estate created hereby merge, even though owned by the same party, without the written consent of the holder of a Tenant Mortgage.

28. QUIET ENJOYMENT. So long as Tenant is not in default under this Agreement beyond the applicable notice and cure period, Landlord covenants and agrees that Tenant shall peaceably and quietly hold and enjoy the Premises throughout the Term, without any hindrance, molestation or ejection by Landlord, its successors or assigns or by those claiming by, through or under them.

29. NOTICES. All notices, requests, claims, demands, and other communications hereunder shall be in writing and may be hand delivered (provided the deliverer provides proof of delivery) or sent by nationally-established overnight courier that provides proof of delivery, or certified or registered mail (postage prepaid, return receipt requested). Notice shall be deemed received on the date of delivery as demonstrated by the receipt of delivery. Notices shall be delivered to a party at the party's respective address below, or to such other address that a party below may provide from time to time:

If to Landlord:

Elvis Zeak Rambo
Judy C. Rambo
1882 State Route 2194
West Hickory, KY 42051

If to Tenant:

BRT Group, LLC
P. O. Box 812530
Boca Raton, FL 33481
Attn: General Counsel

If to Lender:

Toronto Dominion (Texas) LLC
31 West 52nd Street
New York, NY 10019
Attn: Admin Agent
Fax No. 416-982-5535

30. MISCELLANEOUS.

(a) Each party hereto warrants and represents that it has the necessary power and authority to enter into and perform its respective obligations under this Agreement.

(b) If any term of this Agreement is found to be void or invalid, such invalidity shall not affect the remaining terms of this Agreement, which shall continue in full force and effect.

(c) All attached exhibits are hereby incorporated by this reference as if fully set forth herein.

(d) Failure of party to insist on strict performance of any of the conditions or provisions of this Agreement, or failure to exercise any of a party's rights hereunder, shall not waive such rights.

(e) This Agreement shall be governed by and construed in accordance with the laws of the State or Commonwealth in which the Premises are located.

(f) This Agreement constitutes the entire agreement and understanding of the parties and supersedes all offers, negotiations, other leases and/or agreements with regard to the Premises. There are

no representations or understandings of any kind not set forth herein. Any amendment to this Agreement must be in writing and executed by both parties.

(g) This Agreement shall be binding upon and shall inure to the benefit of the parties hereto and their respective heirs, legal representatives, successors and assigns.

(h) A short-form Memorandum of Option to Lease (and a short-form Memorandum of Lease in the event Tenant exercises its option to lease the Premises) may be recorded at Landlord or Tenant's option in the form as depicted in **Exhibit 3** and **Exhibit 4**, respectively, attached hereto.

(i) Landlord shall keep the terms of this Agreement confidential, and shall not disclose any terms contained within this Agreement to any third party other than such terms as are set forth in the Memorandum of Option and Lease or Memorandum of Lease.

[SIGNATURES BEGIN ON NEXT PAGE]

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the Effective Date (date last signed by a party hereto)

WITNESSES:

LANDLORD:

Elizabeth Gartzg
Name: Elizabeth Gartzg
Megan Hopkins
Name: Megan Hopkins

Elvis Zeak Rambo
Elvis Zeak Rambo
Date: 3-29-18
Judy C Rambo
Judy C. Rambo
Date: 3-29-18

STATE OF KY
COUNTY OF GRAVES

The foregoing instrument was acknowledged before me this 29th March, 2018 by Elvis Zeak Rambo and Judy C. Rambo.

Denina Robertson
Notary Public

Printed Name: DENINA ROBERTSON

My Commission Expires:
06-01-2020

DENINA A. ROBERTSON
Notary Public - State at Large
KENTUCKY - Notary ID # 556620
My Commission Expires June 1, 2020

[Tenant signature page to Option and Lease Agreement]

WITNESSES:

TENANT:

BRT Group, LLC
a Delaware limited liability company

Natasha Barrero
Name: Natasha Barrero
Rachel Williamson
Name: Rachel Williamson

By: *Diana Perez*
Name: Diana Perez
Title: Authorized Person
Date: 4/13/18

STATE OF FLORIDA
COUNTY OF PALM BEACH



The foregoing instrument was acknowledged before me this April 13th, 2018 by Diana Perez Authorized Person of BRT Group, LLC, a Delaware limited liability company on behalf of the company.

Jeanne M. Bruning
Notary Public

Printed Name: Jeanne M. Bruning

My Commission Expires:
4/20/20

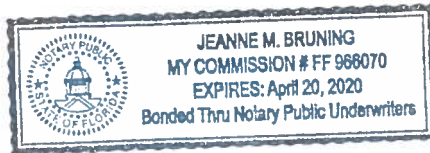


EXHIBIT 1

Legal Description of the Property (Parent Parcel)

(may be updated by Tenant upon receipt of final legal description from title)

Being a 22.33 acre parcel described as Tract 1 on plat of record in ~~Surveyors Book~~ ^{Plat} C, page 219, in the Graves County Clerk's Office and being located on the south side of State Route 2194 West approximately 2.0 miles west of the Hickory community of Graves County, Kentucky and more particularly described as beginning at the proposed northeast corner of the property herein conveyed, said corner being a ½" dia. x 24" lng. steel pin and surveyors cap #3437 set in the south right-of-way line of State Route 2194 and lying on a bearing of S 87 deg. 16 min. 44 sec. W – 2781.05 feet from a p.k. nail set at the intersection of the centerline of State Route 2194 west and the centerline of a 5' dia. c.m.p.

THENCE S 00 deg. 01 min. 55 sec. E – 690.01 feet along the east line of the property herein described and being the west line of the Sammy L. Workman, Betty Joyce Whitlow, and Nancy Jean Courtney property as described in Deed Book 437, page 155 to a ½" dia. x 24" lng. steel pin and surveyors cap #3437 set, said pin being the proposed southeast corner of the property herein described;

THENCE S 88 deg. 26 min. 53 sec. W – 1471.49 feet along a severance line to a ½" dia. x 24" lng. steel pin and surveyors cap #3437 set in the east line of the Carl Jones and wife, Syndal Jones, property (DB 189, page 457), said pin being the proposed southwest corner of the property herein described;

THENCE N 10 deg. 44 min. 17 sec. W – 445.53 feet generally along a fence and being the east line of the previously mentioned Jones property to a ½" dia. x 24' lng. steel pin and surveyors cap #3437 set;

THENCE N 86 deg. 04 min. 48 sec. E – 331.78 feet along a severance line to a ½" dia. x 24" lng. steel pin and surveyors cap #3437 set;

THENCE N 01 deg. 25 min. 20 sec. W – 234.25 feet along a severance line to a ½" dia. x 24" lng. steel pin and surveyors cap #3437 set in the south right-of-way line of State Route 2194 west, said pin being the

proposed northwest corner of the property herein described;

THENCE along the south right-of-way line of State Route 2194 west the following five (5) calls:

- (1) N 88 deg. 43 min. 36 sec. E – 129.57 feet to a point;
- (2) N 88 deg. 08 min. 24 sec. E – 321.91 feet to a point;
- (3) N 88 deg. 19 min. 19 sec. E – 276.09 feet to a point;
- (4) N 88 deg. 34 min. 03 sec. E – 282.65 feet to a point;
- (5) N 88 deg. 13 min. 12 sec. E – 218.68 feet to the point of beginning.

Together with and subject to easements, covenants and restrictions of record.

Being a part of the same real estate conveyed to Betty Jane Steiner, Syndal Lou Jones, Linda Sue Hill, and Elvis Zeak Rambo by E. Z. Rambo and wife, Frances Christine Rambo, by deed dated April 29, 1999 in which the grantors retained a life interest as shown in Deed Book 382, page 245 in the Graves County Clerk's Office. E. Z. Rambo and wife, Frances Christine Rambo, are now both deceased and the grantors named above are sole owners of the subject property.

The above conveyance is subject to a 40-foot wide easement for ingress and egress as shown on the plat in ~~Surveyor's Book~~ ^{PLAT} C, page 219, in the Graves County Clerk's Office.

EXHIBIT 2

Premises

(If the below is a Site Sketch, then it may be replaced with a final survey and legal description of the Premises)

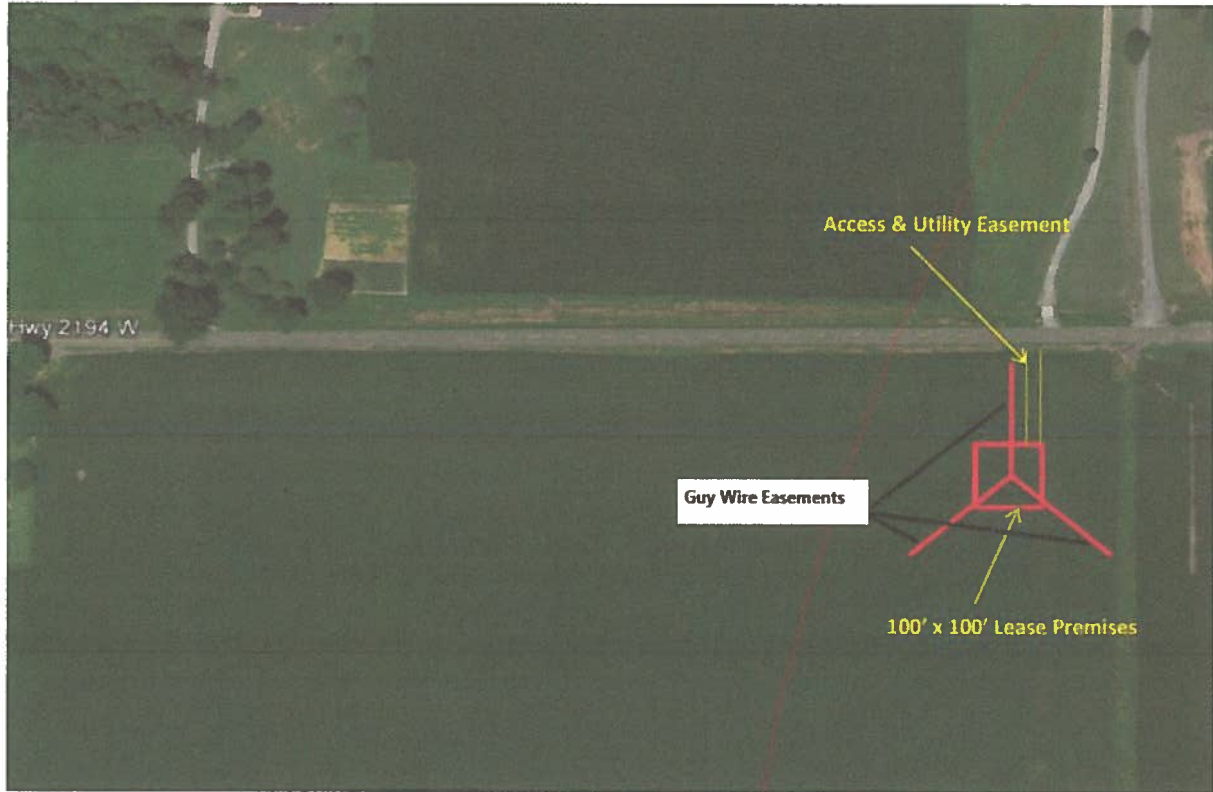


EXHIBIT 3

Memorandum of Option to Lease

(Attached)

(Above 3" Space for Recorder's Use Only)

Upon Recording Return to:

BRT Group, LLC
P. O. Box 812530
Boca Raton, FL 33481

Site Name: Workman Road
Site Number: US-KY-5040

MEMORANDUM OF OPTION TO LEASE

This Memorandum of Option to Lease ("**Memorandum**") evidences an Option and Lease Agreement (the "**Lease**") between Elvis Zeak Rambo and Judy C. Rambo, husband and wife ("**Landlord**"), whose address is 1882 State Route 2194 West, Hickory, KY 42051, and BRT Group, LLC, a Delaware limited liability company, whose mailing address is P. O. Box 812530, Boca Raton, FL 33481 ("**Tenant**"), dated 4/13, 2018 (the "**Effective Date**"), for a portion (the "**Premises**") of the real property (the "**Property**") described in Exhibit A attached hereto.

Pursuant to the Lease, Landlord has granted Tenant an exclusive option to lease the Premises (the "**Option**"). The Option commenced as of the Effective Date and shall continue in effect for a period of one (1) year from the Effective Date and may be renewed by Tenant for an additional one (1) year period.

Landlord ratifies, restates and confirms the Lease and, upon exercise of the Option, shall lease to Tenant the Premises, subject to the terms and conditions of the Lease. The Lease provides for the lease by Landlord to Tenant of the Premises for an initial term of five (5) years with nine (9) renewal option(s) of an additional five (5) years each, and further provides:

1. Landlord may assign the Lease only in its entirety and only to a purchaser of the fee interest of the Property;
2. Under certain circumstances, Tenant has a right of first refusal to acquire the Premises or the Property from Landlord;
3. Landlord may not subdivide the Property without Tenant's prior written consent; and
4. The Lease restricts Landlord's ability to utilize, or allow the utilization of the Property or real property owned by Landlord which is adjacent or contiguous to the Property for the construction, operation and/or maintenance of communications towers and related facilities.

5. This Memorandum is not intended to amend or modify, and shall not be deemed or construed as amending or modifying, any of the terms, conditions or provisions of the Lease. In the event of a conflict between the provisions of this Memorandum and the provisions of the Lease, the provisions of the Lease shall control. The Lease shall be binding upon and inure to the benefit of Landlord and Tenant and shall inure to the benefit of their respective heirs, successors, and assigns, subject to the provisions of the Lease.

[THE REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK, SIGNATURES
BEGIN ON NEXT PAGE]

IN WITNESS WHEREOF, the parties hereto have executed this MEMORANDUM OF OPTION TO LEASE effective as of the date last signed by a party hereto.

WITNESSES:

LANDLORD:

Elizabeth Gartz
Name: Elizabeth Gartz

Megan Hopkins
Name: Megan Hopkins

Elvis Zeak Rambo
Elvis Zeak Rambo

Date: 3-29-18

Judy C. Rambo
Judy C. Rambo

Date: 3-29-18

STATE OF KY
COUNTY OF GRAVES

The foregoing instrument was acknowledged before me this 29th March, 2018 by Elvis Zeak Rambo and Judy C. Rambo.

Denina Robt
Notary Public

Printed Name: DENINA ROBERTSON

My Commission Expires:
06-01-2020

DENINA A. ROBERTSON
Notary Public - State at Large
KENTUCKY - Notary ID # 556620
My Commission Expires June 1, 2020

[Tenant's Signature Page to Memorandum of Option to Lease]

WITNESSES:

TENANT:

BRT Group, LLC
a Delaware limited liability company

Natasha Buxreno

Name: Natasha Buxreno

Rachel Williamson

Name: Rachel Williamson

By: *Diana Perez*

Name: Diana Perez

Title: Authorized Person

Date: 4/13/2018



STATE OF FLORIDA
COUNTY OF PALM BEACH

The foregoing instrument was acknowledged before me this April 13th, 2018 by Diana Perez, Authorized Person of BRT Group, LLC, a Delaware limited liability company on behalf of the company.

Jeanne M. Bruning
Notary Public

Printed Name: JEANNE M. BRUNING

My Commission Expires:
4/20/20

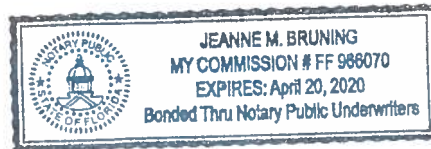


EXHIBIT A
(TO MEMORANDUM OF OPTION TO LEASE)

The Property

(may be updated by Tenant upon receipt of final legal description from title)

Being a 22.33 acre parcel described as Tract 1 on ~~plat~~ ^{plat} of record in Surveyor's Book C, page 219, in the Graves County Clerk's Office and being located on the south side of State Route 2194 West approximately 2.0 miles west of the Hickory community of Graves County, Kentucky and more particularly described as beginning at the proposed northeast corner of the property herein conveyed, said corner being a ½" dia. x 24" lng. steel pin and surveyors cap #3437 set in the south right-of-way line of State Route 2194 and lying on a bearing of S 87 deg. 16 min. 44 sec. W – 2781.05 feet from a p.k. nail set at the intersection of the centerline of State Route 2194 west and the centerline of a 5' dia. c.m.p.

THENCE S 00 deg. 01 min. 55 sec. E – 690.01 feet along the east line of the property herein described and being the west line of the Sammy L. Workman, Betty Joyce Whitlow, and Nancy Jean Courtney property as described in Deed Book 437, page 155 to a ½" dia. x 24" lng. steel pin and surveyors cap #3437 set, said pin being the proposed southeast corner of the property herein described;

THENCE S 88 deg. 26 min. 53 sec. W – 1471.49 feet along a severance line to a ½" dia. x 24" lng. steel pin and surveyors cap #3437 set in the east line of the Carl Jones and wife, Syndal Jones, property (DB 189, page 457), said pin being the proposed southwest corner of the property herein described;

THENCE N 10 deg. 44 min. 17 sec. W – 445.53 feet generally along a fence and being the east line of the previously mentioned Jones property to a ½" dia. x 24' lng. steel pin and surveyors cap #3437 set;

THENCE N 86 deg. 04 min. 48 sec. E – 331.78 feet along a severance line to a ½" dia. x 24" lng. steel pin and surveyors cap #3437 set;

THENCE N 01 deg. 25 min. 20 sec. W – 234.25 feet along a severance line to a ½" dia. x 24" lng. steel pin and surveyors cap #3437 set in the south right-of-way line of State Route 2194 west, said pin being the

proposed northwest corner of the property herein described;

THENCE along the south right-of-way line of State Route 2194 west the following five (5) calls:

- (1) N 88 deg. 43 min. 36 sec. E – 129.57 feet to a point;
- (2) N 88 deg. 08 min. 24 sec. E – 321.91 feet to a point;
- (3) N 88 deg. 19 min. 19 sec. E – 276.09 feet to a point;
- (4) N 88 deg. 34 min. 03 sec. E – 282.65 feet to a point;
- (5) N 88 deg. 13 min. 12 sec. E – 218.68 feet to the point of beginning.

Together with and subject to easements, covenants and restrictions of record.

Being a part of the same real estate conveyed to Betty Jane Steiner, Syndal Lou Jones, Linda Sue Hill, and Elvis Zeak Rambo by E. Z. Rambo and wife, Frances Christine Rambo, by deed dated April 29, 1999 in which the grantors retained a life interest as shown in Deed Book 382, page 245 in the Graves County Clerk's Office. E. Z. Rambo and wife, Frances Christine Rambo, are now both deceased and the grantors named above are sole owners of the subject property.

The above conveyance is subject to a 40-foot wide easement for ingress and egress as shown on the plat in ~~Surveyor's Book~~ ^{PLAT} C, page 219, in the Graves County Clerk's Office.

Access and utilities serving the Premises (as defined in the Lease) includes all easements of record as well as that portion of the Property designated by Landlord and Tenant for Tenant (and Tenant's guests, agents, customers, lessees, sublessees and assigns) ingress, egress, and utility purposes to and from a public right-of-way.

EXHIBIT 4

Memorandum of Lease

(Attached)

(Above 3" Space for Recorder's Use Only)

Upon Recording Return to:

BRT Group, LLC
P. O. Box 812530
Boca Raton, FL 33481

Site Name: Workman Road
Site Number: US-KY-5040

MEMORANDUM OF LEASE

This Memorandum of Lease ("**Memorandum**") evidences a Lease Agreement (the "**Lease**") between Elvis Zeak Rambo and Judy C. Rambo, husband and wife ("**Landlord**"), whose address is 1882 State Route 2194 West, Hickory, KY 42051, and BRT Group, LLC, a Delaware limited liability company, whose mailing address is P. O. Box 812530, Boca Raton, FL 33481 ("**Tenant**"), dated 4/13, 2018 (the "**Effective Date**"), for a portion (the "**Premises**") of the real property (the "**Property**") described in Exhibit A attached hereto.

Landlord hereby ratifies, restates and confirms the Lease and leases to Tenant the Premises, subject to the terms and conditions of the Lease. The Commencement Date of the Lease is _____ . The Lease provides for the lease by Landlord to Tenant of the Premises for an initial term of five (5) years with nine (9) renewal option(s) of an additional five (5) years each, and further provides:

1. Landlord will attorn to any mortgagee of Tenant and will subordinate any Landlord's lien to the liens of Tenant's mortgagees;
2. The Lease restricts Landlord's ability to utilize, or allow the utilization of the Property or real property owned by Landlord which is adjacent or contiguous to the Property for the construction, operation and/or maintenance of communications towers and related facilities;
3. Tenant (and persons deriving rights by, through, or under Tenant) are the sole parties to market, use, or sublease any portion of the Property for communications or broadcast facilities during the term of the Lease (such restriction shall run with the land and be binding on the successors and assigns of Landlord);
4. The Premises may be used exclusively by Tenant for all legal purposes, including without limitation, erecting, installing, operating and maintaining radio and communications towers, buildings, and equipment;

5. Tenant is entitled to sublease and/or sublicense the Premises, including any communications tower located thereon;

6. Under certain circumstances, Tenant has a right of first refusal to acquire the Premises from Landlord;

7. Landlord may assign the Lease only in its entirety and only to a purchaser of the fee interest of the Property;

8. Landlord may not subdivide the Property without Tenant's prior written consent; and

9. This Memorandum is not intended to amend or modify, and shall not be deemed or construed as amending or modifying, any of the terms, conditions or provisions of the Lease. In the event of a conflict between the provisions of this Memorandum and the provisions of the Lease, the provisions of the Lease shall control. The Lease shall be binding upon and inure to the benefit of Landlord and Tenant and shall inure to the benefit of their respective heirs, successors, and assigns, subject to the provisions of the Lease.

[THE REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK, SIGNATURES
BEGIN ON NEXT PAGE]

IN WITNESS WHEREOF, the parties hereto have executed this MEMORANDUM OF LEASE as of the date last signed by a party hereto.

WITNESSES:

LANDLORD:

<p><u>Elizabeth Garza</u> Name: <u>Elizabeth Garza</u> Date: <u>3-29-18</u></p> <p><u>Megan Hopkins</u> Name: <u>Megan Hopkins</u></p>	<p><u>Elvis Zeak Rambo</u> Elvis Zeak Rambo</p> <p><u>Judy C. Rambo</u> Judy C. Rambo</p> <p>Date: <u>3-29-18</u></p>
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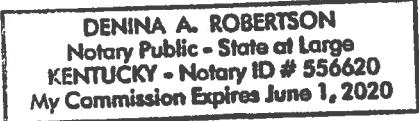
STATE OF KY
COUNTY OF GRAVES

The foregoing instrument was acknowledged before me this 29th March, 2018 by Elvis Zeak Rambo and Judy C. Rambo.

Denina Roberts
Notary Public

Printed Name: DENINA ROBERTSON

My Commission Expires:
06-01-2020



[Tenant's Signature Page to Memorandum of Lease]

WITNESSES:

TENANT:

BRT Group, LLC
a Delaware limited liability company

Natasha Barrero
Name: Natasha Barrero
Rachel Williamson
Name: Rachel Williamson

By: *Diana Perez*
Name: Diana Perez
Title: Authorized PERSON
Date: 4/13/18



STATE OF FLORIDA
COUNTY OF PALM BEACH

The foregoing instrument was acknowledged before me this April 13th, 2018 by Diana Perez, Authorized PERSON of BRT Group, LLC, a Delaware limited liability company on behalf of the company.

Jeanne M. Bruning
Notary Public

Printed Name: JEANNE M. BRUNING

My Commission Expires:
4/20/20

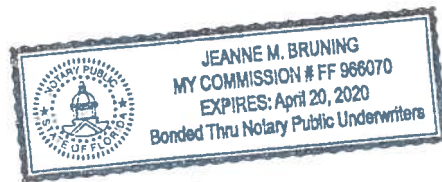


EXHIBIT A
(TO MEMORANDUM OF LEASE)

The Property

(may be updated by Tenant upon receipt of final legal description from title)

Being a 22.33 acre parcel described as Tract 1 on plat of record in ~~Survey of Book~~ ^{Plat} C, page 219, in the Graves County Clerk's Office and being located on the south side of State Route 2194 West approximately 2.0 miles west of the Hickory community of Graves County, Kentucky and more particularly described as beginning at the proposed northeast corner of the property herein conveyed, said corner being a ½" dia. x 24" lng. steel pin and surveyors cap #3437 set in the south right-of-way line of State Route 2194 and lying on a bearing of S 87 deg. 16 min. 44 sec. W – 2781.05 feet from a p.k. nail set at the intersection of the centerline of State Route 2194 west and the centerline of a 5' dia. c.m.p.

THENCE S 00 deg. 01 min. 55 sec. E – 690.01 feet along the east line of the property herein described and being the west line of the Sammy L. Workman, Betty Joyce Whitlow, and Nancy Jean Courtney property as described in Deed Book 437, page 155 to a ½" dia. x 24" lng. steel pin and surveyors cap #3437 set, said pin being the proposed southeast corner of the property herein described;

THENCE S 88 deg. 26 min. 53 sec. W – 1471.49 feet along a severance line to a ½" dia. x 24" lng. steel pin and surveyors cap #3437 set in the east line of the Carl Jones and wife, Syndal Jones, property (DB 189, page 457), said pin being the proposed southwest corner of the property herein described;

THENCE N 10 deg. 44 min. 17 sec. W – 445.53 feet generally along a fence and being the east line of the previously mentioned Jones property to a ½" dia. x 24" lng. steel pin and surveyors cap #3437 set;

THENCE N 86 deg. 04 min. 48 sec. E – 331.78 feet along a severance line to a ½" dia. x 24" lng. steel pin and surveyors cap #3437 set;

THENCE N 01 deg. 25 min. 20 sec. W – 234.25 feet along a severance line to a ½" dia. x 24" lng. steel pin and surveyors cap #3437 set in the south right-of-way line of State Route 2194 west, said pin being the

proposed northwest corner of the property herein described;

THENCE along the south right-of-way line of State Route 2194 west the following five (5) calls:

- (1) N 88 deg. 43 min. 36 sec. E – 129.57 feet to a point;
- (2) N 88 deg. 08 min. 24 sec. E – 321.91 feet to a point;
- (3) N 88 deg. 19 min. 19 sec. E – 276.09 feet to a point;
- (4) N 88 deg. 34 min. 03 sec. E – 282.65 feet to a point;
- (5) N 88 deg. 13 min. 12 sec. E – 218.68 feet to the point of beginning.

Together with and subject to easements, covenants and restrictions of record.

Being a part of the same real estate conveyed to Betty Jane Steiner, Syndal Lou Jones, Linda Sue Hill, and Elvis Zeak Rambo by E. Z. Rambo and wife, Frances Christine Rambo, by deed dated April 29, 1999 in which the grantors retained a life interest as shown in Deed Book 382, page 245 in the Graves County Clerk's Office. E. Z. Rambo and wife, Frances Christine Rambo, are now both deceased and the grantors named above are sole owners of the subject property.

The above conveyance is subject to a 40-foot wide easement for ingress and egress as shown on the plat in ~~Plat's Book C~~, page 219, in the Graves County Clerk's Office.

Access and utilities serving the Premises (as defined in the Lease) includes all easements of record as well as that portion of the Property designated by Landlord and Tenant for Tenant (and Tenant's guests, agents, customers, lessees, sublessees and assigns) ingress, egress, and utility purposes to and from a public right-of-way.

Said interest being over land more particularly described by the following description:

Insert metes and bounds description of area

FIRST AMENDMENT TO OPTION AND LEASE AGREEMENT

This First Amendment to Option and Lease Agreement (this "**Amendment**") is entered into and made effective as of the 30th day of March, 20 20 and is by and between **Elvis Zeak Rambo and Judy C. Rambo**, a husband and wife ("**Landlord**"), and **Vertical Bridge Development, LLC**, a Delaware limited liability company, successor in interest via merger to BRT Group, LLC, a Delaware limited liability company ("**Tenant**"). Landlord and Tenant may be referred to herein as "**Party**" or jointly as "**Parties**."

WITNESSETH:

A. Landlord and Tenant entered into that certain Option and Lease Agreement dated April 13, 2018 (the "**Agreement**").

B. Landlord and Tenant desire to amend the Agreement, as set forth below, to extend the Option Period set forth in Section 1 of the Agreement.

NOW, THEREFORE, in consideration of [REDACTED] and other good and valuable consideration, the receipt and sufficiency whereof is hereby acknowledged, the Landlord and Tenant agree as follows:

1. **Recitals, Definitions.** The recitals set forth above are accurate and hereby incorporated into the Agreement by reference thereto. All capitalized terms not defined herein shall have the same meaning set forth in the Agreement.

2. **Amendment.** The first new extension will be for the period beginning on April 13, 2020 through to and including April 12, 2021 ("Third Option Period"). The second new extension, if applicable, will be for an additional one (1) year from April 13, 2021 through to and including April 12, 2022 ("Fourth Option Period"). Tenant will pay to Landlord a fee of [REDACTED] within fifteen (15) days of the full execution of this Amendment for the Third Option Period. If Tenant elects to enter into the Fourth Option Period, Tenant will pay to Landlord a fee of [REDACTED] no later than ten (10) days prior to the start of the Fourth Option Period.

3. **Ratification.** Except as amended herein, all of the terms and conditions of the Agreement are hereby ratified and confirmed in all respects and shall remain unchanged and continue in full force and effect.

4. **Conflict.** In the event of any conflict between the terms of this Amendment and the Agreement, the terms of this Amendment shall govern and supersede those set forth in the Agreement.

5. **Successors and Assigns.** This Amendment shall inure to the benefit of and be binding upon the parties hereto and their respective successors and permitted assigns.

6. **Binding Effect.** This Amendment shall be binding upon the heirs, legal representatives, successors and assigns of the parties. The parties shall execute and deliver such further and additional instruments, agreements and other documents as may be necessary to evidence or carry out the provisions of this Amendment.

7. **Representations and Warranties.** To the extent applicable, each party hereby represents and warrants to the other party that such party: (a) is a duly authorized and existing entity; (b) is qualified to do business in the state in which the Property is located; and (c) has full right and authority to execute and enter into this Amendment and to perform the obligations imposed upon such party without the consent of any other party or person. Further, each of the persons executing this Amendment on behalf of such party hereby represents and warrants that such person is authorized to do so.

8. **Entire Agreement.** This and any attachments, which are hereby incorporated into and made a part of this Amendment, set forth the entire agreement between the parties with respect to the matters set forth herein. There have been no additional oral or written representations or agreements.

9. **Authority to Sign.** Each signatory of this Amendment represents hereby that he or she has the authority to execute and deliver the same on behalf of the party hereto for which such signatory is acting.

10. **Counterparts.** This Amendment may be executed in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute but one and the same instrument.

[signatures on the following pages]

IN WITNESS WHEREOF, the Parties have executed this Amendment effective as of the day and year first above-written.

WITNESSES:

Leslie Terry
Name: _____

Stacey Joiner
Name: _____

Leslie Terry
Name: _____

Stacey Joiner
Name: _____

LANDLORD:

By: Elvis Zeak Rambo
Elvis Zeak Rambo

Date: 3-24-2020

By: Judy C Rambo
Judy C. Rambo

Date: 3-24-2020

STATE OF Kentucky

COUNTY OF Grane

The foregoing instrument was acknowledged before me this 24th day of March, 2020, by Elvis Zeak Rambo and Judy C. Rambo.

Peggy Riley
Notary Public

Printed Name: PEGGY RILEY

My Commission Expires:
5-13-2023

[Tenant's Signature Page]

WITNESSES:

TENANT:

Kathrynn Campbell
Name: Kathrynn Campbell

Lilly Cimo
Name: Lilly Cimo

Vertical Bridge Development, LLC
a Delaware limited liability company

Alex Gellman
By: Alex Gellman
Name: Alex Gellman
Title: CEO
Date: 3-30-2020



STATE OF FLORIDA
COUNTY OF PALM BEACH

The foregoing instrument was acknowledged before me this 30th day of March, 2020, by Alex Gellman, the CEO of Vertical Bridge Development, LLC, a Delaware limited liability company, on behalf of the company.

Rachel Williamson
Notary Public

Printed Name: Rachel Williamson

My Commission Expires:
Oct. 17, 2022

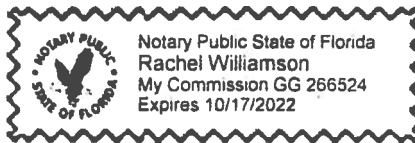


Exhibit J
Notification Listing
Abutter's Map
Copy of Property Owner Notices

Carl & Syndal Jones

842 State Route 2194W

Hickory, KY 42051

Will, Anthony & Melissa Whitenton

696 State Route 2194W

Hickory, KY 42051

Heather Elliot

664 State Route 2194W

Hickory, KY 42051

Sammy L. Workman, Betty Whitlow & Wayne Courtney

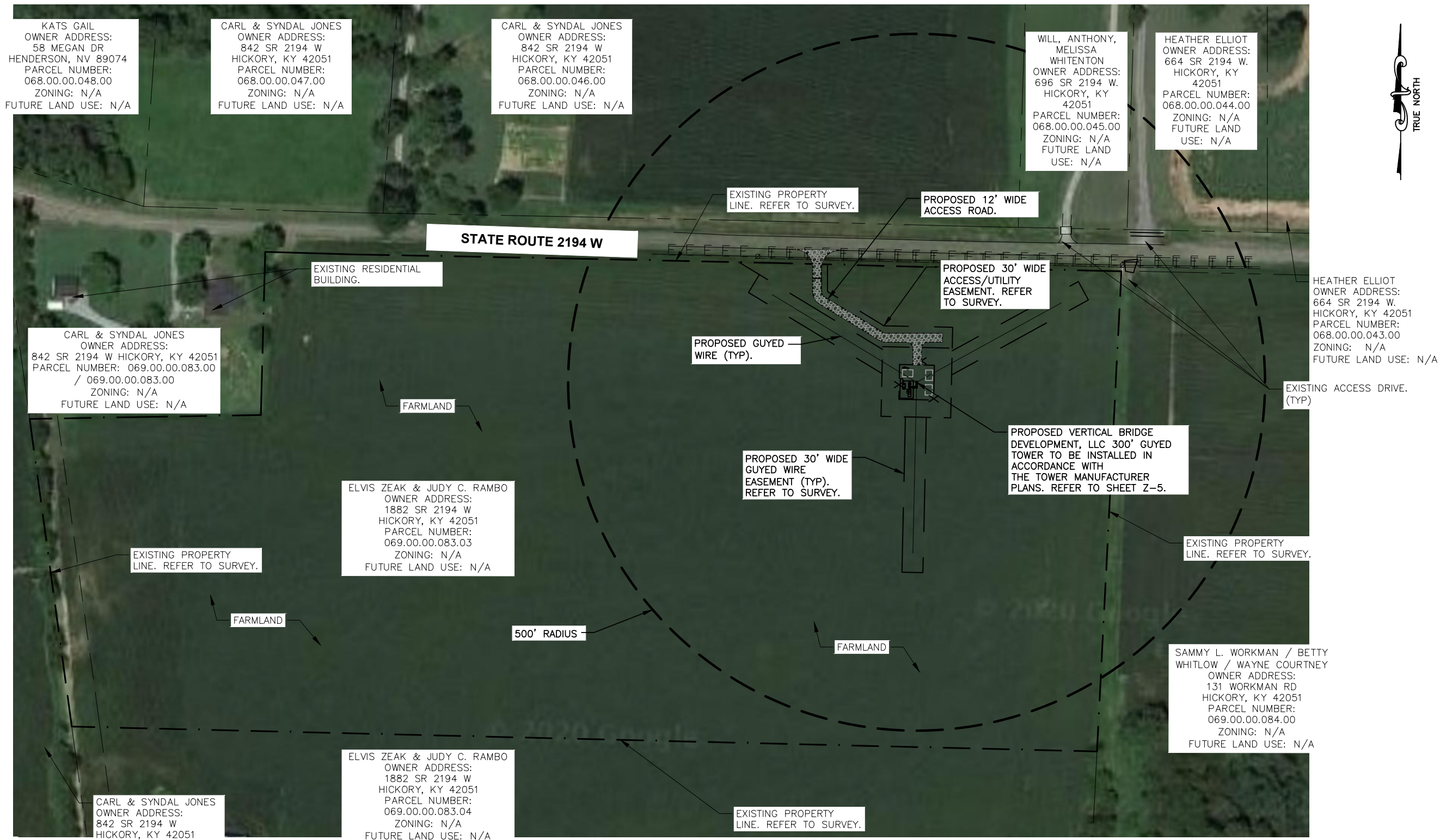
131 Workman Road

Hickory, KY 42051

Elvis Zeak & Judy C. Rambo

1882 State Route 2194W

Hickory, KY 42051



KATS GAIL
OWNER ADDRESS:
58 MEGAN DR
HENDERSON, NV 89074
PARCEL NUMBER:
068.00.00.048.00
ZONING: N/A
FUTURE LAND USE: N/A

CARL & SYNDAL JONES
OWNER ADDRESS:
842 SR 2194 W
HICKORY, KY 42051
PARCEL NUMBER:
068.00.00.047.00
ZONING: N/A
FUTURE LAND USE: N/A

CARL & SYNDAL JONES
OWNER ADDRESS:
842 SR 2194 W
HICKORY, KY 42051
PARCEL NUMBER:
068.00.00.046.00
ZONING: N/A
FUTURE LAND USE: N/A

WILL, ANTHONY,
MELISSA
WHITENTON
OWNER ADDRESS:
696 SR 2194 W.
HICKORY, KY
42051
PARCEL NUMBER:
068.00.00.045.00
ZONING: N/A
FUTURE LAND
USE: N/A

HEATHER ELLIOT
OWNER ADDRESS:
664 SR 2194 W.
HICKORY, KY
42051
PARCEL NUMBER:
068.00.00.044.00
ZONING: N/A
FUTURE LAND
USE: N/A

HEATHER ELLIOT
OWNER ADDRESS:
664 SR 2194 W.
HICKORY, KY 42051
PARCEL NUMBER:
068.00.00.043.00
ZONING: N/A
FUTURE LAND USE: N/A

CARL & SYNDAL JONES
OWNER ADDRESS:
842 SR 2194 W HICKORY, KY 42051
PARCEL NUMBER: 069.00.00.083.00
/ 069.00.00.083.00
ZONING: N/A
FUTURE LAND USE: N/A

ELVIS ZEAK & JUDY C. RAMBO
OWNER ADDRESS:
1882 SR 2194 W
HICKORY, KY 42051
PARCEL NUMBER:
069.00.00.083.03
ZONING: N/A
FUTURE LAND USE: N/A

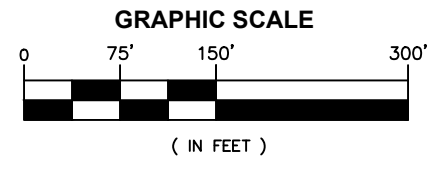
SAMMY L. WORKMAN / BETTY
WHITLOW / WAYNE COURTNEY
OWNER ADDRESS:
131 WORKMAN RD
HICKORY, KY 42051
PARCEL NUMBER:
069.00.00.084.00
ZONING: N/A
FUTURE LAND USE: N/A

ELVIS ZEAK & JUDY C. RAMBO
OWNER ADDRESS:
1882 SR 2194 W
HICKORY, KY 42051
PARCEL NUMBER:
069.00.00.083.04
ZONING: N/A
FUTURE LAND USE: N/A

CARL & SYNDAL JONES
OWNER ADDRESS:
842 SR 2194 W
HICKORY, KY 42051
PARCEL NUMBER:
069.00.00.082.00
ZONING: N/A
FUTURE LAND USE: N/A

- NOTES:**
1. ALL INFORMATION SHOWN HEREON WAS OBTAINED FROM THE RECORDS OF GRAVES PVA ON JUNE 8, 2020, WHICH MAY NOT REFLECT THE CURRENT OWNERS AND ADDRESSES DUE TO THE INACCURACIES AND TIME LAPSE IN UPDATING FILES. KIMLEY-HORN AND GRAVES PVA EXPRESSLY DISCLAIMS ANY WARRANTY FOR THE CONTENT AND ANY ERRORS CONTAINED IN THEIR FILES.
 2. THE MAP IS FOR GENERAL INFORMATIONAL PURPOSES ONLY AND IS NOT A BOUNDARY SURVEY.
 3. NOT FOR RECORDING OR PROPERTY TRANSFER.

AERIAL SITE PLAN
SCALE: 1"=150'
SCALE BASED ON 11"x17" ONLY



verticalbridge

750 PARK OF COMMERCE DRIVE
SUITE 200
BOCA RATON, FL 33487

PLANS PREPARED BY:

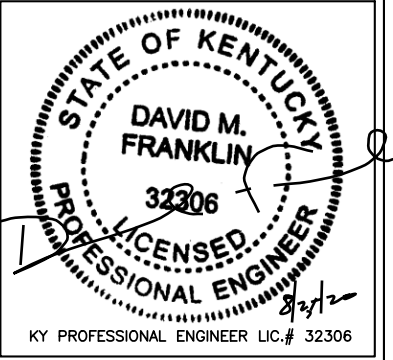
Kimley»Horn

655 NORTH FRANKLIN STREET, SUITE 150
TAMPA, FL 33602
PHONE (813) 620-1460
WWW.KIMLEY-HORN.COM

REV.	DATE:	DESCRIPTION:	BY:
1	08/25/2020	REVISED PER COMMENTS	NAP
0	06/10/2020	FINAL	RRJ

DRAWN BY: RRJ CHECKED BY: RRJ

KHA PROJECT NUMBER:
140064062



PROJECT INFORMATION:

WORKMAN
KY-5040

1882 STATE ROUTE 2194 W
HICKORY, KY 42051
GRAVES COUNTY

SHEET TITLE:
**AERIAL
SITE PLAN**

SHEET NUMBER:
A-1

BRIGGS LAW OFFICE, PSC

10200 Forest Green Boulevard | Suite 112 | Louisville, Kentucky 40223
[884] 331-3402 main | [502] 468-3751 mobile | todd@briggslawoffice.net

TODD R. BRIGGS
also admitted in Colorado

Via USPS Certified Mail - Return Receipt Requested

Notice of Proposed Construction - Wireless Communications Facility

Carl & Syndal Jones
842 State Route 2194W
Hickory, KY 42051

Dear Landowner:

Vertical Bridge Development, LLC and New Cingular Wireless PCS, LLC dba AT&T Mobility ("Applicant") are applying to the Kentucky Public Service Commission ("Commission") for a Certificate of Public Convenience and Necessity to construct and operate a new wireless communications facility. The proposed facility will consist of a guyed tower plus related ground facilities to be located at State Route 2194W, Hickory, Graves County, Kentucky 42051 (36° 50' 23.71 North latitude 88° 40' 32.73" West longitude). A map showing the location is enclosed.

This notice is being sent to you because the Graves County Property Valuation Administrator's records indicate that you own property that is within a 500' radius of the proposed tower site OR is contiguous to the property on which the tower is to be constructed.

The Commission invites your comments regarding the proposed construction and wants you to be aware of your right to intervene in the Commission's proceedings on this application. Your comments and request for intervention should be addressed to: Kentucky Public Service Commission, Executive Director, P.O. Box 615, Frankfort, Kentucky 40602. Please refer to Case Number: 2020-00270 in any correspondence.

Sincerely,



Todd R. Briggs

Enclosure

BRIGGS LAW OFFICE, PSC

10200 Forest Green Boulevard | Suite 112 | Louisville, Kentucky 40223
[884] 331-3402 man | [502] 468-3751 mobile | todd@briggslawoffice.net

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Notice of Proposed Construction - Wireless Communications Facility

Will, Anthony & Melissa Whitenton
696 State Route 2194W
Hickory, KY 42051

Dear Landowner:

Vertical Bridge Development, LLC and New Cingular Wireless PCS, LLC dba AT&T Mobility ("Applicant") are applying to the Kentucky Public Service Commission ("Commission") for a Certificate of Public Convenience and Necessity to construct and operate a new wireless communications facility. The proposed facility will consist of a guyed tower plus related ground facilities to be located at State Route 2194W, Hickory, Graves County, Kentucky 42051 (36° 50' 23.71 North latitude 88° 40' 32.73" West longitude). A map showing the location is enclosed.

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Sincerely,



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Enclosure

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Notice of Proposed Construction - Wireless Communications Facility

Heather Elliot
664 State Route 2194W
Hickory, KY 42051

Dear Landowner:

Vertical Bridge Development, LLC and New Cingular Wireless PCS, LLC dba AT&T Mobility ("Applicant") are applying to the Kentucky Public Service Commission ("Commission") for a Certificate of Public Convenience and Necessity to construct and operate a new wireless communications facility. The proposed facility will consist of a guyed tower plus related ground facilities to be located at State Route 2194W, Hickory, Graves County, Kentucky 42051 (36° 50' 23.71 North latitude 88° 40' 32.73" West longitude). A map showing the location is enclosed.

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Sincerely,



Todd R. Briggs

Enclosure

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[884] 331-3402 main | [502] 468-3751 mobile | todd@briggslawoffice.net

TODD R. BRIGGS
also admitted in Colorado

Via USPS Certified Mail - Return Receipt Requested

Notice of Proposed Construction - Wireless Communications Facility

Sammy L. Workman, Betty Whitlow & Wayne Courtney
131 Workman Road
Hickory, KY 42051

Dear Landowner:

Vertical Bridge Development, LLC and New Cingular Wireless PCS, LLC dba AT&T Mobility ("Applicant") are applying to the Kentucky Public Service Commission ("Commission") for a Certificate of Public Convenience and Necessity to construct and operate a new wireless communications facility. The proposed facility will consist of a guyed tower plus related ground facilities to be located at State Route 2194W, Hickory, Graves County, Kentucky 42051 (36° 50' 23.71 North latitude 88° 40' 32.73" West longitude). A map showing the location is enclosed.

This notice is being sent to you because the Graves County Property Valuation Administrator's records indicate that you own property that is within a 500' radius of the proposed tower site OR is contiguous to the property on which the tower is to be constructed.

The Commission invites your comments regarding the proposed construction and wants you to be aware of your right to intervene in the Commission's proceedings on this application. Your comments and request for intervention should be addressed to: Kentucky Public Service Commission, Executive Director, P.O. Box 615, Frankfort, Kentucky 40602. Please refer to Case Number: **2020-00270** in any correspondence.

Sincerely,



Todd R. Briggs

Enclosure

BRIGGS LAW OFFICE, PSC

10200 Forest Green Boulevard | Suite 112 | Louisville, Kentucky 40223
[884] 331-3402 main | [502] 468-3751 mobile | todd@briggslawoffice.net

TODD R. BRIGGS
also admitted in Colorado

Via USPS Certified Mail - Return Receipt Requested

Notice of Proposed Construction - Wireless Communications Facility

Elvis Zeak & Judy C. Rambo
1882 State Route 2194W
Hickory, KY 42051

Dear Landowner:

Vertical Bridge Development, LLC and New Cingular Wireless PCS, LLC dba AT&T Mobility ("Applicant") are applying to the Kentucky Public Service Commission ("Commission") for a Certificate of Public Convenience and Necessity to construct and operate a new wireless communications facility. The proposed facility will consist of a guyed tower plus related ground facilities to be located at State Route 2194W, Hickory, Graves County, Kentucky 42051 (36° 50' 23.71 North latitude 88° 40' 32.73" West longitude). A map showing the location is enclosed.

This notice is being sent to you because the Graves County Property Valuation Administrator's records indicate that you own property that is within a 500' radius of the proposed tower site OR is contiguous to the property on which the tower is to be constructed.

The Commission invites your comments regarding the proposed construction and wants you to be aware of your right to intervene in the Commission's proceedings on this application. Your comments and request for intervention should be addressed to: Kentucky Public Service Commission, Executive Director, P.O. Box 615, Frankfort, Kentucky 40602. Please refer to Case Number: 2020-00270 in any correspondence.

Sincerely,



Todd R. Briggs

Enclosure

Exhibit K
Copy of County Judge Executive Notice

BRIGGS LAW OFFICE, PSC

10200 Forest Green Boulevard | Suite 112 | Louisville, Kentucky 40223
[884] 331-3402 main | [502] 468-3751 mobile | todd@briggslawoffice.net

TODD R. BRIGGS
also admitted in Colorado

Via USPS Certified Mail - Return Receipt Requested

Honorable Jesse Perry
Graves County Judge Executive
101 East South Street
Mayfield, KY 42066

**RE: Notice of Proposal to Construct Wireless Communications Facility
Kentucky Public Service Commission--Case No. 2020-00270**

Dear Judge Perry:

Vertical Bridge Development, LLC and New Cingular Wireless PCS, LLC dba AT&T Mobility ("Applicant") are applying to the Kentucky Public Service Commission (the "Commission") for a Certificate of Public Convenience and Necessity to construct and operate a new wireless communications facility to be located at State Route 2194W, Hickory, Graves County, Kentucky 42051 (36° 50' 23.71 North latitude 88° 40' 32.73" West longitude). A map showing the location is attached. The proposed facility will include a guyed tower, plus related ground facilities.

You have a right to submit comments regarding the proposed construction to the Commission or to request intervention in the Commission's proceedings on this application.

Your comments and request for intervention should be addressed to: Kentucky Public Service Commission, Executive Director, 211 Sower Boulevard, P.O. Box 615, Frankfort, Kentucky 40602. Please refer to case number 2020-00270 in any correspondence.

Sincerely,



Todd R. Briggs
Counsel for Applicant

Enclosure

Exhibit L
Copy of Posted Notices

PUBLIC NOTICE

Vertical Bridge Development, LLC
& New Cingular Wireless PCS, LLC
dba AT&T Mobility proposes
to construct a telecommunications

TOWER

on this site. If you have
any questions please contact:

Briggs Law Office, PSC
10200 Forest Green Blvd.
Suite 112
Louisville, KY 40223
(844) 331-3402

or

Executive Director
Public Service Commission
211 Sower Boulevard
P.O. Box 615
Frankfort, KY 40602

Please refer to Commission's

Case #2020-00270

in your correspondence.

PUBLIC NOTICE

Vertical Bridge Development, LLC
& New Cingular Wireless PCS, LLC
dba AT&T Mobility proposes
to construct a telecommunications

TOWER

near this site. If you have
any questions please contact:

Briggs Law Office, PSC
10200 Forest Green Blvd.
Suite 112
Louisville, KY 40223
(844) 331-3402

or

Executive Director
Public Service Commission
211 Sower Boulevard
P.O. Box 615
Frankfort, KY 40602

Please refer to Commission's

Case #2020-00270

in your correspondence.

Exhibit M
Map of Search Area

Search Area (KY-5040 Workman)

