



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

January 24, 2018

RECEIVED

JAN 25 2018

**PUBLIC SERVICE
COMMISSION**

Gwen Pinson
Executive Director
Kentucky Public Service Commission
211 Sower Boulevard
Frankfort, KY 40601

RE: Notice of Height Change and FAA Approval Filing
PSC Case No.: 2017-00385
Site Name: Harned

Dear Director Pinson:

The enclosed filing is provided as a supplement to the application that is the subject of the above-referenced case. Please include this correspondence and attachments in the administrative case file for this matter.

Sincerely,

A handwritten signature in blue ink that reads "David A. Pike".

David A. Pike
Pike Legal Group, PLLC
Attorney for Applicant

Enclosures
cc: Brittany H. Koenig

RECEIVED

JAN 25 2018

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

PUBLIC SERVICE
COMMISSION

In the Matter of:

THE APPLICATION OF)	
NEW CINGULAR WIRELESS PCS, LLC,)	
A DELAWARE LIMITED LIABILITY COMPANY,)	
D/B/A AT&T MOBILITY)	
FOR ISSUANCE OF A CERTIFICATE OF PUBLIC	)	CASE NO.: 2017-00385
CONVENIENCE AND NECESSITY TO CONSTRUCT)	
A WIRELESS COMMUNICATIONS FACILITY)	
IN THE COMMONWEALTH OF KENTUCKY)	
IN THE COUNTY OF BRECKINRIDGE)	

SITE NAME: HARNED

**NOTICE OF HEIGHT CHANGE
AND FEDERAL AVIATION ADMINISTRATION (“FAA”) APPROVAL**

Comes New Cingular Wireless PCS, LLC, a Delaware limited liability company, d/b/a AT&T Mobility (“Applicant”), by counsel, and hereby provides the Commission with this Notice of the following:

1. The Commission, by Order dated December 21, 2017, issued a CPCN authorizing Applicant to construct a proposed wireless communications facility, including an antenna tower not to exceed 320 feet in height.
2. Subsequent to filing the original application in the within case, Applicant has changed the antenna tower design to reduce the proposed tower height to a total height of 199 feet (195-foot tall tower, with an approximately 4-foot tall lightning arrestor attached at the top).
3. The proposed tower, as re-designed to reduce the total tower height, will be constructed in full compliance with the Commission’s Order.

4. As a courtesy to the Commission and to update the case record, Applicant hereby amends the case file for this matter with a revised site development plan referencing the reduced tower height (attached hereto as **Exhibit B-1**) to replace **Exhibit B** to the original application.
5. As a courtesy to the Commission and to update the case record, Applicant hereby amends the case file for this matter with revised tower and foundation design plans referencing the reduced tower height (attached hereto as **Exhibit C-1**) to replace **Exhibit C** to the original application.
6. In fulfillment of the Commission's Order of December 21, 2017, Applicant hereby files the attached copy of the final decision issued by the Federal Aviation Administration ("FAA") for the subject tower (attached hereto as **Exhibit E-1**), which decision references the reduced tower height.
7. As a courtesy to the Commission and to update the case record, Applicant hereby amends the case file for this matter with a revised approval referencing the reduced tower height issued by the Kentucky Airport Zoning Commission ("KAZC") (attached hereto as **Exhibit F-1**) to replace **Exhibit F** to the original application.

WHEREFORE Applicant, by counsel, respectfully requests for the Commission to update the case record for this matter in accordance with the foregoing information and accompanying exhibits.

Respectfully submitted,

A handwritten signature in blue ink that reads "David A. Pike". The signature is written in a cursive style with a horizontal line underneath it.

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

EXHIBIT B-1

SITE DEVELOPMENT PLAN:

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



at&t

SITE NAME:
HARNED

SITE NUMBER:
KYL03659

PROPOSED RAW LAND SITE WITH NEW 195' SELF-SUPPORT TOWER WITH A 4' LIGHTNING ARRESTOR AND INSTALLATION OF AN 80" x 80" WALK-IN CABINET ON PLATFORM & DIESEL GENERATOR ON PLATFORM

SHEET INDEX	
T-1	TITLE SHEET & PROJECT INFORMATION
SURVEY:	
B-1	SITE SURVEY
B-1.1	SITE SURVEY
B-1.2	SITE SURVEY
B-2	500' RADIUS AND ABUTTERS MAP
CIVIL:	
C-1	OVERALL SITE LAYOUT
C-2	OVERALL SITE LAYOUT -CONT'D
C-3	ENLARGED COMPOUND LAYOUT
C-4	TOWER ELEVATION

CONTACT INFORMATION	
FIRE DEPARTMENT HARNED VOLUNTEER FIRE DEPT. PHONE: (270) 756-2133	
POLICE DEPARTMENT BRECKINRIDGE COUNTY SHERIFF'S DEPT. PHONE: (270) 756-2361	
ELECTRIC COMPANY MEADE COUNTY RECC PHONE: (270) 756-5172	
TELEPHONE COMPANY AT&T PHONE: (800) 288-2020	

PREPARED BY:
POD
 POWER OF DESIGN
 11490 BLUEGRASS PARKWAY
 LOUISVILLE, KY 40299
 502-437-5252

PREPARED FOR:
MasTec

PREPARED FOR:
at&t

EN PERMIT: 3594

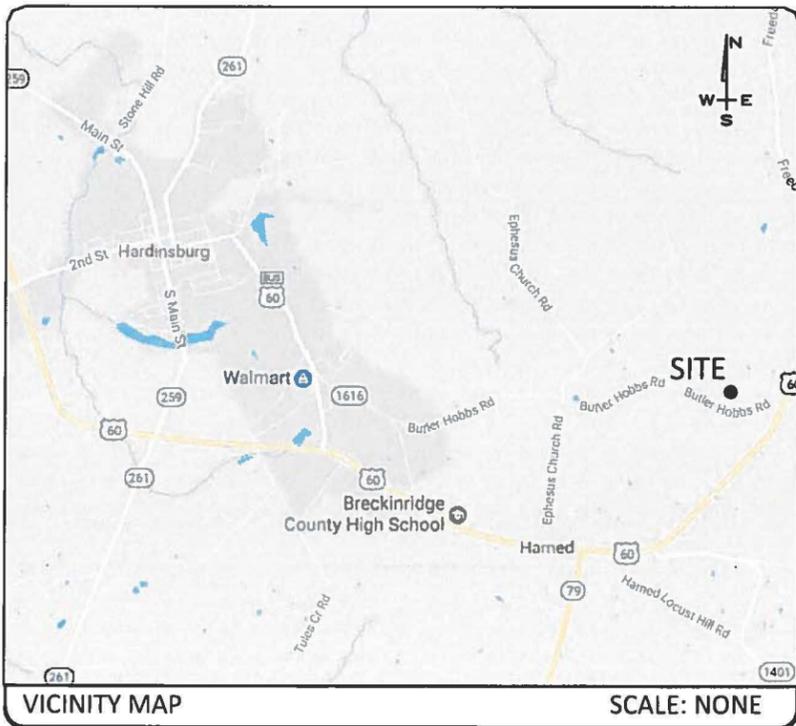
ZONING DRAWINGS

REV	DATE	DESCRIPTION
A	7.6.17	ISSUED FOR REVIEW
0	7.10.17	ISSUED AS FINAL
1	9.19.17	TOWER DESIGN
2	12.20.17	TOWER HEIGHT

BUILDING CODES AND STANDARDS	
CONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION FOR THE LOCATION.	
CONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:	
AMERICAN CONCRETE INSTITUTE 318	
AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL OF STEEL CONSTRUCTION	
TELECOMMUNICATIONS INDUSTRY ASSOCIATION TIA-222	
STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWER AND SUPPORTING STRUCTURES TIA-601	
COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS	
INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS IEEE-81, IEEE 1100, IEEE C62.41	
ANSI T1.311, FOR TELECOM - DC POWER SYSTEMS - TELECOM, ENVIRONMENTAL PROTECTION	
2014 KBC	
2014 NEC	
FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN.	

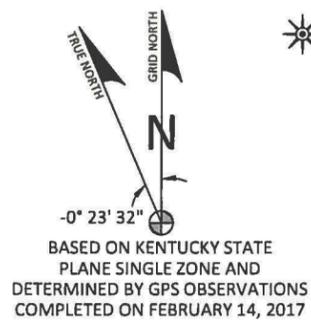
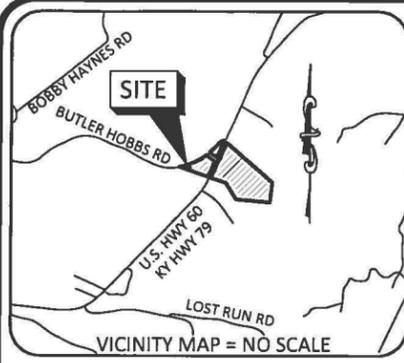
PROJECT INFORMATION	
COUNTY:	BRECKINRIDGE
SITE ADDRESS:	BUTLER HOBBS ROAD, HARNED KY, 40144
APPLICANT:	NEW CINGULAR WIRELESS PCS, LLC, A DELAWARE LIMITED LIABILITY COMPANY, D/B/A AT&T MOBILITY MEIDINGER TOWER 462 S. 4TH STREET, SUITE 2400 LOUISVILLE, KY 40202
LATITUDE:	37° 45' 52.73"
LONGITUDE:	86° 23' 17.94"

SITE INFORMATION:	
HARNED	
BUTLER HOBBS ROAD, HARNED KY, 40144	
BRECKINRIDGE COUNTY	
SITE NUMBER: KYL03659	
POD NUMBER:	17-12750
DRAWN BY:	KDP
CHECKED BY:	MEP
DATE:	4.12.17
SHEET TITLE:	
TITLE SHEET & PROJECT INFORMATION	
SHEET NUMBER:	
T-1	



DRIVE DIRECTIONS	
FROM BRECKINRIDGE COUNTY CLERK, 208 S MAIN ST #216, HARDINSBURG, KY 40143:	
HEAD SOUTH ON S MAIN ST TOWARD COURT SQUARE	354 FEET
TURN LEFT ONTO US-60 BUS E/3RD ST	1.6 MILES
USE ANY LANE TO TURN LEFT ONTO FAIRGROUNDS ROAD	0.6 MILES
SLIGHT LEFT ONTO BUTLER-HOBBS RD	2.6 MILES
ARRIVE AT SITE, ON THE RIGHT	

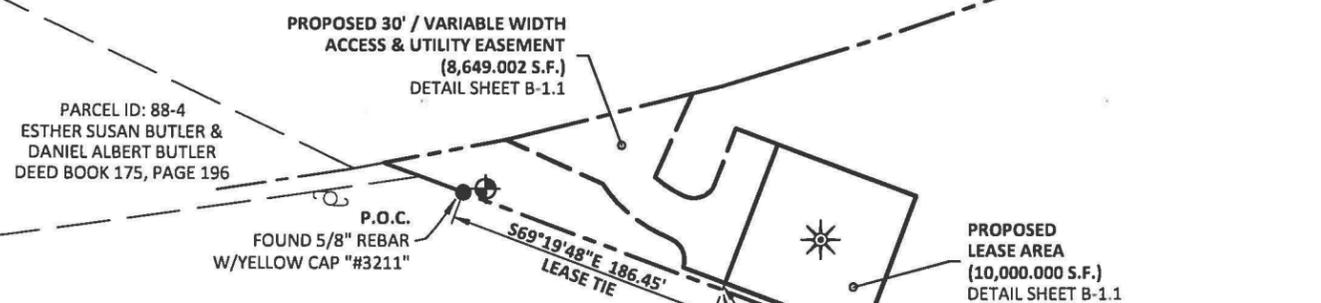
SCOPE OF WORK:	
ZONING DRAWINGS FOR: CONSTRUCTION OF A NEW UNMANNED TELECOMMUNICATIONS FACILITY.	
SITE WORK: NEW TOWER, UNMANNED WALK-IN CABINET ON A STEEL PLATFORM, GENERATOR ON A STEEL PLATFORM, AND UTILITY INSTALLATIONS.	



FAA COORDINATE POINT
 NAD 83
 LATITUDE: 37°45'52.73"
 LONGITUDE: 86°23'17.94"
 NAVD 88
 ELEVATION: 781± AMSL
 NORTHING: 3802626.652
 EASTING: 4736742.739

TEMPORARY BENCHMARK
 NORTHING: 3802660.722
 EASTING: 4736517.033
 ELEVATION: 770.02'
 LOCATION: A SET 1/2" REBAR
 W/RED CAP STAMPED "POD TRV"
 N68°35'W 173.3± FROM THE
 WESTERN MOST CORNER OF THE
 PROPOSED LEASE AREA.

- GLOBAL POSITIONING SYSTEMS NOTE**
1. THE BOUNDARY CORNERS AND A PORTION OF THE TOPOGRAPHY WAS LOCATED USING GPS.
 2. THE TYPE OF GPS UTILIZED WAS NETWORK ADJUSTED REAL TIME KINEMATIC (KDOT VRS NETWORK), NAD 83 KENTUCKY SINGLE ZONE WITH THE ORTHOMETRIC HEIGHT COMPUTED USING GEOID12A. RELATIVE POSITIONAL ACCURACY VARIED FROM 0.03' TO 0.06' HORIZONTALLY.
 3. SPECTRA PRECISION EPOCH 50 DUAL FREQUENCY RECEIVERS WERE USED TO PERFORM THE SURVEY.



GENERAL NOTES

NO SEARCH OF PUBLIC RECORDS HAS BEEN COMPLETED BY POD GROUP TO DETERMINE ANY DEFECTS AND/OR AMBIGUITIES IN THE TITLE OF THE SUBJECT PROPERTY.

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

A PORTION OF THIS SURVEY WAS CONDUCTED BY METHOD OF RANDOM TRAVERSE WITH SIDE SHOTS. UNADJUSTED CLOSURE EQUALS 0.04', FOR A PRECISION OF 1:34,425 AND HAS NOT BEEN ADJUSTED.

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

THIS PLAT IS NOT INTENDED FOR LAND TRANSFER.

THE PARENT PARCEL, THE PROPOSED LEASE AREA AND THE PROPOSED 30' / VARIABLE WIDTH ACCESS & UTILITY EASEMENT SHOWN HEREON ARE NOT LOCATED IN A 100-YEAR FLOOD PLAIN (ZONE X) PER FLOOD HAZARD BOUNDARY MAP, COMMUNITY-PANEL NUMBER 21027C0220C, DATED AUGUST 4, 2008.

LAND SURVEYOR'S CERTIFICATE

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

Mark Patterson
 MARK PATTERSON, PLS #3136
 DATE: 12/20/2017



- LEGEND**
- UTILITY POLE
 - TELE PEDESTAL
 - KDOT KENTUCKY DEPARTMENT OF TRANSPORTATION
 - CH&T
 - EX. OVERHEAD ELECTRIC & TELE
 - EX. FENCE LINE
 - SET 1/2" REBAR 18" LONG CAPPED "PATTERSON PLS 3136"
 - FOUND MONUMENT AS NOTED
 - PROPERTY LINE
 - ADJACENT PROPERTY LINE
 - P.O.C. POINT OF COMMENCEMENT
 - P.O.B. POINT OF BEGINNING
 - ROW RIGHT OF WAY
 - EOP EDGE OF PAVEMENT
 - EX. DRAINAGE EASEMENT PER PLANS #F 60-3(43)
 - CH&T
 - CH&T
 - CH&T
 - CH&T

PARCEL ID: 102-26
 SANDRA S. BAIER
 WILL BOOK 27, PAGE 678
 DEED BOOK 126, PAGE 601

PARCEL ID: 102-25
 STEPHEN D. & ANGELA LYNN THORNHILL
 DEED BOOK 312, PAGE 743

PARCEL ID: 102-23
 VELVA DEAN CHERRY
 WILL BOOK 25, PAGE 660
 DEED BOOK 126, PAGE 41

PARCEL ID: 102-26
 SANDRA S. BAIER
 WILL BOOK 27, PAGE 678
 DEED BOOK 126, PAGE 601

PARCEL ID: 102-26A
 CODY JAMES ROBERTS
 DEED BOOK 386, PAGE 251

PARCEL ID: 102-26
 SANDRA S. BAIER
 WILL BOOK 27, PAGE 678
 DEED BOOK 126, PAGE 601

PREPARED BY:

 11490 BLUEGRASS PARKWAY
 LOUISVILLE, KY 40299
 502-437-5252

PREPARED FOR:

PREPARED FOR:

SITE SURVEY

REV.	DATE	DESCRIPTION
A	3.13.17	PRELIM ISSUE WITH TITLE
0	3.20.17	ISSUED AS FINAL

SITE INFORMATION:

HARNED
 BUTLER HOBBS ROAD
 HARNED, KY 40144
 BRECKINRIDGE COUNTY

TAX PARCEL NUMBER:
 102-26

PROPERTY OWNER:
 SANDRA S. BAIER
 P.O. BOX 553
 HARDINSBURG, KY 40143

SOURCE OF TITLE:
 WILL BOOK 27, PAGE 678
 DEED BOOK 126, PAGE 601

SITE NUMBER:
 KYL03659

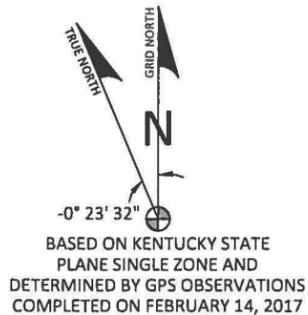
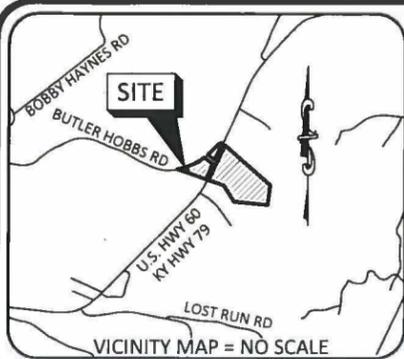
POD NUMBER: 17-12752

DRAWN BY: DAP
 CHECKED BY: MEP
 DATE: 3.13.17

SHEET TITLE:
SITE SURVEY

SHEET NUMBER:
B-1

0' 120' 240'
 1 INCH = 120 FEET



GLOBAL POSITIONING SYSTEMS NOTE

1. THE BOUNDARY CORNERS AND A PORTION OF THE TOPOGRAPHY WAS LOCATED USING GPS.
2. THE TYPE OF GPS UTILIZED WAS NETWORK ADJUSTED REAL TIME KINEMATIC (KDOT VRS NETWORK), NAD 83 KENTUCKY SINGLE ZONE WITH THE ORTHOMETRIC HEIGHT COMPUTED USING GEOID12A. RELATIVE POSITIONAL ACCURACY VARIED FROM 0.03' TO 0.06' HORIZONTALLY.
3. SPECTRA PRECISION EPOCH 50 DUAL FREQUENCY RECEIVERS WERE USED TO PERFORM THE SURVEY.



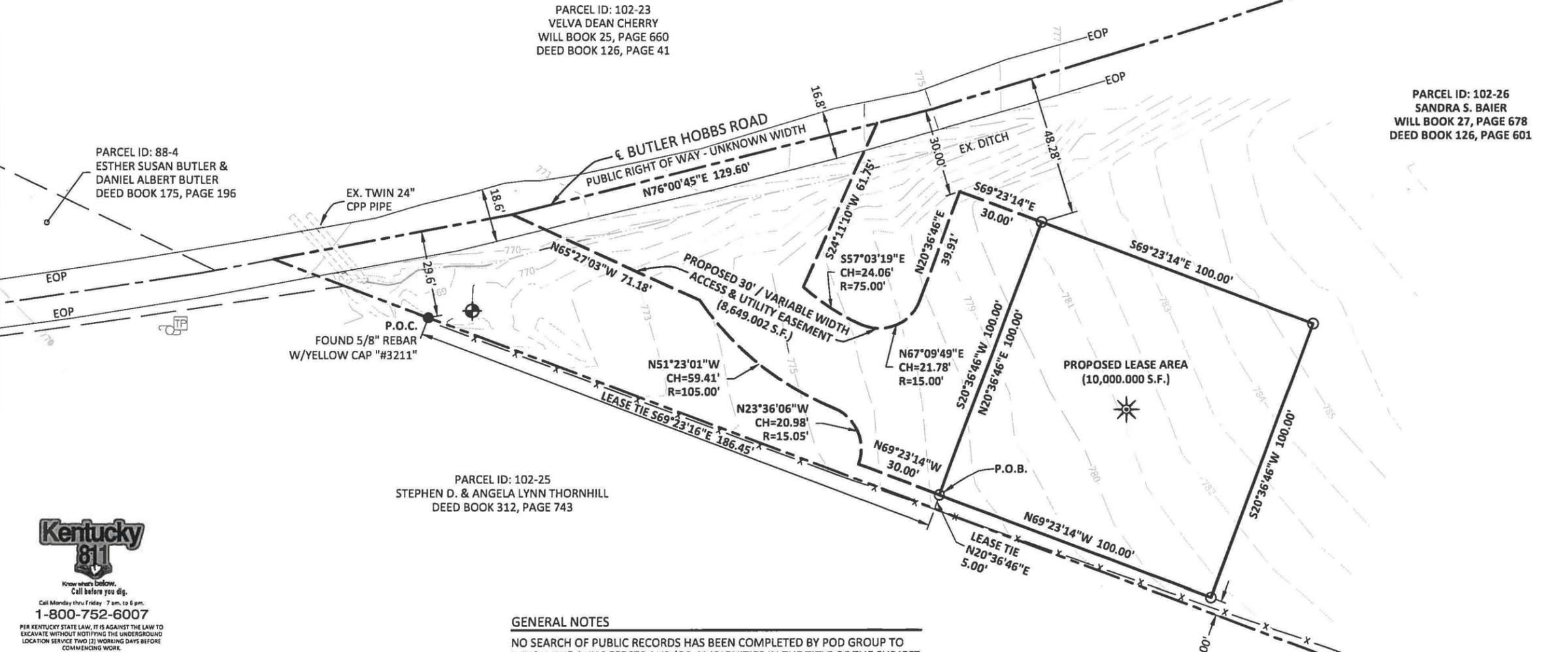
FAA COORDINATE POINT
 NAD 83
 LATITUDE: 37°45'52.73"
 LONGITUDE: 86°23'17.94"
 NAVD 88
 ELEVATION: 781± AMSL
 NORTHING: 3802626.652
 EASTING: 4736742.739



TEMPORARY BENCHMARK
 NORTHING: 3802660.722
 EASTING: 4736517.033
 ELEVATION: 770.02'
 LOCATION: A SET 1/2" REBAR W/RED CAP STAMPED "POD TRV" N68°35'W 173.3± FROM THE WESTERN MOST CORNER OF THE PROPOSED LEASE AREA.

PARCEL ID: 102-23
 VELVA DEAN CHERRY
 WILL BOOK 25, PAGE 660
 DEED BOOK 126, PAGE 41

PARCEL ID: 102-26
 SANDRA S. BAIER
 WILL BOOK 27, PAGE 678
 DEED BOOK 126, PAGE 601



PARCEL ID: 102-25
 STEPHEN D. & ANGELA LYNN THORNHILL
 DEED BOOK 312, PAGE 743

PREPARED BY:

 11490 BLUEGRASS PARKWAY
 LOUISVILLE, KY 40299
 502-437-5252

PREPARED FOR:

PREPARED FOR:

SITE SURVEY

REV.	DATE	DESCRIPTION
A	3.13.17	PRELIM ISSUE WITH TITLE
0	3.20.17	ISSUED AS FINAL

SITE INFORMATION:

HARNED
 BUTLER HOBBS ROAD
 HARNED, KY 40144
 BRECKINRIDGE COUNTY
 TAX PARCEL NUMBER:
 102-26
 PROPERTY OWNER:
 SANDRA S. BAIER
 P.O. BOX 553
 HARDINSBURG, KY 40143
 SOURCE OF TITLE:
 WILL BOOK 27, PAGE 678
 DEED BOOK 126, PAGE 601

SITE NUMBER:
 KYL03659

POD NUMBER: 17-12752

DRAWN BY: DAP
 CHECKED BY: MEP
 DATE: 3.13.17

SHEET TITLE:

SITE SURVEY

SHEET NUMBER:

B-1.1



Know what's below.
 Call before you dig.
 Call Monday thru Friday 7 am. to 6 pm.
 1-800-752-6007

FOR KENTUCKY STATE LAW, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

LAND SURVEYOR'S CERTIFICATE

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

Mark Patterson

12/20/2017

MARK PATTERSON, PLS #3136

DATE



GENERAL NOTES

NO SEARCH OF PUBLIC RECORDS HAS BEEN COMPLETED BY POD GROUP TO DETERMINE ANY DEFECTS AND/OR AMBIGUITIES IN THE TITLE OF THE SUBJECT PROPERTY.

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

A PORTION OF THIS SURVEY WAS CONDUCTED BY METHOD OF RANDOM TRAVERSE WITH SIDE SHOTS. UNADJUSTED CLOSURE EQUALS 0.04', FOR A PRECISION OF 1:34,425 AND HAS NOT BEEN ADJUSTED.

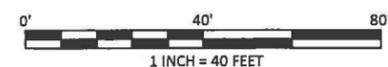
THIS PROPERTY IS SUBJECT TO ANY RECORDED EASEMENTS AND/OR RIGHTS OF WAY SHOWN HEREON OR NOT.

THIS PLAT IS NOT INTENDED FOR LAND TRANSFER.

THE PARENT PARCEL, THE PROPOSED LEASE AREA AND THE PROPOSED 30' / VARIABLE WIDTH ACCESS & UTILITY EASEMENT SHOWN HEREON ARE NOT LOCATED IN A 100-YEAR FLOOD PLAIN (ZONE X) PER FLOOD HAZARD BOUNDARY MAP, COMMUNITY-PANEL NUMBER 21027C0220C, DATED AUGUST 4, 2008.

LEGEND

- UTILITY POLE
- TELE PEDESTAL
- OHF&T
- OHF&T
- EX. FENCE LINE
- SET 1/2" REBAR 18" LONG CAPPED "PATTERSON PLS 3136"
- FOUND MONUMENT AS NOTED
- PROPERTY LINE
- ADJACENT PROPERTY LINE
- P.O.C. POINT OF COMMENCEMENT
- P.O.B. POINT OF BEGINNING
- ROW RIGHT OF WAY
- EOP EDGE OF PAVEMENT
- EX. OVERHEAD ELECTRIC & TELE



LEGAL DESCRIPTIONS

PROPOSED LEASE AREA

THE FOLLOWING IS A DESCRIPTION OF THE PROPOSED LEASE AREA TO BE LEASED FROM THE PROPERTY CONVEYED TO SANDRA S. BAIER AS RECORDED DEED BOOK 126, PAGE 601 (ACQUIRED THROUGH WILL BOOK 27, PAGE 678), PARCEL ID: 102-26, WHICH IS MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEARING DATUM USED HEREIN IS BASED UPON KENTUCKY STATE PLANE COORDINATE SYSTEM, SINGLE ZONE, NAD 83, FROM A REAL TIME KINEMATIC GLOBAL POSITIONING SYSTEM OBSERVATION USING THE KENTUCKY TRANSPORTATION CABINET REAL TIME GPS NETWORK COMPLETED ON FEBRUARY 14, 2017.

COMMENCING AT A FOUND 5/8" REBAR WITH YELLOW CAP STAMPED "#3211" IN THE COMMON BOUNDARY LINE OF THE PROPERTY CONVEYED TO SANDRA S. BAIER AS RECORDED DEED BOOK 126, PAGE 601 (ACQUIRED THROUGH WILL BOOK 27, PAGE 678) AND THE PROPERTY CONVEYED TO STEPHEN D. & ANGELA LYNN THORNHILL AS RECORDED IN DEED BOOK 312, PAGE 743, SAID REBAR IS APPROXIMATELY 29.6' FROM THE APPROXIMATE CENTERLINE OF BUTLER HOBBS ROAD; THENCE WITH SAID COMMON BOUNDARY LINE OF BAIER AND THORNHILL, S69°19'48"E 186.45' TO A POINT; THENCE LEAVING SAID COMMON BOUNDARY LINE AND TRAVERSING THE LAND OF SAID BAIER, N20°36'46"E 5.00' TO A SET 1/2" REBAR 18" LONG CAPPED "PATTERSON PLS 3136", HEREAFTER REFERRED TO AS A "SET IPC" IN THE SOUTHWEST CORNER OF THE PROPOSED LEASE AREA AND BEING THE TRUE POINT OF BEGINNING; THENCE N20°36'46"E 100.00' TO A SET IPC; THENCE S69°23'14"E 100.00' TO A SET IPC; THENCE S20°36'46"W 100.00' TO A SET IPC; THENCE N69°23'14"W 100.00' TO THE POINT OF BEGINNING CONTAINING 10,000.000 SQUARE FEET AS PER SURVEY BY MARK E. PATTERSON, PLS #3136 DATED FEBRUARY 14, 2017.

PROPOSED 30' / VARIABLE WIDTH ACCESS & UTILITY EASEMENT

THE FOLLOWING IS A DESCRIPTION OF THE PROPOSED 30' / VARIABLE WIDTH ACCESS & UTILITY EASEMENT TO BE GRANTED FROM THE PROPERTY CONVEYED TO SANDRA S. BAIER AS RECORDED DEED BOOK 126, PAGE 601 (ACQUIRED THROUGH WILL BOOK 27, PAGE 678), PARCEL ID: 102-26, WHICH IS MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEARING DATUM USED HEREIN IS BASED UPON KENTUCKY STATE PLANE COORDINATE SYSTEM, SINGLE ZONE, NAD 83, FROM A REAL TIME KINEMATIC GLOBAL POSITIONING SYSTEM OBSERVATION USING THE KENTUCKY TRANSPORTATION CABINET REAL TIME GPS NETWORK COMPLETED ON FEBRUARY 14, 2017.

COMMENCING AT A FOUND 5/8" REBAR WITH YELLOW CAP STAMPED "#3211" IN THE COMMON BOUNDARY LINE OF THE PROPERTY CONVEYED TO SANDRA S. BAIER AS RECORDED DEED BOOK 126, PAGE 601 (ACQUIRED THROUGH WILL BOOK 27, PAGE 678) AND THE PROPERTY CONVEYED TO STEPHEN D. & ANGELA LYNN THORNHILL AS RECORDED IN DEED BOOK 312, PAGE 743, SAID REBAR IS APPROXIMATELY 29.6' FROM THE APPROXIMATE CENTERLINE OF BUTLER HOBBS ROAD; THENCE WITH SAID COMMON BOUNDARY LINE OF BAIER AND THORNHILL, S69°19'48"E 186.45' TO A POINT; THENCE LEAVING SAID COMMON BOUNDARY LINE AND TRAVERSING THE LAND OF SAID BAIER, N20°36'46"E 5.00' TO A SET 1/2" REBAR 18" LONG CAPPED "PATTERSON PLS 3136", HEREAFTER REFERRED TO AS A "SET IPC" IN THE SOUTHWEST CORNER OF THE PROPOSED 30' / VARIABLE WIDTH ACCESS AND UTILITY EASEMENT AND BEING THE TRUE POINT OF BEGINNING; THENCE LEAVING SAID LEASE AREA, N69°23'14"W 30.00'; THENCE WITH THE CHORD OF A NON-TANGENT CURVE TO THE LEFT HAVING A RADIUS OF 15.05', N23°36'06"W 20.98'; THENCE WITH THE CHORD OF A CURVE TO THE RIGHT HAVING A RADIUS OF 105.00', N51°23'01"W 59.41'; THENCE N65°27'03"W 71.18' TO THE APPROXIMATE CENTERLINE OF BUTLER HOBBS ROAD AND THE NORTH BOUNDARY LINE OF BAIER AFOREMENTIONED; THENCE WITH SAID CENTERLINE AND THE NORTH BOUNDARY LINE OF BAIER, N76°00'45"E 129.60'; THENCE LEAVING THE NORTH BOUNDARY LINE OF BAIER AND THE APPROXIMATE CENTERLINE OF BUTLER HOBBS ROAD, TRAVERSING THE LAND OF BAIER, S24°11'10"W 61.75'; THENCE WITH THE CHORD OF A NON-TANGENT CURVE TO THE LEFT HAVING A RADIUS OF 75.00', S57°03'19"E 24.06'; THENCE WITH THE CHORD OF A CURVE TO THE LEFT HAVING A RADIUS OF 15.00', N67°09'49"E 21.78'; THENCE N20°36'46"E 39.91'; THENCE S69°23'14"E 30.00' TO A SET IPC IN THE NORTHWEST CORNER OF THE PROPOSED LEASE AREA; THENCE WITH THE WEST LINE OF THE PROPOSED LEASE AREA, S20°36'46"W 100.00' TO THE POINT OF BEGINNING CONTAINING 8,649.002 SQUARE FEET AS PER SURVEY BY MARK E. PATTERSON, PLS #3136 DATED FEBRUARY 14, 2017.

PARENT PARCEL - LEGAL DESCRIPTION - DEED BOOK 126, PAGE 601 (NOT FIELD SURVEYED)

A CERTAIN TRACT OR PARCEL OF LAND SITUATE, LYING AND BEING IN THE COUNTY OF BRECKINRIDGE, AND STATE OF KENTUCKY, AND BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A STONE ON THE LOUISVILLE ROAD, NEAR TO THE 105 ACRE TRACT; THENCE WITH A LINE OF THE SAME S 54 E 144 POLES TO A SMALL CHESTNUT IN THE ED HAYNES LINE; THENCE WITH HIS LINE SW 46 POLES TO A HICKORY AND DOGWOOD IN SCOTT'S LINE; THENCE WITH HIS LINE N 89 W 71 POLES TO TWO POST OAKS BY A SINK HOLE; THENCE N 39 W 45 POLES TO A STONE IN A DRAIN; WM. SCOTT'S CORNER; THENCE WITH HIS LINE N 73 W 103 POLES TO A ROCK ON THE ROAD; THENCE WITH THE ROAD AS IT MEANDERS III POLES TO THE BEGINNING, CONTAINING 78 ACRES, MORE OR LESS.

THE FOREGOING DESCRIPTION CONTAINS AND COVERS THE ROAD BED OF THE OLD RAILROAD, WHICH FORMERLY RAN THROUGH THIS TRACT OF LAND AND IT IS THE INTENTIONS OF THE PARTIES HERETO THAT THE SAID ROAD BED SHALL PASS UNDER THIS DEED. A DESCRIPTION OF THE SAID ROAD BED WILL BE FOUND IN DEED FROM THE LOUISVILLE, HENDERSON & ST. LOUIS RAILWAY COMPANY & C TO CLAUDE BUTLER AND HIS WIFE, DATED DEC. 16, 1941 AND RECORDED IN BRECKINRIDGE COUNTY COURT CLERK'S OFFICE IN DEED BOOK 82, AT PAGE 309. ALSO SEE DB 82 PAGE 555.

REPORT OF TITLE (PARCEL ID: 102-26)

THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY POD GROUP, LLC. AND AS SUCH WE ARE NOT RESPONSIBLE FOR THE INVESTIGATION OR INDEPENDENT SEARCH FOR EASEMENTS OF RECORD, ENCUMBRANCES, RESTRICTIVE COVENANTS, OWNERSHIP TITLE EVIDENCE, UNRECORDED EASEMENTS, AUGMENTING EASEMENTS, IMPLIED OR PRESCRIPTIVE EASEMENTS, OR ANY OTHER FACTS THAT AN ACCURATE AND CURRENT TITLE SEARCH MAY DISCLOSE AND THIS SURVEY WAS COMPLETED WITH THE AID OF TITLE WORK PREPARED BY US TITLE SOLUTIONS, FOR THE BENEFIT OF MASTEC NETWORK SOLUTIONS, FILE NO. 55267-KY1609-5034, REFERENCE NO. FA13800743, ISSUE DATE OF SEPTEMBER 21, 2016. THE FOLLOWING COMMENTS ARE IN REGARD TO SAID REPORT.

SCHEDULE B

1. TAXES, TAX LIENS, TAX SALES, WATER RATES, SEWER AND ASSESSMENTS SET FORTH IN SCHEDULE HEREIN. (NOT A SURVEY MATTER, THEREFORE POD GROUP, LLC DID NOT EXAMINE OR ADDRESS THIS ITEM.)
2. MORTGAGES RETURNED HEREIN. (-0-). SEE SEPARATE MORTGAGE SCHEDULE. NONE WITHIN PERIOD SEARCHED
3. ANY STATE OF FACTS WHICH AN ACCURATE SURVEY MIGHT SHOW OR SURVEY EXCEPTIONS SET FORTH HEREIN. (POD GROUP, LLC DID NOT PERFORM A BOUNDARY SURVEY, THEREFORE WE DID NOT ADDRESS THIS ITEM.)
4. RIGHTS OF TENANTS OR PERSON IN POSSESSION. (NOT A SURVEY MATTER, THEREFORE POD GROUP, LLC DID NOT EXAMINE OR ADDRESS THIS ITEM.)

(JUDGMENTS, LIENS AND UCC)

5. NONE WITHIN PERIOD SEARCHED

(COVENANTS/RESTRICTIONS)

6. NONE WITHIN PERIOD SEARCHED

(EASEMENTS AND RIGHTS OF WAY)

7. NONE WITHIN PERIOD SEARCHED

(OTHER FILED DOCUMENTS)

8. PAID-UP OIL AND GAS LEASE BETWEEN JACKIE B. BAIER & SANDRA S. BAIER (HUSBAND & WIFE) AND WHG EXPLORATION, INC. DATED 8/30/2002 RECORDED 10/22/2002 IN BOOK 30 PAGE 391. (LEASE AS RECORDED IN BOOK 30, PAGE 391 AFFECTS THE PARENT PARCEL, THE PROPOSED LEASE AREA AND THE PROPOSED ACCESS & UTILITY EASEMENT.)

9. OIL AND GAS LEASE BETWEEN JACKIE B. BAIER & SANDRA S. BAIER (HUSBAND & WIFE) AND BASIN FUELS CORPORATION DATED 5/25/2005 RECORDED 6/2/2005 IN BOOK 32 PAGE 204. (LEASE AS RECORDED IN BOOK 32, PAGE 204 AFFECTS THE PARENT PARCEL, THE PROPOSED LEASE AREA AND THE PROPOSED ACCESS & UTILITY EASEMENT.)

10. ASSIGNMENT OF OIL AND GAS LEASES BETWEEN BASIN FUELS CORPORATION, A NEVADA CORPORATION AND AURORA ENERGY, LTD DATED 6/30/2005 RECORDED 4/18/2006 IN BOOK 34 PAGE 54. (ASSIGNMENT AS RECORDED IN BOOK 34, PAGE 54 HAS NO DESCRIPTION OF THE PROPERTY OR PERSONS IT MAY AFFECT, THEREFORE POD GROUP, LLC DID NOT EXAMINE OR ADDRESS THIS ITEM.)

11. PROBATE DOCUMENTS RECORDED 7/31/2012 IN INSTRUMENT NO. 12-P-00114 NOTES: IN RE: ESTATE OF JACKIE B. BAIER. (PROBATE AS RECORDED IN #12-P-00114, TRANSFERS THE PARENT PARCEL TO SANDRA S. BAIER, SO IT AFFECTS THE PARENT PARCEL, THE PROPOSED LEASE AREA AND THE PROPOSED ACCESS & UTILITY EASEMENT.)



SITE SURVEY

REV.	DATE	DESCRIPTION
A	3.13.17	PRELIM ISSUE WITH TITLE
0	3.20.17	ISSUED AS FINAL

SITE INFORMATION:

HARNED
 BUTLER HOBBS ROAD
 HARNED, KY 40144
 BRECKINRIDGE COUNTY
TAX PARCEL NUMBER:
 102-26
PROPERTY OWNER:
 SANDRA S. BAIER
 P.O. BOX 553
 HARDINSBURG, KY 40143
SOURCE OF TITLE:
 WILL BOOK 27, PAGE 678
 DEED BOOK 126, PAGE 601

SITE NUMBER:
 KYL03659

POD NUMBER: 17-12752
DRAWN BY: DAP
CHECKED BY: MEP
DATE: 3.13.17

SHEET TITLE:

SITE SURVEY

SHEET NUMBER:

B-1.2

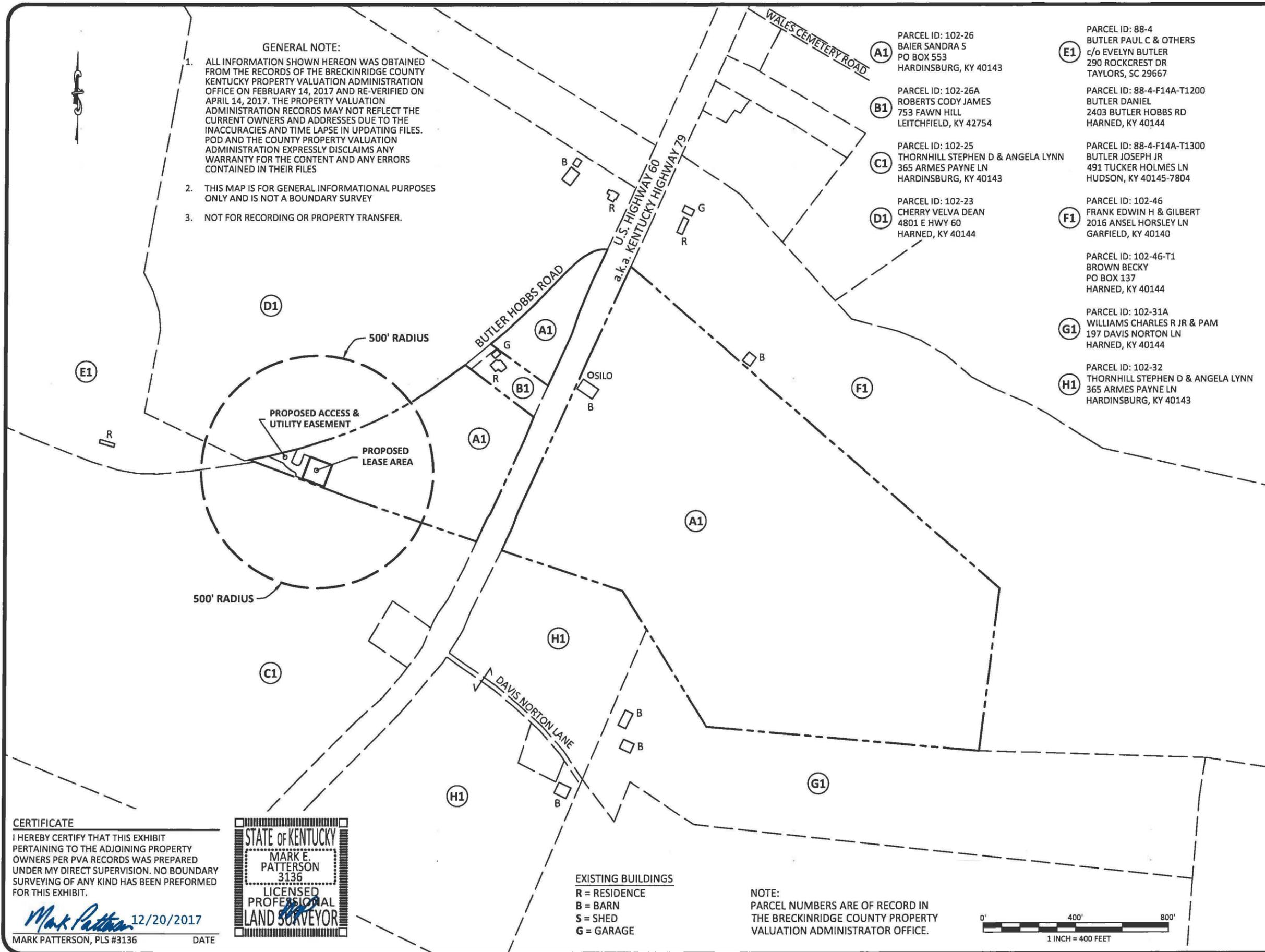
LAND SURVEYOR'S CERTIFICATE

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



Mark Patterson 12/20/2017
 MARK PATTERSON, PLS #3136 DATE

- GENERAL NOTE:**
1. ALL INFORMATION SHOWN HEREON WAS OBTAINED FROM THE RECORDS OF THE BRECKINRIDGE COUNTY KENTUCKY PROPERTY VALUATION ADMINISTRATION OFFICE ON FEBRUARY 14, 2017 AND RE-VERIFIED ON APRIL 14, 2017. THE PROPERTY VALUATION ADMINISTRATION RECORDS MAY NOT REFLECT THE CURRENT OWNERS AND ADDRESSES DUE TO THE INACCURACIES AND TIME LAPSE IN UPDATING FILES. POD AND THE COUNTY PROPERTY VALUATION ADMINISTRATION EXPRESSLY DISCLAIMS ANY WARRANTY FOR THE CONTENT AND ANY ERRORS CONTAINED IN THEIR FILES
 2. THIS MAP IS FOR GENERAL INFORMATIONAL PURPOSES ONLY AND IS NOT A BOUNDARY SURVEY
 3. NOT FOR RECORDING OR PROPERTY TRANSFER.



- PARCEL ID: 102-26
BAIER SANDRA S
PO BOX 553
HARDINSBURG, KY 40143
- PARCEL ID: 102-26A
ROBERTS CODY JAMES
753 FAWN HILL
LEITCHFIELD, KY 42754
- PARCEL ID: 102-25
THORNHILL STEPHEN D & ANGELA LYNN
365 ARMES PAYNE LN
HARDINSBURG, KY 40143
- PARCEL ID: 102-23
CHERRY VELVA DEAN
4801 E HWY 60
HARNED, KY 40144
- PARCEL ID: 88-4
BUTLER PAUL C & OTHERS
c/o EVELYN BUTLER
290 ROCKCREST DR
TAYLORS, SC 29667
- PARCEL ID: 88-4-F14A-T1200
BUTLER DANIEL
2403 BUTLER HOBBS RD
HARNED, KY 40144
- PARCEL ID: 88-4-F14A-T1300
BUTLER JOSEPH JR
491 TUCKER HOLMES LN
HUDSON, KY 40145-7804
- PARCEL ID: 102-46
FRANK EDWIN H & GILBERT
2016 ANSEL HORSLEY LN
GARFIELD, KY 40140
- PARCEL ID: 102-46-T1
BROWN BECKY
PO BOX 137
HARNED, KY 40144
- PARCEL ID: 102-31A
WILLIAMS CHARLES R JR & PAM
197 DAVIS NORTON LN
HARNED, KY 40144
- PARCEL ID: 102-32
THORNHILL STEPHEN D & ANGELA LYNN
365 ARMES PAYNE LN
HARDINSBURG, KY 40143

PREPARED BY:

 POWER OF DESIGN
 11490 BLUEGRASS PARKWAY
 LOUISVILLE, KY 40299
 502 437 5252

PREPARED FOR:


PREPARED FOR:


EXHIBIT

REV.	DATE	DESCRIPTION
A	4.14.17	ISSUED FOR REVIEW
0	7.10.17	ISSUED AS FINAL

SITE INFORMATION:
HARNED
 BUTLER HOBBS ROAD
 HARNED, KY 40144
 BRECKINRIDGE COUNTY
TAX PARCEL NUMBER:
 102-26
PROPERTY OWNER:
 SANDRA S. BAIER
 P.O. BOX 553
 HARDINSBURG, KY 40143
SOURCE OF TITLE:
 WILL BOOK 27, PAGE 678
 DEED BOOK 126, PAGE 601

SITE NUMBER:
 KYL03659
POD NUMBER: 17-12751
DRAWN BY: DAP
CHECKED BY: MEP
DATE: 4.14.17

SHEET TITLE:
**500' RADIUS AND
 ABUTTERS MAP**

SHEET NUMBER:
B-2

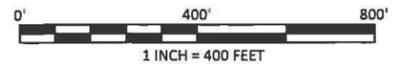
CERTIFICATE
 I HEREBY CERTIFY THAT THIS EXHIBIT PERTAINING TO THE ADJOINING PROPERTY OWNERS PER PVA RECORDS WAS PREPARED UNDER MY DIRECT SUPERVISION. NO BOUNDARY SURVEYING OF ANY KIND HAS BEEN PERFORMED FOR THIS EXHIBIT.

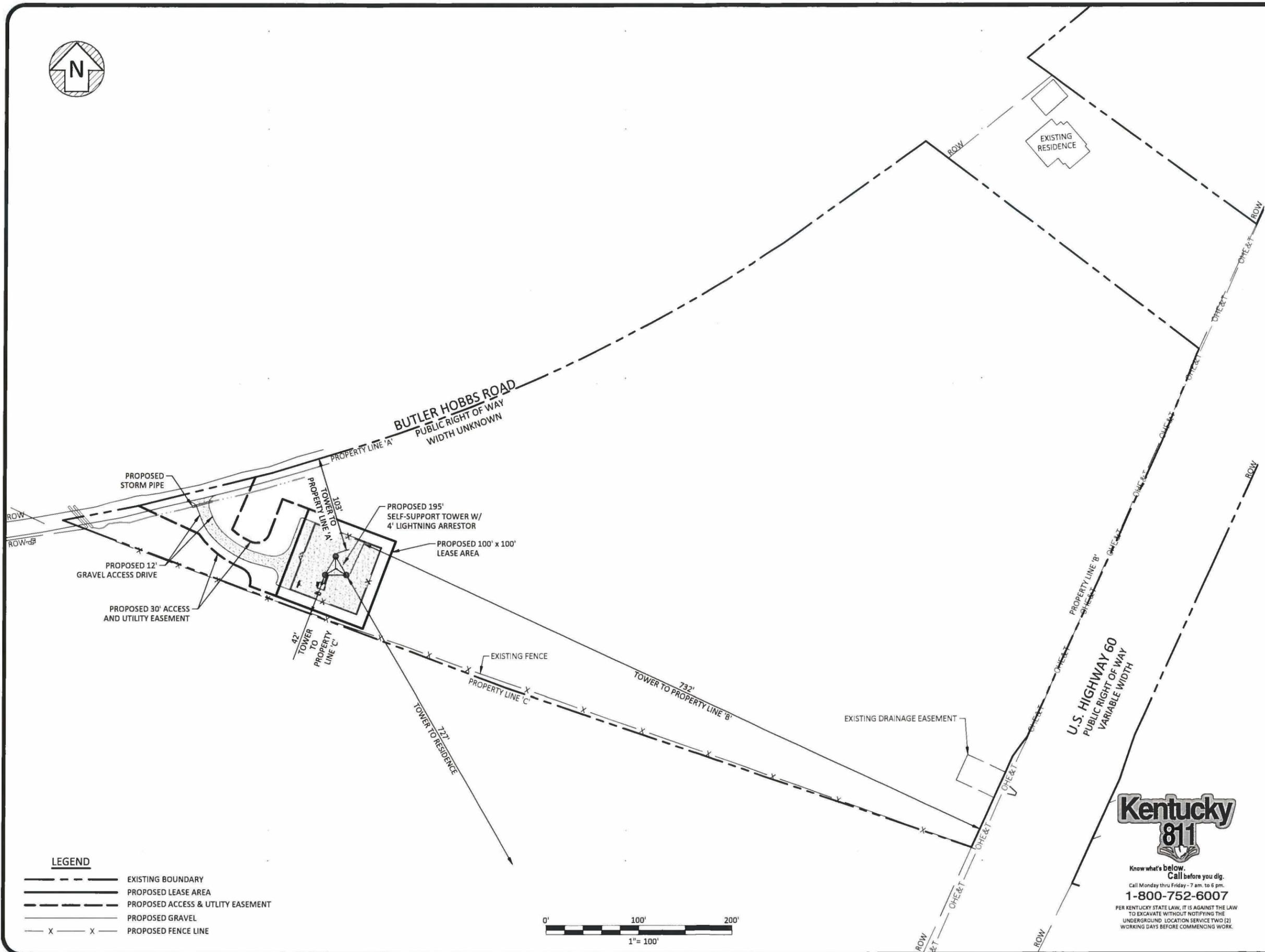
 MARK PATTERSON, PLS #3136 DATE: 12/20/2017



EXISTING BUILDINGS
 R = RESIDENCE
 B = BARN
 S = SHED
 G = GARAGE

NOTE:
 PARCEL NUMBERS ARE OF RECORD IN THE BRECKINRIDGE COUNTY PROPERTY VALUATION ADMINISTRATOR OFFICE.





PREPARED BY:
POD
 POWER OF DESIGN
 11490 BLUEGRASS PARKWAY
 LOUISVILLE, KY 40299
 502-437-5252

PREPARED FOR:
MasTec

PREPARED FOR:
at&t

STATE OF KENTUCKY
MARK E. PATTERSON
 16380
 PROFESSIONAL ENGINEER
 12/20/2017

EN PERMIT: 3594

ZONING DRAWINGS

REV	DATE	DESCRIPTION
A	7.6.17	ISSUED FOR REVIEW
0	7.10.17	ISSUED AS FINAL
1	9.19.17	TOWER DESIGN
2	12.20.17	TOWER HEIGHT

SITE INFORMATION:

HARNED
 BUTLER HOBBS ROAD,
 HARNED KY, 40144
 BRECKINRIDGE COUNTY

SITE NUMBER:
 KYL03659

POD NUMBER: 17-12750

DRAWN BY: KDP
 CHECKED BY: MEP
 DATE: 4.12.17

SHEET TITLE:

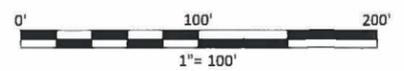
OVERALL SITE LAYOUT

SHEET NUMBER:

C-1

LEGEND

- EXISTING BOUNDARY
- PROPOSED LEASE AREA
- PROPOSED ACCESS & UTILITY EASEMENT
- PROPOSED GRAVEL
- X - X - PROPOSED FENCE LINE



Know what's below.
 Call before you dig.
 Call Monday thru Friday - 7 am. to 6 pm.
1-800-752-6007
PER KENTUCKY STATE LAW, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.



PREPARED BY:

 11490 BLUEGRASS PARKWAY
 LOUISVILLE, KY 40299
 502-437-5252

PREPARED FOR:

PREPARED FOR:

STATE OF KENTUCKY
 MARK E. PATTERSON
 16,300

 12/20/2017

EN PERMIT: 3594

ZONING DRAWINGS

REV	DATE	DESCRIPTION
A	7.6.17	ISSUED FOR REVIEW
0	7.10.17	ISSUED AS FINAL
1	9.19.17	TOWER DESIGN
2	12.20.17	TOWER HEIGHT

SITE INFORMATION:

HARNED
 BUTLER HOBBS ROAD,
 HARNED KY, 40144
 BRECKINRIDGE COUNTY

SITE NUMBER:
 KYL03659

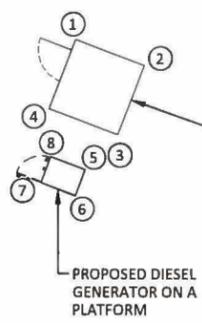
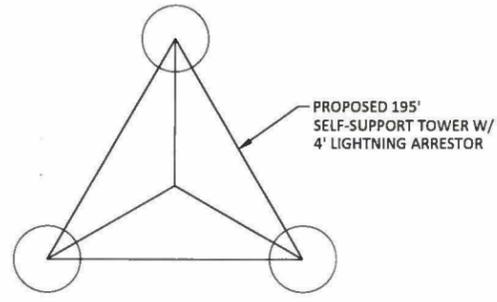
POD NUMBER: 17-12750

DRAWN BY: KDP
 CHECKED BY: MEP
 DATE: 4.12.17

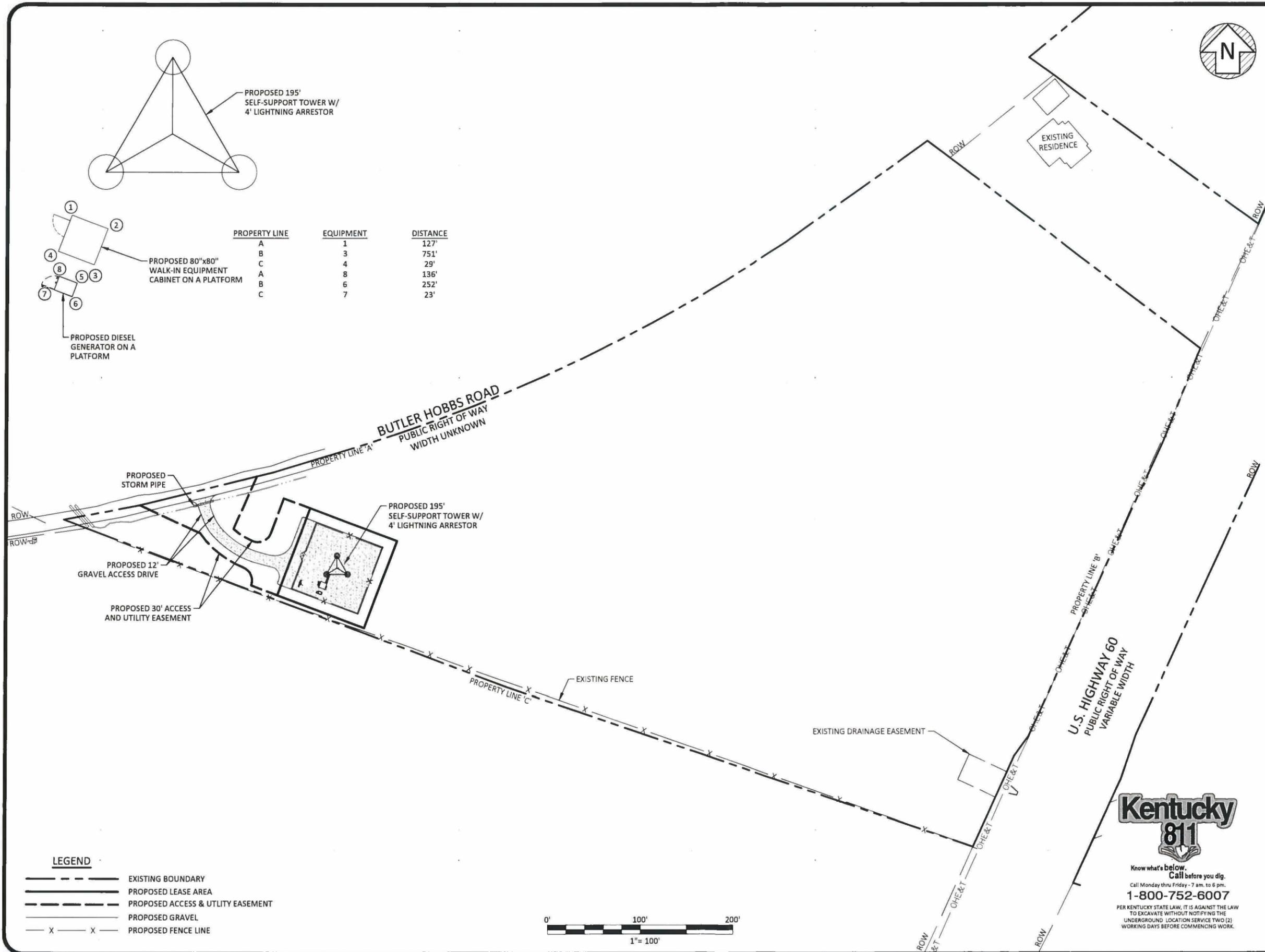
SHEET TITLE:

OVERALL SITE LAYOUT -CONT'D

SHEET NUMBER:
C-2

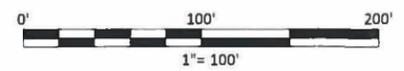


PROPERTY LINE	EQUIPMENT	DISTANCE
A	1	127'
B	3	751'
C	4	29'
A	8	136'
B	6	252'
C	7	23'

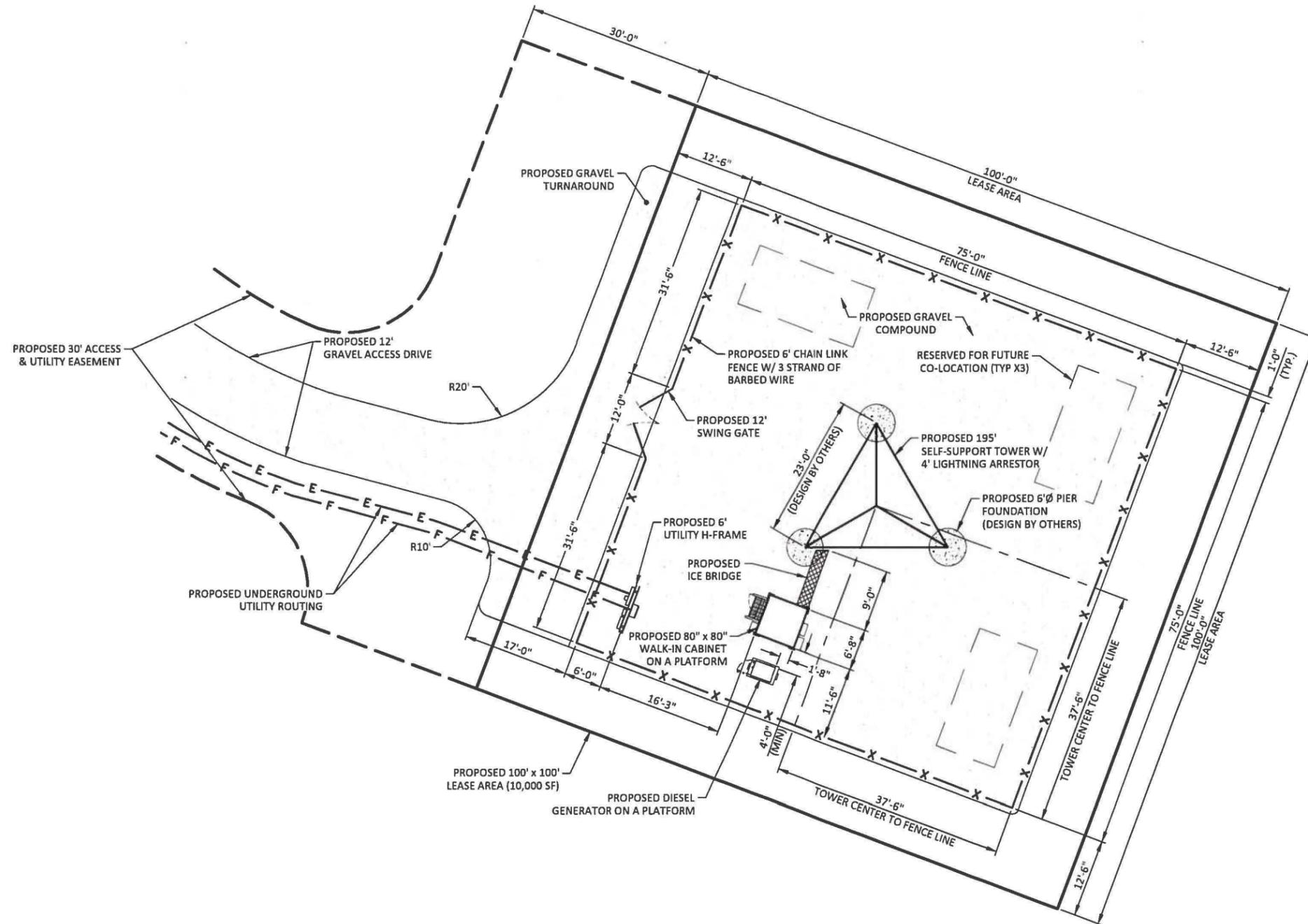


LEGEND

	EXISTING BOUNDARY
	PROPOSED LEASE AREA
	PROPOSED ACCESS & UTILITY EASEMENT
	PROPOSED GRAVEL
	PROPOSED FENCE LINE

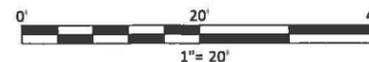


Know what's below.
 Call before you dig.
 Call Monday thru Friday - 7 am. to 6 pm.
1-800-752-6007
PER KENTUCKY STATE LAW, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.



LEGEND

	PROPOSED LEASE AREA
	PROPOSED ACCESS & UTILITY EASEMENT
	PROPOSED GRAVEL
	PROPOSED FENCE
	PROPOSED UNDERGROUND ELECTRIC
	PROPOSED UNDERGROUND FIBER



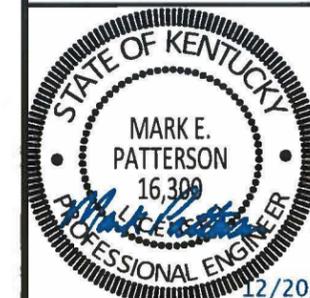
Know what's below.
Call before you dig.
Call Monday thru Friday - 7 am. to 6 pm.
1-800-752-6007

PER KENTUCKY STATE LAW, IT IS AGAINST THE LAW TO EXCAVATE WITHOUT NOTIFYING THE UNDERGROUND LOCATION SERVICE TWO (2) WORKING DAYS BEFORE COMMENCING WORK.

PREPARED BY:
POD
POWER OF DESIGN
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-437-5252

PREPARED FOR:
MasTec

PREPARED FOR:
at&t



EN PERMIT: 3594

ZONING DRAWINGS

REV	DATE	DESCRIPTION
A	7.6.17	ISSUED FOR REVIEW
0	7.10.17	ISSUED AS FINAL
1	9.19.17	TOWER DESIGN
2	12.20.17	TOWER HEIGHT

SITE INFORMATION:

HARNED
BUTLER HOBBS ROAD,
HARNED KY, 40144
BRECKINRIDGE COUNTY
SITE NUMBER:
KYLO3659

POD NUMBER: 17-12750

DRAWN BY: KDP
CHECKED BY: MEP
DATE: 4.12.17

SHEET TITLE:

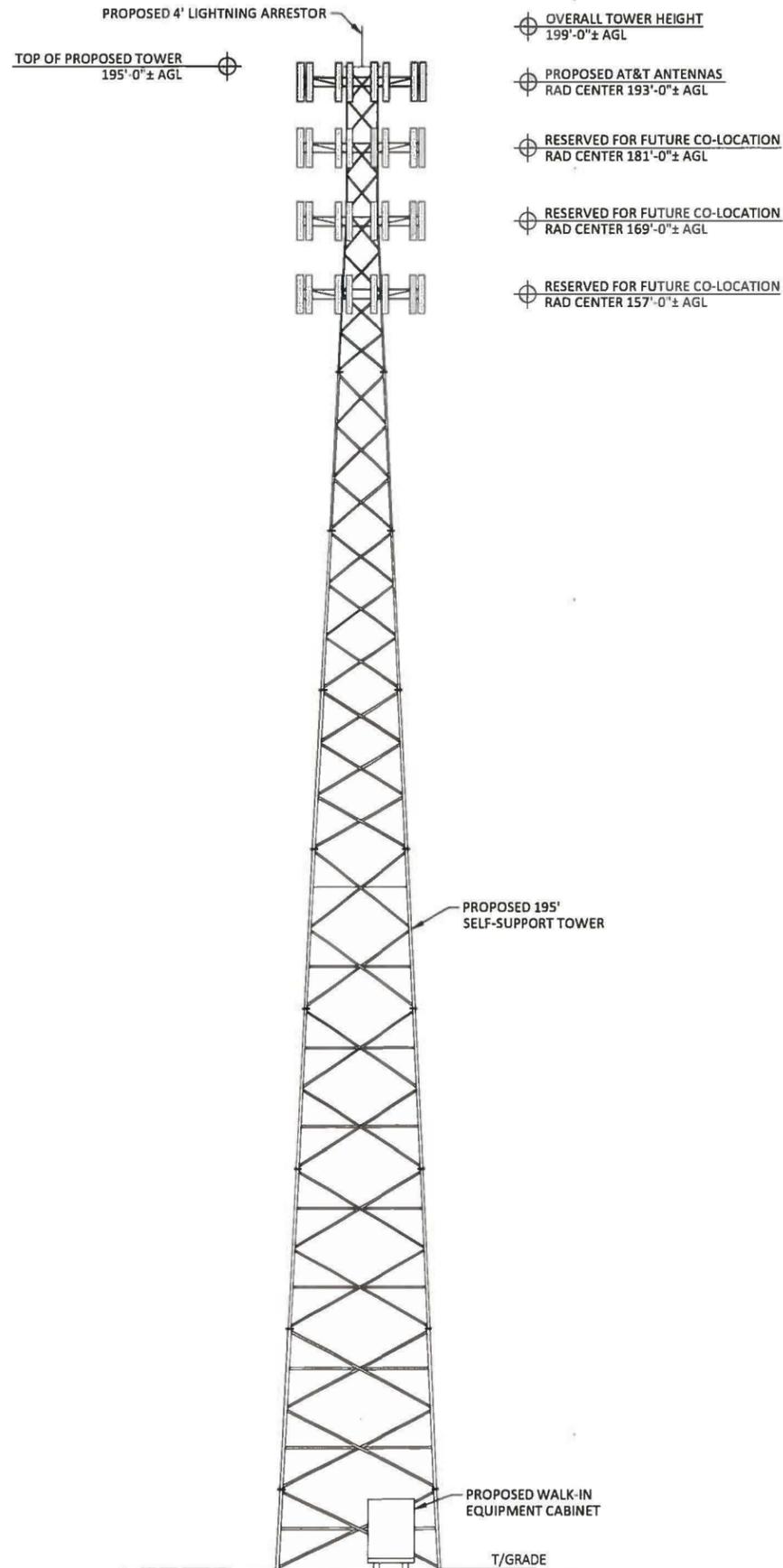
ENLARGED COMPOUND LAYOUT

SHEET NUMBER:

C-3

TOWER NOTES:

1. THE PROPOSED TOWER, FOUNDATION, ANTENNA MOUNTS, AND ANTENNAS WERE DESIGNED BY OTHERS.
2. THE TOWER ELEVATION SHOWN IS FOR REFERENCE ONLY.
3. SEE TOWER MANUFACTURER'S DRAWINGS FOR TOWER AND FOUNDATION DETAILS & SPECIFICATIONS.
4. MANUFACTURER'S DRAWINGS SUPERCEDE A&E DRAWINGS.



PREPARED BY:

POD
POWER OF DESIGN
11490 BLUEGRASS PARKWAY
LOUISVILLE, KY 40299
502-437-5252

PREPARED FOR:

PREPARED FOR:

12/20/2017

EN PERMIT: 3594

**ZONING
DRAWINGS**

REV	DATE	DESCRIPTION
A	7.6.17	ISSUED FOR REVIEW
0	7.10.17	ISSUED AS FINAL
1	9.19.17	TOWER DESIGN
2	12.20.17	TOWER HEIGHT

SITE INFORMATION:
HARNED
BUTLER HOBBS ROAD,
HARNED KY, 40144
BRECKINRIDGE COUNTY

SITE NUMBER:
KYLO3659

POD NUMBER: 17-12750
DRAWN BY: KDP
CHECKED BY: MEP
DATE: 4.12.17

SHEET TITLE:
**TOWER
ELEVATION**

SHEET NUMBER:
C-4

**EXHIBIT C-1
TOWER AND FOUNDATION DESIGN**

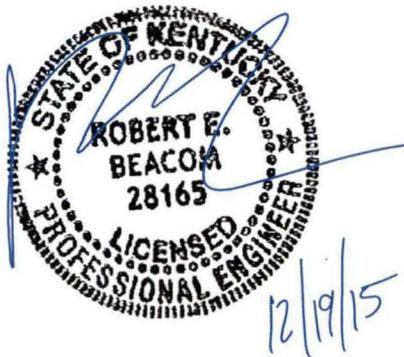


Structural Design Report
195' S3TL Series HD1 Self-Supporting Tower
Site: Harned, KY
Site Number: KYL03659

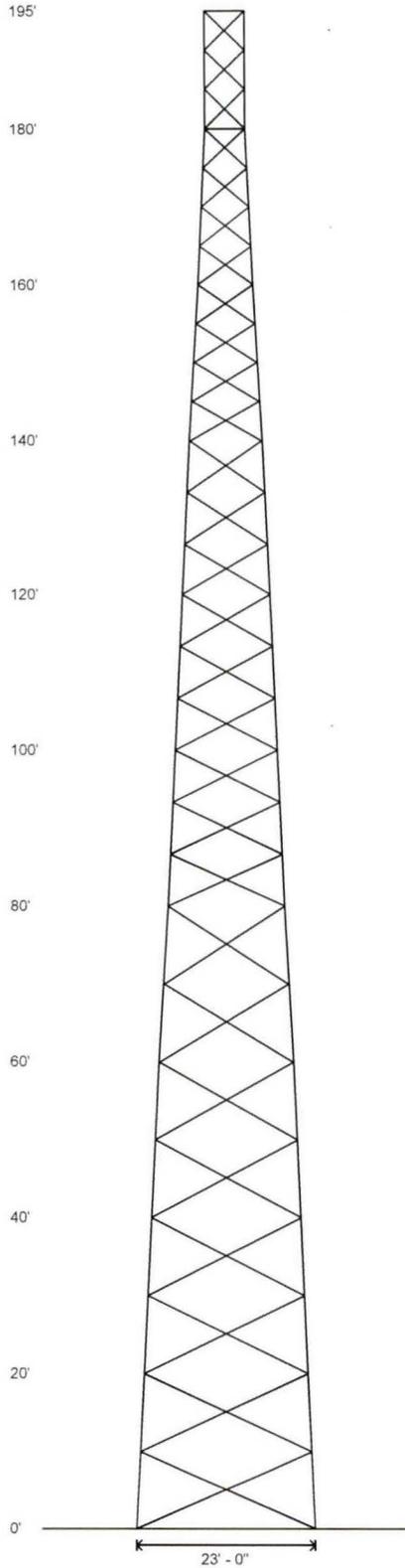
Prepared for: AT&T
by: Sabre Towers & Poles™

Job Number: 170074
Revision A
December 19, 2017

Tower Profile.....	1
Foundation Design Summary (Option 1).....	2
Foundation Design Summary (Option 2).....	3
Maximum Leg Loads.....	4
Maximum Diagonal Loads.....	5
Maximum Foundation Loads.....	6
Calculations.....	7-20



Legs	8.625 OD X .500	8.625 OD X .322	5.563 OD X .500	5.563 OD X .375	4.500 OD X .337	3.500 OD X .300	A
Diagonals	L 3 1/2 X 3 1/2 X 1/4	L 3 X 3 X 3/16	L 3 1/2 X 2 1/2 X 1/4	L 2 1/2 X 2 1/2 X 1/4	L 2 X 2 X 3/16	L 2 X 2 X 1/8	
Horizontals	(1) 3/4"	NONE	(1) 5/8"				
Brace Bolts	8 @ 10'	9 @ 6.6667'	11'	9'	7'	5'	C NONE D
Top Face Width	21'	19'	17'	15'	13'	11 @ 5'	
Panel Count/Height	5073	4654	4518	4394	3211	1375	
Section Weight					1900		565



Designed Appurtenance Loading

Elev	Description	Tx-Line
193	(1) 278 Sq. FT. EPA 6000# (No Ice)	(18) 1 5/8"
181	(1) 208 sq. ft. EPA 4000# (no ice)	(18) 1 5/8"
169	(1) 208 sq. ft. EPA 4000# (no ice)	(18) 1 5/8"
157	(1) 208 sq. ft. EPA 4000# (no ice)	(18) 1 5/8"

Base Reactions

Total Foundation		Individual Footing	
Shear (kips)	72.9	Shear (kips)	44.72
Axial (kips)	184.06	Compression (kips)	493
Moment (ft-kips)	9326	Uplift (kips)	438
Torsion (ft-kips)	-22.18		

Material List

Display	Value
A	2.375 OD X .154
B	L 2 1/2 X 2 1/2 X 3/16
C	L 2 X 2 X 3/16
D	L 2 X 2 X 1/8

Notes

- 1) All legs are A500 (50 ksi Min. Yield).
- 2) All braces are A572 Grade 50.
- 3) All brace bolts are A325-X.
- 4) The tower model is S3TL Series HD1.
- 5) Transmission lines are to be attached to standard 12 hole waveguide ladders with stackable hangers.
- 6) Azimuths are relative (not based on true north).
- 7) Foundation loads shown are maximums.
- 8) (6) 1 1/2" dia. F1554 grade 105 anchor bolts per leg. Minimum 58" embedment from top of concrete to top of nut.
- 9) All unequal angles are oriented with the short leg vertical.
- 10) Weights shown are estimates. Final weights may vary.
- 11) This tower was designed for a basic wind speed of 89 mph with 0" of radial ice, and 30 mph with 3/4" of radial ice, in accordance with ANSI/TIA-222-G, Structure Class II, Exposure Category C, Topographic Category 1.
- 12) The foundation loads shown are factored loads.
- 13) The tower design meets the requirements for an Ultimate Wind Speed of 115 mph (Risk Category II), in accordance with the 2012 International Building Code.
- 14) Tower Rating: 99.38%



Sabre Communications Corporation
 7101 Southbridge Drive
 P.O. Box 658
 Sioux City, IA 51102-0658
 Phone: (712) 258-0690
 Fax: (712) 279-0814

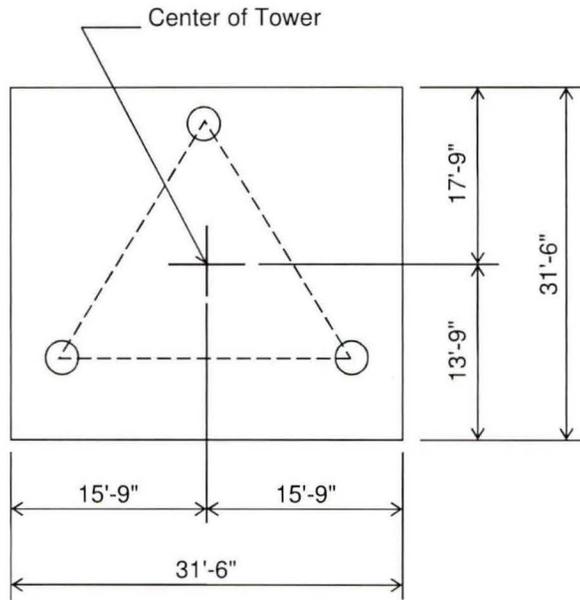
Information contained herein is the sole property of Sabre Communications Corporation, constitutes a trade secret as defined by Iowa Code Ch. 550 and shall not be reproduced, copied or used in whole or part for any purpose whatsoever without the prior written consent of Sabre Communications Corporation.

Job:	170074A
Customer:	AT&T
Site Name:	Harned, KY KYL03659
Description:	195' S3TL
Date:	12/19/2017
By:	REB

Customer: MASTEC NETWORK SOLUTIONS GROUP

Site: Harned, KY KYL03659

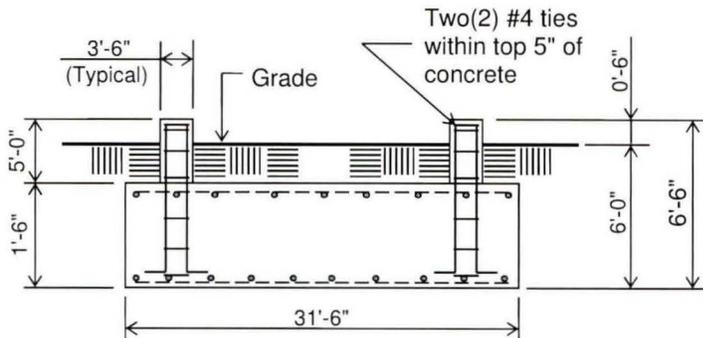
195 ft. Model S3TL Series HD1 Self Supporting Tower At
89 mph Wind with no ice and 30 mph Wind with 0.75 in. Ice per ANSI/TIA-222-G.
Antenna Loading per Page 1



PLAN VIEW

Notes:

- 1). Concrete shall have a minimum 28-day compressive strength of 4500 PSI, in accordance with ACI 318-11.
- 2). Rebar to conform to ASTM specification A615 Grade 60.
- 3). All rebar to have a minimum of 3" concrete cover.
- 4). All exposed concrete corners to be chamfered 3/4".
- 5). The foundation design is based on the geotechnical report by Power of Design Group, LLC; project# 17-12748; dated August 31, 2017.



ELEVATION VIEW

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

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

- 6). See the geotechnical report for compaction requirements, if specified.
- 7). The foundation is based on the following factored loads:
Factored download (kips) = 72.88
Factored overturn (kip-ft) = 9326.12
Factored shear (kips) = 72.9

8). 4.5 ft of soil cover is required over the entire area of the foundation slab.

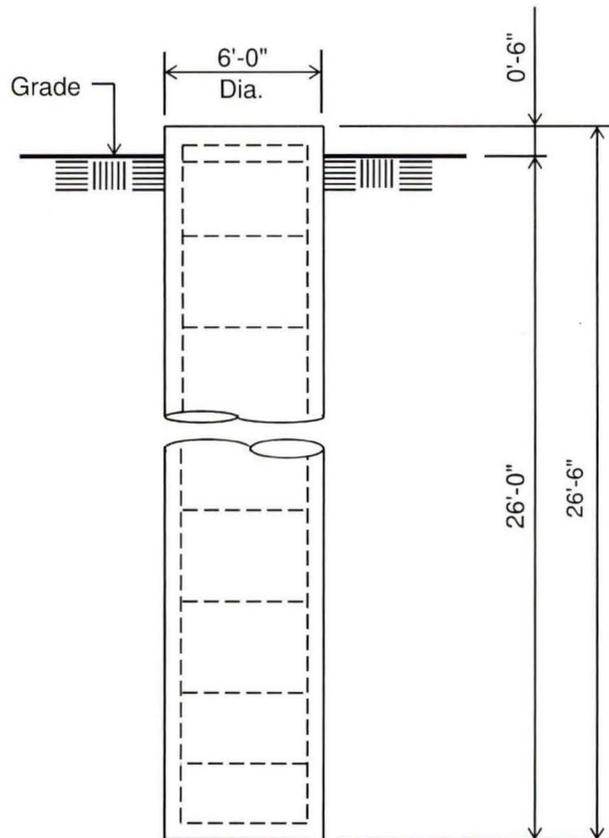
Rebar Schedule per Mat and per Pier

Pier	(16) #8 vertical rebar w/ hooks at bottom w/ #4 Rebar ties, two (2) within top 5" of pier then 11" C/C
Mat	(58) #10 horizontal rebar evenly spaced each way top and bottom. (232 total)

Customer: MASTEC NETWORK SOLUTIONS GROUP

Site: Harned, KY KYL03659

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



ELEVATION VIEW

(27.75 Cu. Yds. each)

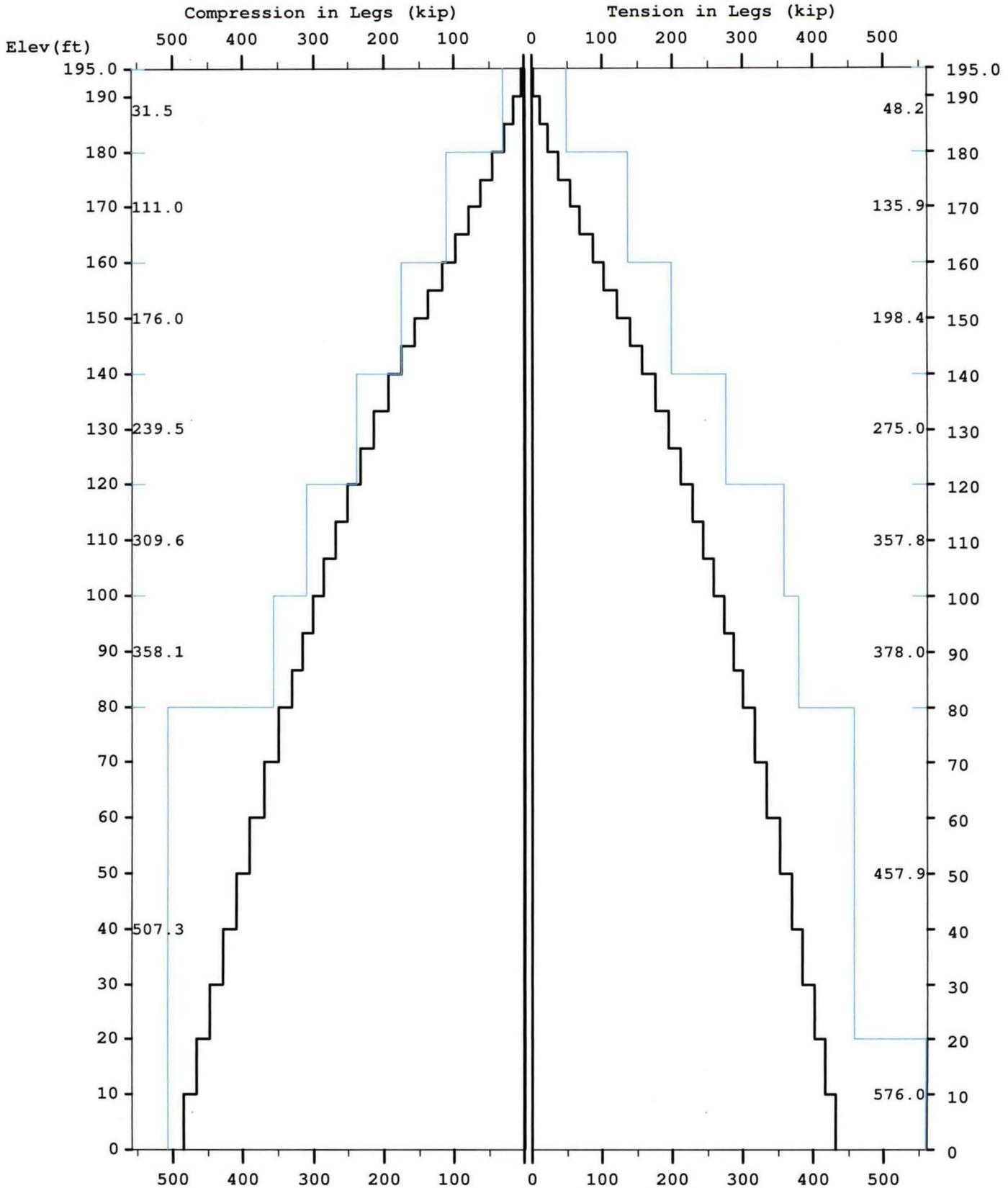
(3 REQUIRED; NOT TO SCALE)

Notes:

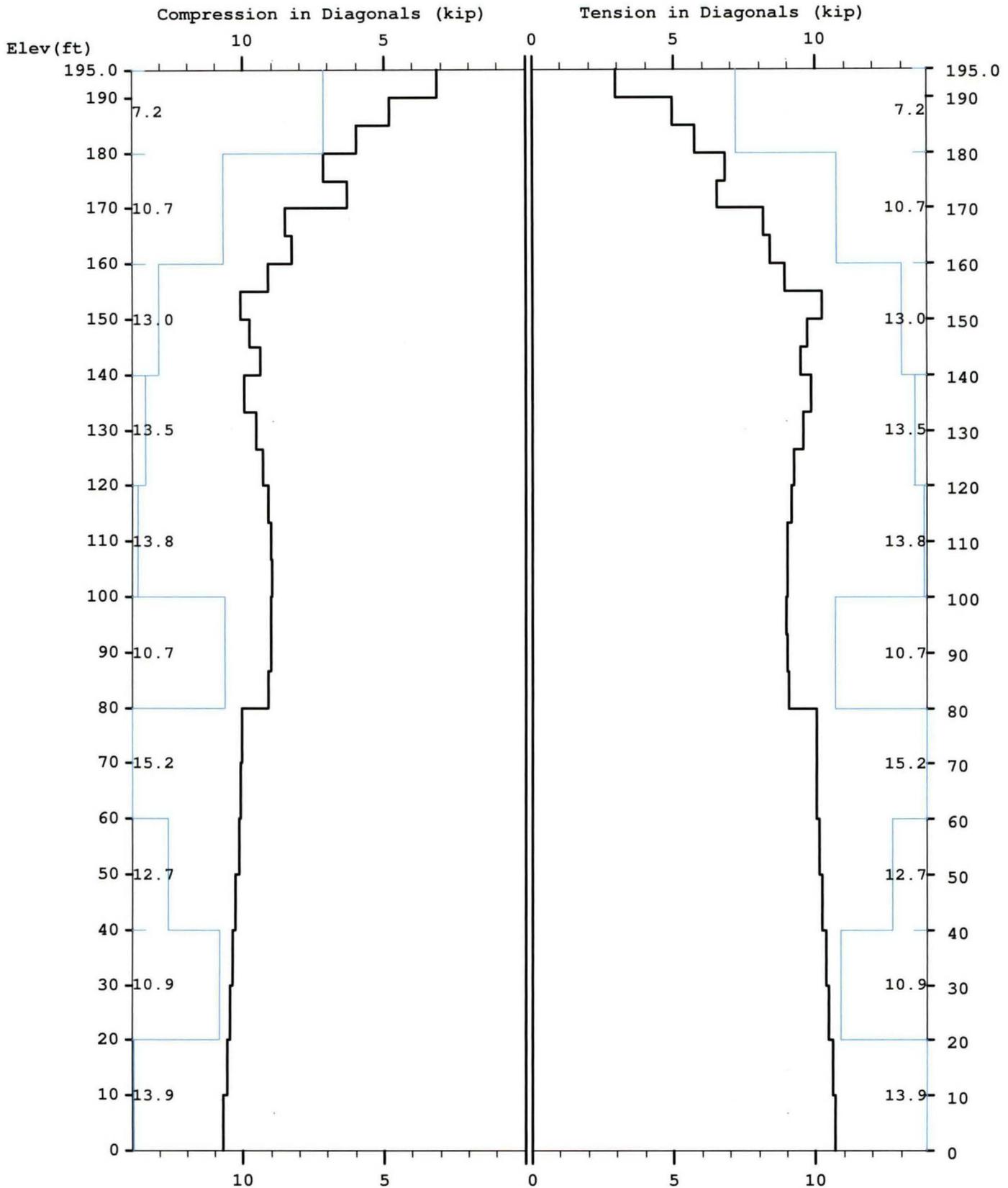
- 1). Concrete shall have a minimum 28-day compressive strength of 4500 PSI, in accordance with ACI 318-11.
- 2). Rebars to conform to ASTM specification A615 Grade 60.
- 3). All rebar to have a minimum of 3" concrete cover.
- 4). All exposed concrete corners to be chamfered 3/4".
- 5). The foundation design is based on the geotechnical report by Power of Design Group, LLC; project# 17-12748; dated August 31, 2017.
- 6). See the geotechnical report for drilled pier installation requirements, if specified.
- 7). The foundation is based on the following factored loads:
Factored uplift (kips) = 438
Factored download (kips) = 493
Factored shear (kips) = 45

Rebar Schedule per Pier	
Pier	(26) #8 vertical rebar w/#4 ties, two (2) within top 5" of pier then 12" C/C

Maximum

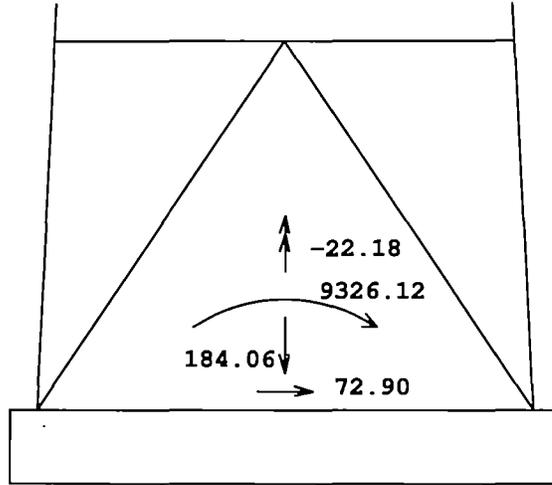


Maximum

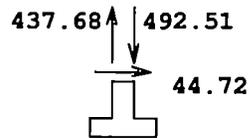
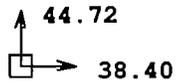


Maximum

TOTAL FOUNDATION LOADS (kip, ft-kip)



INDIVIDUAL FOOTING LOADS (kip)



Latticed Tower Analysis (Unguyed)
Processed under license at:

(c)2013 Guymast Inc. 416-736-7453

Sabre Towers and Poles

on: 15 dec 2017 at: 11:30:05

MAST GEOMETRY (ft)

PANEL TYPE	NO.OF LEGS	ELEV.AT BOTTOM	ELEV.AT TOP	F.W..AT BOTTOM	F.W..AT TOP	TYPICAL PANEL HEIGHT
X	3	190.00	195.00	5.00	5.00	5.00
X	3	180.00	190.00	5.00	5.00	5.00
X	3	175.00	180.00	5.50	5.00	5.00
X	3	160.00	175.00	7.00	5.50	5.00
X	3	140.00	160.00	9.00	7.00	5.00
X	3	120.00	140.00	11.00	9.00	6.67
X	3	100.00	120.00	13.00	11.00	6.67
X	3	80.00	100.00	15.00	13.00	6.67
X	3	60.00	80.00	17.00	15.00	10.00
X	3	40.00	60.00	19.00	17.00	10.00
X	3	20.00	40.00	21.00	19.00	10.00
X	3	0.00	20.00	23.00	21.00	10.00

MEMBER PROPERTIES

MEMBER TYPE	BOTTOM ELEV ft	TOP ELEV ft	X-SECTN AREA in.sq	RADIUS OF GYRAT in	ELASTIC MODULUS ksi	THERMAL EXPANSN /deg
LE	180.00	195.00	1.075	0.787	29000.	0.0000117
LE	160.00	180.00	3.016	0.787	29000.	0.0000117
LE	140.00	160.00	4.407	0.787	29000.	0.0000117
LE	120.00	140.00	6.111	0.787	29000.	0.0000117
LE	100.00	120.00	7.952	0.787	29000.	0.0000117
LE	80.00	100.00	8.399	0.787	29000.	0.0000117
LE	0.00	80.00	12.763	0.787	29000.	0.0000117
DI	180.00	195.00	0.484	0.626	29000.	0.0000117
DI	160.00	180.00	0.715	0.626	29000.	0.0000117
DI	140.00	160.00	0.902	0.626	29000.	0.0000117
DI	120.00	140.00	1.188	0.626	29000.	0.0000117
DI	80.00	120.00	1.090	0.626	29000.	0.0000117
DI	20.00	80.00	1.688	0.626	29000.	0.0000117
DI	0.00	20.00	1.938	0.626	29000.	0.0000117
HO	190.00	195.00	0.484	0.626	29000.	0.0000117
HO	175.00	180.00	0.715	0.626	29000.	0.0000117

FACTORED MEMBER RESISTANCES

BOTTOM ELEV ft	TOP ELEV ft	LEGS		DIAGONALS		HORIZONTALS		INT BRACING	
		COMP kip	TENS kip	COMP kip	TENS kip	COMP kip	TENS kip	COMP kip	TENS kip
190.0	195.0	31.48	48.15	7.16	7.16	5.73	5.73	0.00	0.00
180.0	190.0	31.48	48.15	7.16	7.16	0.00	0.00	0.00	0.00
175.0	180.0	110.98	135.90	10.74	10.74	8.38	8.38	0.00	0.00
160.0	175.0	110.98	135.90	10.74	10.74	0.00	0.00	0.00	0.00
140.0	160.0	175.98	198.45	13.03	13.03	0.00	0.00	0.00	0.00
120.0	140.0	239.46	274.95	13.49	13.49	0.00	0.00	0.00	0.00
100.0	120.0	309.64	357.75	13.79	13.79	0.00	0.00	0.00	0.00
80.0	100.0	358.08	378.00	10.69	10.69	0.00	0.00	0.00	0.00
60.0	80.0	507.33	457.90	15.18	15.18	0.00	0.00	0.00	0.00
40.0	60.0	507.33	457.90	12.68	12.68	0.00	0.00	0.00	0.00
20.0	40.0	507.33	457.90	10.85	10.85	0.00	0.00	0.00	0.00
0.0	20.0	507.33	576.00	13.92	13.92	0.00	0.00	0.00	0.00

* only 3 condition(s) shown in full

* Some wind loads may have been derived from full-scale wind tunnel testing

LOADING CONDITION A

89 mph wind with no ice. Wind Azimuth: 0

MAST LOADING

LOAD TYPE	ELEV ft	APPLY.. RADIUS ft	LOAD..AT AZI	LOAD AZI	.....FORCES.....		.....MOMENTS.....	
					HORIZ kip	DOWN kip	VERTICAL ft-kip	TORSNAL ft-kip
C	193.0	0.00	0.0	0.0	9.47	7.20	0.00	0.00
C	181.0	0.00	0.0	0.0	6.99	4.80	0.00	0.00
C	169.0	0.00	0.0	0.0	6.89	4.80	0.00	0.00
C	157.0	0.00	0.0	0.0	6.79	4.80	0.00	0.00
D	195.0	0.00	42.0	0.0	0.10	0.05	0.03	0.06
D	190.0	0.00	42.0	0.0	0.10	0.05	0.03	0.06
D	190.0	0.00	42.0	0.0	0.12	0.06	0.06	0.09
D	180.0	0.00	49.3	0.0	0.13	0.07	0.06	0.10
D	180.0	0.00	77.8	0.0	0.17	0.13	0.06	0.11
D	170.0	0.00	80.2	0.0	0.16	0.12	0.06	0.11
D	170.0	0.00	88.7	0.0	0.18	0.14	0.05	0.07
D	160.0	0.00	92.4	0.0	0.19	0.15	0.04	0.06
D	160.0	0.00	73.6	0.0	0.21	0.19	0.03	0.05
D	155.0	0.00	73.6	0.0	0.21	0.19	0.03	0.05
D	155.0	0.00	329.9	0.0	0.21	0.20	0.02	0.04
D	140.0	0.00	329.5	0.0	0.22	0.21	0.02	0.04
D	140.0	0.00	329.9	0.0	0.21	0.23	0.02	0.04
D	120.0	0.00	329.4	0.0	0.22	0.24	0.02	0.04
D	120.0	0.00	330.0	0.0	0.22	0.26	0.02	0.04
D	100.0	0.00	329.5	0.0	0.23	0.26	0.02	0.04
D	100.0	0.00	330.0	0.0	0.23	0.27	0.02	0.04
D	80.0	0.00	329.6	0.0	0.24	0.27	0.02	0.04
D	80.0	0.00	329.9	0.0	0.22	0.34	0.02	0.04
D	40.0	0.00	329.8	0.0	0.22	0.35	0.02	0.03
D	40.0	0.00	330.0	0.0	0.21	0.35	0.02	0.03
D	20.0	0.00	329.8	0.0	0.21	0.36	0.02	0.03
D	20.0	0.00	330.0	0.0	0.19	0.37	0.02	0.03
D	0.0	0.00	329.9	0.0	0.19	0.38	0.02	0.03

SUPPRESS PRINTING

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

LOADING CONDITION M

89 mph wind with no ice. Wind Azimuth: 0

MAST LOADING

LOAD TYPE	ELEV ft	APPLY.. RADIUS ft	LOAD..AT AZI	LOAD AZI	.....FORCES.....		.....MOMENTS.....	
					HORIZ kip	DOWN kip	VERTICAL ft-kip	TORSNAL ft-kip
C	193.0	0.00	0.0	0.0	9.47	5.40	0.00	0.00
C	181.0	0.00	0.0	0.0	6.99	3.60	0.00	0.00
C	169.0	0.00	0.0	0.0	6.89	3.60	0.00	0.00
C	157.0	0.00	0.0	0.0	6.79	3.60	0.00	0.00
D	195.0	0.00	42.0	0.0	0.10	0.04	0.03	0.06
D	190.0	0.00	42.0	0.0	0.10	0.04	0.03	0.06
D	190.0	0.00	42.0	0.0	0.12	0.04	0.04	0.09
D	180.0	0.00	49.3	0.0	0.13	0.05	0.04	0.10

170074A								
D	180.0	0.00	77.8	0.0	0.17	0.10	0.04	0.11
D	170.0	0.00	80.2	0.0	0.16	0.09	0.04	0.11
D	170.0	0.00	88.7	0.0	0.18	0.11	0.04	0.07
D	160.0	0.00	92.4	0.0	0.19	0.11	0.03	0.06
D	160.0	0.00	73.6	0.0	0.21	0.14	0.02	0.05
D	155.0	0.00	73.6	0.0	0.21	0.14	0.02	0.05
D	155.0	0.00	329.9	0.0	0.21	0.15	0.01	0.04
D	140.0	0.00	329.5	0.0	0.22	0.15	0.01	0.04
D	140.0	0.00	329.9	0.0	0.21	0.17	0.01	0.04
D	120.0	0.00	329.4	0.0	0.22	0.18	0.01	0.04
D	120.0	0.00	330.0	0.0	0.22	0.19	0.01	0.04
D	100.0	0.00	329.5	0.0	0.23	0.20	0.01	0.04
D	100.0	0.00	330.0	0.0	0.23	0.20	0.01	0.04
D	80.0	0.00	329.6	0.0	0.24	0.21	0.01	0.04
D	80.0	0.00	329.9	0.0	0.22	0.25	0.01	0.04
D	40.0	0.00	329.8	0.0	0.22	0.26	0.01	0.03
D	40.0	0.00	330.0	0.0	0.21	0.26	0.01	0.03
D	20.0	0.00	329.8	0.0	0.21	0.27	0.01	0.03
D	20.0	0.00	330.0	0.0	0.19	0.28	0.01	0.03
D	0.0	0.00	329.9	0.0	0.19	0.28	0.01	0.03

SUPPRESS PRINTING

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

LOADING CONDITION Y

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

MAST LOADING

LOAD TYPE	ELEV ft	APPLY.. RADIUS ft	LOAD.. AZI	LOAD AZI	.....FORCES.....		.....MOMENTS.....	
					HORIZ kip	DOWN kip	VERTICAL ft-kip	TORSNAL ft-kip
C	193.0	0.00	0.0	0.0	1.16	17.94	0.00	0.00
C	181.0	0.00	0.0	0.0	1.38	11.91	0.00	0.00
C	169.0	0.00	0.0	0.0	1.35	11.86	0.00	0.00
C	157.0	0.00	0.0	0.0	1.33	11.81	0.00	0.00
D	195.0	0.00	42.0	0.0	0.01	0.24	0.13	0.00
D	190.0	0.00	42.0	0.0	0.01	0.24	0.13	0.00
D	190.0	0.00	42.0	0.0	0.01	0.24	0.21	0.01
D	185.0	0.00	42.0	0.0	0.01	0.24	0.21	0.01
D	185.0	0.00	50.4	0.0	0.01	0.26	0.21	0.01
D	180.0	0.00	50.4	0.0	0.01	0.26	0.21	0.01
D	180.0	0.00	87.0	0.0	0.02	0.42	0.21	0.01
D	175.0	0.00	87.0	0.0	0.02	0.42	0.21	0.01
D	175.0	0.00	89.4	0.0	0.02	0.39	0.20	0.01
D	170.0	0.00	89.4	0.0	0.02	0.39	0.20	0.01
D	170.0	0.00	87.6	0.0	0.02	0.46	0.14	0.00
D	165.0	0.00	87.6	0.0	0.02	0.46	0.14	0.00
D	165.0	0.00	87.7	0.0	0.02	0.49	0.12	0.00
D	160.0	0.00	87.7	0.0	0.02	0.49	0.12	0.00
D	160.0	0.00	65.6	0.0	0.02	0.56	0.08	0.00
D	155.0	0.00	65.6	0.0	0.02	0.56	0.08	0.00
D	155.0	0.00	329.9	0.0	0.02	0.60	0.06	0.00
D	140.0	0.00	329.5	0.0	0.02	0.62	0.07	0.00
D	140.0	0.00	329.9	0.0	0.02	0.63	0.06	0.00
D	120.0	0.00	329.4	0.0	0.02	0.65	0.06	0.00
D	120.0	0.00	330.0	0.0	0.02	0.68	0.06	0.00
D	100.0	0.00	329.5	0.0	0.02	0.70	0.06	0.00
D	100.0	0.00	330.0	0.0	0.02	0.72	0.06	0.00
D	80.0	0.00	329.6	0.0	0.02	0.74	0.06	0.00
D	80.0	0.00	329.9	0.0	0.02	0.77	0.06	0.00
D	50.0	0.00	329.9	0.0	0.02	0.78	0.06	0.00
D	50.0	0.00	329.8	0.0	0.02	0.79	0.06	0.00
D	20.0	0.00	329.9	0.0	0.02	0.79	0.06	0.00

170074A								
D	20.0	0.00	330.0	0.0	0.02	0.85	0.07	0.00
D	10.0	0.00	330.0	0.0	0.02	0.85	0.07	0.00
D	10.0	0.00	329.9	0.0	0.02	0.94	0.09	0.00
D	0.0	0.00	329.9	0.0	0.02	0.94	0.09	0.00

SUPPRESS PRINTING

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

MAXIMUM MAST DISPLACEMENTS:

ELEV ft	-----DEFLECTIONS (ft)-----			--TILTS (DEG)--		TWIST DEG
	NORTH	EAST	DOWN	NORTH	EAST	
195.0	2.434 G	2.343 J	0.031 G	1.617 G	1.557 J	0.092 L
190.0	2.292 G	2.205 J	0.029 e	1.609 G	1.549 J	0.091 L
185.0	2.149 G	2.068 J	0.028 e	1.567 G	1.508 J	0.089 L
180.0	2.012 G	1.936 J	0.027 e	1.486 G	1.429 J	0.083 X
175.0	1.881 G	1.810 J	0.026 e	1.444 G	1.389 J	0.079 X
170.0	1.756 G	1.690 J	0.025 e	1.392 G	1.339 J	0.074 X
165.0	1.632 G	1.571 J	0.024 e	1.328 G	1.277 J	0.069 X
160.0	1.517 G	1.460 J	0.023 e	1.255 G	1.207 J	0.065 X
155.0	1.406 G	1.354 J	0.022 e	1.199 G	1.154 J	0.062 X
150.0	1.301 G	1.252 J	0.022 e	1.138 G	1.096 J	0.058 X
145.0	1.201 G	1.156 J	0.021 e	1.072 G	1.032 J	0.055 X
140.0	1.108 G	1.066 J	0.020 e	1.002 G	0.965 J	0.052 X
133.3	0.992 G	0.954 J	0.019 e	0.932 G	0.897 J	0.048 X
126.7	0.884 G	0.851 J	0.018 e	0.858 G	0.826 J	0.045 X
120.0	0.786 G	0.756 J	0.016 e	0.782 G	0.753 J	0.042 X
113.3	0.695 G	0.668 J	0.016 e	0.724 G	0.697 J	0.039 X
106.7	0.610 G	0.587 J	0.015 e	0.665 G	0.640 J	0.036 X
100.0	0.532 G	0.512 J	0.014 e	0.606 G	0.583 J	0.032 X
93.3	0.461 G	0.443 J	0.013 e	0.550 G	0.529 J	0.029 X
86.7	0.397 G	0.381 J	0.012 e	0.494 G	0.475 J	0.026 X
80.0	0.338 G	0.325 J	0.011 e	0.437 G	0.421 J	0.022 X
70.0	0.263 G	0.253 J	0.010 e	0.382 G	0.367 J	0.020 X
60.0	0.197 G	0.190 J	0.008 e	0.326 G	0.314 J	0.017 X
50.0	0.141 G	0.136 J	0.007 e	0.271 G	0.261 J	0.014 X
40.0	0.095 G	0.091 J	0.006 e	0.216 G	0.208 J	0.011 X
30.0	0.058 G	0.055 J	0.005 c	0.162 G	0.156 J	0.008 X
20.0	0.029 G	0.028 J	0.003 c	0.108 G	0.104 J	0.005 X
10.0	0.009 G	0.008 J	0.002 c	0.053 G	0.051 J	-0.003 B
0.0	0.000 A	0.000 A	0.000 A	0.000 A	0.000 A	0.000 A

MAXIMUM TENSION IN MAST MEMBERS (kip)

ELEV ft	LEGS	DIAG	HORIZ	BRACE
195.0	-----	-----	0.46 K	0.00 A
	1.67 M	2.93 M		
190.0	-----	-----	0.07 G	0.00 A
	10.86 M	4.96 B		
185.0	-----	-----	0.23 A	0.00 A
	23.35 M	5.73 N		
180.0	-----	-----	0.75 K	0.00 A
	37.88 M	6.82 N		
175.0	-----	-----	0.29 A	0.00 A
	53.69 M	6.51 B		
170.0	-----	-----	0.05 C	0.00 A
	68.11 M	8.18 M		
165.0	-----	-----	0.27 A	0.00 A
	86.54 M	8.41 B		
160.0	-----	-----	0.06 A	0.00 A
	102.53 M	8.90 N		
155.0	-----	-----	0.14 A	0.00 A
	120.94 M	10.19 B		
150.0	-----	-----	0.13 A	0.00 A

170074A

145.0	139.16 M	9.71 N	0.13 A	0.00 A
140.0	156.26 M	9.46 B	0.13 A	0.00 A
133.3	174.26 M	9.86 T	0.12 A	0.00 A
126.7	193.68 M	9.56 B	0.13 A	0.00 A
120.0	211.39 M	9.26 T	0.11 A	0.00 A
113.3	228.19 M	9.13 B	0.08 A	0.00 A
106.7	243.80 M	8.99 V	0.10 A	0.00 A
100.0	258.82 M	8.98 J	0.07 A	0.00 A
93.3	273.02 M	8.96 V	0.11 A	0.00 A
86.7	286.79 M	9.02 P	0.07 A	0.00 A
80.0	300.01 M	9.07 P	0.10 A	0.00 A
70.0	315.81 M	10.02 P	0.09 A	0.00 A
60.0	334.06 M	10.05 P	0.09 A	0.00 A
50.0	351.61 M	10.13 P	0.08 A	0.00 A
40.0	368.52 M	10.23 V	0.08 A	0.00 A
30.0	384.90 M	10.35 V	0.07 A	0.00 A
20.0	400.75 M	10.45 P	0.01 A	0.00 A
10.0	416.15 M	10.58 V	0.07 A	0.00 A
0.0	430.98 M	10.67 V	0.00 A	0.00 A

MAXIMUM COMPRESSION IN MAST MEMBERS (kip)

ELEV ft	LEGS	DIAG	HORIZ	BRACE
195.0	-4.04 G	-3.12 G	-0.34 Q	0.00 A
190.0	-15.58 G	-4.82 N	-0.04 M	0.00 A
185.0	-28.43 G	-5.97 B	-0.16 S	0.00 A
180.0	-45.53 G	-7.13 H	-0.61 Q	0.00 A
175.0	-62.55 G	-6.33 N	-0.23 S	0.00 A
170.0	-79.22 G	-8.53 G	-0.05 U	0.00 A
165.0	-99.33 G	-8.28 N	-0.21 S	0.00 A
160.0	-116.75 G	-9.11 G	-0.05 S	0.00 A
155.0	-137.91 G	-10.14 N	-0.11 S	0.00 A
150.0	-156.79 G	-9.81 B	-0.11 S	0.00 A
145.0	-174.89 G	-9.42 T	-0.11 S	0.00 A
140.0	-193.78 G	-9.95 B	-0.11 S	0.00 A
133.3	-214.63 G	-9.53 T	-0.10 S	0.00 A
126.7	-233.51 G	-9.34 B	-0.11 S	0.00 A
120.0	-251.77 G	-9.11 T	-0.09 S	0.00 A

	LOAD COMPONENTS		DISPLACEMENT	ROTATION
	G	J	S	A
113.3	-268.71	-9.05	-0.07	0.00
106.7	-285.25	-8.98	-0.08	0.00
100.0	-300.88	-9.02	-0.06	0.00
93.3	-316.22	-9.02	-0.10	0.00
86.7	-330.97	-9.11	-0.06	0.00
80.0	-348.92	-10.05	-0.09	0.00
70.0	-369.91	-10.11	-0.08	0.00
60.0	-390.30	-10.17	-0.08	0.00
50.0	-410.02	-10.28	-0.07	0.00
40.0	-429.30	-10.38	-0.07	0.00
30.0	-448.04	-10.51	-0.06	0.00
20.0	-466.44	-10.61	-0.01	0.00
10.0	-484.29	-10.74	-0.06	0.00
0.0			0.00	0.00

170074A

MAXIMUM INDIVIDUAL FOUNDATION LOADS: (kip)

LOAD COMPONENTS				TOTAL SHEAR
NORTH	EAST	DOWN	UPLIFT	
44.72	38.40	492.51	-437.68	44.72

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

HORIZONTAL			DOWN	OVERTURNING			TORSION
NORTH	EAST	TOTAL @ 0.0		NORTH	EAST	TOTAL @ 0.0	
72.9	69.8	72.9	184.1	9326.1	8964.5	9326.1	-22.2
G	J	G	C	G	J	G	B

Latticed Tower Analysis (Unguyed)
Processed under license at:

(c)2013 Guymast Inc. 416-736-7453

Sabre Towers and Poles

on: 15 dec 2017 at: 11:30:34

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

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

LOADING CONDITION A

60 mph wind with no ice. Wind Azimuth: 0

MAST LOADING

LOAD TYPE	ELEV ft	APPLY. RADIUS ft	LOAD .AT AZI	LOAD AZI	.....FORCES.....		.....MOMENTS.....	
					HORIZ kip	DOWN kip	VERTICAL ft-kip	TORSNAL ft-kip
C	193.0	0.00	0.0	0.0	2.69	6.00	0.00	0.00
C	181.0	0.00	0.0	0.0	1.99	4.00	0.00	0.00
C	169.0	0.00	0.0	0.0	1.96	4.00	0.00	0.00
C	157.0	0.00	0.0	0.0	1.93	4.00	0.00	0.00
D	195.0	0.00	42.0	0.0	0.03	0.05	0.03	0.02
D	190.0	0.00	42.0	0.0	0.03	0.05	0.03	0.02
D	190.0	0.00	42.0	0.0	0.04	0.05	0.05	0.03
D	180.0	0.00	49.3	0.0	0.04	0.05	0.05	0.03
D	180.0	0.00	77.8	0.0	0.05	0.11	0.05	0.03
D	170.0	0.00	80.2	0.0	0.05	0.10	0.05	0.03
D	170.0	0.00	88.7	0.0	0.05	0.12	0.04	0.02
D	160.0	0.00	92.4	0.0	0.05	0.13	0.04	0.02
D	160.0	0.00	73.6	0.0	0.06	0.16	0.02	0.02
D	155.0	0.00	73.6	0.0	0.06	0.16	0.02	0.02
D	155.0	0.00	329.9	0.0	0.06	0.17	0.02	0.01
D	140.0	0.00	329.5	0.0	0.06	0.17	0.02	0.01
D	140.0	0.00	329.9	0.0	0.06	0.19	0.02	0.01
D	120.0	0.00	329.4	0.0	0.06	0.20	0.02	0.01
D	120.0	0.00	330.0	0.0	0.07	0.21	0.02	0.01
D	100.0	0.00	329.5	0.0	0.07	0.22	0.02	0.01
D	100.0	0.00	330.0	0.0	0.07	0.22	0.02	0.01
D	80.0	0.00	329.6	0.0	0.07	0.23	0.02	0.01
D	80.0	0.00	329.9	0.0	0.07	0.28	0.02	0.01
D	0.0	0.00	329.8	0.0	0.06	0.31	0.02	0.01

SUPPRESS PRINTING

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

MAXIMUM MAST DISPLACEMENTS:

ELEV ft	-----DEFLECTIONS (ft)-----			--TILTS (DEG)--		TWIST DEG
	NORTH	EAST	DOWN	NORTH	EAST	
195.0	0.696 G	-0.669 D	0.011 G	0.462 G	0.445 J	0.026 L
190.0	0.655 G	0.630 J	0.010 G	0.459 G	0.442 J	0.026 L
185.0	0.614 G	0.591 J	0.010 G	0.448 G	0.431 J	0.025 L
180.0	0.575 G	0.553 J	0.009 G	0.424 G	0.408 J	0.024 L
175.0	0.537 G	0.517 J	0.009 G	0.412 G	0.397 J	0.022 L
170.0	0.502 G	0.483 J	0.009 G	0.397 G	0.382 J	0.021 L
165.0	0.466 G	0.449 J	0.008 G	0.379 G	0.365 J	0.020 L
160.0	0.434 G	0.417 J	0.008 G	0.358 G	0.345 J	0.019 L
155.0	0.402 G	-0.387 D	0.008 G	0.342 G	0.329 J	0.018 L
150.0	0.372 G	-0.358 D	0.007 G	0.325 G	0.313 J	0.017 L
145.0	0.343 G	-0.331 D	0.007 G	0.306 G	0.295 J	0.016 L
140.0	0.317 G	-0.305 D	0.007 G	0.286 G	0.275 J	0.015 L
133.3	0.284 G	-0.273 D	0.006 G	0.266 G	-0.256 D	0.014 L
126.7	0.253 G	-0.243 D	0.006 G	0.245 G	-0.236 D	0.013 L
120.0	0.225 G	-0.216 D	0.005 G	0.223 G	-0.215 D	0.012 L
113.3	0.199 G	-0.191 D	0.005 G	0.207 G	-0.199 D	0.011 L
106.7	0.175 G	-0.168 D	0.005 G	0.190 G	-0.183 D	0.010 L
100.0	0.152 G	-0.147 D	0.004 G	0.173 G	-0.167 D	0.009 L
93.3	0.132 G	-0.127 D	0.004 K	0.157 G	-0.151 D	0.008 L
86.7	0.114 G	-0.109 D	0.004 K	0.141 G	-0.136 D	0.007 L
80.0	0.097 G	-0.093 D	0.003 K	0.125 G	-0.120 D	0.006 L
70.0	0.075 G	-0.072 D	0.003 K	0.109 G	-0.105 D	0.006 L
60.0	0.057 G	-0.054 D	0.003 K	0.093 G	-0.090 D	0.005 L
50.0	0.041 G	-0.039 D	0.002 K	0.078 G	-0.075 D	0.004 L
40.0	0.027 G	-0.026 D	0.002 K	0.062 G	-0.060 D	0.003 L

				170074A			
30.0	0.017 G	-0.016 D	0.002 D	0.046 G	-0.045 D	0.002 L	
20.0	0.008 G	-0.008 D	0.001 D	0.031 G	-0.030 D	0.001 L	
10.0	0.003 G	0.002 J	0.001 F	0.015 G	-0.015 D	-0.001 B	
0.0	0.000 A	0.000 A	0.000 A	0.000 A	0.000 A	0.000 A	

MAXIMUM TENSION IN MAST MEMBERS (kip)

ELEV ft	LEGS	DIAG	HORIZ	BRACE
195.0	-----		0.17 K	0.00 A
	0.00 A	0.78 A		
190.0	-----		0.03 G	0.00 A
	1.49 A	1.46 H		
185.0	-----		0.09 A	0.00 A
	4.99 A	1.56 B		
180.0	-----		0.26 K	0.00 A
	8.29 A	1.84 B		
175.0	-----		0.10 A	0.00 A
	12.45 A	1.91 H		
170.0	-----		0.02 C	0.00 A
	15.83 A	2.24 A		
165.0	-----		0.09 A	0.00 A
	20.55 A	2.44 H		
160.0	-----		0.02 A	0.00 A
	24.66 A	2.46 B		
155.0	-----		0.05 A	0.00 A
	28.99 A	2.91 H		
150.0	-----		0.05 A	0.00 A
	34.02 A	2.72 B		
145.0	-----		0.05 A	0.00 A
	38.61 A	2.70 H		
140.0	-----		0.04 A	0.00 A
	43.52 A	2.77 H		
133.3	-----		0.04 A	0.00 A
	48.68 A	2.73 H		
126.7	-----		0.04 A	0.00 A
	53.44 A	2.61 H		
120.0	-----		0.04 A	0.00 A
	57.86 A	2.61 H		
113.3	-----		0.03 A	0.00 A
	62.00 A	2.55 D		
106.7	-----		0.03 A	0.00 A
	65.91 A	2.57 J		
100.0	-----		0.02 A	0.00 A
	69.63 A	2.55 D		
93.3	-----		0.04 A	0.00 A
	73.19 A	2.59 J		
86.7	-----		0.02 A	0.00 A
	76.63 A	2.59 D		
80.0	-----		0.03 A	0.00 A
	80.64 A	2.87 J		
70.0	-----		0.03 A	0.00 A
	85.21 A	2.87 D		
60.0	-----		0.03 A	0.00 A
	89.56 A	2.91 J		
50.0	-----		0.03 A	0.00 A
	93.72 A	2.93 J		
40.0	-----		0.03 A	0.00 A
	97.71 A	2.98 J		
30.0	-----		0.03 A	0.00 A
	101.55 A	3.01 D		
20.0	-----		0.00 A	0.00 A
	105.25 A	3.06 J		
10.0	-----		0.02 A	0.00 A
	108.82 A	3.09 D		
0.0	-----		0.00 A	0.00 A

MAXIMUM COMPRESSION IN MAST MEMBERS (kip)

ELEV ft	LEGS	DIAG	HORIZ	BRACE
------------	------	------	-------	-------

170074A

195.0	-----		-0.05 E	0.00 A
	-1.89 G	-0.95 G		
190.0	-----		0.00 A	0.00 A
	-5.92 G	-1.34 B		
185.0	-----		-0.02 G	0.00 A
	-9.67 G	-1.78 H		
180.0	-----		-0.12 E	0.00 A
	-15.33 G	-2.14 H		
175.0	-----		-0.04 G	0.00 A
	-20.51 G	-1.75 B		
170.0	-----		-0.01 I	0.00 A
	-25.91 G	-2.51 G		
165.0	-----		-0.04 G	0.00 A
	-32.09 G	-2.31 B		
160.0	-----		-0.01 G	0.00 A
	-37.44 G	-2.65 G		
155.0	-----		-0.02 G	0.00 A
	-44.24 G	-2.86 B		
150.0	-----		-0.02 G	0.00 A
	-49.74 G	-2.82 H		
145.0	-----		-0.02 G	0.00 A
	-55.12 G	-2.66 B		
140.0	-----		-0.03 G	0.00 A
	-60.68 G	-2.86 H		
133.3	-----		-0.02 G	0.00 A
	-66.94 G	-2.71 H		
126.7	-----		-0.02 G	0.00 A
	-72.58 G	-2.69 H		
120.0	-----		-0.02 G	0.00 A
	-78.12 G	-2.60 B		
113.3	-----		-0.02 G	0.00 A
	-83.25 G	-2.61 D		
106.7	-----		-0.02 G	0.00 A
	-88.32 G	-2.57 D		
100.0	-----		-0.01 G	0.00 A
	-93.10 G	-2.60 D		
93.3	-----		-0.02 G	0.00 A
	-97.85 G	-2.59 D		
86.7	-----		-0.01 G	0.00 A
	-102.40 G	-2.63 J		
80.0	-----		-0.02 G	0.00 A
	-108.04 G	-2.90 D		
70.0	-----		-0.02 G	0.00 A
	-114.70 G	-2.93 J		
60.0	-----		-0.02 G	0.00 A
	-121.22 G	-2.94 D		
50.0	-----		-0.02 G	0.00 A
	-127.55 G	-2.99 D		
40.0	-----		-0.02 G	0.00 A
	-133.77 G	-3.01 D		
30.0	-----		-0.01 G	0.00 A
	-139.84 G	-3.06 J		
20.0	-----		0.00 G	0.00 A
	-145.86 G	-3.09 D		
10.0	-----		-0.01 G	0.00 A
	-151.73 G	-3.15 J		
0.0	-----		0.00 A	0.00 A

MAXIMUM INDIVIDUAL FOUNDATION LOADS: (kip)

-----LOAD-----COMPONENTS-----				TOTAL
NORTH	EAST	DOWN	UPLIFT	SHEAR
13.67 G	11.74 K	154.46 G	-110.40 A	13.67 G

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

-----HORIZONTAL-----			DOWN	-----OVERTURNING-----			TORSION
NORTH	EAST	TOTAL		NORTH	EAST	TOTAL	
		@ 0.0				@ 0.0	

21.0	20.2	21.0	60.7	2673.4	170074A	2673.4	-6.3
G	J	G	D	G	-2569.0	G	B
					D		

MAT FOUNDATION DESIGN BY SABRE TOWERS & POLES

Tower Description 195' S3TL Series HD1
 Customer MASTEC NETWORK SOLUTIONS GROUP
 Project Number 170074
 Date 12/19/2017
 Engineer DJH

Overall Loads:		Anchor Bolt Count (per leg)	6
Factored Moment (ft-kips)	9326.12		
Factored Axial (kips)	184.06		
Factored Shear (kips)	72.90		
Individual Leg Loads:		Tower eccentric from mat (ft)=	2
Factored Uplift (kips)	438.00		
Factored Download (kips)	493.00		
Factored Shear (kips)	45.00		
Width of Tower (ft)	23	Allowable Bearing Pressure (ksf)	4.00
Ultimate Bearing Pressure	8.00	Safety Factor	2.00
Bearing Φ_s	0.75		
Bearing Design Strength (ksf)	6	Max. Factored Net Bearing Pressure (ksf)	5.15
Water Table Below Grade (ft)	999		
Width of Mat (ft)	31.5	Minimum Mat Width (ft)	29.17
Thickness of Mat (ft)	1.5		
Depth to Bottom of Slab (ft)	6		
Bolt Circle Diameter (in)	13.25		
Top of Concrete to Top of Bottom Threads (in)	58	Minimum Pier Diameter (ft)	2.44
Diameter of Pier (ft)	3.5	Equivalent Square b (ft)	3.10
Ht. of Pier Above Ground (ft)	0.5		
Ht. of Pier Below Ground (ft)	4.5		
Quantity of Bars in Mat	58		
Bar Diameter in Mat (in)	1.27		
Area of Bars in Mat (in ²)	73.47		
Spacing of Bars in Mat (in)	6.50	Recommended Spacing (in)	6 to 12
Quantity of Bars Pier	16		
Bar Diameter in Pier (in)	1		
Tie Bar Diameter in Pier (in)	0.5		
Spacing of Ties (in)	11	Minimum Pier A _s (in ²)	6.93
Area of Bars in Pier (in ²)	12.57	Recommended Spacing (in)	5 to 12
Spacing of Bars in Pier (in)	6.63		
f'c (ksi)	4.5		
fy (ksi)	60		
Unit Wt. of Soil (kcf)	0.12		
Unit Wt. of Concrete (kcf)	0.15		
Volume of Concrete (yd ³)	60.47		

MAT FOUNDATION DESIGN BY SABRE TOWERS & POLES (CONTINUED)

Two-Way Shear:

Average d (in)	13.73		
ϕv_c (ksi)	0.228	v_u (ksi)	0.225
$\phi v_c = \phi(2 + 4/\beta_c)f'_c{}^{1/2}$	0.342		
$\phi v_c = \phi(\alpha_s d/b_o + 2)f'_c{}^{1/2}$	0.293		
$\phi v_c = \phi 4f'_c{}^{1/2}$	0.228		
Shear perimeter, b_o (in)	175.08		
β_c	1		

Stability:

Overturning Design Strength (ft-k)	11511.4	Factored Overturning Moment (ft-k)	9800.0
------------------------------------	---------	------------------------------------	--------

One-Way Shear:

ϕV_c (kips)	591.9	V_u (kips)	572.2
-------------------	-------	--------------	-------

Pier Design:

Design Tensile Strength (kips)	678.6	T_u (kips)	438.0
ϕV_n (kips)	120.4	V_u (kips)	45.0
$\phi V_c = \phi 2(1 + N_u/(500A_g))f'_c{}^{1/2}b_w d$	59.2		
V_s (kips)	72.0	*** V_s max = $4 f'_c{}^{1/2} b_w d$ (kips)	378.7
Maximum Spacing (in)	11.15	(Only if Shear Ties are Required)	
Actual Hook Development (in)	12.46	Req'd Hook Development l_{dh} (in)	10.45
		*** Ref. ACI 11.5.5 & 11.5.6.3	

Anchor Bolt Pull-Out:

$\phi P_c = \phi \lambda (2/3)f'_c{}^{1/2}(2.8A_{SLOPE} + 4A_{FLAT})$	208.8	P_u (kips)	438.0
Pier Rebar Development Length (in)	44.63	Required Length of Development (in)	28.87

Flexure in Slab:

ϕM_n (ft-kips)	4035.5	M_u (ft-kips)	4017.1
a (in)	3.05		
Steel Ratio	0.01416		
β_1	0.825		
Maximum Steel Ratio (ρ_l)	0.0197		
Minimum Steel Ratio	0.0018		
Rebar Development in Pad (in)	100.94	Required Development in Pad (in)	20.50

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

DRILLED STRAIGHT PIER DESIGN BY SABRE TOWERS & POLES

Tower Description 195' S3TL Series HD1
 Customer Name MASTEC NETWORK SOLUTIONS GROUP
 Job Number 170074
 Date 12/19/2017
 Engineer DJH

Factored Uplift (kips)	438	Anchor Bolt Count (per leg)	6
Factored Download (kips)	493		
Factored Shear (kips)	45		
Ultimate Bearing Pressure	22.12		
Bearing Φ s	0.75		
Bearing Design Strength (ksf)	16.59		
Water Table Below Grade (ft)	999		
Bolt Circle Diameter (in)	13.25		
Top of Concrete to Top of Bottom Threads (in)	58		
Pier Diameter (ft)	6	Minimum Pier Diameter (ft)	2.44
Ht. Above Ground (ft)	0.5		
Pier Length Below Ground (ft)	26		
Quantity of Bars	26		
Bar Diameter (in)	1		
Tie Bar Diameter (in)	0.5		
Spacing of Ties (in)	12		
Area of Bars (in ²)	20.42	Minimum Area of Steel (in ²)	20.36
Spacing of Bars (in)	7.73		
f'c (ksi)	4.5		
fy (ksi)	60		
Unit Wt. of Concrete (kcf)	0.15		
Download Friction Φ s	0.75		
Uplift Friction Φ s	0.75		
Volume of Concrete (yd ³)	27.75		
Skin Friction Factor for Uplift	1	Length to Ignore Download (ft)	0
Ignore Bottom Length in Download?	<input type="checkbox"/>		

Depth at Bottom of Layer (ft)	Ult. Skin Friction (ksf)	(Ult. Skin Friction)*(Uplift Factor)	γ (kcf)
2	0.00	0.00	0.12
7	0.30	0.30	0.12
14	1.50	1.50	0.135
27	1.00	1.00	0.135
0	0.00	0.00	0
0	0.00	0.00	0
0	0.00	0.00	0
0	0.00	0.00	0
0	0.00	0.00	0
0	0.00	0.00	0

Download:

Factored Net Weight of Concrete (kips)	2.5		
Bearing Design Strength (kips)	469.1		
Skin Friction Design Strength (kips)	339.3		
Download Design Strength (kips)	808.4	Factored Net Download (kips)	495.5

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

Uplift:

Nominal Skin Friction (kips)	452.4
W _c , Weight of Concrete (kips)	112.4
W _R , Soil Resistance (kips)	1243.0
ΦsW _r +0.9W _c (kips)	1033.4

Uplift Design Strength (kips)	440.4	Factored Uplift (kips)	438.0
-------------------------------	-------	------------------------	-------

Pier Design:

Design Tensile Strength (kips)	1102.7	T _u (kips)	438.0
ΦV _n (kips)	371.2	V _u (kips)	45.0

ΦV _c =Φ2(1+N _u /(500A _g))f' _c ^{1/2} b _w d (kips)	371.2		
V _s (kips)	0.0	*** V _s max = 4 f' _c ^{1/2} b _w d (kips)	1112.8

Maximum Spacing (in) 6.50 (Only if Shear Ties are Required)
 *** Ref. ACI 11.5.5 & 11.5.6.3

Anchor Bolt Pull-Out:

ΦP _c =Φλ(2/3)f' _c ^{1/2} (2.8A _{SLOPE} + 4A _{FLAT})	613.1	P _u (kips)	438.0
Rebar Development Length (in)	29.63	Required Length of Development (in)	N/A

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

**EXHIBIT E-1
FAA APPROVAL**



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

Aeronautical Study No.
 2017-ASO-16999-OE

Issued Date: 01/05/2018

Dave Cundiff - Dana Irvin
 AT&T Mobility
 208 S. Akard St., 1012.4
 Dallas, TX 75202

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

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

Structure: Antenna Tower Harned
 Location: Harned, KY
 Latitude: 37-45-52.73N NAD 83
 Longitude: 86-23-17.94W
 Heights: 781 feet site elevation (SE)
 199 feet above ground level (AGL)
 980 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:

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)

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 L Change 1.

Any height exceeding 199 feet above ground level (980 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 07/05/2019 unless:

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

6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

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

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

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

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

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

If we can be of further assistance, please contact our office at (202) 267-4525, or david.maddox@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2017-ASO-16999-OE.

Signature Control No: 341164279-352418942
David Maddox
Specialist

(DNE)

Attachment(s)
Frequency Data
Map(s)

cc: FCC

Frequency Data for ASN 2017-ASO-16999-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 2017-ASO-16999-OE

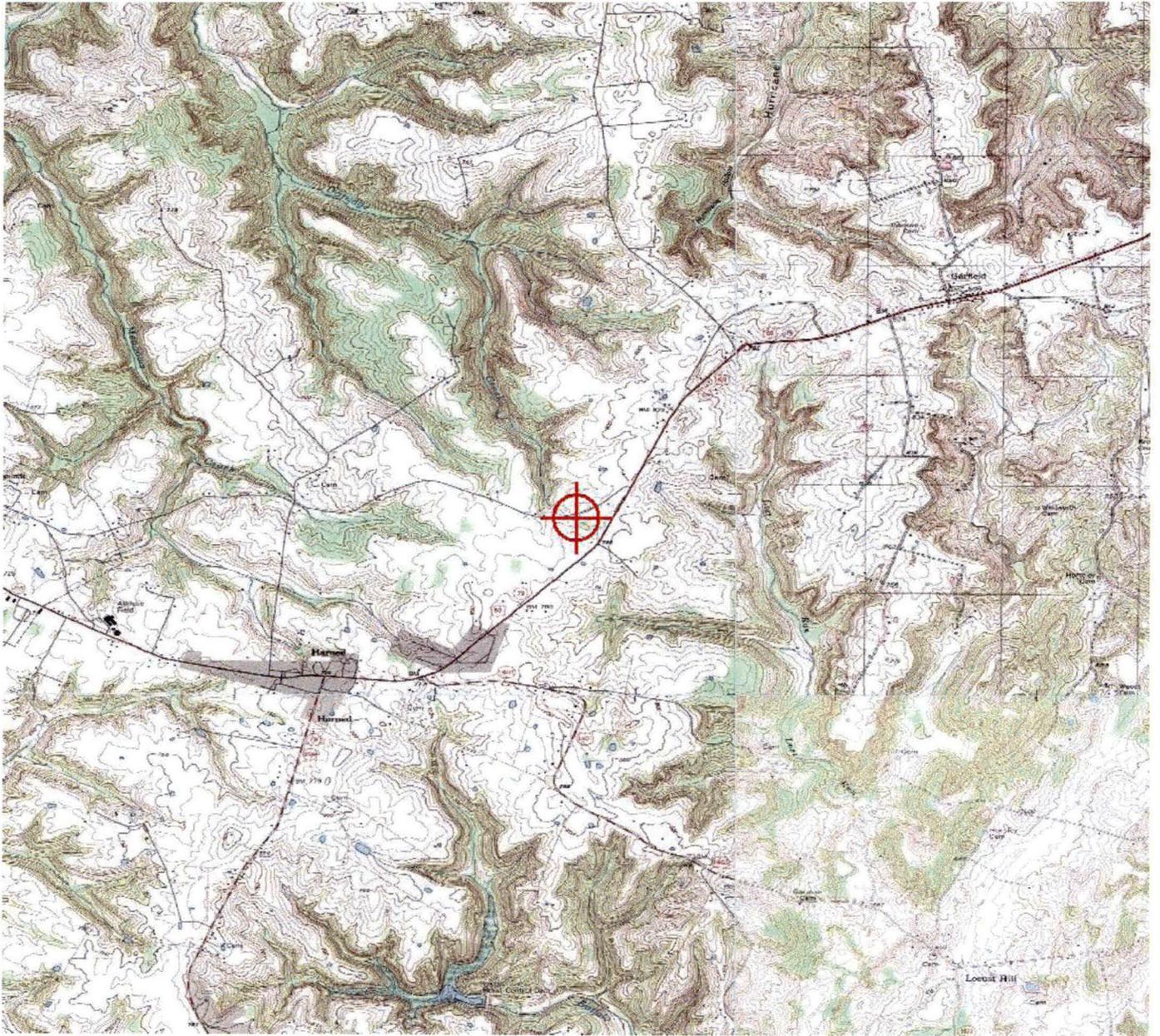


EXHIBIT F-1
KENTUCKY AIRPORT ZONING COMMISSION APPROVAL



KENTUCKY AIRPORT ZONING COMMISSION

MATTHEW BEVIN
Governor

421 Buttermilk Pike
Covington, KY 41017
www.transportation.ky.gov
859-341-2700

January 5, 2018

APPROVAL OF APPLICATION

APPLICANT:

John Monday
John Monday
3300 E. Renner Rd B3132
Richardson, TX 75082

SUBJECT: AS-014-193-2017-070

STRUCTURE: Antenna
LOCATION: Harned, KY
COORDINATES: 37° 45' 52.73" N / 86° 23' 17.94" W
HEIGHT: 199' AGL/980' AMSL

The Kentucky Airport Zoning Commission has approved your application for a permit to construct 199' AGL/ 980' AMSL Antenna near Harned, KY 37° 45' 52.73" N / 86° 23' 17.94" W.

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

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

Obstruction Marking/Lighting are not required.


John Houlihan
Administrator



An Equal Opportunity Employer M/F/D



KENTUCKY AIRPORT ZONING COMMISSION

MATTHEW BEVIN
Governor

421 Buttermilk Pike
Covington, KY 41017
www.transportation.ky.gov
859-341-2700

CONSTRUCTION/ALTERATION STATUS REPORT

January 5, 2018

AERONAUTICAL STUDY NUMBER: AS-014-193-2017-070

John Monday
John Monday
3300 E. Renner Rd B3132
Richardson, TX 75082

This concerns the permit which was issued to you by the Kentucky Airport Zoning Commission on January 5, 2018. This permit is valid for a period of 18 Month(s) from its date of issuance. If construction is not completed within the said 18-Month period, this permit shall lapse and be void, and no work shall be performed without the issuance of a new permit. When appropriate, please indicate the status of the project in the place below and return this letter to John Houlihan, Administrator, Kentucky Airport Zoning Commission, 421 Buttermilk Pike, Covington, KY, 41017. 859-341-2700.

STRUCTURE: Antenna
LOCATION: Harned, KY
COORDINATES: 37° 45' 52.73" N / 86° 23' 17.94" W
HEIGHT: 199' AGL /980' AMSL

CONSTRUCTION/ALTERATION STATUS

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



070

2017-078



KENTUCKY TRANSPORTATION CABINET
KENTUCKY AIRPORT ZONING COMMISSION

TC 55-2
Rev. 06/2016
Page 2 of 2

APPLICATION FOR PERMIT TO CONSTRUCT OR ALTER A STRUCTURE

APPLICANT (name) John Monday		PHONE 855-699-7073	FAX 972-907-1131	KY AERONAUTICAL STUDY # AS-014-183-2017-070	
ADDRESS (street) 3300 E. Renner Road, B3132		CITY Richardson		STATE TX	ZIP 75082
APPLICANT'S REPRESENTATIVE (name) Roy Johnson		PHONE 502-445-2475	FAX 502-222-4266		
ADDRESS (street) 3605 Mattingly Road		CITY Buckner		STATE KY	ZIP 40010
APPLICATION FOR <input checked="" type="checkbox"/> New Construction <input type="checkbox"/> Alteration <input type="checkbox"/> Existing				WORK SCHEDULE	
DURATION <input type="checkbox"/> Permanent <input type="checkbox"/> Temporary (months days)				Start End TBD	
TYPE <input type="checkbox"/> Crane <input type="checkbox"/> Building		MARKING/PAINTING/LIGHTING PREFERRED			
<input checked="" type="checkbox"/> Antenna Tower		<input type="checkbox"/> Red Lights & Paint <input type="checkbox"/> White- medium intensity <input type="checkbox"/> White- high intensity			
<input type="checkbox"/> Power Line <input type="checkbox"/> Water Tank		<input checked="" type="checkbox"/> Dual- red & medium intensity white <input type="checkbox"/> Dual- red & high intensity white			
<input type="checkbox"/> Landfill <input type="checkbox"/> Other		<input type="checkbox"/> Other			
LATITUDE 37° 45' 52.73 "		LONGITUDE 86° 23' 17.94 "		DATUM <input checked="" type="checkbox"/> NAD83 <input type="checkbox"/> NAD27	
<input type="checkbox"/> Other					
NEAREST KENTUCKY City ^{Harned} County Breckenridge			NEAREST KENTUCKY PUBLIC USE OR MILITARY AIRPORT Breckenridge County		
SITE ELEVATION (AMSL, feet) 781		TOTAL STRUCTURE HEIGHT (AGL, feet) 320 199 Serial 1-5-18		CURRENT (FAA aeronautical study #) Filed Concurrently	
OVERALL HEIGHT (site elevation plus total structure height, feet) 1101 980				PREVIOUS (FAA aeronautical study #)	
DISTANCE (from nearest Kentucky public use or Military airport to structure) 2.79 NM				PREVIOUS (KY aeronautical study #)	
DIRECTION (from nearest Kentucky public use or Military airport to structure) Southeast					
DESCRIPTION OF LOCATION (Attach USGS 7.5 minute quadrangle map or an airport layout drawing with the precise site marked and any certified survey.) 1A and Quad attached					
DESCRIPTION OF PROPOSAL AT&T proposes to construct a 305' cell tower with a 15' lightning rod for an overall height of 320'.					
FAA Form 7460-1 (Has the "Notice of Construction or Alteration" been filed with the Federal Aviation Administration?) <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes, when?					
CERTIFICATION (I hereby certify that all the above entries, made by me, are true, complete, and correct to the best of my knowledge and belief.)					
PENALTIES (Persons failing to comply with KRS 183.861 to 183.990 and 602 KAR 050 are liable for fines and/or imprisonment as set forth in KRS 183.990(3). Noncompliance with FAA regulations may result in further penalties.)					
NAME Michelle Ward	TITLE Sr. Real Estate Mgr.	SIGNATURE 		DATE 07/03/17	
COMMISSION ACTION					
<input type="checkbox"/> Chairperson, KAZC					
<input checked="" type="checkbox"/> Administrator, KAZC					
<input checked="" type="checkbox"/> Approved		SIGNATURE 		DATE 1-5-18	
<input type="checkbox"/> Disapproved					