

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

In the Matter of:

THE APPLICATION OF )  
NEW CINGULAR WIRELESS PCS, LLC )  
FOR ISSUANCE OF A CERTIFICATE OF PUBLIC ) CASE NO.: 2013-00423  
CONVENIENCE AND NECESSITY TO CONSTRUCT )  
A WIRELESS COMMUNICATIONS FACILITY )  
IN THE COMMONWEALTH OF KENTUCKY )  
IN THE COUNTY OF CLAY )

SITE NAME: CHOP BOTTOM

\*\*\*\*\*

**RECEIVED**

APR 24 2014

PUBLIC SERVICE  
COMMISSION

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

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

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

1. The complete name and address of the Applicant: New Cingular Wireless

PCS, LLC, a Delaware limited liability company, d/b/a AT&T Mobility, having a local address of 601 West Chestnut Street, Louisville, Kentucky 40203.

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

3. The Certificate of Authority filed with the Kentucky Secretary of State for the Applicant entity was attached to a prior application and is part of the case record for PSC case number 2011-00473 and is hereby incorporated by reference. AT&T Mobility is in good standing in the state in which it is organized and is authorized to transact business in Kentucky.

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

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

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

6. To address the above-described service needs, Applicant proposes to construct a WCF at 320 John D. Walker Road, Goose Rock, KY 40944 (37°06'05.35" North latitude, 83°42'17.59" West longitude), on a parcel of land located entirely within the county referenced in the caption of this application. The property on which the WCF will be located is owned by Randall and Rosemary Wagers pursuant to Deeds recorded at Deed Book 290, Page 291; Deed Book 268, Page 455; and Deed Book 291, Page 285 in the office of the Clay County Clerk. The proposed WCF will consist of a 255-foot tall tower, with an approximately 10-foot tall lightning arrestor attached at the top, for a total height of 265-feet. The WCF will also include concrete foundations and a shelter or cabinets to accommodate the placement of the Applicant's radio electronics equipment and appurtenant equipment. The Applicant's equipment cabinet or shelter will be approved for use in the Commonwealth of Kentucky by the relevant building inspector. The WCF compound will be fenced and all access gate(s) will be secured. A description of the manner in which the proposed WCF will be constructed is attached as **Exhibit B** and **Exhibit C**.

7. A list of utilities, corporations, or persons with whom the proposed WCF is likely to compete is attached as **Exhibit D**, along with a map of suitable scale showing the location of the proposed new construction as well as the location of any like facilities

located anywhere within the map area, along with a map key showing the owner of such other facilities.

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

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

10. Applicant has considered the likely effects of the installation of the proposed WCF on nearby land uses and values and has concluded that there is no more suitable location reasonably available from which adequate services can be provided, and that there are no reasonably available opportunities to co-locate Applicant's antennas on an existing structure. When suitable towers or structures exist, Applicant attempts to co-locate on existing structures such as communications towers or other structures capable of supporting Applicant's facilities; however, no other suitable or available co-location site was found to be located in the vicinity of the site. A report detailing Applicant's site selection process for the subject site (including documentation as to why co-location is not possible for this site) is attached as **Exhibit E**.

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

12. A copy of the application for Kentucky Airport Zoning Commission ("KAZC")

Approval to construct the tower is attached as **Exhibit G**.

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

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

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

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

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

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

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

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

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

22. Notice signs meeting the requirements prescribed by 807 KAR 5:063, Section

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

23. The general area where the proposed facility is to be located is rural. No residential structures are located within a 500-foot radius of the proposed tower location.

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

25. All Exhibits to this Application are hereby incorporated by reference as if fully

set out as part of the Application.

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

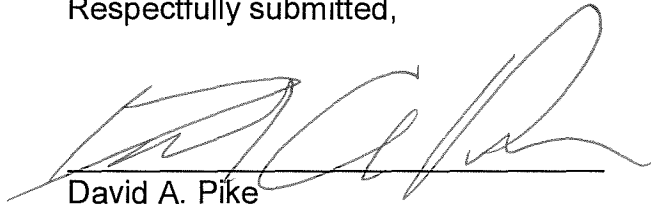
David A. Pike  
Pike Legal Group, PLLC  
1578 Highway 44 East, Suite 6  
P. O. Box 369  
Shepherdsville, KY 40165-0369  
Telephone: (502) 955-4400  
Telefax: (502) 543-4410  
Email: [dpike@pikelegal.com](mailto:dpike@pikelegal.com)

Patrick W. Turner  
General Attorney-Kentucky  
AT&T Kentucky  
1600 Williams Street  
Suite 5200  
Columbia, South Carolina 29201  
Telephone: (803) 401-2900  
Telefax: (803) 254-1731  
Email: [pt1285@att.com](mailto:pt1285@att.com)



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

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'D. A. Pike', written over a horizontal line.

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](mailto:dpike@pikelegal.com)  
Attorney for New Cingular Wireless PCS, LLC  
d/b/a AT&T Mobility

## LIST OF EXHIBITS

- A - FCC License Documentation
- B - Site Development Plan:
  - 500' Vicinity Map
  - Legal Descriptions
  - Flood Plain Certification
  - Site Plan
  - Vertical Tower Profile
- C - Tower and Foundation Design
- D - Competing Utilities, Corporations, or Persons List and Map of Like Facilities in Vicinity
- E - Co-location Report
- F - FAA
- G - Kentucky Airport Zoning Commission
- H - Geotechnical Report
- I - Directions to WCF Site
- J - Copy of Real Estate Agreement
- K - Notification Listing
- L - Copy of Property Owner Notification
- M - Copy of County Judge/Executive Notice
- N - Copy of Posted Notices
- O - Copy of Radio Frequency Design Search Area



**EXHIBIT A**  
**FCC LICENSE DOCUMENTATION**

ULS License

# Cellular License - KNKN673 - NEW CINGULAR WIRELESS PCS, LLC

Call Sign	KNKN673	Radio Service	CL - Cellular
Status	Active	Auth Type	Regular

**Market**

Market	CMA453 - Kentucky 11 - Clay	Channel Block	A
Submarket	0	Phase	2

**Dates**

Grant	08/30/2011	Expiration	10/01/2021
Effective	08/01/2013	Cancellation	

**Five Year Buildout Date**

11/29/1996

**Control Points**

**1**            1650 LYNDON FARMS COURT, LOUISVILLE, KY  
P: (502)329-4700

**Licensee**

FRN	0003291192	Type	Limited Liability Company
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**Licensee**

NEW CINGULAR WIRELESS PCS, LLC 2200 N. Greenville Ave, 1W Richardson, TX 75082 ATTN Reginald Youngblood	P:(972)234-7003 F:(972)301-6893 E:FCCMW@att.com
--	---

**Contact**

AT&T MOBILITY LLC MICHAEL P GOGGIN 1120 20th Street, NW - Sulte 1000 WASHINGTON, DC 20036 ATTN Michael P. Goggin	P:(202)457-2055 F:(202)457-3073 E:michael.p.goggin@att.com
--	--

**Ownership and Qualifications**

Radio Service Type	Mobile
Regulatory Status	Common Carrier    Interconnected    Yes

**Alien Ownership**

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

**Basic Qualifications**

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

**Demographics**

Race		Gender	
Ethnicity			

ULS License

# PCS Broadband License - KNLF251 - New Cingular Wireless PCS, LLC

Call Sign	KNLF251	Radio Service	CW - PCS Broadband
Status	Active	Auth Type	Regular

### Market

Market	MTA026 - Louisville-Lexington-Evansvill	Channel Block	A
Submarket	15	Associated Frequencies (MHz)	001850.00000000-001865.00000000-001930.00000000-001945.00000000

### Dates

Grant	07/07/2005	Expiration	06/23/2015
Effective	11/24/2012	Cancellation	

### Buildout Deadlines

1st	06/23/2000	2nd	06/23/2005
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### Notification Dates

1st	07/07/2000	2nd	02/18/2005
-----	------------	-----	------------

### Licensee

FRN	0003291192	Type	Corporation
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### Licensee

New Cingular Wireless PCS, LLC 2200 N. Greenville Ave, 1W Richardson, TX 75082 ATTN Reginald Youngblood	P:(972)234-7003 F:(972)301-6893 E:FCCMW@att.com
--	---

### Contact

AT&T Mobility LLC Michael P Goggin 1120 20th Street, NW - Suite 1000 Washington, DC 20036 ATTN Michael P. Goggin	P:(202)457-2055 F:(202)457-3073 E:michael.p.goggin@att.com
--	--

### Ownership and Qualifications

Radio Service Type Mobile

Regulatory Status Common Carrier Interconnected Yes

### Alien Ownership

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

### Basic Qualifications

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

### Tribal Land Bidding Credits

This license did not have tribal land bidding credits.

ULS License

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

Call Sign	WPOI255	Radio Service	CW - PCS Broadband
Status	Active	Auth Type	Regular
<b>Market</b>			
Market	MTA026 - Louisville-Lexington-Evansvill	Channel Block	A
Submarket	19	Associated Frequencies (MHz)	001850.00000000-001865.00000000-001930.00000000-001945.00000000
<b>Dates</b>			
Grant	07/07/2005	Expiration	06/23/2015
Effective	11/24/2012	Cancellation	
<b>Buildout Deadlines</b>			
1st	06/23/2000	2nd	06/23/2005
<b>Notification Dates</b>			
1st	07/07/2000	2nd	02/17/2005
<b>Licensee</b>			
FRN	0003291192	Type	Limited Liability Company
<b>Licensee</b>			
NEW CINGULAR WIRELESS PCS, LLC 2200 N. Greenville Ave, 1W Richardson, TX 75082 ATTN Reginald Youngblood		P:(972)234-7003 F:(972)301-6893 E:FCCMW@att.com	

**Contact**

AT&T MOBILITY LLC Michael P Goggin 1120 20th Street, NW - Suite 1000 Washington, DC 20036 ATTN Michael P. Goggin	P:(202)457-2055 F:(202)457-3073 E:michael.p.goggin@att.com
--	--

**Ownership and Qualifications**

Radio Service Type Mobile

Regulatory Status Common Carrier Interconnected Yes

**Alien Ownership**

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

**Basic Qualifications**

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

**Tribal Land Bidding Credits**

This license did not have tribal land bidding credits.

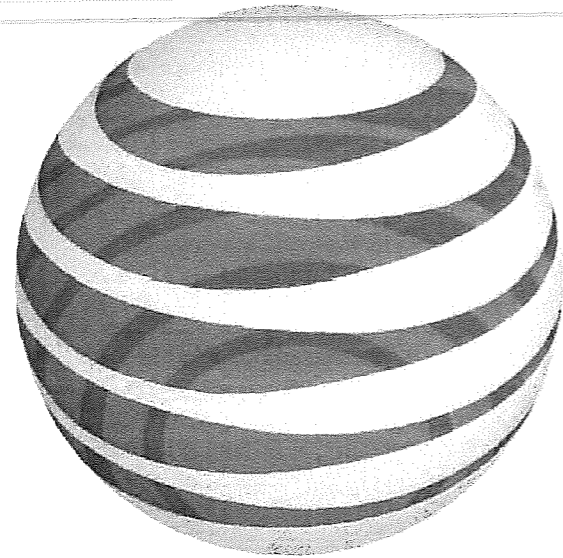




**EXHIBIT B**

**SITE DEVELOPMENT PLAN:**

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



# at&t

SITE NAME:

SITE NUMBER

## CHOP BOTTOM KYALU6152

PROPOSED RAWLAND SITE WITH NEW  
255 FT SELF SUPPORT TOWER  
WITH A 10' LIGHTNING ARRESTOR

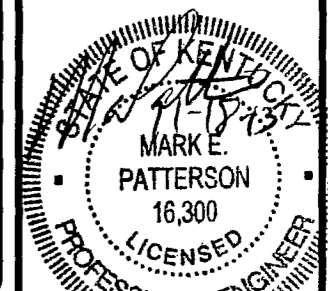


Know what's below.  
Call before you dig.

SHEET INDEX	
T-1	TITLE SHEET
SURVEY:	
B-1	SITE SURVEY
B-2	500' RADIUS & ABUTTER'S MAP
B-3	500' RADIUS & ABUTTER'S MAP (CONT'D)
B-4	500' RADIUS & ABUTTER'S MAP (CONT'D)
CIVIL:	
C-1	OVERALL SITE LAYOUT
C-2	DISTANCES LAYOUT
C-3	DISTANCES LAYOUT (CONT'D)
C-4	ENLARGED COMPOUND LAYOUT
C-5	TOWER ELEVATION

CONTACT INFORMATION	
FIRE DEPARTMENT MANCHESTER CENTRAL FIRE DEPT PHONE: (603) 669-2256	
POLICE DEPARTMENT CLAY COUNTY SHERIFF DEPARTMENT PHONE: (606) 598-3471	
ELECTRIC COMPANY JACKSON ENERGY COOP PHONE: (606) 364-1000	
TELEPHONE COMPANY WINDSTREAM KENTUCKY EAST PHONE: (501) 748-7000	

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	
2012 IBC	
2011 NEC	
FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN.	



ZONING DRAWING

REV.	DATE	DESCRIPTION
A	09.03.13	ADDED E911 ADDRESS
B	09.24.13	DISTANCES
0	11.18.13	ISSUED AS FINAL

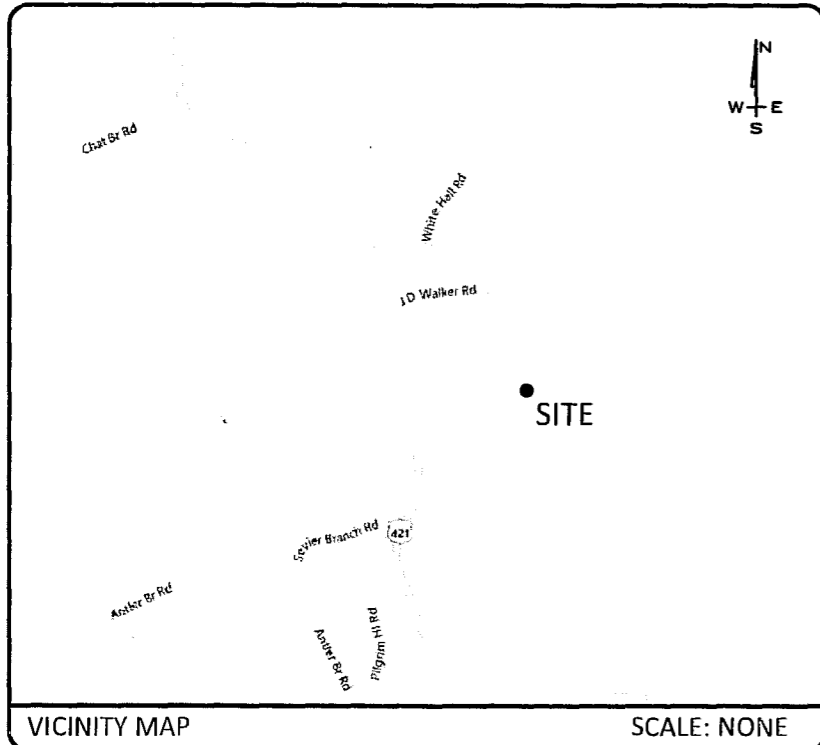
SITE INFORMATION:  
**CHOP BOTTOM**  
320 JOHN D WALKER RD  
GOOSE ROCK, KY 40944

SITE NUMBER:  
KYALU6152

POO NUMBER: 13-0684  
DRAWN BY: CMO  
CHECKED BY: MEP  
DATE: 08.29.13

SHEET TITLE:  
**TITLE SHEET AND PROJECT INFORMATION**

SHEET NUMBER:  
**T-1**

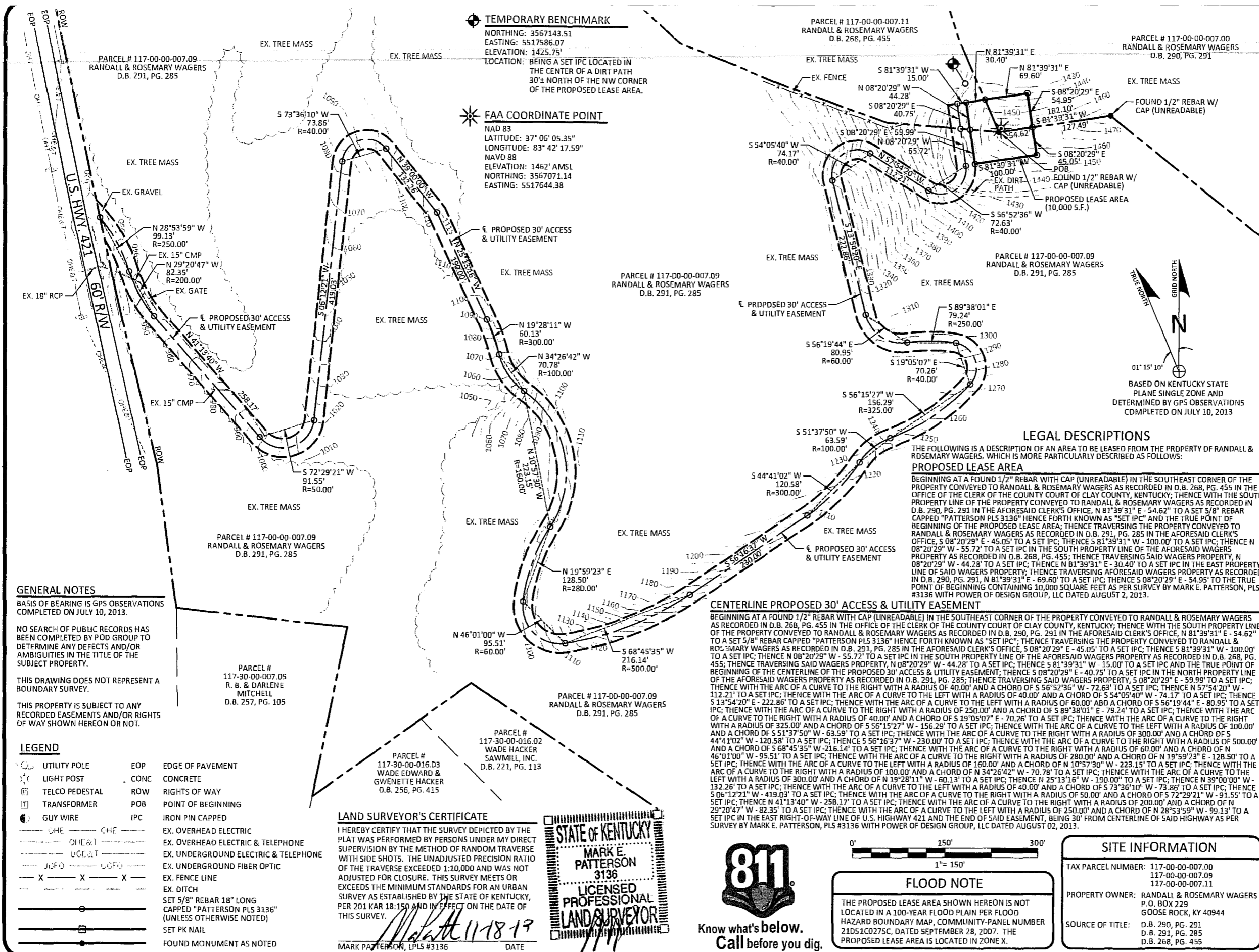


DRIVE DIRECTIONS	
FROM CLAY FISCAL COURT, 316 MAIN ST, MANCHESTER, KY 40962:	
DEPART KY-2440 / MAIN ST TOWARD LANGDON	0.2 MILES
BEAR LEFT ONTO US-421	0.8 MILES
BEAR RIGHT ONTO US-421 S	0.3 MILES
TURN LEFT ONTO US-421	4.5 MILES
ARRIVE AT JOHN D WALKER RD, GOOSE ROCK, KY 40944, SITE ON LEFT	

SCOPE OF WORK:	
CONSTRUCTION DRAWINGS FOR: CONSTRUCTION OF A NEW UNMANNED TELECOMMUNICATIONS FACILITY.	
SITE WORK: NEW SELF SUPPORT TOWER, UNMANNED EQUIPMENT SHELTER ON A CONCRETE FOUNDATION, AND UTILITY INSTALLATIONS.	

PROJECT INFORMATION	
COUNTY:	CLAY
SITE ADDRESS:	320 JOHN D WALKER ROAD GOOSE ROCK, KY 40944
APPLICANT:	AT&T 601 WEST CHESTNUT STREET LOUISVILLE, KY 40203
LATITUDE:	37° 06' 05.35"
LONGITUDE:	-83° 42' 17.59"
ELEV:	1727± AMSL

DEPARTMENT	NAME / SIGNATURE	DATE
LAND/TOWER OWNER		
SITE ACQUISITION AGENT		
ZONING/PERMITTING AGENT		
A&E MANAGER		
CONSTRUCTION MANAGER		
RF ENGINEER		



**TEMPORARY BENCHMARK**  
 NORTHING: 3567143.51  
 EASTING: 5517586.07  
 ELEVATION: 1425.75'  
 LOCATION: BEING A SET IPC LOCATED IN THE CENTER OF A DIRT PATH 30'± NORTH OF THE NW CORNER OF THE PROPOSED LEASE AREA.

**FAA COORDINATE POINT**  
 NAD 83  
 LATITUDE: 37° 06' 05.35"  
 LONGITUDE: 83° 42' 17.59"  
 NAVD 88  
 ELEVATION: 1462' AMSL  
 NORTHING: 3567071.14  
 EASTING: 5517644.38

01° 15' 10"  
 TRUENORTH  
 GRID NORTH  
 N  
 BASED ON KENTUCKY STATE PLANE SINGLE ZONE AND DETERMINED BY GPS OBSERVATIONS COMPLETED ON JULY 10, 2013

**LEGAL DESCRIPTIONS**  
 THE FOLLOWING IS A DESCRIPTION OF AN AREA TO BE LEASED FROM THE PROPERTY OF RANDALL & ROSEMARY WAGERS, WHICH IS MORE PARTICULARLY DESCRIBED AS FOLLOWS:  
**PROPOSED LEASE AREA**  
 BEGINNING AT A FOUND 1/2" REBAR WITH CAP (UNREADABLE) IN THE SOUTHEAST CORNER OF THE PROPERTY CONVEYED TO RANDALL & ROSEMARY WAGERS AS RECORDED IN D.B. 268, PG. 455 IN THE OFFICE OF THE CLERK OF THE COUNTY COURT OF CLAY COUNTY, KENTUCKY; THENCE WITH THE SOUTH PROPERTY LINE OF THE PROPERTY CONVEYED TO RANDALL & ROSEMARY WAGERS AS RECORDED IN D.B. 290, PG. 291 IN THE AFORESAID CLERK'S OFFICE, N 81°39'31" E - 54.62' TO A SET 5/8" REBAR CAPPED "PATTERSON PLS 3136" HENCE FORTH KNOWN AS "SET IPC"; AND THE TRUE POINT OF BEGINNING OF THE PROPOSED LEASE AREA; THENCE TRAVERSING THE PROPERTY CONVEYED TO RANDALL & ROSEMARY WAGERS AS RECORDED IN D.B. 291, PG. 285 IN THE AFORESAID CLERK'S OFFICE, S 08°20'29" E - 45.05' TO A SET IPC; THENCE S 81°39'31" W - 100.00' TO A SET IPC; THENCE N 08°20'29" W - 55.72' TO A SET IPC IN THE SOUTH PROPERTY LINE OF THE AFORESAID WAGERS PROPERTY AS RECORDED IN D.B. 268, PG. 455; THENCE TRAVERSING SAID WAGERS PROPERTY, N 08°20'29" W - 44.28' TO A SET IPC; THENCE N 81°39'31" E - 30.40' TO A SET IPC IN THE EAST PROPERTY LINE OF SAID WAGERS PROPERTY; THENCE TRAVERSING AFORESAID WAGERS PROPERTY AS RECORDED IN D.B. 290, PG. 291, N 81°39'31" E - 69.60' TO A SET IPC; THENCE S 08°20'29" E - 54.95' TO THE TRUE POINT OF BEGINNING CONTAINING 30,000 SQUARE FEET AS PER SURVEY BY MARK E. PATTERSON, PLS #3136 WITH POWER OF DESIGN GROUP, LLC DATED AUGUST 2, 2013.

**CENTERLINE PROPOSED 30' ACCESS & UTILITY EASEMENT**  
 BEGINNING AT A FOUND 1/2" REBAR WITH CAP (UNREADABLE) IN THE SOUTHEAST CORNER OF THE PROPERTY CONVEYED TO RANDALL & ROSEMARY WAGERS AS RECORDED IN D.B. 268, PG. 455 IN THE OFFICE OF THE CLERK OF THE COUNTY COURT OF CLAY COUNTY, KENTUCKY; THENCE WITH THE SOUTH PROPERTY LINE OF THE PROPERTY CONVEYED TO RANDALL & ROSEMARY WAGERS AS RECORDED IN D.B. 290, PG. 291 IN THE AFORESAID CLERK'S OFFICE, N 81°39'31" E - 54.62' TO A SET 5/8" REBAR CAPPED "PATTERSON PLS 3136" HENCE FORTH KNOWN AS "SET IPC"; THENCE TRAVERSING THE PROPERTY CONVEYED TO RANDALL & ROSEMARY WAGERS AS RECORDED IN D.B. 291, PG. 285 IN THE AFORESAID CLERK'S OFFICE, S 08°20'29" E - 45.05' TO A SET IPC; THENCE S 81°39'31" W - 100.00' TO A SET IPC; THENCE N 08°20'29" W - 55.72' TO A SET IPC IN THE SOUTH PROPERTY LINE OF THE AFORESAID WAGERS PROPERTY AS RECORDED IN D.B. 268, PG. 455; THENCE TRAVERSING SAID WAGERS PROPERTY, N 08°20'29" W - 44.28' TO A SET IPC; THENCE N 81°39'31" E - 30.40' TO A SET IPC IN THE EAST PROPERTY LINE OF SAID WAGERS PROPERTY; THENCE TRAVERSING AFORESAID WAGERS PROPERTY AS RECORDED IN D.B. 290, PG. 291, N 81°39'31" E - 69.60' TO A SET IPC; THENCE S 08°20'29" E - 54.95' TO THE TRUE POINT OF BEGINNING CONTAINING 30,000 SQUARE FEET AS PER SURVEY BY MARK E. PATTERSON, PLS #3136 WITH POWER OF DESIGN GROUP, LLC DATED AUGUST 2, 2013.

**GENERAL NOTES**  
 BASIS OF BEARING IS GPS OBSERVATIONS COMPLETED ON JULY 10, 2013.  
 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 DRAWING DOES NOT REPRESENT A BOUNDARY SURVEY.  
 THIS PROPERTY IS SUBJECT TO ANY RECORDED EASEMENTS AND/OR RIGHTS OF WAY SHOWN HEREON OR NOT.

- LEGEND**
- UTILITY POLE
  - LIGHT POST
  - TELCO PEDESTAL
  - TRANSFORMER
  - GUY WIRE
  - EX. OVERHEAD ELECTRIC
  - EX. OVERHEAD ELECTRIC & TELEPHONE
  - EX. UNDERGROUND ELECTRIC & TELEPHONE
  - EX. UNDERGROUND FIBER OPTIC
  - EX. FENCE LINE
  - EX. DITCH
  - SET 5/8" REBAR 18" LONG CAPPED "PATTERSON PLS 3136" (UNLESS OTHERWISE NOTED)
  - SET PK NAIL
  - FOUND MONUMENT AS NOTED
  - EOP EDGE OF PAVEMENT
  - CONC CONCRETE
  - ROW RIGHTS OF WAY
  - POB POINT OF BEGINNING
  - IPC IRON PIN CAPPED
  - EX. OVERHEAD ELECTRIC
  - EX. OVERHEAD ELECTRIC & TELEPHONE
  - EX. UNDERGROUND ELECTRIC & TELEPHONE
  - EX. UNDERGROUND FIBER OPTIC
  - EX. FENCE LINE
  - EX. DITCH
  - SET 5/8" REBAR 18" LONG CAPPED "PATTERSON PLS 3136" (UNLESS OTHERWISE NOTED)
  - SET PK NAIL
  - FOUND MONUMENT AS NOTED

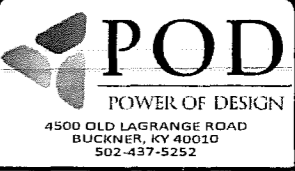
**LAND SURVEYOR'S CERTIFICATE**  
 I HEREBY CERTIFY THAT THE SURVEY DEPICTED BY THE PLAT WAS PERFORMED BY PERSONS UNDER MY DIRECT SUPERVISION BY THE METHOD OF RANDOM TRAVERSE WITH SIDE SHOTS. THE UNADJUSTED PRECISION RATIO OF THE TRAVERSE EXCEEDED 1:10,000 AND WAS NOT ADJUSTED FOR CLOSURE. THIS SURVEY MEETS OR EXCEEDS THE MINIMUM STANDARDS FOR AN URBAN SURVEY AS ESTABLISHED BY THE STATE OF KENTUCKY, PER 201 KAR 18:150 AND IN EFFECT ON THE DATE OF THIS SURVEY.  
 DATE: 11/18/13  
 MARK PATTERSON, PLS #3136



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

**FLOOD NOTE**  
 THE PROPOSED LEASE AREA SHOWN HEREON IS NOT LOCATED IN A 100-YEAR FLOOD PLAIN PER FLOOD HAZARD BOUNDARY MAP, COMMUNITY-PANEL NUMBER 21D51C0275C, DATED SEPTEMBER 28, 2007. THE PROPOSED LEASE AREA IS LOCATED IN ZONE X.

**SITE INFORMATION**  
 TAX PARCEL NUMBER: 117-00-00-007.00  
 117-00-00-007.09  
 117-00-00-007.11  
 PROPERTY OWNER: RANDALL & ROSEMARY WAGERS  
 P.O. BOX 229  
 GOOSE ROCK, KY 40944  
 SOURCE OF TITLE: D.B. 290, PG. 291  
 D.B. 291, PG. 285  
 D.B. 268, PG. 455



**SURVEY**

REV.	DATE	DESCRIPTION
A	09.03.13	ADDED E911 ADDRESS

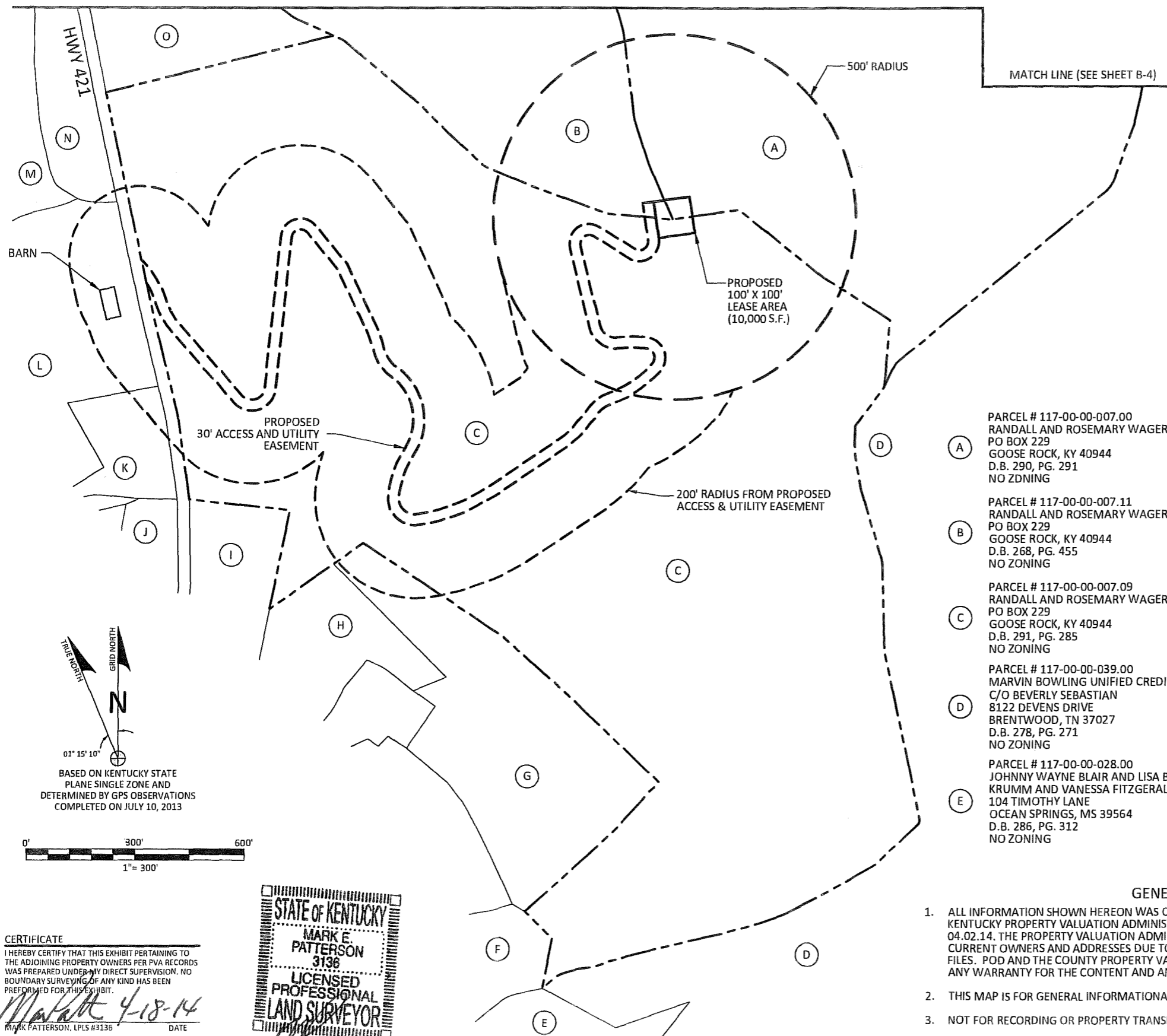
**SITE INFORMATION:**  
**CHOP BOTTOM**  
 320 JOHN D. WALKER ROAD  
 GOOSE ROCK, KY 40944

**SITE NUMBER:**  
 KYALU6152  
**POD NUMBER:** 13-0682  
**DRAWN BY:** DSR  
**CHECKED BY:** MEP  
**DATE:** 08.02.13

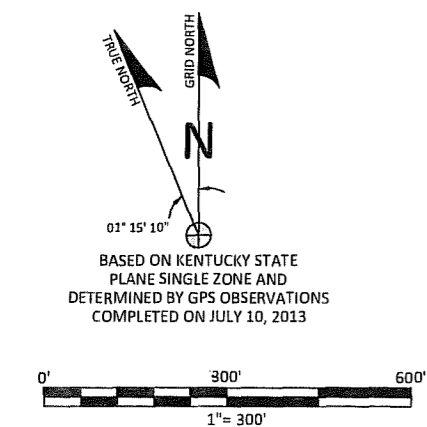
**SHEET TITLE:**  
**SITE SURVEY**  
**SHEET NUMBER:**  
 B-1

MATCH LINE (SEE SHEET B-3)

MATCH LINE (SEE SHEET B-4)

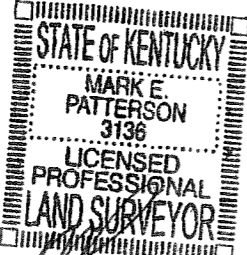


- (F) PARCEL # 117-30-00-026.00  
JIMMY DARRELL HAYRE AND  
DIANA HAYRE  
6211 S HWY 421  
MANCHESTER, KY 40962  
D.B. 226, PG. 001  
NO ZONING
- (G) PARCEL # 117-30-00-016.02  
WADE HACKER SAWMILL INC  
156 WADE HACKER ROAD  
MANCHESTER, KY 40962  
D.B. 221, PG. 113  
NO ZONING
- (H) PARCEL # 117-30-00-016.03  
WADE EDWARD AND  
GWENETTE HACKER  
135 WADE HACKER ROAD  
MANCHESTER, KY 40962  
D.B. 256, PG. 415  
NO ZONING
- (I) PARCEL # 117-30-00-007.05  
R B AND DARLENE MITCHELL  
5963 S HWY 421  
MANCHESTER, KY 40962  
D.B. 257, PG. 105  
NO ZONING
- (J) PARCEL # 117-30-00-007.01  
ALAN S AND ELLA SMITH  
1415 HIGHWAY 1524  
MANCHESTER, KY 40962  
D.B. 266, PG. 246  
NO ZONING
- (K) PARCEL # 117-30-00-007.03  
GLENN WOMBLES  
5900 S HWY 421  
MANCHESTER, KY 40962  
D.B. 274, PG. 567  
NO ZONING
- (L) PARCEL # 117-30-00-007.12  
GLENN WOMBLES  
5900 S HWY 421  
MANCHESTER, KY 40962  
D.B. 274, PG. 081  
NO ZONING
- (M) PARCEL # 117-00-00-007.12  
LAUREN AND MIRIAM RUDOLPH  
174 HWY 1524  
MANCHESTER, KY 40962  
D.B. 288, PG. 240  
NO ZONING
- (N) PARCEL # 117-00-00-008.00  
PAULINE SMITH GRAY  
5700 S HWY 421  
MANCHESTER, KY 40962  
D.B. 125, PG. 421  
NO ZONING
- (O) PARCEL # 117-00-00-007.08  
CURTIS MCKIDDY  
PO BOX 225  
GOOSE ROCK, KY 40944  
D.B. 251, PG. 381  
NO ZONING
- (A) PARCEL # 117-00-00-007.00  
RANDALL AND ROSEMARY WAGERS  
PO BOX 229  
GOOSE ROCK, KY 40944  
D.B. 290, PG. 291  
NO ZONING
- (B) PARCEL # 117-00-00-007.11  
RANDALL AND ROSEMARY WAGERS  
PO BOX 229  
GOOSE ROCK, KY 40944  
D.B. 268, PG. 455  
NO ZONING
- (C) PARCEL # 117-00-00-007.09  
RANDALL AND ROSEMARY WAGERS  
PO BOX 229  
GOOSE ROCK, KY 40944  
D.B. 291, PG. 285  
NO ZONING
- (D) PARCEL # 117-00-00-039.00  
MARVIN BOWLING UNIFIED CREDIT TRUST  
C/O BEVERLY SEBASTIAN  
8122 DEVENS DRIVE  
BRENTWOOD, TN 37027  
D.B. 278, PG. 271  
NO ZONING
- (E) PARCEL # 117-00-00-028.00  
JOHNNY WAYNE BLAIR AND LISA BLAIR  
KRUMM AND VANESSA FITZGERALD  
104 TIMOTHY LANE  
OCEAN SPRINGS, MS 39564  
D.B. 286, PG. 312  
NO ZONING



BASED ON KENTUCKY STATE  
PLANE SINGLE ZONE AND  
DETERMINED BY GPS OBSERVATIONS  
COMPLETED ON JULY 10, 2013

**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 E. Patterson* 4-18-14  
MARK PATTERSON, LPLS #3136 DATE



**GENERAL NOTE:**

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**EXHIBIT**

REV.	DATE	DESCRIPTION
A	09.03.13	ADDED E911 ADDRESS
B	04.17.14	UPDATED PVA

**SITE INFORMATION:**  
**CHOP BOTTOM**  
320 JOHN D WALKER ROAD  
GOOSE RDCK, KY 40944

**SITE NUMBER:**  
KYALU6152

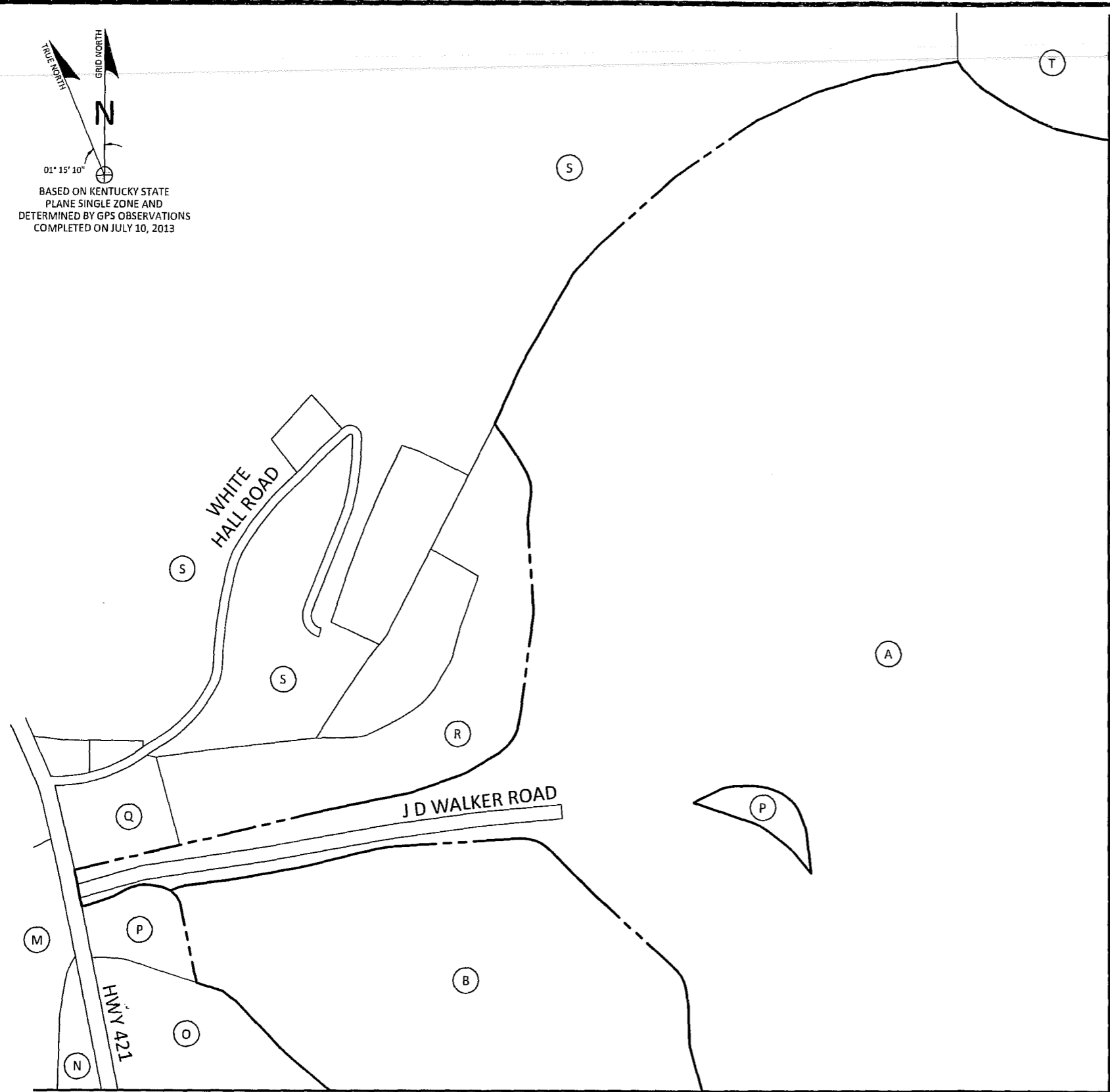
**POD NUMBER:** 13-0683

**DRAWN BY:** CSA  
**CHECKED BY:** MEP  
**DATE:** 08.29.13

**SHEET TITLE:**  
**500' RADIUS  
AND ABUTTER'S  
MAP**

**SHEET NUMBER:**  
**B-2**

TRUE NORTH  
 GRID NORTH  
 N  
 01' 15" 10"  
 BASED ON KENTUCKY STATE  
 PLANE SINGLE ZONE AND  
 DETERMINED BY GPS OBSERVATIONS  
 COMPLETED ON JULY 10, 2013



- (A) PARCEL # 117-00-00-007.00  
RANDALL AND ROSEMARY WAGERS  
PO BOX 229  
GOOSE ROCK, KY 40944  
D.B. 290, PG. 291  
NO ZONING
- (B) PARCEL # 117-00-00-007.11  
RANDALL AND ROSEMARY WAGERS  
PO BOX 229  
GOOSE ROCK, KY 40944  
D.B. 268, PG. 455  
NO ZONING
- (M) PARCEL # 117-00-00-007.12  
LAUREN AND MIRIAM RUDOLPH  
174 HWY 1524  
MANCHESTER, KY 40962  
D.B. 288, PG. 240  
NO ZONING
- (N) PARCEL # 117-00-00-008.00  
PAULINE SMITH GRAY  
5700 S HWY 421  
MANCHESTER, KY 40962  
D.B. 125, PG. 421  
NO ZONING
- (O) PARCEL # 117-00-00-007.08  
CURTIS MCKIDDY  
PO BOX 225  
GOOSE ROCK, KY 40944  
D.B. 251, PG. 381  
NO ZONING
- (P) PARCEL # 117-00-00-007.13  
MARION P AND ASHLEY SPURLOCK  
PO BOX 1240  
MANCHESTER, KY 40962  
D.B. 295, PG. 308  
NO ZONING
- (Q) PARCEL # 117-00-00-007.10  
FELICIA NICOLE MATHIS  
389 SESTER HOLLOW ROAD  
MANCHESTER, KY 40962  
D.B. 304, PG. 674  
NO ZONING
- (R) PARCEL # 117-00-00-007.14  
MELISSA AND FELICIA NICOLE MATHIS AND  
ALEXANDRIA J MATHIS  
389 SESTER HOLLOW ROAD  
MANCHESTER, KY 40962  
W.B. 22, PG. 71  
NO ZONING
- (S) PARCEL # 116-00-00-090.00  
FRANCES JANE WEBB AND PATRICIA COLLINS  
532 WHITE HALL ROAD  
MANCHESTER, KY 40962  
D.B. 268, PG. 381  
NO ZONING
- (T) PARCEL # 134-00-00-009.01  
DEBORAH KAYE JACKSON  
356 BELLES FORK ROAD  
MANCHESTER, KY 40962  
D.B. 267, PG. 189  
NO ZONING

MATCH LINE (SEE SHEET B-4)



**EXHIBIT**

REV.	DATE	DESCRIPTION
A	09.03.13	ADDED E911 ADDRESS
B	04.17.14	UPDATED PVA

**SITE INFORMATION:**

**CHOP BOTTOM**  
  
320 JOHN D WALKER ROAD  
GOOSE ROCK, KY 40944

SITE NUMBER:  
KYALU6152

POD NUMBER: 13-0683  
DRAWN BY: CSA  
CHECKED BY: MEP  
DATE: 08.29.13

**SHEET TITLE:**

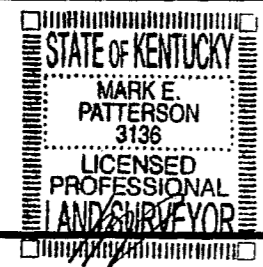
**500' RADIUS  
AND ABUTTER'S  
MAP**

SHEET NUMBER:  
**B-3**

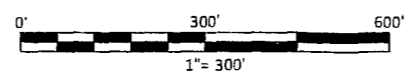
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**CERTIFICATE**  
I HEREBY CERTIFY THAT THIS EXHIBIT PERTAINING TO THE ADJOINING PROPERTY OWNERS PER PVA RECORDS WAS PREPARED UNDER MY DIRECT SUPERVISION. NO BOUNDARY SURVEYING OF ANY KIND HAS BEEN PERFORMED FOR THIS EXHIBIT.  
*Mark E. Patterson* 8-18-14  
MARK E. PATTERSON, LPLS #3136 DATE



MATCH LINE (SEE SHEET B-2)



MATCH LINE (FIGURE B)

PARCEL # 117-00-00-007.00  
RANDALL AND ROSEMARY WAGERS  
PO BOX 229  
GOOSE ROCK, KY 40944  
D.B. 290, PG. 291  
NO ZONING

(A)

PARCEL # 117-00-00-039.00  
MARVIN BOWLING UNIFIED CREDIT TRUST  
C/O BEVERLY SEBASTIAN  
8122 DEVENS DRIVE  
BRENTWOOD, TN 37027  
D.B. 278, PG. 271  
NO ZONING

(D)

PARCEL # 134-00-00-009.01  
DEBORAH KAYE JACKSON  
356 BELLES FORK ROAD  
MANCHESTER, KY 40962  
D.B. 267, PG. 189  
NO ZONING

(T)

PARCEL # 134-00-00-009.00  
RANDALL AND ROSEMARY WAGERS  
232 JOHN D WALKER ROAD  
MANCHESTER, KY 40962  
D.B. 296, PG. 182  
NO ZONING

(U)

PARCEL # 117-00-00-005.01  
ORVILLE AND SHEILA MITCHELL  
692 ROCKY BRANCH ROAD  
MANCHESTER, KY 40962  
D.B. 236, PG. 22  
NO ZONING

(V)

01° 15' 10"  
TRUE NORTH  
GRID NORTH  
N  
BASED ON KENTUCKY STATE  
PLANE SINGLE ZONE AND  
DETERMINED BY GPS OBSERVATIONS  
COMPLETED ON JULY 10, 2013



EXHIBIT

REV.	DATE	DESCRIPTION
A	09.03.13	ADDED E911 ADDRESS
B	04.17.14	UPDATED PVA

SITE INFORMATION:

CHOP BOTTOM

320 JOHN D WALKER ROAD  
GOOSE ROCK, KY 40944

SITE NUMBER:  
KYALU6152

POD NUMBER: 13-0683

DRAWN BY: CSA  
CHECKED BY: MEP  
DATE: 08.29.13

SHEET TITLE:

500' RADIUS  
AND ABUTTER'S  
MAP

SHEET NUMBER:  
B-4

MATCH LINE (SEE SHEET B-3)

(A)

(T)

(U)

(V)

(D)

(D)

(T)

(U)

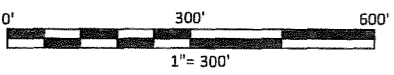
(V)

FIGURE B

MATCH LINE (FIGURE A)

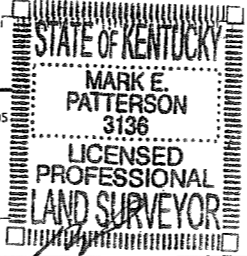
FIGURE A

MATCH LINE (SEE SHEET B-2)



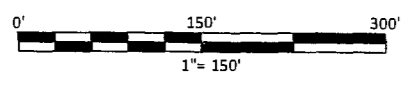
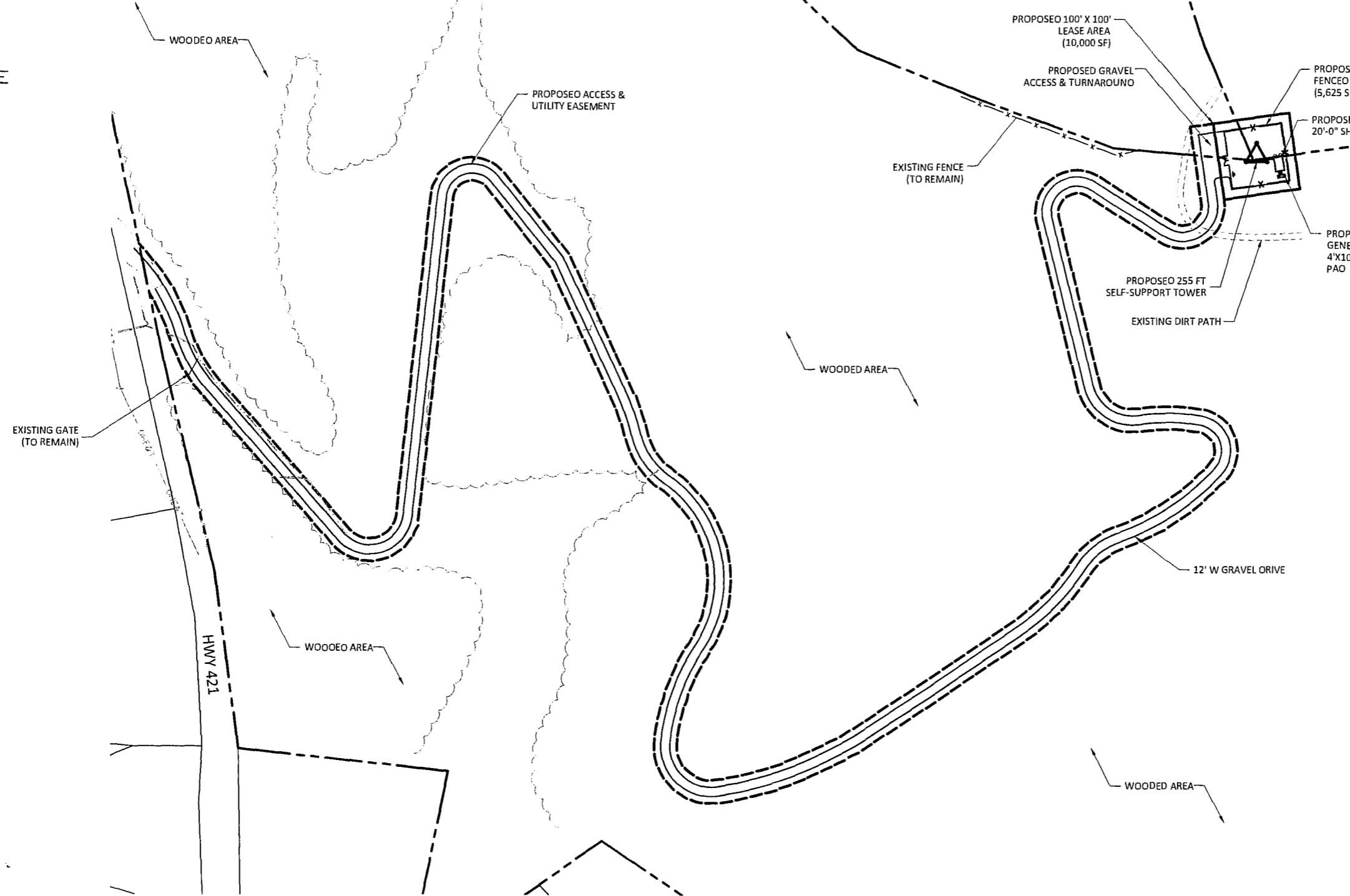
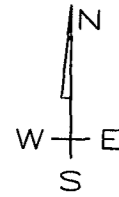
CERTIFICATE  
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THE ADJOINING PROPERTY OWNERS PER PVA RECORDS  
WAS PREPARED UNDER MY DIRECT SUPERVISION. NO  
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PERFORMED FOR THIS EXHIBIT.

*Mark Patterson* 4-18-14  
MARK PATTERSON, LPLS #3136 DATE



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(P) LEASE LINE	—————
(P) ELECTRIC	— E — E — E —
(P) TELEPHONE	— T — T — T —
(P) FENCE	— X — X — X —
(E) PROPERTY LINE	—————
(E) EDGE OF PAVEMENT	—————
(E) RIGHT OF WAY	—————
(E) FENCE	— X — X — X —
(E) OVERHEAD ELECTRIC	— OHE — OHE — OHE —
(E) LOT LINES	—————

**POD**  
POWER OF DESIGN  
4500 OLD LAGRANGE ROAD  
BUCKNER, KY 40010  
502-437-5252

**WESTOWER**  
COMMUNICATIONS

**at&t**

STATE OF KENTUCKY  
MARK E. PATTERSON  
16,300  
LICENSED PROFESSIONAL ENGINEER

**ZONING DRAWING**

REV.	DATE	DESCRIPTION
A	09.03.13	ADDED E911 ADDRESS
B	09.24.13	DISTANCES
D	11.18.13	ISSUED AS FINAL

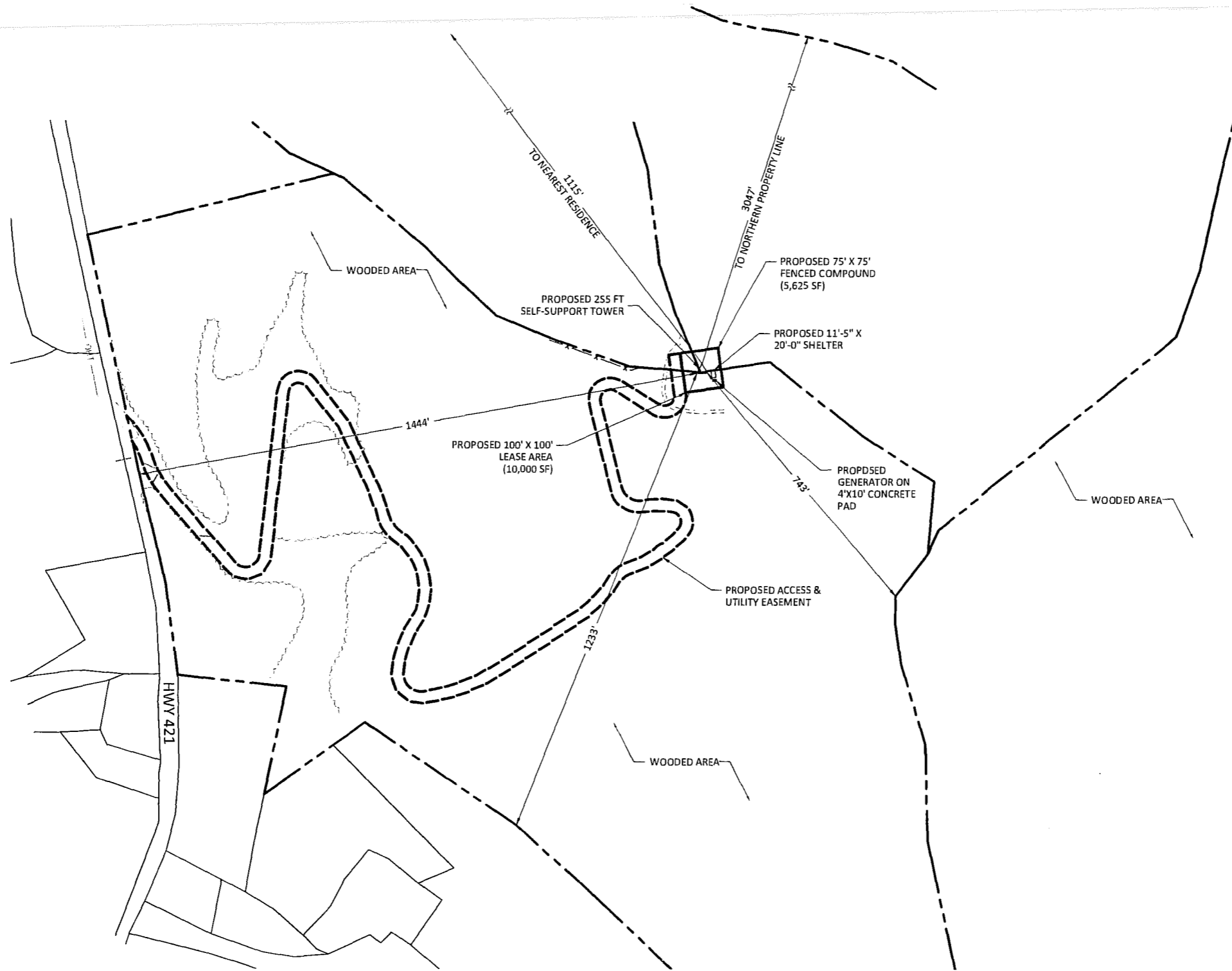
SITE INFORMATION:  
**CHOP BOTTOM**  
320 JOHN O WALKER RD  
GOOSE ROCK, KY 40944

SITE NUMBER:  
KYALU6152

POD NUMBER: 13-0684  
DRAWN BY: CMD  
CHECKED BY: MEP  
DATE: 08.29.13

SHEET TITLE:  
**OVERALL SITE LAYOUT**

SHEET NUMBER:  
**C-1**



- (P) LEASE LINE
- (P) ELECTRIC
- (P) TELEPHONE
- (P) FENCE
- (E) PROPERTY LINE
- (E) EDGE OF PAVEMENT
- (E) RIGHT OF WAY
- (E) FENCE
- (E) OVERHEAD ELECTRIC
- (E) LOT LINES

**POD**  
POWER OF DESIGN  
4500 OLD LAGRANGE ROAD  
BUCKNER, KY 40010  
502-437-5252

**WESTOWER**  
COMMUNICATIONS

**at&t**

STATE OF KENTUCKY  
MARK E. PATTERSON  
16,300  
LICENSED PROFESSIONAL ENGINEER

**ZONING DRAWING**

REV.	DATE	DESCRIPTION
A	09.03.13	ADDED E911 ADDRESS
B	09.24.13	DISTANCES
D	11.18.13	ISSUED AS FINAL

SITE INFORMATION:  
**CHOP BOTTOM**  
320 JOHN D WALKER RD  
GOOSE ROCK, KY 40944

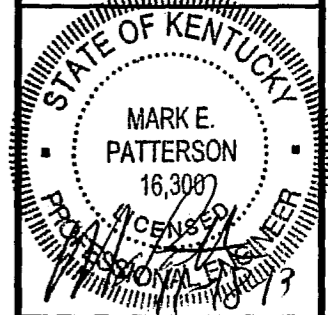
SITE NUMBER:  
KYALU6152

POD NUMBER: 13-0684  
DRAWN BY: CMD  
CHECKED BY: MEP  
DATE: 08.29.13

SHEET TITLE:  
**DISTANCES LAYOUT**

SHEET NUMBER:  
**C-2**





**ZONING DRAWING**

REV.	DATE	DESCRIPTION
A	09.03.13	ADDED E911 ADDRESS
B	09.24.13	DISTANCES
D	11.18.13	ISSUED AS FINAL

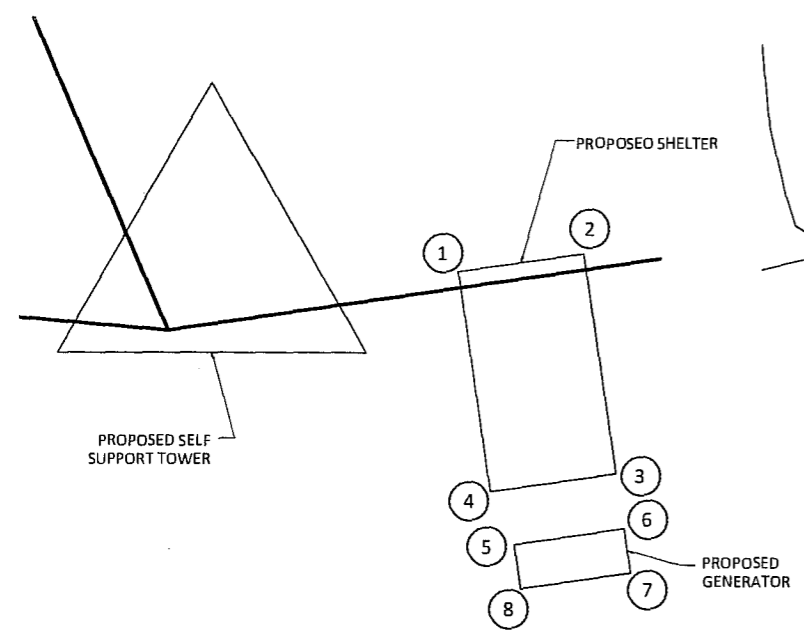
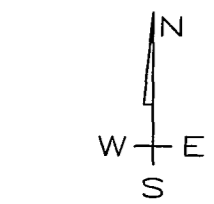
SITE INFORMATION:  
**CHOP BOTTOM**  
 320 JOHN D WALKER RD  
 GOOSE ROCK, KY 40944

SITE NUMBER:  
 KYALU6152

POD NUMBER: 13-0684  
 DRAWN BY: CMD  
 CHECKED BY: MEP  
 DATE: 08.29.13

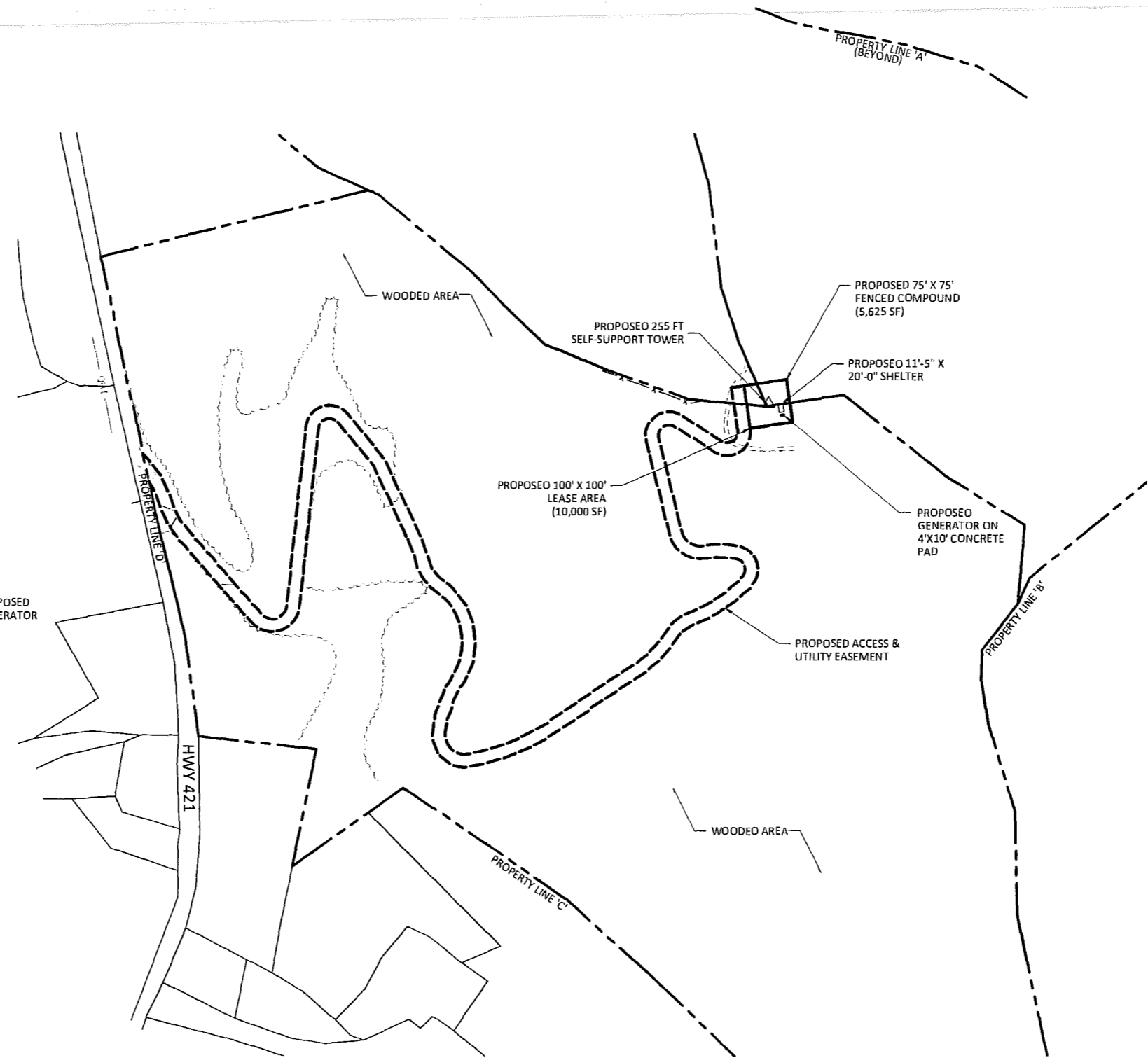
SHEET TITLE:  
**DISTANCES LAYOUT (CONT'D)**

SHEET NUMBER:  
**C-3**

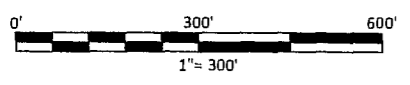


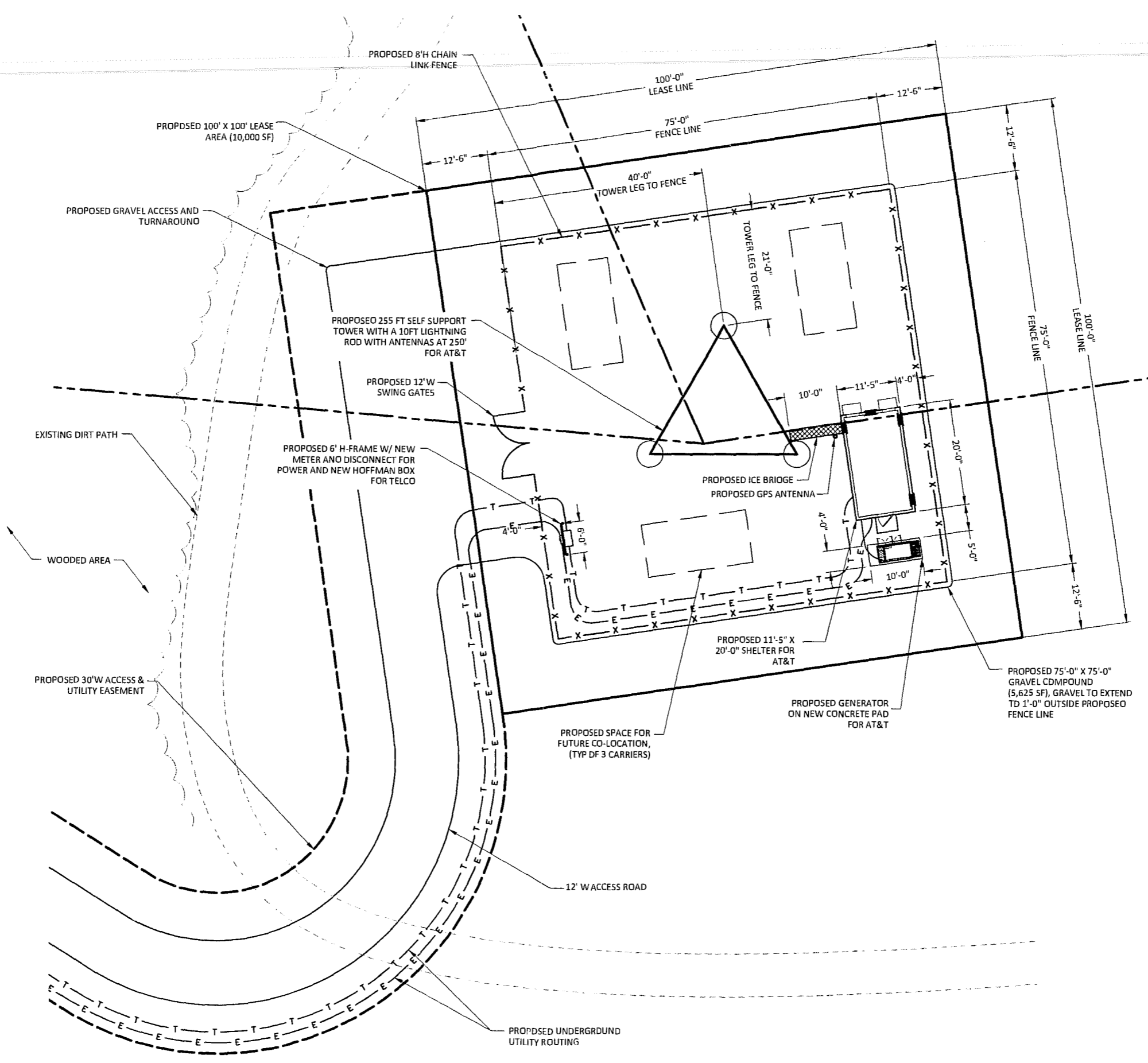
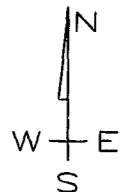
**EQUIPMENT ENLARGEMENT**  
 NTS

PROPERTY LINE	EQUIPMENT	DISTANCE
A	2	3051'
B	3	720'
C	4	1237'
D	4	1480'
A	6	3073'
B	7	712'
C	8	1230'
D	8	1482'



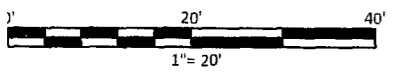
- (P) LEASE LINE
- (P) ELECTRIC
- (P) TELEPHONE
- (P) FENCE
- (E) PROPERTY LINE
- (E) EDGE OF PAVEMENT
- (E) RIGHT OF WAY
- (E) FENCE
- (E) OVERHEAD ELECTRIC
- (E) LOT LINES





**LINE LEGEND:**

(P) LEASE LINE	— — — — —
(P) ELECTRIC	— E — E —
(P) TELEPHONE	— T — T —
(P) FENCE	— X — X —
(E) PROPERTY LINE	— — — — —
(E) EDGE OF PAVEMENT	— — — — —
(E) RIGHT OF WAY	— — — — —
(E) FENCE	— X — X —
(E) OVERHEAD ELECTRIC	— OHE — —
(E) LOT LINES	— — — — —
(E) GRAVEL	— — — — —
(E) CDNTOURS - MAJOR	— — — — —
(E) CONTOURS - MINDR	— — — — —



**POD**  
POWER OF DESIGN  
4500 OLD LAGRANGE ROAD  
BUCKNER, KY 40010  
502-437-5252

**WESTOWER**  
COMMUNICATIONS

**at&t**

STATE OF KENTUCKY  
MARK E. PATTERSON  
16,300  
PROFESSIONAL ENGINEER  
13

**ZONING DRAWING**

REV.	DATE	DESCRIPTION
A	09.03.13	ADDED E911 ADDRESS
B	09.24.13	DISTANCES
0	11.18.13	ISSUED AS FINAL

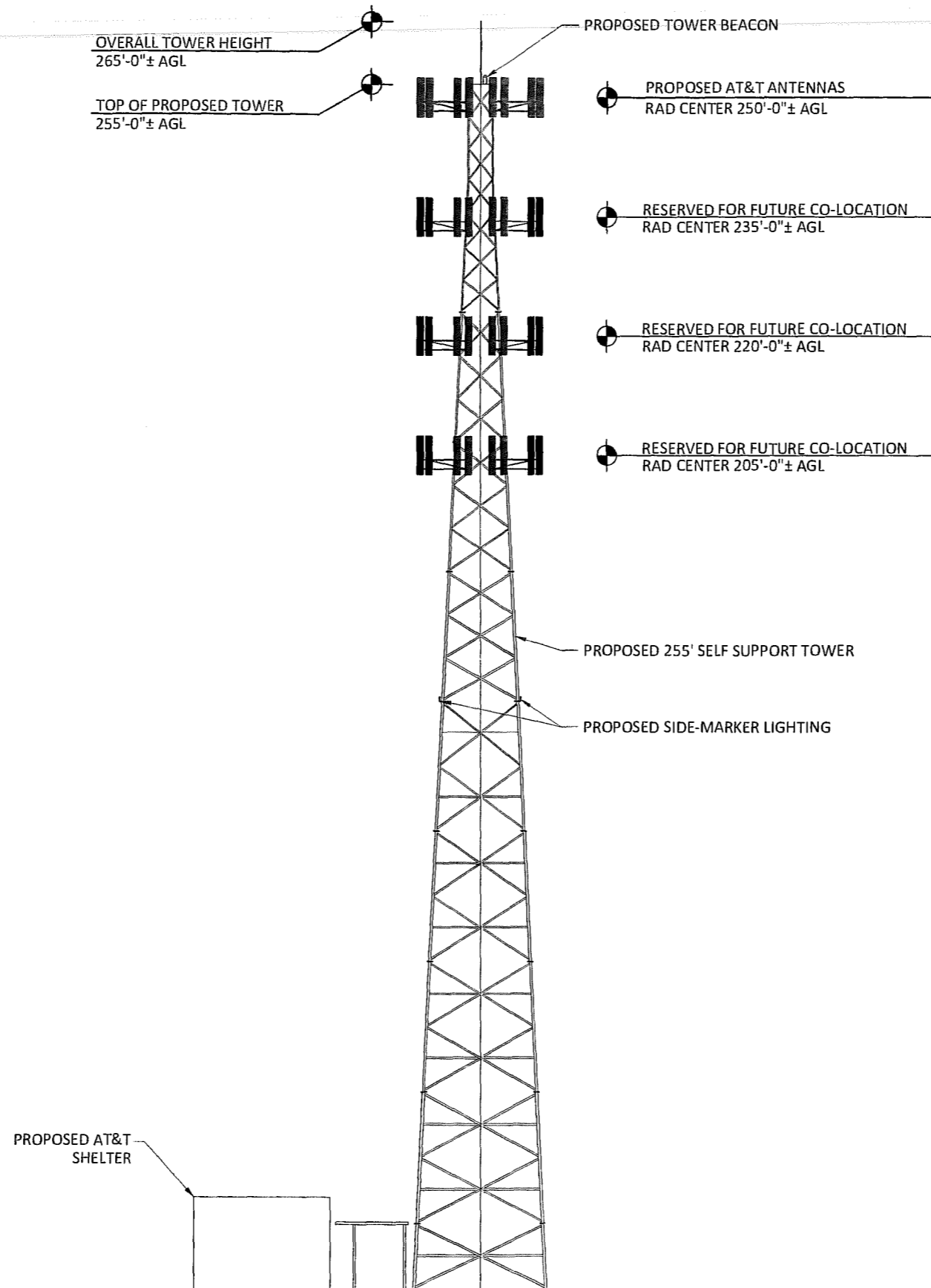
SITE INFORMATION:  
**CHOP BOTTOM**  
320 JDHN D WALKER RD  
GOOSE ROCK, KY 40944

SITE NUMBER:  
KYALUG152


POD NUMBER: 13-0684  
DRAWN BY: CMO  
CHECKED BY: MEP  
DATE: 08.29.13

SHEET TITLE:  
**ENLARGED  
COMPOUND  
LAYOUT**


SHEET NUMBER:  
**C-4**




**1 TOWER ELEVATION**  
NOT TO SCALE

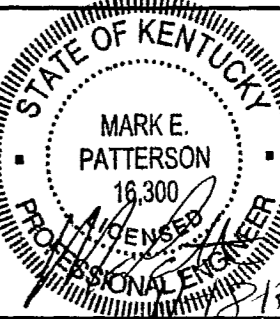


**POD**  
POWER OF DESIGN  
4500 OLD LAGRANGE ROAD  
BUCKNER, KY 40010  
502-437-5252



**WESTOWER**  
COMMUNICATIONS





**ZONING DRAWING**

REV.	DATE	DESCRIPTION
A	09.03.13	ADDED E911 ADDRESS
B	09.24.13	DISTANCES
D	11.18.13	ISSUED AS FINAL

SITE INFORMATION:

**CHOP BOTTOM**

320 JOHN D WALKER RD  
GOOSE ROCK, KY 40944

SITE NUMBER:  
KYALU6152

POD NUMBER: 13-0684

DRAWN BY: CMD  
CHECKED BY: MEP  
DATE: 08.29.13

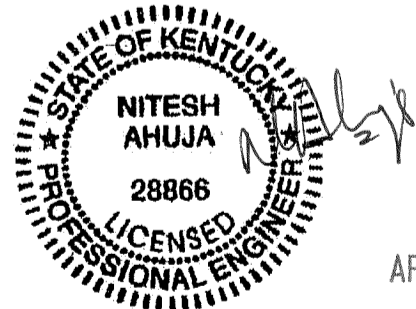
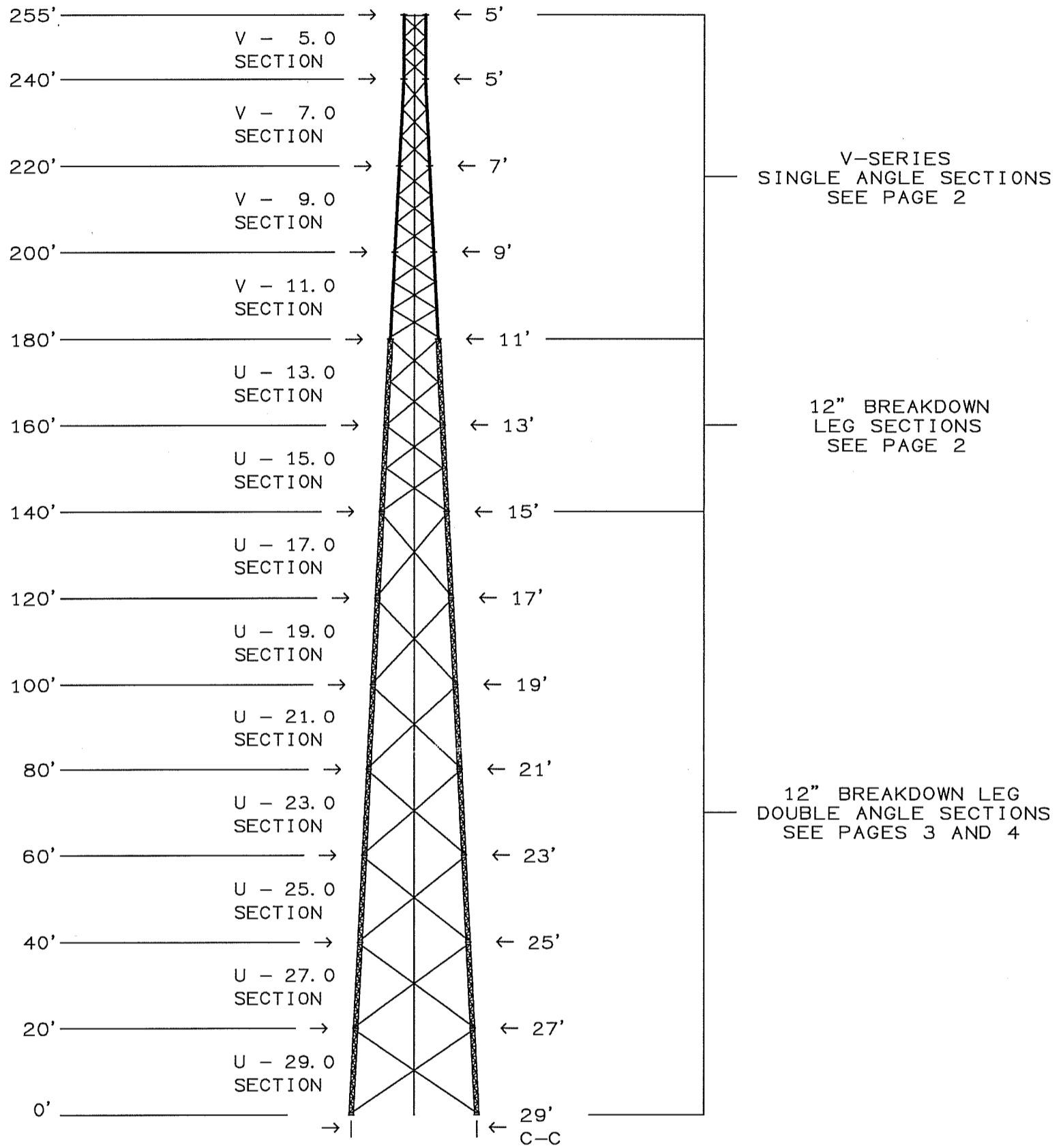
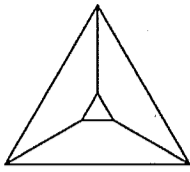
SHEET TITLE:

**TOWER ELEVATION**

SHEET NUMBER:  
**C-5**



**EXHIBIT C**  
**TOWER AND FOUNDATION DESIGN**



APR 10 2014

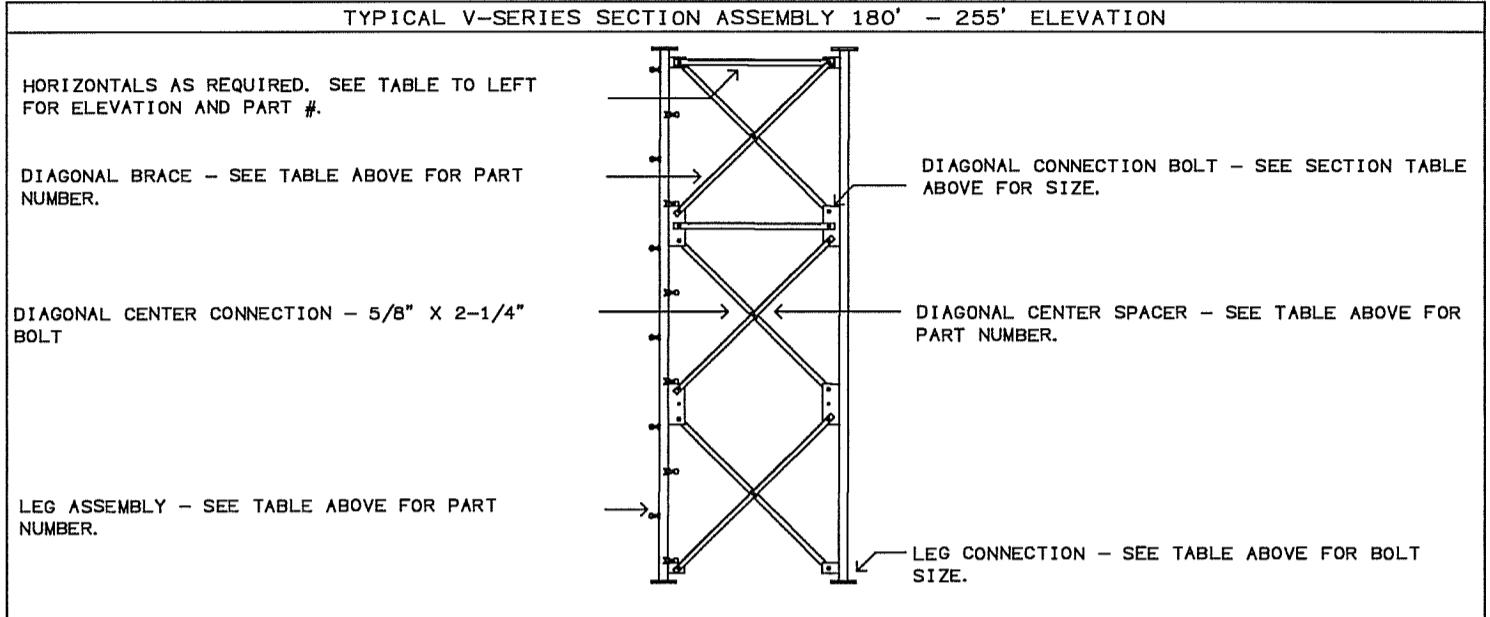
Nitesh Ahuja, KY Professional Engineer #28866

				AMERICAN TOWER CORP. #282072 CHOP BOTTOM, KY V-29.0 X 255'		
B	ADD KY BUILDING CODE	SKK	04/10/2014			<b>valmont</b> STRUCTURES
A	ADDED FOUNDATIONS	MS	01/20/2014	APPROVED/ENG.	SKK 4/10/2014	
REV	DESCRIPTION OF REVISIONS	INI	DATE	APPROVED/FOUND.	N/A	1-877-467-4763 Plymouth, IN 1-888-880-9191 Salem, OR
				COPYRIGHT 2014		DRAWING NO.
				DRAWN BY		252034
From: F1015759.DFT - 11/20/2013 11:06				ENG. FILE NO. A-240012-		PAGE
Printed from 252034_01@B.DWG * 11/20/2013 12:20 @ 04/10/2014 10:24				ARCHIVE F-1015759		1 OF 10

V-SERIES LEG SECTION DATA 180' - 255' ELEVATION																				
SECTION			LEG										DIAGONAL BRACE						HOR	
#	LENGTH	* WEIGHT	NOM SIZE	WALL	GRADE	CLIMBING		NON-CLIMB		CONNECT BOLT+		PART NUMBER **			ANGLE		CONNECT BOLT		CENTER	QTY
						QTY	PART#	QTY	PART#	DIAM	LENGTH	#1	#2	#3	FACE	THICK	DIAM	LENGTH	SPACER	
V- 5.0	15'	1013#	4"	0.237	A572-50	1	228175	2	228176	3/4"	3-1/2"	227077	227077	227077	2"	1/8"	3/4"	2-1/4"	116467	1
V- 7.0	20'	1609#	5"	0.258	A572-50	1	226200	2	226201	3/4"	3-1/2"	226190	226189	231342	2"	3/16"	3/4"	2-1/4"	116467	
V- 9.0	20'	1861#	5"	0.258	A572-50	3	226192			3/4"	3-1/2"	225035	225034	231345	2-1/2"	3/16"	3/4"	2-1/4"	116467	
V-11.0	20'	2390#	6"	0.280	A572-50	3	229377			1"	4-3/4"	225038	225037	231347	2-1/2"	3/16"	3/4"	2-1/4"	116467	

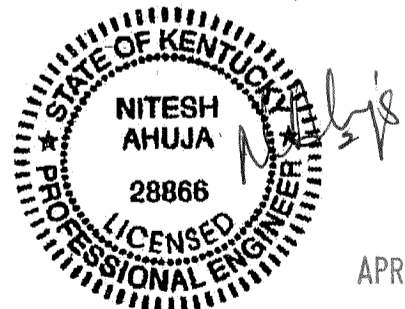
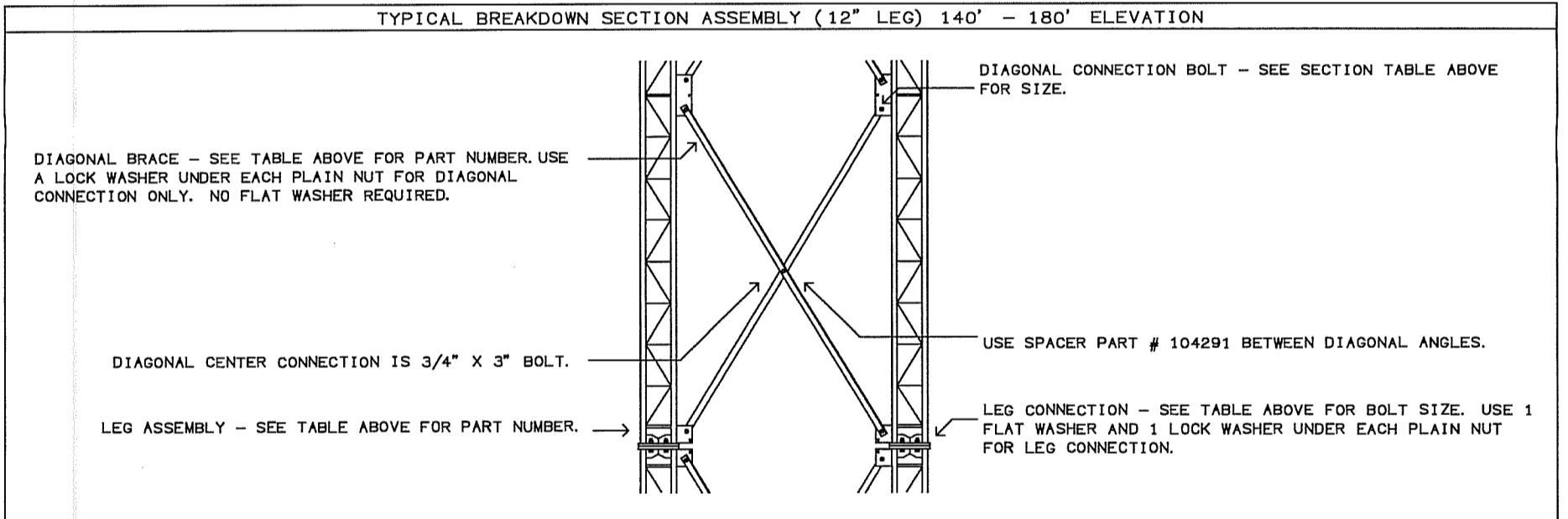
+ AT BOTTOM OF SECTION  
\* THE WEIGHTS LISTED ARE THEORETICAL. THE ACTUAL WEIGHTS WILL VARY. ALL WEIGHTS SHOULD BE CONFIRMED IN THE FIELD PRIOR TO ERECTION.  
\*\* PANELS ARE NUMBERED BEGINNING AT THE TOP OF THE SECTION.

HORIZONTAL DATA		
HORIZ HT	IN SEC#	HORIZ PART#
255	V- 5.0	227584



BREAKDOWN SECTION DATA (12" LEG) 140' - 180' ELEVATION													
SEC #	SECTION LENGTH	LEG SIZE	LEG PART#	TOP PART#	DIAG PART#	DIAG PART#	DIAGONAL ANGLE		SECTION WEIGHT	LEG CONNECT+		DIAG CONNECT	
							FACE	THICK		DIAM	LENGTH	DIAM	LENGTH
U-13.0	20'	1- 3/4"	229588	105574	105576	3"	3/16"	3056#	1"	4-3/4"	1"	2-1/4"	
U-15.0	20'	1- 3/4"	229588	105580	105583	3"	5/16"	3585#	1"	4-3/4"	1"	2-1/4"	

\* THE WEIGHTS LISTED ARE THEORETICAL. THE ACTUAL WEIGHTS WILL VARY. ALL WEIGHTS SHOULD BE CONFIRMED IN THE FIELD PRIOR TO ERECTION.  
+ USE 1 FLAT WASHER UNDER EACH LOCK WASHER FOR LEG CONNECTION ONLY.



APR 10 2014

Nitesh Ahuja, KY Professional Engineer #28866

AMERICAN TOWER CORP. #282072 CHOP BOTTOM, KY V-29.0 X 255'		<b>valmont</b> STRUCTURES	
APPROVED/ENG.	SKK 4/10/2014	1-877-467-4763 Plymouth, IN 1-888-880-9191 Salem, OR	
APPROVED/FOUND.	N/A	DRAWING NO. 252034	
COPYRIGHT 2014		PAGE 2 OF 10	
DRAWN BY	SKK	ENG. FILE NO. A-240012-252034	
From: F1015759.DFT - 11/20/2013 11:06	ARCHIVE F-1015759		
Printed from 252034_0200.DWG - 11/20/2013 12:20 @ 04/10/2014 10:25			

BREAKDOWN SECTION LEG DATA (12" LEG WITH DOUBLE ANGLES) 0' - 140' ELEVATION

SECTION				LEG		LEG CONNECT @ BOTTOM+		
#	MODEL	LENGTH	WEIGHT*	SIZE	PART #	DIAM	LENGTH	#
7	U-17.0	20'	4008#	2 "	208332	1"	4-3/4"	12
6	U-19.0	20'	4676#	2- 1/4 "	208334	1"	4-3/4"	12
5	U-21.0	20'	5430#	2- 1/4 "	208334	1"	4-3/4"	12
4	U-23.0	20'	6119#	2- 1/2 "	208335	1"	4-3/4"	12
3	U-25.0	20'	6228#	2- 1/2 "	208335	1"	4-3/4"	12
2	U-27.0	20'	7120#	2- 3/4 "	208337	1"	4-3/4"	12
1	U-29.0	20'	7163#	2- 3/4 "	208337			

\* THE WEIGHTS LISTED ARE THEORETICAL. THE ACTUAL WEIGHTS WILL VARY. ALL WEIGHTS SHOULD BE CONFIRMED IN THE FIELD PRIOR TO ERECTION.  
 + QTY IS PER LEG. USE 1 LOCK WASHER AND 1 FLAT WASHER UNDER EACH PLAIN NUT.

BREAKDOWN SECTION DIAGONAL DATA (12" LEG WITH DOUBLE ANGLES) 0' - 140' ELEVATION

SECTION		DIAGONAL PART #			DIAG ANGLE		DIAG END BOLT		DIAG CENTER & SPACER BOLT		CENTER PLATE	SPACER	
#	MODEL	UPPER	LOWER	LONG	FACE	THICK	DIAM	LENGTH	DIAM	LENGTH	PART #	PART #	#*
7	U-17.0	215280	215284	215361	3"	3/16"	7/8"	2-1/2"	5/8"	2-1/4"	211833	104291	6
6	U-19.0	215288	215292	215364	3"	3/16"	7/8"	2-1/2"	5/8"	2-1/4"	211833	104291	7
5	U-21.0	215296	215300	215369	3-1/2"	1/4"	7/8"	2-1/2"	5/8"	2-1/4"	211833	104291	8
4	U-23.0	215304	215308	215373	3-1/2"	1/4"	7/8"	2-1/2"	5/8"	2-1/4"	211833	104291	8
3	U-25.0	215312	215316	215377	3-1/2"	1/4"	7/8"	2-1/2"	5/8"	2-1/4"	211833	104291	8
2	U-27.0	215320	215324	215380	3-1/2"	1/4"	7/8"	2-1/2"	5/8"	2-1/4"	211833	104291	8
1	U-29.0	215327	215330	215383	3-1/2"	1/4"	7/8"	2-1/2"	5/8"	2-1/4"	211833	104291	8

\* QUANTITY IS PER PANEL PER FACE. USE 1 LOCK WASHER UNDER EACH PLAIN NUT.



*Nitesh Ahuja*

APR 10 2014

Nitesh Ahuja, KY Professional Engineer #28866

AMERICAN TOWER CORP.  
 #282072 CHOP BOTTOM, KY  
 V-29.0 X 255'

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APPROVED/FOUND.	N/A	
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 252034  
 PAGE

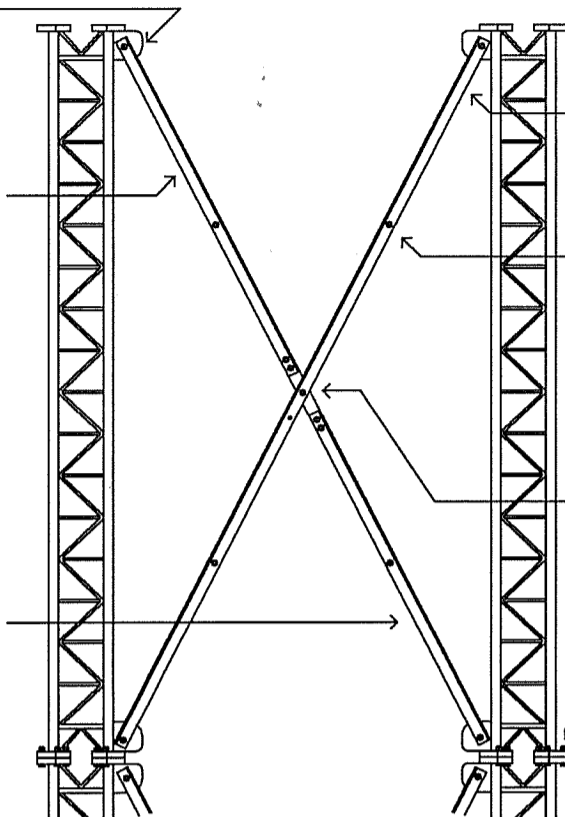


TYPICAL BREAKDOWN SECTION ASSEMBLY (12" LEG WITH DOUBLE ANGLES) 0' - 140' ELEVATION

DIAGONAL END BOLTS - SEE DIAGONAL TABLE ON PAGE 3 FOR SIZE. NO FLAT WASHER REQUIRED.

"UPPER" DIAGONAL BRACES (BACK TO BACK ANGLES) - SEE TABLE ON PG. 3 FOR PART #.

"LOWER" DIAGONAL BRACES (BACK TO BACK ANGLES) - SEE TABLE ON PG. 3 FOR PART #.



"LONG" DIAGONAL BRACE (BACK TO BACK ANGLES) - SEE TABLE ON PG. 3 FOR PART #.

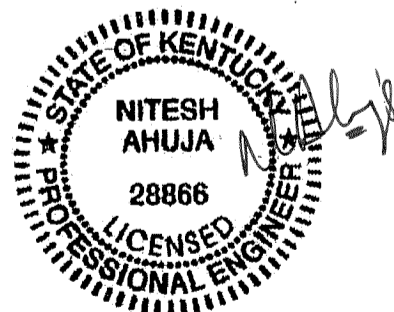
INTERMEDIATE DIAGONAL BOLTS WITH SPACER - SEE TABLE ON PG. 3 FOR SIZE, SPACER PART # AND NUMBER OF LOCATIONS PER PANEL ON EACH FACE. USE 1 SPACER PER BOLT. SEE DRAWING # 214823 FOR DETAILS.

DIAGONAL CENTER PLATE - SEE DIAGONAL TABLE ON PAGE 3 FOR PART # AND BOLT SIZE.

LEG CONNECTION - SEE TABLE ON PAGE 3 FOR BOLT SIZE. USE 1 LOCK WASHER AND 1 FLAT WASHER UNDER EACH PLAIN NUT FOR LEG CONNECTION.

ATTENTION ERECTOR:

- EXTRA CARE MUST BE TAKEN WHEN STANDING BREAKDOWN LEG SECTIONS FROM A FLAT "ASSEMBLY" POSITION ON THE GROUND TO AN UPRIGHT POSITION FOR STACKING. POOR RIGGING AND/OR LIFTING PROCEDURES MAY DAMAGE THE ANGLE BRACES AND/OR BREAKDOWN LEGS. IT IS THE RESPONSIBILITY OF THE TOWER CONTRACTOR TO ENSURE BREAKDOWN LEGS AND ANGLES ARE NOT DAMAGED DURING THE TOWER ASSEMBLY AND ERECTION.
- WHEN LIFTING ("FLYING") SINGLE PANEL TOWER SECTIONS TO PLACE THEM ON PREVIOUSLY ERECTED SECTIONS, A MINIMUM OF TWO (2) FULL SECTIONS (TYPICALLY 40') MUST BE ASSEMBLED TOGETHER TO PROVIDE ADEQUATE STABILITY TO THE TOWER LEGS AND ANGLE BRACES. IT IS THE RESPONSIBILITY OF THE TOWER CONTRACTOR TO ENSURE BREAKDOWN LEGS AND ANGLES ARE NOT DAMAGED DURING THE TOWER ASSEMBLY AND ERECTION.



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Nitesh Ahuja, KY Professional Engineer #28866

AMERICAN TOWER CORP.  
#282072 CHOP BOTTOM, KY  
V-29.0 X 255'

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APPROVED/FOUND.	N/A	
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**valmont**   
1-877-467-4763 Plymouth, IN  
1-888-880-9191 Salem, OR **STRUCTURES**

DRAWING NO.

ENG. FILE NO. A-240012-  
ARCHIVE F-1015759

252034  
PAGE

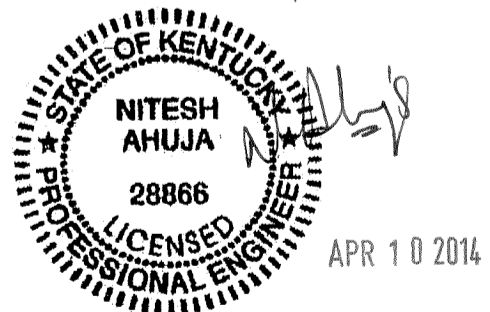
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4 OF 10

GENERAL NOTES

1. TOWER MEETS THE REQUIREMENTS OF THE 2013 KENTUCKY BUILDING CODE UTILIZING AN 90 MPH 3-SEC GUST BASIC WIND SPEED WITH A STRUCTURE CLASS OF II, TOPOGRAPHIC CATEGORY OF 1 AND EXPOSURE C CRITERIA WITH NO ICE PER ANSI/TIA-222-G.  
TOWER MEETS THE REQUIREMENTS OF THE 2013 KENTUCKY BUILDING CODE UTILIZING AN 30 MPH 3-SEC GUST BASIC WIND SPEED WITH A STRUCTURE CLASS OF II, TOPOGRAPHIC CATEGORY OF 1 AND EXPOSURE C CRITERIA WITH .75" RADIAL ICE PER ANSI/TIA-222-G.
2. NO TWIST AND SWAY LIMITATIONS SPECIFIED OR USED FOR THIS TOWER.
3. MATERIAL: (A) SOLID RODS TO ASTM A572 GRADE 50. (B) ANGLES TO ASTM A36. (C) PIPE TO ASTM A500 GRADE B. (D) STEEL PLATES TO ASTM A36. (E) CONNECTION BOLTS TO ASTM A325 OR ASTM A449 (Fu=120 KSI AND Fy=92 KSI) AND ANCHOR BOLTS TO ASTM F1554 (Fu=150 KSI AND Fy=105 KSI). (F) TOWER LEG PIPE TO BE ASTM A500 GRADE B/C WITH 50KSI MIN. YIELD STRENGTH
4. BASE REACTIONS PER TIA-222-G FOR 90 MPH BASIC WIND SPEED WITH NO ICE (REACTIONS INCLUDE TIA-222-G LOAD FACTORS): TOTAL WEIGHT = 98.0 KIPS. MAXIMUM COMPRESSION = 615.0 KIPS PER LEG. MOMENT = 14628.0 KIP-FT. MAXIMUM UPLIFT = 543.0 KIPS PER LEG. MAXIMUM SHEAR = 98.0 KIPS TOTAL.
5. BASE REACTIONS PER TIA-222-G FOR 30 MPH BASIC WIND SPEED WITH 0.75" RADIAL ICE (REACTIONS INCLUDE TIA-222-G LOAD FACTORS): TOTAL WEIGHT = 297.0 KIPS. MOMENT = 1709.0 KIP-FT. MAXIMUM SHEAR = 11.0 KIPS TOTAL.
6. FINISH: ALL BOLTS ARE GALVANIZED IN ACCORDANCE WITH ASTM A153 (HOT DIPPED) OR ASTM B695 CLASS 50 (MECHANICAL). ALL OTHER STRUCTURAL MATERIALS ARE GALVANIZED IN ACCORDANCE WITH ASTM 123.
7. ANTENNAS: 255' -135 SQ. FT. AREA WITH 3,000# WITH ICE/115 SQ. FT. AREA WITH 2,000# NO ICE AND (18) 1-5/8" LINES  
245' -135 SQ. FT. AREA WITH 3,000# WITH ICE/115 SQ. FT. AREA WITH 2,000# NO ICE AND (18) 1-5/8" LINES  
235' -135 SQ. FT. AREA WITH 3,000# WITH ICE/115 SQ. FT. AREA WITH 2,000# NO ICE AND (18) 1-5/8" LINES  
225' -135 SQ. FT. AREA WITH 3,000# WITH ICE/115 SQ. FT. AREA WITH 2,000# NO ICE AND (18) 1-5/8" LINES  
NOTE: (A) ELEVATIONS ARE TO THE BOTTOM OF THE ANTENNAS EXCEPT FOR MICROWAVE DISHES, WHICH ARE TO THE CENTERLINE. (B) ALL TRANSMISSION LINES MUST BE PLACED ON PIROD SUPPLIED LINE BRACKETS.
8. REMOVE FOUNDATION TEMPLATE PRIOR TO ERECTING TOWER. INSTALL BASE SECTION WITH MINIMUM OF 2" CLEARANCE ABOVE CONCRETE. SEE BASE SECTION PLACEMENT PAGE FOR MORE INFORMATION. PACK NON-SHRINK STRUCTURAL GROUT UNDER BASE SECTION AFTER LEVELING TOWER.
9. MIN. WELDS 5/16" UNLESS OTHERWISE SPECIFIED. ALL WELDING TO CONFORM TO AWS D1.1 SPECIFICATIONS .
10. THIS DRAWING DOES NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND HE SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, SEQUENCES AND PROCEDURES.
11. ALL BOLTS AND NUTS MUST BE IN PLACE BEFORE THE ADJOINING SECTIONS ARE INSTALLED.
12. ALL STRUCTURAL BOLTS ARE TO BE TIGHTENED TO A SNUG TIGHT CONDITION AS DEFINED BY AISC SPECIFICATION UNLESS OTHERWISE NOTED.
13. ATTENTION TOWER ERECTOR: COAT ALL BOLT ASSEMBLIES THAT USE PIN LOCK NUTS WITH ZINC RICH COLD GALVANIZING COMPOUND AFTER FINAL TIGHTENING.
14. TIA-222-G GROUNDING FOR TOWER.

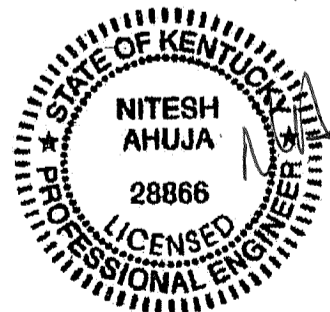


Nitesh Ahuja, KY Professional Engineer #28866

				AMERICAN TOWER CORP. #282072 CHOP BOTTOM, KY V-29.0 X 255'			
B	ADD KY BUILDING CODE	SKK	04/10/2014				
A	ADDED FOUNDATIONS	MS	01/20/2014	APPROVED/ENG.	SKK	4/10/2014	 1-877-467-4763 Plymouth, IN 1-888-880-9191 Salem, OR
REV	DESCRIPTION OF REVISIONS	INI	DATE	APPROVED/FOUND.	N/A		
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FOUNDATION NOTES

1. ULTIMATE SOIL PRESSURE ASSUMED TO BE 5000 PSF. ULTIMATE PASSIVE PRESSURE ASSUMED TO BE 500 LB PCF. THE PURCHASER & OWNER/CONTRACTOR MUST VERIFY THAT THE ACTUAL SITE SOIL PARAMETERS MEET OR EXCEED THE ASSUMED SOIL PARAMETERS PER THIS NOTE AND/OR SHOULD OBTAIN A SOIL REPORT TO DETERMINE THE SOIL CONDITIONS AT THE SITE. FOUNDATION DESIGN MODIFICATIONS MAY BE REQUIRED IN THE EVENT THE ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE FOR THE ACTUAL SUBSURFACE CONDITIONS ENCOUNTERED.
2. CONCRETE TO BE 4000 PSI @ 28 DAYS. REINFORCING BAR TO CONFORM TO ASTM A615 GRADE 60 SPECIFICATIONS. CONCRETE INSTALLATION TO CONFORM TO ACI-318 (2008) BUILDING REQUIREMENTS FOR REINFORCED CONCRETE. ALL CONCRETE TO BE PLACED AGAINST UNDISTURBED EARTH FREE OF WATER AND ALL FOREIGN OBJECTS AND MATERIALS. A MINIMUM OF THREE INCHES OF CONCRETE SHALL COVER ALL REINFORCEMENT. WELDING OF REBAR NOT PERMITTED.
3. A COLD JOINT IS PERMISSIBLE UPON CONSULTATION WITH PIROD. ALL COLD JOINTS SHALL BE COATED WITH BONDING AGENTS PRIOR TO SECOND POUR.
4. ALL FILL SHOULD BE PLACED IN LOOSE LEVEL LIFTS OF NO MORE THAN 12" THICK. FILL MATERIALS SHOULD BE CLEAN AND FREE OF ORGANIC AND FROZEN MATERIALS OR ANY OTHER DELETERIOUS MATERIALS. COMPACT FILL TO 97% OF STANDARD PROCTOR MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D698.
5. BENDING, STRAIGHTENING OR REALIGNING (HOT OR COLD) OF THE ANCHOR BOLTS BY ANY METHOD IS PROHIBITED.
6. CROWN TOP OF FOUNDATION FOR PROPER DRAINAGE.
7. IN THE ABSENCE OF A GEOTECHNICAL REPORT, THE FOLLOWING PRESUMPTIVE SOIL PARAMETERS WERE USED: AN ULTIMATE BEARING PRESSURE OF 5000 PSF, A COHESION OF 1000 PSF, A SOIL UNIT WEIGHT OF 110 PCF, AN ANGLE OF INTERNAL FRICTION OF 0 DEGREES AND NO GROUNDWATER ENCOUNTERED. THESE SOIL PARAMETERS ARE IN COMPLIANCE WITH THE REQUIREMENTS OF ANSI/TIA-222-G-2005 AND CAN BE FOUND IN ANNEX F OF THIS STANDARD.
8. ANY SOFT OR UNSTABLE SUBGRADE SOILS DETECTED DURING THE EXCAVATION SHOULD BE REMOVED AND REPLACED WITH COMPACTED FILL.

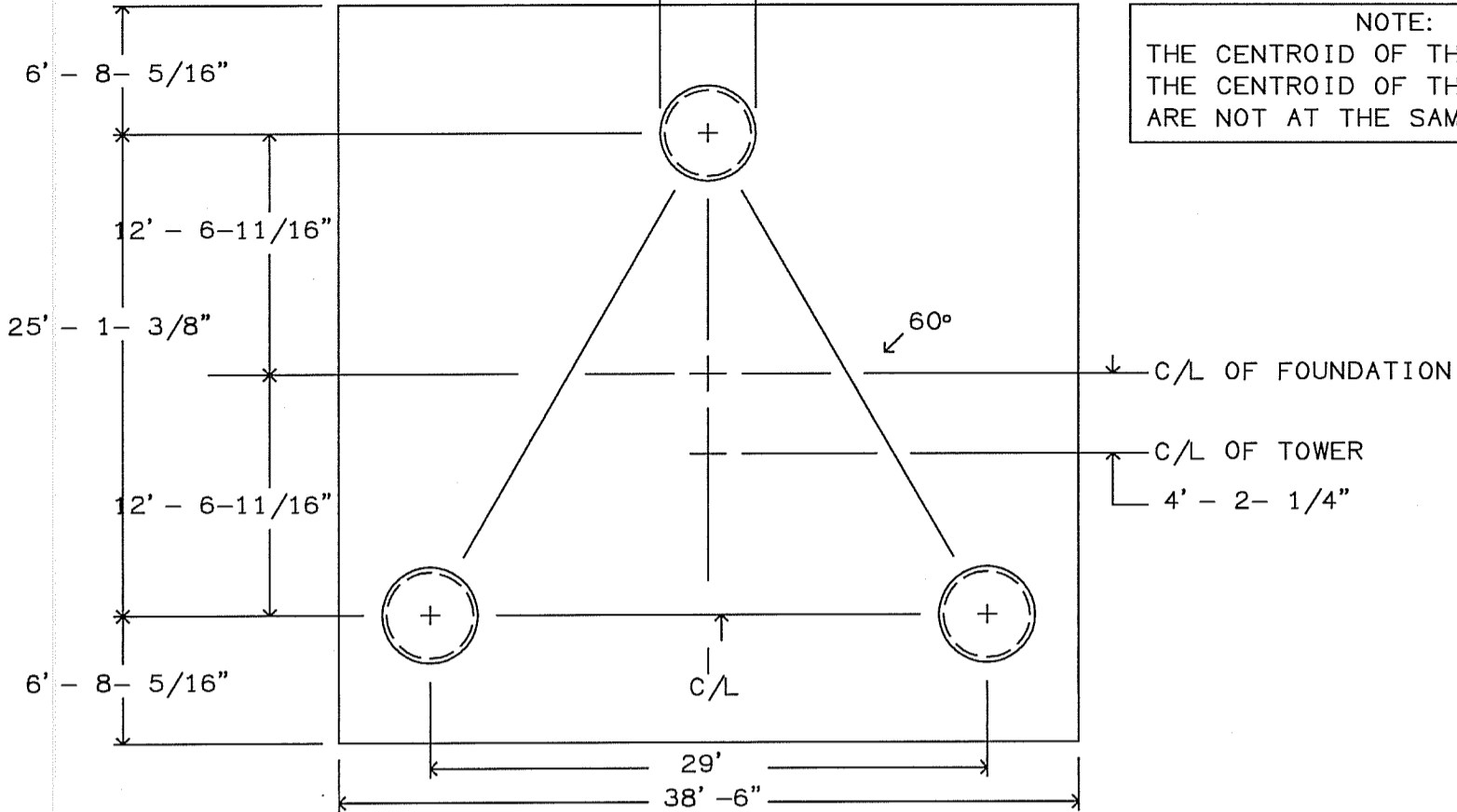


APR 10 2014

Nitesh Ahuja, KY Professional Engineer #28866

				AMERICAN TOWER CORP. #282072 CHOP BOTTOM, KY V-29.0 X 255'			
A	ADDED FOUNDATIONS	MS	01/20/2014	APPROVED/ENG.	SKK	4/10/2014	<b>valmont</b> 1-877-467-4783 Plymouth, IN 1-888-880-9191 Salem, OR <b>STRUCTURES</b>
REV	DESCRIPTION OF REVISIONS	INI	DATE	APPROVED/FOUND.	M_S	4/10/2014	
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5' ROUND, CENTERED AROUND  
THE CIRCULAR REBAR CAGE



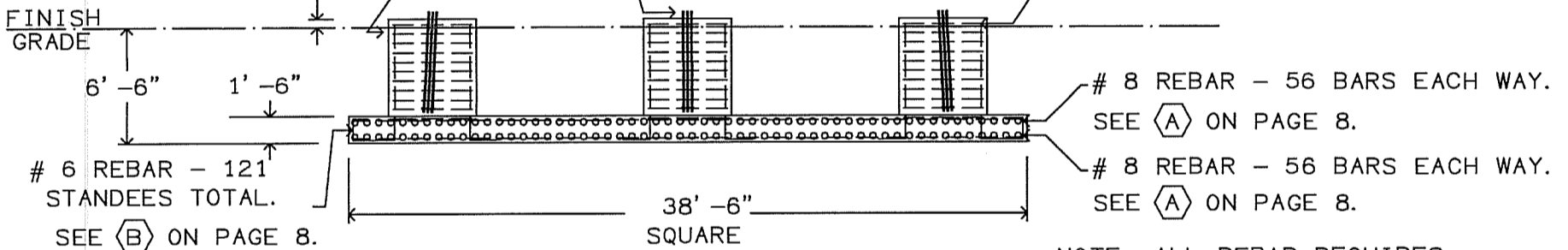
NOTE:  
THE CENTROID OF THE TOWER AND  
THE CENTROID OF THE FOUNDATION  
ARE NOT AT THE SAME POINT!

NOTE: THE FOUNDATIONS DEPICTED ON THIS DRAWING WERE DESIGNED PER ASSUMED SOIL PARAMETERS. ALTHOUGH IT IS OUR EXPECTATION THAT THE SOIL WILL EXHIBIT SUFFICIENT STRENGTH TO COMPLY WITH THE ASSUMED STRENGTHS, IT IS POSSIBLE THAT THE SOIL MAY NOT EXHIBIT THE REQUIRED STRENGTHS. THEREFORE, IT IS HIGHLY RECOMMENDED THAT THE ASSUMED PROPERTIES BE CONFIRMED BY A GEOTECHNICAL ENGINEER VIA A SOIL REPORT OR AN ON-SITE INSPECTION DURING INSTALLATION.

# 7 VERTICAL REBAR -  
SEE (C) ON PAGE 8.  
29 PIECES REQ. PER PIER,  
EQUALLY SPACED, TO BE  
PLACED INSIDE TIES.

FOR ANCHOR STEEL IDENTIFICATION AND  
PLACEMENT INFORMATION, SEE PAGE 9  
OF THIS DRAWING. SEE PAGE 10 FOR  
BASE SECTION INSTALLATION DETAIL.

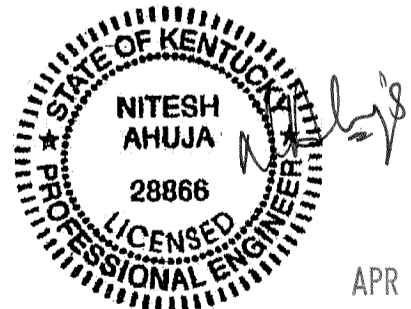
# 4 TIES - SEE (D) ON PAGE 8.  
12 PIECES REQ. PER PIER



NOTE: ALL REBAR REQUIRES  
MIN. 3" CONCRETE COVERAGE

### TOWER FOUNDATION

94.3 CUBIC YARDS CONCRETE REQUIRED  
FOR INSTALLATION SPECIFICATIONS AND  
ADDITIONAL INFORMATION, SEE PAGE 6  
OF THIS DRAWING.



APR 10 2014

Nitesh Ahuja, KY Professional Engineer #28866

AMERICAN TOWER CORP.  
#282072 CHOP BOTTOM, KY  
V-29.0 X 255'

A	ADDED FOUNDATIONS	MS	01/20/2014	APPROVED/ENG.	SKK 4/10/2014
REV	DESCRIPTION OF REVISIONS	INI	DATE	APPROVED/FOUND.	M_S 4/10/2014

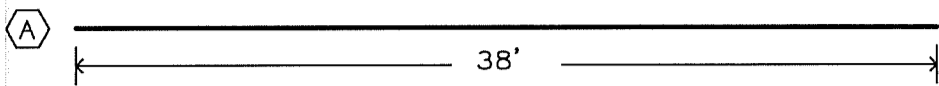
**valmont**   
1-877-467-4763 Plymouth, IN  
1-888-880-9191 Salem, OR STRUCTURES

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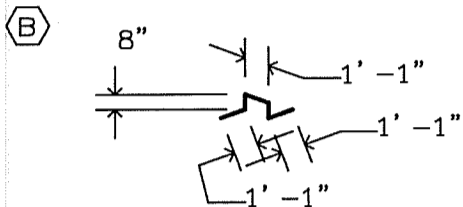
ARCHIVE  
ENG. FILE NO. A-240012-  
F-1015759

DRAWING NO.  
252034  
PAGE 7 OF 10

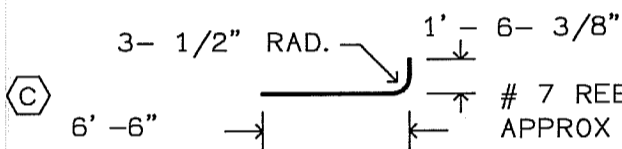


# 8 REBAR - 224 PIECES REQ. TOTAL  
 APPROX WT = 101.5# EACH, 22736# TOTAL

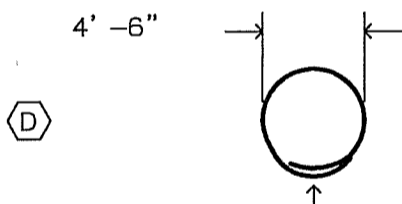
REBAR SUPPORTS MAY CONSIST OF ANY ACCEPTABLE MEANS OF SECURELY SUPPORTING THE TOP REINFORCEMENT GRID ABOVE THE BOTTOM REINFORCEMENT GRID WHILE MAINTAINING A SEPARATION OF 1' (OUTSIDE REBAR TO OUTSIDE REBAR).



# 6 REBAR - 121 PIECES REQUIRED TOTAL  
 TYPE 26 STANDEE PLACED BETWEEN REBAR GRIDS ON NOMINAL 4' SPACING THROUGHOUT  
 APPROX UNBENT LENGTH = 4' - 7 - 7/8"  
 APPROX WT = 7.0# EACH, 847# TOTAL



# 7 REBAR - 87 PIECES REQUIRED TOTAL  
 APPROX UNBENT LENGTH = 7' - 10 - 7/8"  
 APPROX WT = 16.2# EACH, 1409# TOTAL

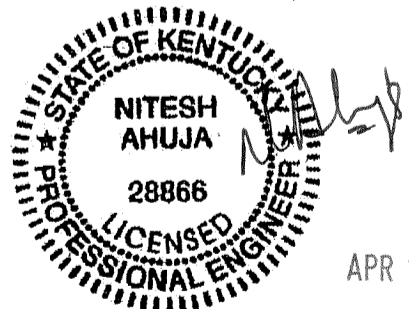


# 4 REBAR - 36 PIECES REQUIRED TOTAL  
 APPROX UNBENT LENGTH = 15' - 8 - 1/4"  
 APPROX WT = 10.5# EACH, 378# TOTAL

LAP DIMENSION: 1' - 6 - 1/2"  
 PLACE CIRCULAR TIES SO THAT LAPS ON ADJACENT TIES ARE 180 DEGREES APART. PLACE ONE TIE AT TOP OF PAD AND TWO TIES AT TOP OF PIER REBAR. EQUALLY SPACE REMAINING TIES ALONG PIER.

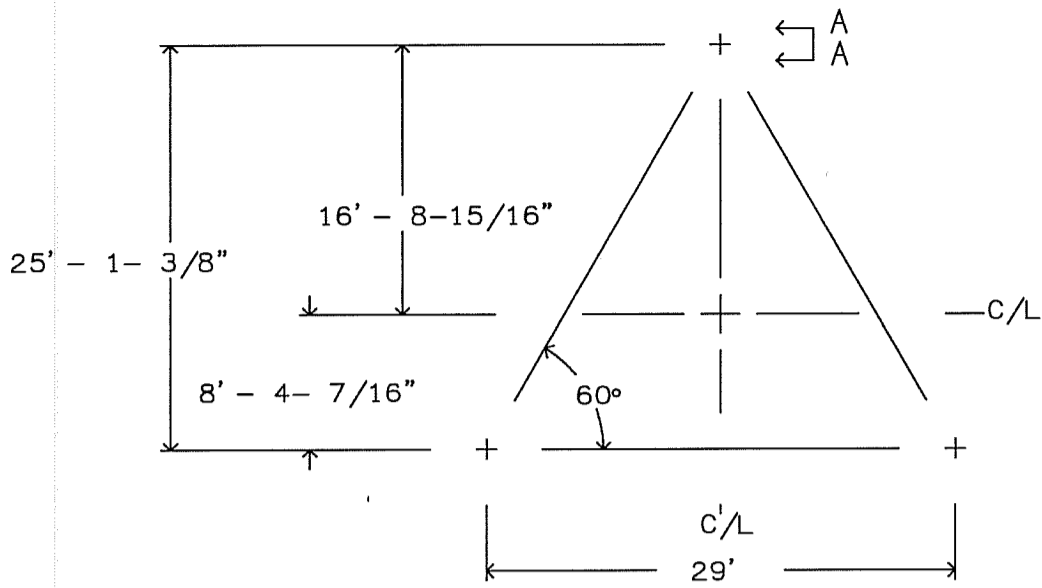
REBAR DETAIL

TOTAL APPROX REBAR WEIGHT = 25370#  
 REINFORCING BAR TO CONFORM TO  
 ASTM A615 GRADE 60 SPECIFICATIONS.



Nitesh Ahuja, KY Professional Engineer #28866

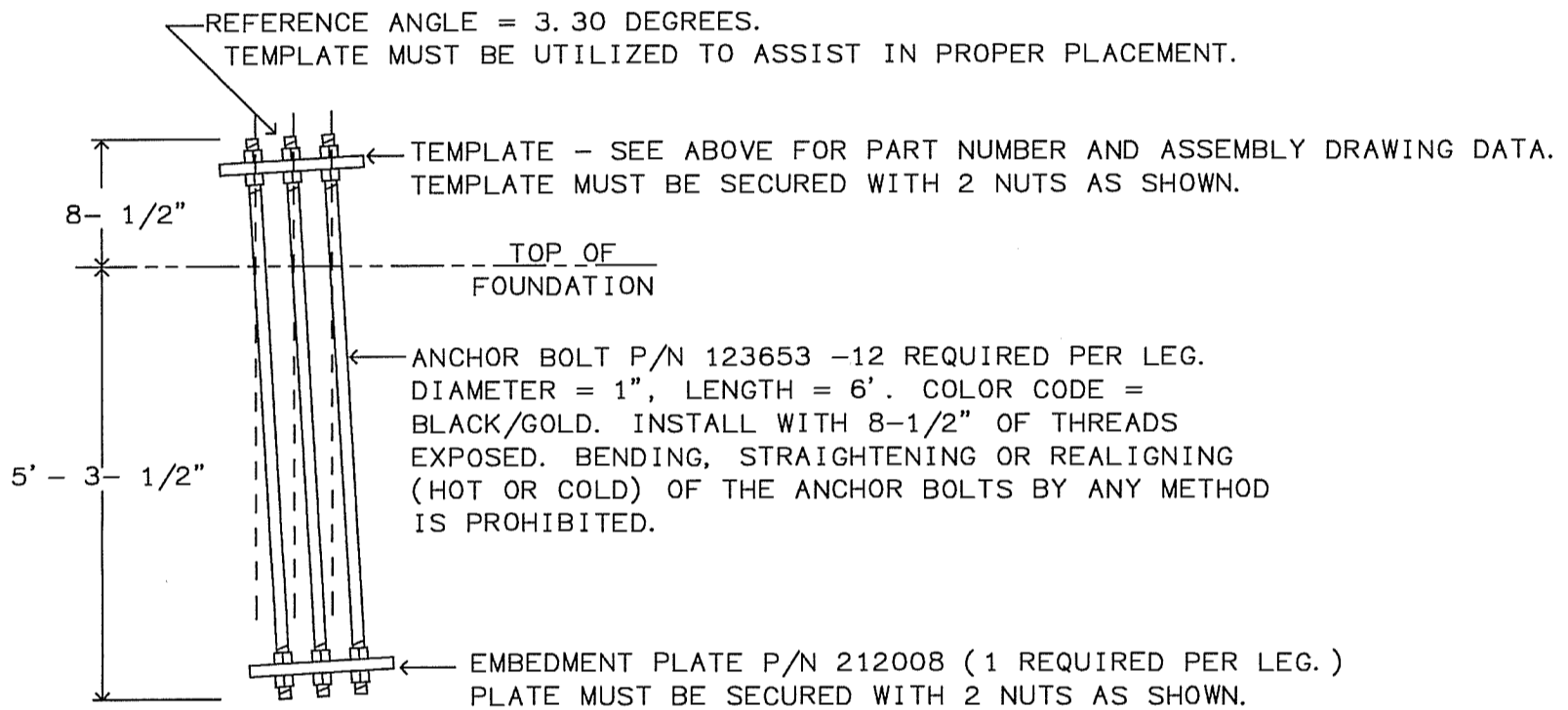
				AMERICAN TOWER CORP. #282072 CHOP BOTTOM, KY V-29.0 X 255'			
A	ADDED FOUNDATIONS	MS	01/20/2014	APPROVED/ENG.	SKK	4/10/2014	 1-877-467-4763 Plymouth, IN 1-888-880-9191 Salem, OR
REV	DESCRIPTION OF REVISIONS	INI	DATE	APPROVED/FOUND.	M_S	4/10/2014	
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Printed from 252034_080A.DWG - 01/20/2014 10:56 @ 04/10/2014 10:26				ARCHIVE F-1015759		PAGE 8 OF 10	



TEMPLATE ASSEMBLY P/N 216153 INCLUDES CORNER PLATE P/N 211902, IS REQUIRED FOR INSTALLATION AND MUST BE PLACED AS SHOWN. SEE DRAWING # 211875 FOR TEMPLATE ASSEMBLY DETAILS. SEE PAGE 7 FOR TOWER C/L LOCATION RELATIVE TO THE FOUNDATION LAYOUT. TEMPLATE PLACEMENT +/- 3". EACH LEG MUST BE CENTERED IN PIER WITHIN +/- 10% OF PIER DIAMETER. TEMPLATE MUST BE LEVEL +/- 1 DEGREE. INSTALL TEMPLATE WITH SUFFICIENT SPACE BENEATH (2" MINIMUM) TO PERMIT FINISHING OF CONCRETE AND TO FACILITATE TEMPLATE REMOVAL PRIOR TO TOWER ERECTION.

SEE PAGE 10 FOR BASE SECTION INSTALLATION DETAIL.

TOWER ANCHOR STEEL PLACEMENT - TOP VIEW



VIEW A - A - ANCHOR BOLT INSTALLATION DETAIL (NOT TO SCALE)

**ATTENTION CONTRACTOR INSTALLING THE ANCHOR BOLTS!**

1" DIAMETER ANCHOR BOLTS FOR TAPERED TOWER.

VERIFY THE PART NUMBERS AND SIZES FOR ALL COMPONENTS ON THIS PAGE AND PAGE 10.

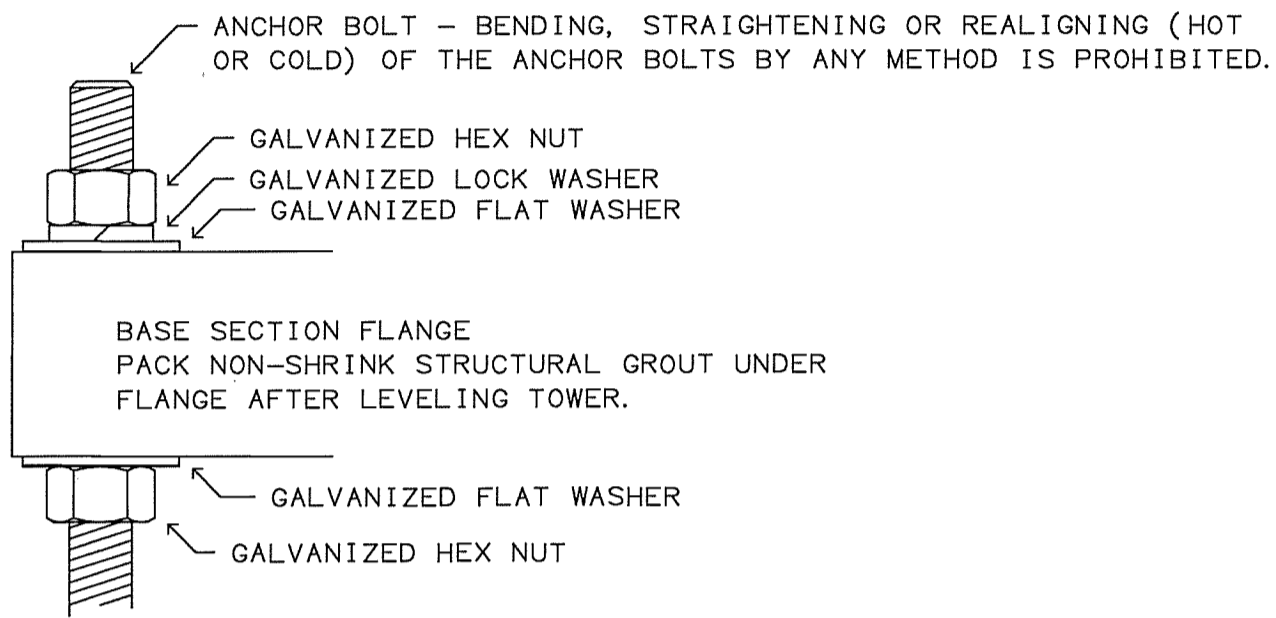
IF THERE ARE ANY DISCREPANCIES, PLEASE NOTIFY PIROD, INC. PRIOR TO INSTALLATION!!



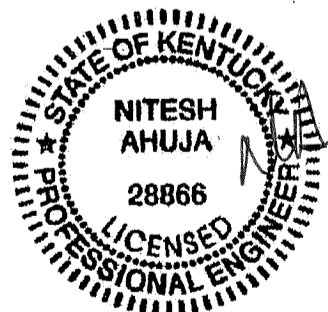
APR 10 2014

Nitesh Ahuja, KY Professional Engineer #28866

				AMERICAN TOWER CORP. #282072 CHOP BOTTOM, KY V-29.0 X 255'		
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BASE SECTION INSTALLATION DETAIL



APR 10 2014

Nitesh Ahuja, KY Professional Engineer #28866

				AMERICAN TOWER CORP. #282072 CHOP BOTTOM, KY V-29.0 X 255'		
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Printed from 252034_100A.DWG - 01/20/2014 10: 57 @ 04/10/2014 10: 26				ARCHIVE F-1015759		252034
						PAGE 10 OF 10





December 30, 2013

Kentucky Public Service Commission  
211 Sower Blvd.  
P.O. Box 615  
Frankfort, KY 40602-0615

RE: Site Name: Chop Bottom  
Proposed Cell Tower  
37-06-05.35 North Latitude, 83-42-17.59 West Longitude

Dear Commissioners:

The Project / Construction Manager for the proposed new communications facility will be Tommy Bailey. His contact information is (606) 316-6620 or [tbailey@westtower.com](mailto:tbailey@westtower.com).

Tommy has been in the industry doing civil construction and constructing towers since 1983. He started in the industry with Andrew Corporation building MCI microwave sites across the US. He's worked for Southwest Bell, Cell One and AT&T. He has erected approximately fifty (50) cellular communications facilities and built over 1,000 civil sites for various carriers, nationwide.

He was also co-owner of EWS in Bastrop, TX for four (4) years installing radio equipment for T-Mobile and AT&T.

Thank you,

A handwritten signature in black ink, appearing to read "J Boud", written in a cursive style.

John Boud  
Site Acquisition Manager  
**WestTower Communications**  
10400 Linn Station Road, Suite 225  
Louisville, Kentucky 40223  
559.790.8855 Mobile  
[jboud@westtower.com](mailto:jboud@westtower.com)





STRUCTURES

April 10, 2014

American Tower Corp.

Attn: Mr. Ron Rohr

SUBJECT: Valmont File # 240012
Model V-29.0 X 255' -Self Supporting Tower
Site: # 282072
Site Name: Chop Bottom-Goose Rock, KY

Thank you for your inquiry concerning tower design codes and practices as they relate to your requested tower designs.

Valmont Structures has been designing and building guyed and self-supporting towers and monopoles since the early 1950's. During this time, we have sold thousands of towers ranging in height from as little as 50' high to in excess of 1400'. These towers were individually engineered to accommodate the loading requirements imparted by the design wind speed, ice considerations, antenna loading, and other factors dictated by the national code requirements existing at the time the tower was built.

The ANSI/TIA-222-G Standard represents the latest refinement of specific minimum requirements for tower engineers and manufacturers to follow to help assure that the tower structure and its foundations are designed to meet the most realistic conditions for local weather while assuring that the tower is designed to stringent factors of safety. This tower is designed to 90 MPH (no ice) and 30 MPH (3/4" ice) per ANSI/TIA-222-G with Class II, Topographical category 1, Exposure criteria C and a Crest height of 0 feet.

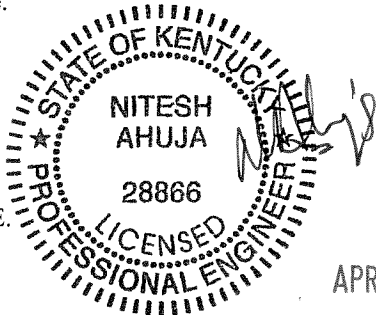
We are aware of few documented instances of a self supporting tower or monopole failure. Self supporting towers and monopoles can be designed such that the most common mode of failure is in the upper middle region of the tower, with the upper portion of the tower remaining connected and "bending and bowing over" against the base of the tower or pole. The fact that the wind is normally greater on the upper portion of the structure contributes to the likelihood of this type of failure. This particular Tower has a theoretical failure at the tower midpoint or above. The predicted mode of wind induced failure would be a buckling of the tower section at or above the tower midpoint with the top sections of the tower folding over on to the intact base sections. This would then affect a "zero fall zone" at ground level.

Including myself, our site has three licensed Professional Engineers covering a total of 49 states. Valmont Structures is an AISC approved shop. All Valmont Structures welders are AWS and CWB qualified. Our total design, engineer and build process has been quality audited by our customers including public utilities, telephone companies, government agencies, and of course AISC.

We trust the above and the attached will be helpful to you. If you should need anything else, please let us know at your convenience.

Sincerely,

Nitesh Ahuja, P.E.
Senior Engineer
Ext. #5257



APR 10 2014



Communications Division, Valmont Industries, Inc.
1545 Pidco Drive Plymouth, Indiana 46563-4005 USA
574.936.4221 Fax: 574.936.4704



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## FOUNDATION NOTES

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- 1 IN THE ABSENCE OF A GEOTECHNICAL REPORT, THE FOLLOWING PRESUMPTIVE SOIL PARAMETERS WERE USED: AN ULTIMATE BEARING PRESSURE OF 5000 PSF, A COHESION OF 1000 PSF, A SOIL UNIT WEIGHT OF 110 PCF, AN ANGLE OF INTERNAL FRICTION OF 0 DEGREES AND NO GROUNDWATER ENCOUNTERED. THESE SOIL PARAMETERS ARE IN COMPLIANCE WITH THE REQUIREMENTS OF ANSI/TIA-222-G-2005 AND CAN BE FOUND IN ANNEX F OF THIS STANDARD.
- 2 ANY SOFT OR UNSTABLE SUBGRADE SOILS DETECTED DURING THE EXCAVATION SHOULD BE REMOVED AND REPLACED WITH COMPACTED FILL.

## UNIT BASE FOUNDATION (Load Case 2)

ATC  
Clay, KYV- 29.0 255  
A- 240012

V 2.1

Reactions	stress ratio	99.0%	mark up:	1.0%
Shear, S:	98.00 kips	x 1.01 =	98.98 kips	
Moment, M:	14628.00 ft-kips	x 1.01 =	14774.28 ft-kips	
Compression / leg, C:	615.00 kips	x 1.01 =	621.15 kips	
Uplift / leg, U:	543.00 kips	x 1.01 =	548.43 kips	
Tower weight, W <sub>t</sub> :	98.00 kips	=	98.00 kips	

Soil per: Assumed as Clay Per TIA-222-G Annex F.

Ultimate bearing: 5.000 ksf  
Ultimate Pp: 0.418 kcf

Load Case 2 = 0.9\*D + 1.0\*Dg + 1.6\*Wo

Physical Parameters:

Concrete volume:	$V = T * W^2 + 3 * (d_i^2 / 4 * \pi) * (D + E - T)$	V =	94.3	cy
Concrete weight:	$W_c = V * \delta$	W <sub>c</sub> =	382.1	kips
Soil weight:	$W_s = (D - T) * (W^2 - 3 * (d_i^2 / 4 * \pi)) * \gamma$	W <sub>s</sub> =	782.8	kips
Total weight:	$P = W_c + W_s + W_t$	P =	1262.94	kips

Passive Pressure:

<u>Pp coefficient:</u>	$K_p = \text{TAN}(45 + \phi / 2)^2$	K <sub>p</sub> =	1.000	
	$P_{pn} = K_p * \gamma * N + 2 * C_o * \sqrt{K_p}$	P <sub>pn</sub> =	2.715	ksf
	$P_{pt} = K_p * \gamma * (D - T) + 2 * C_o * \sqrt{K_p}$	P <sub>pt</sub> =	2.550	ksf
	$P_{pb} = K_p * \gamma * D + 2 * C_o * \sqrt{K_p}$	P <sub>pb</sub> =	2.715	ksf
	$P_{ptop} = \text{IF}(N < (D - T), P_{pt}, P_{pn})$	P <sub>ptop</sub> =	2.7	ksf
	$P_p' = (P_{ptop} + P_{pb}) / 2$	P <sub>p</sub> ' =	2.715	ksf
<u>Shear area:</u>	$T_{pp} = 0$	T <sub>pp</sub> =	0.0	ft
	$A_{pp} = T_{pp} * W$	A <sub>pp</sub> =	0.00	ft <sup>2</sup>
<u>Shear Capacity:</u>	$S_{actual} = (P_p' * A_{pp} + \mu * P) * \phi_r$	S <sub>actual</sub> =	189.441	kips
$\phi_r = 0.75$				

Check	S <sub>actual</sub> =	189.44 kips	>=	S =	98.98 kips	OK
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Overturning Moment Resistance at Toe:

<u>Wt of soil wedge:</u>	$W_{sw} = D * (D * \text{TAN}(\phi)) / 2 * W * \gamma$	W <sub>sw</sub> =	0.0	kips
<u>Dist. from leg to edge:</u>	$O = (W - 0.866 * w') / 2$	O =	6.693	ft
<u>Additional offset of Wt:</u>	$O_a = (2 / 3 * 0.866 * w' + O) - W / 2$	O <sub>a</sub> =	4.186	ft
<u>Resisting moments:</u>	$M_{rwt} = P * W / 2 - W_t * O_a$	M <sub>rwt</sub> =	23901.45	ft-kips
	$M_{rp} = P_p' * A_{pp} * (D - N) / 3$	M <sub>rp</sub> =	0.00	ft-kips
	$M_{rsw} = W_{sw} * (W + D * \text{TAN}(\phi) / 3)$	M <sub>rsw</sub> =	0.00	ft-kips
<u>Total resisting:</u>	$M_{rt} = (M_{rwt} + M_{rp} + M_{rsw}) * \phi_r$	M <sub>rt</sub> =	17926.09	ft-kips
$\phi_r = 0.75$				
<u>Total overturning:</u>	$M_o = M + S * (D + E)$	M <sub>o</sub> =	15467.14	ft-kips

Check	M <sub>rt</sub> =	17926.09 ft-kips	>=	M <sub>o</sub> =	15467.14 ft-kips	OK
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Bearing Resistance due to Pressure Distribution:

<u>Area of mat:</u>	$\text{area} = W^2$	area =	1482.3	ft <sup>2</sup>
<u>Section modulus:</u>	$SM = W^3 / 6$	SM =	9511.1	ft <sup>3</sup>
<u>Factored total weight:</u>	$P' = W_t + 0.9 * (W_c + W_s)$	P' =	1146.4	kip
<u>Pressure exerted:</u>	$P_{pos} = P' / \text{area} + M_o / SM$	P <sub>pos</sub> =	2.400	ksf
	$P_{neg} = P' / \text{area} - M_o / SM$	P <sub>neg</sub> =	-0.853	ksf

Note: The stress resultant is NOT within the kern. Bearing area has been adjusted below.

<u>Load eccentricity:</u>	$e_c = M_o / P'$	e <sub>c</sub> =	13.49	ft
	$P_{adj} = 2 * P' / (3 * W * (W / 2 - e_c))$	P <sub>adj</sub> =	3.4	ksf
<u>Adj. applied pressure:</u>	$q_a = \text{IF}(P_{neg} >= 0, P_{pos}, P_{adj})$	q <sub>a</sub> =	3.447	ksf
$\phi_r = 0.75$				

Check	q <sub>a</sub> =	3.447 ksf	<=	B <sub>c</sub> * φ <sub>r</sub> =	3.750 ksf	OK
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Concrete Shear Strength:One way beam action at d<sub>1</sub> from tower

<u>Effective depth:</u>	$d_c = T - cc - db_p / 2$	d <sub>c</sub> =	14.500	ln
<u>Factored intensity:</u>	$q_s = C / \text{area}$	q <sub>s</sub> =	0.419	ksf
<u>Required shear:</u>	$V_{n1} = q_s * (O - dl / 2 - dc) * W / \phi_s$	V <sub>n1</sub> =	64.21	kips
$\phi_s = 0.75$ [ACI 9.3.2.3]				
<u>Available shear:</u>	$V_{c1} = 2 * \sqrt{F'c} * W * dc$	V <sub>c1</sub> =	847.36	kips
[ACI 12.2.4]				

Check	V <sub>c1</sub> =	847.36 kips	>=	V <sub>n1</sub> =	64.21 kips	OK
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Two way beam action at  $d_1 / 2$  from tower

Perimeter:	$P_o = (d_i + d_c) * \pi$	$P_o = 19.50$	ft
Required shear: $\phi_s = 0.75$ [ACI 9.3.2.3]	$V_{n2} = q_s / \phi_s * (\text{area} - (d_i + d_c)^2 * \pi / 4)$	$V_{n2} = 811.29$	kips
Available shear: [ACI 12.2.2]	$V_{c2} = 4 * \sqrt{F'c} * P_o * d_c$	$V_{c2} = 858.55$	kips
<b>Check</b>	$V_{c2} = 858.55$ kips	$>=$	$V_{n2} = 811.29$ kips <b>OK</b>

Column Compression Capacity:

Compression reaction: $\phi_c = 0.65$ [ACI 9.3.2.2]	$P_c = \phi_c * 0.8 * F'c * (d_i^2 / 4 * \pi)$	$P_c = 5881.1$	kips
<b>Check</b>	$P_c = 5881.06$ kips	$>=$	$C = 621.15$ kips <b>OK</b>

Pier Reinforcement:

Cross-sectional area:	$A_g = d_i^2 * \pi / 4$	$A_g = 2827.43$	in <sup>2</sup>
Min. area of steel (pier): [ACI 10.9.1] & [ACI 10.8.4]	$A_{st,c} = A_g * 0.005$	$A_{st,c} = 14.14$	in <sup>2</sup>
Cage circle:	$d_o = d_i - 2 * cc$	$d_o = 54.00$	in
Rebar:	$s_c = 7$ $m_c = 29$	$d_{b,c} = 0.875$ in $A_{b,c} = 0.6$ in <sup>2</sup>	
	$A_{s,c} = A_{b,c} * m_c$	$A_{s,c} = 17.40$	in <sup>2</sup>
<b>Check</b>	$A_{s,c} = 17.40$ in <sup>2</sup>	$>=$	$A_{st,c} = 14.14$ in <sup>2</sup> <b>OK</b>
Actual moment:	$M_{max} = (D - T + E) * S / 2$	$M_{max} = 272.20$	ft-kips
Pier moment capacity:	$M_{allow}$ per Maxmomn.xls (see attached)	$M_{allow} = 318.48$	ft-kips
<b>Check</b>	$M_{allow} = 318.48$ ft-kips	$>=$	$M_{max} = 272.20$ ft-kips <b>OK</b>
Bar separation:	$B_{s,c} = (d_o * \pi) / m_c - d_{b,c}$	$B_{s,c} = 4.97$	in
<b>Check</b>	$11.13$	$>=$	$B_{s,c} = 4.97$ in $>= 4.5"$ <b>OK</b>

Vertical Rebar Development Length:

Reinforcement location: [ACI 12.2.4]	$\psi_{l,c} =$ if the space under the rebar > 12 in, use 1.3, else use 1.0	$\psi_{l,c} = 1.3$	
Epoxy coating: [ACI 12.2.4]	$\psi_{e,c} =$ if epoxy-coated bars are not used, use 1.0; but if epoxy-coated bars are used, then if $B_s < 6 * db$ or $cc < 3 * db$ , use 1.5, else 1.2	$\psi_{e,c} = 1.0$	
Max term: [ACI 12.2.4]	$\psi_t \psi_{e,c} =$ the product of $\psi_t$ & $\psi_{e,c}$ , need not be taken larger than 1.7	$\psi_t \psi_{e,c} = 1.3$	
Reinforcement size: [ACI 12.2.4]	$\psi_{s,c} =$ if the bar size is 6 or less, then use 0.8, else use 1.0	$\psi_{s,c} = 1$	
Light weight concrete: [ACI 12.2.4]	$\lambda_c =$ if lightweight concrete is used, 1.3, else use 1.0	$\lambda_c = 1.0$	
Spacing/cover: [ACI 12.2.4]	$c_c =$ the smaller of: half the bar spacing or the concrete edge distance	$c_c = 3.36$ in	
Transverse bars: [ACI 12.2.3]	$k_{tr,c} = 0$ in (per simplification)	$k_{tr,c} = 0$ in	
Max term: [ACI 12.2.3]	$c_c' = \text{MIN}(2.5, (c_c + k_{tr,c}) / db_c)$	$c_c' = 2.500$	
Excess reinforcement: [ACI 12.2.5]	$R_c = M_{max} / M_{allow}$	$R_c = 0.85$	
Development (tensile): [ACI 12.2.2]	$L_{dt,c} = (3 / 40) * (F_y / \sqrt{F'c}) * (\psi_t \psi_{e,c} * \psi_{s,c} * \lambda_c * R_c / c_c) * db_c$	$L_{dt,c} = 27.67$ in	
Minimum length: [ACI 12.2.1]	$L_{d,min} = 12$ inches	$L_{d,min} = 12.0$ in	
Development length:	$L_{dt,c} = \text{MAX}(L_{d,min}, L_{dt,c})$	$L_{dt,c} = 27.67$ in	
Development (comp.): [ACI 12.3.2]	$L_{dc,c} = 0.02 * db_c * F_y * R_c / \sqrt{F'c}$	$L_{dc,c} = 14.19$ in	
	$L_{dc''c} = 0.0003 * db_c * F_y * R_c$	$L_{dc''c} = 13.46$ in	
Development length:	$L_{dc,c} = \text{MAX}(8, L_{dc',c}, L_{dc''c})$	$L_{dc,c} = 14.19$ in	
Length available in pier:	$L_{vc} = D - T + E - cc$	$L_{vc} = 63.0$ in	
<b>Check</b>	$L_{vc} = 63.0$ in	$>=$	$L_{dt,c} = 27.7$ in <b>OK</b>
<b>Check</b>	$L_{vc} = 63.0$ in	$>=$	$L_{dc,c} = 14.2$ in <b>OK</b>
Length available in pad:	$L_{vp} = T - cc$	$L_{vp} = 15.0$ in	
<b>Check</b>	$L_{vp} = 15.0$ in	$>=$	$L_{dt,c} = 27.7$ in <b>HOOKS</b>
<b>Check</b>	$L_{vp} = 15.0$ in	$>=$	$L_{dc,c} = 14.2$ in <b>OK</b>

**Vertical Rebar Hook Endng:**

Bar size & clear cover: [ACI 12.5.3]	$\alpha_h$ If the bar size $\leq 11$ and side cc $\geq 2.5'$ , use 0.7, else use 1.0	$\psi_{t,h} = 0.7$
Epoxy coating: [ACI 12.5.2]	$\beta_h$ If epoxy-coated bars are used, use 1.2, else use 1.0	$\psi_{e,h} = 1.0$
Light weight concrete: [ACI 12.5.2]	$\lambda_h$ If lightweight concrete is used, 1.3, else use 1.0	$\lambda_h = 1.0$
Development (hook): [ACI 12.5.2]	$L_{dh}' = 0.02 * \psi_{t,h} * \psi_{e,h} * \lambda_h * F_y / \sqrt{(F'c)} * db_c$	$L_{dh}' = 11.6$ in
Minimum length: [ACI 12.5.1]	$L_{dh,min}$ the larger of: 8 * db or 6 in	$L_{dh,min} = 7.0$ in
Development length:	$L_{dh} = \text{MAX}(L_{dh,min}, L_{dh}')$	$L_{dh} = 11.6$ in
Hook tail length:	$L_{ht,tail} = 12 * db$ beyond the bend radius	$L_{ht,tail} = 14.0$ in
Length available in pad:	$L_{ht,pad} = (W - w' - di) / 2$	$L_{ht,pad} = 27$ in
	Check $L_{ht,pad} = 27.0$ in $\geq L_{ht,tail} = 14.0$ in	OK

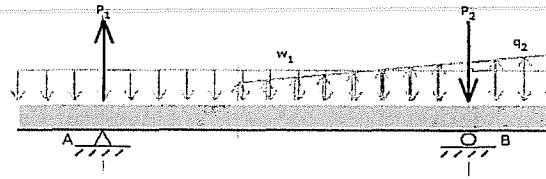
**Pier Ties:**

Minimum size: [ACI 7.10.5.1]	$s_{t,min} = \text{IF}(s_c \leq 10, 3, 4)$	$s_{t,min} = 3$
z factor:	$z = 0.5$ if the seismic zone is less than 2, else 1.0	$z = 1$
Tie parameters:	$s_t = 4$ $m_t = 12$	$d_{b,t} = 0.5$ in $A_{b,t} = 0.2$ in <sup>2</sup>
Allowable tie spacing:		
per vertical rebar [ACI 7.10.5.2] & [ACI 21.3.3.2]	$B_{s,t,max1} = 8 / z * db_c$	$B_{s,t,max1} = 7$ in
per tie size [ACI 7.10.5.2] & [ACI 21.3.3.2]	$B_{s,t,max2} = 24 / z * db_t$	$B_{s,t,max2} = 12$ in
per pier diameter [ACI 7.10.5.2] & [ACI 21.3.3.2]	$B_{s,t,max3} = di / (4 * z^2)$	$B_{s,t,max3} = 15$ in
per seismic zone [ACI 7.10.5.2] & [ACI 21.3.3.2]	$B_{s,t,max4} = 12'$ in active seismic zones, else 18"	$B_{s,t,max4} = 12$ in
	$B_{s,t,max} = \text{MIN}(B_{s,t,max1}, B_{s,t,max2}, B_{s,t,max3}, B_{s,t,max4})$	$B_{s,t,max} = 7$ in
	$m_{t,min} = (D - T + E) / B_{s,t,max} + 2$	$m_{t,min} = 11.4$
	Check $m_t = 12.0$ $\geq m_{t,min} = 11.4$	OK

**Anchor Steel:**

A/S parameters:	$P_{as} = 123653$ $d_{as} = 1$ in	$L_{as} = 72$ in $E_{as} = 63.50$ in
Development available:	$L_{das}$ per Anchor Bolts (see attached)	$L_{das} = 44.19$ in
Required development:	$L_{das,min}$ per Anchor Bolts (see attached)	$L_{das,min} = 27.67$ in
	Check $L_{das} = 44.19$ in $\geq L_{das,min} = 27.67$ in	OK
To bottom rebar grid:	$E_{as,max} = D + E - cc - 2 * db_p$	$E_{as,max} = 79$ in
	Check $E_{as} = 63.50$ in $\leq E_{as,max} = 79.00$ in	OK
To top rebar grid:	rebar @ = D + E - T + cc	rebar @ = 69.00 in
	Check 69 + 6 in $\geq E_{as} = 63.50$ in or $\leq 69$ in	OK
Min. cage dia:	$d_{o,min}$ per anctest.xls (see attached)	$d_{o,min} = 34.65$ in
	Check $d_o = 54.00$ in $\geq d_{o,min} = 34.65$ in	OK

**Pad Reactions:**



**MDSolids Geometry Input (Option 1)**

Total Beam Length:	$B_{L2,1} = W$	$B_{L2,1} =$	38.5	ft
Location of Left Support:	$S_{L2,1} = 0$	$S_{L2,1} =$	6.693	ft
Location of Right Support:	$S_{R2,1} = W - 0$	$S_{R2,1} =$	31.81	ft

**MDSolids Geometry Input (Option 2)**

Total Beam Length:	$B_{L2,2} = W$	$B_{L2,2} =$	38.5	ft
Location of Left Support:	$S_{L2,2} = (W - w) / 2$	$S_{L2,2} =$	4.75	ft
Location of Right Support:	$S_{R2,2} = S_{L1,2} + W$	$S_{R2,2} =$	33.75	ft

**MDSolids Load Input (Option 1 & Option 2)**

Uplift:	$P_{2,1} = U$	$P_{2,1} =$	548.4	kips
Compression:	$P_{2,2} = C$	$P_{2,2} =$	621.15	kips
Weight of Overburden: (Distributed)	$w_{2,1} = 0.9 * (W_o + W_b) / W$	$w_{2,1} =$	27.23	kif
Distributed Soil Pressure: (Linearly Increasing)	$q_{2,2L} = 0$ $q_{2,2R} = q_a * W$	$q_{2,2L} =$ $q_{2,2R} =$	0.00 132.72	kif

Applied over the beam starting at 0' and ending at W=38.5ft.

This linearly increasing load is applied from e=13.49ft to W=38.5ft

**MDSolids Design Result**

Option 1:	$M_{max2,1} = M_{max2,1}$ (Max. Moment calculated from MDSolids for Option 1)	$M_{max2,1} =$	2098.00	ft*kips
Option 2:	$M_{max2,2} = M_{max2,2}$ (Max. Moment calculated from MDSolids for Option 2)	$M_{max2,2} =$	1096.00	ft*kips
Max moment:	$M_{maxp} = \text{Max}(M_{max2,1}, M_{max2,2})$	$M_{maxp} =$	2098.00	ft*kips
Required moment: $\phi_t = 0.9$ [ACI 9.3.2.1]	$M_n = M_{maxp} / \phi_t$	$M_n =$	2331.11	ft*kips

**Pad Reinforcement:**

	$\beta = \text{IF}(F'c \leq 4000, 0.85, \text{IF}(F'c > 8000, 0.65, 0.85 - (F'c - 4000) * 0.05))$	$\beta = 0.85$	
Effective width:	$W_e = w' * 0.866 + d_l$	$W_e = 30.114$	ft
	$A_{st\_p}' = Mn / (0.9 * Fy * dc)$	$A_{st\_p}' = 35.726$	in <sup>2</sup>
	$a_p = A_{st\_p}' * Fy / (\beta * F'c * W_e)$	$a_p = 1.74$	in
Required steel:	$A_{st\_p\_st} = Mn / (Fy * (dc - a_p / 2)) * (W / W_e)$	$A_{st\_p\_st} = 43.738$	in <sup>2</sup>
Shrinkage:	$\rho_{sh} = \text{IF}(Fy >= 60000, 0.0018, 0.002)$	$\rho_{sh} = 0.0018$	
	$A_{st\_p\_sh} = \rho_{sh} * W * T / 2$	$A_{st\_p\_sh} = 7.484$	in <sup>2</sup>
	$A_{st\_p} = \text{MAX}(A_{st\_p\_st}, A_{st\_p\_sh})$	$A_{st\_p} = 43.738$	in <sup>2</sup>
Rebar:	$s_p = 8$ Equally spaced, top and bottom, both directions.	$d_{b\_p} = 1$	in
		$A_{b\_p} = 0.79$	in <sup>2</sup>
	$A_{s\_p} = A_{b\_p} * m_p$	$A_{s\_p} = 44.24$	in <sup>2</sup>
	<b>Check</b> $A_{s\_p} = 44.24$ in <sup>2</sup> $\geq$	$A_{st\_p} = 43.74$ in <sup>2</sup>	OK
Bar separation:	$B_{s\_p} = (W - 2 * cc - db\_p) / (m_p - 1) - db\_p$	$B_{s\_p} = 7.27$	in
	<b>Check</b> $11 \geq$ $B_{s\_p} = 7.27$ in $\geq$ $4.5"$		OK

**Pad Development Length:**

Reinforcement location:	$\psi_{l\_p} = \text{if the space under the rebar} > 12 \text{ in, use } 1.3, \text{ else use } 1.0$	$\psi_{l\_p} = 1$	
[ACI 12.2.4]			
Epoxy coating:	$\psi_{e\_p} = \text{if epoxy-coated bars are not used, use } 1.0; \text{ but if epoxy-coated bars are used, then if } B_s < 6 * db \text{ or } cc < 3 * db, \text{ use } 1.5, \text{ else } 1.2$	$\psi_{e\_p} = 1.0$	
[ACI 12.2.4]			
Max term:	$\psi_1 \psi_{e\_p} = \text{the product of } \psi_1 \text{ \& } \psi_{e\_p}, \text{ need not be taken larger than } 1.7$	$\psi_1 \psi_{e\_p} = 1$	
[ACI 12.2.4]			
Reinforcement size:	$\psi_{s\_p} = \text{if the bar size is } 6 \text{ or less, then use } 0.8, \text{ else use } 1.0$	$\psi_{s\_p} = 1$	
[ACI 12.2.4]			
Light weight concrete:	$\lambda_p = \text{if lightweight concrete is used, } 1.3, \text{ else use } 1.0$	$\lambda_p = 1.0$	
[ACI 12.2.4]			
Spacing/cover:	$c_p = \text{the smaller of: half the bar spacing or the concrete edge distance}$	$c_p = 3.50$	
[ACI 12.2.4]		in	
Transverse bars:	$k_{tr\_p} = 0$ (per simplification)	$k_{tr\_p} = 0$	
[ACI 12.2.3]		in	
Max term:	$c_p' = \text{MIN}(2.5, (c_p + k_{tr\_p}) / db_p)$	$c_p' = 2.500$	
[ACI 12.2.3]			
Excess reinforcement:	$R_p = A_{st\_p} / A_{s\_p}$	$R_p = 0.99$	
[ACI 12.2.5]			
Development (tensile):	$L_d = (3 / 40) * (Fy / \sqrt{F'c}) * \psi_1 \psi_{e\_p} * \psi_{s\_p} * \lambda_p * R_p * db_p / c_p'$	$L_{dp}' = 28.1$	
[ACI 12.2.2]		in	
Minimum length:	$L_{d\_min} = 12$ inches	$L_{d\_min} = 12.0$	
[ACI 12.2.1]		in	
Development length:	$L_{dp} = \text{MAX}(L_{d\_min}, L_{dp}')$	$L_{dp} = 28.1$	
		in	
Length available in pad:	$L_{pad} = (W / 2 - w' / 2) - cc$	$L_{pad} = 54.0$	
		in	
	<b>Check</b> $L_{pad} = 54.00$ in $\geq$	$L_{dp} = 28.14$ in	OK



**THIS SPREADSHEET IS SET UP FOR A MAXIMUM OF 56 BARS.  
MAXIMUM FACTORED MOMENT OF A CIRCULAR SECTION**

Loading	
(negative for compression)	
Axial load =	548.43 kips

Foundation	
<i>Concrete</i>	
Pier diameter =	5.00 ft
Pier area =	2827.4 in <sup>2</sup>
<i>Reinforcement</i>	
Clear cover =	3.00 in
Cage diameter =	4.43 ft
Bar size =	7
Bar diameter =	0.875 in
Bar area =	0.601 in <sup>2</sup>
Number of bars =	29

Material Strengths		
Concrete compressive strength =	4000	psi
Reinforcement yield strength =	60000	psi
Modulus of elasticity =	29000	ksi
Reinforcement yield strain =	0.00207	(per ACI 10.3.5 - OK)
Limiting compressive strain =	0.003	

Seismic	
Seismic Zone =	2
Are hooks required?	yes

13L 3P

**Minimum Area of Steel**

Required area of steel =	14.14	in <sup>2</sup>	
Actual area of steel =	17.44	in <sup>2</sup>	OK
Bar spacing =	4.97	in	

**Axial Loading**

Load factor =	1.00
Reduction factor =	0.65575 (per ACI 9.3.1 & 2)
Factored axial load =	836.34 kips

**Neutral Axis**

Distance from extreme edge to neutral axis =	3.05	in
Equivalent compression zone factor =	0.85	(per ACI 10.2.7.3)
Distance from extreme edge to		
Equivalent compression zone factor =	2.59	in
Distance from centroid to neutral axis =	26.95	in

**Compression Zone**

Area of steel in compression zone =	0.00	in <sup>2</sup>
Angle from centroid of pier to intersection of		
equivalent compression zone and edge of pier =	24.00	deg
Area of concrete in compression =	42.59	in <sup>2</sup>
Force in concrete = $0.85 * f_c * Acc$ =	144.80	kips (per ACI 10.3.6.2)
Total reinforcement forces =	-981.15	kips
Factored axial load =	836.34	kips
Force in concrete =	-144.80	kips
Sum of the forces in concrete =	0.00	kips OK

**Maximum Moment**

First moment of the concrete area in compression about the centroid =	1211.55	in <sup>3</sup>
Distance between centroid of concrete in compression and centroid of pier =	28.45	in
Moment of concrete in compression =	4119.29	in-kips
Total reinforcement moment =	1708.76	in-kips
Nominal moment strength of column =	5828.04	in-kips
Factored moment strength of column =	3821.72	in-kips 318.48 ft-kips

Maximum allowable moment of the pier =	318.48	ft-kips
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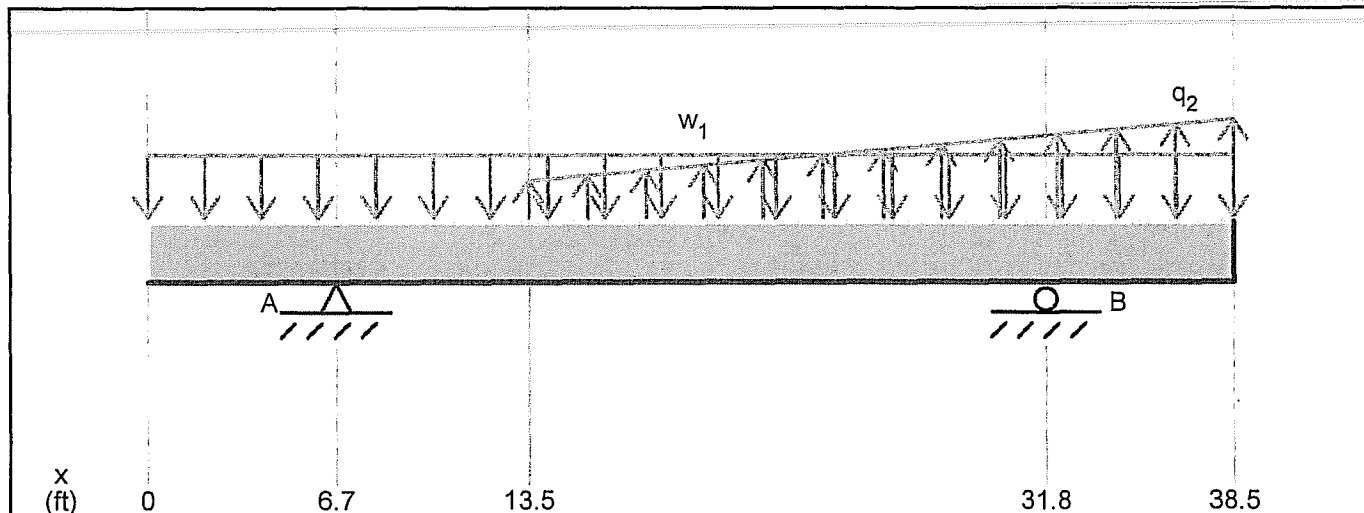
Individual Bars

Bar #	Angle from first bar (deg)	Distance to centroid (in)	Distance to neutral axis (in)	Distance to equivalent comp. zone (in)	Strain	Area of steel in compression (in <sup>2</sup> )	Axial force (kips)	Moment (in-kips)
1	0.00	0.00	-26.95	-27.41	-0.02649	0.00	-36.08	0.00
2	12.41	5.71	-21.24	-21.70	-0.02088	0.00	-36.08	-206.02
3	24.83	11.15	-15.79	-16.25	-0.01553	0.00	-36.08	-402.40
4	37.24	16.07	-10.87	-11.33	-0.01069	0.00	-36.08	-579.97
5	49.66	20.24	-6.70	-7.16	-0.00659	0.00	-36.08	-730.42
6	62.07	23.47	-3.48	-3.94	-0.00342	0.00	-36.08	-846.72
7	74.48	25.59	-1.35	-1.81	-0.00133	0.00	-23.20	-593.91
8	86.90	26.52	-0.42	-0.88	-0.00042	0.00	-7.28	-192.99
9	99.31	26.21	-0.74	-1.19	-0.00072	0.00	-12.61	-330.45
10	111.72	24.68	-2.27	-2.73	-0.00223	0.00	-36.08	-890.29
11	124.14	21.99	-4.96	-5.42	-0.00488	0.00	-36.08	-793.22
12	136.55	18.27	-8.68	-9.14	-0.00853	0.00	-36.08	-659.06
13	148.97	13.69	-13.25	-13.71	-0.01303	0.00	-36.08	-494.08
14	161.38	8.48	-18.47	-18.92	-0.01815	0.00	-36.08	-306.00
15	173.79	2.87	-24.08	-24.53	-0.02367	0.00	-36.08	-103.62
16	186.21	-2.87	-29.82	-30.28	-0.02931	0.00	-36.08	103.62
17	198.62	-8.48	-35.43	-35.89	-0.03483	0.00	-36.08	306.00
18	211.03	-13.69	-40.64	-41.10	-0.03995	0.00	-36.08	494.08
19	223.45	-18.27	-45.22	-45.67	-0.04444	0.00	-36.08	659.06
20	235.86	-21.99	-48.93	-49.39	-0.0481	0.00	-36.08	793.22
21	248.28	-24.68	-51.62	-52.08	-0.05074	0.00	-36.08	890.29
22	260.69	-26.21	-53.16	-53.62	-0.05226	0.00	-36.08	945.73
23	273.10	-26.52	-53.47	-53.93	-0.05256	0.00	-36.08	956.95
24	285.52	-25.59	-52.54	-53.00	-0.05165	0.00	-36.08	923.42
25	297.93	-23.47	-50.42	-50.87	-0.04956	0.00	-36.08	846.72
26	310.34	-20.24	-47.19	-47.65	-0.04639	0.00	-36.08	730.42
27	322.76	-16.07	-43.02	-43.48	-0.04229	0.00	-36.08	579.97
28	335.17	-11.15	-38.10	-38.56	-0.03745	0.00	-36.08	402.40
29	347.59	-5.71	-32.66	-33.12	-0.0321	0.00	-36.08	206.02

DEVELOPMENT LENGTH CHECK OF PIER REINFORCEMENT			
Foundation:	Pier diameter = 5.0 ft	Cover between side of pier and cage = 3.00 in.	
	Cage diameter = 4.5 ft	Cover between top of pier and cage = 3.00 in.	
	Rebar size = 8	Compressive strength of concrete = 4000 psi	
	Number of bars = 56	Rebar yield strength = 60000 psi	
	Clear spacing = 7.27 in.		
	Are there hooks? n		
	Check Compression? n		
Anchor Steel:	Part number: 123653	Actual Bending Moment = 272.20 ft-kips	
	Embedment length = 63.5 in.	Allowable Bending Moment = 318.48 ft-kips	
	Bolt Diameter = 1"	Excess Reinforcement Ratio = 0.855	
Anchor Plate:	Part number: 212008		
	Plate width = 21.375 in.		
	Required development length (compression) = 999.00 in.		
	Required development length (tension) = 32.37 in.		
	Required development length (tension) = 27.67 in.	(reduced)	
	Available development length = 44.188 in.		
<b>OK</b>			
The length available in the pier for the development of the vertical reinforcement exceeds the required length (ACI 318-02, section 12.2).			

CHECK EMBEDMENT PLATE CLEARANCE IN THE PIER			
Foundation:	Pier diameter = 5.0 ft	Cover between side of pier and cage = 3.00 in.	
	Cage diameter = 4.5 ft	Minimum cover between A/S and cage = 3.00 in.	
Anchor Steel:	Part number: 123653	Angle of anchor steel in foundation = 3.3 degrees	
	Embedment length = 63.5 in.		
Anchor Plate:	Part number: 212008		
	Largest plate width = 21.38 in.		
	Bolt Diameter = 1 in.		
	Minimum cage diameter = 34.65 in.		
	Actual cage diameter = 54 in.		
<b>OK</b>			
The available space exceeds the minimum cage diameter required for anchor steel installed in the pier at an angle.			

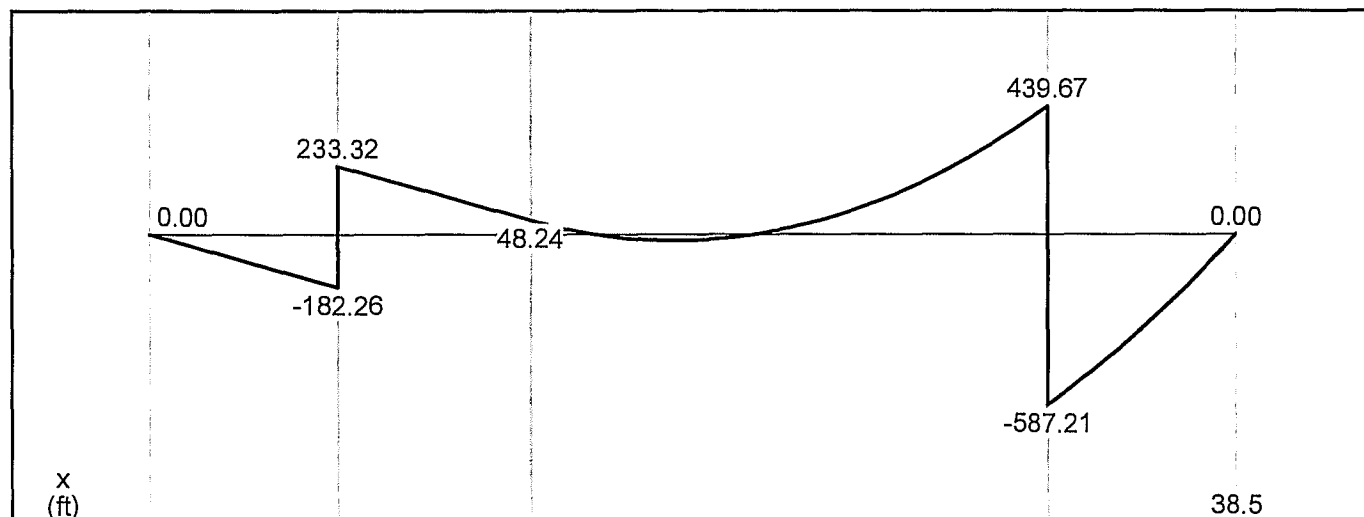
LC2- Option 1



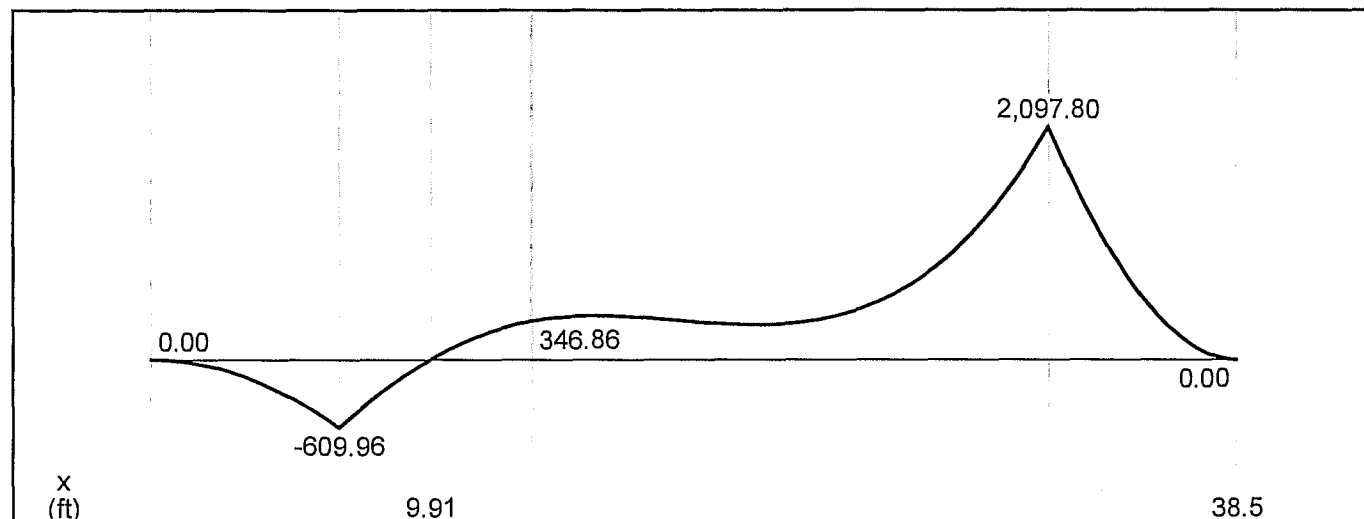
Load Diagram

$w_1 = 27.23 \text{ kip/ft (down)}$   
 $q_2 = 0.0 \text{ to } 132.72 \text{ kip/ft (up)}$

$A_y = 415.57 \text{ kip (up)}$   
 $B_y = 1,026.88 \text{ kip (down)}$

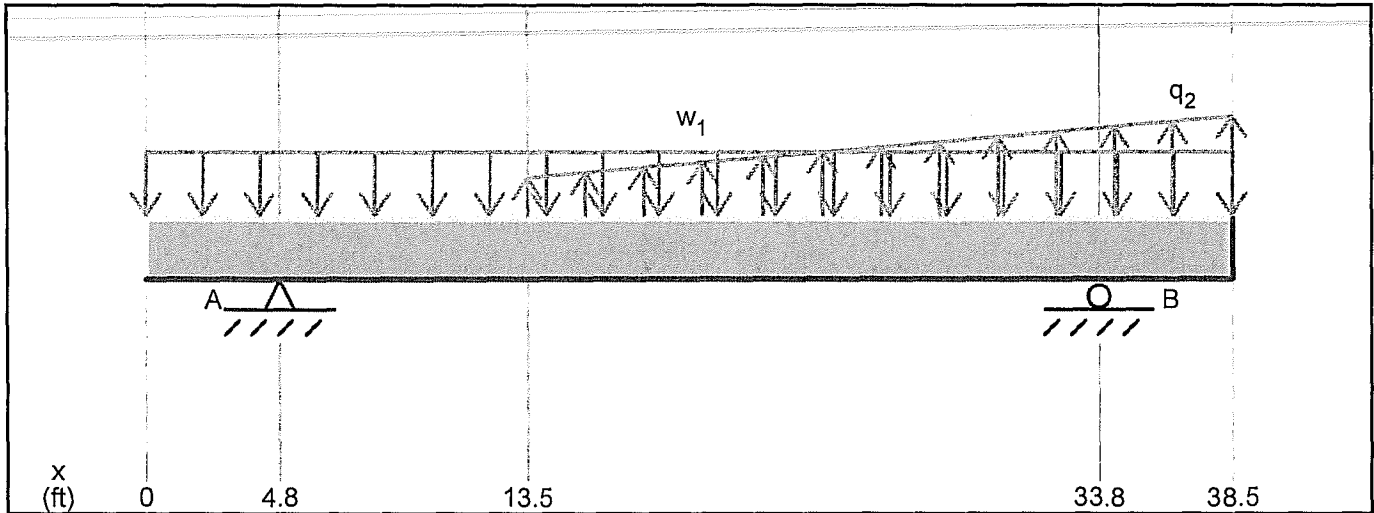


Shear Diagram (kip)



Moment Diagram (kip-ft)

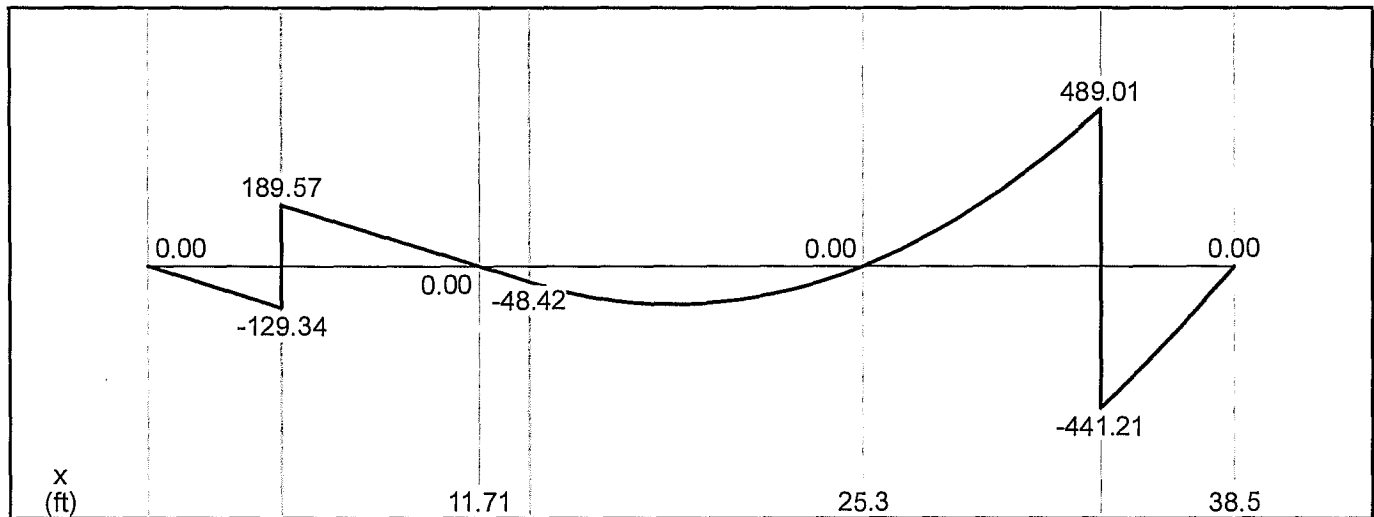
LC2- Option 2



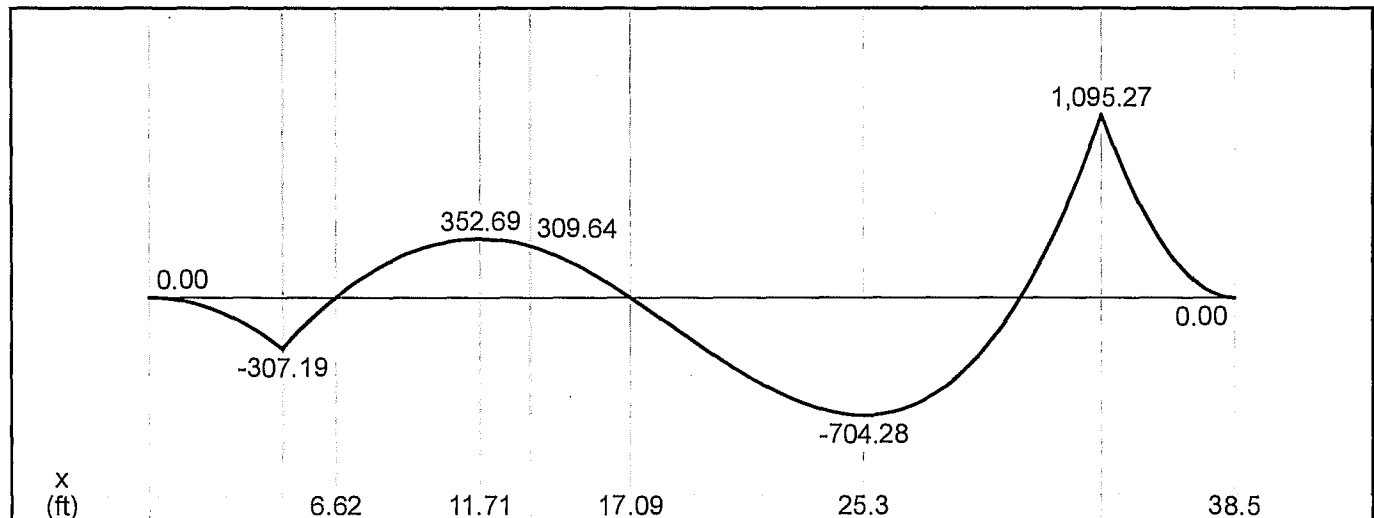
Load Diagram

$w_1 = 27.23$  kip/ft (down)  
 $q_2 = 0.0$  to  $132.72$  kip/ft (up)

$A_y = 318.91$  kip (up)  
 $B_y = 930.22$  kip (down)

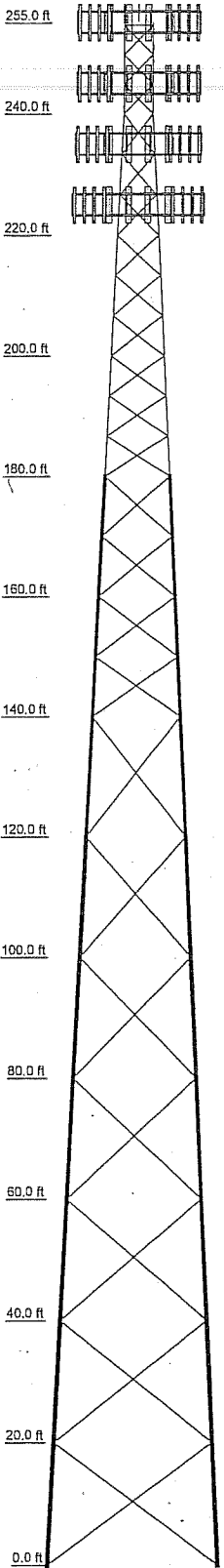


Shear Diagram (kip)



Moment Diagram (kip-ft)

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	
Legs	A	B	C	D	E	F	G	H	I					
Leg Grade	L2x2x3/16	L2x2x3/16	L2x2x3/16	L2 1/2x2 1/2x3/16	L3x3x3/16	L3x3x3/16	L3x3x3/16	2L3x3x3/16	A572-50					
Diagonals	L2x2x1/8										2L3 1/2x3 1/2x1/4			
Diagonal Grade														
Top Chords	L2x2x3/16													
Face Width (ft)	5	7	9	11	13	15	17	19	21	23	25	27	29	
# Panels @ (ft)	3 @ 4.06111	9 @ 6.66667	4 @ 10	7 @ 20										
Weight (K)	0.7	1.3	1.5	1.8	3.2	3.7	4.1	4.7	5.4	6.1	6.2	7.1	7.2	



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Beacon	255	ATC Loading	245
Beacon Extender (4') 803062	255	ATC Loading	235
5/8" x 10' lightning rod	255	ATC Loading	225
ATC Loading	255		

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	P- 4.00" - 0.75" conn.-18' -C-Trans-6B-4B-(Pirod 228175)	F	#12ZG -2.00" - 0.875" conn.-HBD-Trans (Pirod 208332)
B	P- 5.00" - 0.75" conn.-Trans-20' -C-(Pirod 226200)	G	#12ZG -2.25" - 0.875" conn. (Pirod 208334)
C	P- 5.00" - 0.75" conn.-20' -C-(Pirod 226192)	H	#12ZG - 2.50" - 0.875" conn. (Pirod 208335)
D	P- 6.00" - 0.75" conn.-HBD-Trans-20' -C-(Pirod 226272)	I	#12ZG - 2.75" - 0.875" conn. (Pirod 208337)

MATERIAL STRENGTH

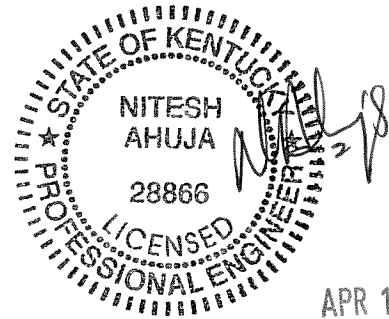
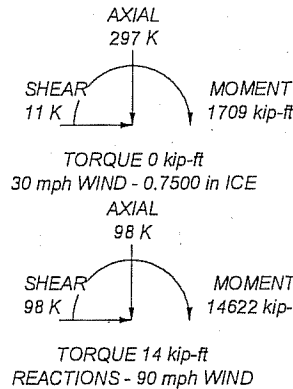
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in Clay County, Kentucky.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 90 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 30 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. Tower design conforms to the 2013 Kentucky Building Code
9. THEORETICAL FAILURE POINT AT TOWER MIDPOINT OR ABOVE FOR AN EFFECTIVE "ZERO FALL ZONE" AT GROUND LEVEL
10. TOWER RATING: 94.3%

ALL REACTIONS ARE FACTORED

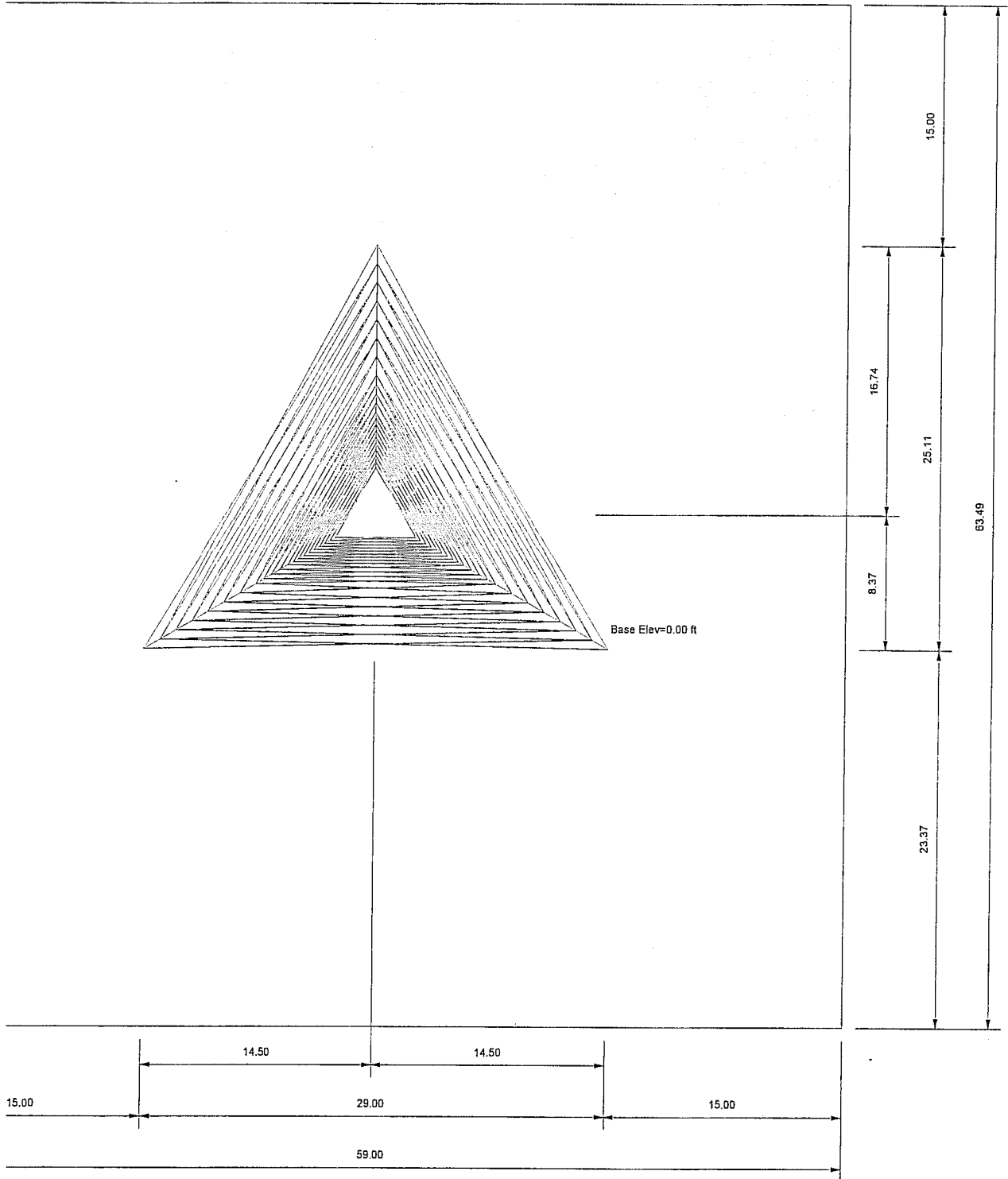
MAX. CORNER REACTIONS AT BASE:  
 DOWN: 615 K  
 UPLIFT: -543 K  
 SHEAR: 63 K



APR 14 2014

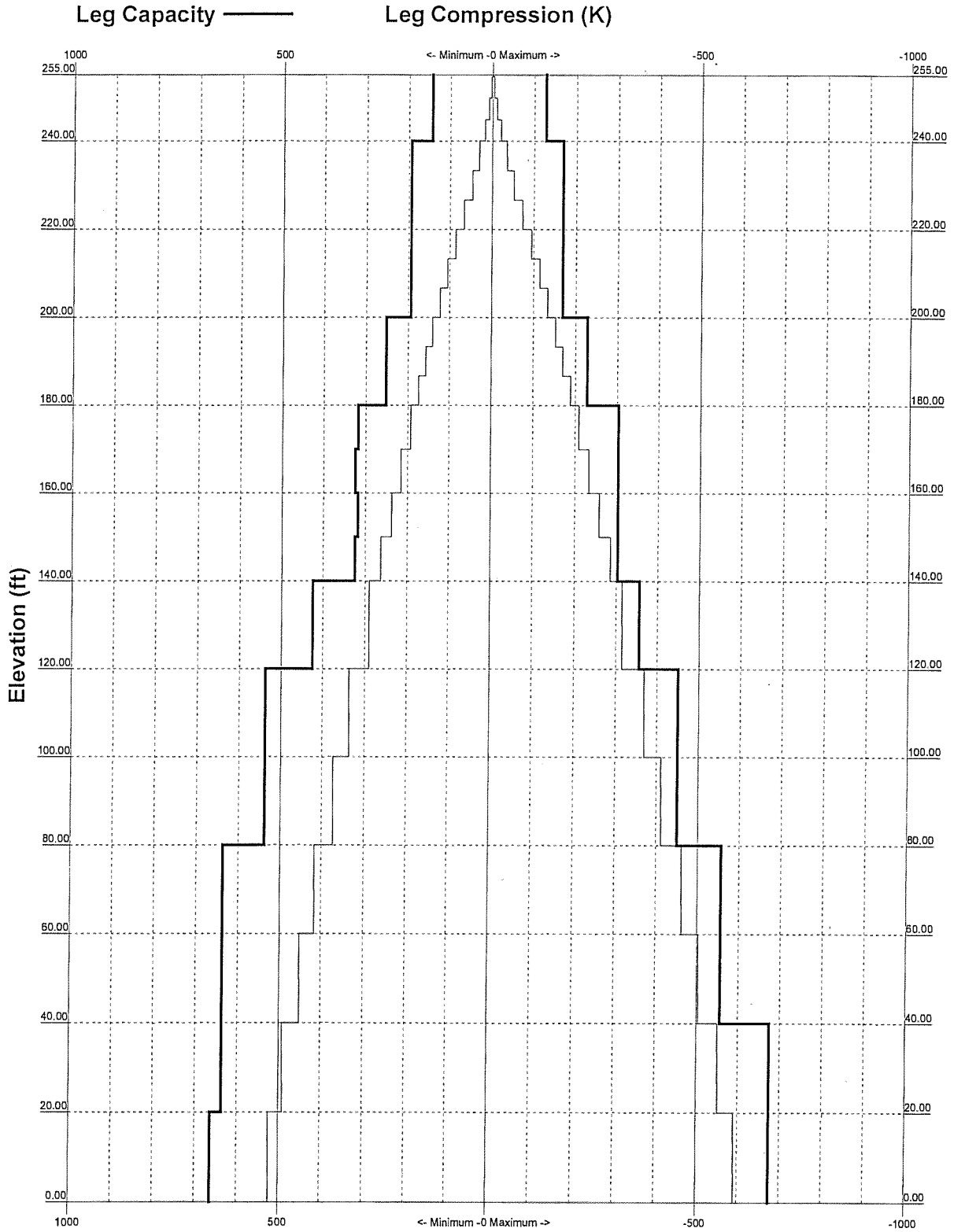
<b>Valmont</b>		Job: 240012	
1545 Pidco Drive		Project: V-29 x 255' - #282072 Clay, KY	
Plymouth, IN		Client: American Tower Corp.	Drawn by: SKK
Phone: 574-936-4221		Code: TIA-222-G	Date: 04/14/14
FAX:		Scale: NTS	Dwg No. E-1

**Plot Plan**  
Total Area - 0.09 Acres



<b>Valmont</b>		Job: <b>240012</b>	
1545 Pidco Drive		Project: <b>V-29 x 255' - #282072 Clay, KY</b>	
Plymouth, IN		Client: American Tower Corp.	Drawn by: SKK
Phone: 574-936-4221	Code: TIA-222-G	Date: 11/20/13	Scale: NTS
FAX:	Path:		Dwg No. E

TIA-222-G - 90 mph/30 mph 0.7500 in Ice Exposure C



<b>Valmont</b>		Job: <b>240012</b>	
1545 Pidco Drive		Project: <b>V-29 x 255' - #282072 Clay, KY</b>	
Plymouth, IN		Client: American Tower Corp.	Drawn by: SKK
Phone: 574-936-4221		Code: TIA-222-G	Date: 11/20/13
FAX:		Path:	Scale: NTS
		Dwg No. <b>E</b>	



# Feedline Distribution Chart

0' - 255'

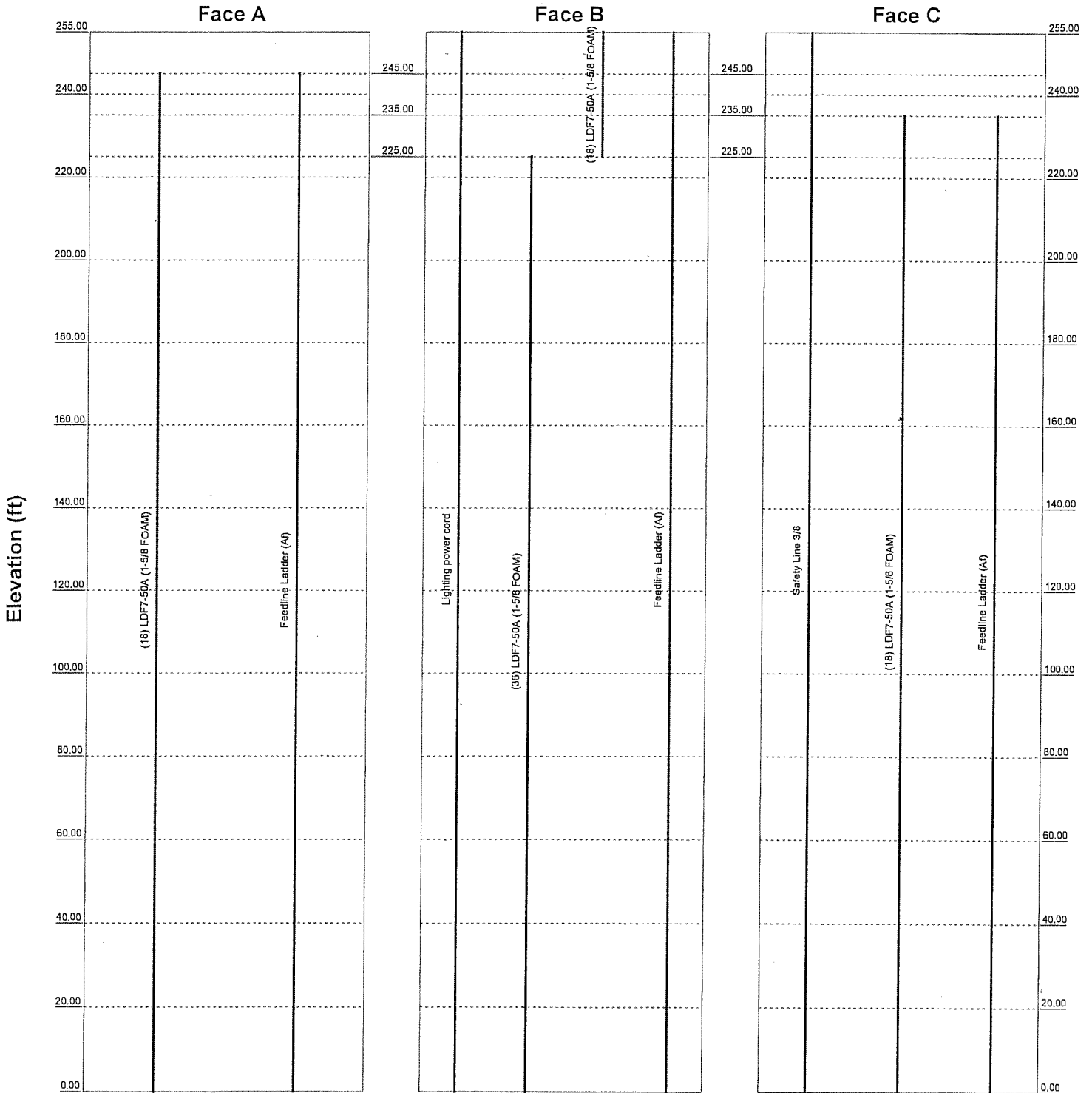
Round

Flat

App In Face

App Out Face

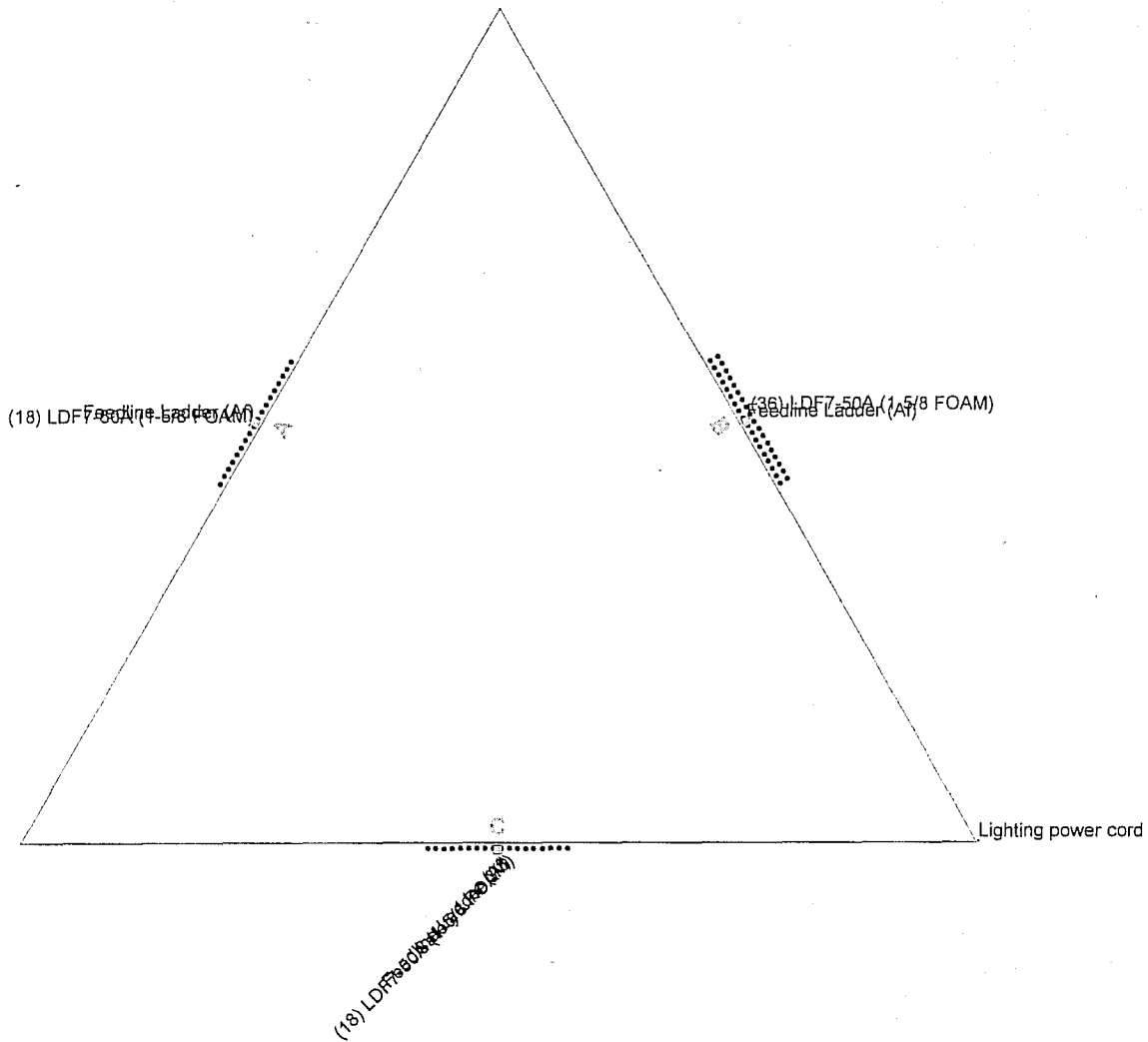
Truss Leg



<b>Valmont</b>		Job: <b>240012</b>	
1545 Pidco Drive Plymouth, IN		Project: <b>V-29 x 255' - #282072 Clay, KY</b>	
Client: American Tower Corp.	Drawn by: SKK	App'd:	
Code: TIA-222-G	Date: 11/20/13	Scale: NTS	
FAX:	Path:	Dwg No. <input type="text"/>	

# Feedline Plan

Round Flat App In Face App Out Face Truss-Leg



<b>Valmont</b>		Job: <b>240012</b>	
1545 Pidco Drive Plymouth, IN Phone: 574-936-4221 FAX:		Project: <b>V-29 x 255' - #282072 Clay, KY</b>	
Client: American Tower Corp.	Drawn by: SKK	App'd:	
Code: TIA-222-G	Date: 11/20/13	Scale: NTS	
Path:		Dwg No. E	



<b>tnxTower</b> Valmont 1543 Pidas Drive Plymouth, IN Phone: 314-936-4221 FAX:	Job	240012	Page	5 of 59
	Project	V-29 x 255' - #282072 Clay, KY	Date	10:52:50 11/20/13
	Client	American Tower Corp.	Designed by	SKK

<b>tnxTower</b> Valmont 1543 Pidas Drive Plymouth, IN Phone: 314-936-4221 FAX:	Job	240012	Page	6 of 59
	Project	V-29 x 255' - #282072 Clay, KY	Date	10:52:50 11/20/13
	Client	American Tower Corp.	Designed by	SKK

Tower Elevation ft	Cable C Single Angle	Cable K Solid Round	Legs	K-Factors																
				X Brace Diags	Z Brace Diags	Single Diags	Girts	Horiz.	Sec. Hartz.	Inner Brace	X Y	X Y	X Y	X Y						
200.00-100.00																				
T5	Yes	Yes	1																	
180.00-160.80																				
T6	Yes	Yes	1																	
160.00-140.00																				
T7	Yes	Yes	1																	
140.00-120.00																				
T8	Yes	Yes	1																	
120.00-100.00																				
T9	Yes	Yes	1																	
100.00-80.00																				
T10	Yes	Yes	1																	
80.00-60.00																				
T11	Yes	Yes	1																	
60.00-40.00																				
T12	Yes	Yes	1																	
40.00-20.00																				
T13	Yes	Yes	1																	
20.00-0.00																				

\*Note: 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	Trans-Legs Used As Leg Members				Trans-Legs Used As Inner Members			
	Leg Panels	X Brace Diagonals	Z Brace Diagonals	Leg Panels	X Brace Diagonals	Z Brace Diagonals	Leg Panels	X Brace Diagonals
T5	1	0.5	0.7	1	0.5	0.7	1	0.5
180.00-160.80	1	0.5	0.7	1	0.5	0.7	1	0.5
T6	1	0.5	0.7	1	0.5	0.7	1	0.5
160.00-140.00	1	0.5	0.7	1	0.5	0.7	1	0.5
T7	1	0.5	0.7	1	0.5	0.7	1	0.5
140.00-120.00	1	0.5	0.7	1	0.5	0.7	1	0.5
T8	1	0.5	0.7	1	0.5	0.7	1	0.5
120.00-100.00	1	0.5	0.7	1	0.5	0.7	1	0.5
T9	1	0.5	0.7	1	0.5	0.7	1	0.5
100.00-80.00	1	0.5	0.7	1	0.5	0.7	1	0.5
T10	1	0.5	0.7	1	0.5	0.7	1	0.5
80.00-60.00	1	0.5	0.7	1	0.5	0.7	1	0.5
T11	1	0.5	0.7	1	0.5	0.7	1	0.5
60.00-40.00	1	0.5	0.7	1	0.5	0.7	1	0.5
T12	1	0.5	0.7	1	0.5	0.7	1	0.5
40.00-20.00	1	0.5	0.7	1	0.5	0.7	1	0.5
T13	1	0.5	0.7	1	0.5	0.7	1	0.5
20.00-0.00	1	0.5	0.7	1	0.5	0.7	1	0.5

**Tower Section Geometry (cont'd)**

Tower Elevation ft	Diagonal				K-Bracing			
	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.
T5	3.8800	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
180.00-160.80	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
T6	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
160.00-140.00	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
T7	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
140.00-120.00	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
T8	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
120.00-100.00	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
T9	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
100.00-80.00	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
T10	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
80.00-60.00	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
T11	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
60.00-40.00	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
T12	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
40.00-20.00	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
T13	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
20.00-0.00	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000

<b>tnxTower</b> Valmont 1543 Pidas Drive Plymouth, IN Phone: 314-936-4221 FAX:	Job	240012	Page	7 of 59
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	Client	American Tower Corp.	Designed by	SKK

Tower Elevation ft	Diagonal				K-Bracing			
	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.	Vert. Top	Horiz. Top	Vert. Bot.	Horiz. Bot.
T5	3.8800	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
180.00-160.80	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
T6	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
160.00-140.00	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
T7	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
140.00-120.00	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
T8	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
120.00-100.00	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
T9	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
100.00-80.00	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
T10	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
80.00-60.00	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
T11	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
60.00-40.00	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
T12	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
40.00-20.00	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
T13	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000
20.00-0.00	5.0000	11.5000	5.0000	11.5000	0.0000	0.0000	0.0000	0.0000

**Tower Section Geometry (cont'd)**

Tower Elevation ft	Leg Connection Type	Leg Bolt Size	Leg No.	Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
				Bolt Size	No.	Bolt Size	No.	Bolt Size	No.	Bolt Size	No.	Bolt Size	No.	Bolt Size	No.
T1	Flange	0.7500	6	0.7500	1	0.7500	1	1.0000	0	1.0000	0	1.0000	0	1.0000	0
255.00-240.00	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N
T2	Flange	0.7500	8	0.7500	1	0.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0
240.00-228.80	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N
T3	Flange	0.7500	8	0.7500	1	0.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0
228.00-200.00	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N
T4	Flange	1.0000	6	0.7500	1	0.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0
200.00-180.80	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N
T5	Flange	1.0000	6	1.0000	1	0.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0
180.00-168.80	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N
T6	Flange	1.0000	6	1.0000	1	0.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0
160.00-140.00	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N
T7	Flange	1.0000	12	0.7500	1	0.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0
140.00-120.00	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N
T8	Flange	1.0000	12	0.7500	1	0.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0
120.00-100.80	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N
T9	Flange	1.0000	12	0.7500	1	0.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0
100.00-80.00	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N
T10	Flange	1.0000	12	0.7500	1	0.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0
80.00-68.00	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N	A325N
T11	Flange	1.0000	12	0.7500	1	0.0000	0	1.0000	0	1.0000	0	1.0000	0	1.0000	0
60.00-48.0															

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<b>tnxTower</b> Valmont 1543 Pilsda Drive Plymouth, IN Phone: 574-936-4221 FAX:	Job	240012	Page	10 of 59
	Project	V-29 x 255' - #282072 Clay, KY	Date	10:52:50 11/20/13
	Client	American Tower Corp.	Designed by	SKK

Tower Section	Tower Elevation ft	Face	A <sub>1</sub>	A <sub>2</sub>	C <sub>1</sub> A <sub>1</sub> In Face ft <sup>2</sup>	C <sub>1</sub> A <sub>2</sub> Out Face ft <sup>2</sup>	Weight K
T12	40.00-20.00	A	0.000	0.000	81.230	0.000	0.46
		B	0.000	0.000	154.300	0.000	0.76
		C	0.000	0.000	82.030	0.000	0.47
T13	29.80-0.00	A	0.000	0.000	81.230	0.000	0.46
		B	0.000	0.000	154.300	0.000	0.76
		C	0.000	0.000	82.030	0.000	0.47

Section	Elevation ft	CP <sub>1</sub> In	CP <sub>2</sub> In	CP <sub>1</sub> Ice In	CP <sub>2</sub> Ice In
T1	255.00-240.00	1.7581	-1.8397	1.6116	-1.3605
T2	240.00-220.00	0.3706	-0.3229	0.1659	-0.1509
T3	220.00-200.00	1.2565	-0.6436	0.2529	0.1632
T4	200.00-180.00	1.4946	-0.7628	0.2918	0.2063
T5	180.00-160.00	1.7342	-0.8838	0.3144	0.2263
T6	160.00-140.00	1.9733	-1.0075	0.3313	0.2789
T7	140.00-120.00	2.2140	-1.1439	0.3941	0.3195
T8	120.00-100.00	2.4944	-1.2646	0.4295	0.3373
T9	100.00-80.00	2.7255	-1.3954	0.4618	0.3913
T10	80.00-60.00	2.9562	-1.4962	0.4924	0.4232
T11	60.00-40.00	3.1996	-1.6184	0.5202	0.4512
T12	40.00-20.00	3.4132	-1.7253	0.5485	0.4785
T13	20.00-0.00	3.6513	-1.8450	0.5429	0.4674

**Feed Line/Linear Appurtenances Section Areas - With Ice**

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A <sub>1</sub>	A <sub>2</sub>	C <sub>1</sub> A <sub>1</sub> In Face ft <sup>2</sup>	C <sub>1</sub> A <sub>2</sub> Out Face ft <sup>2</sup>	Weight K
T1	255.00-240.00	A	1.835	0.000	0.000	39.917	0.000	0.68
		B	0.000	0.000	126.550	0.000	2.15	
		C	0.000	0.000	6.067	0.000	0.08	
T2	240.00-220.00	A	1.621	0.000	0.000	139.539	0.000	2.72
		B	0.000	0.000	168.797	0.000	3.14	
		C	0.000	0.000	127.690	0.000	2.14	
T3	220.00-200.00	A	1.805	0.000	0.000	159.383	0.000	2.70
		B	0.000	0.000	169.267	0.000	4.00	
		C	0.000	0.000	187.353	0.000	2.81	
T4	200.00-180.00	A	1.787	0.000	0.000	159.213	0.000	2.68
		B	0.000	0.000	169.821	0.000	3.98	
		C	0.000	0.000	157.111	0.000	2.78	
T5	180.00-160.00	A	1.767	0.000	0.000	159.020	0.000	2.66
		B	0.000	0.000	168.751	0.000	3.95	
		C	0.000	0.000	166.845	0.000	2.76	
T6	160.00-140.00	A	1.745	0.000	0.000	158.818	0.000	2.64
		B	0.000	0.000	168.450	0.000	3.92	
		C	0.000	0.000	166.549	0.000	2.73	
T7	140.00-120.00	A	1.728	0.000	0.000	158.983	0.000	2.61
		B	0.000	0.000	168.110	0.000	3.89	
		C	0.000	0.000	166.215	0.000	2.78	
T8	120.00-100.00	A	1.692	0.000	0.000	158.314	0.000	2.58
		B	0.000	0.000	167.721	0.000	3.86	
		C	0.000	0.000	165.832	0.000	2.67	
T9	100.00-80.00	A	1.658	0.000	0.000	157.596	0.000	2.54
		B	0.000	0.000	167.261	0.000	3.81	
		C	0.000	0.000	155.379	0.000	2.64	
T10	80.00-60.00	A	1.617	0.000	0.000	157.688	0.000	2.49
		B	0.000	0.000	166.698	0.000	3.76	
		C	0.000	0.000	164.826	0.000	2.58	
T11	60.00-40.00	A	1.564	0.000	0.000	157.103	0.000	2.44
		B	0.000	0.000	163.967	0.000	3.70	
		C	0.000	0.000	161.107	0.000	2.51	
T12	40.00-20.00	A	1.486	0.000	0.000	156.369	0.000	2.35
		B	0.000	0.000	164.903	0.000	3.60	
		C	0.000	0.000	163.062	0.000	2.42	
T13	20.00-0.00	A	1.331	0.000	0.000	154.914	0.000	2.18
		B	0.000	0.000	162.795	0.000	3.41	
		C	0.000	0.000	160.949	0.000	2.24	

**Feed Line Center of Pressure**

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	Client	American Tower Corp.	Designed by	SKK

**Shielding Factor Ka**

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T1	1	Safety Line 3/8"	240.00 - 255.00	0.6000	0.5419
			248.00 - 255.00	0.6000	0.5419
T1	5	LDF7-50A (1-5/8 FOAM)	248.00 - 255.00	0.6000	0.5419
			240.00 - 245.00	0.6000	0.5419
T1	6	LDF7-50A (1-5/8 FOAM)	240.00 - 245.00	0.6000	0.5419
			245.00 - 248.00	1.8000	1.0000
T1	7	Feedline Ladder (AD)	240.00 - 245.00	1.0000	1.0000
			245.00 - 248.00	1.0000	1.0000
T2	1	Safety Line 3/8"	220.00 - 248.00	0.6000	0.6000
			220.00 - 240.00	0.6000	0.6000
T2	2	Lighting power cord	220.00 - 235.00	0.6000	0.6000
			220.00 - 225.00	0.6000	0.6000
T2	3	LDF7-50A (1-5/8 FOAM)	220.00 - 225.00	0.6000	0.6000
			220.00 - 220.00	0.6000	0.6000
T2	4	LDF7-50A (1-5/8 FOAM)	220.00 - 225.00	0.6000	0.6000
			220.00 - 215.00	0.6000	0.6000
T2	5	LDF7-50A (1-5/8 FOAM)	220.00 - 225.00	0.6000	0.6000
			220.00 - 215.00	0.6000	0.6000
T2	6	LDF7-50A (1-5/8 FOAM)	220.00 - 225.00	0.6000	0.6000
			220.00 - 215.00	0.6000	0.6000
T2	7	Feedline Ladder (AD)	220.00 - 240.00	1.0000	1.0000
			220.00 - 220.00	1.0000	1.0000
T2	8	Feedline Ladder (AD)	220.00 - 240.00	1.0000	1.0000
			220.00 - 220.00	1.0000	1.0000
T2	9	Feedline Ladder (AD)	220.00 - 235.00	0.6000	0.6000
			220.00 - 225.00	0.6000	0.6000
T3	1	Safety Line 3/8"	200.00 - 220.00	0.6000	0.6000
			200.00 - 220.00	0.6000	0.6000
T3	2	Lighting power cord	200.00 - 220.00	0.6000	0.6000
			200.00 - 220.00	0.6000	0.6000
T3	3	LDF7-50A (1-5/8 FOAM)	200.00 - 220.00	0.6000	0.6000
			200.00 - 200.00	0.6000	0.6000
T3	4	LDF7-50A (1-5/8 FOAM)	200.00 - 200.00	0.6000	0.6000
			200.00 - 200.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K <sub>a</sub> No Ice	K <sub>a</sub> Ice
T3	6	LDF7-50A (1-5/8 FOAM)	200.00 - 220.00	0.6000	0.6000
			220.00 - 220.00	0.6000	0.6000
T3	7	Feedline Ladder (AD)	220.00 - 225.00	1.0000	1.0000
			220.00 - 220.00	1.0000	1.0000
T3	8	Feedline Ladder (AD)	220.00 - 225.00	1.0000	1.0000
			220.00 - 220.00	1.0000	1.0000
T3	9	Feedline Ladder (AD)	220.00 - 225.00	1.0000	1.0000
			220.00 - 220.00	1.0000	1.0000
T4	1	Safety Line 3/8"	180.00 - 200.00	0.6000	0.6000
			200.00 - 200.00	0.6000	0.6000
T4	2	Lighting power cord	180.00 - 200.00	0.6000	0.6000
			200.00 - 200.00	0.6000	0.6000
T4	3	LOF7-50A (1-5/8 FOAM)	180.00 - 200.00	0.6000	0.6000
			200.00 - 200.00	0.6000	0.6000
T4	4	LDF7-50A (1-5/8 FOAM)	180.00 - 200.00	0.6000	0.6000
			200.00 - 200.00	0.6000	0.6000
T4	6	LDF7-50A (1-5/8 FOAM)	180.00 - 200.00	0.6000	0.6000
			200.00 - 200.00	0.6000	0.6000
T4	7	Feedline Ladder (AD)	180.00 - 200.00	1.0000	1.0000
			200.00 - 200.00	1.0000	1.0000
T4	8	Feedline Ladder (AD)	180.00 - 200.00	1.0000	1.0000
			200.00 - 200.00	1.0000	1.0000
T4	9	Feedline Ladder (AD)	180.00 - 200.00	1.0000	1.0000
			200.00 - 200.00	1.0000	1.0000
T5	1	Safety Line 3/8"	160.00 - 180.00	0.6000	0.6000
			180.00 - 180.00	0.6000	0.6000
T5	2	Lighting power cord	160.00 - 180.00	0.6000	0.6000
			180.00 - 180.00	0.6000	0.6000
T5	3	LDF7-50A (1-5/8 FOAM)	160.00 - 180.00	0.6000	0.6000
			180.00 - 180.00	0.6000	0.6000
T5	4	LDF7-50A (1-5/8 FOAM)	160.00 - 180.00	0.6000	0.6000
			180.00 - 180.00	0.6000	0.6000
T5	6	LDF7-50A (1-5/8 FOAM)	160.00 - 180.00	0.6000	0.6000
			180.00 - 180.00	0.6000	0.6000
T5	7	Feedline Ladder (AD)	160.00 - 180.00	1.0000	1.0000
			180.00 - 180.00	1.0000	1.0000
T5	8	Feedline Ladder (AD)	160.00 - 180.00	1.0000	1.0000
			180.00 - 180.00	1.0000	1.0000
T5	9	Feedline Ladder (AD)	160.00 - 180.00	1.0000	1.0000
			180.00 - 180.00	1.0000	1.0000
T6	1	Safety Line 3/8"	140.00 - 160.00	0.6000	0.6000
			160.00 - 160.00	0.6000	0.6000
T6	2	Lighting power cord	140.00 - 160.00	0.6000	0.6000
			160.00 - 160.00	0.6000	0.6000
T6	3	LDF7-50A (1-5/8 FOAM)	140.00 - 160.00	0.6000	0.6000
			160.00 - 160.00	0.6000	0.6000
T6					

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	Client	American Tower Corp.	Designed by	SKK

Tower Section	Feed Line	Description	Feed Line	K <sub>1</sub>	K <sub>2</sub>
	Revol/No.		Segment Elev.	No. Ice	Ice
T13	4	LD7-50A (1-5/8 FOAM)	0.00 - 20.00	0.6000	0.6000
T13	6	LD7-50A (1-5/8 FOAM)	8.00 - 20.00	0.6000	0.6000
T13	7	Feedline Ladder (AL)	0.00 - 20.00	1.0000	1.0000
T13	8	Feedline Ladder (AL)	0.00 - 20.00	1.0000	1.0000
T13	9	Feedline Ladder (AL)	8.00 - 20.00	1.8000	1.0000

### Discrete Tower Loads

Description	Face or Leg	Offset Type	Offset: Horiz. Lateral Var. ft	Offset: Vertical ft	Asimuth Adjustment	Placement	C <sub>1</sub> A <sub>1</sub> Front	C <sub>2</sub> A <sub>2</sub> Side	H Height	
			β	β	°	ft	ft	ft	K	
Beacon	A	From Leg	0.80	0.80	0.0000	255.00	No Ice	2.40	2.46	8.07
			0.80	0.80			12" Ice	2.67	2.57	0.10
			4.39	4.39			1" Ice	2.96	2.96	0.12
			0.00	0.00	0.0000	255.00	No Ice	1.11	1.11	8.83
			0.00	0.00			12" Ice	1.32	1.32	0.04
			2.21	2.21			1" Ice	1.54	1.53	0.05
EA Lighting rod	C	From Leg	0.00	0.8000	0.8000	255.00	No Ice	1.20	1.20	0.95
			0.00	0.00			12" Ice	2.00	2.00	0.05
			4.00	4.00			1" Ice	2.80	2.80	0.08
ATC Loading	C	None	0.0000	255.00	0.0000	255.00	No Ice	115.00	115.00	2.00
							12" Ice	155.00	155.00	4.00
							1" Ice	155.00	155.00	4.00
ATC Loading	C	None	0.0000	245.00	0.0000	245.00	No Ice	115.00	115.00	2.00
							12" Ice	155.00	155.00	4.00
							1" Ice	155.00	155.00	4.00
ATC Loading	C	None	0.0000	235.00	0.0000	235.00	No Ice	115.00	115.00	2.00
							12" Ice	155.00	155.00	4.00
							1" Ice	155.00	155.00	4.00

### Truss-Leg Properties

Section Designation	Area In <sup>2</sup>	Area Out <sup>2</sup>	Self Weight lb/ft	Ice Weight lb/ft	Equiv. Diameter In	Equiv. Diameter Out In	Leg Area In <sup>2</sup>	Leg Area Out <sup>2</sup>
	A <sub>1</sub>	A <sub>2</sub>	W <sub>s</sub>	W <sub>i</sub>	D <sub>1</sub>	D <sub>2</sub>	A <sub>1L</sub>	A <sub>2L</sub>
#122G -1.75" - 1.06" con. -HBD-Trans (Fired 22958)	2200.6887	5908.4093	8.84	2.57	7.6410	20.1681	7.2158	7.2158
#122G -1.75" - 1.01" con. -HBD-Trans (Fired 22958)	2200.6087	5796.0568	8.84	2.26	7.6410	20.1252	7.2158	

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Section Elevation	z	K <sub>2</sub>	g <sub>1</sub>	A <sub>0</sub>	F <sub>a</sub>	A <sub>r</sub>	A <sub>s</sub>	A <sub>4</sub>	Leg %	C <sub>1</sub> A <sub>1</sub> In Face	C <sub>2</sub> A <sub>2</sub> Out Face
ft	ft		psf	ft	ft	ft	ft	ft	%	ft <sup>2</sup>	ft <sup>2</sup>
100.00-80.00											
T10	70.00	1.174	21	464.196	A	15.375	28.486	64.95	154.300	0.000	
80.00-60.80											
T11	50.80	1.094	19	584.196	A	16.198	30.111	65.02	154.300	0.808	
60.80-48.00											
T12	30.00	0.982	17	544.613	A	17.958	32.655	64.52	154.300	0.000	
40.00-20.00											
T13	10.80	0.65	15	584.613	A	18.884	32.655	63.36	154.300	8.800	

### Tower Pressure - With Ice

$$G_H = 0.850$$

Section Elevation	z	K <sub>2</sub>	g <sub>1</sub>	t <sub>2</sub>	A <sub>0</sub>	F <sub>a</sub>	A <sub>r</sub>	A <sub>s</sub>	A <sub>4</sub>	Leg %	C <sub>1</sub> A <sub>1</sub> In Face	C <sub>2</sub> A <sub>2</sub> Out Face
ft	ft		psf	in	ft	ft	ft	ft	ft	%	ft <sup>2</sup>	ft <sup>2</sup>
255.00-240.00	247.50	1.532	3	1.8348	85.212	A	6.566	32.472	20.424	52.32	39.917	8.800
240.00-220.00	230.00	1.508	3	1.8214	135.362	A	6.566	32.472	52.32	126.559	8.800	
220.00-200.00	210.00	1.48	3	1.8049	175.306	A	6.566	32.472	52.32	168.797	0.000	
200.00-180.00	190.00	1.449	3	1.7870	217.018	A	6.566	32.472	52.32	210.990	0.000	
180.00-160.00	170.00	1.415	3	1.7672	268.842	A	6.566	32.472	52.32	253.132	0.000	
160.00-140.00	150.00	1.378	3	1.7452	308.769	A	6.566	32.472	52.32	295.224	0.000	
140.00-120.00	130.00	1.337	3	1.7204	349.103	A	6.566	32.472	52.32	337.266	0.000	
120.00-100.00	110.88	1.291	3	1.6919	389.425	A	6.566	32.472	52.32	379.258	0.000	
100.00-80.00	90.00	1.238	2	1.6583	429.313	A	6.566	32.472	52.32	421.200	0.000	
80.00-60.00	70.80	1.174	2	1.6171	469.593	A	6.566	32.472	52.32	463.192	0.000	
T10 88.00-80.00	50.00	1.094	2	1.5636	509.414	A	6.566	32.472	52.32	505.184	0.000	

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Section Designation	Area In <sup>2</sup>	Area Out <sup>2</sup>	Self Weight lb/ft	Ice Weight lb/ft	Equiv. Diameter In	Equiv. Diameter Out In	Leg Area In <sup>2</sup>	Leg Area Out <sup>2</sup>
	A <sub>1</sub>	A <sub>2</sub>	W <sub>s</sub>	W <sub>i</sub>	D <sub>1</sub>	D <sub>2</sub>	A <sub>1L</sub>	A <sub>2L</sub>
#122G -2.00" - 0.875" con. -HBD-Trans (Fired 208332)	2571.4810	5954.1205	0.99	2.29	8.0071	20.3268	9.4248	
#122G -2.25" - 0.875" con. (Fired 208334)	2457.0620	5916.1026	1.17	2.31	8.5315	20.5212	11.9282	
#122G -2.50" - 0.875" con. (Fired 208334)	2457.0620	5891.2118	1.17	2.30	8.5315	20.4556	11.9282	
#122G -2.50" - 0.875" con. (Fired 208335)	2597.2622	5940.8920	1.37	2.31	9.8183	20.6252	14.7262	
#122G -2.75" - 0.875" con. (Fired 208337)	2597.2622	5916.0189	1.37	2.28	9.0183	20.5209	14.7262	
#122G -2.75" - 0.875" con. (Fired 208337)	2816.7341	5938.2486	1.63	2.28	9.7883	20.6189	17.8187	
#122G -2.75" - 0.875" con. (Fired 208337)	2816.7341	5851.3735	1.63	2.19	9.7803	20.3173	17.8187	

### Tower Pressures - No Ice

$$G_H = 0.850$$

Section Elevation	z	K <sub>2</sub>	g <sub>1</sub>	t <sub>2</sub>	A <sub>0</sub>	F <sub>a</sub>	A <sub>r</sub>	A <sub>s</sub>	A <sub>4</sub>	Leg %	C <sub>1</sub> A <sub>1</sub> In Face	C <sub>2</sub> A <sub>2</sub> Out Face
ft	ft		psf	in	ft	ft	ft	ft	ft	%	ft <sup>2</sup>	ft <sup>2</sup>
255.00-240.00	247.50	1.532	27	80.623	A	6.566	11.250	11.250	63.15	20.320	0.000	
240.00-220.00	230.00	1.508	27	129.283	A	6.566	11.250	11.250	63.15	0.563	0.000	
220.00-200.00	210.00	1.48	26	169.282	A	6.566	11.250	11.250	63.15	0.000	0.000	
200.00-180.00	190.00	1.449	26	211.054	A	6.566	11.250	11.250	63.15	0.000	0.000	
180.00-160.00	170.00	1.415	25	262.944	A	6.566	11.250	11.250	63.15	0.000	0.000	
160.00-140.00	150.00	1.378	24	302.944	A	6.566	11.250	11.250	63.15	0.000	0.000	
140.00-120.00	130.00	1.337	24	343.361	A	6.566	11.250	11.250	63.15	0.000	0.000	
120.00-100.00	110.00	1.291	23	383.778	A	6.566	11.250	11.250	63.15	0.000	0.000	
100.00-80.00	90.00	1.238	22	423.778	A	6.566	11.250	11.250	63.15	0.000	0.000	

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Section Elevation	z	K <sub>2</sub>	g <sub>1</sub>	t <sub>2</sub>	A <sub>0</sub>	F <sub>a</sub>	A <sub>r</sub>	A <sub>s</sub>	A <sub>4</sub>	Leg %	C <sub>1</sub> A <sub>1</sub> In Face	C <sub>2</sub> A <sub>2</sub> Out Face
ft	ft		psf	in	ft	ft	ft	ft	ft	%	ft <sup>2</sup>	ft <sup>2</sup>
110.00-80.00	30.00	0.9										

<b>tnxTower</b> Valmont 1543 Pkwa Drive Plymouth, IN Phone: 574-936-4221 FAX:	Job	240012	Page	17 of 59
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	Client	American Tower Corp.	Designed by	SKK

**Tower Forces - No Ice - Wind Normal To Face**

Section Elevation	Add Weight	Self Weight	F <sub>a</sub>	e	C <sub>r</sub>	q <sub>z</sub>	D <sub>r</sub>	D <sub>s</sub>	A <sub>t</sub>	F	w	Ctrl. Face
ft	K	K	ft	ft		psf			ft <sup>2</sup>	K	plf	
T1	0.47	0.73	A	0.221	2.527	27	1	1	12.660	1.79	119.66	B
			B	0.221	2.527	1	1	1	12.660			
			C	0.221	2.527	1	1	1	12.660			
T2	1.36	1.28	A	0.203	2.586	27	1	1	16.925	3.54	176.81	B
			B	0.203	2.586	1	1	1	16.925			
			C	0.203	2.586	1	1	1	16.925			
T3	1.69	1.45	A	0.177	2.675	26	1	1	20.461	4.49	234.33	B
			B	0.177	2.675	1	1	1	20.461			
			C	0.177	2.675	1	1	1	20.461			
T4	1.69	1.82	A	0.168	2.706	26	1	1	23.251	4.57	228.51	B
			B	0.168	2.706	1	1	1	23.251			
			C	0.168	2.706	1	1	1	23.251			
T5	1.69	3.15	A	0.149	2.774	25	1	1	24.399	4.57	228.29	B
			B	0.149	2.774	1	1	1	24.399			
			C	0.149	2.774	1	1	1	24.399			
T6	1.69	3.68	A	0.135	2.829	24	1	1	25.759	4.55	227.70	B
			B	0.135	2.829	1	1	1	25.759			
			C	0.135	2.829	1	1	1	25.759			
T7	1.69	4.08	A	0.113	2.912	24	1	1	22.684	4.28	214.12	B
			B	0.113	2.912	1	1	1	22.684			
			C	0.113	2.912	1	1	1	22.684			
T8	1.69	4.68	A	0.107	2.937	23	1	1	23.853	4.21	216.58	B
			B	0.107	2.937	1	1	1	23.853			
			C	0.107	2.937	1	1	1	23.853			
T9	1.69	5.41	A	0.103	2.95	22	1	1	26.672	4.20	209.87	B
			B	0.103	2.95	1	1	1	26.672			
			C	0.103	2.95	1	1	1	26.672			
T10	1.69	6.11	A	0.1	2.965	21	1	1	28.090	4.06	203.11	B
			B	0.1	2.965	1	1	1	28.090			
			C	0.1	2.965	1	1	1	28.090			
T11	1.69	6.22	A	0.094	2.99	19	1	1	28.873	3.83	191.71	B
			B	0.094	2.99	1	1	1	28.873			
			C	0.094	2.99	1	1	1	28.873			
T12	1.69	7.13	A	0.093	2.993	17	1	1	30.760	3.53	176.37	B
			B	0.093	2.993	1	1	1	30.760			
			C	0.093	2.993	1	1	1	30.760			
T13	1.69	7.24	A	0.088	3.012	15	1	1	31.621	3.09	154.66	B
			B	0.088	3.012	1	1	1	31.621			
			C	0.088	3.012	1	1	1	31.621			
Sum Weight:	20.44	52.98						OTM	6537.88	50.72		kip-ft

Section Elevation	Add Weight	Self Weight	F <sub>a</sub>	e	C <sub>r</sub>	q <sub>z</sub>	D <sub>r</sub>	D <sub>s</sub>	A <sub>t</sub>	F	w	Ctrl. Face
ft	K	K	ft	ft		psf			ft <sup>2</sup>	K	plf	
T2	1.36	1.28	A	0.221	2.527	27	0.8	1	11.347	3.45	172.33	C
			B	0.221	2.527	1	0.8	1	11.347			
			C	0.221	2.527	1	0.8	1	11.347			
T3	1.69	1.45	A	0.177	2.675	26	0.8	1	15.192	4.35	217.58	C
			B	0.177	2.675	1	0.8	1	15.192			
			C	0.177	2.675	1	0.8	1	15.192			
T4	1.69	1.82	A	0.168	2.706	26	0.8	1	18.189	4.41	220.66	C
			B	0.168	2.706	1	0.8	1	18.189			
			C	0.168	2.706	1	0.8	1	18.189			
T5	1.69	3.15	A	0.149	2.774	25	0.8	1	20.577	4.40	220.21	C
			B	0.149	2.774	1	0.8	1	20.577			
			C	0.149	2.774	1	0.8	1	20.577			
T6	1.69	3.68	A	0.135	2.829	24	0.8	1	22.784	4.38	218.78	C
			B	0.135	2.829	1	0.8	1	22.784			
			C	0.135	2.829	1	0.8	1	22.784			
T7	1.69	4.08	A	0.113	2.912	24	0.8	1	24.399	4.14	207.18	C
			B	0.113	2.912	1	0.8	1	24.399			
			C	0.113	2.912	1	0.8	1	24.399			
T8	1.69	4.68	A	0.107	2.937	23	0.8	1	25.759	4.07	203.47	C
			B	0.107	2.937	1	0.8	1	25.759			
			C	0.107	2.937	1	0.8	1	25.759			
T9	1.69	5.41	A	0.103	2.95	22	0.8	1	26.672	3.89	194.66	C
			B	0.103	2.95	1	0.8	1	26.672			
			C	0.103	2.95	1	0.8	1	26.672			
T10	1.69	6.11	A	0.1	2.965	21	0.8	1	28.090	3.67	183.33	C
			B	0.1	2.965	1	0.8	1	28.090			
			C	0.1	2.965	1	0.8	1	28.090			
T11	1.69	6.22	A	0.094	2.99	19	0.8	1	28.873	3.37	168.46	C
			B	0.094	2.99	1	0.8	1	28.873			
			C	0.094	2.99	1	0.8	1	28.873			
T12	1.69	7.13	A	0.093	2.993	17	0.8	1	30.760	2.95	147.42	C
			B	0.093	2.993	1	0.8	1	30.760			
			C	0.093	2.993	1	0.8	1	30.760			
T13	1.69	7.24	A	0.088	3.012	15	0.8	1	31.621			
			B	0.088	3.012	1	0.8	1	31.621			
			C	0.088	3.012	1	0.8	1	31.621			
Sum Weight:	20.44	52.98						OTM	618.86	48.83		kip-ft

**Tower Forces - No Ice - Wind 60 To Face**

Section Elevation	Add Weight	Self Weight	F <sub>a</sub>	e	C <sub>r</sub>	q <sub>z</sub>	D <sub>r</sub>	D <sub>s</sub>	A <sub>t</sub>	F	w	Ctrl. Face
ft	K	K	ft	ft		psf			ft <sup>2</sup>	K	plf	
T1	0.47	0.73	A	0.221	2.527	27	0.8	1	11.347	1.73	114.58	C
			B	0.221	2.527	1	0.8	1	11.347			
			C	0.221	2.527	1	0.8	1	11.347			

**Tower Forces - No Ice - Wind 90 To Face**

Section Elevation	Add Weight	Self Weight	F <sub>a</sub>	e	C <sub>r</sub>	q <sub>z</sub>	D <sub>r</sub>	D <sub>s</sub>	A <sub>t</sub>	F	w	Ctrl. Face
ft	K	K	ft	ft		psf			ft <sup>2</sup>	K	plf	
T1	0.47	0.73	A	0.221	2.527	27	0.85	1	11.675	1.86	123.76	C
			B	0.221	2.527	1	0.85	1	11.675			
			C	0.221	2.527	1	0.85	1	11.675			
T2	1.36	1.28	A	0.203	2.586	27	0.85	1	15.775	3.51	175.51	C
			B	0.203	2.586	1	0.85	1	15.775			
			C	0.203	2.586	1	0.85	1	15.775			
T3	1.69	1.45	A	0.177	2.675	26	0.85	1	18.757	4.02	201.02	C
			B	0.177	2.675	1	0.85	1	18.757			
			C	0.177	2.675	1	0.85	1	18.757			

<b>tnxTower</b> Valmont 1543 Pkwa Drive Plymouth, IN Phone: 574-936-4221 FAX:	Job	240012	Page	19 of 59
	Project	V-29 x 255' - #282072 Clay, KY	Date	10:52:50 11/20/13
	Client	American Tower Corp.	Designed by	SKK

<b>tnxTower</b> Valmont 1543 Pkwa Drive Plymouth, IN Phone: 574-936-4221 FAX:	Job	240012	Page	20 of 59
	Project	V-29 x 255' - #282072 Clay, KY	Date	10:52:50 11/20/13
	Client	American Tower Corp.	Designed by	SKK

Section Elevation	Add Weight	Self Weight	F <sub>a</sub>	e	C <sub>r</sub>	q <sub>z</sub>	D <sub>r</sub>	D <sub>s</sub>	A <sub>t</sub>	F	w	Ctrl. Face
ft	K	K	ft	ft		psf			ft <sup>2</sup>	K	plf	
T4	1.69	1.82	A	0.168	2.706	26	0.85	1	21.245	4.10	204.76	C
			B	0.168	2.706	1	0.85	1	21.245			

<b>inxTower</b> Valmont 1545 Pikes Drive Plymouth, IN Phone: 314-936-4321 FAX:	Job	240012	Page	21 of 59
	Project	V-29 x 255' - #282072 Clay, KY	Date	10:52:50 11/20/13
	Client	American Tower Corp.	Designed by	SKK

<b>inxTower</b> Valmont 1545 Pikes Drive Plymouth, IN Phone: 314-936-4321 FAX:	Job	240012	Page	22 of 59
	Project	V-29 x 255' - #282072 Clay, KY	Date	10:52:50 11/20/13
	Client	American Tower Corp.	Designed by	SKK

Section Elevation	Add Weight	Self Weight	F a e	e	C <sub>r</sub>	q <sub>i</sub>	D <sub>r</sub>	D <sub>s</sub>	A <sub>t</sub>	F	w	Ctrl. Face
ft	K	K	ft	ft	ft	psf	ft	ft	ft	K	psf	
T8	9.10	14.01	A	0.258	2.386	3	0.8	1	57.569			
120.00-100.00			B	0.244	2.455	3	0.8	1	58.238	0.74	34.83	B
			C	0.244	2.455	3	0.8	1	58.238			
T9	8.98	15.08	A	0.244	2.455	2	0.8	1	58.238	0.72	34.04	B
100.00-80.00			B	0.229	2.503	2	0.8	1	60.373			
			C	0.229	2.503	2	0.8	1	60.373			
T10	8.83	15.89	A	0.213	2.553	2	0.8	1	61.320	0.69	34.61	B
80.00-60.00			B	0.198	2.603	2	0.8	1	61.320			
			C	0.213	2.553	2	0.8	1	61.320			
T11	8.64	15.95	A	0.198	2.603	2	0.8	1	61.737	0.65	32.48	B
60.00-40.00			B	0.186	2.645	2	0.8	1	62.476			
			C	0.198	2.603	2	0.8	1	61.737			
T12	8.37	16.81	A	0.186	2.645	2	0.8	1	62.476	0.59	29.35	B
40.00-20.00			B	0.172	2.694	2	0.8	1	61.970			
			C	0.186	2.645	2	0.8	1	62.476			
T13	7.83	16.46	A	0.172	2.694	2	0.8	1	61.970	0.50	25.20	B
20.00-0.00			B	0.172	2.694	2	0.8	1	61.970			
			C	0.172	2.694	2	0.8	1	61.970			
Sum Weight:	109.52	148.24						OTM	1125.58	5.67		kip-R

Section Elevation	Add Weight	Self Weight	F a e	e	C <sub>r</sub>	q <sub>i</sub>	D <sub>r</sub>	D <sub>s</sub>	A <sub>t</sub>	F	w	Ctrl. Face
ft	K	K	ft	ft	ft	psf	ft	ft	ft	K	psf	
T10	8.83	15.89	A	0.239	2.503	2	0.85	1	61.142			
80.00-60.00			B	0.213	2.553	2	0.85	1	62.130	0.70	34.92	B
			C	0.213	2.553	2	0.85	1	62.130			
T11	8.64	15.95	A	0.193	2.603	2	0.85	1	62.990	0.66	32.78	B
60.00-40.00			B	0.193	2.603	2	0.85	1	62.990			
			C	0.193	2.603	2	0.85	1	62.990			
T12	8.37	16.81	A	0.186	2.645	2	0.85	1	63.374	0.59	29.64	B
40.00-20.00			B	0.186	2.645	2	0.85	1	63.374			
			C	0.186	2.645	2	0.85	1	63.374			
T13	7.83	16.46	A	0.172	2.694	2	0.85	1	62.914	0.51	25.46	B
20.00-0.00			B	0.172	2.694	2	0.85	1	62.914			
			C	0.172	2.694	2	0.85	1	62.914			
Sum Weight:	189.52	148.24						OTM	1133.22	8.74		kip-R

**Tower Forces - With Ice - Wind 90 To Face**

Section Elevation	Add Weight	Self Weight	F a e	e	C <sub>r</sub>	q <sub>i</sub>	D <sub>r</sub>	D <sub>s</sub>	A <sub>t</sub>	F	w	Ctrl. Face
ft	K	K	ft	ft	ft	psf	ft	ft	ft	K	psf	
T10	2.91	2.62	A	0.458	1.96	3	0.85	1	27.119	0.55	23.17	C
255.00-240.00			B	0.458	1.96	3	0.85	1	27.119			
			C	0.458	1.96	3	0.85	1	27.119			
T2	8.01	3.69	A	0.387	2.09	3	0.85	1	34.714	0.67	33.48	C
240.00-220.80			B	0.387	2.09	3	0.85	1	34.714			
			C	0.387	2.09	3	0.85	1	34.714			
T3	9.51	4.35	A	0.333	2.212	3	0.85	1	38.342	0.71	35.58	B
220.00-200.00			B	0.333	2.212	3	0.85	1	38.342			
			C	0.333	2.212	3	0.85	1	38.342			
T4	9.45	5.16	A	0.387	2.279	3	0.85	1	43.317	0.73	36.45	B
200.00-180.00			B	0.387	2.279	3	0.85	1	43.317			
			C	0.387	2.279	3	0.85	1	43.317			
T5	9.37	12.12	A	0.362	2.145	3	0.85	1	43.487	0.80	39.95	B
180.00-160.00			B	0.362	2.145	3	0.85	1	43.487			
			C	0.362	2.145	3	0.85	1	43.487			
T6	9.29	12.91	A	0.325	2.233	3	0.85	1	44.552	0.88	39.75	B
160.00-140.00			B	0.325	2.233	3	0.85	1	44.552			
			C	0.325	2.233	3	0.85	1	44.552			
T7	9.21	13.20	A	0.268	2.386	3	0.85	1	48.164	0.76	37.90	B
140.00-120.00			B	0.268	2.386	3	0.85	1	48.164			
			C	0.268	2.386	3	0.85	1	48.164			
T8	9.10	14.01	A	0.244	2.455	3	0.85	1	58.863	0.74	37.12	B
120.00-100.00			B	0.244	2.455	3	0.85	1	58.863			
			C	0.244	2.455	3	0.85	1	58.863			
T9	8.98	15.08	A	0.229	2.503	2	0.85	1	61.142	0.73	36.36	B
100.00-80.00			B	0.229	2.503	2	0.85	1	61.142			
			C	0.229	2.503	2	0.85	1	61.142			

**Tower Forces - Service - Wind Normal To Face**

Section Elevation	Add Weight	Self Weight	F a e	e	C <sub>r</sub>	q <sub>i</sub>	D <sub>r</sub>	D <sub>s</sub>	A <sub>t</sub>	F	w	Ctrl. Face
ft	K	K	ft	ft	ft	psf	ft	ft	ft	K	psf	
T1	0.47	0.73	A	0.221	2.527	12	1	1	12.660	0.80	53.18	B
255.00-240.00			B	0.221	2.527	12	1	1	12.660			
			C	0.221	2.527	12	1	1	12.660			
T2	1.36	1.28	A	0.203	2.586	12	1	1	16.925	1.57	78.58	B
240.00-220.00			B	0.203	2.586	12	1	1	16.925			
			C	0.203	2.586	12	1	1	16.925			
T3	1.69	1.45	A	0.177	2.675	12	1	1	20.461	1.99	99.70	B
220.00-200.00			B	0.177	2.675	12	1	1	20.461			
			C	0.177	2.675	12	1	1	20.461			
T4	1.69	1.82	A	0.168	2.706	11	1	1	23.251	2.03	181.56	B
200.00-180.00			B	0.168	2.706	11	1	1	23.251			
			C	0.168	2.706	11	1	1	23.251			
T5	1.69	3.15	A	0.149	2.774	11	1	1	24.399	2.03	101.46	B
180.00-160.00			B	0.149	2.774	11	1	1	24.399			
			C	0.149	2.774	11	1	1	24.399			
T6	1.69	3.68	A	0.135	2.829	11	1	1	25.759	2.82	101.20	B
160.00-140.00			B	0.135	2.829	11	1	1	25.759			
			C	0.135	2.829	11	1	1	25.759			
T7	1.69	4.08	A	0.113	2.912	10	1	1	26.672	1.90	95.17	B
140.00-120.80			B	0.113	2.912	10	1	1	26.672			
			C	0.113	2.912	10	1	1	26.672			
T8	1.69	4.68	A	0.107	2.937	10	1	1	28.844	1.67	93.59	B
120.00-100.00			B	0.107	2.937	10	1	1	28.844			
			C	0.107	2.937	10	1	1	28.844			
T9	1.69	5.41	A	0.103	2.95	10	1	1	26.672	1.67	93.28	B
100.00-80.00			B	0.103	2.95	10	1	1	26.672			
			C	0.103	2.95	10	1	1	26.672			
T10	1.69	6.11	A	0.1	2.965	9	1	1	28.090	1.81	90.27	B
80.00-60.00			B	0.1	2.965	9	1	1	28.090			
			C	0.1	2.965	9	1	1	28.090			
T11	1.69	6.22	A	0.094	2.99	9	1	1	28.873	1.70	85.21	B
60.00-40.80			B	0.094	2.99	9	1	1	28.873			
			C	0.094	2.99	9	1	1	28.873			

<b>inxTower</b> Valmont 1545 Pikes Drive Plymouth, IN Phone: 314-936-4321 FAX:	Job	240012	Page	23 of 59
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	Client	American Tower Corp.	Designed by	SKK

<b>inxTower</b> Valmont 154
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<b>tnxTower</b> Valmont 1545 Pidas Drive Plymouth, IN Phone: 574-936-4221 FAX:	Job	240012	Page	25 of 59
	Project	V-29 x 255' - #282072 Clay, KY	Date	10:52:50 11/20/13
	Client	American Tower Corp.	Designed by	SKK

<b>tnxTower</b> Valmont 1545 Pidas Drive Plymouth, IN Phone: 574-936-4221 FAX:	Job	240012	Page	26 of 59
	Project	V-29 x 255' - #282072 Clay, KY	Date	10:52:50 11/20/13
	Client	American Tower Corp.	Designed by	SKK

**Mast Vectors - No Ice**

Section No.	Section Elevation ft	Wind Azimuth #	Directionality	F			OTM <sub>1</sub>		OTM <sub>2</sub>		Torque kip-ft	
				K	V <sub>x</sub>	V <sub>y</sub>	K	V <sub>x</sub>	V <sub>y</sub>	K		V <sub>x</sub>
T1	255.00-240.00	0	Wind Normal	1.44	8.00	-1.44	-355.54	-0.33	0.21			
			Wind 90	1.63	0.81	-1.41	-349.32	-0.80	0.09			
			Wind 60	1.72	1.49	-0.86	-213.00	-368.72	-0.19			
			Wind 90	1.86	1.86	0.00	-6.37	-439.77	-0.28			
			Wind Normal	1.56	1.35	0.78	192.39	-234.20	-0.23			
			Wind 90	1.17	0.59	1.01	250.71	-145.29	-0.24			
			Wind 60	1.36	8.80	1.36	336.95	-0.33	-0.20			
			Wind 90	1.62	-0.81	-1.41	348.38	201.14	-0.83			
			Wind Normal	1.79	-1.55	0.90	221.75	34.38	0.14			
			Wind 98	1.86	-1.86	0.00	-0.37	-459.11	0.28			
T2	248.00-220.80	0	Wind Normal	1.48	-1.28	-0.74	-183.70	317.22	0.38			
			Wind 90	1.17	-0.59	-1.01	-251.14	144.63	0.24			
			Wind Normal	3.20	0.80	-0.23	-743.39	-0.16	0.10			
			Wind 98	3.29	1.64	-2.85	-654.67	-377.98	0.82			
			Wind 60	3.45	2.99	-1.72	-396.62	-686.66	-0.08			
			Wind 98	3.51	3.51	0.00	-8.27	-887.51	-1.15			
			Wind Normal	3.35	2.90	1.67	384.72	-666.59	-0.15			
			Wind 90	3.21	1.68	2.78	638.13	-368.74	-8.16			
			Wind 60	3.14	8.09	3.14	722.24	-0.16	-0.10			
			Wind 98	3.29	-1.61	2.83	654.12	377.66	-0.02			
T3	220.00-200.80	0	Wind Normal	3.54	-3.06	1.77	406.39	784.19	0.08			
			Wind 90	3.51	-3.51	0.00	-8.27	807.19	8.15			
			Wind 60	3.25	-2.82	-1.63	-374.95	648.81	0.22			
			Wind 90	3.21	-1.68	-2.78	-638.67	368.42	8.16			
			Wind Normal	3.75	0.00	-3.75	-787.28	-0.71	0.39			
			Wind 90	4.02	2.81	-3.48	-731.57	-122.86	0.26			
			Wind 60	3.25	-2.82	-1.63	-497.30	-792.12	0.09			
			Wind 98	4.02	4.02	0.00	-8.38	-845.00	-0.22			
			Wind Normal	3.75	3.24	1.87	393.06	-682.18	-8.37			
			Wind 98	3.71	1.85	3.21	673.45	-389.75	-8.44			
T4	288.00-180.00	0	Wind Normal	3.61	3.61	0.00	758.21	-0.71	-0.28			
			Wind 90	4.02	-2.81	3.48	730.80	421.44	-8.26			
			Wind Normal	4.49	-3.89	2.24	478.68	815.21	-0.03			
			Wind 90	4.02	-4.02	0.00	-0.39	842.59	8.22			
			Wind 60	3.61	-3.12	-1.81	-379.68	656.28	0.36			
			Wind 90	3.71	-1.82	-3.21	-674.22	388.33	0.44			
			Wind Normal	3.85	8.08	-3.85	-731.28	-0.86	0.48			
			Wind 90	4.18	2.95	-3.55	-674.31	-389.69	0.31			
			Wind 60	4.41	3.82	-2.21	-419.72	-727.03	0.03			
			Wind 90	4.18	4.18	0.00	-0.46	-778.95	-0.26			
T5	180.00-160.08	0	Wind Normal	3.85	3.33	1.92	36.894	-633.77	-8.45			
			Wind 90	3.44	-1.72	-2.98	-149.95	-87.89	0.56			
			Wind 60	3.69	3.69	0.00	700.52	-0.86	-8.46			
			Wind 90	4.10	-2.84	3.55	673.38	388.19	-0.31			
			Wind Normal	4.57	-3.96	2.19	433.71	751.15	-8.83			
			Wind 98	4.18	-4.18	0.00	772.02	8.26	0.36			
			Wind 60	3.69	-3.26	-1.84	-358.95	686.21	0.33			
			Wind 90	3.79	-1.89	-3.28	-623.51	358.86	0.57			
			Wind Normal	3.86	3.86	0.00	-556.57	-0.56	0.36			
			Wind 90	4.18	2.05	-3.55	-603.53	-340.14	8.36			

Section No.	Section Elevation ft	Wind Azimuth #	Directionality	F			OTM <sub>1</sub>		OTM <sub>2</sub>		Torque kip-ft	
				K	V <sub>x</sub>	V <sub>y</sub>	K	V <sub>x</sub>	V <sub>y</sub>	K		V <sub>x</sub>
T6	160.00-140.00	0	Wind Normal	4.10	-2.05	3.55	602.44	347.12	-0.36			
			Wind 90	3.70	-3.70	0.00	-2.28	387.65	0.04			
			Wind 60	4.10	-4.10	0.00	-8.55	695.26	0.36			
			Wind 90	3.70	-3.70	-1.85	-314.81	543.31	0.50			
			Wind Normal	3.87	-1.50	-3.30	-113.13	321.49	0.61			
			Wind 90	3.87	0.60	-3.27	-580.42	-1.16	0.64			
			Wind 60	4.08	2.04	-3.51	-530.67	-301.18	0.41			
			Wind 90	4.38	3.79	-2.13	-328.79	-569.56	0.04			
			Wind Normal	3.79	-1.50	-3.30	-113.13	321.49	0.61			
			Wind 90	3.87	3.35	1.95	289.27	-503.28	-0.60			
T7	140.00-120.00	0	Wind Normal	3.79	1.89	3.29	491.25	-285.15	-0.70			
			Wind 90	3.69	0.80	3.69	552.40	-1.16	-0.61			
			Wind 60	4.08	4.08	0.00	3.53	520.41	384.86	-0.41		
			Wind Normal	4.55	-3.94	2.23	348.92	590.42	-8.85			
			Wind 90	4.08	-4.08	0.00	-0.63	610.88	8.34			
			Wind 60	3.89	-3.10	-1.84	-277.14	477.78	8.57			
			Wind Normal	3.79	1.89	3.29	491.25	-285.15	-0.70			
			Wind 90	3.61	8.86	-3.61	-478.55	-1.31	0.88			
			Wind 98	3.85	1.92	-3.33	-433.98	-251.46	8.44			
			Wind 90	3.85	3.85	0.00	-8.71	-501.62	-0.37			
T8	120.88-100.80	0	Wind Normal	3.61	3.13	1.81	234.21	-108.23	-0.64			
			Wind 90	3.56	1.78	3.09	480.48	-232.94	-0.75			
			Wind 60	4.14	3.59	-2.87	-270.84	-467.81	0.85			
			Wind 98	3.85	-1.92	3.33	432.57	248.84	-8.44			
			Wind Normal	4.28	-3.71	2.14	277.65	480.82	-8.83			
			Wind 90	3.85	-3.35	8.00	-0.71	480.99	8.79			
			Wind 60	3.48	-3.01	-1.74	-226.68	389.94	0.61			
			Wind 90	3.56	-1.78	-3.09	-101.89	238.31	0.37			
			Wind Normal	3.57	8.08	-3.57	-393.89	-1.46	0.74			
			Wind 90	3.79	1.89	3.29	491.25	-285.15	-0.70			
T9	108.00-80.08	0	Wind Normal	3.57	3.89	1.78	195.36	-341.21	-8.70			
			Wind 90	3.51	1.76	3.84	333.71	-154.59	-8.82			
			Wind 60	3.42	8.08	3.42	375.88	-1.46	-0.71			
			Wind 90	3.79	-1.89	-3.29	-359.93	206.80	-0.48			
			Wind Normal	4.21	-3.63	2.11	238.85	399.75	-8.85			
			Wind 90	3.51	1.76	3.84	333.71	-154.59	-8.82			
			Wind 60	3.42	-2.97	-1.71	-189.12	324.74	8.67			
			Wind 90	3.51	-1.76	-3.64	-335.29	191.66	8.82			
			Wind Normal	3.58	3.58	0.00	-3.58	-322.98	1.61			
			Wind 90	3.77	1.83	-3.26	-294.48	-179.05	8.52			
T10	80.00-60.00	0	Wind Normal	4.03	3.49	-2.81	-182.19	-315.66	0.86			
			Wind 90	3.77	3.77	0.00	-0.87	-348.36	-8.43			
			Wind 60	1.78	1.78	0.00	160.19	-280.57	-0.76			
			Wind Normal	3.58	1.75	3.03	272.10	-159.21	-0.89			
			Wind 90	3.41	0.00	3.41	306.10	-1.61	-8.77			
			Wind 60	3.77	-1.83	3.26	292.07	167.86	-8.52			
			Wind Normal	4.20	-3.64	2.10	188.02	325.53	-8.86			
			Wind 90	3.77	-2.77	8.00	-0.87	337.33	0.43			
			Wind 60	3.41	-2.95	-1.71	-154.35	264.23	8.79			
			Wind Normal	3.48	3.48	0.00	-1.75	-273.44	154.99	0.89		

<b>tnxTower</b> Valmont 1545 Pidas Drive Plymouth, IN Phone: 574-936-4221 FAX:	Job	240012	Page	27 of 59
	Project	V-29 x 255' - #282072 Clay, KY	Date	10:52:50 11/20/13
	Client	American Tower Corp.	Designed by	SKK

<b>tnxTower</b> Valmont 1545 Pidas Drive Plymouth, IN Phone: 574-936-4221 FAX:	Job	240012	Page	28 of 59
	Project	V-29 x 255' - #282072 Clay, KY	Date	10:52:50 11/20/13
	Client	American Tower Corp.	Designed by	SKK

Section No.	Section Elevation ft	Wind Azimuth #	Directionality	F			OTM <sub>1</sub>		OTM <sub>2</sub>		Torque kip-ft	
				K	V <sub>x</sub>	V <sub>y</sub>	K	V <sub>x</sub>	V <sub>y</sub>			
T11	60.00-48.88	270	Wind Normal	4.66	-3.52	2.83	141.22	244.49	-0.86			
			Wind 90	3.65	-3.65	0.00	-0.99	293.45	8.76			
			Wind 60	3.31	-3.86	-1.65	-116.68	198.69	8.04			
			Wind 90	3.40	-1.78	-2.94	-206.88	117.00	8.94			
			Wind Normal	3.29	8.88	-3.29	-165.42	-1.91	0.88	</		

<b>inxTower</b>		Job	240012	Page	29 of 59
Valmont 1545 Pike Drive Plymouth, IN Phone: 574-936-4221 FAX:		Project	V-29 x 255' - #282072 Clay, KY	Date	10:52:50 11/20/13
		Client	American Tower Corp.	Designed by	SKK

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Valmont 1545 Pike Drive Plymouth, IN Phone: 574-936-4221 FAX:		Project	V-29 x 255' - #282072 Clay, KY	Date	10:52:50 11/20/13
		Client	American Tower Corp.	Designed by	SKK

Section No.	Section Elevation $\beta$	Wind Azimuth $\alpha$	Directionality	F	V <sub>x</sub>	V <sub>y</sub>	OTM <sub>L</sub>	OTM <sub>R</sub>	Torque
				K	K	K	kip-ft	kip-ft	kip-ft
T6	160.00-148.00	68	Wind 68	8.79	0.64	-0.39	-68.31	-120.33	0.87
		90	Wind 90	0.79	0.79	8.80	-1.58	-139.26	0.02
		120	Wind Normal	8.81	0.60	67.60	-123.55	0.80	
		150	Wind 90	8.88	8.40	8.09	116.06	-72.69	-0.01
		188	Wind 68	8.79	0.00	0.79	133.22	-1.77	-0.82
		218	Wind 90	8.79	-0.40	0.69	114.50	62.48	-0.83
		240	Wind Normal	8.80	-0.69	8.40	100.33	112.86	-0.82
		270	Wind 90	8.79	-0.79	8.00	-1.58	129.75	-0.02
		300	Wind 60	8.79	-0.69	-0.40	-58.98	111.98	-0.00
		314	Wind 90	8.80	-0.40	-0.69	-119.22	63.15	8.01
		338	Wind 60	8.80	0.00	-0.80	-132.45	-5.15	8.02
		38	Wind 90	8.79	0.39	-0.68	-104.09	-64.50	8.03
T7	14.00-120.00	60	Wind 60	0.78	0.68	-0.39	-68.31	-186.89	8.03
		90	Wind 90	0.79	8.00	-1.81	-123.55	0.82	
		120	Wind Normal	8.80	8.70	8.40	58.81	-109.92	0.00
		158	Wind 90	8.80	8.48	8.69	101.47	-65.08	-0.01
		188	Wind 68	8.79	0.80	8.79	116.48	-5.43	-0.02
		218	Wind 90	8.79	-0.39	0.68	100.47	53.66	-0.03
		240	Wind Normal	0.88	-0.69	0.40	57.93	98.01	-0.03
		270	Wind 90	8.79	-0.79	8.00	-1.81	112.66	-0.02
		300	Wind 60	8.79	-0.84	-0.39	-90.96	96.99	-0.00
		330	Wind 90	0.80	-0.40	-0.69	-183.80	54.18	0.01
		38	Wind 60	0.76	8.00	-0.76	-101.49	-6.12	8.83
		38	Wind 90	0.75	0.31	-0.63	-86.54	-54.90	0.03
T8	120.00-100.00	60	Wind 60	0.74	0.65	-0.37	-58.46	-89.98	8.83
		90	Wind 90	0.73	8.00	-2.00	-183.80	8.82	
		120	Wind Normal	8.76	0.66	8.38	47.67	-82.24	0.01
		158	Wind 90	8.70	8.38	0.66	83.29	-55.39	-0.02
		180	Wind 60	8.75	8.00	8.35	93.75	-6.12	8.02
		210	Wind 90	0.75	-0.38	0.65	82.45	42.66	-0.03
		248	Wind Normal	8.76	-0.65	8.38	47.18	79.15	-0.83
		278	Wind 90	0.75	-0.78	8.00	-2.83	91.45	-0.02
		300	Wind 68	0.76	-0.65	0.38	-89.04	78.54	0.01
		338	Wind 90	0.76	-0.38	-0.66	-87.24	-43.15	0.01
		0	Wind Normal	8.75	8.00	-0.75	-84.77	-6.78	0.03
		60	Wind 60	0.77	0.67	-0.64	-72.37	-47.21	0.03
T9	100.80-80.00	60	Wind 60	0.74	0.63	-0.36	-42.44	-76.27	8.03
		90	Wind 90	0.74	8.00	-2.20	-87.64	8.02	
		120	Wind Normal	0.75	0.63	0.37	38.95	-78.21	8.81
		150	Wind 90	8.74	0.37	8.64	-47.61	-47.61	-0.81
		180	Wind 60	8.74	0.00	8.74	79.73	-6.78	-0.03
		218	Wind 90	8.74	-0.37	0.64	67.73	33.65	-0.81
		248	Wind Normal	0.74	-0.64	0.37	38.25	63.96	-0.60
		278	Wind 90	8.74	-0.37	0.00	-2.20	74.88	0.03
		300	Wind 60	8.74	-0.64	-0.37	-42.81	63.39	-0.01
		330	Wind 90	0.74	-0.37	-0.64	-73.81	-34.64	8.81
		8	Wind Normal	8.74	8.00	-0.74	-88.86	-7.43	8.83
		60	Wind 90	8.72	0.36	-0.62	-58.69	-38.84	0.04
T18	80.00-60.80	60	Wind 60	0.71	8.62	-0.36	-34.68	-63.83	0.03
		90	Wind 90	8.72	8.72	8.88	-2.55	-72.23	0.02
		120	Wind Normal	0.74	0.64	0.37	20.61	-64.85	8.81
		150	Wind 90	8.72	8.38	0.63	54.13	-46.15	-0.01
		188	Wind 60	8.72	0.00	8.72	62.33	-7.43	-0.03
		218	Wind 90	8.72	-0.36	0.62	53.39	24.94	-0.64
		248	Wind Normal	0.72	-0.62	0.36	30.30	49.46	-0.83
		278	Wind 90	8.72	-0.37	0.68	-2.35	57.39	-0.02
		300	Wind 60	8.72	-0.62	-0.36	-34.99	48.76	-0.01
		330	Wind 90	0.71	-0.36	-0.63	-59.22	-25.29	8.83
		8	Wind Normal	0.71	0.00	-0.71	-52.40	-8.06	8.83
		60	Wind 90	0.69	8.35	-0.60	-44.75	-32.27	8.04
20	Wind 60	0.69	0.59	-0.34	-26.81	-49.62	0.64		

Section No.	Section Elevation $\beta$	Wind Azimuth $\alpha$	Directionality	F	V <sub>x</sub>	V <sub>y</sub>	OTM <sub>L</sub>	OTM <sub>R</sub>	Torque
				K	K	K	kip-ft	kip-ft	kip-ft
T11	60.00-40.00	90	Wind 90	8.69	8.69	0.60	-2.82	-358.88	8.82
		128	Wind Normal	0.71	8.61	8.35	21.97	-51.88	8.81
		158	Wind 90	8.70	8.35	8.66	39.52	-32.50	-0.81
		180	Wind 60	8.69	8.00	8.69	45.23	-8.06	0.03
		210	Wind 90	8.69	-0.35	8.60	39.12	16.15	-0.04
		240	Wind Normal	0.70	-0.61	0.35	21.74	34.49	-0.04
		270	Wind 90	8.69	-0.69	8.60	-2.82	40.27	-0.02
		300	Wind 60	8.69	-0.60	-0.35	-27.04	23.90	-0.01
		338	Wind 90	0.70	-0.35	-0.60	-45.15	16.38	8.81
		8	Wind Normal	8.67	0.00	-0.67	-36.39	-8.66	0.03
		60	Wind 90	8.65	8.35	-0.56	-31.23	-24.90	0.84
		60	Wind 60	8.64	8.06	0.32	-19.19	-36.52	0.83
T12	40.00-20.00	90	Wind 90	8.65	0.65	0.00	-3.18	-41.13	8.02
		120	Wind Normal	8.67	0.58	8.31	13.54	-37.48	8.81
		150	Wind 90	8.65	0.33	8.57	23.28	-23.65	-0.81
		180	Wind 60	8.65	0.00	8.65	29.37	-8.66	-0.03
		210	Wind 90	8.65	-0.32	8.56	25.02	7.58	-0.04
		240	Wind Normal	0.66	-0.37	0.33	13.39	19.50	-0.04
		270	Wind 90	8.65	-0.65	0.00	-31.00	23.43	-0.02
		308	Wind 60	8.65	-0.56	-0.32	-19.34	19.47	-0.01
		338	Wind 90	0.66	-0.33	-0.57	-31.49	7.73	8.01
		0	Wind Normal	8.64	0.00	-0.60	-21.50	-9.21	0.89
		60	Wind 90	0.59	0.29	-0.51	-18.69	-18.82	8.83
		60	Wind 60	0.58	0.58	-0.29	-12.15	-24.32	0.03
T13	20.00-0.00	90	Wind 90	8.59	8.59	8.00	-3.43	-26.82	8.02
		120	Wind Normal	8.60	0.50	8.51	5.01	-24.96	8.81
		150	Wind 90	8.59	0.20	8.51	11.97	-18.10	-0.81
		180	Wind 60	8.59	0.88	0.59	14.18	-9.21	-0.03
		218	Wind 90	0.59	-0.39	0.51	11.83	-8.40	-0.02
		240	Wind Normal	0.68	-0.32	0.29	6.21	15.53	-0.01
		270	Wind 90	0.59	-0.59	8.00	-3.43	8.41	-0.03
		300	Wind 60	8.59	-0.51	-0.29	-12.23	6.04	-0.01
		338	Wind 90	0.59	-0.31	-0.51	-18.83	-0.35	8.01
		8	Wind Normal	8.52	8.00	-0.52	-9.83	-0.61	0.02
		30	Wind 90	0.58	8.25	-0.44	-8.21	-12.14	8.03
		68	Wind 60	0.58	0.43	-0.28	-6.34	-13.94	8.83
Mast Totals - With Ice		8	Wind 90	0.51	-0.23	-0.44	-8.25	-7.07	0.03
		120	Wind Normal	0.52	0.43	0.26	-1.23	-14.10	8.01
		158	Wind 90	8.51	8.25	8.44	0.57	-12.16	-0.01
		180	Wind 60	0.50	8.00	0.58	1.20	-9.61	-0.02
		218	Wind 90	0.51	-0.23	-0.51	-8.25	-7.07	0.03
		248	Wind Normal	8.51	-0.44	8.26	-1.28	-5.16	-0.03
		278	Wind 90	0.50	-0.88	0.00	-8.84	-4.57	-0.02
		308	Wind 60	0.50	0.58	-0.44	-6.36	-5.23	-0.01
		330	Wind 90	0.51	-0.23	-0.44	-8.25	-7.07	0.03

Wind Azimuth $\alpha$	V <sub>x</sub>	V <sub>y</sub>	OTM <sub>L</sub>	OTM <sub>R</sub>	Torque
K	K	K	kip-ft	kip-ft	kip-ft
8	8.00	-8.71	-1142.16	-76.71	8.31
30	4.29	-7.44	-918.26	-430.53	0.35
68	7.44	-4.29	-536.86	-1849.93	0.30
90	8.00	8.00	-1208.02	-8.00	8.16
128	7.90	4.39	-535.78	-1054.97	-0.81
150	4.38	7.45	-924.39	-427.16	-0.18

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Valmont 1545 Pike Drive Plymouth, IN Phone: 574-936-4221 FAX:		Project	V-29 x 255' - #282072 Clay, KY	Date	10:52:50 11/20/13
		Client	American Tower Corp.	Designed by	SKK

<b>inxTower</b>		Job	240012	Page	32 of 59
Valmont 1545 Pike Drive Plymouth, IN Phone: 574-936-4221 FAX:		Project	V-29 x 255' - #282072 Clay, KY	Date	10:52:50 11/20/13
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Wind Azimuth $\alpha$	V <sub>x</sub>	V <sub>y</sub>	OTM <sub>L</sub>	OTM <sub>R</sub>	Torque
K	K	K	kip-ft	kip-ft	kip-ft
180	8.00	8.53	1053.48	-76.71	-0.30
210	-4.29	7.44	930.22	477.11	-0.33
248	-7.59	4.38	539.15	907.39	-0.30
278	-8.66	-4.38	-1073.88	-14.18	0.01
300	-7.45	-4.38	-583.45	813.67	0.01
330	-4.30	-7.45	-982.42	473.74	8.18

Section No.	Section Elevation $\beta$	Wind Azimuth $\alpha$	Directionality	F	V <sub>x</sub>	V <sub>y</sub>	OTM <sub>L</sub>	OTM <sub>R</sub>	Torque
				K	K	K	kip-ft	kip-ft	kip-ft
T1	255.00-240.00	0	Wind Normal	0.64	0.00	-0.64	-158.67	-0.33	8.89
		30	Wind 90	8.72	8.36	-0.63	-155.46	-89.87	8.84
		60	Wind 60	0.56	0.66	-0.36	-94.90	-164.06	-0.85
		90	Wind 90	0.83	0.83	0.00	-0.37	-204.53	0.00
		120	Wind Normal	0.69	0.60	0.35	85.38	-148.72	-0.14
		150	Wind 90	0.72	8.26	0.45	111.22	-64.76	-0.10
		188	Wind 60	8.61	0.00	0.61	149.55	-0.23	-0.69
		218	Wind 90	0.82	-8.36	0.83	154.72	89.21	-0.64
		240	Wind Normal	8.80	-0.69	8.40	98.33	178.65	0.85
		270	Wind 90	0.83	-0.83	8.80	-0.37	203.86	8.13
		300	Wind 60	8.66	-0.37	-0.33	-81.85	140.88	0.39
		330	Wind 90	8.52	-0.26	-0.45	-111.96	64.10	0.18
T2	240.00-220.00	0	Wind Normal	1.44	0.00	-1.44	-330.53	-0.15	0.03
		30	Wind 90	1.46	0.73	-1.26	-291.12	-168.08</	

<b>inxTower</b> Valmont 1345 Pidas Drive Plymouth, IN Phone: 574-936-4221 FAX:	Job	240012	Page	35 of 59
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	Client	American Tower Corp.	Designed by	SKK

<b>inxTower</b> Valmont 1345 Pidas Drive Plymouth, IN Phone: 574-936-4221 FAX:	Job	240012	Page	34 of 59
	Project	V-29 x 255' - #282072 Clay, KY	Date	10:52:50 11/20/13
	Client	American Tower Corp.	Designed by	SKK

Section No.	Section Elevation ft	Wind Azimuth	Directionality	F <sub>x</sub>	F <sub>y</sub>	F <sub>z</sub>	OTM <sub>x</sub>	OTM <sub>y</sub>	Torque
T10	60.00-60.00	300	Wind 60	1.52	-1.31	-0.76	-69.03	116.54	0.32
		330	Wind 90	1.56	-0.74	-1.35	-122.19	61.12	-0.20
		0	Wind Normal	1.54	0.00	-1.54	-109.88	-1.76	0.38
		30	Wind 90	1.62	0.81	-1.40	-99.18	-58.48	8.24
		60	Wind 60	1.73	1.50	-0.87	-81.51	-100.66	0.02
		90	Wind 90	1.62	1.62	0.85	-61.95	-115.19	-0.20
		120	Wind Normal	1.54	1.34	0.77	-55.11	-95.40	-0.36
		150	Wind 90	1.51	0.73	1.31	90.54	-54.58	-0.42
		180	Wind 60	1.47	0.00	1.47	181.92	-1.76	-0.35
		210	Wind 90	1.62	-0.81	1.40	97.28	54.93	-0.24
		240	Wind Normal	1.81	-1.36	0.90	62.24	107.68	-0.03
		T11	60.00-80.80	180	Wind 98	1.62	-1.62	0.89	-89.95
300	Wind 60			1.47	-1.27	0.73	-52.39	87.33	0.34
330	Wind 90			1.51	-0.75	-1.31	-62.44	51.06	0.42
0	Wind Normal			1.46	0.00	-1.46	-74.09	-1.91	9.39
30	Wind 90			1.53	0.76	-1.32	-67.22	-40.13	0.23
60	Wind 60			1.63	1.41	-0.81	-41.78	-72.49	0.03
90	Wind 90			1.53	1.53	0.00	-1.83	-78.24	-0.21
120	Wind Normal			1.46	1.27	0.73	35.98	-65.19	-0.42
150	Wind 90			1.42	0.71	1.23	60.07	-37.54	-0.37
180	Wind 60			1.39	0.00	1.39	63.31	-1.91	-0.37
210	Wind 90			1.53	-0.76	1.32	65.15	36.30	-0.25
T12	40.00-20.00			240	Wind Normal	1.70	-1.48	0.85	41.57
		270	Wind 98	1.52	-1.53	0.80	-1.03	74.51	-0.21
		300	Wind 60	1.39	-1.20	-0.69	-35.70	83.14	0.35
		330	Wind 90	1.42	-0.71	-1.23	-62.73	33.71	0.43
		0	Wind Normal	1.35	0.00	-1.35	-11.60	-2.06	0.39
		30	Wind 90	1.41	0.70	-1.22	-37.64	-23.11	0.25
		60	Wind 60	1.50	1.38	-0.75	-23.57	-40.97	0.03
		90	Wind 90	1.41	1.41	0.00	-1.11	-44.29	-0.20
		120	Wind Normal	1.35	1.17	0.67	19.13	-37.13	-0.36
		150	Wind 90	1.31	0.66	1.14	33.04	-21.78	-0.42
		180	Wind 60	1.28	0.00	1.28	37.27	-2.06	-0.36
		T13	20.84-0.80	210	Wind 90	1.41	-0.70	1.22	35.45
240	Wind Normal			1.57	-1.26	0.73	22.40	58.67	-0.03
270	Wind 90			1.41	-1.41	0.00	-1.11	-40.16	0.20
300	Wind 60			1.28	-1.11	-0.64	-20.10	31.17	0.34
330	Wind 90			1.31	-0.66	-1.14	-35.26	17.65	0.42
0	Wind Normal			1.19	0.00	-1.19	-13.05	-2.21	0.36
30	Wind 90			1.23	0.62	-1.07	-11.87	-8.38	0.23
60	Wind 60			1.31	1.13	-0.66	-7.75	-13.58	-0.19
90	Wind 90			1.23	1.23	0.00	-1.19	-14.55	-0.07
120	Wind Normal			1.19	1.03	0.89	4.74	-9.34	0.00
150	Wind 90			1.15	0.58	1.00	8.79	-7.99	-0.39
180	Wind 60			1.12	0.00	1.12	10.82	-2.21	-0.34

Wind Azimuth	F <sub>x</sub>	F <sub>y</sub>	F <sub>z</sub>	OTM <sub>x</sub>	OTM <sub>y</sub>	Torque
30	10.14	-17.56	-2278.25	-1326.56	2.23	
60	18.29	-10.86	-1411.72	-2445.62	0.16	
90	20.48	8.80	-9.21	-2584.64	-2.03	
120	16.72	9.66	1239.29	-2179.21	-3.44	
150	9.37	16.23	2074.89	-1219.89	-3.93	
180	0.00	18.37	2242.01	-2584.64	-3.40	
210	-10.14	17.56	2239.66	-1329.42	-2.23	
240	-19.52	11.27	1443.25	2499.86	-0.16	
270	-20.48	8.80	-9.21	2631.51	2.02	
300	-16.00	-9.24	-1333.46	2058.69	3.28	
330	-9.37	-16.23	-2092.52	1186.75	3.93	

**Discrete Appurtenance Pressures - No Ice**  $G_H = 0.859$

Description	Area	Weight	Offset <sub>x</sub>	Offset <sub>y</sub>	z	K <sub>1</sub>	q	C <sub>pe</sub>	C <sub>pe</sub> / Area	C <sub>pe</sub> / Weight
Beacon	8.0000	0.07	0.00	-2.89	239.39	1.547	27	2.40	0.2875	2.40
Beacon Extender (4) B05052	0.0000	0.03	0.00	-2.89	237.21	1.544	27	1.11	0.0000	1.11
TR lightning rod	240.0000	0.05	-2.50	1.41	239.00	1.546	27	1.20	0.0000	1.20
ATC Loading	8.0000	2.00	0.00	0.00	255.00	1.541	27	115.00	115.00	115.00
ATC Loading	0.0000	2.00	0.00	0.00	245.00	1.520	27	115.00	115.00	115.00
ATC Loading	0.0000	2.00	0.00	0.00	235.00	1.515	27	115.00	115.00	115.00
ATC Loading	0.0000	2.00	0.00	0.00	225.00	1.501	26	115.00	115.00	115.00
Weight	Sum	6.15								

**Discrete Appurtenance Vectors - No Ice**

Wind Azimuth	F <sub>x</sub>	F <sub>y</sub>	F <sub>z</sub>	OTM <sub>x</sub>	OTM <sub>y</sub>	Torque
0	0.06	0.00	0.00	-0.06	-14.64	0.00
30	0.05	0.03	0.00	-0.04	-12.76	-0.21
60	0.03	0.05	0.00	-0.03	-7.42	-12.49
90	0.00	0.06	0.00	0.00	-0.21	-14.43
120	0.03	0.05	0.00	0.03	7.00	-12.49
150	0.05	0.03	0.00	0.05	12.76	-0.21
180	0.06	0.00	0.00	0.06	14.22	0.00
210	0.05	0.03	-0.03	0.05	12.76	7.21
240	0.03	0.05	-0.05	0.03	7.00	12.49
270	0.00	0.06	-0.06	0.00	-0.21	14.43
300	0.03	0.05	-0.03	-0.03	-7.42	12.49
330	0.05	0.03	-0.05	-0.05	-12.76	7.21

Wind Azimuth	F <sub>x</sub>	F <sub>y</sub>	F <sub>z</sub>	OTM <sub>x</sub>	OTM <sub>y</sub>	Torque
0	0.03	0.00	0.00	0.00	-6.60	0.00

**Mast Totals - Service**

Wind Azimuth	F <sub>x</sub>	F <sub>y</sub>	F <sub>z</sub>	OTM <sub>x</sub>	OTM <sub>y</sub>	Torque
0	0.00	-19.21		-2181.53	-16.57	3.56

Wind Azimuth	F <sub>x</sub>	F <sub>y</sub>	F <sub>z</sub>	OTM <sub>x</sub>	OTM <sub>y</sub>	Torque
0	0.03	0.00	0.00	0.00	-6.60	0.00

<b>inxTower</b> Valmont 1345 Pidas Drive Plymouth, IN Phone: 574-936-4221 FAX:	Job	240012	Page	35 of 59
	Project	V-29 x 255' - #282072 Clay, KY	Date	10:52:50 11/20/13
	Client	American Tower Corp.	Designed by	SKK

<b>inxTower</b> Valmont 1345 Pidas Drive Plymouth, IN Phone: 574-936-4221 FAX:	Job	240012	Page	36 of 59
	Project	V-29 x 255' - #282072 Clay, KY	Date	10:52:50 11/20/13
	Client	American Tower Corp.	Designed by	SKK

Wind Azimuth	F <sub>x</sub>	F <sub>y</sub>	F <sub>z</sub>	OTM <sub>x</sub>	OTM <sub>y</sub>	Torque
30	0.02	0.01	0.01	-0.02	-5.81	-3.30
60	0.01	0.02	0.01	-0.01	-4.16	-3.48
90	0.00	0.03	0.03	0.00	-0.09	-6.60
120	0.01	0.02	0.03	0.01	3.22	-5.72
150	0.02	0.01	0.01	0.02	5.63	-3.30
180	0.01	0.01	0.01	0.01	4.74	-3.06
210	0.02	0.01	-0.01	0.02	5.63	3.30
240	0.01	0.02	-0.02	0.01	3.22	5.72
270	0.00	0.03	-0.03	0.00	-0.09	6.60
300	0.01	0.02	-0.02	-0.01	-3.39	5.72
330	0.02	0.01	-0.01	-0.02	-5.81	3.38

Wind Azimuth	F <sub>x</sub>	F <sub>y</sub>	F <sub>z</sub>	OTM <sub>x</sub>	OTM <sub>y</sub>	Torque
120	2.63	0.00	0.00	2.28	1.32	322.57
150	2.63	0.00	1.32	2.28	558.71	322.57
180	2.63	0.00	0.00	2.63	615.15	0.00
210	2.63	0.00	-1.32	2.28	558.71	322.57
240	2.63	0.00	-2.28	1.32	322.57	558.71
270	2.63	0.00	-0.00	0.00	615.15	0.00
300	2.63	0.00	-1.32	-1.32	322.57	558.71
330	2.63	0.00	-1.32	-2.28	-558.71	322.57

Wind Azimuth	F <sub>x</sub>	F <sub>y</sub>	F <sub>z</sub>	OTM <sub>x</sub>	OTM <sub>y</sub>	Torque
0	0.81	0.02	0.00	-0.03	-7.13	0.13
30	0.02	0.81	0.02	-0.02	-6.16	-3.48
60	0.03	0.02	0.82	-0.01	-5.19	-6.11
90	0.01	0.03	0.82	0.00	0.07	-7.08
120	0.01	0.02	0.82	0.01	3.67	-6.11
150	0.00	0.03	0.81	0.02	6.31	-3.48
180	0.81	0.02	0.00	0.03	7.27	0.13
210	0.02	0.01	-0.01	0.02	6.31	3.73
240	0.03	0.02	-0.02	0.01	3.67	6.36
270	0.02	0.01	-0.01	0.02	6.36	3.73
300	0.01	0.02	-0.02	-0.01	-3.53	6.36
330	0.00	0.03	-0.03	-0.02	-6.16	3.73

Wind Azimuth	F <sub>x</sub>	F <sub>y</sub>	F <sub>z</sub>	OTM <sub>x</sub>	OTM <sub>y</sub>	Torque
0	2.61	0.00	0.00	-2.61	-613.41	0.00
30	2.61	0.00	-2.26	-2.24	-531.23	

<b>tnxTower</b> Valmont 1545 Pido Drive Plymouth, IN Phone: 317-936-4221 FAX:	Job	240012	Page	37 of 59
	Project	V-29 x 255' - #282072 Clay, KY	Date	10:52:50 11/20/13
	Client	American Tower Corp.	Designed by	SKK

<b>tnxTower</b> Valmont 1545 Pido Drive Plymouth, IN Phone: 317-936-4221 FAX:	Job	240012	Page	38 of 59
	Project	V-29 x 255' - #282072 Clay, KY	Date	10:52:50 11/20/13
	Client	American Tower Corp.	Designed by	SKK

Wind Azimuth *	$F_x$	$F_y$	$V_x$	$V_y$	$OTAL_x$	$OTAL_y$	Torque
	K	K	K	K	kip-ft	kip-ft	kip-ft
120	0.18	0.18	5.30	1272.73	-2304.69	-0.13	-0.13
150	0.30	0.18	5.18	2204.59	-1273.83	-0.04	-0.04
180	0.08	0.19	5.99	2545.81	0.13	0.07	0.07
210	-0.30	0.18	5.18	2204.59	1273.83	0.16	0.16
240	-0.18	0.18	5.30	1272.73	2204.64	0.20	0.20
270	-0.18	0.08	5.99	2545.81	0.13	0.19	0.19
300	-0.18	-0.30	5.18	2204.59	-1273.83	0.13	0.13
330	-0.30	-0.18	5.18	2204.59	-1273.83	0.16	0.16

Wind Azimuth *	$F_x$	$F_y$	$V_x$	$V_y$	$OTAL_x$	$OTAL_y$	Torque	
	K	K	K	K	kip-ft	kip-ft	kip-ft	
120	0.08	0.00	0.00	0.00	0.00	0.43	-1.08	-0.01
150	0.00	0.00	0.00	0.00	0.00	0.89	-0.62	-0.01
180	0.00	0.00	0.00	0.00	0.00	1.05	0.00	0.00
210	0.08	0.00	-0.08	0.00	0.89	0.62	0.01	0.01
240	0.00	0.00	-0.00	0.00	0.00	0.43	1.08	0.01
270	0.00	0.00	-0.00	0.00	0.00	-0.43	1.08	0.01
300	0.00	0.00	-0.00	-0.00	-0.89	-0.62	1.08	0.01
330	0.00	0.00	-0.00	-0.00	-0.89	-1.27	0.62	0.01

Discrete Appurtenance Pressures - With Ice $C_H = 0.850$												
Description	Area	$C_{pe}$	$C_{pi}$	$C_{pe}$	$C_{pi}$	$z$	$K_z$	$G$	$C_{dc}$	$C_{dc}$	$C_{dc}$	$t_n$
	ft <sup>2</sup>					ft			psf	psf	psf	in
Beacon	0.0000	0.16	0.00	-2.89	259.39	1.547	3	1.88	3.40	3.40	1.8403	
Beacon Extender (E)	0.0000	0.07	0.00	-2.89	257.21	1.544	3	1.88	1.88	1.88	1.8403	
803062												
EA lightning rod	210.0008	0.13	-2.58	1.44	259.08	1.546	3	1.88	4.14	4.14	1.8403	
ATC Loading	0.0000	5.61	0.00	0.00	255.00	1.541	3	1.88	188.61	188.61	1.8403	
ATC Loading	0.0000	5.61	0.00	0.00	245.00	1.528	3	1.88	188.32	188.32	1.8330	
ATC Loading	0.0000	5.61	0.00	0.00	225.00	1.515	3	1.88	188.01	188.01	1.8254	
ATC Loading	0.0000	5.61	0.00	0.00	225.00	1.501	3	1.88	187.70	187.70	1.8174	
Sum	22.99											
Weight												

Wind Azimuth *	$F_x$	$F_y$	$V_x$	$V_y$	$OTAL_x$	$OTAL_y$	Torque	
	K	K	K	K	kip-ft	kip-ft	kip-ft	
0	0.01	0.01	0.00	0.00	-0.01	-5.58	0.33	-0.63
30	0.01	0.01	0.01	-0.01	-0.21	-2.21	-1.07	-0.02
60	0.01	0.01	0.01	-0.01	-1.20	-2.07	0.08	0.02
90	0.01	0.01	0.01	0.00	0.18	-2.44	0.02	0.02
120	0.01	0.01	0.01	0.01	0.91	-1.57	-2.07	0.03
150	0.08	0.01	0.01	0.01	2.58	-1.06	0.03	0.03
180	0.01	0.01	0.00	0.01	2.95	0.32	0.03	0.03
210	0.01	0.01	-0.01	0.01	2.58	1.70	0.02	0.02
240	0.01	0.00	-0.01	0.01	1.57	2.21	0.00	0.00
270	0.01	0.01	-0.01	-0.01	0.18	3.08	-0.02	-0.02
300	0.01	0.01	-0.01	-0.01	-1.20	2.71	-0.03	-0.03
330	0.00	0.01	-0.01	-0.01	-2.21	1.70	-0.03	-0.03

Discrete Appurtenance Vectors - With Ice												
Description	Area	$C_{pe}$	$C_{pi}$	$C_{pe}$	$C_{pi}$	$z$	$K_z$	$G$	$C_{dc}$	$C_{dc}$	$C_{dc}$	$t_n$
	ft <sup>2</sup>					ft			psf	psf	psf	in
Beacon	0.0000	0.16	0.00	-2.89	259.39	1.547	3	1.88	3.40	3.40	1.8403	
Beacon Extender (E)	0.0000	0.07	0.00	-2.89	257.21	1.544	3	1.88	1.88	1.88	1.8403	
803062												
EA lightning rod	210.0008	0.13	-2.58	1.44	259.08	1.546	3	1.88	4.14	4.14	1.8403	
ATC Loading	0.0000	5.61	0.00	0.00	255.00	1.541	3	1.88	188.61	188.61	1.8403	
ATC Loading	0.0000	5.61	0.00	0.00	245.00	1.528	3	1.88	188.32	188.32	1.8330	
ATC Loading	0.0000	5.61	0.00	0.00	225.00	1.515	3	1.88	188.01	188.01	1.8254	
ATC Loading	0.0000	5.61	0.00	0.00	225.00	1.501	3	1.88	187.70	187.70	1.8174	
Sum	22.99											
Weight												

Wind Azimuth *	$F_x$	$F_y$	$V_x$	$V_y$	$OTAL_x$	$OTAL_y$	Torque	
	K	K	K	K	kip-ft	kip-ft	kip-ft	
0	0.48	0.00	0.00	0.00	-0.48	-123.40	0.00	0.00
30	0.48	0.00	0.24	-0.48	-106.87	-61.70	0.00	0.00
60	0.48	0.00	0.42	-0.24	-61.70	-106.87	0.00	0.00
90	0.48	0.00	0.48	0.00	0.00	-123.40	0.00	0.00
120	0.48	0.00	0.42	0.24	61.70	-106.87	0.00	0.00
150	0.48	0.00	0.24	0.42	106.87	-61.70	0.00	0.00
180	0.48	0.00	0.00	0.48	123.40	0.00	0.00	0.00
210	0.48	0.00	-0.24	0.42	106.87	61.70	0.00	0.00
240	0.48	0.00	-0.42	0.24	61.70	106.87	0.00	0.00
270	0.48	0.00	-0.48	0.00	0.00	123.40	0.00	0.00
300	0.48	0.00	-0.24	-0.42	-61.70	106.87	0.00	0.00
330	0.48	0.00	-0.24	-0.42	-106.87	61.70	0.00	0.00

Wind Azimuth *	$F_x$	$F_y$	$V_x$	$V_y$	$OTAL_x$	$OTAL_y$	Torque	
	K	K	K	K	kip-ft	kip-ft	kip-ft	
0	0.00	0.00	0.00	0.00	-1.44	0.00	0.00	0.00
30	0.00	0.00	0.00	-0.00	-1.27	-0.62	-0.01	-0.01
60	0.00	0.00	0.00	0.00	-0.87	-1.88	-0.01	-0.01
90	0.00	0.00	0.00	0.00	-0.87	-1.88	-0.01	-0.01
120	0.00	0.00	0.00	0.00	-0.87	-1.88	-0.01	-0.01
150	0.00	0.00	0.00	0.00	-0.87	-1.88	-0.01	-0.01
180	0.00	0.00	0.00	0.00	-0.87	-1.88	-0.01	-0.01
210	0.00	0.00	0.00	0.00	-0.87	-1.88	-0.01	-0.01
240	0.00	0.00	0.00	0.00	-0.87	-1.88	-0.01	-0.01
270	0.00	0.00	0.00	0.00	-0.87	-1.88	-0.01	-0.01
300	0.00	0.00	0.00	0.00	-0.87	-1.88	-0.01	-0.01
330	0.00	0.00	0.00	0.00	-0.87	-1.88	-0.01	-0.01

Wind Azimuth *	$F_x$	$F_y$	$V_x$	$V_y$	$OTAL_x$	$OTAL_y$	Torque	
	K	K	K	K	kip-ft	kip-ft	kip-ft	
0	0.48	0.00	0.00	0.00	-0.48	-117.39	0.00	0.00
30	0.48	0.00	0.24	-0.48	-101.66	-58.69	0.00	0.00
60	0.48	0.00	0.42	-0.24	-58.69	-101.66	0.00	0.00
90	0.48	0.00	0.48	0.00	0.00	-117.39	0.00	0.00
120	0.48	0.00	0.42	0.24	58.69	-101.66	0.00	0.00
150	0.48	0.00	0.24	0.42	101.66	-58.69	0.00	0.00
180	0.48	0.00	0.00	0.48	117.39	0.00	0.00	0.00
210	0.48	0.00	-0.24	0.42	101.66	58.69	0.00	0.00
240	0.48	0.00	-0.42	0.24	58.69	101.66	0.00	0.00
270	0.48	0.00	-0.48	0.00	0.00	117.39	0.00	0.00
300	0.48	0.00	-0.24	-0.42	-58.69	101.66	0.00	0.00
330	0.48	0.00	-0.24	-0.42	-101.66	58.69	0.00	0.00

<b>tnxTower</b> Valmont 1545 Pido Drive Plymouth, IN Phone: 317-936-4221 FAX:	Job	240012	Page	39 of 59
	Project	V-29 x 255' - #282072 Clay, KY	Date	10:52:50 11/20/13
	Client	American Tower Corp.	Designed by	SKK

<b>tnxTower</b> Valmont 1545 Pido Drive Plymouth, IN Phone: 317-936-4221 FAX:	Job	240012	Page	40 of 59
	Project	V-29 x 255' - #282072 Clay, KY	Date	10:52:50 11/20/13
	Client	American Tower Corp.	Designed by	SKK

Wind Azimuth *	$F_x$	$F_y$	$V_x$	$V_y$	$OTAL_x$	$OTAL_y$	Torque	
	K	K	K	K	kip-ft	kip-ft	kip-ft	
210	0.48	0.00	-0.24	0.41	101.66	58.69	0.00	0.00
240	0.48	0.00	-0.48	0.00	58.69	101.66	0.00	0.00
270	0.48	0.00	-0.41	0.24	0.00	117.39	0.00	0.00
300	0.48	0.00	-0.24	-0.41	-58.69	101.66	0.00	0.00
330	0.48	0.00	-0.24	-0.41	-101.66	58.69	0.00	0.00

Wind Azimuth *	$F_x$	$F_y$	$V_x$	$V_y$	$OTAL_x$	$OTAL_y$	Torque
	K	K	K	K	kip-ft	kip-ft	kip-ft
210	-0.97	1.67	401.39	232.33	0.04	0.00	0.00
240	-1.67	0.97	231.34	402.18	0.03	0.00	0.00
270	-1.93	0.00	-0.48	484.33	0.82	0.00	0.00
300	-1.67	-0.97	-329.49	402.18	0.01	0.00	0.00
330	-0.97	-1.67	-402.34	232.33	-0.01	0.00	0.00

Wind Azimuth *	$F_x$	$F_y$	$V_x$	$V_y$	$OTAL_x$	$OTAL_y$	Torque	
	K	K	K	K	kip-ft	kip-ft	kip-ft	
0	0.47	0.00	0.00	0.47	-111.43	0.00	0.00	0.00
30	0.47	0.00	0.24	-0.41	-96.50	-55.71	0.00	0.00
60	0.47	0.00	0.41	-0.24	-55.71	-96.50	0.00	0.00
90	0.47	0.00	0.47	0.00	0.00	-111.43	0.00	0.00
120	0.47	0.00	0					

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	Client	American Tower Corp.	Designed by	SKK

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	Client	American Tower Corp.	Designed by	SKK

Wind Azimuth	F <sub>x</sub>	F <sub>y</sub>	V <sub>x</sub>	V <sub>y</sub>	OTM <sub>x</sub>	OTM <sub>y</sub>	Torque
210	0.01	0.01	-0.81	0.01	1.26	-1.47	0.03
240	0.01	0.01	-0.01	0.81	1.38	2.54	0.03
278	0.01	0.01	-0.01	0.00	-0.09	2.94	0.03
300	0.01	0.01	-0.81	-0.01	-1.55	2.54	0.03
338	0.01	0.01	-0.01	-0.81	-2.03	1.17	0.03

Wind Azimuth	F <sub>x</sub>	F <sub>y</sub>	V <sub>x</sub>	V <sub>y</sub>	OTM <sub>x</sub>	OTM <sub>y</sub>	Torque
300	1.17	0.00	-1.81	0.59	-143.37	248.32	0.80
330	1.17	0.00	-0.59	-1.81	-248.32	143.37	0.80

Wind Azimuth	F <sub>x</sub>	F <sub>y</sub>	V <sub>x</sub>	V <sub>y</sub>	OTM <sub>x</sub>	OTM <sub>y</sub>	Torque
8	0.01	0.01	0.00	-0.81	-3.13	8.13	-0.83
30	0.01	0.01	0.01	-0.01	-2.70	-1.48	-0.82
60	0.01	0.00	0.01	-0.01	-1.53	-2.05	0.81
90	0.01	0.01	0.01	0.00	0.00	-3.08	0.82
120	0.01	0.01	0.01	0.81	1.67	-2.65	0.03
150	0.01	0.01	0.01	0.01	2.84	-1.48	0.94
180	0.01	0.01	0.00	0.81	3.27	-0.13	0.93
210	0.01	0.01	-0.01	0.01	2.84	1.73	0.02
240	0.01	0.00	-0.81	0.01	1.67	2.90	0.03
270	0.01	0.01	-0.01	0.81	0.07	3.33	-0.82
300	0.01	0.01	-0.81	-0.01	-1.53	2.90	-0.83
330	0.00	0.01	-0.01	-0.81	-2.70	1.73	-0.84

Wind Azimuth	F <sub>x</sub>	F <sub>y</sub>	V <sub>x</sub>	V <sub>y</sub>	OTM <sub>x</sub>	OTM <sub>y</sub>	Torque
8	1.16	0.00	0.00	-1.16	-372.63	0.88	0.80
38	1.16	0.00	0.38	-1.80	-236.19	-146.31	0.80
68	1.16	0.00	0.88	-1.16	-116.31	-236.19	0.80
98	1.16	0.00	1.16	0.00	0.00	-272.63	0.80
128	1.16	0.00	1.00	0.38	136.31	-236.19	0.80
158	1.16	0.00	0.58	1.16	236.19	-136.31	0.80
188	1.16	0.00	0.08	1.16	272.63	0.00	0.80
218	1.16	0.00	-0.58	1.00	236.19	136.31	0.80
248	1.16	0.00	-1.08	0.38	136.31	236.19	0.80
278	1.16	0.00	-1.16	0.00	0.00	272.63	0.80
308	1.16	0.00	-0.58	-1.16	-136.31	236.19	0.80
338	1.16	0.00	-0.58	-1.88	-236.19	136.31	0.80

Wind Azimuth	F <sub>x</sub>	F <sub>y</sub>	V <sub>x</sub>	V <sub>y</sub>	OTM <sub>x</sub>	OTM <sub>y</sub>	Torque
8	1.10	0.00	0.00	-1.18	-300.96	0.00	0.80
38	1.10	0.00	0.59	-1.92	-260.64	-150.40	0.80
68	1.10	0.00	1.02	-0.59	-150.40	-260.64	0.80
98	1.10	0.00	1.18	0.00	0.00	-300.96	0.80
128	1.10	0.00	1.82	0.59	150.40	-260.64	0.80
158	1.10	0.00	1.59	1.02	260.64	-150.40	0.80
188	1.10	0.00	0.00	1.18	300.96	0.00	0.80
218	1.10	0.00	-0.59	1.02	260.64	150.40	0.80
248	1.10	0.00	-1.02	0.59	150.40	260.64	0.80
278	1.10	0.00	-1.18	0.00	0.00	300.96	0.80
308	1.10	0.00	-0.59	-1.02	-150.40	260.64	0.80
338	1.10	0.00	-0.59	-1.92	-260.64	150.40	0.80

Wind Azimuth	F <sub>x</sub>	F <sub>y</sub>	V <sub>x</sub>	V <sub>y</sub>	OTM <sub>x</sub>	OTM <sub>y</sub>	Torque
60	1.15	0.00	0.00	-1.15	-258.63	0.00	0.80
90	1.15	0.00	0.80	-1.80	-233.99	-129.32	0.80
120	1.15	0.00	1.00	-0.87	-129.32	-233.99	0.80
150	1.15	0.00	1.15	0.00	0.00	-258.63	0.80
180	1.15	0.00	1.00	0.87	129.32	-233.99	0.80
210	1.15	0.00	0.87	1.15	258.63	-129.32	0.80
240	1.15	0.00	-0.87	1.00	233.99	129.32	0.80
270	1.15	0.00	-1.15	0.00	0.00	258.63	0.80
300	1.15	0.00	-0.87	-1.00	-129.32	233.99	0.80
338	1.15	0.00	-0.87	-1.80	-233.99	129.32	0.80

Wind Azimuth	F <sub>x</sub>	F <sub>y</sub>	V <sub>x</sub>	V <sub>y</sub>	OTM <sub>x</sub>	OTM <sub>y</sub>	Torque
8	1.17	0.00	0.00	-1.17	-326.73	0.00	0.80
30	1.17	0.00	0.59	-1.91	-248.32	-143.37	0.80
60	1.17	0.00	1.01	-0.59	-143.37	-248.32	0.80
90	1.17	0.00	1.17	0.00	0.00	-326.73	0.80
120	1.17	0.00	1.01	0.59	143.37	-248.32	0.80
150	1.17	0.00	0.59	1.01	248.32	-143.37	0.80
180	1.17	0.00	0.00	1.17	326.73	0.00	0.80
210	1.17	0.00	-0.59	1.01	248.32	143.37	0.80
240	1.17	0.00	-1.01	0.59	143.37	248.32	0.80
278	1.17	0.00	-1.17	0.00	0.00	326.73	0.80

**Discrete Appurtenance Totals - Service**

Wind Azimuth	F <sub>x</sub>	F <sub>y</sub>	V <sub>x</sub>	V <sub>y</sub>	OTM <sub>x</sub>	OTM <sub>y</sub>	Torque
0	0.00	-4.71	-1131.74	0.13	-0.03		
38	0.01	2.35	90.81	0.57	-1.88	-233.99	0.80
68	4.08	-2.35	-565.98	-0.79	-0.09		
98	4.71	0.88	-0.23	-1131.39	-0.09		
128	4.88	2.35	565.33	-0.79	-0.06		
158	4.08	-2.35	90.81	0.57	-1.88	-233.99	0.80
188	8.00	4.71	1131.29	0.13	0.03		
218	-2.35	4.88	979.69	0.63	0.87		
248	-4.71	0.00	565.33	0.80	0.09		
278	-4.71	0.00	-0.23	1131.64	0.09		

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Wind Azimuth	V <sub>x</sub>	V <sub>y</sub>	OTM <sub>x</sub>	OTM <sub>y</sub>	Torque
300	-1.08	-2.35	-565.98	980.94	0.00
330	-2.35	-4.08	-980.14	565.98	0.00

**Force Totals**

Load Case	Vertical Forces	Sum of Forces X	Sum of Forces Z	Sum of Overturning Moments, M <sub>x</sub>	Sum of Overturning Moments, M <sub>y</sub>	Sum of Torques
Leg Weight	36.97					
Bracing Weight	16.41					
Total Member Self-Weight	52.98					
Total Weight	81.57					
Wind 0 deg - No Ice		8.00	-53.81	-811.94	-16.44	7.95
Wind 38 deg - No Ice		28.11	-48.69	-720.54	-423.87	4.93
Wind 60 deg - No Ice		51.46	-29.71	-4437.92	-7688.63	0.15
Wind 90 deg - No Ice		56.68	0.00	-9.54	-8155.52	-4.75
Wind 120 deg - No Ice		46.80	23.92	4072.97	-7078.21	-1.87
Wind 150 deg - No Ice		26.39	45.70	6184.75	-3096.86	-8.88
Wind 180 deg - No Ice		0.00	51.92	7871.84	-38.44	-7.58
Wind 210 deg - No Ice		-28.11	48.69	7300.46	4203.99	-4.92
Wind 240 deg - No Ice		-53.10	30.66	4532.36	7850.35	-0.16
Wind 270 deg - No Ice		-56.68	0.00	95.4	8532.63	4.75
Wind 308 deg - No Ice		-15.17	-26.08	-3978.33	6837.71	7.55
Wind 330 deg - No Ice		-26.39	-45.78	-6903.82	3063.97	8.88
Member Ice	93.20					
Total Weight Ice	280.75					
Wind 0 deg - Ice	0.00	-10.64	-1806.67	-76.39	0.28	
Wind 30 deg - Ice	5.26	-9.11	-1390.60	-862.22	0.32	
Wind 60 deg - Ice	9.11	-5.26	-819.36	-1441.47	0.26	
Wind 90 deg - Ice	10.59	0.00	-29.49	-1664.51	0.14	
Wind 120 deg - Ice	9.27	5.23	767.32	-1456.51	-0.03	
Wind 150 deg - Ice	5.27	9.11	1325.78	-858.85	-0.17	
Wind 180 deg - Ice	0.00	10.46	1523.94	-162.39	-0.28	
Wind 210 deg - Ice	-5.26	9.11	1331.61	789.44	-0.32	
Wind 240 deg - Ice	-9.26	5.23	770.59	1309.37	-0.27	
Wind 270 deg - Ice	-10.59	0.00	-29.49	1512.73	-0.14	
Wind 308 deg - Ice	-1.07	-9.12	-813.99	1285.83	0.02	
Wind 330 deg - Ice	-5.27	-9.12	-1384.76	706.07	0.17	
Total Weight	81.57					
Wind 8 deg - Service	0.00	0.13	-23.92	-160.95	0.13	
Wind 30 deg - Service	12.49	-21.64	-3249.11	-1875.62	2.18	
Wind 60 deg - Service	22.87	-13.21	-1968.39	-3408.85	0.07	
Wind 90 deg - Service	25.18	0.00	0.23	-2799.46	-2.11	
Wind 120 deg - Service	28.86	12.01	1811.13	-3123.44	-3.50	
Wind 150 deg - Service	11.73	20.31	3063.90	-1789.93	-3.93	
Wind 180 deg - Service	0.00	23.08	3502.61	0.13	-3.37	
Wind 210 deg - Service	-12.49	21.64	3248.66	1875.87	-2.18	
Wind 240 deg - Service	-23.60	13.62	2018.29	-3406.48	-0.07	
Wind 278 deg - Service	-23.19	0.00	0.23	-2799.71	2.11	
Wind 308 deg - Service	-26.88	-11.59	-1764.13	3053.31	3.34	
Wind 330 deg - Service	-					

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	Project	V-29 x 255' - #282072 Clay, KY	Date	10:52:50 11/20/13
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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Actial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	255 - 240	Leg	Max Tension	7	17.56	-0.54	8.31
			Max. Compression	2	-21.04	0.82	-0.81
		Diagonal	Max. Mc	7	17.04	-0.45	-0.46
			Max. My	14	16.85	-0.82	0.97
			Max. Vy	8	1.54	-0.64	-0.89
			Max. Vx	14	1.95	-0.80	-0.56
			Max. Tension	24	3.45	0.80	8.80
			Max. Compression	12	-3.59	0.80	8.08
		Top Girt	Max. Mc	4	3.26	8.83	-8.88
			Max. My	22	-4.56	8.81	-0.01
			Max. Vy	38	-8.82	8.82	-0.85
			Max. Vx	22	-8.88	8.88	0.88
			Max. Tension	18	1.83	8.88	8.08
			Max. Compression	7	-1.19	8.88	8.08
T2	248 - 228	Leg	Max. Mc	26	8.15	-0.84	8.88
			Max. My	18	-0.64	8.88	-0.08
		Diagonal	Max. Vy	26	-8.83	8.80	8.88
			Max. Vx	18	0.88	8.88	8.88
			Max. Tension	7	65.81	8.22	-8.88
			Max. Compression	2	-73.64	2.27	-0.01
			Max. Mc	14	29.53	-2.91	0.01
			Max. My	8	-3.25	-0.83	1.71
		Top Girt	Max. Vy	14	1.91	-2.91	8.81
			Max. Vx	8	-1.51	-0.83	1.71
			Max. Tension	12	-2.15	-8.88	8.88
			Max. Compression	12	-8.58	8.88	8.08
			Max. Mc	4	4.53	8.03	8.80
			Max. My	22	-5.76	0.88	-8.81
T3	228 - 208	Leg	Max. Mc	27	-8.82	8.83	8.08
			Max. My	22	8.00	8.88	0.80
		Diagonal	Max. Vy	7	122.61	-0.84	8.88
			Max. Vx	2	-133.08	8.81	-0.08
			Max. Tension	18	-94.19	1.22	-0.88
			Max. Compression	4	-4.75	-0.81	-8.99
			Max. Mc	18	-8.17	1.22	-8.88
			Max. My	4	8.13	-0.83	-8.88
		Top Girt	Max. Vy	12	8.65	0.00	0.08
			Max. Vx	12	-8.92	0.88	8.88
			Max. Tension	7	7.88	0.87	-8.88
			Max. Compression	31	0.84	0.04	8.81
			Max. Mc	27	-8.84	8.85	8.81
			Max. My	31	-8.08	8.88	8.88
T4	208 - 180	Leg	Max. Tension	7	174.05	-1.23	-8.83
			Max. Compression	2	-189.13	-3.31	-8.83
		Diagonal	Max. Mc	2	-188.95	3.47	-8.81
			Max. My	8	-6.74	-0.85	1.80
			Max. Vy	2	-1.09	-0.81	-8.81
			Max. Vx	4	-0.41	0.85	-1.14
			Max. Tension	12	9.68	0.88	8.80
			Max. Compression	12	-9.62	0.80	8.88
		Top Girt	Max. Mc	4	-4.35	8.87	8.88
			Max. My	24	-9.61	-0.83	-0.02
			Max. Vy	29	0.85	8.85	-8.01
			Max. Vx	24	8.80	0.08	8.88
			Max. Tension	7	215.35	-3.09	-0.81
			Max. Compression	2	-233.84	9.83	-0.87
T5	188 - 160	Leg	Max. Mc	2	-289.38	12.41	-0.83
			Max. My	8	-0.39	-0.78	18.55
		Diagonal	Max. Vy	18	-1.97	12.48	-0.01
			Max. Vx	8	-1.11	8.15	7.64
			Max. Tension	12	18.81	8.80	8.08
			Max. Compression	12	-18.81	8.80	8.08
			Max. Mc	29	8.93	-0.61	-0.89
			Max. My	27	-8.61	-0.68	0.89
		Max. Vy	29	-0.21	-0.61	-0.89	
		Max. Vx	27	8.81	0.80	0.88	
		Max. Tension	7	452.54	0.93	-0.80	
		Max. Compression	2	-584.53	16.87	-0.13	
		Max. Mc	18	-503.29	16.89	0.80	
		Max. My	24	-8.28	-0.85	5.44	
Max. Vy	18	-1.14	16.89	8.88			
Max. Vx	4	-0.31	-0.58	-3.39			
Max. Tension	28	16.90	8.88	8.88			
Max. Compression	18	-18.67	0.88	0.08			
Max. Mc	29	1.89	-0.65	-0.18			
Max. My	28	2.81	-0.64	0.10			
Max. Vy	29	-0.22	-0.65	-0.18			
Max. Vx	28	0.81	0.00	8.88			
Max. Tension	7	492.48	1.82	-0.08			
Max. Compression	2	-552.98	12.41	-0.11			
Max. Mc	22	481.81	-13.17	-0.14			
Max. My	4	-29.11	-0.66	-16.43			
Max. Vy	22	0.97	-13.17	-0.14			
Max. Vx	4	1.83	-0.66	-16.43			
Max. Tension	18	17.43	8.80	8.80			
Max. Compression	12	-17.48	0.80	8.80			
Max. Mc	29	-8.06	-0.77	8.11			
Max. My	28	-2.65	-0.76	8.12			
Max. Vy	29	-0.23	-0.77	0.11			
Max. Vx	28	0.80	0.80	0.88			
Max. Tension	7	921.58	8.80	-0.88			
Max. Compression	2	-991.60	8.78	-0.88			
Max. Mc	18	-590.19	8.29	8.88			
Max. My	24	-28.92	-0.97	18.64			
Max. Vy	18	-0.68	8.29	0.88			
Max. Vx	4	-0.66	-0.96	-18.62			
Max. Tension	15	18.47	8.08	8.88			
Max. Compression	2	-20.58	8.88	8.88			
Max. Mc	30	2.80	-0.74	8.10			
Max. My	31	2.34	-0.74	8.10			
Max. Vy	38	-8.23	-0.74	-0.18			
Max. Vx	31	0.01	8.00	0.88			

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Actial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T6	160 - 148	Leg	Max. Compression	12	-18.63	0.88	0.08
			Max. Mc	31	1.22	8.18	0.01
		Diagonal	Max. My	31	0.31	8.89	0.81
			Max. Vy	29	0.06	0.89	-0.01
			Max. Vx	31	8.00	0.00	0.08
			Max. Tension	7	262.25	-3.51	-8.01
			Max. Compression	2	-286.30	7.45	-0.85
			Max. Mc	2	-258.25	12.24	-8.83
		Top Girt	Max. My	8	-11.78	-0.34	8.71
			Max. Vy	18	-1.15	12.22	-8.08
			Max. Vx	8	-8.90	-0.34	8.71
			Max. Tension	18	11.34	0.88	8.90
			Max. Compression	18	-11.08	0.88	0.08
			Max. Mc	6	8.35	0.18	0.88
T7	148 - 120	Leg	Max. Mc	24	-10.69	-0.83	-0.84
			Max. My	29	0.88	0.12	-8.82
		Diagonal	Max. Vy	24	8.01	0.00	0.08
			Max. Vx	7	289.96	-4.91	-8.01
			Max. Tension	2	-315.91	19.27	-8.16
			Max. Compression	18	-315.84	19.29	-0.01
			Max. Mc	8	-13.25	0.18	11.05
			Max. My	16	-0.75	0.18	11.03
		Top Girt	Max. Vy	23	16.38	0.88	8.08
			Max. Vx	18	-17.95	0.00	8.80
			Max. Tension	29	8.65	-0.29	8.86
			Max. Compression	24	-16.29	8.81	8.07
			Max. Mc	29	8.12	-0.29	-8.86
			Max. My	29	0.00	0.88	0.88
T8	128 - 188	Leg	Max. Tension	7	337.59	8.17	-8.81
			Max. Compression	2	-378.12	19.48	-8.21
		Diagonal	Max. Mc	18	-368.15	19.51	-8.81
			Max. My	8	-16.61	-0.16	10.95
			Max. Vy	18	-1.66	19.51	-8.88
			Max. Vx	2	8.47	-9.97	-18.17
			Max. Tension	18	15.58	8.88	8.80
			Max. Compression	12	-16.28	0.88	0.08
		Top Girt	Max. Mc	29	1.55	-0.35	-8.86
			Max. My	38	0.82	-0.35	8.86
			Max. Vy	29	-8.13	-0.35	-8.86
			Max. Vx	38	8.81	0.88	8.88
			Max. Tension	7	374.66	0.51	-0.01
			Max. Compression	2	-412.68	17.21	-0.15
T9	180 - 68	Leg	Max. Mc	18	-411.55	17.23	8.88
			Max. My	4	-18.51	8.36	-8.53
		Diagonal	Max. Vy	19	-1.14	17.13	8.88
			Max. Vx	16	8.57	8.56	8.88
			Max. Tension	23	15.98	0.88	0.80
			Max. Compression	10	-17.79	0.88	0.80
			Max. Mc	29	1.89	-0.51	-8.68
			Max. My	38	8.55	-0.50	8.68
		Top Girt	Max. Vy	29	-8.19	-0.51	-8.68
			Max. Vx	38	8.81	8.88	8.88
			Max. Tension	7	416.67	4.28	-0.81
			Max. Compression	2	-462.58	15.36	-8.15
			Max. Mc	19	-453.17	15.45	0.00
			Max. My	4	-22.39	-0.39	-12.18
T10	88 - 68	Leg	Max. Vy	19	-1.25	15.45	8.80
			Max. Vx	16	-8.67	-0.39	12.16
		Diagonal	Max. Tension	12	16.26	8.08	8.08
			Max. Compression	12	-16.97	8.88	8.00

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	Client	American Tower Corp.	Designed by	SKK

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Actial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T11	60 - 48	Leg	Max. Mc	29	8.93	-0.61	-0.89
			Max. My	27	-8.61	-0.68	0.89
		Diagonal	Max. Vy	29	-0.21	-0.61	-0.89
			Max. Vx	27	8.81	0.80	0.88
			Max. Tension	7	452.54	0.93	-0.80
			Max. Compression	2	-584.53	16.87	-0.13
			Max. Mc	18	-503.29	16.89	0.80
			Max. My	24	-8.28	-0.85	5.44
		Top Girt	Max. Vy	18	-1.14	16.89	8.88
			Max. Vx	4	-0.31	-0.58	-3.39
			Max. Tension	28	16.90	8.88	8.88
			Max. Compression	18	-18.67	0.88	0.08
			Max. Mc	29	1.89	-0.65	-0.18
			Max. My	28	2.81	-0.64	0.10
T12	40 - 20	Leg	Max. Vy	29	-0.22	-0.65	-0.18
			Max. Vx	28	0.81	0.00	8.88
		Diagonal	Max. Tension	7	492.48	1.82	-0.08
			Max. Compression	2	-552.98	12.41	-0.11
			Max. Mc	22	481.81	-13.17	-0.14
			Max. My	4	-29.11	-0.66	-16.43
			Max. Vy	22	0.97	-13.17	-0.14
			Max. Vx	4	1.83	-0.66	-16.43
		Top Girt	Max. Tension	18	17.43	8.80	8.80
			Max. Compression	12			

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Load Combination	Vertical		Shear <sub>x</sub>		Overturning Moment <sub>x</sub>		Overturning Moment <sub>y</sub>		Torque	
	K	K	K	K	kip-ft	kip-ft	kip-ft	kip-ft	kip-ft	kip-ft
No Ice	97.89	-43.34	-78.54	-11925.78	6860.24	14.25				
1.2 Dead+1.6 Wind 330 deg - No Ice	73.41	-43.34	-78.54	-11904.48	6854.79	14.20				
0.9 Dead+1.6 Wind 330 deg - No Ice	297.06	-0.08	0.00	-31.83	-68.81	8.00				
1.2 Dead+1.0 Ice+1.0 Temp	297.06	-0.08	-10.77	-1672.49	-81.16	0.60				
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.8 Temp	297.06	5.33	-9.24	-1441.51	-894.91	0.37				
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.8 Temp	297.06	9.18	-5.30	-841.78	-1483.63	0.27				
1.2 Dead+1.0 Wind 120 deg+1.8 Temp	297.06	10.66	0.80	-52.06	-1708.65	0.10				
1.2 Dead+1.0 Wind 180 deg+1.8 Temp	297.06	9.33	5.39	788.16	-1501.81	-0.09				
1.2 Dead+1.0 Wind 240 deg+1.8 Temp	297.06	5.33	9.24	1377.40	-894.91	-0.25				
1.2 Dead+1.0 Wind 300 deg+1.8 Temp	297.06	-0.00	10.60	1587.39	-81.16	-0.36				
1.2 Dead+1.0 Wind 330 deg+1.8 Temp	297.06	-5.33	9.24	1377.39	732.58	-0.37				
1.2 Dead+1.0 Wind 0 deg+1.8 Temp	297.06	-9.33	5.39	788.15	1339.49	-0.28				
1.2 Dead+1.0 Wind 60 deg+1.8 Temp	297.06	-10.66	0.80	-32.06	1546.33	-0.10				
1.2 Dead+1.0 Wind 120 deg+1.8 Temp	297.06	-5.18	-5.38	-841.78	1231.32	0.09				
1.2 Dead+1.0 Wind 180 deg+1.8 Temp	297.06	-5.33	-9.24	-1441.51	732.59	0.25				
1.2 Dead+1.0 Wind 240 deg+1.8 Temp	81.57	-0.00	-27.25	-4066.81	-16.52	3.57				
1.2 Dead+1.0 Wind 300 deg+1.8 Temp	81.57	12.60	0.00	-2315.98	-1925.47	2.21				
1.2 Dead+1.0 Wind 330 deg+1.8 Temp	81.57	22.87	-13.21	-1987.15	-3441.75	0.66				
1.2 Dead+1.0 Wind 0 deg - Service	81.57	25.19	0.08	-9.89	-3834.42	-2.14				
1.2 Dead+1.0 Wind 60 deg - Service	81.57	23.60	13.62	2818.63	-3529.49	-3.54				
1.2 Dead+1.0 Wind 120 deg - Service	81.57	-23.68	13.62	3208.82	-1925.47	-3.69				
1.2 Dead+1.0 Wind 180 deg - Service	81.57	-0.00	26.41	3945.54	-16.52	-3.41				
1.2 Dead+1.0 Wind 240 deg - Service	81.57	-12.60	21.82	3296.83	1892.42	-2.21				
1.2 Dead+1.0 Wind 300 deg - Service	81.57	-23.68	0.00	2018.63	3496.15	-0.07				
1.2 Dead+1.0 Wind 330 deg - Service	81.57	-22.87	-13.21	-1987.15	3488.72	3.38				
1.2 Dead+1.0 Wind 0 deg - Service	81.57	-12.60	-21.82	-3315.99	1892.44	3.99				

Load Comb.	Sum of Applied Forces				Sum of Reactions				% Error
	PX K	FZ K	PX K	FZ K	PX K	FZ K	PX K	FZ K	
11	84.95	-73.41	-43.05	-81.95	73.41	-43.05	-81.95	-81.95	0.00%
12	45.34	-97.89	78.54	-43.34	97.89	78.54	-43.34	-43.34	0.00%
13	45.34	-73.41	78.54	-43.34	73.41	-78.54	43.34	-78.54	0.00%
14	8.88	-97.89	55.08	0.08	97.89	55.08	-97.89	-55.08	0.00%
15	0.80	-73.41	95.08	0.88	73.41	-95.08	0.80	-73.41	0.00%
16	-45.34	-97.89	78.54	45.34	97.89	78.54	-45.34	45.34	0.00%
17	-45.34	-73.41	78.54	-45.34	73.41	-78.54	45.34	-78.54	0.00%
18	-84.95	-97.89	49.05	84.95	97.89	-49.05	-84.95	-97.89	0.00%
19	-84.95	-73.41	49.05	84.95	73.41	-49.05	-84.95	-73.41	0.00%
20	-90.69	-97.89	8.00	90.69	97.89	8.00	-90.69	-97.89	0.00%
21	-90.69	-73.41	0.00	90.69	73.41	-0.00	-90.69	-73.41	0.00%
22	-82.34	-97.89	-47.54	82.34	97.89	47.54	-82.34	-97.89	0.00%
23	-82.34	-73.41	-47.54	82.34	73.41	-47.54	-82.34	-73.41	0.00%
24	-45.34	-97.89	-78.54	45.34	97.89	78.54	-45.34	-97.89	0.00%
25	-45.34	-73.41	-78.54	45.34	73.41	-78.54	45.34	-78.54	0.00%
26	0.00	-297.06	0.00	0.00	297.06	0.00	-297.06	-0.00	0.00%
27	0.00	-297.06	-10.77	0.00	297.06	10.77	-297.06	-10.77	0.00%
28	5.33	-297.06	-9.24	-5.33	297.06	9.24	-297.06	-9.24	0.00%
29	9.18	-297.06	-5.30	-9.18	297.06	5.30	-297.06	-5.30	0.00%
30	10.67	-297.06	0.00	-10.67	297.06	0.00	-297.06	-10.67	0.00%
31	9.33	-297.06	5.39	-9.33	297.06	5.39	-297.06	-5.39	0.00%
32	5.33	-297.06	9.24	-5.33	297.06	9.24	-297.06	-9.24	0.00%
33	0.80	-297.06	10.60	0.80	297.06	10.60	-297.06	-10.60	0.00%
34	-5.33	-297.06	0.24	5.33	297.06	0.24	-297.06	-5.33	0.00%
35	-9.33	-297.06	5.39	-9.33	297.06	5.39	-297.06	-9.33	0.00%
36	-10.67	-297.06	0.00	10.67	297.06	0.00	-297.06	-10.67	0.00%
37	-9.18	-297.06	-5.30	9.18	297.06	5.30	-297.06	-9.18	0.00%
38	-5.33	-297.06	-9.24	5.33	297.06	9.24	-297.06	-5.33	0.00%
39	0.00	-297.06	-27.25	0.00	297.06	27.25	-297.06	-27.25	0.00%
40	12.60	-81.57	-21.82	-12.60	81.57	21.82	-81.57	-21.82	0.00%
41	22.87	-81.57	-13.21	-22.87	81.57	13.21	-81.57	-13.21	0.00%
42	25.19	-81.57	0.08	-25.19	81.57	0.08	-81.57	-25.19	0.00%
43	23.60	-81.57	13.62	-23.60	81.57	13.62	-81.57	-23.60	0.00%
44	12.60	-81.57	21.82	-12.60	81.57	21.82	-81.57	-21.82	0.00%
45	0.00	-81.57	26.41	0.00	81.57	26.41	-81.57	-26.41	0.00%
46	-12.60	-81.57	21.82	12.60	81.57	-21.82	-81.57	21.82	0.00%
47	-23.68	-81.57	13.62	-23.68	81.57	13.62	-81.57	-23.68	0.00%
48	-25.19	-81.57	0.08	25.19	81.57	0.08	-81.57	-25.19	0.00%
49	-22.87	-81.57	-13.21	22.87	81.57	13.21	-81.57	-22.87	0.00%
50	-12.60	-81.57	-21.82	12.60	81.57	21.82	-81.57	-12.60	0.00%

Solution Summary										
Load Comb.	Sum of Applied Forces				Sum of Reactions				% Error	
	PX K	FZ K	PX K	FZ K	PX K	FZ K	PX K	FZ K		
1	0.80	-51.57	0.00	0.00	81.57	-0.00	0.80%			
2	0.80	-97.89	-98.10	0.00	97.89	98.09	0.00%			
3	0.80	-73.41	98.10	0.00	73.41	-98.09	0.00%			
4	45.34	-97.89	-78.54	-45.34	97.89	78.54	0.00%			
5	45.34	-73.41	-78.54	-45.34	73.41	78.54	0.00%			
6	82.34	-97.89	-47.54	82.34	97.89	47.54	0.00%			
7	82.34	-73.41	-47.54	82.34	73.41	47.54	0.00%			
8	90.69	-97.89	0.08	-90.69	97.89	0.00	0.81%			
9	90.69	-73.41	0.00	-90.69	73.41	-0.08	0.00%			
10	84.95	-97.89	49.05	-84.95	97.89	-49.05	0.00%			

Non-Linear Convergence Results					
Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance	
1	Yes	6	0.00000001	0.0010781	
2	Yes	11	0.0004425	0.0014337	
3	Yes	11	0.0003963	0.0012945	
4	Yes	12	0.0004801	0.0004744	
5	Yes	11	0.0004336	0.0013999	
6	Yes	12	0.0000001	0.0003038	
7	Yes	11	0.0004652	0.0014853	
8	Yes	12	0.0000001	0.00004744	
9	Yes	11	0.00004236	0.0014001	
10	Yes	10	0.0004425	0.0001456	
11	Yes	11	0.0003963	0.0012945	

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12	Yes	12	0.00000001	0.00004744	
13	Yes	11	0.0000234	0.0010394	
14	Yes	12	0.0000001	0.00005037	
15	Yes	11	0.00004652	0.0014849	
16	Yes	12	0.0000001	0.00004744	
17	Yes	11	0.00004235	0.0013999	
18	Yes	11	0.0004425	0.0014356	
19	Yes	11	0.0003963	0.0012945	
20	Yes	12	0.0000001	0.00004744	
21	Yes	11	0.00004235	0.0013999	
22	Yes	12	0.0000001	0.00005037	
23	Yes	11	0.00004652	0.0014850	
24	Yes	12	0.0000001	0.00004744	
25	Yes	11	0.00004235	0.0013995	
26	Yes	8	0.0000001	0.0013647	
27	Yes	11	0.0000001	0.00014117	
28	Yes	11	0.0000001	0.00014558	
29	Yes	11	0.0000001	0.00014492	
30	Yes	11	0.0000001	0.00014402	
31	Yes	11	0.0000001	0.00014196	
32	Yes	11	0.0000001	0.00013869	
33	Yes	11	0.0000001	0.00013501	
34	Yes	11	0.0000001	0.00013313	
35	Yes	11	0.0000001	0.00013197	
36	Yes	11	0.0000001	0.00012584	
37	Yes	11	0.0000001	0.00013512	
38	Yes	11	0.0000001	0.00013791	
39	Yes	11	0.0000001	0.00013810	
40	Yes	11	0.0000001	0.00014159	
41	Yes	11	0.0000001	0.00014370	
42	Yes	11	0.0000001	0.00014138	
43	Yes	11	0.0000001	0.00013971	
44	Yes	11	0.0000001	0.00014127	
45	Yes	11	0.0000001	0.00014359	
46	Yes	11	0.0000001	0.00014277	
47	Yes	11	0.0000001	0.00013811	
48	Yes	11	0.0000001	0.00014129	
49	Yes	11	0.0000001	0.00014362	
50	Yes	11	0.0000001</		

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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 K	Ratio Load Allowable	Allowable Ratio	Criteria
T2	240	Top Girt	A325N	0.7500	1	1.03	10.77	0.096	1	Member Bearing
		Leg	A325N	0.7500	8	8.23	29.82	0.276	1	Bolt Tension
T3	220	Diagonal	A325N	0.7500	1	8.50	15.66	0.543	1	Member Bearing
		Leg	A325N	0.7500	8	15.33	29.82	0.514	1	Bolt Tension
T4	200	Diagonal	A325N	0.7500	1	8.92	15.66	0.569	1	Member Bearing
		Leg	A325N	1.0000	6	29.01	51.01	0.547	1	Bolt Tension
T5	180	Diagonal	A325N	0.7500	1	9.62	15.66	0.615	1	Member Bearing
		Leg	A325N	1.8100	6	35.89	53.01	0.677	1	Bolt Tension
T6	160	Diagonal	A325N	1.0000	1	10.01	15.83	0.633	1	Member Bearing
		Leg	A325N	1.0000	6	43.71	53.01	0.824	1	Bolt Tension
T7	140	Diagonal	A325N	1.0000	1	11.34	26.38	0.430	1	Member Bearing
		Leg	A325N	1.0000	12	24.16	53.01	0.456	1	Bolt Tension
T8	120	Diagonal	A325N	0.8750	1	16.30	31.32	0.521	1	Member Bearing
		Leg	A325N	1.0000	12	28.13	53.01	0.531	1	Bolt Tension
T9	100	Diagonal	A325N	0.8750	1	15.58	31.32	0.497	1	Member Bearing
		Leg	A325N	1.0000	12	31.22	53.01	0.589	1	Bolt Tension
T10	80	Diagonal	A325N	0.8750	1	15.98	41.76	0.383	1	Member Bearing
		Leg	A325N	1.0000	12	31.72	53.01	0.635	1	Bolt Tension
T11	60	Diagonal	A325N	0.8750	1	16.26	41.76	0.389	1	Member Bearing
		Leg	A325N	1.0000	12	37.71	53.01	0.711	1	Bolt Tension
T12	40	Diagonal	A325N	0.8750	1	16.90	41.76	0.405	1	Member Bearing
		Leg	A325N	1.0000	12	41.64	53.01	0.774	1	Bolt Tension
T13	20	Diagonal	A325N	0.8750	1	17.43	41.76	0.417	1	Member Bearing
		Leg	F1554-10	1.0000	12	43.71	55.22	0.791	1	Bolt Tension
		Diagonal	A325N	0.8750	1	18.47	41.76	0.442	1	Member Bearing

### Compression Checks

### Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>e</sub> ft	K <sub>tr</sub>	A in <sup>2</sup>	P <sub>n</sub> K	φ <sub>p</sub>	Ratio P <sub>n</sub> /φ <sub>p</sub>
T1	255 - 240	P-4.00" x 0.75" conn.-15° -C-Trans-GB-IB-(Pined 226175)	15.00	4.86	38.6	3.1741	-21.04	128.06	0.164 <sup>1</sup>
T2	240 - 220	P-5.00" x 0.75" conn.-Trans-20°-C-(Pined 226200)	20.03	6.68	42.7	4.2999	-73.64	169.37	0.435 <sup>1</sup>

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Section No.	Elevation ft	Diagonal Size	L <sub>d</sub> ft	K <sub>tr</sub>	φ <sub>p</sub> K	A in <sup>2</sup>	P <sub>n</sub> K	φ <sub>p</sub> K	Stress Ratio
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### Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>e</sub> ft	K <sub>tr</sub>	A in <sup>2</sup>	P <sub>n</sub> K	φ <sub>p</sub>	Ratio P <sub>n</sub> /φ <sub>p</sub>
T1	255 - 240	L2x2x1/8	5.80	2.71	91.4	0.4844	-5.59	9.92	0.563 <sup>1</sup>
T2	240 - 220	L2x2x3/16	8.11	4.07	123.9	0.7150	-8.50	10.23	0.823 <sup>1</sup>
T3	220 - 200	L2 1/2x2 1/2x3/16	9.60	4.80	117.2	8.9020	-8.81	14.17	0.621 <sup>1</sup>
T4	200 - 180	L2 1/2x2 1/2x3/16	11.26	5.62	136.2	0.9020	-9.62	16.99	0.876 <sup>1</sup>
T5	180 - 160	L3x3x3/16	14.10	7.14	143.8	1.0900	-10.65	11.92	0.891 <sup>1</sup>
T6	160 - 140	L3x3x3/16	15.67	7.91	161.2	1.7800	-11.09	15.47	0.717 <sup>1</sup>
T7	140 - 120	2L3x3x3/16	23.79	12.45	159.1	2.1800	-17.95	19.45	0.923 <sup>1</sup>
T8	120 - 100	2L3x3x3/16	25.03	13.02	166.4	2.1800	-16.28	17.79	0.916 <sup>1</sup>
T9	100 - 80	2L3 1/2x3 1/2x1/4	26.36	13.65	150.1	3.3750	-17.79	33.85	0.525 <sup>1</sup>
T10	80 - 60	2L3 1/2x3 1/2x1/4	27.77	14.33	157.3	3.3750	-16.97	30.72	0.532 <sup>1</sup>
T11	60 - 40	2L3 1/2x3 1/2x1/4	29.23	15.04	165.4	3.3750	-18.67	27.86	0.670 <sup>1</sup>
T12	40 - 20	2L3 1/2x3 1/2x1/4	30.78	15.80	171.7	3.3750	-17.48	25.27	0.682 <sup>1</sup>
T13	20 - 0	2L3 1/2x3 1/2x1/4	32.37	16.58	182.3	3.3750	-20.58	22.95	0.937 <sup>1</sup>

<sup>1</sup> P<sub>n</sub> / φ<sub>p</sub> controls

### Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L <sub>e</sub> ft	K <sub>tr</sub>	A in <sup>2</sup>	P <sub>n</sub> K	φ <sub>p</sub> K	Ratio P <sub>n</sub> /φ <sub>p</sub>
T1	255 - 240	L2x2x3/16	5.00	4.33	132.0	0.7150	-1.19	9.26	8.128 <sup>1</sup>

<sup>1</sup> P<sub>n</sub> / φ<sub>p</sub> controls

<b>inxTower</b> Valmont 1545 Pidas Drive Plymouth, IN Phone: 574-936-4221 FAX:	Job	240012	Page	54 of 55
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	Client	American Tower Corp.	Designed by	SKK

Section No.	Elevation ft	Size	L ft	L <sub>e</sub> ft	K <sub>tr</sub>	A in <sup>2</sup>	P <sub>n</sub> K	φ <sub>p</sub> K	Ratio P <sub>n</sub> /φ <sub>p</sub>
T3	220 - 200	P-5.00" x 0.75" conn.-20° -C-(Pined 226152)	20.03	6.68	42.7	4.2999	-133.96	169.37	0.791 <sup>1</sup>
T4	200 - 180	P-6.00" x 0.75" conn.-HBD-Trans-20° -C-(Pined 226377)	20.03	6.68	35.7	5.5813	-189.13	228.83	0.827 <sup>1</sup>
T5	180 - 160	#12ZG-1.75" x 1.00" conn.-HBD-Trans (Pined 229588)	20.03	10.02	30.4	7.2158	-231.84	303.46	0.771 <sup>1</sup>
T6	160 - 140	#12ZG-1.75" x 1.00" conn.-HBD-Trans (Pined 229588)	20.03	10.02	30.4	7.2158	-286.30	303.46	0.943 <sup>1</sup>
T7	140 - 120	#12ZG-2.00" x 0.875" conn.-HBD-Trans (Pined 208332)	20.03	20.03	48.8	9.4248	-315.91	356.29	0.887 <sup>1</sup>
T8	120 - 100	#12ZG-2.25" x 0.875" conn. (Pined 208334)	20.03	20.03	48.8	11.9282	-370.12	451.15	0.820 <sup>1</sup>
T9	100 - 80	#12ZG-2.25" x 0.875" conn. (Pined 208334)	20.03	20.03	48.8	11.9282	-412.60	451.15	0.901 <sup>1</sup>
T10	80 - 60	#12ZG-2.50" x 0.875" conn. (Pined 208335)	20.03	20.03	48.7	14.7262	-462.50	557.27	0.830 <sup>1</sup>
T11	60 - 40	#8ZG-2.50" x 0.875" conn. (Pined 208335)	20.03	20.03	48.7	14.7262	-501.53	557.27	0.905 <sup>1</sup>
T12	40 - 20	#12ZG-2.75" x 0.875" conn. (Pined 208337)	20.03	20.03	48.6	17.8187	-532.90	674.68	0.819 <sup>1</sup>
T13	20 - 0	#12ZG-2.75" x 0.875" conn. (Pined 208337)	20.03	20.03	48.6	17.8187	-591.60	674.68	0.877 <sup>1</sup>

<sup>1</sup> P<sub>n</sub> / φ<sub>p</sub> controls

### Truss-Leg Diagonal Data

Section No.	Elevation ft	Diagonal Size	L <sub>d</sub> ft	K <sub>tr</sub>	φ <sub>p</sub> K	A in <sup>2</sup>	P <sub>n</sub> K	φ <sub>p</sub> K	Stress Ratio
T5	180 - 160	0.5	1.40	94.1	324.71	0.1963	1.97	4.63	0.425
T6	160 - 140	0.5	1.40	94.1	324.71	0.1963	1.45	4.63	0.248
T7	140 - 120	0.5	1.39	92.4	324.12	0.1963	1.45	4.67	0.310
T8	120 - 100	0.5	1.38	92.4	324.12	0.1963	1.66	4.71	0.352
T9	100 - 80	0.5	1.38	92.4	324.12	0.1963	1.14	4.71	0.242
T10	80 - 60	0.5	1.36	91.6	324.12	0.1963	1.23	4.75	0.264
T11	60 - 40	0.5	1.36	91.6	324.12	0.1963	1.14	4.75	0.240
T12	40 - 20	0.625	1.35	91.6	324.12	0.1963	1.10	8.74	0.139
T13	20 - 0	0.625	1.35	91.6	324.12	0.1963	0.66	8.74	0.093

<b>inxTower</b> Valmont 1545 Pidas Drive Plymouth, IN Phone: 574-936-4221 FAX:	Job	240012	Page	56 of 59
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	Client	American Tower Corp.	Designed by	SKK

### Tension Checks

### Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L <sub>e</sub> ft	K <sub>tr</sub>	A in <sup>2</sup>	P <sub>n</sub> K	φ <sub>p</sub> K	Ratio P <sub>n</sub> /φ <sub>p</sub>
T1	255 - 240	P-4.00" x 0.75" conn.-15° -C-Trans-GB-IB-(Pined 226175)	15.00	4.86	38.6	3.1741	17.56	142.83	0.123 <sup>1</sup>
T2	240 - 220	P-5.00" x 0.75" conn.-Trans-20°-C-(Pined 226200)	20.03	6.68	42.7	4.2999	65.81	193.49	0.340 <sup>1</sup>
T3	220 - 200	P-5.00" x 0.75" conn.-20° -C-(Pined 226192)	20.03	6.68	42.7	4.2999	122.61	193.49	0.624 <sup>1</sup>
T4	200 - 180	P-6.00" x 0.75" conn.-HBD-Trans-20° -C-(Pined 226377)	20.03	6.68	35.7	5.5813	174.06	251.16	0.693 <sup>1</sup>
T5	180 - 160	#12ZG-1.75" x 1.00" conn.-HBD-Trans (Pined 229588)	20.03	10.02	30.4	7.2158	215.35	324.71	0.663 <sup>1</sup>
T6	160 - 140	#12ZG-1.75" x 1.00" conn.-HBD-Trans (Pined 229588)	20.03	10.02	30.4	7.2158	262.25	324.71	0.808 <sup>1</sup>
T7	140 - 120	#12ZG-2.00" x 0.875" conn.-HBD-Trans (Pined 208332)	20.03	20.03	48.8	9.4248	289.96	424.12	0.681 <sup>1</sup>
T8	120 - 100	#12ZG-2.25" x 0.875" conn. (Pined 208334)	20.03	20.03	48.8	11.9282	337.59	536.77	0.629 <sup>1</sup>
T9	100 - 80	#12ZG-2.25" x 0.875" conn. (Pined 208334)	20.03	20.03	48.8	11.9282	374.66	536.77	0.698 <sup>1</sup>
T10	80 - 60	#12ZG-2.50" x 0.875" conn. (Pined 208335)	20.03	20.03	48.7	14.7262	416.67	662.68	0.629 <sup>1</sup>
T11	60 - 40	#12ZG-2.50" x 0.875" conn. (Pined 208335)	20.03	20.03	48.7	14.7262	452.54	662.68	0.683 <sup>1</sup>
T12	40 - 20	#12ZG-2.75" x 0.875" conn. (Pined 208337)	20.03	20.03	48.6	17.8187	492.48	881.84	0.514 <sup>1</sup>
T13	20 - 0	#12ZG-2.75" x 0.875" conn. (Pined 208337)	20.03	20.03	48.6	17.8187	524.50	881.84	0.654 <sup>1</sup>

<sup>1</sup> P<sub>n</sub> / φ<sub>p</sub> controls

### Truss-Leg Diagonal Data



<b>tnxTower</b> Valmont 1545 Pata Drive Plymouth, IN Phone: 574-936-4221 FAX:	Job	240012	Page	57 of 59
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	Client	American Tower Corp.	Designed by	SKK

<b>tnxTower</b> Valmont 1545 Pata Drive Plymouth, IN Phone: 574-936-4221 FAX:	Job	240012	Page	58 of 59
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	Client	American Tower Corp.	Designed by	SKK

Section No.	Elevation ft	Diagonal Size	L <sub>d</sub> ft	K/r	φ <sub>p</sub> K	A in <sup>2</sup>	P <sub>s</sub> K	φ <sub>p</sub> K	Stress Ratio
T9	100-80	8.5	1.36	92.4	536.77	0.1963	1.14	4.71	8.242
T18	80-60	0.5	1.36	91.6	662.68	0.1963	1.25	4.75	8.264
T11	60-48	0.5	1.36	91.6	662.68	0.1963	1.14	4.75	8.218
T12	40-28	0.625	1.35	72.6	801.84	0.3068	1.10	8.74	8.139
T13	20-0	0.625	1.35	72.6	801.84	0.3068	8.66	8.74	0.938

Section No.	Elevation ft	Size	L <sub>d</sub> ft	L <sub>w</sub> ft	K/r	A in <sup>2</sup>	P <sub>s</sub> K	φ <sub>p</sub> K	Ratio
T1	255-248	L2x2x3/16	5.80	2.71	55.3	8.2813	5.45	12.23	0.416 <sup>1</sup>

<sup>1</sup> P<sub>s</sub> / φ<sub>p</sub> controls

### Section Capacity Table

Section No.	Elevation ft	Component Type	Sec	Critical Element	P K	n <sub>p</sub> Area K	% Capacity	Pass/Fail
T1	255-240	Leg	P-100'-0.75' conn.-15' C-Trans-6B-4B-(Fired 229175)	3	-21.64	128.06	16.4	Pass
T2	248-220	Leg	P-500'-8.75' conn.-Trans-35' C-(Fired 226200)	27	-73.64	169.37	43.5	Pass
T3	220-200	Leg	P-500'-0.75' conn.-20' C-(Fired 226192)	48	-133.96	169.37	79.1	Pass
T4	208-180	Leg	P-600'-8.75' conn.-HRD-Trans-20' C-(Fired 229377)	69	-189.13	228.83	82.7	Pass
T5	180-168	Leg	#1220-1.75'-1.05' conn.-4B-D-Trans (Fired 22958)	90	-233.84	383.46	77.1	Pass
T6	160-140	Leg	#1220-1.75'-1.80' conn.-4B-D-Trans (Fired 229185)	185	-286.30	303.46	94.3	Pass
T7	148-120	Leg	#1220-2.00'-8.875' conn.-4B-D-Trans (Fired 208323)	120	-315.91	356.29	88.7	Pass
T8	128-188	Leg	#1220-2.25'-8.875' conn. (Fired 208334)	129	-370.12	451.15	82.8	Pass
T9	102-88	Leg	#1220-2.25'-0.875' conn. (Fired 208334)	138	-412.60	451.15	91.5	Pass
T10	88-60	Leg	#1220-2.50'-0.875' conn. (Fired 208335)	147	-462.58	557.27	83.0	Pass
T11	60-40	Leg	#1220-2.50'-0.875' conn. (Fired 208335)	156	-504.53	557.27	90.5	Pass
T12	40-20	Leg	#1220-2.75'-0.875' conn. (Fired 208337)	165	-532.90	674.68	81.9	Pass
T13	20-0	Leg	#1220-2.75'-0.875' conn. (Fired 208337)	174	-591.60	674.68	87.7	Pass
T1	255-248	Diagonal	L2x2x1/8	9	-3.59	9.92	56.3	Pass
T2	240-220	Diagonal	L2x2x3/16	30	-8.50	18.33	82.3	Pass
T3	220-208	Diagonal	L2 1/2x2 1/2x3/16	51	-8.81	14.17	62.1	Pass
T4	200-180	Diagonal	L2 1/2x2 1/2x3/16	72	-9.62	10.99	87.6	Pass
T5	188-160	Diagonal	L3x3x3/16	93	-10.65	11.93	89.4	Pass
T6	160-140	Diagonal	L3x3x3/16	109	-11.09	15.47	71.7	Pass
T7	140-128	Diagonal	2L3x3x3/16	123	-17.95	19.45	92.3	Pass
T8	120-100	Diagonal	2L3x3x3/16	132	-16.28	17.79	91.6	Pass
T9	108-80	Diagonal	2L3 1/2x3 1/2x1/4	141	-17.79	33.85	52.5	Pass
T10	88-60	Diagonal	2L3 1/2x3 1/2x1/4	158	-16.97	38.72	55.2	Pass
T11	68-40	Diagonal	2L3 1/2x3 1/2x1/4	159	-18.67	27.86	67.0	Pass
T12	40-20	Diagonal	2L3 1/2x3 1/2x1/4	168	-17.48	23.27	69.2	Pass
T13	20-0	Diagonal	2L3 1/2x3 1/2x1/4	178	-20.58	22.95	80.7	Pass
T1	255-240	Top Girt	L2x2x3/16	5	-1.19	9.26	12.8	Pass

Summary

### Diagonal Design Data (Tension)

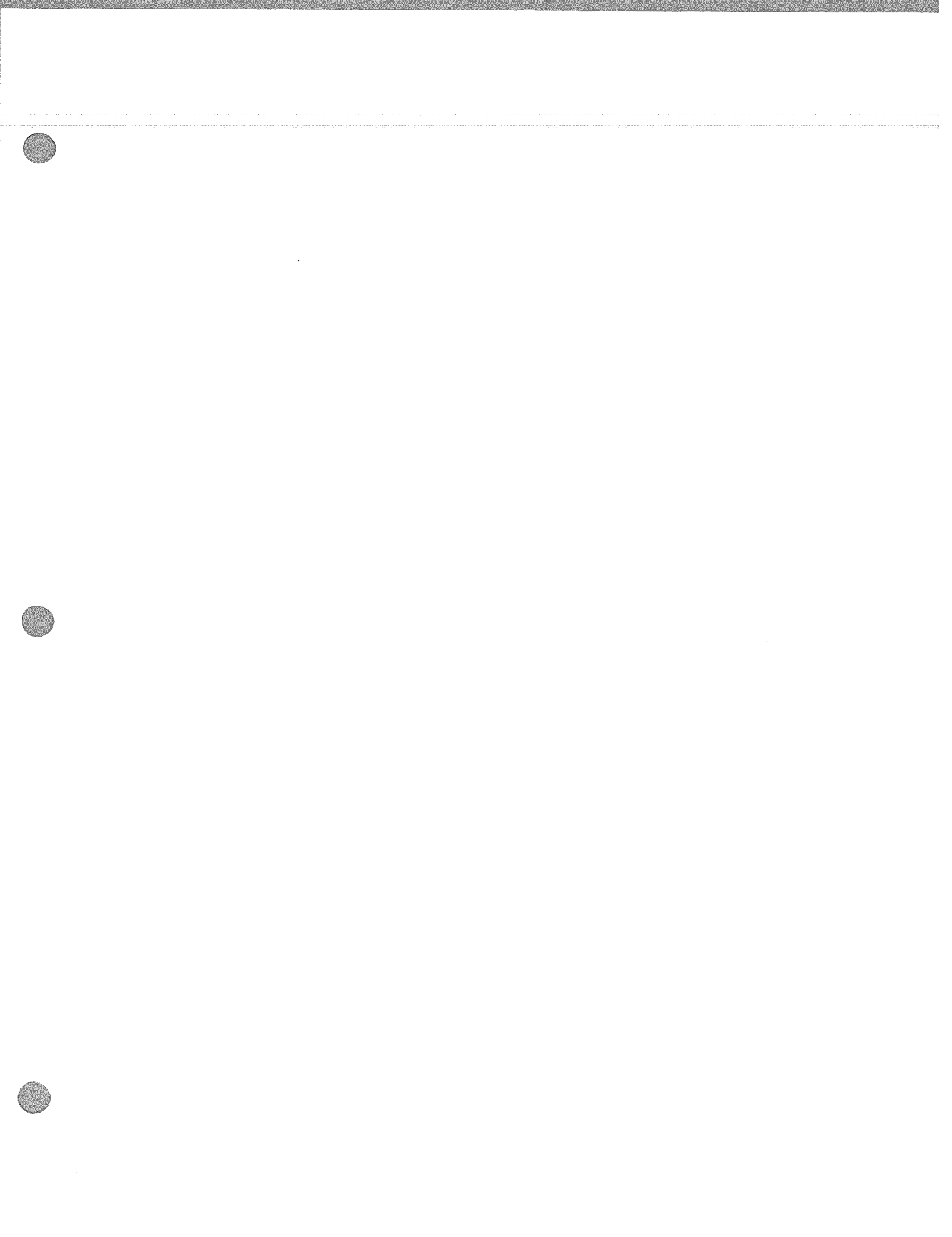
Section No.	Elevation ft	Size	L <sub>d</sub> ft	L <sub>w</sub> ft	K/r	A in <sup>2</sup>	P <sub>s</sub> K	φ <sub>p</sub> K	Ratio
T1	255-248	L2x2x1/8	5.80	2.71	55.3	8.2813	5.45	12.23	0.416 <sup>1</sup>
T2	248-220	L2x2x3/16	8.11	4.87	82.8	0.4132	8.16	17.97	0.454 <sup>1</sup>
T3	220-200	L2 1/2x2 1/2x3/16	8.58	4.30	69.2	0.5335	8.65	24.08	0.359 <sup>1</sup>
T4	200-180	L2 1/2x2 1/2x3/16	11.26	5.62	89.5	0.5335	9.60	24.08	0.399 <sup>1</sup>
T5	180-168	L3x3x3/16	14.18	7.14	93.7	0.6593	18.81	28.68	0.349 <sup>1</sup>
T6	160-148	L3x3x3/16	15.67	7.91	105.5	1.0713	11.34	46.60	0.243 <sup>1</sup>
T7	148-120	2L3x3x3/16	23.79	12.45	161.5	1.3337	16.38	58.89	0.277 <sup>1</sup>
T8	128-188	2L3x3x3/16	25.83	13.82	168.8	1.3337	15.58	58.89	0.264 <sup>1</sup>
T9	180-80	2L3 1/2x3 1/2x1/4	26.36	13.65	152.1	2.1563	15.98	93.80	0.170 <sup>1</sup>
T10	80-60	2L3 1/2x3 1/2x1/4	27.77	14.33	159.6	2.1563	16.26	93.80	0.173 <sup>1</sup>
T11	60-40	2L3 1/2x3 1/2x1/4	29.25	15.04	167.3	2.1563	16.90	93.88	0.180 <sup>1</sup>
T12	48-20	2L3 1/2x3 1/2x1/4	38.78	15.80	175.8	2.1563	17.43	93.80	0.186 <sup>1</sup>
T13	20-0	2L3 1/2x3 1/2x1/4	32.37	16.58	184.3	2.1563	18.47	93.80	0.197 <sup>1</sup>

<sup>1</sup> P<sub>s</sub> / φ<sub>p</sub> controls

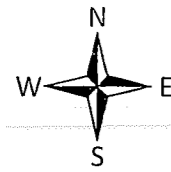
### Top Girt Design Data (Tension)

<b>tnxTower</b> Valmont 1545 Pata Drive Plymouth, IN Phone: 574-936-4221 FAX:	Job	240012	Page	59 of 59
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	Client	American Tower Corp.	Designed by	SKK

Section No.	Elevation ft	Component Type	Sec	Critical Element	P K	n <sub>p</sub> Area K	% Capacity	Pass/Fail
								Log (16)
								Diagonal
								(T7)
								Top Girt
								(T1)
								Bolt Checks
								RATING =

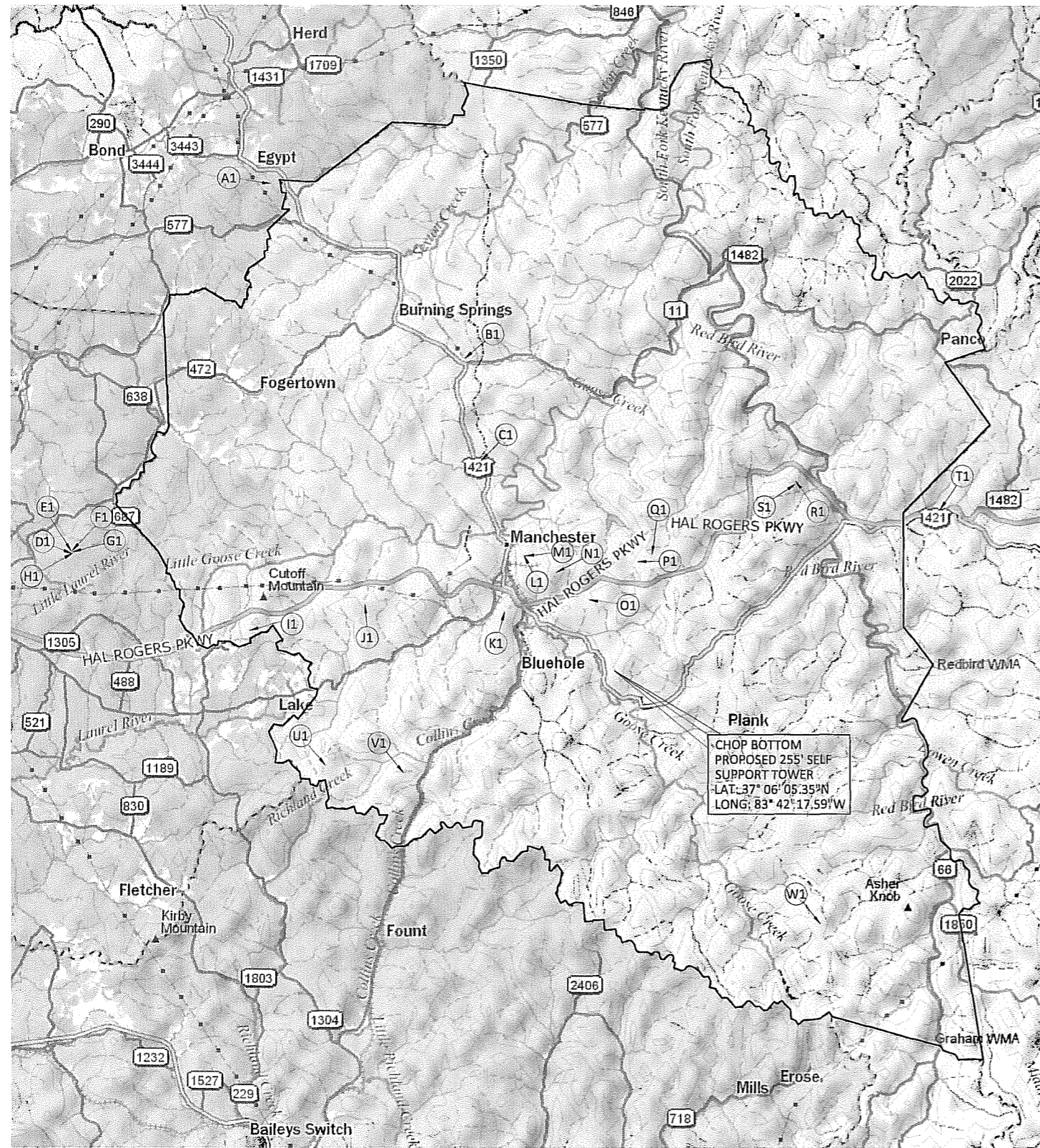


**EXHIBIT D**  
**COMPETING UTILITIES, CORPORATIONS, OR PERSONS LIST**  
**AND MAP OF LIKE FACILITIES IN VICINITY**



# CLAY COUNTY, KENTUCKY

AT&T SITE NAME: CHOP BOTTOM

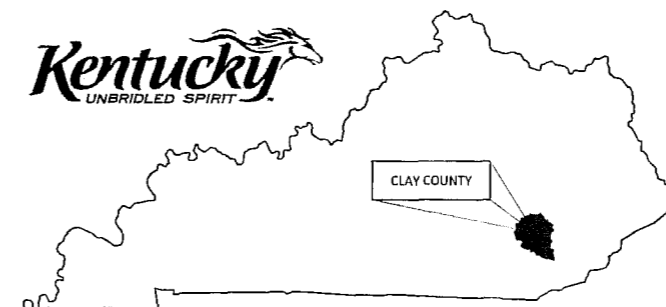


NOTE: TOWERS DEPICTED ARE ALL KNOWN TOWER SITES REGISTERED WITH THE FEDERAL COMMUNICATIONS COMMISSION IN CLAY COUNTY, KENTUCKY.

USGS 7.5 MINUTE QUADRANGLE: MANCHESTER, KY

## EXISTING TOWER LEGEND

- |  |  |
|--|--|
| (A1) FCC REGISTRATION #: 1267215<br>EAST KENTUCKY NETWORK LLC<br>dba = APPALACHIAN WIRELESS<br>LAT: N37° 18' 22.70"<br>LONG: W83° 53' 11.20"   | (L1) FCC REGISTRATION #: 1057447<br>LAURA S. HOUSE<br>LAT: N37° 08' 59.00"<br>LONG: W83° 45' 08.00"  |
| (B1) FCC REGISTRATION #: 1281420<br>EAST KENTUCKY NETWORK LLC<br>dba = APPALACHIAN WIRELESS<br>LAT: N37° 13' 58.00"<br>LONG: W83° 47' 01.40"   | (M1) FCC REGISTRATION #: 1043808<br>NEW CINGULAR WIRELESS PCS LLC<br>LAT: N37° 08' 58.70"<br>LONG: W83° 45' 07.40"                             |
| (C1) FCC REGISTRATION #: 1274435<br>EAST KENTUCKY NETWORK LLC<br>dba = APPALACHIAN WIRELESS<br>LAT: N37° 11' 22.90"<br>LONG: W83° 46' 30.10"   | (N1) FCC REGISTRATION #: 1201992<br>Y-HOLLOW DEVELOPMENT<br>LAT: N37° 08' 33.00"<br>LONG: W83° 44' 06.00"                                      |
| (D1) FCC REGISTRATION #: 1017988<br>ETHAL HUFF dba = WYGE<br>LAT: N37° 09' 01.00"<br>LONG: W83° 59' 32.00"                                     | (O1) FCC REGISTRATION #: 1272080<br>EAST KENTUCKY NETWORK LLC<br>dba = APPALACHIAN WIRELESS<br>LAT: N37° 07' 52.60"<br>LONG: W83° 43' 03.50"   |
| (E1) FCC REGISTRATION #: 1274622<br>LONDON RADIO SERVICE INC.<br>LAT: N37° 09' 05.00"<br>LONG: W83° 59' 33.20"                                 | (P1) FCC REGISTRATION #: 1044809<br>COMMONWEALTH OF KY dba =<br>EMERGENCY WARNING SYSTEM KEWS<br>LAT: N37° 08' 50.00"<br>LONG: W83° 41' 30.00" |
| (F1) FCC REGISTRATION #: 1229204<br>LONDON RADIO SERVICE INC.<br>LAT: N37° 09' 05.30"<br>LONG: W83° 59' 32.70"                                 | (Q1) FCC REGISTRATION #: 1267062<br>SBA TOWERS IV LLC<br>LAT: N37° 09' 01.00"<br>LONG: W83° 41' 03.60"   |
| (G1) FCC REGISTRATION #: 1205692<br>LONDON LAUREL COUNTY<br>COMMUNICATION CENTER<br>LAT: N37° 09' 04.30"<br>LONG: W83° 59' 31.70"              | (R1) FCC REGISTRATION #: 1002782<br>LITCHFIELD CO. CELLULAR INC.<br>dba = RAMCELL OF KENTUCKY<br>LAT: N37° 10' 53.30"<br>LONG: W83° 36' 28.70" |
| (H1) FCC REGISTRATION #: 1212069<br>JACK LUKER<br>LAT: N37° 09' 02.30"<br>LONG: W83° 59' 31.70"  | (S1) FCC REGISTRATION #: 1284686<br>EAST KENTUCKY NETWORK LLC<br>LAT: N37° 10' 47.60"<br>LONG: W83° 36' 29.70"                                 |
| (I1) FCC REGISTRATION #: 1246954<br>SBA INFRASTRUCTURES LLC<br>LAT: N37° 07' 05.30"<br>LONG: W83° 53' 52.10"                                   | (T1) FCC REGISTRATION #: 1267268<br>EAST KENTUCKY NETWORK LLC<br>dba = APPALACHIAN WIRELESS<br>LAT: N37° 10' 09.30"<br>LONG: W83° 31' 53.40"   |
| (J1) FCC REGISTRATION #: 1043631<br>LITCHFIELD CO. CELLULAR INC.<br>dba = RAMCELL OF KENTUCKY<br>LAT: N37° 07' 43.80"<br>LONG: W83° 50' 13.00" | (U1) FCC REGISTRATION #: 1263059<br>LONDON RADIO SERVICE INC.<br>LAT: N37° 03' 41.00"<br>LONG: W83° 51' 28.30"                                 |
| (K1) FCC REGISTRATION #: 1230623<br>C&C TOWER RENTAL LLC<br>LAT: N37° 07' 33.20"<br>LONG: W83° 45' 45.30"                                      | (V1) FCC REGISTRATION #: 1246017<br>CCATT LLC<br>LAT: N37° 03' 29.80"<br>LONG: W83° 48' 59.90"   |
|  | (W1) FCC REGISTRATION #: 1044807<br>COMMONWEALTH OF KY dba =<br>EMERGENCY WARNING SYSTEM KEWS<br>LAT: N36° 59' 43.00"<br>LONG: W83° 35' 42.00" |



### COUNTY TOWER MAP

REV.	DATE	DESCRIPTION
A	4.18.14	UPDATED OWNERS

SITE INFORMATION:

### CHOP BOTTOM

320 JOHN D WALKER RD  
GOOSE ROCK, KY 40944  
COUNTY: CLAY

SITE NUMBER:  
KYALU6152

POD NUMBER: 13-1442  
DRAWN BY: DAP  
CHECKED BY: MEP  
DATE: 12.11.13

SHEET TITLE:

### TOWER GRID MAP

SHEET NUMBER:  
C-1

License Search

# Search Results

### Specified Search

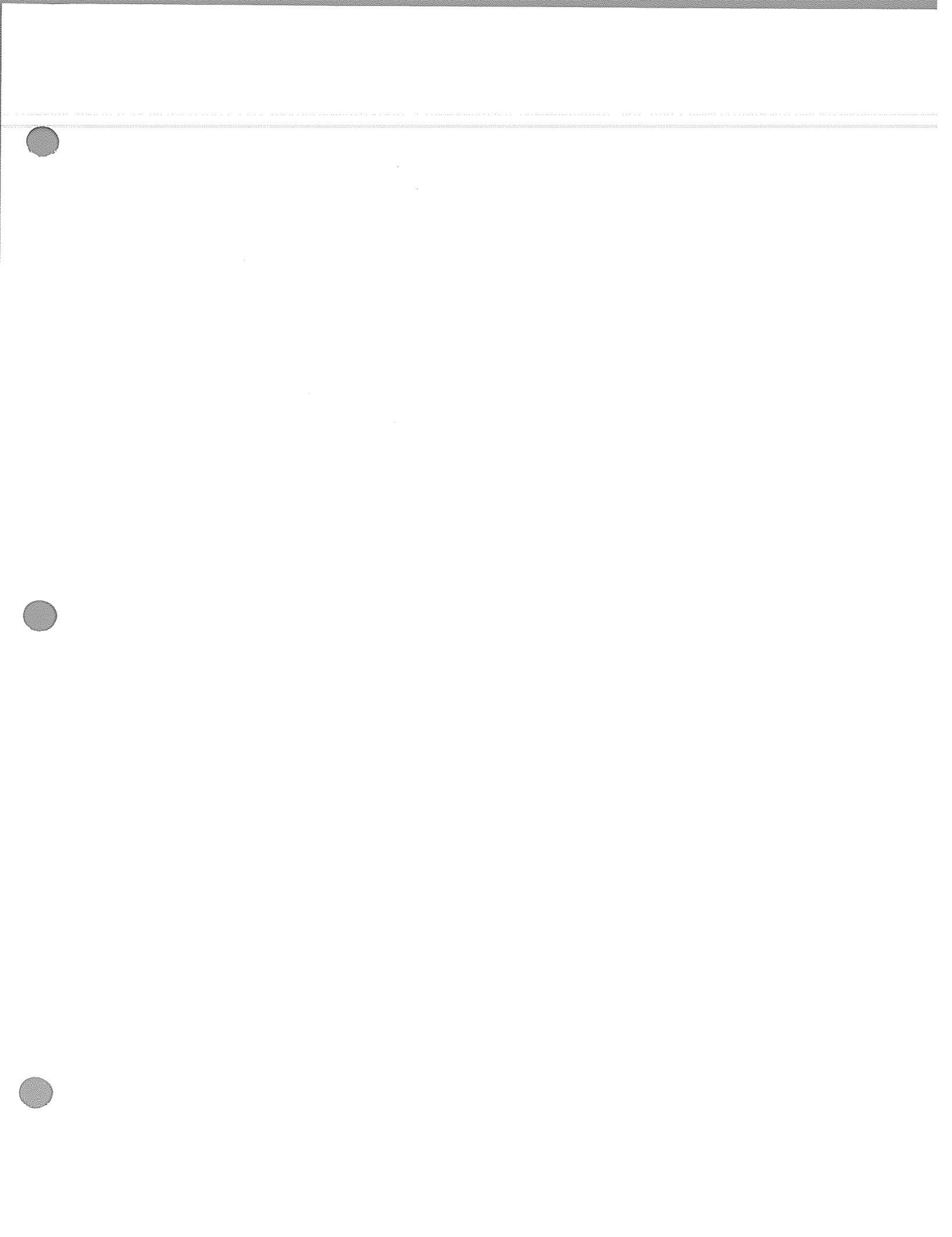
State = **Kentucky**  
 County = **CLAY**  
 Radio Service = **CL, CW**  
 Status = **Active**

Matches **1- 10** (of **10** )

**PA** = Pending Application(s)  
**TP** = Termination Pending  
**L** = Lease

	Call Sign/Lease ID	Name	FRN	Radio Service	Status	Expiration Date
1	KNKN673	NEW CINGULAR WIRELESS PCS, LLC	0003291192	CL	Active	10/01/2021
2	KNKN787	Cellco Partnership	0003290673	CL	Active	10/01/2021
3	KNLF251	New Cingular Wireless PCS, LLC	0003291192	CW	Active	06/23/2015
4	KNLF252	WIRELESSCO, L.P.	0002316545	CW	Active	06/23/2015
5	KNLH408	Powertel Memphis Licenses, Inc.	0001832807	CW	Active	04/28/2017
6	KNLH409	Powertel Memphis Licenses, Inc.	0001832807	CW	Active	04/28/2017
7	WPOI255	NEW CINGULAR WIRELESS PCS, LLC	0003291192	CW	Active	06/23/2015
8	WPOK618	Bluegrass Wireless LLC	0010698868	CW	Active	09/29/2019
9	WQEM937	Cellco Partnership	0003290673	CW	Active	03/08/2016
10	WQHG464	East Kentucky Network, LLC d/b/a Appalachian Wireless	0001786607	CW	Active	07/23/2017

	Call Sign/Lease ID	Name	FRN	Radio Service	Status	Expiration Date
--	--------------------	------	-----	---------------	--------	-----------------



**EXHIBIT E**  
**CO-LOCATION REPORT**



February 17, 2014

Kentucky Public Service Commission  
211 Sower Blvd  
PO Box 615  
Frankfort, KY 40602

RE: Alternate Site Analysis Report  
Uniform Application for a Communications Facility  
Applicant: AT&T Mobility  
Site Location: Clay County, KY  
Coordinates: 37-06-05.35 North latitude, 83-42-17.59 West longitude  
Site Name: Chop Bottom

Dear Commissioners:

This report is provided to explain the site development process used by the Applicant to identify the site selected for the new wireless communications facility proposed in the accompanying Uniform Application.

### **AT&T Mobility Site Development Process**

**Step 1: Problem Identification.** AT&T Mobility radio frequency engineers first identified a growing coverage and/or capacity gap in the US 421 (aka) SR 80 area of Clay County.

**Step 2: Search Ring.** To help guide the site development team's task of identifying a suitable location for a new wireless communications facility site, AT&T Mobility's radio frequency engineers identified the geographic area where the antenna site must be located in order to close the gap and issued a map (called a Search Ring) that identified the general area in which a new site must be located. In this instance, the search ring was limited because the topography of the surrounding terrain interrupted the signal.

**Step 3: Review of the Area for Collocation Opportunities.** The site development team first reviewed the area within the Search Ring for a suitable tall structure for co-location. There are no other tall structures within the search area.

Once the site development team determined that there are no available existing tall structures which are technically feasible and suitable for co-location, the team next reviewed the search area to identify a suitable location where a new tower might be located that would have the least-intrusive impact on surrounding properties.

In this instance, any new tower site must be located on the proposed location to achieve coverage objectives.



**Step 4: Preliminary Inspection and Assessment of Suitable Parcels.** Once suitable parcels were identified, the site development team visited the parcels and performed a preliminary inspection. The purpose of the preliminary inspection was: (1) to confirm the availability of sufficient land space for the proposed facility; (2) to identify a specific location for the facility on the parcel; (3) to identify any recognized environmental conditions that would disqualify the parcel from consideration; (4) to identify any construction issues that would disqualify the candidate; and, (5) to assess the potential impact of the facility on neighboring properties. The ideal location was at the top of the mountain on the Parcel owned by: Randall Wagers, 320 John D Walker Rd., Goose Rock, KY 40944. Two other possible locations were considered: The Hacker Brothers, 157 Hacker Sawmill Rd., Manchester, KY (this site did not have enough ground elevation to be accepted by AT&T Mobility Radio Frequency Engineers), and the Henson location at Bells Fork Rd., Manchester, KY. (This site did have the required ground elevation but access was straight up the mountain and road construction costs would be prohibitive.)

**Step 5: Candidate Evaluation and Selection.** After the preliminary site assessments were performed, the site development team ranked the candidates based on the considerations mentioned above as well as availability of ground space, topography, applicable environmental conditions, construction feasibility and the potential impact of the facility on neighboring properties.

In this instance, locating a site with access to the proposed tower location and that would satisfy coverage objectives were the primary considerations. Three suitable candidates were evaluated, but two were disqualified for the reasons stated above (see Step 4). The chosen land parcel presented in this application for the Commission's consideration and approval is the only site meeting both technical and cost consideration factors. The site is environmentally feasible and will have adequate access to meet all development requirements for a wireless communications facility. It is also the parcel where a tower of the proposed height will present the least visual impact, while still providing a reliable wireless connection to the national telephone network. The proposed location is at the top of a mountain and is surrounded by forest. There are no existing tower structures anywhere near this location that could have been collocated on.

**Step 6: Leasing and Due Diligence.** Once a suitable candidate was selected, lease negotiations were commenced and site due diligence steps were performed, as described below.

Leasehold Due Diligence:

- A Title Report was obtained and reviewed to ensure that there are no limitations on the landowner's capacity to lease and to address any title issues.
- A site survey was obtained to identify the location of parcel features, boundaries, easements and other encumbrances revealed by the title search.

Engineering Due Diligence:

- Utility access identified.
- Grounding plan designed.
- Geotechnical soil analysis performed to determine foundation requirements.

- Foundations designed to meet the Kentucky Building Code lateral and subjacent support requirements.
- Site plan developed.

Environmental Due Diligence:

A Phase I Environmental Site Assessment (“ESA”) investigation was performed to establish the pre-existing types and amounts of contamination at a site, and to establish that the leaseholder is innocent of liability for the costs of performing environmental cleanup work that might arise from pollution or contamination of the site caused by a third party.

In addition to performing a Phase 1 ESA, the site was also evaluated for potential impacts under the *National Environmental Policy Act* (NEPA), submitted to the State Historic Preservation Office for review of potential impacts to historic structures or districts, and submitted to the registered Tribal Historic Preservation Office so that registered Native American nations had the opportunity to review potential impacts on native religious, ceremonial, or cultural resources.

Federal Regulatory Approvals

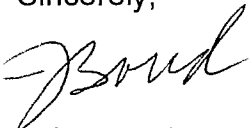
- Federal Aviation Administration (“FAA”) compliance.
- Federal Communication Commission (“FCC”) compliance.

**Step 7: Application.** Once a lease is obtained and all site due diligence is completed, AT&T Mobility prepared and filed the accompanying uniform application to construct, maintain and operate a communications facility.

Conclusion

Applicant’s site identification and selection process aims to identify the least intrusive of all the technically feasible parcels in a service need area. In this case, there was only one technically feasible parcel in the area that was available for lease. It is, by far, the largest parcel in the area. It is surrounded by mature vegetation that provides a visual barrier to area land uses. To further minimize the proposed tower’s visibility, the tower will have a neutral gray finish.

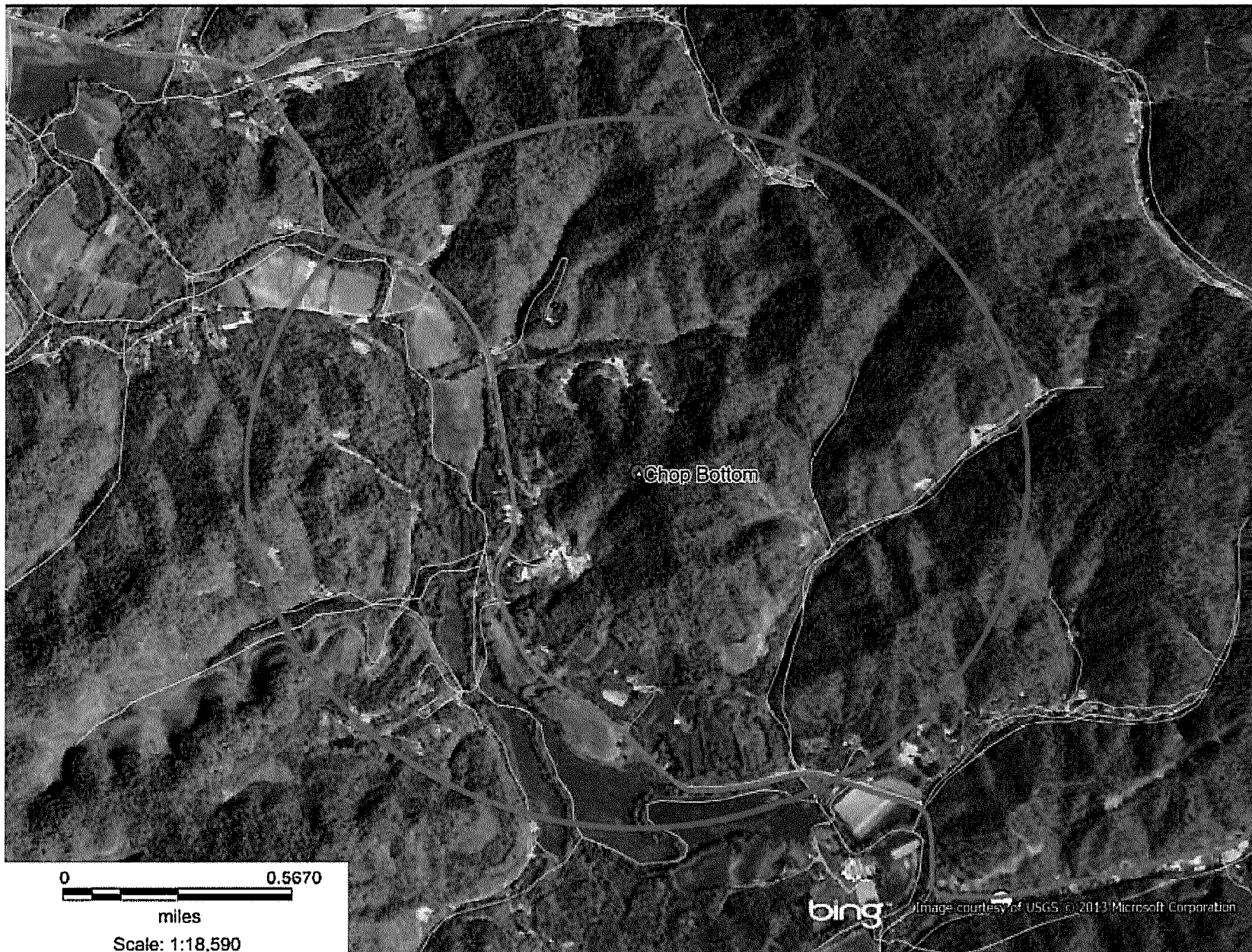
Sincerely,



**John Boud**

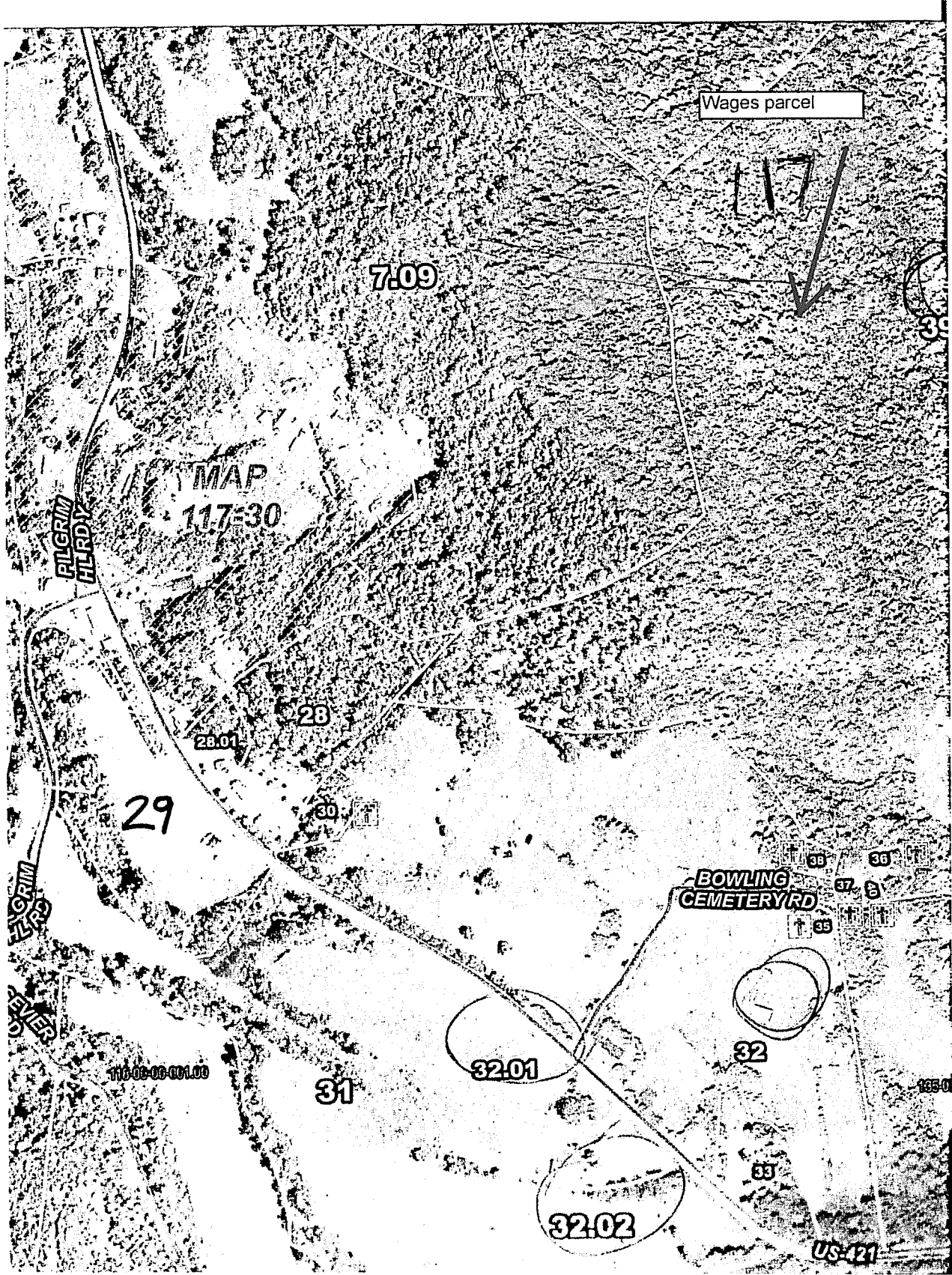
Site Acquisition Manager: Kentucky Market  
10400 Linn Station Rd., Suite 225, Louisville, KY 40223  
[jboud@westower.com](mailto:jboud@westower.com) | 559.790.8855 (mobile)





**Chop Bottom Search Area**

Parcel Map with Candidate Wagers  
Marked.





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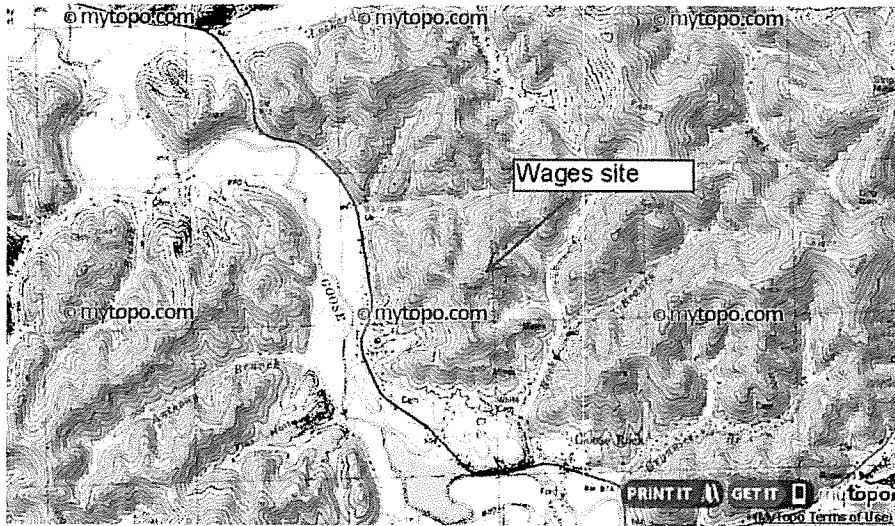
Online Topo Map Viewing

SEARCH:

Search >

order a print centered here >

Search by city, town, zip code, address, or geographic feature name in the US and Canada. [\[Lat/Long Coordinate Search\]](#)



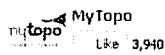
Location: 37.1010338, -83.700500 | [Change Location](#)

Browse and view US Geological Survey, US Forest Service, and NRCAN topo maps for the US and Canada!

[Click here to get a link for this map](#)

Print from your computer: [Landscape](#) | [Portrait](#)

Print link opens in a new window and may take a few seconds to process. Note that the MyTopo U.S. map layer is the only one available for printing.



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Billings, MT 59101

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406.294.9411



**EXHIBIT F**  
**FAA**



Mail Processing Center  
 Federal Aviation Administration  
 Southwest Regional Office  
 Obstruction Evaluation Group  
 2601 Meacham Boulevard  
 Fort Worth, TX 76137

Aeronautical Study No.  
 2013-ASO-7022-OE

Issued Date: 09/09/2013

John Monday  
 ATT Mobility (SW)  
 2200 N Greenville Ave  
 1W  
 Richardson, TX 75082

**\*\* 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 Chop Bottom  
 Location: Goose Rock, KY  
 Latitude: 37-06-05.35N NAD 83  
 Longitude: 83-42-17.59W  
 Heights: 1462 feet site elevation (SE)  
 265 feet above ground level (AGL)  
 1727 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 marked/lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, a med-dual system - Chapters 4,8(M-Dual),&12.

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

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

This determination expires on 03/09/2015 unless:

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



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

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

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

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

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

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

If we can be of further assistance, please contact our office at (847) 294-8084. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2013-ASO-7022-OE.

**Signature Control No: 196396814-197757461**

( DNE )

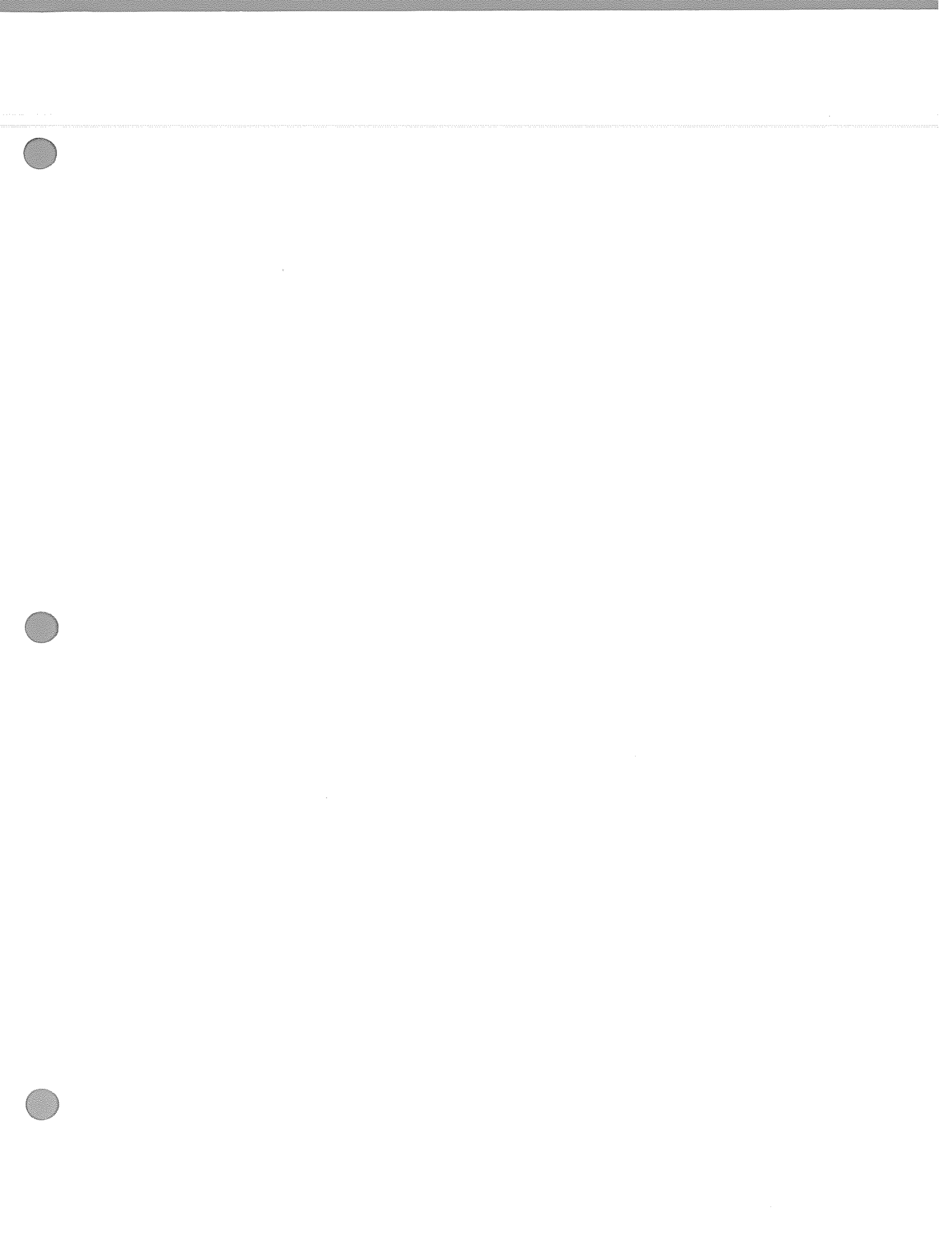
Carole Bernacchi  
Technician

Attachment(s)  
Frequency Data

cc: FCC

**Frequency Data for ASN 2013-ASO-7022-OE**

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



**EXHIBIT G**  
**KENTUCKY AIRPORT ZONING COMMISSION**

Chop Bottom



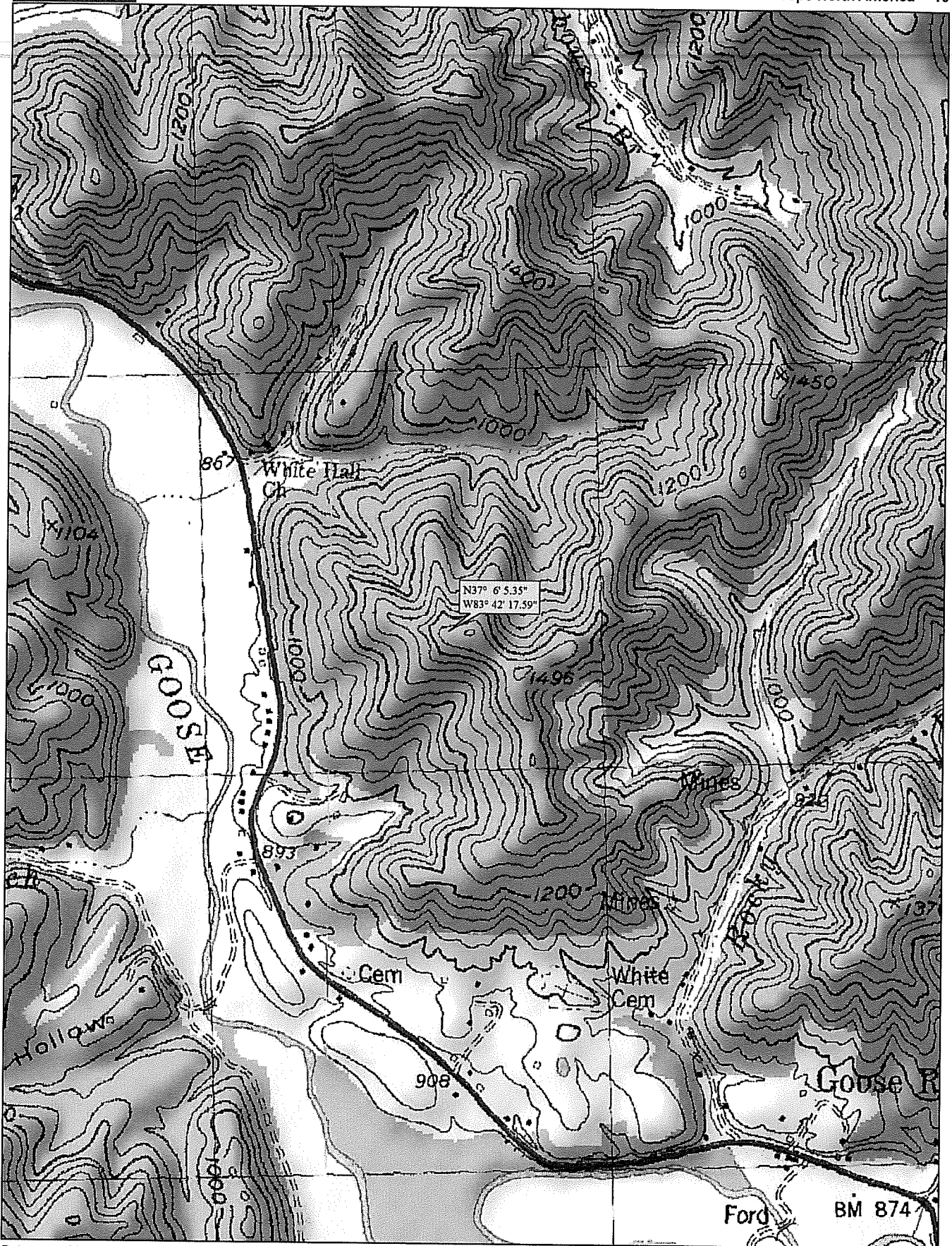
KENTUCKY TRANSPORTATION CABINET

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

KENTUCKY AIRPORT ZONING COMMISSION

APPLICATION FOR PERMIT TO CONSTRUCT OR ALTER A STRUCTURE

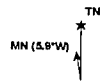
APPLICANT (name) <b>AT&amp;T</b> ATTN: Shelly Prey		PHONE 615-221-3593	FAX	KY AERONAUTICAL STUDY #	
ADDRESS (street) 5310 MARYLAND WAY		CITY Brentwood		STATE TN	ZIP 37027
APPLICANT'S REPRESENTATIVE (name) NSOR: atten: UICIG Hollig		PHONE 720-380-5120	FAX		
ADDRESS (street) 12730 A Westport Rd		CITY Louisville		STATE Ky	ZIP 40245
APPLICATION FOR <input checked="" type="checkbox"/> New Construction <input type="checkbox"/> Alteration <input type="checkbox"/> Existing				WORK SCHEDULE	
DURATION <input checked="" type="checkbox"/> Permanent <input type="checkbox"/> Temporary (months days )				Start End	
TYPE <input type="checkbox"/> Crane <input type="checkbox"/> Building <input checked="" type="checkbox"/> Antenna Tower <input type="checkbox"/> Power Line <input type="checkbox"/> Water Tank <input type="checkbox"/> Landfill <input type="checkbox"/> Other		MARKING/PAINTING/LIGHTING PREFERRED <input type="checkbox"/> Red Lights & Paint <input type="checkbox"/> White- medium intensity <input type="checkbox"/> White- high intensity <input checked="" type="checkbox"/> Dual- red & medium intensity white <input type="checkbox"/> Dual- red & high intensity white <input type="checkbox"/> Other			
LATITUDE 37° 06' 05.35"		LONGITUDE 83° 42' 17.59"		DATUM <input checked="" type="checkbox"/> NAD83 <input type="checkbox"/> NAD27 <input type="checkbox"/> Other	
NEAREST KENTUCKY City Manchester County CLAY		NEAREST KENTUCKY PUBLIC USE OR MILITARY AIRPORT London-Corbin Airport			
SITE ELEVATION (AMSL, feet) 1462		TOTAL STRUCTURE HEIGHT (AGL, feet) 265 with lightning rod		CURRENT (FAA aeronautical study #) antenna <del>TBO</del>	
OVERALL HEIGHT (site elevation plus total structure height, feet) 1727		PREVIOUS (FAA aeronautical study #) NA			
DISTANCE (from nearest Kentucky public use or Military airport to structure) 3 miles		PREVIOUS (KY aeronautical study #)			
DIRECTION (from nearest Kentucky public use or Military airport to structure) See attached					
DESCRIPTION OF LOCATION (Attach USGS 7.5 minute quadrangle map or an airport layout drawing with the precise site marked and any certified survey.) See attached map - address - 320 John D. Walker Rd, Goose Rock, Ky					
DESCRIPTION OF PROPOSAL Telecommunication Tower site name: Chop Bottom Site ID: KYALU 6152 40244					
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? within 10 days					
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 Lee Skanle Rus	TITLE Site Acq	SIGNATURE <i>[Signature]</i>		DATE 8-1-13	
COMMISSION ACTION		<input type="checkbox"/> Chairperson, KAZC <input type="checkbox"/> Administrator, KAZC			
<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved	SIGNATURE		DATE		



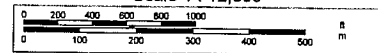
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Scale 1 : 12,800



1" = 1,066.7 ft

Data Zoom 14-0



**EXHIBIT H  
GEOTECHNICAL REPORT**



April 16, 2014

Wes Tower Communications  
10400 Linn Station Road, Suite 225  
Louisville, Kentucky 40223

Attn: Mr. John Boud

Re: Site Access Limitations Letter  
Proposed 265' Self Supporting Telecommunication Tower  
Site Name: Chop Bottom  
Goose Rock, Kentucky  
Terracon Project Number: 57135045

Dear Mr. Boud:

Terracon Consultants, Inc. (Terracon) has reviewed Google Earth, site photographs, and the provided site survey to determine drill rig access for the proposed Chop Bottom Telecommunications Tower. The tower is located at 320 John D. Walker Road in Goose Rock, Clay County, Kentucky, near lat./long.: 37° 06' 05.35" / 83° 42' 17.59". The site consists of undeveloped wooded land. The topography of the approximately 100 ft. by 100 ft. tower compound is relatively steep and slopes to the west-southwest between elevations EL. 1460 to EL. 1435. Based on the findings of the desktop review, the site is not accessible to a conventional ATV mounted drill rig. Based on the review of available information it appears that the following modifications would need to be completed to make the site accessible to a standard ATV mounted drill rig:

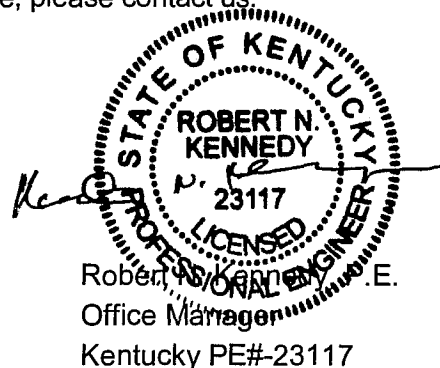
- The access road will need to be widened to accommodate the drill rig.
- Tree clearing at the proposed tower location and portions of the access route.
- Access road may require grade modifications to access the proposed tower location

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,  
**Terracon Consultants, Inc.**



M. Todd England, P.G.  
Project Geologist  
Kentucky PG#-2575



Robert N. Kennedy, P.E.  
Office Manager  
Kentucky PE#-23117

# Preliminary Geotechnical Engineering Report

Proposed 265' Self Supporting Telecommunication Tower

Site Name: Chop Bottom

Goose Rock, Clay County, Kentucky

October 14, 2013

Terracon Project Number: 57135045

Prepared for:

**Wes Tower Communication**

**Louisville, Kentucky**

Prepared by:

**Terracon Consultants, Inc.**

**Louisville, Kentucky**

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[terracon.com](http://terracon.com)

**Terracon**

Geotechnical   ■   Environmental   ■   Construction Materials   ■   Facilities

October 14, 2013

Wes Tower Communications  
10400 Linn Station Road, Suite 225  
Louisville, Kentucky 40223

Attn: Mr. John Boud

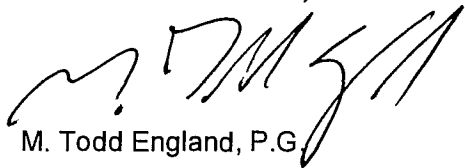
Re: Preliminary Geotechnical Engineering Report  
Proposed 265' Self Supporting Telecommunication Tower  
Site Name: Chop Bottom  
Goose Rock, Kentucky  
Terracon Project Number: 57135045

Dear Mr. Boud:

Terracon Consultants, Inc. (Terracon) has completed the preliminary geotechnical engineering services for the above referenced project. This report presents the findings of the desk top review and provides preliminary design concepts for the proposed tower foundations.


We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,  
Terracon Consultants, Inc.



M. Todd England, P.G.  
Project Geologist  
Kentucky PG#-2575

APR Review – Timothy G. LaGrow, P.E. – Senior Principal



Robert N. Kennedy  
Office Manager  
Kentucky PE#-23117

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1.2 Site Location and Description.....	1
<b>2.0 SITE GEOLOGY AND PUBLISHED SOIL MAPPING</b> .....	2
2.1 Geology.....	2
<b>3.0 PRELIMINARY FOUNDATION RECOMMENDATIONS</b> .....	2
<b>4.0 GENERAL COMMENTS</b> .....	3

### APPENDIX

Figure 1 – Site Plan

Figure 2 – Site Location Plan

Figure 3 – Geologic Map

Figure 4 – Karst Potential Map

**PRELIMINARY GEOTECHNICAL ENGINEERING REPORT**  
**PROPOSED 265' SELF SUPPORTING TELECOMMUNICATION TOWER**  
**SITE NAME: CHOP BOTTOM**  
**GOOSE ROCK, CLAY COUNTY, KENTUCKY**  
Terracon Project No. 57135045  
October 14, 2013

**1.0 PROJECT INFORMATION**

**1.1 Project Description**

ITEM	DESCRIPTION
<b>Existing Site layout</b>	See Appendix, Figure 1, Site Plan
<b>Site Dimensions</b>	Approximately 100' by 100'
<b>Tower</b>	Self-supporting 255 feet tall with an approximately 10 foot tall lightning arrester.
<b>Maximum Loads</b>	Vertical: 660 kips (assumed) Shear: 85 kips (assumed) Uplift: 550 kips (assumed)
<b>Maximum Allowable Settlement</b>	1-inch (assumed)
<b>Equipment Building:</b>	Column: 15 kips (assumed)
<b>Maximum Loads</b>	Wall: 1 kip/ft (assumed)
<b>Equipment Building</b>	Total Settlement: 1-inch (assumed)
<b>Maximum Allowable Settlement</b>	Differential Settlement: ¼ inch over 40 feet (assumed)
<b>Grading</b>	Cut: 5 feet (+/-) max (assumed) Fill: 5 feet (+/-) max (assumed)

**1.2 Site Location and Description**

Item	Description
<b>Location</b>	320 John D Walker Road Goose Rock, Clay County, Kentucky Lat./Long.: 37° 06' 05.35" / 83° 42' 17.59"
<b>Existing improvements</b>	Undeveloped wooded land
<b>Current ground cover</b>	Under brush and Trees
<b>Existing topography</b>	Slopes to the west-southwest between El. 1460 to 1435

## 2.0 SITE GEOLOGY AND PUBLISHED SOIL MAPPING

### 2.1 Geology

Formation <sup>1</sup>	Description	Karst Risk <sup>2</sup>
Hyden	Sandstone, light- to medium-gray, weathers yellowish gray to shades of orange and brown; fine to medium grained, poorly sorted; thin to thick bedded, in part crossbedded. Siltstone and shale, medium- to medium-dark-gray, in part sandy. Siltstone and shale also contain at places thin lenses of siderite and carbonaceous plant films and impressions.	Non-Karst

1. Based on the Ogle Geologic Quadrangle of Clay and Knox Counties Kentucky, published by the Kentucky Geological Survey. (GQ-1484).

2. Based on the published karst potential maps prepared by the Kentucky Geological Survey.

Based on our review of USDA Web Soil Survey (<http://websoilsurvey.nrcs.usda.gov/>) the site is covered with:

- SkF – Shelocta-Cloverlick-Kimper Complex – Well drained colluvium derived from sandstone and shale on the upper third of mountainous slopes. Bedrock typically encountered between 40 to 60 inches below existing grades.

## 3.0 PRELIMINARY FOUNDATION RECOMMENDATIONS

Based on the data reviewed as part of this preliminary report, Terracon expects that either a mat foundation or drilled piers could be used to support the proposed tower. The bearing stratum is likely to be the unweathered bedrock reported to be within 5 feet of the ground surface. The engineering characteristics of the on-site soils and underlying bedrock should be determined by geotechnical exploration and laboratory testing to determine the capacity of the tower and/or equipment building foundations.

A particular concern at this site is the colluvial designation of the overburden soils. Colluvium is a soil that formed in unconsolidated sediments deposited at the base of slopes or at changes in slope inclination either by rain, sheet-wash, slow continuous downslope creep, or combination of these factors. The soil is inherently unstable due to its depositional history and any construction in these soils should involve some evaluation of slope stability, especially where cuts and fills occur. Cutting into colluvial slopes can lead to failure above the cut, while placement of fill on top of colluvium can lead to failure below the site.

## 4.0 GENERAL COMMENTS

Terracon should be retained to perform the final geotechnical study and review the final design plans and specifications so comments can be made regarding interpretation and implementation of our geotechnical recommendations in the design and specifications. Terracon also should be retained to provide observation and testing services during grading, excavation, foundation construction and other earth-related construction phases of the project.

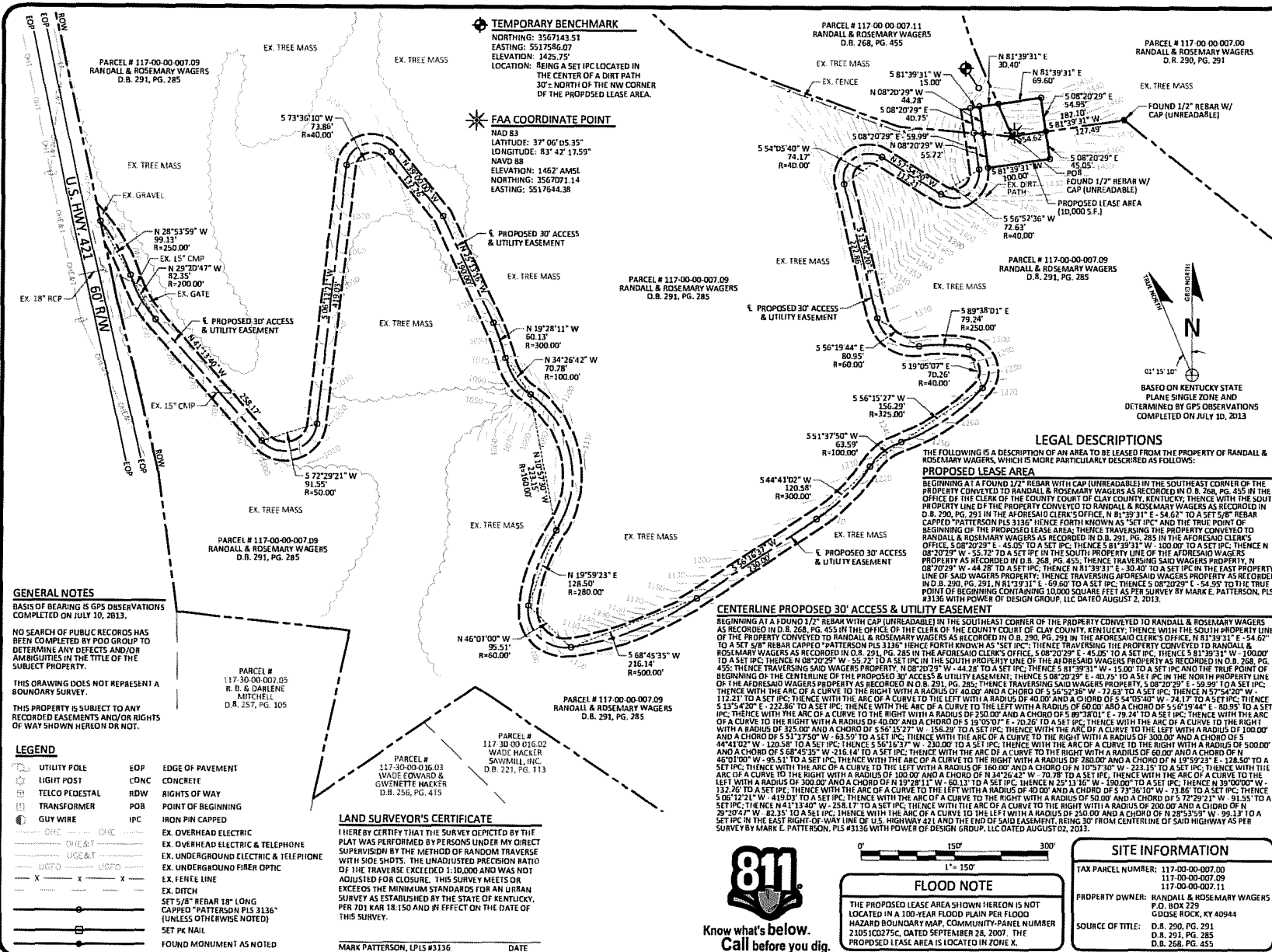
The analysis and preliminary recommendations presented in this report are based upon the data obtained from the data review performed for the site and from other information discussed in this report.

The scope of services for this project does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranties, either express or implied, are intended or made. Site safety, excavation support, and dewatering requirements are the responsibility of others. In the event that changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless Terracon reviews the changes and either verifies or modifies the conclusions of this report in writing.

## **APPENDIX**





**TEMPORARY BENCHMARK**  
 NORTHING: 3567143.51  
 EASTING: 5517586.07  
 ELEVATION: 1425.75'  
 LOCATION: BEING A SET IPC LOCATED IN THE CENTER OF A DIRT PATH 30' NORTH OF THE NW CORNER OF THE PROPOSED LEASE AREA.

**FAA COORDINATE POINT**  
 NAD 83  
 LATITUDE: 37° 06' 05.35"  
 LONGITUDE: 83° 47' 17.59"  
 NAVD 88  
 ELEVATION: 1462' AMSL  
 NORTHING: 3567071.14  
 EASTING: 5517644.38

**GENERAL NOTES**  
 BASIS OF BEARING IS GPS OBSERVATIONS COMPLETED ON JULY 10, 2013.  
 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 DRAWING DOES NOT REPRESENT A BOUNDARY SURVEY.  
 THIS PROPERTY IS SUBJECT TO ANY RECORDED EASEMENTS AND/OR RIGHTS OF WAY SHOWN HEREON OR NOT.

**LEGEND**

UTILITY POLE	EDGE OF PAVEMENT
LIGHT POST	CONCRETE
TELCO PEDESTAL	RIGHTS OF WAY
TRANSFORMER	POINT OF BEGINNING
GUY WIRE	IRON PIN CAPPED
OHE	EX. OVERHEAD ELECTRIC & TELEPHONE
UGE&T	EX. UNDERGROUND ELECTRIC & TELEPHONE
UGFO	EX. UNDERGROUND FIBER OPTIC
FENCE LINE	EX. DITCH

**LAND SURVEYOR'S CERTIFICATE**  
 I HEREBY CERTIFY THAT THE SURVEY OPERATED BY THE PLAT WAS PERFORMED BY PERSONS UNDER MY DIRECT SUPERVISION BY THE METHOD OF RANDOM TRAVERSE WITH SIDE SHOTS. THE UNADJUSTED PRECISION RATIO OF THE TRAVERSE EXCEEDED 1:10,000 AND WAS NOT ADJUSTED FOR CLOSURE. THIS SURVEY MEETS OR EXCEEDS THE MINIMUM STANDARDS FOR AN URBAN SURVEY AS ESTABLISHED BY THE STATE OF KENTUCKY, PER 701 KAR 18.150 AND IN EFFECT ON THE DATE OF THIS SURVEY.

MARK PATTERSON, LPLS #13136 DATE

**LEGAL DESCRIPTIONS**  
 THE FOLLOWING IS A DESCRIPTION OF AN AREA TO BE LEASED FROM THE PROPERTY OF RANDALL & ROSEMARY WAGGERS, WHICH IS MORE PARTICULARLY DESCRIBED AS FOLLOWS:  
**PROPOSED LEASE AREA**  
 BEGINNING AT A FOUND 1/2\"/>

**CENTERLINE PROPOSED 30' ACCESS & UTILITY EASEMENT**  
 BEGINNING AT A FOUND 1/2\"/>

**811 FLOOD NOTE**  
 THE PROPOSED LEASE AREA SHOWN HEREON IS NOT LOCATED IN A 100-YEAR FLOOD PLAIN PER FLOOD HAZARD BOUNDARY MAP, COMMUNITY PANEL NUMBER 1105100275C, DATED SEPTEMBER 24, 2007. THE PROPOSED LEASE AREA IS LOCATED IN ZONE X.

**SITE INFORMATION**  
 TAX PARCEL NUMBER: 117-00-00-007.00  
 117-00-00-007.09  
 117-00-00-007.11  
 PROPERTY OWNER: RANDALL & ROSEMARY WAGGERS  
 P.O. BOX 229  
 GDOSSE ROCK, KY 40944  
 SOURCE OF TITLE: D.B. 290, PG. 291  
 D.B. 291, PG. 285  
 D.B. 268, PG. 455

**POD POWERLODE DESIGN**  
 26 VILLAGE PLAZA  
 SHELBYVILLE, KY 40066  
 502-437-9532

**WESTOWER COMMUNICATIONS**

**at&t**

**SURVEY**

REV.	DATE	DESCRIPTION

**SITE INFORMATION:**  
**CHOP BOTTOM**  
 320 JOHN D. WALKER RD  
 GOOSE ROCK, KY 40944

**SITE NUMBER:**  
 KYALUG152

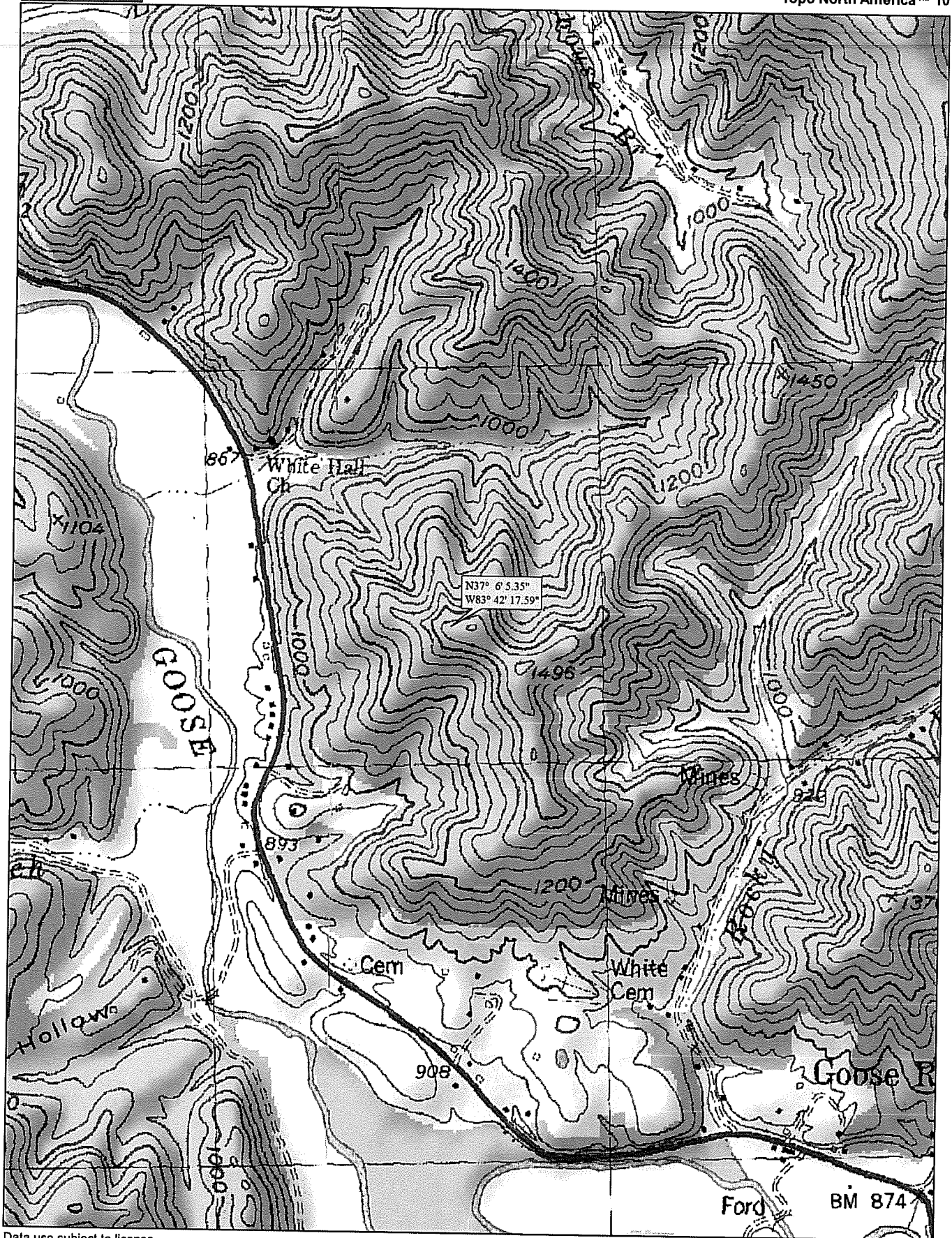
**POD NUMBER:** 13-0682

**DRAWN BY:** DSR  
**CHECKED BY:** MEP  
**DATE:** 08.02.13

**SHEET TITLE:**

**SITE SURVEY**  
 SHEET NUMBER:  
**B-1**

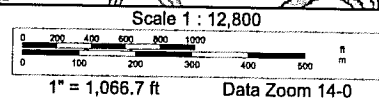
**811**  
 Know what's below.  
 Call before you dig.



Data use subject to license.

© DeLorme. Topo North America™ 10.

www.delorme.com



Print Legend (opens in a new window)

Geologic Units

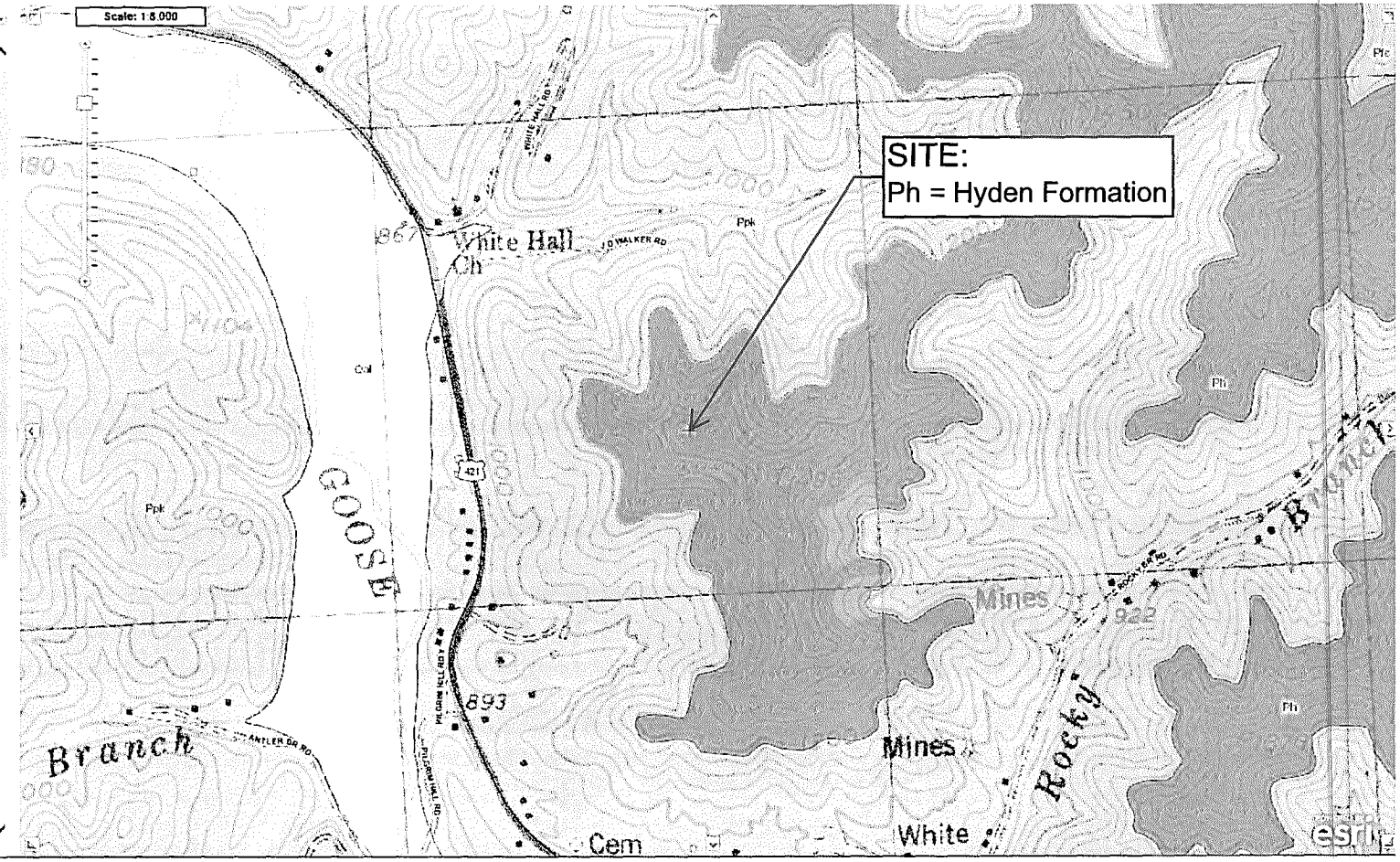
map unit colors  
1:24,000 scale data (detailed geology)  
This legend includes all units from the 1:24,000 quadrangles in the current view. Some units on the legend may not appear on the map.

Qal	Alluvium (Quaternary - Quaternary)
Pfc	Four Corners Formation (Lower Pennsylvanian - Middle Pennsylvanian)
Ph	Hyden Formation (Lower Pennsylvanian - Middle Pennsylvanian)
Ppk	Pikeville Formation (Lower Pennsylvanian - Middle Pennsylvanian)

Symbols

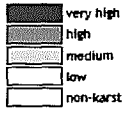
map symbols  
Symbols are updated as layers are turned on/off and as they become visible by zooming in/out.

- 24K Geologic Faults**
- fault - concealed
  - fault
  - fault - inferred
  - fault - scarp
  - fault - secondary
- 24K Geologic Contacts**
- geologic contact
  - contact - concealed
  - contact - secondary
  - contact - arbitrary
  - stratigraphic datum shift
  - unconformity
  - unconformity - concealed
  - formal bed
  - formal bed - concealed



Print Legend (opens in a new window)

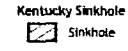
Karst Potential Units



Symbols

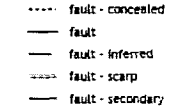
map symbols  
Symbols are updated as layers are turned on/off and as they become visible by zooming in/out.

KGS Sinkholes

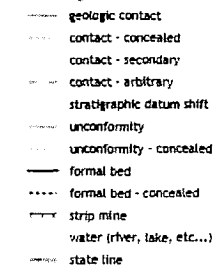


KGS Geology

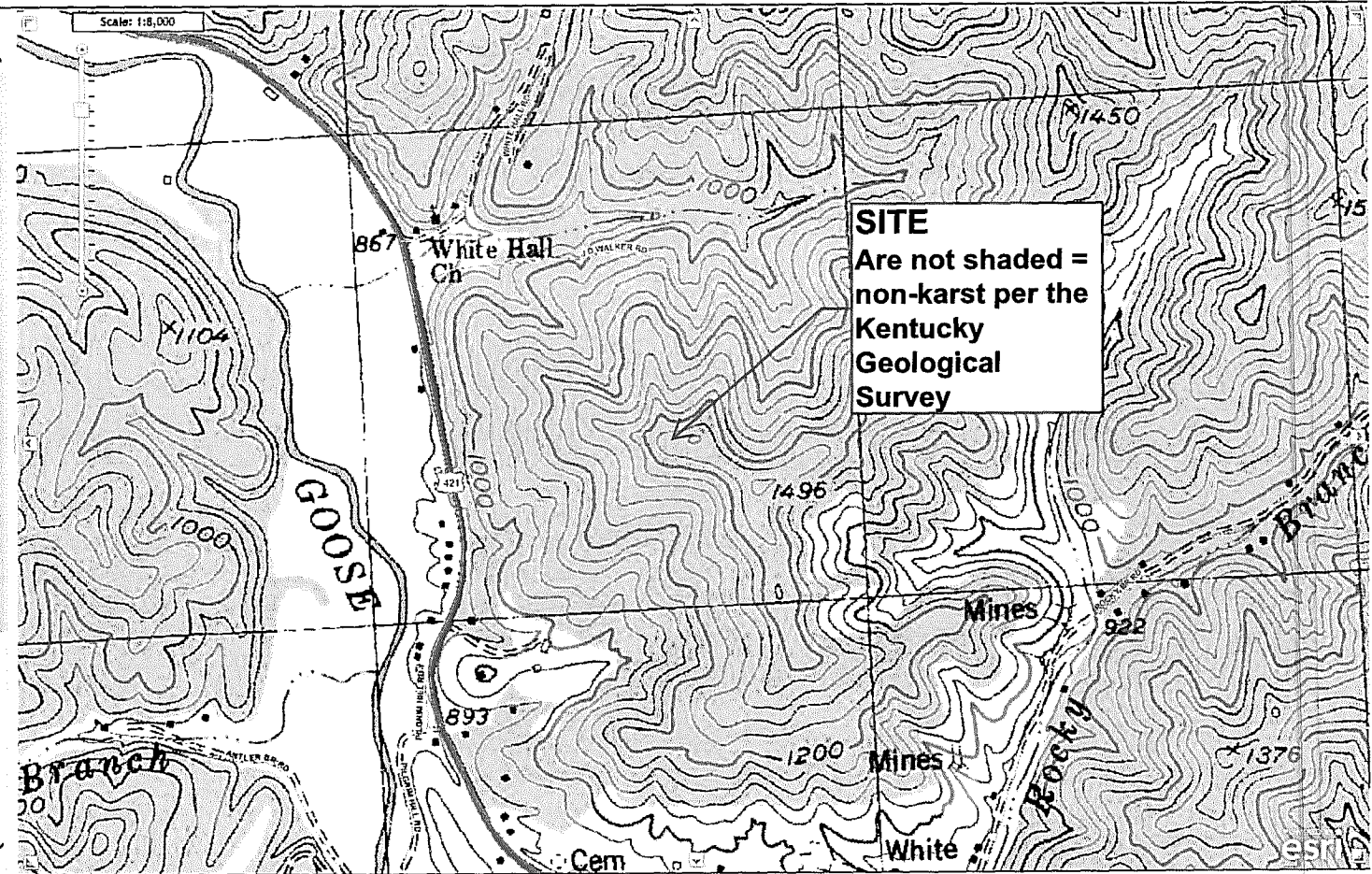
24K Geologic Faults



24K Geologic Contacts



non-coal beds



**SITE**  
 Are not shaded =  
 non-karst per the  
 Kentucky  
 Geological  
 Survey



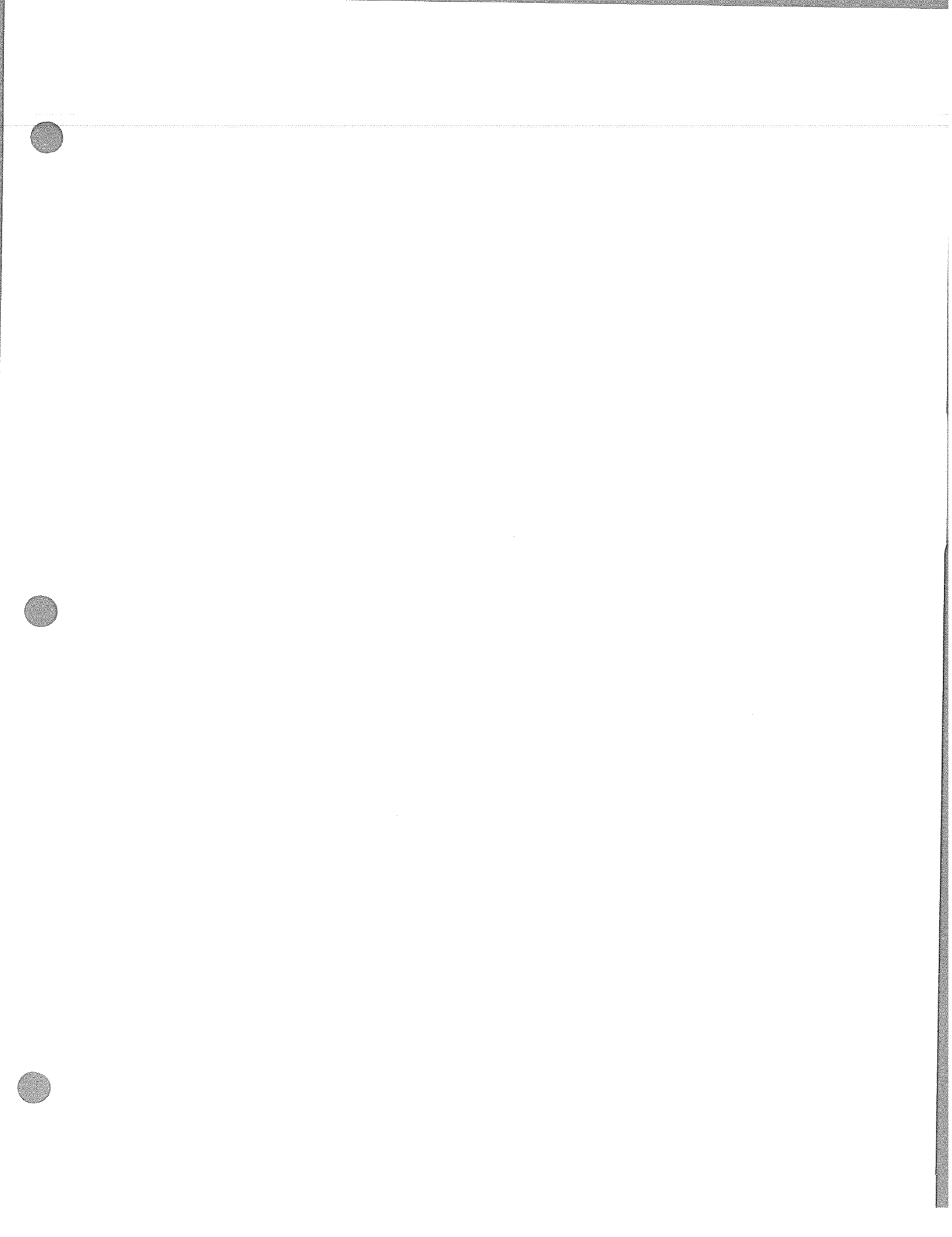
**EXHIBIT I  
DIRECTIONS TO WCF SITE**

Driving Directions to Proposed Tower Site:

1. Beginning at the Clay County seat located at 316 Main Street, Manchester, Kentucky 40962;
2. Start out going on Main Street toward Langdon;
3. Bear left onto US 421;
4. Bear right onto US 421 S;
5. Turn left onto US 421 / route 80;
6. Arrive at 320 John D. Walker Road, Goose Rock, KY 40944
7. The proposed tower site is located on the left and is marked with a notice sign.
8. The site coordinates are:
  - a. N 37 deg 06 min 05.35 sec
  - b. W 83 deg 42 min 17.59 sec



Prepared by:  
Keith Riggs  
Pike Legal Group PLLC  
1578 Highway 44 East, Suite 6  
PO Box 369  
Shepherdsville, KY 40165-0369  
Telephone: 502-955-4400 or 800-516-4293





**EXHIBIT J**  
**COPY OF REAL ESTATE AGREEMENT**

Chop Bottom  
20-00

Clay County  
Michael D. Baker  
11/04/2013 3:47:00 PM  
Order Number: 0046970

Cost	Charge Type
\$20.00	LEASE
Total	\$20.00

## ORANDUM OF LEASE

CHECK : \$20.00  
CHECK Number: 356  
Register1  
DC: DEBBIE. EDWARDS

575 Morosgo Drive NE,  
Suite 13-F West Tower,  
Atlanta, GA 30324

Re: Cell Site #KYALU6152;  
Cell Site Name: Chop Bottom  
Fixed Asset #12568409  
State: Kentucky  
County: Clay

## MEMORANDUM OF LEASE

This Memorandum of Lease is entered into on this 29<sup>TH</sup> day of AUGUST, 2013, by and between Randall Wagers and wife Rosemary Wagers, a married couple, having a mailing address of PO Box 229, Goose Rock, KY 40944 (hereinafter referred to as "**Landlord**") and New Cingular Wireless PCS, LLC, a Delaware limited liability company, having a mailing address of 575 Morosgo Drive NE, Suite 13-F West Tower, Atlanta, Ga 30324 (hereinafter referred to as "**Tenant**").

1. Landlord and Tenant entered into a certain Option and Lease Agreement ("**Agreement**") on the 29<sup>TH</sup> day of AUGUST, 2013, for the purpose of installing, operating and maintaining a communications facility and other improvements. All of the foregoing is set forth in the Agreement.
2. The initial lease term will be five (5) years commencing on the effective date of written notification by Tenant to Landlord of Tenant's exercise of its option, with four (4) successive five (5) year options to renew.
3. The portion of the land being leased to Tenant and associated easements are described in **Exhibit 1** annexed hereto.

**EXHIBIT 24b**

**MEMORANDUM OF LEASE**

**[FOLLOWS ON NEXT PAGE]**

**MEMORANDUM OF LEASE**

**Prepared by:**

**Lee Skaalerud**

**PBM Wireless Services**

**13714 Smokey Ridge Overlook**

**Carmel, IN 46033**

**Return to:**

New Cingular Wireless PCS, LLC

Attn: Network Real Estate Administration

575 Morosgo Drive NE,

Suite 13-F West Tower,

Atlanta, GA 30324

Re: Cell Site #KYALU6152;  
Cell Site Name: Chop Bottom  
Fixed Asset #12568409  
State: Kentucky  
County: Clay

**MEMORANDUM OF LEASE**

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3. The portion of the land being leased to Tenant and associated easements are described in **Exhibit 1** annexed hereto.

4. This Memorandum of Lease 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 Agreement, all of which are hereby ratified and affirmed. In the event of a conflict between the provisions of this Memorandum of Lease and the provisions of the Agreement, the provisions of the Agreement shall control. The Agreement shall be binding upon and inure to the benefit of the parties and their respective heirs, successors, and assigns, subject to the provisions of the Agreement.

IN WITNESS WHEREOF, the parties have executed this Memorandum of Lease as of the day and year first above written.

"LANDLORD"

Russell Wagers

By: Russell Wagers

Print Name: Russell Wagers

Its: Owner

Date: 07-29-13

"LANDLORD"

Rosemary Wagers

By: Rosemary Wagers

Print Name: Rosemary Wagers

Its: Owner

Date: 07-29-13

"TENANT"

New Cingular Wireless PCS, LLC,  
a Delaware limited liability company

By: AT&T Mobility Corporation

Its: Manager

By: Daniel Toth

Print Name: Daniel Toth

Its: Manager of Real Estate and Construction

Date: 8/29/13

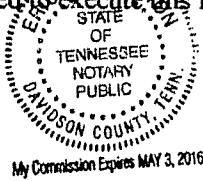
[ACKNOWLEDGMENTS APPEAR ON THE NEXT PAGE]

**TENANT ACKNOWLEDGMENT**

STATE OF TENNESSEE)

COUNTY OF WILLIAMSON) ss:

On the 29<sup>TH</sup> day of AUGUST, 2013 before me personally appeared DANIEL TOH, and acknowledged under oath that he/she is the MANAGER OF REAL ESTATE of AT&T Mobility Corporation, the Manager of New Circular Wireless PCS, LLC, the Tenant named in the attached instrument, and as such was authorized to execute this instrument on behalf of the Tenant.



Erica L. Clanton

Notary Public: ERICA L. CLANTON  
My Commission Expires: MAY 3, 2016

**LANDLORD ACKNOWLEDGMENT**

STATE OF Kentucky)

COUNTY OF Clay) ss:

On the 29 day of July, 2013 before me, personally appeared Randall Wagoner, who acknowledged under oath, that he/she is the person/officer named in the within instrument, and that he/she executed the same in his/her stated capacity as the voluntary act and deed of Landlord for the purposes therein contained.

Randall Wagoner  
Notary Public: Kathy Wagoner  
My Commission Expires: 8/16/2014

**LANDLORD ACKNOWLEDGMENT**

STATE OF Kentucky)

COUNTY OF Clay) ss:

On the 29 day of July, 2013 before me, personally appeared Rosemary Wagoner, who acknowledged under oath, that he/she is the person/officer named in the within instrument, and that he/she executed the same in his/her stated capacity as the voluntary act and deed of Landlord for the purposes therein contained.

Rosemary Wagoner  
Notary Public: Kathy Wagoner  
My Commission Expires: 8/16/2014

**EXHIBIT 1**

**DESCRIPTION OF PREMISES**

Page 1 of 2

to the Memorandum of Lease dated AUGUST 29, 2013, by and between Randall Wagers and Rosemary Wagers, a Married Couple, as Landlord, and New Cingular Wireless PCS, LLC, a Delaware limited liability company, as Tenant.

The Property is legally described as follows:

The Premises are described and/or depicted as follows:







**EXHIBIT K  
NOTIFICATION LISTING**

---

## Chop Bottom Landowner Notice List

Randall and Rosemary Wagers  
PO Box 229  
Goose Rock, KY 40944

Marvin Bowling Unified Credit Trust  
c/o Beverly Sebastian  
8122 Devens Drive  
Brentwood, TN 37027

Johnny Wayne Blair and Lisa Blair  
Krumm and Vanessa Fitzgerald  
104 Timothy Lane  
Ocean Springs, MS 39564

Jimmy Darrell Hayre and Diana Hayre  
6211 S. Hwy. 421  
Manchester, KY 40962

Wade Hacker Sawmill Inc.  
156 Wade Hacker Road  
Manchester, KY 40962

Wade Edward and Gwenette Hacker  
135 Wade Hacker Road  
Manchester, KY 40962

R B and Darlene Mitchell  
5963 S Hwy 421  
Manchester, KY 40962

Alan S and Ella Smith  
1415 Highway 1524  
Manchester, KY 40962

Glenn Wombles  
5900 S Hwy 421  
Manchester, KY 40962

Lauren and Miriam Rudolph  
174 Hwy 1524  
Manchester, KY 40962

Pauline Smith Gray  
5700 S Hwy 421  
Manchester, KY 40962

Curtis McKiddy  
PO Box 225  
Goose Rock, KY 40944

Marion P and Ashley Spurlock  
PO Box 1240  
Manchester, KY 40962

Felicia Nicole Mathis  
389 Sester Hollow Rd  
Manchester, KY 40962

Melissa and Felicia Nicole Mathis  
And Alexandria J Mathis  
389 Sester Hollow Rd  
Manchester, KY 40962

Frances Jane Webb and Patricia Collins  
532 White Hall Road  
Manchester, KY 40962

Deborah Kaye Jackson  
356 Belles Fork Road  
Manchester, KY 40962

Randall and Rosemary Wagers  
232 John D Walker Rd  
Manchester, KY 40962

Orville and Sheila Mitchell  
692 Rocky Branch Road  
Manchester, KY 40962



**EXHIBIT L**  
**COPY OF PROPERTY OWNER NOTIFICATION**



1578 Highway 44 East, Suite 6

P.O. Box 369

Shepherdsville, KY 40165-0369

Phone (502) 955-4400 or (800) 516-4293

Fax (502) 543-4410 or (800) 541-4410

**Notice of Proposed Construction of  
Wireless Communications Facility  
Site Name: Chop Bottom**

Dear Landowner:

New Cingular Wireless PCS, LLC, a Delaware limited liability company, d/b/a AT&T Mobility has filed an application with the Kentucky Public Service Commission ("PSC") to construct a new wireless communications facility on a site located at 320 John D. Walker Road, Goose Rock, KY 40944 (37°06'05.35" North latitude, 83°42'17.59" West longitude). The proposed facility will include a 255-foot tall antenna tower, plus a 10-foot lightning arrestor and related ground facilities. This facility is needed to provide improved coverage for wireless communications in the area.

This notice is being sent to you because the Clay County Property Valuation Administrator's records indicate that you may own property that is within a 500' radius of the proposed tower site or contiguous to the property on which the tower is to be constructed. You have a right to submit testimony to the Kentucky Public Service Commission ("PSC"), either in writing or to request intervention in the PSC's proceedings on the application. You may contact the PSC for additional information concerning this matter at: Kentucky Public Service Commission, Executive Director, 211 Sower Boulevard, P.O. Box 615, Frankfort, Kentucky 40602. Please refer to docket number 2013-00423 in any correspondence sent in connection with this matter.

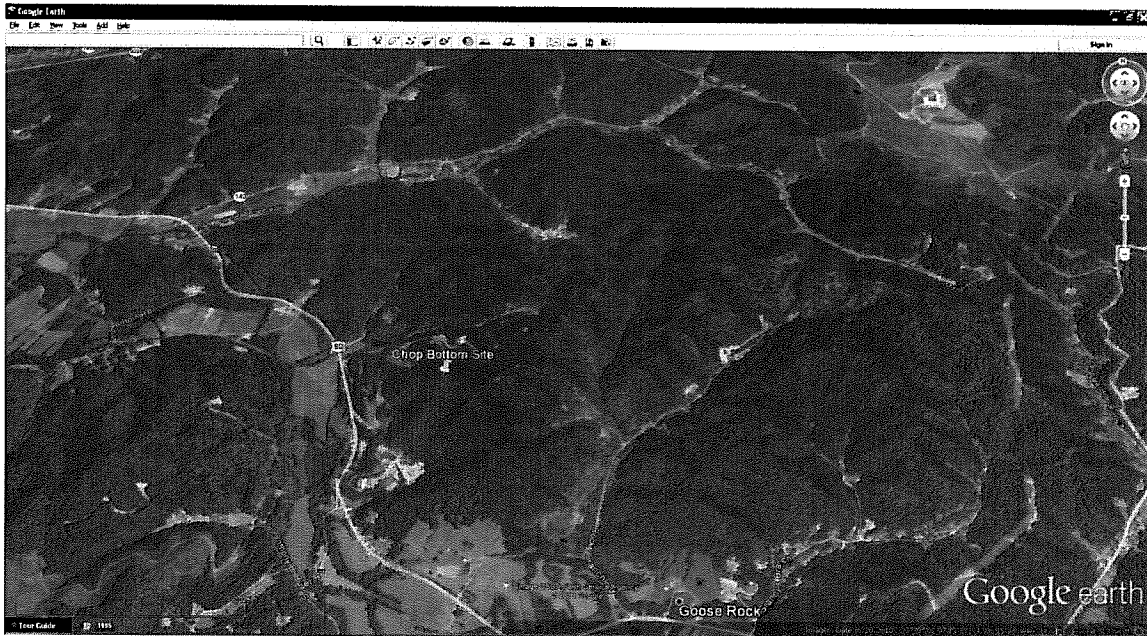
We have attached a map showing the site location for the proposed tower. AT&T Mobility's radio frequency engineers assisted in selecting the proposed site for the facility, and they have determined it is the proper location and elevation needed to provide quality service to wireless customers in the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

Sincerely,  
David A. Pike  
Attorney for AT&T Mobility

enclosure

Driving Directions to Proposed Tower Site:

1. Beginning at the Clay County seat located at 316 Main Street, Manchester, Kentucky 40962;
2. Start out going on Main Street toward Langdon;
3. Bear left onto US 421;
4. Bear right onto US 421 S;
5. Turn left onto US 421 / route 80;
6. Arrive at 320 John D. Walker Road, Goose Rock, KY 40944
7. The proposed tower site is located on the left and is marked with a notice sign.
8. The site coordinates are:
  - a. N 37 deg 06 min 05.35 sec
  - b. W 83 deg 42 min 17.59 sec



Prepared by:  
Keith Riggs  
Pike Legal Group PLLC  
1578 Highway 44 East, Suite 6  
PO Box 369  
Shepherdsville, KY 40165-0369  
Telephone: 502-955-4400 or 800-516-4293





**EXHIBIT M**  
**COPY OF COUNTY JUDGE/EXECUTIVE NOTICE**



1578 Highway 44 East, Suite 6

P.O. Box 369

Shepherdsville, KY 40165-0369

Phone (502) 955-4400 or (800) 516-4293

Fax (502) 543-4410 or (800) 541-4410

**VIA CERTIFIED MAIL**

Hon. Joe Lewis Asher  
Clay County Judge/Executive  
102 Richmond Road, Suite 201  
Manchester, KY 40962

RE: Notice of Proposal to Construct Wireless Communications Facility  
Kentucky Public Service Commission Docket No. 2013-00423  
Site Name: Chop Bottom

Dear Judge Asher:

New Cingular Wireless PCS, LLC, a Delaware limited liability company, d/b/a AT&T Mobility has filed an application with the Kentucky Public Service Commission ("PSC") to construct a new wireless communications facility on a site located at 320 John D. Walker Road, Goose Rock, KY 40944 (37°06'05.35" North latitude, 83°42'17.59" West longitude). The proposed facility will include a 255-foot tall antenna tower, plus a 10-foot lightning arrestor and related ground facilities. This facility is needed to provide improved coverage for wireless communications in the area.

You have a right to submit comments to the PSC or to request intervention in the PSC's proceedings on the application. You may contact the PSC at: Executive Director, Public Service Commission, 211 Sower Boulevard, P.O. Box 615, Frankfort, Kentucky 40602. Please refer to docket number 2013-00423 in any correspondence sent in connection with this matter.

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

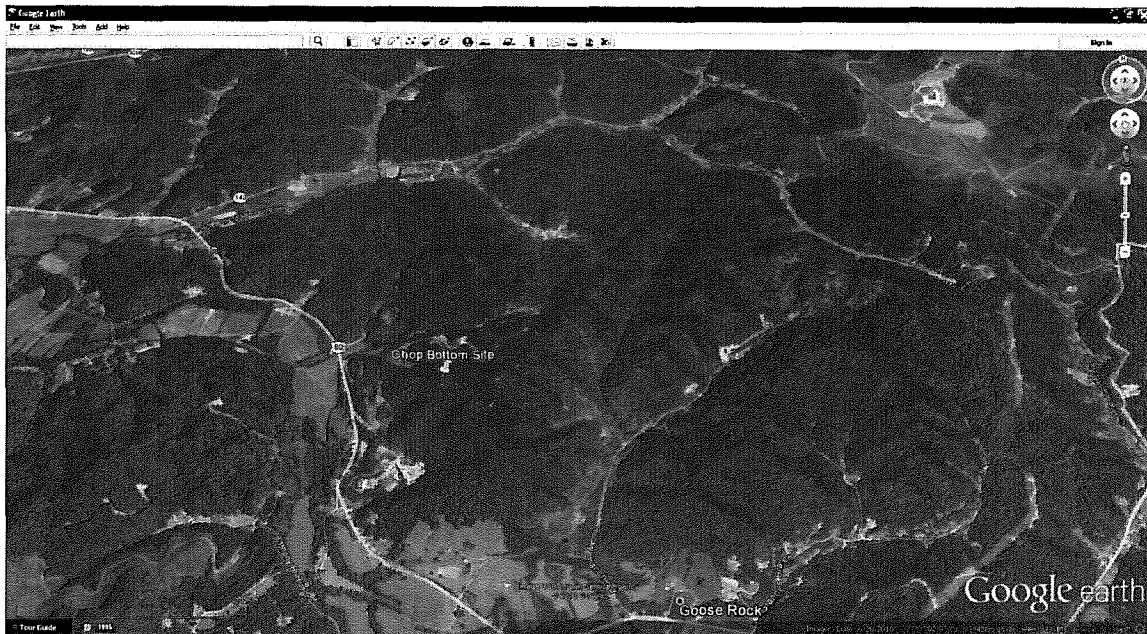
Sincerely,

David A. Pike  
Attorney for AT&T Mobility

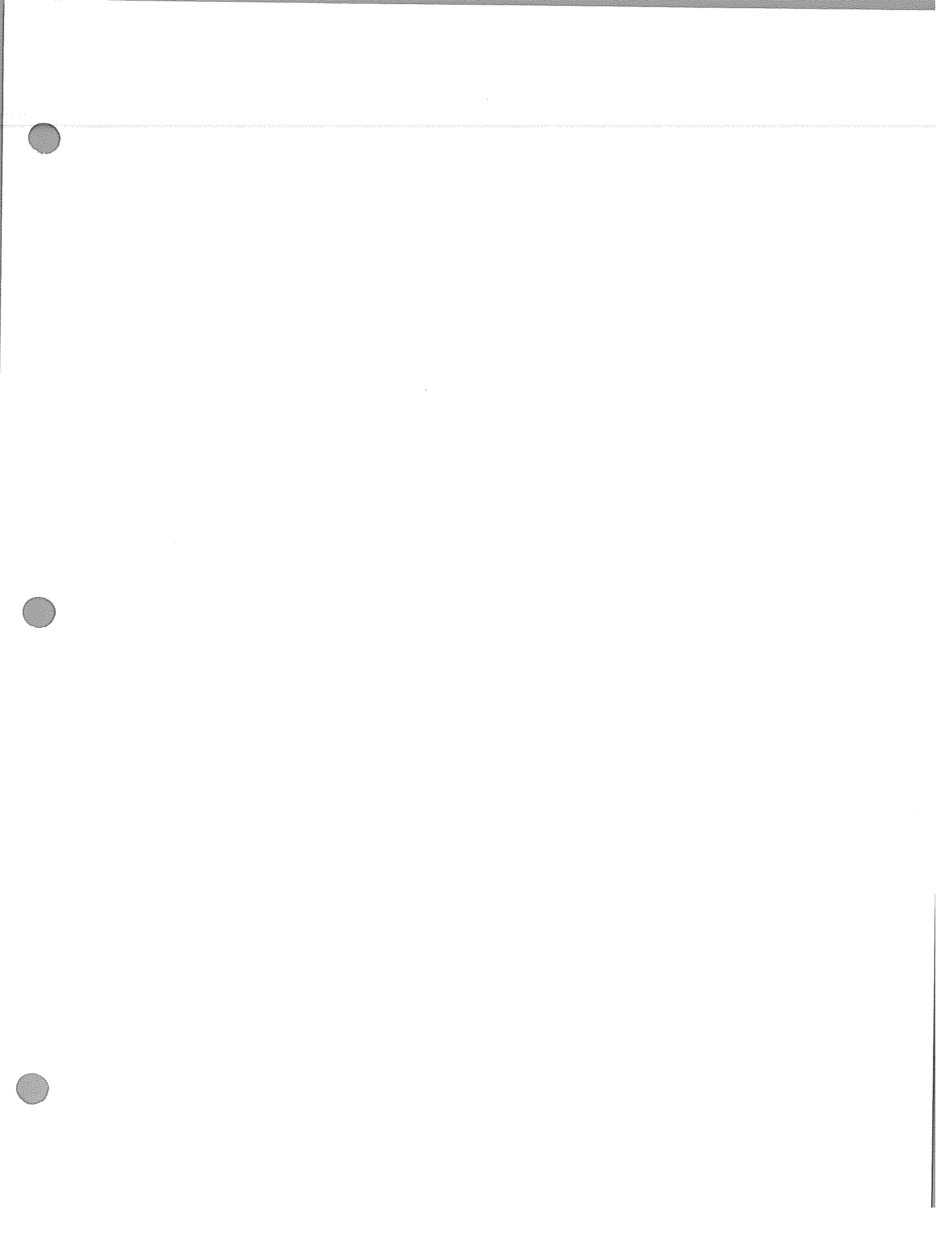
enclosure

Driving Directions to Proposed Tower Site:

1. Beginning at the Clay County seat located at 316 Main Street, Manchester, Kentucky 40962;
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3. Bear left onto US 421;
4. Bear right onto US 421 S;
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7. The proposed tower site is located on the left and is marked with a notice sign.
8. The site coordinates are:
  - a. N 37 deg 06 min 05.35 sec
  - b. W 83 deg 42 min 17.59 sec



Prepared by:  
Keith Riggs  
Pike Legal Group PLLC  
1578 Highway 44 East, Suite 6  
PO Box 369  
Shepherdsville, KY 40165-0369  
Telephone: 502-955-4400 or 800-516-4293



**EXHIBIT N**  
**COPY OF POSTED NOTICES**

**SITE NAME: CHOP BOTTOM**  
**NOTICE SIGNS**

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

New Cingular Wireless PCS, LLC d/b/a AT&T Mobility proposes to construct a telecommunications **tower** on this site. If you have questions, please contact Pike Legal Group, PLLC, P.O. Box 369, Shepherdsville, KY 40165. (800) 516-4293, or the Executive Director, Public Service Commission, 211 Sower Boulevard, PO Box 615, Frankfort, Kentucky 40602. Please refer to docket number Case No. 2013-00423 in your correspondence.

New Cingular Wireless PCS, LLC d/b/a AT&T Mobility proposes to construct a telecommunications **tower** near this site. If you have questions, please contact Pike Legal Group, PLLC, P.O. Box 369, Shepherdsville, KY 40165 (800) 516-4293, or the Executive Director, Public Service Commission, 211 Sower Boulevard, PO Box 615, Frankfort, Kentucky 40602. Please refer to docket number Case No. 2013-00423 in your correspondence.



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

VIA TELEFAX: 606-598-2330

Manchester Enterprise  
Attn: Cecil Blair  
Advertising Director  
103 3<sup>rd</sup> Street  
P.O. Box 449  
Manchester, KY 40962

RE: Legal Notice Advertisement  
Site Name: Chop Bottom

Dear Mr. Blair:

Please publish the following legal notice advertisement in the next edition of the *Manchester Enterprise*:

**NOTICE**

**New Cingular Wireless PCS, LLC, a Delaware limited liability company, d/b/a AT&T Mobility has filed an application with the Kentucky Public Service Commission ("PSC") to construct a new wireless communications facility on a site located at 320 John D. Walker Road, Goose Rock, KY 40944 (37°06'05.35" North latitude, 83°42'17.59" West longitude). You may contact the PSC for additional information concerning this matter at: Kentucky Public Service Commission, Executive Director, 211 Sower Boulevard, P.O. Box 615, Frankfort, Kentucky 40602. Please refer to docket number 2013-00423 in any correspondence sent in connection with this matter.**

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

Sincerely,

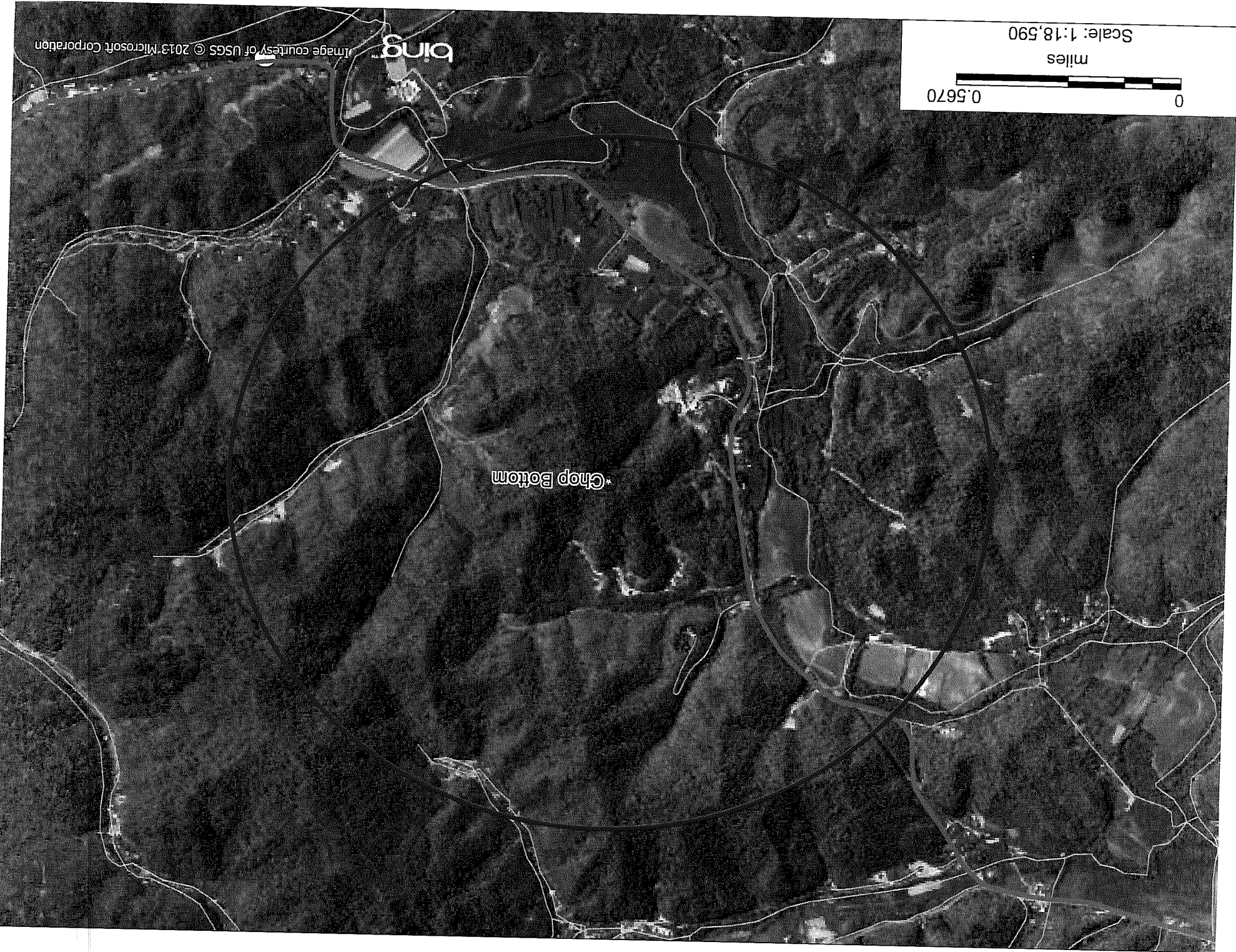
Keith Riggs  
Pike Legal Group, PLLC





**EXHIBIT O**  
**COPY OF RADIO FREQUENCY DESIGN SEARCH AREA**

Scale: 1:18,590  
miles  
0 0.5670



Chop Bottom

bing  
Image courtesy of USGS © 2013 Microsoft Corporation