DEPT. OF COMMUNITY DEVELOPMENT
PLANNING DIVISION
301 W. CHESTNUT
PHONE: (479) 621-1186
FAX: (479) 986-6896

APRIL 5, 2019

TO: PLANNING COMMISSION

CONDITIONAL USE PERMIT – JUSTIN HADLEY (T-MOBILE)
STAFF SUMMARY REPORT

ADDRESS:	599 N 13th Street
LAND OWNER:	Hews Ark LLC, Edward Hurley
APPLICANT/REP:	Justin Hadley / AMS Wireless on behalf of Vertical Bridge
ZONING DISTRICT:	I-1 (Light Industrial)
GROWTH DESIGNATION:	Neighborhood
CUP REQUEST:	Freestanding Communications Towers
AUTHORITY:	Sec. 14-723, Rogers Code of Ordinances

BACKGROUND

1) Use Definition:
   a) Per Sec. 14-695(2)(Z), "Freestanding Towers" is defined as "structures that are intended to support equipment used to transmit or receive telecommunications signals and used to provide wireless communication services. Freestanding Towers includes but is not limited to monopoles and guyed and lattice construction steel structures."
2) Zoning District Intent: Per Sec. 14-713(a), the purpose of I-1 zoning is "to allow industrial operations and activities that do not create appreciable nuisances or hazards. It also is to provide areas within the City for the storage and transfer of goods. All industrial operations and activities are permitted provided they are conducted inside a building, although related outdoor storage and display are permitted. This district is situated close to heavy commercial and industrial areas and is intended to be located along rail lines and arterial and collector streets as identified by the master street plan."
3) Growth Designation Characteristics: Per CGM Page 1, Neighborhoods are characterized as "Single-use residential areas connected by collector and local streets that may feature community-oriented non-residential uses such as schools, resource centers, and places of worship. Goals include preserving locations for low-density residential while limiting its proliferation in areas proposed for higher-intensity development."
4) Conditional Use Considerations: Per Sec. 14-723(a)(3), conditional uses may be considered by the Planning Commission subject to four factors:
   a) Whether the use is a conditional use in the district requested and that the property under application is zoned correctly.
   b) Whether the use would be compatible with adjacent property and would not set a precedent contrary to the City land-use plan.
   c) Whether all other zoning requirements can be met.
   d) Whether ingress and egress for the proposed use will create a traffic hazard.

STAFF REVIEW

ENGINEERING REVIEW:

1) Street Network Capacity:
   a) Conditional Use Considerations:
      i) The proposed use **would not** create or compound a traffic hazard in terms of access management or trip generation.
2) RECOMMENDATIONS:
   a) None.

DEREC BASS, Planning Engineer
City of Rogers Engineering Division

PLANNING REVIEW:

1) Land-Use Compatibility:
   a) Comprehensive Growth Map: The proposed use **is not** consistent with the current Comprehensive Growth Map (Tab 2).
   b) Conditional Use Considerations:
      i) The proposed use **is** conditional in **I-1**. The Comprehensive Growth Map shows the allowed zoning districts in the Neighborhood Growth designation as R-SF, N-R, R-DP, and R-MF, so this property **is not** zoned correctly per the CGM.
      ii) The proposed use **is** compatible with adjacent property and **would not** set a precedent contrary to the CGM.

iii) The proposed use **would not** prevent any I-1 zoning requirements from being met.

2) General Findings: The location for the proposed Freestanding Communications Towers is located in a large industrial development. While the existing zoning does not match the Comprehensive Growth Map, the subject location could not be easily converted into residential housing. A request for a Freestanding Communication Tower was approved by the Planning Commission on January 2, 2018 for the parcel next to this requested location. Since the location is under a new legal description, the applicant was required to obtain a new conditional use permit for the new location. The proposed use meets the zoning district intent and would be compatible with existing development. Overall, staff **supports** the request for Freestanding Communications Towers.
3) Views of Others: No supporting or opposing comments have been received by the Planning Division to date.
4) RECOMMENDATIONS:
   a) Consider request with regard to land-use compatibility and the health, safety, and general welfare of the public.
   b) **Approve.**

Elizabeth Johnson

ELIZABETH JOHNSON, Planner II
City of Rogers Planning Division

SUGGESTED MOTION:

1) Move to **approve**, **deny**, or **table** the request by Justin Hadley / AMS Wireless on behalf of Vertical Bridge for a CUP to allow "Freestanding Communications Towers" at the subject location.

DIRECTOR'S COMMENTS:

1) Agree with recommendations and suggested motion.

JOHN C. McCURDY, Director
City of Rogers Department of Community Development

Tabs:
1. CUP application with required supplements
2. Maps and/or photos

This report may not reflect all information, documents, or other materials made available to officials during discussion and public input. Staff recommendations are based on technical review of City code and materials provided by the applicant at time of submittal.

DEPT. OF COMMUNITY DEVELOPMENT
PLANNING DIVISION
CITY OF ROGERS, ARKANSAS
301 W. CHESTNUT
PHONE: (479) 621-1186
FAX: (479) 986-6896

OFFICE USE ONLY

Permit Fee: $100 ($100)
Zoning: I-1
Permit Number: 19-17
CityView Application: PL201900207
Date: 03/27/19

CONDITIONAL USE PERMIT

APPLICANT: Justin Hadley / AMS Wireless on behalf of Vertical Bridge

ADDRESS: 4431 Town Center Place, Kingwood, TX 77339 SUITE #:

PHONE #: 801-592-1247 EMAIL: justhadley@gmail.com

PROPERTY OWNER: Hews Ark LLC, Edward Hurley PHONE #: 817-417-9393

PRESENT USE: Industrial / Vacant Parcel ZONING: I-1 - Industrial

PROPOSED CONDITIONAL USE: Ancillary use for wireless telecommunications facilit

PARKING SPACES AVAILABLE: n/a HOURS OF OPERATION: 24/7

IF APPLYING TO OPEN A DAYCARE:

NUMBER OF CHILDREN: n/a MOST CHILDREN AT ONE TIME: n/a

Applicant Signature 3/22/2019 Date

Is the property switching from a residential to non-residential use?

- ☐ Yes. If so, large-scale approval and/or coordination with Risk Reduction for compliance with the appropriate building codes will be required.
- ☒ No

Attachment Checklist:

- ☒ Letter explaining request
- ☒ Legal description of property
- ☒ Applicant Certification
- ☒ Site plan as needed
- ☒ Letter of Approval from Property Owner

PLANNING STAFF PROVIDES:

DATE FILED: 03/27/19 PUBLIC HEARING DATE: 04/16/19 CERTIFIED MAIL DATE: 04/01/19

PLANNING COMMISSION ACTION:

COMMENTS, CONDITIONS, LIMITS:

DEPT. OF COMMUNITY DEVELOPMENT
PLANNING DIVISION
301 W. CHESTNUT
PHONE: (479) 621-1186
FAX: (479) 986-6896

NOTICE OF PUBLIC HEARING

Notice is hereby given that a public hearing will be held before the Rogers Planning Commission in the Rogers City Hall at 301 West Chestnut Street on **April 16, 2019** at **5:00 p.m.** on the application by **Justin Hadley for T-Mobile** for a **Conditional Use** to allow a **freestanding communication tower** at **599 N. 13th St.** in the **I-1 (Light Industrial)** zoning district at the following described location:

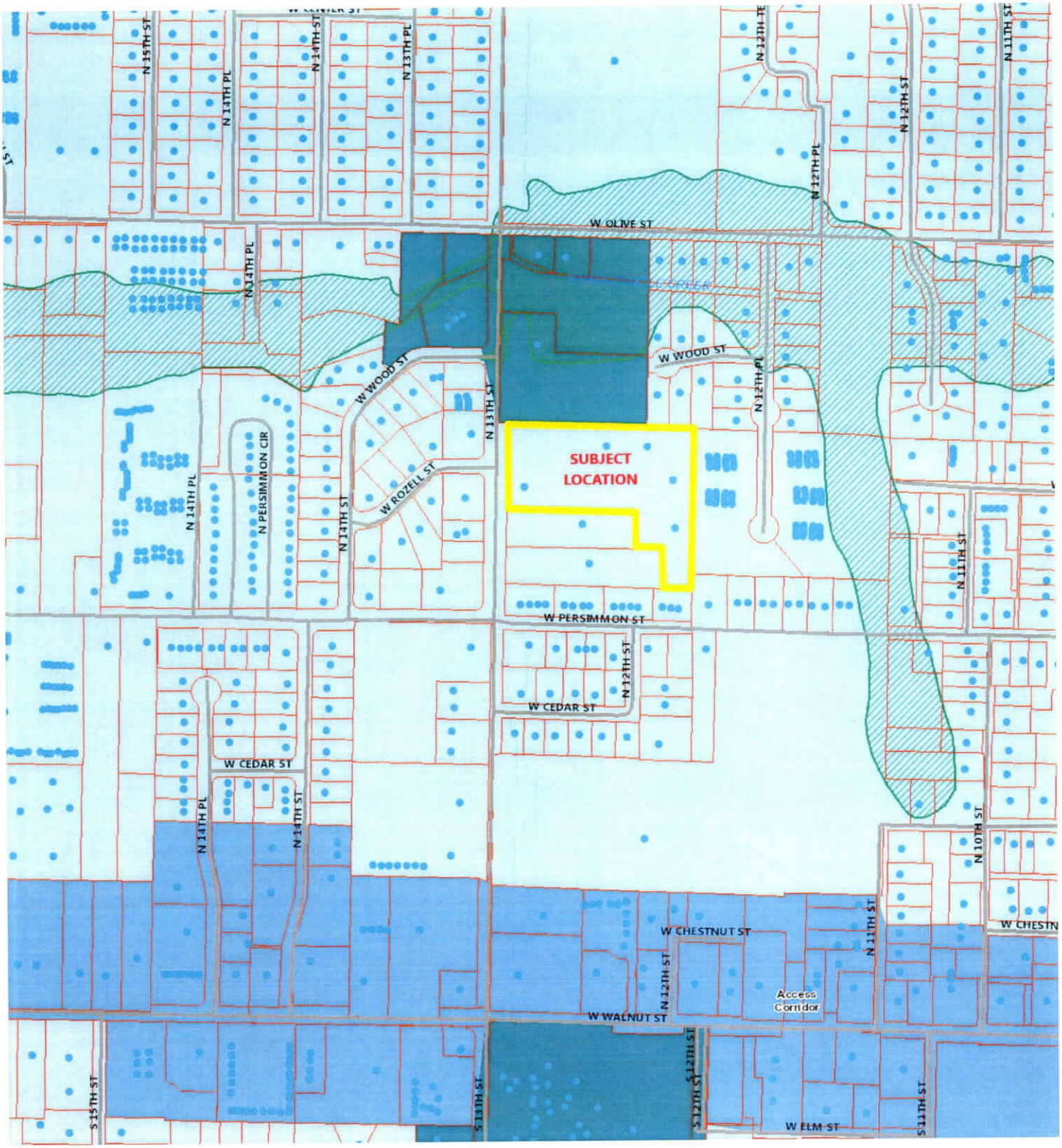
LEGAL DESCRIPTION:
ROGERS SEC/TWN/RNG/MER:SEC 12 TWN 19N RNG 30W A PART OF THE NORTHWEST ¼ OF THE NORTHEAST ¼ OF SECTION 12, TOWNSHIP 19 NORTH, RANGE 30 WEST OF THE FIFTH PRINCIPAL APN: 02-01215-002

LAYMAN'S DESCRIPTION:
599 N. 13th St.

Mandel Samuels, Secretary
Planning Commission

PUBLISH ONE TIME ONLY: **April 1, 2019**
BILL THE CITY OF ROGERS

COMPREHENSIVE GROWTH MAP



CERTIFICATION

I hereby state that to the best of my knowledge all property owners within 300 feet of my property have been notified by Certified Mail **with return receipts requested** at least 15 days prior to the upcoming public hearing.

Dated this the ____ day of March 25, 2019.

Justin Hadley - Please see Certified Mail confirmation document in package
Signed

_____
Name Printed

STATE OF ARKANSAS

COUNTY OF _____

Subscribed and sworn before me this the ____ day of _____, 20____.

_____
Notary Signature

_____
Notary Name Printed

_____
Commission Expires

Justin Hadley
Wireless Development Specialist
4431 Town Center Place
Kingwood, TX 78704
801-592-1247 cellular
justhadley@gmail.com

Authorized Representative for:

T-Mobile Project Number: **AR-5047 AR02100B**
T-Mobile Project Name: Poplar

City of Rogers, Arkansas
Application for a Conditional Use Permit
Project Information and Justification

T-Mobile Corporation (T-Mobile) is requesting approval of Conditional Use Permit application for the construction and operation of an unmanned wireless telecommunications facility (cell site), and presents the following project information for your consideration:

Project Location
Address: 599 UTL N 13th Street
APN: 02-01215-002
Zoning: Industrial

Project Description
T-Mobile proposes to construct an unmanned wireless telecommunications facility consisting of a 110' tall monopole. The associated equipment cabinets will be installed on a concrete pad within 80'x30' lease area. Connections for power and telco will be determined at a later date.

Project Objectives
There are several reasons why a wireless carrier requires the installation of a cell site within a specified area to close a "significant gap in coverage:"

- The radio signal must be of sufficient strength to achieve consistent, sustainable, and reliable service to customers at a *level sufficient for outdoor, in-vehicle, and in-building penetration with good voice quality* (Threshold, -76db).
- When nearby other sites become overloaded, and more enhanced voice and data services are used (3G and other high-speed data services) signal contracts and a gap is created. With heavy use it is intensified due to the unique properties of digital radio transmissions.

In this specific case, this location was selected because T-Mobile's radio-frequency engineers (RF) have identified a significant gap in coverage in the vicinity of 13th Street and Persimmon Way and the surrounding community in the City of Rogers.

Findings/Burden of Proof
The site for the proposed use is adequate in size and shape.

T-Mobile is proposing a monopole design for this project which is considered a allowable design in accordance with the City of Rogers municipal code. The requested height of the monopole is the minimum height needed in order to fill the significant gap in coverage for this project. T-Mobile uses the most advanced technology and design when constructing the monopole so as to blend the facility with the surrounding community and thereby minimizing the visual impact of the site. The monopole gives the appearance of a utility pole which blends with the industrial use of the property.

The proposed location has sufficient access to streets and highways that are adequate in width and pavement type to carry the quantity and quality of traffic generated by the proposed use.

The project is proposed within a privately owned industrial lot. There are adequate access routes directly to the proposed facility. All the roadways and access ways within the facility are in compliance with local, state and federal regulations concerning width and pavement.

The proposed us will not have an adverse effect upon adjacent or abutting properties.

The project is proposed within a industrial zone and will not have an adverse effect upon adjacent or abutting properties as it is a stealth design that will blend naturally with the subject property and the surrounding community. The project will provide a public benefit of better wireless telecommunications and data services to the surrounding neighborhoods and community.

The proposed use is deemed essential and desirable to the public convenience or welfare.

The new wireless telecommunications facility is in high demand to the residents and visitors of the City of Rogers. Wireless communications are vastly used in this area and the need for this site was established entirely from increased usage of T-Mobile services in the vicinity of the requested project.

GENERAL INFORMATION

Site Selection

Customer demand drives the need for new cell sites. Data relating to incomplete and dropped calls is gathered, drive-tests are conducted, and scientific modeling using sophisticated software is evaluated. Once the area requiring a new site is identified, a target ring on a map is provided to a real estate professional to begin a search for a suitable location.

During an initial reconnaissance, properties for consideration for the installation of a cell site must be located in the general vicinity of the ring, with an appropriate zoning designation, and appear to have enough space to accommodate an antenna structure and the supporting radio equipment. The size of this space will vary depending on the objective of the site. The owners of each prospective location are notified to assess their interest in partnering with T-Mobile.

Four key elements are considered in the selection process:

- Leasing: The property must have an owner who is willing to enter into a long-term lease agreement under very specific terms and conditions.
- Zoning: It must be suitably zoned in accordance with local land-use codes to allow for a successful permitting process.
- Construction: Construction constraints and costs must be reasonable from a business perspective, and the proposed project must be capable of being constructed in accordance with local building codes and safety standards.
- RF: It must be strategically located to be able to achieve the RF engineer's objective to close the significant gap with antennas at a height to clear nearby obstructions.

The Benefits to the Community

Approximately 90-percent of American adults subscribe to cell phone service. People of all ages rely increasingly on their cell phones to talk, text, send media, and search the Internet for both personal and business reasons. More and more, they are doing these things in their homes, therefore, becoming reliant on adequate service within residential neighborhoods. In fact, 50-percent of people relocating are not signing up for landline service at their new location and are using their cell phone as their primary communication method.

The installation and operation of the proposed facility will offer improved:

- Communications for local, state, and federal emergency services providers, such as police, fire, paramedics, and other first-responders.
- Personal safety and security for community members in an emergency, or when there is an urgent need to reach family members or friends. Safety is the primary reason parents provide cell phones to their children. Currently 25% of all preteens, ages 9 to 12, and 75% of all teens, aged 13 to 19, have cell phones.
- Capability of local businesses to better serve their customers.
- Opportunity for a city or county to attract businesses to their community for greater economic development.
- Enhanced 911 Services (E911) – The FCC mandates that all cell sites have location capability. Effective site geometry within the overall network is needed to achieve accurate location information for mobile users through triangulation with active cell sites. (Over half of all 911 calls are made using mobile phones.)

Safety – RF is Radio

The FCC regulates RF emissions to ensure public safety. Standards have been set based on peer-reviewed scientific studies and recommendations from a variety of oversight organizations, including the National Council on Radiation Protection and Measurements (NCRP), American National Standards Institute (ANSI), Institute of Electrical and Electronics Engineers (IEEE), Environmental Protection Agency (EPA), Federal Drug Administration (FDA), Occupational Safety and Health Administration (OSHA), and National Institute for Occupational Safety and Health (NIOSH).

Although the purview of the public safety of RF emissions by the FCC was established by the Telecommunications Act of 1996, these standards remain under constant scrutiny. All T-Mobile cell sites operate well below these standards, and the typical urban cell site operates hundreds or even thousands of times below the FCC's limits for safe exposure.

The enclosed application is presented for your consideration. T-Mobile requests a favorable determination and approval of this Conditional Use Permit application to build the proposed facility. Please contact me at 801-592-1247 or justhadley@gmail.com for any questions or requests for additional information.

Respectfully submitted,

Justin Hadley, AMS Wireless
Authorized Agent for T-Mobile

SURVEYOR'S NOTES

1. This is an Rawland Tower Survey, made on the ground under the supervision of an Arkansas Registered Land Surveyor. Date of field survey is July 11, 2018.
2. The following surveying instruments were used at time of field visit: Nikon NPL-352, Total Station, Reflectorless and Hiper + Legacy E RTK, GD 1HZ.
3. Bearings are based on Arkansas North State Plane Coordinates NAD 83 by GPS observation.
4. No underground utilities, underground encroachments or building foundations were measured or located as a part of this survey, unless otherwise shown. Trees and shrubs not located, unless otherwise shown.
5. Benchmark used is a GPS Continuously Operating Reference Station, PID DG9661. Onsite benchmark is as shown hereon. Elevations shown are in feet and refer to NAVD 88.
6. This survey was conducted for the purpose of an Rawland Tower Survey only, and is not intended to delineate the regulatory jurisdiction of any federal, state, regional or local agency, board, commission or other similar entity.
7. Attention is directed to the fact that this survey may have been reduced or enlarged in size due to reproduction. This should be taken into consideration when obtaining scaled data.
8. This Survey was conducted with the benefit of an Abstract Title search.
9. Surveyor hereby states the Geodetic Coordinates and the elevation shown for the proposed centerline of the tower are accurate to within +/- 20 feet horizontally and to within +/- 3 feet vertically (FAA Accuracy Code 1A).
10. Survey shown hereon conforms to the Minimum Requirements as set forth by the State Board for a Class "A" Survey.
11. Field data upon which this map or plat is based has a closure precision of not less than one-foot in 15,000 feet (1':15,000') and an angular error that does not exceed 10 seconds times the square root of the number of angles turned. Field traverse was not adjusted.
12. This survey is not valid without the original signature and the original seal of a state licensed surveyor and mapper.
13. This survey does not constitute a boundary survey of the Parent Tract. Any parent tract property lines shown hereon are from supplied information and may not be field verified.
14. There were no visible encroachments affecting the tower area or any of the easement, at the time the survey was completed.
15. The tower area and all easements lie entirely within the parent parcel.
16. The access and utility easement go to a confirmed public right of way.
17. Zoning: (as supplied by client)
    Zoning Jurisdiction: City of Rogers
    Zoning Classification: Industrial

TOWER INFO

LATITUDE: 36°20'20.190" NORTH
LONGITUDE: 94°08'02.196" WEST
(NAD 83)
GROUND ELEVATION: 1330.7'
ABOVE MEAN SEA LEVEL (NAVD88)

E911 ADDRESS: (AS-PROVIDED)
599 UTL N. 13th St.
ROGERS, AR 72756

ARKANSAS NORTH

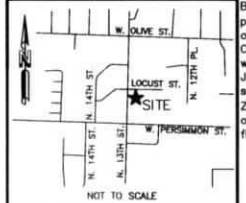
GRID NORTH

GRID TO TRUE NORTH CONVERGENCE
-1°13'

TRUE NORTH TO MAGNETIC DECLINATION
1°25' E

COMBINED SCALE FACTOR
1.000022573

VICINITY MAP



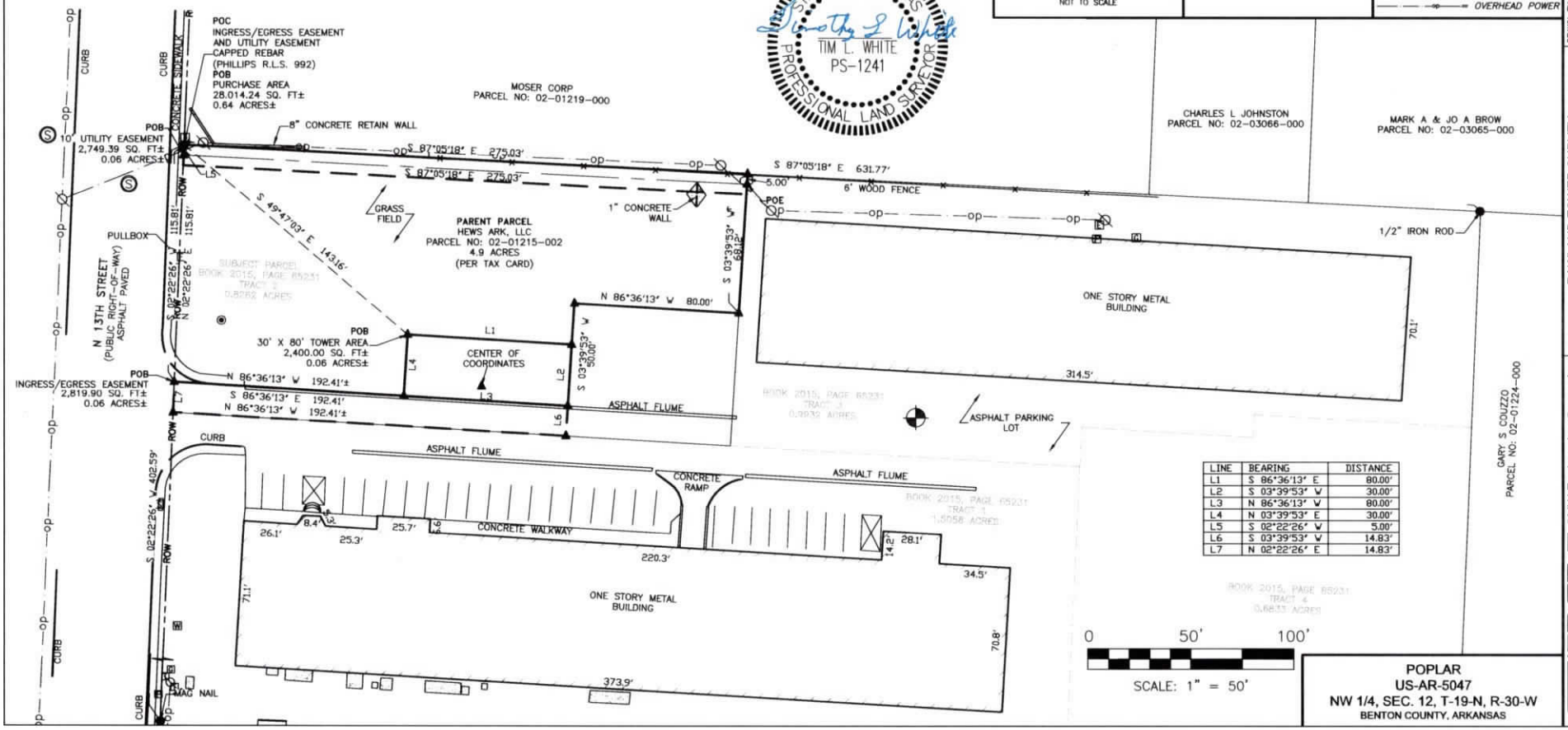
FLOOD NOTE

By graphic plotting only, the subject property appears to lie in Zone "X" of the Flood Insurance Rate Map Community Panel No. 05007C0260K, which bears an effective date of June 05, 2012 and IS NOT in a special flood hazard area.
Zone 'X': Areas determined to be outside the 0.2% annual chance floodplain.

LEGEND

- ● = FOUND PROPERTY MARKER
- POB = POINT OF BEGINNING
- POC = POINT OF COMMENCEMENT
- POE = POINT OF ENDING
- ▲ = CALCULATED POINT
- = POWER POLE
- = GUY ANCHOR
- = POWER BOX
- = TELEPHONE PEDESTAL
- = GAS METER
- = FIBER OPTIC MARKER
- = STORM MANHOLE
- = ELECTRIC BOX
- = SEWER MANHOLE
- = 2" SIGN POST
- = TEMP. BENCHMARK (SET MAG NAIL IN CONCRETE) ELEV.=1332.46'
- = CONCRETE
- = PARKING STRIPING
- = RIGHT-OF-WAY
- = OVERHEAD POWER

STATE OF ARKANSAS
TIM L. WHITE
PS-1241
PROFESSIONAL LAND SURVEYOR



LINE	BEARING	DISTANCE
L1	S 86°36'13" E	80.00'
L2	S 03°39'53" W	30.00'
L3	N 86°36'13" W	80.00'
L4	N 03°39'53" E	30.00'
L5	S 02°22'26" W	5.00'
L6	S 03°39'53" W	14.83'
L7	N 02°22'26" E	14.83'

POPLAR
US-AR-5047
NW 1/4, SEC. 12, T-19-N, R-30-W
BENTON COUNTY, ARKANSAS

NO.	REVISION	DATE	BY
1.	ADDED EASEMENT	9/26/18	JR
2.	ADDED PURCHASE AREA	11/15/18	JR
3.	ADDED PURCHASE AREA/EASEMENT	11/20/18	JR
4.	ADDED T-A INFORMATION	11/29/18	JR
5.	UPDATED TOWER AREA	01/31/19	JR

PROJECT NO.
18-1803

DRAWN BY: JR
CHECKED BY: AAK
FIELD CREW: CS/NC
APPROVED BY: TW
DATE: 07/23/18
SCALE: AS SHOWN
SHEET 1 OF 2

FOR:
RAWLAND TOWER SURVEY
VERTICAL BRIDGE AM, LLC
6521 MERIDIEN DRIVE SUITE 107
RALEIGH, NC 27616

SMW Engineering Group, Inc.
158 Business Center Drive
Birmingham, Alabama 35244
Ph: 205-252-8985
www.smweng.com
ENGINEERING GROUP, INC. CA-1935, Expires December 31, 2020

PARENT PARCEL (TITLE)

A part of the NW 1/4 of the NW 1/4 of Section 12, Township 19 North, Range 30 West of the Fifth Principal Meridian, Benton County, Arkansas and being described as follows:
Commencing at the Southwest corner of the NW 1/4 of the NW 1/4 of Section 12, T-19-N, R-30-W, said point being in the intersection of North 13th Street and Persimmon Street; thence North 00 degrees 22 minutes 00 seconds West 127.40 feet; thence South 89 degrees 45 minutes 00 seconds East 30.00 feet to a concrete monument set on the East right-of-way of North 13th Street; thence North 00 degrees 22 minutes 16 seconds West
403.04 feet to the true point of beginning; thence continuing along said East right-of-way North 00 degrees 22 minutes 16 seconds West 130.64 feet to a found concrete monument; thence leaving said East right-of-way South 89 degrees 50 minutes 24 seconds East 275.03 feet; thence South 00 degrees 54 minutes 46 seconds West 132.50 feet; thence North 89 degrees 27 minutes 01 seconds West 272.09 feet to the true point of beginning, containing 0.8262 acres, more or less, and being subject to all easements and rights-of-way of record or fact.

PURCHASE AREA (AS-SURVEYED)

A portion of Hews Ark, LLC tract described as Tract 2 in Book 2015, Page 65231 as recorded in the Circuit Clerk Office for Benton County, Arkansas being in the Northwest 1/4 of Section 12, Township 19 North, Range 30 West, Fifth Principal Meridian in said Benton County, Arkansas and being more particularly described as follows;
BEGINNING at a capped rebar (Phillips R.L.S. 992) found marking the Northwest corner of said Tract 2 and on the Easterly right-of-way line of N 13th Street; Thence along the Northerly line of said Tract 2, S 87°05'18" E a distance of 275.03 feet to a point; Thence leaving said Northerly line, S 03°39'53" W a distance of 68.12 feet to a point; Thence N 86°36'13" W a distance of 80.00 feet to a point; Thence S 03°39'53" W a distance of 50.00 feet to a point; Thence N 86°36'13" W a distance of 192.41 feet more or less, to a point on the Easterly right-of-way line of N 13th Street (public right-of-way); Thence along said Easterly right-of-way line, N 02°22'26" E a distance of 115.81 feet to the POINT OF BEGINNING. Containing 28,014.24 square feet (0.64 acres) of land more or less.

30' x 80' TOWER AREA (AS-SURVEYED)

A portion of Hews Ark, LLC tract described as Tract 2 in Book 2015, Page 65231 as recorded in the Circuit Clerk Office for Benton County, Arkansas being in the Northwest 1/4 of Section 12, Township 19 North, Range 30 West, Fifth Principal Meridian in said Benton County, Arkansas and being more particularly described as follows;
COMMENCING at a capped rebar (Phillips R.L.S. 992) found marking the Northwest corner of said Tract 2 and on the Easterly right-of-way line of N 13th Street; Thence S 49°47'03" E a distance of 143.16 feet to the POINT OF BEGINNING; Thence S 86°36'13" E a distance of 80.00 feet to a point; Thence S 03°39'53" W a distance of 30.00 feet to a point; Thence N 86°36'13" W a distance of 80.00 feet to a point; Thence N 03°39'53" E a distance of 30.00 feet to the POINT OF BEGINNING. Containing 2,400.00 square feet (0.06 acres) of land more or less.

INGRESS/EGRESS EASEMENT (AS-SURVEYED)

A portion of Hews Ark, LLC tract described as Tract 2 in Book 2015, Page 65231 as recorded in the Circuit Clerk Office for Benton County, Arkansas being in the Northwest 1/4 of Section 12, Township 19 North, Range 30 West, Fifth Principal Meridian in said Benton County, Arkansas and being more particularly described as follows;
COMMENCING at a capped rebar (Phillips R.L.S. 992) found marking the Northwest corner of said Tract 2 and on the Easterly right-of-way line of N 13th Street; Thence along said Easterly right-of-way line, S 02°22'26" W a distance of 115.81 feet to the POINT OF BEGINNING; Thence S 86°36'13" E a distance of 192.41 feet to point; Thence S 03°39'53" W a distance of 14.83 feet to a point; Thence N 86°36'13" W a distance of 192.41 feet more or less, to a point on the Easterly right-of-way line of N 13th Street (public right-of-way); Thence along said Easterly right-of-way line, N 02°22'26" E a distance of 14.83 feet to the POINT OF BEGINNING. Containing 2,819.90 square feet (0.06 acres) of land more or less.

10' UTILITY EASEMENT (AS-SURVEYED)

A portion of Hews Ark, LLC tract described as Tract 2 in Book 2015, Page 65231 as recorded in the Circuit Clerk Office for Benton County, Arkansas being in the Northwest 1/4 of Section 12, Township 19 North, Range 30 West, Fifth Principal Meridian in said Benton County, Arkansas and being more particularly described as follows;
COMMENCING at a capped rebar (Phillips R.L.S. 992) found marking the Northwest corner of said Tract 2 and on the Easterly right-of-way line of N 13th Street; Thence along said Easterly right-of-way line, S 02°22'26" W a distance of 5.00 feet to the POINT OF BEGINNING of an easement being 10 feet wide and lying 5 feet on each side of the following described centerline, Thence S 87°05'18" E a distance of 275.03 feet to the POINT OF ENDING. Containing 2,749.39 square feet (0.06 acres) of land more or less.

SURVEYOR'S CERTIFICATION

I hereby certify to: Vertical Bridge REIT, LLC, a Delaware limited liability company, its subsidiaries, and their respective successors and/or assigns; Toronto Dominion (Texas) LLC, as Administrative Agent, for itself and on behalf of the lenders parties from time to time to that certain Second Amended and Restated Loan Agreement dated June 17, 2016 with Vertical Bridge Holdco, LLC, as borrower, and Vertical Bridge Holdco Parent, LLC, as parent, as may be amended, restated, modified or renewed, their successors and assigns as their interests may appear; Fidelity National Title Insurance Company and American Abstract & Title Company.

I certify that all parts of this survey and drawing have been completed in accordance with the current requirements of the Standards of Practice for Surveying in the State of Arkansas to the best of my knowledge, information, and belief.

Timothy L. White

Timothy L. White, PLS
State of Arkansas License No. 1241
for and on behalf of SMW Engineering, Inc.

02/26/2019
Date

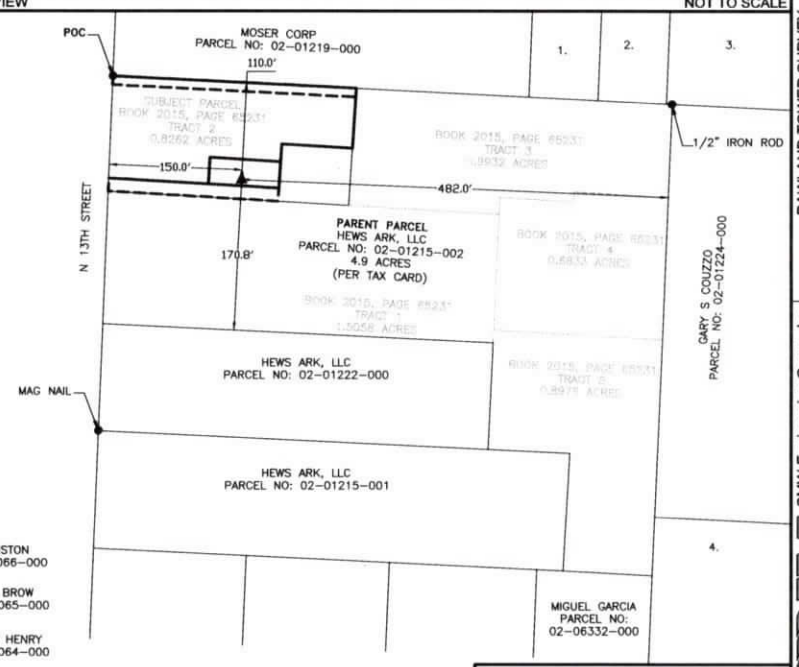
STATE OF ARKANSAS
TIM L. WHITE
PS-1241
PROFESSIONAL LAND SURVEYOR

PLOTTABLE EXCEPTIONS

Fidelity National Title Insurance Company,
Commitment for Title Insurance Commitment No. 25814192
Date January 3, 2019 @ 12:34 p.m.
Schedule B, Section II

Exception No.	Instrument	Comment
1 – 6	N/A	Standard exceptions. Contains no surveying matters.
7	BOOK 555, PAGE 795	Does not affect subject lease area and easement and is not shown hereon.
8	N/A	Standard exceptions. Contains no surveying matters.

PARENT TRACT OVERVIEW — NOT TO SCALE



1. CHARLES L JOHNSTON
PARCEL NO: 02-03066-000
2. MARK A & JO A BROW
PARCEL NO: 02-03065-000
3. GREG & DONNA M HENRY
PARCEL NO: 02-03064-000
4. MARK J SMITH TRUST & CHRISTINA L & GIBBONS, GERTRUDE A & ERIN B PATTON
PARCEL NO: 02-01225-000

POPLAR
US-AR-5047
NW 1/4, SEC. 12, T-19-N, R-30-W
BENTON COUNTY, ARKANSAS

NO.	REVISION	DATE	BY
1.	ADDED EASEMENT	9/26/18	JR
2.	ADDED PURCHASE AREA	11/15/18	JR
3.	ADDED PURCHASE AREA/EASEMENT	11/20/18	JR
4.	ADDED T-A INFORMATION	11/29/18	JR
5.	UPDATED TOWER AREA	01/31/19	JR

PROJECT NO.
18-1803

DRAWN BY: JR
CHECKED BY: AAK
FIELD CREW: CS/NC
APPROVED BY: TW
DATE: 07/23/18
SCALE: AS SHOWN
SHEET 2 OF 2

RAWLAND TOWER SURVEY

FOR: VERTICAL BRIDGE AM, LLC
6521 MERIDIEN DRIVE, SUITE 107
RALEIGH, NC 27616

SMW Engineering Group, Inc.
158 Business Center Drive
Birmingham, Alabama 35244
Ph: 205-252-6985
www.smweng.com
CA-1935, Expires December 31, 2020
SMW ENGINEERING GROUP, INC.

STATE OF CALIFORNIA)
)
COUNTY OF ORANGE)

DECLARATION OF MAILING RE: NOTICE OF PUBLIC HEARING FOR A CONDITIONAL USE PERMIT

I, Monica Galvez, do hereby declare as follows:

1. I am an Assistant Project Manager of NotificationMaps.com. I am over 18 years of age and I am a resident of the County of Orange, State of California.

2. On, March 26, 2019 I caused to be mailed and/or distributed a copy of "NOTICE OF PUBLIC HEARING FOR A CONDITIONAL USE PERMIT" to the following location(s) within th 500 foot boundaries of the proposed site and the list and is compliant with Section 14-723 of the Rogers City Code:

a. See Attached Map
See Attached Mailing List
See Attached Notice

b. 599 UTL N 13th Street
Site ID: AR-5047

c. See Attached Envelope

d.

3. The attached list was prepared using the latest available data per the County Assessor's Office.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed March 27, 2019 at County of Orange, California.

By: *Monica Galvez*

Monica Galvez
[Please Print Name]

500' Radius Map
AR5047

NotificationMaps.com

Radius Maps Owner and Occupant Lists Mailing Services

866.752.6266 toll free
949.513.8341 fax
sales@notificationmaps.com

Mailing Address Only:
668 N Coast Hwy #401
Laguna Beach, CA 92651

www.notificationmaps.com

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500' Radius Map
AR5047
Owners Only

Type	APN	Name	Address	City	State	ZIP
Owner	02-01219-000	MOSER CORP	PO BOX 1984	ROGERS	AR	72757-1984
Owner	02-01224-000	COUZZO GARY	1183 E JOYCE BLVD	FAYETTEVILLE	AR	72703-5183
Owner	02-03052-000	VILLALPANDO FERNANDO	1219 W WOOD ST	ROGERS	AR	72756-3414
Owner	02-03064-000	HENRY GREG	PO BOX 434	PEA RIDGE	AR	72751-0434
Owner	02-03065-000	BROW MARK A	1218 W WOOD ST	ROGERS	AR	72756-3414
Owner	02-03066-000	JOHNSTON CHARLES	1220 W WOOD ST	ROGERS	AR	72756-3414
Owner	02-06329-000	MAXFIELD PROPERTIES LLC	1217W W PERSIMMON ST	ROGERS	AR	72756
Owner	02-06330-000	GARCIA MIGUEL	2002 W MORTER PL	ROGERS	AR	72758-0111
Owner	02-06331-000	MARQUEZ UBALDO	202 PARADISE LN	SPRINGDALE	AR	72762-3830
Owner	02-08734-000	ORTIZ HECTOR	504 N 13TH ST	ROGERS	AR	72756-3432
Owner	02-08735-000	B S DENTAL PROPERTY LLC	540 N 13TH ST	ROGERS	AR	72756-3432
Owner	02-08736-000	MAPLES RONALD L	1304 ROZELL ST	ROGERS	AR	72756-3375
Owner	02-08736-002	HAMIL ANGELA	1308 ROZELL ST	ROGERS	AR	72756-3375
Owner	02-08739-000	CARROLL MARIAN	1309 ROZELL ST	ROGERS	AR	72756-3376
Owner	02-08740-000	PEREZ RAMONA	1307 ROZELL ST	ROGERS	AR	72756-3376
Owner	02-08741-000	CIGARROA JUAN JOSE	1303 ROZELL ST	ROGERS	AR	72756-3376
Owner	02-08742-000	P & K HOLDINGS LLC	4507 W HILLSIDE DR	ROGERS	AR	72758-8912
Owner	02-08744-001	ALEGRIA ASCENCION	1539 W 52ND ST	LOS ANGELES	CA	90062-2839
Owner	02-08745-000	JERNIGAN RODNEY EDMOND	1308 W WOOD ST	ROGERS	AR	72756-3354
Owner	02-08746-000	RICHARDS JAMES L	1310 W WOOD ST	ROGERS	AR	72756-3354
Owner	02-08760-003	ELROD REAL ESTATE LLC & TEX-AR	11219 FINANCIAL CENTRE PKWY STE 314	LITTLE ROCK	AR	72211-3868
Owner	02-01215-001, -002, -000	HEWS ARK LLC	2780 N SURREY XING	FAYETTEVILLE	AR	72703-4825
Owner	02-08732-000, 02-08733-000	HULL TRUST, ROBERT R & HULL TR	3 DANIELLE CIR	BENTONVILLE	AR	72712-3841
Owner	02-08744-000, 02-08743-000	PHELPS BONE & GARNER BLDG SUPPLY CO	125 E LOCUST ST	ROGERS	AR	72756-3831
	ROGERS CITY HALL	ATTN: MAYOR GREG HINES	301 W CHESTNUT ST	ROGERS	AR	72756-3770
	ROGERS EXECUTIVE AIRPORT	ATTN: DAVID KRUTSCH	HWY 62E 3 AIRPORT DR	ROGERS	AR	72756-8917

Justin Hadley
Wireless Development Specialist
4431 Town Center Place
Kingwood, TX 78704
801-592-1247 cellular
justhadley@gmail.com

Vertical Bridge Project Number: **AR-5047**

City of Rogers, Arkansas
NOTICE OF PUBLIC HEARING TO PROPERTY OWNERS

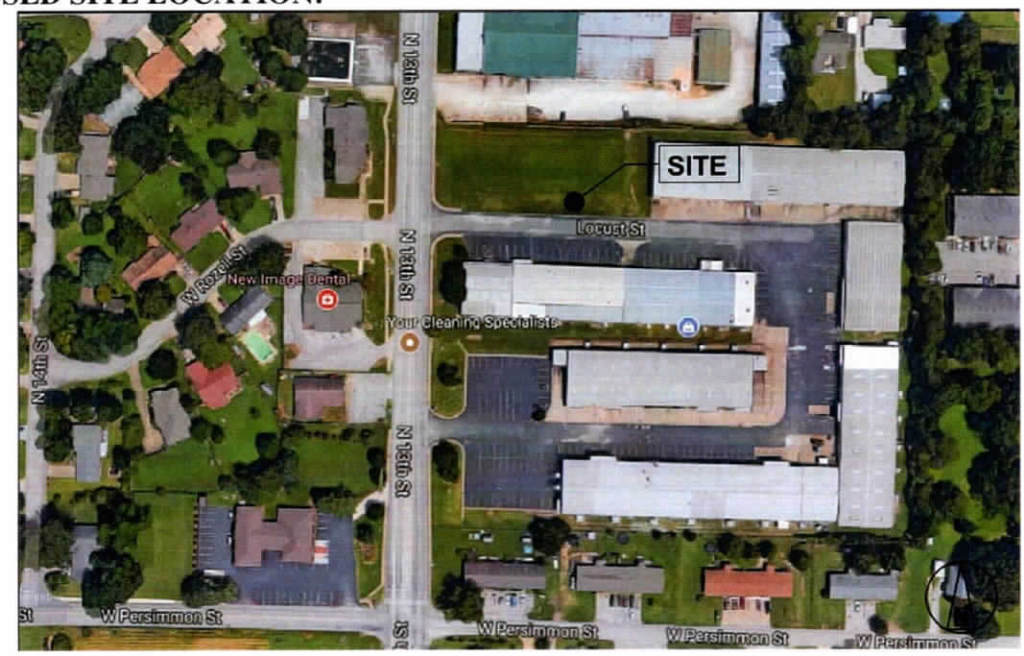
BEFORE THE PLANNING COMMISSION OF THE CITY OF ROGERS, ARKANSAS
NOTICE OF PUBLIC HEARING FOR A CONDITIONAL USE PERMIT

Notice is hereby given pursuant to Section 14-723 of the Rogers City Code that AMS Wireless on behalf of Vertical Bridge is applying to the Rogers Planning Commission for a Conditional Use Permit to allow property located at 599 UTL N 13th Street, Rogers, AR to be used for a 110' tall wireless telecommunication facility. The property is more particularly described as follows:

LEGAL DESCRIPTION: **ROGERS SEC/TWN/RNG/MER:SEC 12 TWN 19N RNG 30W A PART OF THE NORTHWEST 1/4 OF THE NORTHWEST 1/4 OF SECTION 12, TOWNSHIP 19 NORTH, RANGE 30 WEST OF THE FIFTH PRINCIPAL APN: 02-01215-002**
LAYMAN'S DESCRIPTION: 599 UTL N 13th Street

A public hearing by the Rogers Planning Commission will be held on April 16, 2019 at 5:00 p.m. in the City Council Chambers of the City Hall Building located at 301 W. Chestnut Street, Rogers, Arkansas. You are invited to attend and participate, if desired. Please call Rogers Planning Department at 479-621-1186 with any additional questions.

PROPOSED SITE LOCATION:



Respectfully Submitted,

By: *Justin Hadley*
Justin Hadley
AMS Wireless for Vertical Bridge

TAPP
QUALITY STEEL POLES. DELIVERED.
2427 Kelly Lane
Houston, Texas 77066
281-444-8277

Page 1 of 2		Job Number:	23519-206
Eng: MFP		Customer Ref:	TP-17514
		Date:	3/22/2019
Structure:	110-FT MONOPOLE		
Site:	US-AR-5047 POPLAR		
Location:	BENTON CO., AR / 36°20'20.19", -94°8'2.196"		
Owner:	VERTICAL BRIDGE		
Revision No.:	Revision Date:		

DESIGN

Building Code: 2012 INTERNATIONAL BUILDING CODE			
Design Standard: ANSI/TIA-222-G			
Wind Speed Load Cases: ASCE-7-05 WIND SPEED			
Load Case #1: 90 MPH Design Wind Speed - V_{ASD} (V_{ULT} = 116 MPH)			
Load Case #2: 30 MPH Wind with 1" Ice Accumulation			
Load Case #3 60 MPH Service Wind Speed			
Structure Class	Exposure Cat.	Topography Cat.	Crest Height
II	B	1	

STRUCTURE MEETS THE MINIMUM REQUIREMENTS OF TIA-222-H

EQUIPMENT LIST

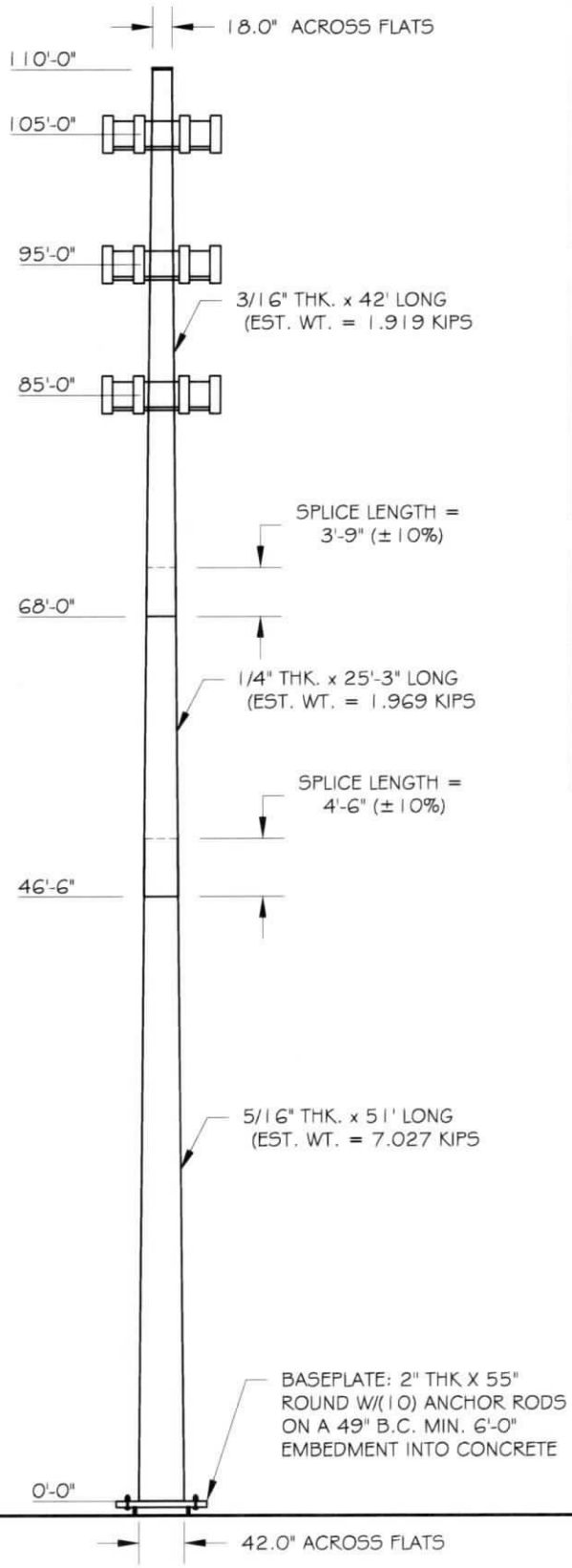
Elev.	Description
105	(12) ANTENNAS + MOUNTING (EPA 30,000 IN2)
105	GENERIC ANTENNA MOUNT
95	(12) ANTENNAS + MOUNTING (EPA 30,000 IN2)
95	GENERIC ANTENNA MOUNT
85	(12) ANTENNAS + MOUNTING (EPA 30,000 IN2)
85	GENERIC ANTENNA MOUNT

ANTENNA FEED LINES ROUTED ON THE INSIDE OF THE POLE

STRUCTURE PROPERTIES

Cross-Section: 18-Sided	Taper: 0.22614 in/ft
Shaft Steel: ASTM A572 GR 65	Baseplate Steel: ASTM A572 GR 60
Anchor Rods: 2.25 in. A615 GR. 75 X 7'-0" LONG	

Sect.	Length (ft)	Thickness (in)	Splice (ft)	Top Dia. (in)	Bot Dia. (in)
1	42.00	0.1875	3.75	18.00	27.50
2	25.25	0.2500	4.50	26.27	31.98
3	51.00	0.3125	0.00	30.47	42.00



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
MICHAEL F. PLAHOVINSAK
No. 12662
3.22.2019

MICHAEL F. PLAHOVINSAK, P.E. #12662
Sole Proprietor - Independent Engineer
18301 S.R. 161, Plain City, OH 43064
614-398-6250 / mike@mfpeng.com

BASE REACTIONS FOR FOUNDATION DESIGN

Moment:	2369 ft-kip
Shear:	26 kip
Axial:	29 kip

TAPP
QUALITY STEEL POLES. DELIVERED.
2427 Kelly Lane
Houston, Texas 77066
281-444-8277

Page 2 of 2		Job Number:	23519-206
Eng: MFP		Customer Ref:	TP-17514
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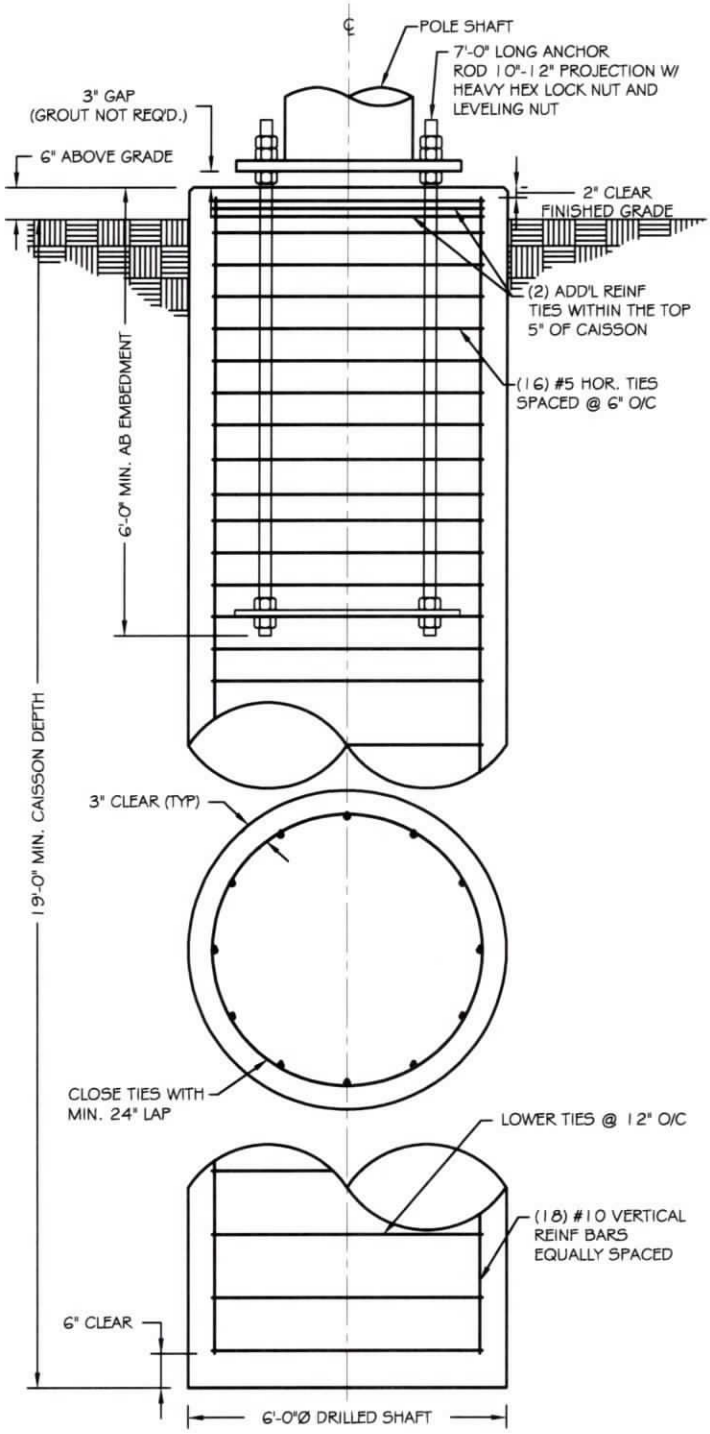

CAISSON FOUNDATION

NOT TO SCALE

FOUNDATION NOTES:

1. ALL FOUNDATION CONCRETE SHALL USE TYPE II CEMENT AND ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS. CONCRETE SHALL HAVE A MAXIMUM WATER/CEMENT RATIO OF 0.46 AND SHALL BE AIR ENTRAINED 6% (±1.5%). ALL CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 318, "THE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", LATEST EDITION.

2. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 VERTICAL BARS SHALL BE GRADE 60, AND TIES OR STIRRUPS SHALL BE A MINIMUM OF GRADE 40. THE PLACEMENT OF ALL REINFORCEMENT SHALL CONFORM TO ACI 315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", LATEST EDITION.

3. CAISSON FOUNDATION INSTALLATION SHALL BE IN ACCORDANCE WITH ACI 336, "STANDARD SPECIFICATIONS FOR THE CONSTRUCTION OF DRILLED PIERS", LATEST EDITION.

4. THE CONTRACTOR SHALL DETERMINE THE MEANS AND METHODS TO SUPPORT THE EXCAVATION DURING CONSTRUCTION. THE CONTRACTOR SHALL READ THE GEOTECHNICAL REPORT AND SHALL CONSULT THE GEOTECHNICAL ENGINEER AS NECESSARY PRIOR TO CONSTRUCTION.

5. FOUNDATION DESIGN IS BASED ON GEOTECHNICAL REPORT BY:
ENGINEER: ENVIRONMENTAL CORPORATION OF AMERICA
REPORT NO.: U3544 (DATED 3/7/19)

6. ESTIMATED CONCRETE VOLUME = 20 CUBIC YARDS.

7. THE FOUNDATION HAS BEEN DESIGNED TO RESIST THE FOLLOWING FACTORED LOADS:
MOMENT: 2369 FT*KIPS
SHEAR: 26 KIPS
AXIAL: 29 KIPS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 12662
MICHAEL F. PLAHOVINSAK
3.22.2019

MICHAEL F. PLAHOVINSAK, P.E. #12662
Sole Proprietor - Independent Engineer
18301 S.R. 161, Plain City, OH 43064
614-398-6250 / mike@mfpeng.com

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Benton County, Arkansas.
Basic wind speed of 90 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 30 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
ANSI/TIA-222-G wind speeds are Vasd winds. Refer to IBC Table 1609.3.1 for Vult wind speed conversions..
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	110.00-68.00	42.00	3.75	18	18.0000	27.5000	0.1875	0.7500	A572-65 (65 ksi)
L2	68.00-46.50	25.25	4.50	18	26.2768	31.9800	0.2500	1.0000	A572-65 (65 ksi)
L3	46.50-0.00	51.00		18	30.4636	42.0000	0.3125	1.2500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	18.2488	10.6007	424.9328	6.3234	9.1440	46.4712	850.4248	5.3013	2.8380	15.136
	27.8953	16.2544	1531.8986	9.6959	13.9700	109.6563	3065.8128	8.1287	4.5100	24.053
L2	27.5037	20.6523	1767.4454	9.2395	13.3486	132.4067	3537.2164	10.3281	4.1847	16.739
	32.4348	25.1778	3202.5403	11.2641	16.2458	197.1299	6409.2945	12.5913	5.1885	20.754
L3	31.9189	29.9061	3434.8144	10.7036	15.4755	221.9517	6874.1484	14.9559	4.8116	15.397
	42.5997	41.3488	9078.4551	14.7991	21.3360	425.4994	18168.8558	20.6783	6.8420	21.894

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 110.00-68.00				1	1	1			
L2 68.00-46.50				1	1	1			

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L3 46.50-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
1 5/8"	C	No	Yes	Inside Pole	105.00 - 0.00	18	No Ice	0.00	0.92
							1/2" Ice	0.00	0.92
							1" Ice	0.00	0.92
1 5/8"	C	No	Yes	Inside Pole	95.00 - 0.00	18	No Ice	0.00	0.92
							1/2" Ice	0.00	0.92
							1" Ice	0.00	0.92
1 5/8"	C	No	Yes	Inside Pole	85.00 - 0.00	18	No Ice	0.00	0.92
							1/2" Ice	0.00	0.92
							1" Ice	0.00	0.92

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	110.00-68.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	1.34
L2	68.00-46.50	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	1.06
L3	46.50-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	2.30

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	110.00-68.00	A	2.206	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	1.34
L2	68.00-46.50	A	2.112	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	1.06
L3	46.50-0.00	A	1.924	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	2.30

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Antennas + Mount (30,000 in2)	C	None		0.0000	105.00	No Ice	208.33	208.33	3.00
						1/2" Ice	250.00	250.00	3.50
						1" Ice	291.67	291.67	4.00
Antennas + Mount (30,000 in2)	C	None		0.0000	95.00	No Ice	208.33	208.33	3.00
						1/2" Ice	250.00	250.00	3.50
						1" Ice	291.67	291.67	4.00
Antennas + Mount (30,000 in2)	C	None		0.0000	85.00	No Ice	208.33	208.33	3.00
						1/2" Ice	250.00	250.00	3.50
						1" Ice	291.67	291.67	4.00

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 90 deg - No Ice
5	0.9 Dead+1.6 Wind 90 deg - No Ice
6	1.2 Dead+1.6 Wind 180 deg - No Ice
7	0.9 Dead+1.6 Wind 180 deg - No Ice
8	1.2 Dead+1.0 Ice+1.0 Temp
9	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
10	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
11	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
12	Dead+Wind 0 deg - Service
13	Dead+Wind 90 deg - Service
14	Dead+Wind 180 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	110 - 68	Pole	Max Tension	2	0.00	0.00	-0.00
			Max. Compression	8	-23.58	0.00	0.00
			Max. Mx	4	-11.84	-557.51	0.00
			Max. My	2	-11.84	0.00	557.51
			Max. Vy	4	24.02	-557.51	0.00
			Max. Vx	2	-24.02	0.00	557.51
L2	68 - 46.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-28.86	0.00	0.00
			Max. Mx	4	-15.89	-1064.50	0.00
			Max. My	2	-15.89	0.00	1064.50
			Max. Vy	4	24.81	-1064.50	0.00
			Max. Vx	2	-24.81	0.00	1064.50
L3	46.5 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	8	-44.82	0.00	0.00
			Max. Mx	4	-28.49	-2368.99	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	2	-28.49	0.00	2368.99
			Max. Vy	4	26.20	-2368.99	0.00
			Max. Vx	2	-26.20	0.00	2368.99

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	110 - 68	25.442	13	1.9640	0.0000
L2	71.75 - 46.5	10.860	13	1.4722	0.0000
L3	51 - 0	5.394	13	1.0002	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
105.00	Antennas + Mount (30,000 in2)	13	23.380	1.9166	0.0000	18543
95.00	Antennas + Mount (30,000 in2)	13	19.322	1.8148	0.0000	6180
85.00	Antennas + Mount (30,000 in2)	13	15.458	1.6918	0.0000	3708

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	110 - 68	102.738	2	7.9447	0.0000
L2	71.75 - 46.5	43.902	2	5.9567	0.0000
L3	51 - 0	21.816	2	4.0471	0.0000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
105.00	Antennas + Mount (30,000 in2)	2	94.423	7.7533	0.0000	4741
95.00	Antennas + Mount (30,000 in2)	2	78.053	7.3419	0.0000	1578
85.00	Antennas + Mount (30,000 in2)	2	62.464	6.8449	0.0000	943

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	110 - 68 (1)	TP27.5x18x0.1875	42.00	0.00	0.0	15.7496	-11.84	1049.58	0.011
L2	68 - 46.5 (2)	TP31.98x26.2768x0.25	25.25	0.00	0.0	24.3712	-15.89	1707.17	0.009
L3	46.5 - 0 (3)	TP42x30.4636x0.3125	51.00	0.00	0.0	41.3488	-28.49	2815.19	0.010

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	110 - 68 (1)	TP27.5x18x0.1875	557.51	571.61	0.975	0.00	571.61	0.000
L2	68 - 46.5 (2)	TP31.98x26.2768x0.25	1064.50	1077.90	0.988	0.00	1077.90	0.000
L3	46.5 - 0 (3)	TP42x30.4636x0.3125	2368.99	2414.14	0.981	0.00	2414.14	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	110 - 68 (1)	TP27.5x18x0.1875	24.02	524.79	0.046	0.00	1145.84	0.000
L2	68 - 46.5 (2)	TP31.98x26.2768x0.25	24.81	853.59	0.029	0.00	2161.09	0.000
L3	46.5 - 0 (3)	TP42x30.4636x0.3125	26.20	1407.60	0.019	0.00	4839.67	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	110 - 68 (1)	0.011	0.975	0.000	0.046	0.000	0.989 ✔	1.000	4.8.2 ✔
L2	68 - 46.5 (2)	0.009	0.988	0.000	0.029	0.000	0.998 ✔	1.000	4.8.2 ✔
L3	46.5 - 0 (3)	0.010	0.981	0.000	0.019	0.000	0.992 ✔	1.000	4.8.2 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	110 - 68	Pole	TP27.5x18x0.1875	1	-11.84	1049.58	98.9	Pass
L2	68 - 46.5	Pole	TP31.98x26.2768x0.25	2	-15.89	1707.17	99.8	Pass
L3	46.5 - 0	Pole	TP42x30.4636x0.3125	3	-28.49	2815.19	99.2	Pass
							Summary	
						Pole (L2)	99.8	Pass
						RATING =	**99.8**	**Pass**

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Job 110-ft monopole - MFP #23519-206		**Page** BP-G
Project US-AR-5047 Poplar		**Date** 3/22/2019
Client TAPP TP-17514		**Designed by** Mike

Anchor Rod and Base Plate Calculation

ANSI/TIA-222-G

Factored Base Reactions:		***Pole Shape:***	***Anchor Rods:***	***Base Plate:***
Moment:	2369 ft-kips	18-Sided	(10) 2.25 in. A615 GR. 75	2 in. x 55 in. Round
Shear:	26 kips	***Pole Dia. (D_f):***	Anchor Rods Evenly Spaced	fy = 60 ksi
Axial:	29 kips	42.00 in	On a 49 in Bolt Circle	

Anchor Rod Calculation According to TIA-222-G section 4.9.9

$\phi =$ 0.80 TIA 4.9.9

$I_{bolts} =$ 3001.25 in^2 Momet of Inertia

$P_u =$ 232 kips Tension Force

$V_u =$ 3 kips Shear Force

$R_{nt} =$ 325.00 kips Nominal Tensile Strength

$\eta =$ 0.50 for detail type (d)

The following Interation Equation Shall Be Satisfied:

$$\left(\frac{P_u + \frac{V_u}{\eta}}{\phi R_{nt}}\right) \leq 1.0$$

$$0.913 \leq 1$$

Base Plate Calculation According to TIA-222-G

$\phi =$ 0.90 TIA 4.7

$M_{PL} =$ 558.0 in-kip Plate Moment

$L =$ 13.2 in Section Length

$Z =$ 13.2 Plastic Section Modulus

$M_P =$ 791.7 in-kip Plastic Moment

$\phi M_n =$ 712.5 in-kip Factored Resistance

Calculated Moment vs Factored Resistance

558.04 in-kip $\leq$ 713 in-kip

Anchor Rods Are Adequate	**91.3%**	☑
Base Plate is Adequate	**78.3%**	☑

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Job: 110-ft monopole - MFP #23519-206		Page: FND
Project: US-AR-5047 Poplar		Date: 3/22/2019
Client: TAPP TP-17514		Designed by: Mike

According to ANSI/TIA-222-G

1. Foundation overturning resistance calculated with PLS Caisson, for Brom's method for rigid piles. Soil layers modeled after recommendations from the geotechnical report.
2. Cohesion strength for the upper 18 ft has been reduced by 50%
3. In lieu of a soil resistance factor fs = 0.75 (TIA-9.4.1) an additional safey fator against soil failure of 1.33 has been applied.
4. Foundation is designed with a minimum safety factor resisting overturning of 2.0
5. Foundation has been designed with factored loads per TIA-222-G.
6. Geotechnical report indicates groundwater was not encountered within the depth of the foundation.

*** PIER PROPERTIES CONCRETE STRENGTH (ksi) = 4.00 STEEL STRENGTH (ksi) = 60.00

DIAMETER (ft) = 6.000 DISTANCE FROM TOP OF PIER TO GROUND LEVEL (ft) = 0.50

*** SOIL PROPERTIES

LAYER	TYPE	THICKNESS (ft)	DEPTH AT TOP OF LAYER (ft)	DENSITY (pcf)	CU (psf)	KP	PHI (degrees)
1	S	4.00	0.00	100.0		1.000	-0.00
2	C	4.50	4.00	120.0	1250.0		
3	C	10.00	8.50	125.0	1250.0		
4	S	5.00	18.50	125.0		4.204	38.00
5	C	20.00	23.50	125.0	4500.0		

*** DESIGN (FACTORED) LOADS AT TOP OF PIER MOMENT (ft-k) = 2369.0 VERTICAL (k) = 29.0 SHEAR (k) = 26.0
ADDITIONAL SAFETY FACTOR AGAINST SOIL FAILURE = 1.33

*** CALCULATED PIER LENGTH (ft) = 19.500

*** CHECK OF SOILS PROPERTIES AND ULTIMATE RESISTING FORCES ALONG PIER

TYPE	TOP OF LAYER BELOW TOP OF PIER (ft)	THICKNESS (ft)	DENSITY (pcf)	CU (psf)	KP	FORCE (k)	ARM (ft)
S	0.50	4.00	100.0		1.000	14.40	3.17
C	4.50	4.50	120.0	1250.0		270.00	6.75
C	9.00	3.62	125.0	1250.0		217.30	10.81
C	12.62	6.38	125.0	1250.0		-382.70	15.81
S	19.00	0.50	125.0		4.204	-84.04	19.25

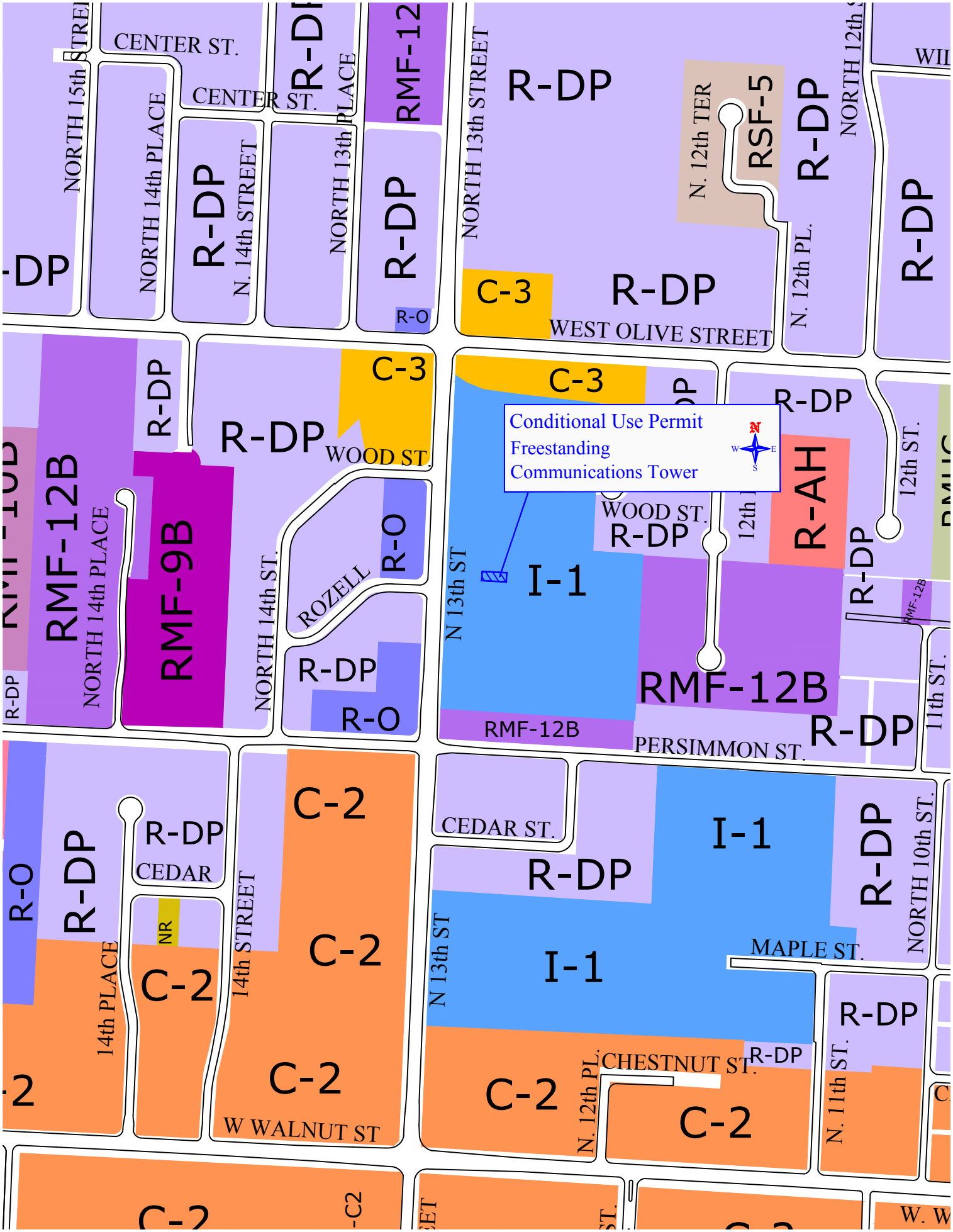
*** SHEAR AND MOMENTS ALONG PIER

DISTANCE BELOW TOP OF PIER (ft)	WITH THE ADDITIONAL SAFETY FACTOR SHEAR (k)	MOMENT (ft-k)	WITHOUT ADDITIONAL SAFETY FACTOR SHEAR (k)	MOMENT (ft-k)
0.00	35.0	3451.4	26.2	2588.6
1.95	33.1	3518.7	24.8	2639.0
3.90	24.6	3576.0	18.4	2682.0
5.85	-60.4	3562.6	-45.3	2672.0
7.80	-177.4	3330.7	-133.1	2498.0
9.75	-294.4	2870.6	-220.8	2152.9
11.70	-411.4	2182.4	-308.6	1636.8
13.65	-405.0	1329.4	-303.8	997.1
15.60	-288.0	653.7	-216.0	490.2
17.55	-171.0	206.0	-128.3	154.5
19.50	-0.0	0.0	-0.0	0.0

*** TOTAL REINFORCEMENT PCT = 0.50 REINFORCEMENT AREA (in^2) = 20.36
*** USABLE AXIAL CAP. (k) = 29.0 USABLE MOMENT CAP. (ft-k) = 2701.0

For Design:

6-ft Diameter caisson x 19.5-ft long (19-ft Embeded with 0.5-ft above grade)
Concrete strength =4000 PSI @ 28 days. Estimated Concrete Volume = 20 CY3.
(18) #10 Vertical Rebar. Steel Cross-Section = 22.86 in2


Conditional Use Permit
Freestanding
Communications Tower
CENTER ST.
NORTH 15th STREET
NORTH 14th PLACE
N. 14th STREET
NORTH 13th PLACE
NORTH 13th STREET
N. 12th TER
NORTH 12th
N. 12th PL.
WEST OLIVE STREET
WOOD ST.
ROZELL
NORTH 14th ST.
N 13th ST
12th ST.
PERSIMMON ST.
11th ST.
CEDAR ST.
CEDAR
14th PLACE
14th STREET
W WALNUT ST
MAPLE ST.
NORTH 10th ST.
CHESTNUT ST.
N. 12th PL.
N. 11th ST.
R-DP
RMF-12
RMF-12B
RMF-9B
R-O
C-3
RSF-5
R-AH
I-1
C-2
NR