#2015-52 Insite RE Inc./ Verizon Wireless–Special Use Permit
Project Review for Planning and Zoning Commission

Meeting Date:	October 21, 2015
Request:	A Special Use Permit for a wireless communication antenna to be mounted on a city utility pole.
Location:	(42.23367, -88.30142) Exchange Drive
Acreage:	--
Existing Zoning:	Located in city right-of-way
Surrounding Properties:	North: M (Manufacturing) South: M (Manufacturing) East: M (Manufacturing) West: M (Manufacturing)
Staff Contact:	Kathryn Cowlin (815.356.3798)

Background:

- Existing Use: The proposed location of the wireless communication antenna is in the city right-of-way, near the Pingree Road Metra Station. Currently, there are no structures within the right-of-way.
- Background: The petitioner is proposing to locate a wireless communication antenna on a city utility pole. The utility pole with the siren would be a 52.17-foot timber pole with a tornado siren mounted on the top.
- UDO Requirements: A special use permit is required for wireless communication antennas. There are a number of required special use permit criteria specific to wireless communication towers with a few that are applicable to antennas.

Development Analysis:

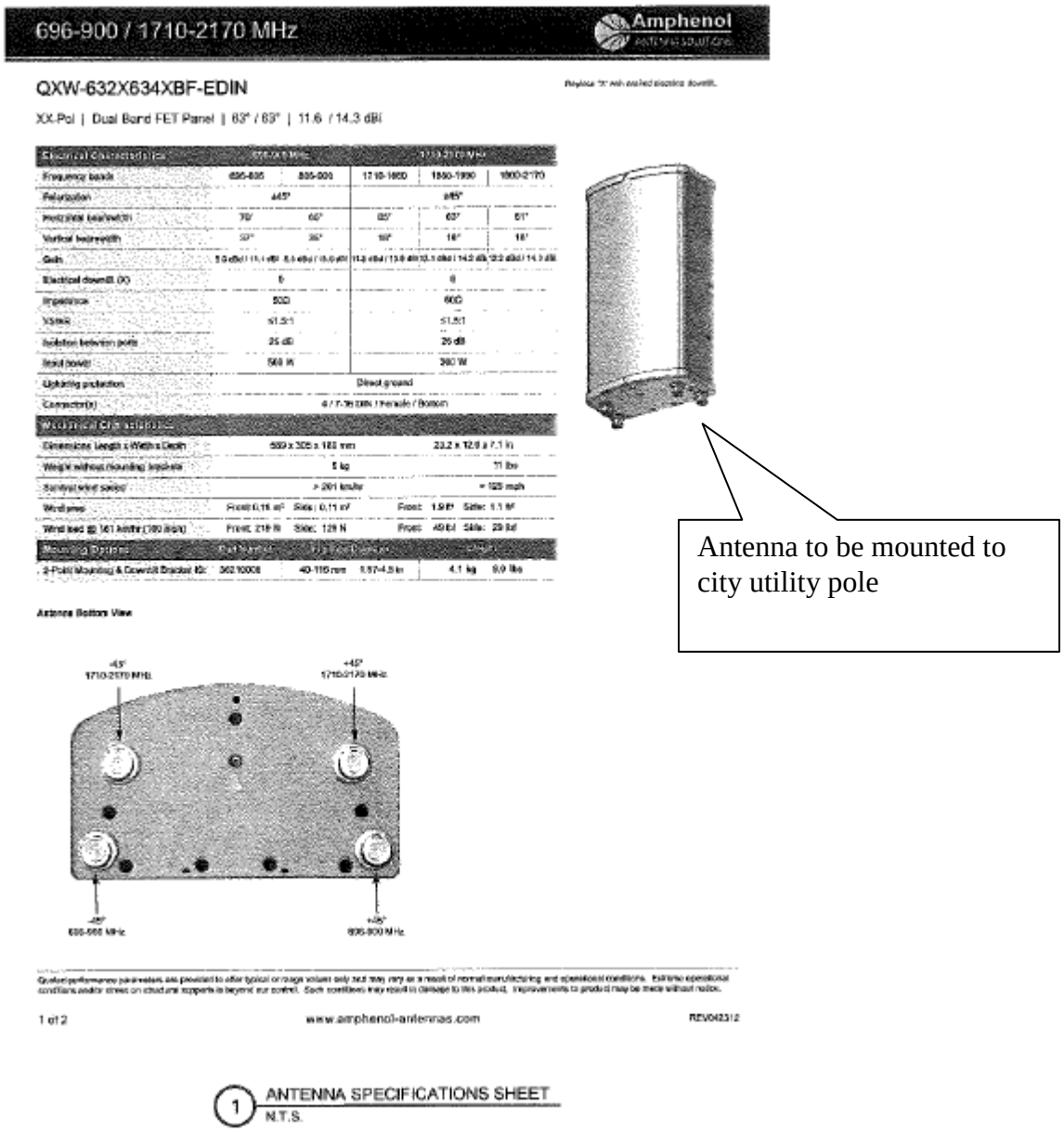
General

- Request: The petitioner is requesting a special use permit for a wireless communications antenna.
- Land Use: Right-of-way.

Proposed Development Description

- The overall height of the city utility pole with the siren mounted on the top is 52.17 feet.
- The proposed wireless communication antenna is mounted at a height of 30 feet.

- There would be three 23.2 x 12.0 x 7.1 inch antenna mounted on the utility, see picture below.
- The antenna will be painted a light gray color.



1 ANTENNA SPECIFICATIONS SHEET
N.T.S.

Findings of Fact:

SPECIAL USE PERMIT

Special Uses require a separate review because of their potential to impact surrounding properties and the orderly development of the City. Section 2-400 of the Unified Development Ordinance establishes standard for all Special Uses in Crystal Lake. The criteria are as follows:

1. That the proposed use is necessary or desirable, at the location involved, to provide a service or facility which will further the public convenience and contribute to the general welfare of the neighborhood or community.

   ☐ *Meets* ☐ *Does not meet*

2. That the proposed use will not be detrimental to the value of other properties or improvements in the vicinity.

   ☐ *Meets* ☐ *Does not meet*

3. That the proposed use will comply with the regulations of the zoning district in which it is located and this Ordinance generally, including, but not limited to, all applicable yard and bulk regulations, parking and loading regulations, sign control regulations, watershed, wetlands, and flood plain regulations, Building and Fire Codes and all other applicable City Ordinances.

   ☐ *Meets* ☐ *Does not meet*

4. That the proposed use will not negatively impact the existing off-site traffic circulation; will adequately address on-site traffic circulation; will provide adequate on-site parking facilities; and, if required, will contribute financially, in proportion to its impact, to upgrading roadway and parking systems.

   ☐ *Meets* ☐ *Does not meet*

5. That the proposed use will not negatively impact existing public utilities and municipal service delivery systems and, if required, will contribute financially, in proportion to its impact, to the upgrading of public utility systems and municipal service delivery systems.

   ☐ *Meets* ☐ *Does not meet*

6. That the proposed use will not impact negatively on the environment by creating air, noise, or water pollution; ground contamination; or unsightly views.

   ☐ *Meets* ☐ *Does not meet*

7. That the proposed use will maintain, where possible, existing mature vegetation; provide adequate screening to residential properties; provide landscaping in forms of ground covers, trees and shrubs; and provide architecture, which is aesthetically appealing, compatible or complementary to surrounding properties and acceptable by community standards, as further detailed in Article 4, Development and Design Standards.

   ☐ *Meets* ☐ *Does not meet*

8. That the proposed use will meet standards and requirements established by jurisdictions other than the City such as Federal, State or County statutes requiring licensing procedures or health/safety inspections, and submit written evidence thereof.

   ☐ *Meets* ☐ *Does not meet*

9. That the proposed use shall conform to any stipulations or conditions approved as part of a Special Use Permit issued for such use.

   ☐ *Meets* ☐ *Does not meet*

10. That the proposed use shall conform to the standards established for specific special uses as provided in this section.

    ☐ *Meets* ☐ *Does not meet*

Radio transmission towers, wireless communication facilities. All radio transmission towers and wireless communication facilities must comply with the following standards:

1. Towers shall be designed to meet the wind loading requirements specified in the American National Standards Institute TIA-222-F Report, as amended.

   ☐ *Meets* ☐ *Does not meet*

   Meets this standard per structural analysis submitted certifying the ability of the city utility pole to support the petitioner's equipment.

2. The owner/applicant shall provide documentation to the City demonstrating that the structural integrity of the towers and antenna will continue to comply with state and federal standards, local building codes, and the applicable standards for towers published by the American National Standards Institute (ANSI), as amended. If, upon inspection, it is determined a tower fails to comply with such standards and constitutes a danger to persons or property, the owner shall be notified that he/she has 30 days to bring the tower into compliance. Failure to bring the tower into compliance within 30 days shall constitute grounds for the removal of the tower at the owner's expense.

   ☐ *Meets* ☐ *Does not meet*

   Meets this standard per structural analysis submitted certifying the ability of the city utility pole to support the petitioner's equipment.

3. Freestanding wireless communication or radio transmission towers shall not exceed 200 feet in height as measured from the tower base to the highest point of the tower and any attached receiving or transmitting device.

   ☐ *Meets* ☐ *Does not meet*

   Meets this standard, the antenna is mounted at a height of 30 feet.

4. Franchises and licenses: The operator shall provide documentation to the City to demonstrate that all franchises and licenses required by law for the construction and/or operation of a tower or antenna have been obtained.

   ☐ *Meets* ☐ *Does not meet*

   Meets this standard, the petitioner has provided documentation in evidence of their FCC and ICC licenses.

5. Towers shall either maintain a galvanized steel finish or, subject to any applicable standards of the FAA, be painted a neutral color (i.e., light grey) to reduce visual obtrusiveness or painted in a sky-tone above the top of surrounding trees and in an earth-tone below the treetop level.

   ☐ *Meets* ☐ *Does not meet*

   Meets this standard, the city utility pole is made of timber and the antenna will be painted light gray.

6. At a tower site, the design of buildings and related structures shall, to the maximum extent practicable, use materials, colors and architectural styles~~,~~ that blend into the natural setting and surrounding buildings.

   ☐ *Meets* ☐ *Does not meet*

   Standard does not apply to petitioner's request, antenna is mounted to city utility pole and there is not a communication facility building being proposed.

7. Storage: No outside storage shall be allowed on any facility site.

   ☐ *Meets* ☐ *Does not meet*

   Meets this standard, as no storage is proposed.

8. Lighting: Towers shall not be artificially lighted, unless required by the FAA or other applicable authority.

   ☐ *Meets* ☐ *Does not meet*

   Meets this standard, as no lighting is proposed.

9. A single sign measuring no more than two square feet in size shall be located on or near the tower, and shall identify the tower owner, the street address of the tower, the owner's identification code for the tower, and a twenty-four-hour emergency contact telephone number.

   ☐ *Meets* ☐ *Does not meet*

   The standard does not apply to the petitioner's request. The proposed antenna and meter box would be located within the city right-of-way, and as part of the petitioner's lease with the City, contact information will be available to the City at all times.

10. No commercial advertising shall be allowed on the tower or its related facilities.

    ☐ *Meets* ☐ *Does not meet*

    Meets this standard – no advertising or signage is proposed.

11. Single lot: Towers, guy anchors, equipment buildings, and any other appurtenances related to the tower shall be considered as being located on one zoning lot.

☐ *Meets* ☐ *Does not meet*

The standard does not apply to the petitioner's request. The proposed antenna and meter box are located within the city right-of-way, which is not a zoning lot. The proposed meter box is similar to existing utility boxes already located in the right-of-way.

12. Setbacks: Wireless communications facilities shall comply with the following setback standards. Self supporting and monopole towers shall be setback from all property lines by a distance of 110% of the height of the tower.

☐ *Meets* ☐ *Does not meet*

The standard does not apply to the petitioner's request. The proposed antenna and meter box are located within the city right-of-way, as opposed to a defined zoning lot.

13. Equipment buildings associated with a wireless communication facility shall meet the minimum setback requirements for the zoning district where located.

☐ *Meets* ☐ *Does not meet*

The standard does not apply to the petitioner's request. The petitioner is not proposing to construct any equipment buildings for the subject antenna.

14. Separation: If an applicant proposes a new wireless communications tower or radio transmission tower within 1,200 feet of an existing tower, the applicant shall submit a statement indicating the reasons why the existing tower(s) was inadequate or unavailable. The Zoning Administrator shall allow the owner of such existing tower an opportunity to comment prior to making a decision.

☐ *Meets* ☐ *Does not meet*

The standard does not apply to the petitioner's request. The petitioner is proposing to mount an antenna, which acts as a signal booster, to a city utility pole. The request is not to install a wireless communications tower or radio transmission tower.

15. Collocation: New wireless communication or radio transmission towers shall provide evidence that the tower is structurally designed to support at least three additional users, and provide a written statement that the owner of the tower is willing to permit other user(s) to attach communication facilities, on a commercially reasonable basis, which do not interfere with the primary purpose of the tower. The site plan shall indicate a location for at least one equipment building in addition to that proposed for use by the applicant. A tower which is modified or reconstructed to accommodate the collocation of an additional antenna shall be of the same tower type as the existing tower, unless a monopole is determined more appropriate at the specific location. If an existing tower is increased in height or reconstructed to accommodate the collocation of additional antenna it shall meet the height restrictions outlined within this section of the Ordinance.

☐ *Meets* ☐ *Does not meet*

The standard does not apply to the petitioner's request. The proposed antenna would be located on a city utility pole, therefore it is not the responsibility of the petitioner to provide collocation opportunities.

16. Landscaping: Unless existing vegetation provides a buffer strip, all property lines along roadways or visible to existing abutting or nearby buildings (within 1/4 mile radius), for all facilities shall be landscaped as follows:
    a. With six-foot to eight-foot evergreen shrubs planted in an alternate pattern, five feet on center and within 15 feet of the site boundary; or
    b. With at least one row of deciduous trees, not less than 2 1/2 inch to three inches caliper measured three feet above grade, and spaced not more than 30 feet apart and within 25 feet of the site boundary; or
    c. With at least one row of evergreen trees at least four to five feet in height when planted, and spaced not more than 15 feet apart within 40 feet of the site boundary.
    d. In lieu of the foregoing, the Planning and Zoning Commission may determine that the existing vegetation must be supplemented to meet an equivalent means of achieving the desired goal of minimizing the visual impact.

    ☐ *Meets* ☐ *Does not meet*

    The standard does not apply to the petitioner's request. The proposed antenna and meter box are located within the city right-of-way, and therefore landscape screening would not be appropriate, as it could affect site lines.

17. Security fencing: Towers, guy anchor supports, and ground-based equipment buildings shall be enclosed by security fencing not less than eight feet in height and equipped with an appropriate anti-climbing device.

    ☐ *Meets* ☐ *Does not meet*

    The standard does not apply to the petitioner's request. The proposed antenna and meter box are located within the city right-of-way, and therefore 8-foot security fencing around the meter box would not be appropriate, as it could affect site lines.

18. Radiation reporting: It shall be demonstrated that the proposed tower, antenna, and supporting equipment complies with FCC nonionizing radiation requirements for individual and combined facilities.

    ☐ *Meets* ☐ *Does not meet*

    The petitioner submitted an affidavit stating the equipment is in compliance with this criterion.

19. Interference: No wireless communications tower, antenna, or supporting equipment shall interfere with equipment operated by the City of Crystal Lake.

    ☐ *Meets* ☐ *Does not meet*

    The petitioner submitted an affidavit stating the equipment is in compliance with this criterion.

Recommended Conditions:

If a motion to recommend approval of the petitioner's request is made, it should be with the

following conditions:

1. Approved plans, reflecting staff and advisory board recommendations, as approved by the City Council:
   A. Application (Insite RE, Inc., dated 09/28/15, received 09/30/15)
   B. FCC License Reference Copy (received 09/30/15)
   C. Plan Set (Terra Consulting Group, dated 08/11/15, received 09/30/15)
   D. Structural Engineer letter/analysis (Hutter Trankina Engineering, dated 09/21/15, received 09/30/15)
   E. State of Illinois-Illinois Commerce Commission Certificate (dated 01/20/1988, received 09/30/15)
   F. Affidavit (Insite RE, Inc., dated 09/29/15, received 09/30/15)

2. No additional structures outside of what has been submitted in this application are allowed on this city utility pole.

3. The pole shall not be artificially lighted, unless required by the FAA or other applicable authority.

4. No commercial advertising shall be allowed on the pole or its related facilities.

5. An independent evaluation shall be conducted by a radio communications company (communications engineer) to confirm the Affidavit statement that the proposed antenna does not interfere with equipment operated by the City of Crystal Lake.

6. Tornado Siren Pole and Charles Cube-HPSC must be located between the existing sidewalk and storm sewer.

7. The petitioner shall address all of the review comments and requirements of the Community Development, Public Works, Fire and Police Departments.

City of Crystal Lake
Development Application

Office Use Only
File # _____

Project Title: Verizon Pingree Rd. Metra Small Cell

RECEIVED
SEP 30 2015
BY:

Action Requested

- ___ Annexation
- ___ Comprehensive Plan Amendment
- ___ Conceptual PUD Review
- ___ Final PUD
- ___ Final PUD Amendment
- ___ Final Plat of Subdivision
- ___ Preliminary PUD
- ___ Preliminary Plat of Subdivision
- ___ Rezoning
- ☑ Special Use Permit
- ___ Variation
- ___ Other

Petitioner Information

Name: Insite RE, Inc. as agent for Verizon Wireless

Address: 1S660 Midwest Rd.
Oakbrook Terrace, IL 60181

Phone: 630-890-4514 (Mark Layne)

Fax: _____

E-mail: layne@insite-inc.com

Owner Information (if different)

Name: City of Crystal Lake

Address: _____

Phone: _____

Fax: _____

E-mail: _____

Property Information

Project Description: Installation of small cell antenna on City emergency siren pole and equipment cabinet in City parkway in front of 282 Exchange.

Project Address/Location: City ROW adjacent to 282 Exchange Dr.

PIN Number(s): N/A 19-04-426-004

Development Team

Please include address, phone, fax and e-mail

Developer: Insite RE, Inc., 1S660 Midwest Rd., Oakbrook Terrace, IL 630-890-4514

Architect: None

Attorney: None

Engineer: Terra Consulting Group, 600 Busse Hwy., Park Ridge, IL 60068, 847-698-6400

Landscape Architect: None

Planner: None

Surveyor: None

Other: Braniff Communications, Inc., 4741 W. 136th St., Crestwood, IL 60445, 708-597-3200

Signatures

Mark J. Layne, Agent 09/28/15

PETITIONER: Print and Sign name (*if different from owner*) **Date**

As owner of the property in question, I hereby authorize the seeking of the above requested action.

OWNER: Print and Sign name **Date**

NOTE: If the property is held in trust, the trust officer must sign this petition as owner. In addition, the trust officer must provide a letter that names all beneficiaries of the trust.

2015 52

STATE OF ILLINOIS)
)
COUNTY OF MCHENRY)

RECEIVED
SEP 30 2015
BY:

IN THE MATTER OF THE APPLICATION OF

Verizon Wireless (Mark Layne as Agent)

AFFIDAVIT

MARK LAYNE, being first duly sworn on oath deposes and states as follows:

A. That the above mentioned Petitioner has made every effort to comply with the requirements of Section 2-400 of the City of Crystal Lake Unified Development Ordinance, specifically with regard to Subsection 48(d)(i), (ii), (iii), (iv), (xiv), and (xv) as those items relate to the Safety, Height, Documentation of License, Color, RF Compliance, and Non-Interference of the proposed facility. To wit:

- 48(d)
    - (i) Safety: a structural analysis has been provided with Petitioner's application certifying to the ability of the City siren pole to support the Petitioner's equipment.
    - (ii) Height: the Petitioner's equipment will be attached at the 30' level to a then existing 47' tall City siren pole.
    - (iii) License: the Petitioner has provided documentation in evidence of their FCC and ICC licenses.
    - (iv) Color: the Petitioner's design calls for the antennas to be painted light gray.
    - (xiv) RF Compliance: the Petitioner's equipment has been designed to operate within applicable government and industry regulatory compliance standards in conformance with the Petitioner's FCC license.
    - (xv) Interference: the Petitioner's equipment has operates within a unique FCC assigned radio spectrum which has not been known to interfere with equipment operated by the City of Crystal Lake.

B. That because the proposed facility consists of the collocation of Petitioner's equipment upon what will be existing safety infrastructure owned and operated by the City of Crystal Lake, Subsections 48(b), (c), (e), (f), and (g) as well as the remaining subsections of 48(d) do not apply.

Mark Layne

(Printed name of Applicant, Trust, etc. here and signed above)

Subscribed and Sworn to me before
This 29 day of September 20 15.

Notary Public

OFFICIAL SEAL
RAY SHINKLE
Notary Public - State of Illinois
My Commission Expires Sep 15, 2016

PUBLIC NOTICE

BEFORE THE PLANNING AND ZONING COMMISSION OF THE CITY OF CRYSTAL LAKE, MCHENRY COUNTY, ILLINOIS

IN THE MATTER OF THE APPLICATION OF
Insite RE, Inc/Verizon Wireless

LEGAL NOTICE

Notice is hereby given in compliance with the Unified Development Ordinance (UDO) of the City of Crystal Lake, Illinois, that a public hearing will be held before the Planning and Zoning Commission of the City of Crystal Lake upon the application of Verizon Wireless seeking a Special Use Permit and variations to allow a wireless communication antenna on a city utility pole, located in the city right-of-way along Exchange Drive, Crystal Lake, Illinois. (X,Y): (-88.30142, 42.23367)

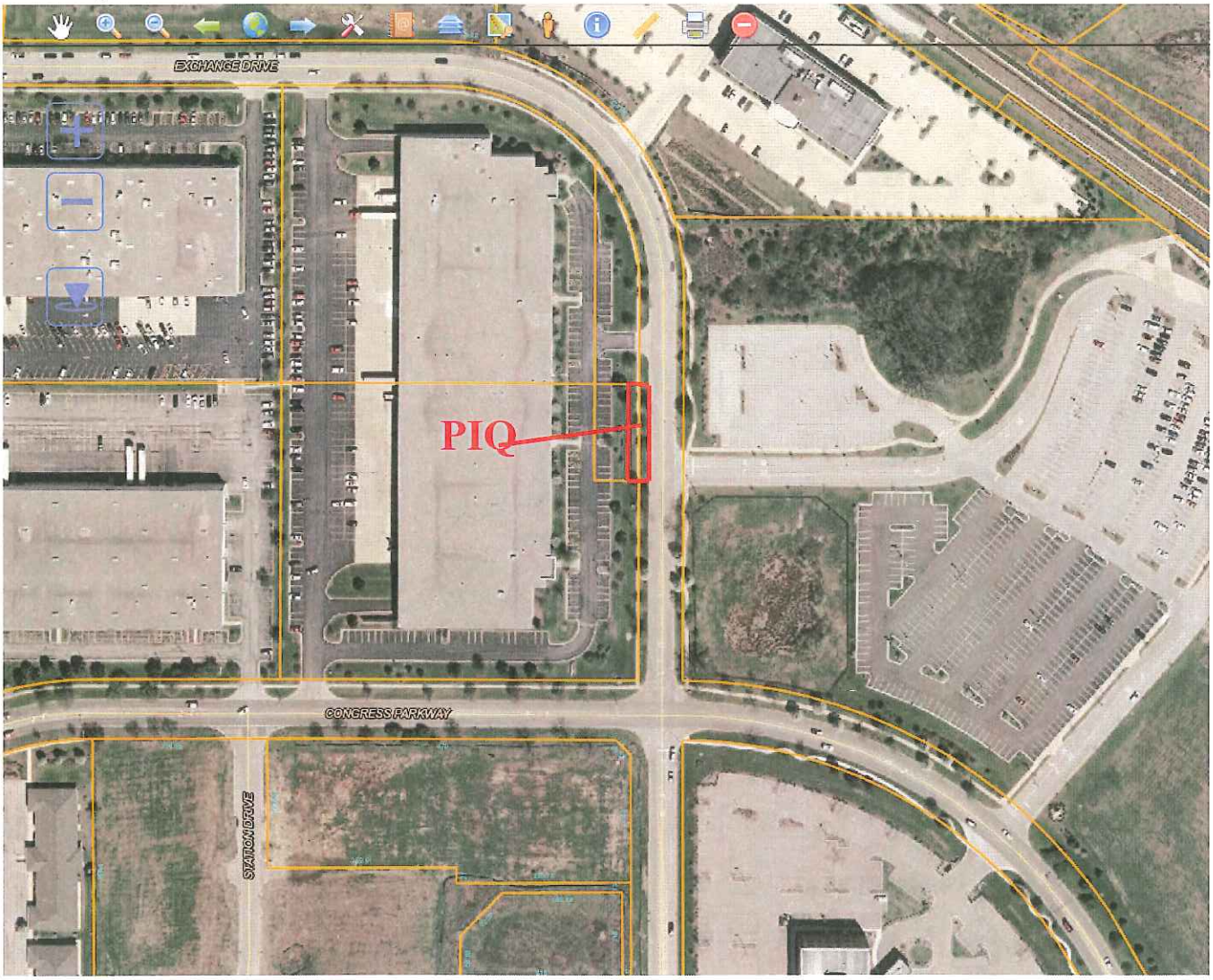
This application is filed for the purpose of seeking a Special Use Permit pursuant to Article 2-400 to allow a wireless communication antenna to be installed on a city utility pole and variations from Article 2-400(C)(48)(v-xii) from criteria that are not applicable to the project, as well as any other variations as necessary to complete the project as proposed. Plans for this project can be viewed at the Crystal Lake Community Development Department at City Hall.

A public hearing before the Planning and Zoning Commission for this request will be held at 7:30 p.m. on Wednesday October 21, 2015, at the Crystal Lake City Hall, 100 West Woodstock Street, at which time and place any person determining to be heard may be present.

Tom Hayden, Chairperson
Planning and Zoning Commission
City of Crystal Lake

(Published in the Northwest Herald October 6, 2015) nw 734

City of Crystal Lake Illinois



nVicinity

2015 52

STATE OF ILLINOIS

ILLINOIS COMMERCE COMMISSION

Illinois SMSA Limited Partnership	:	
	:	
Application for issuance of a Certificate of Service Authority to provide a new Domestic Public Cellular Radio Telecommunications Service to the public in the Springfield, Illinois Metropolitan Statistical Area, including Sangamon County and portions of Christian and Menard Counties; and for other authority and waivers of Commission Rules and Regulations.	:	87-0384

ORDER

By the Commission:

On August 10, 1987, Illinois SMSA Limited Partnership ("Applicant") filed a verified application for a Certificate of Service Authority to provide Domestic Public Cellular Radio Telecommunications Service to the public in the Springfield, Illinois Metropolitan Statistical Area ("MSA"), and for waivers of certain rules and regulations of the Commission. At the hearing on September 15, 1987, Applicant orally amended the application to request waiver of 83 Ill. Adm. Code 240.

Pursuant to notice required by law and the rules and regulations of the Commission, this matter came on for hearing before a duly authorized Hearing Examiner of the Commission at its offices in Springfield, Illinois on September 15, 1987. At the hearing, Applicant was represented by counsel and John K. Cusack, Director - External Affairs for Ameritech Mobile Communications, Inc. ("AMCI"), testified and presented evidence on behalf of Applicant. A member of the Enforcement and Compliance Department of the Public Utilities Division of the Commission also participated in the hearing. At the conclusion of the hearing, the record was marked "Heard and Taken."

The evidence indicates that Applicant is an Illinois Limited Partnership with its principal place of business in Schaumburg, Illinois. The General Partner, with a 51% ownership interest, is Ameritech Mobile Phone Service of Illinois, Inc. ("AMPS-I"), an Illinois corporation, which has its principal place of business in Schaumburg, Illinois. The Limited Partners are as follows: Inland Cellular Telephone Co. (15.00%), an Illinois corporation

with its principal place of business in Champaign, Illinois; Mt. Pulaski Cellular Company (15.00%), an Illinois corporation with its principal place of business in Lincoln, Illinois; U.S. West NewVector Group, Inc. (10.75%), a Colorado corporation with its principal place of business in Bellevue, Washington; and Midwest Cellular Associates (8.25%), an Illinois general partnership with its principal place of business in Mattoon, Illinois.

The evidence in this proceeding indicates that Applicant has the financial capability to construct and operate its proposed cellular system. Applicant's General and Limited Partners are affiliates of substantial and well-funded public and private corporations, who have agreed to make both initial and subsequent capital contributions pursuant to the Partnership Agreement admitted in evidence. American Information Technologies Corporation, the parent of AMCI, which in turn owns 100% of the stock of the General Partner, has stated its intention to fund and support cellular operations as shown in Applicant's Exhibit E. The Limited Partners have access to substantial financial resources through their affiliation with other companies in the telecommunications business.

Applicant's General Partner will enter into contracts with affiliates who have had substantial managerial and technical experience in the cellular industry. They currently provide Domestic Public Cellular Radio Telecommunications Services in a number of cities in five states, including Chicago. These markets include over 150 cell sites.

Applicant seeks Commission authority to provide Domestic Public Cellular Radio Telecommunications Services in the Springfield, Illinois MSA, which encompasses Sangamon County and portions of Christian and Menard Counties as described in Appendix A. The Federal Communications Commission has authorized Applicant to provide cellular telephone services in this area.

Applicant will initially construct and operate one cell site in Springfield. As the cellular market develops, Applicant may construct additional cell sites as needed. Service will be provided 24 hours a day and a combined business/sales office will be established in Springfield. Applicant has also made arrangements for customer repair and billing services.

Applicant intends to separately file tariffs to provide both retail and wholesale service on a competitive basis, pursuant to Section 13-502(b) of the Illinois Public Utilities Act ("Act") and 83 Ill. Adm. Code 745. Mr. Cusack testified that substitut-

able or functionally equivalent services are available from more than one provider in the Springfield MSA. These include one and two-way (unregulated) paging, Improved Mobile Telephone Service, private and public 2-way radio and a second cellular carrier which will operate in the MSA within 18 months. Until the second carrier builds its system and inaugurates its own service, it is entitled to resell Applicant's services on equal footing with Applicant.

Applicant also requests that the Commission make certain declarations and grant certain waivers and modifications of the rules and regulations of the Commission. Section 13-101 of the Act provides that "[e]xcept to the extent modified or supplemented by the specific provisions of this Article [XIII], Articles I through V, Sections 9-221, 9-222 and 9-250, Articles X and XI of this Act are fully and equally applicable to competitive telecommunications carriers rates and services, and the regulation thereof." Section 13-502 of the Act provides that telecommunications carriers can file tariffs for the offering or provision of competitive services and the Commission has adopted 83 Ill. Adm. Code 745, implementing Section 13-502 and prescribing the procedure for telecommunications carriers to declare their services competitive. To the extent that Applicant complies with Part 745, many of the provisions of the Act as well as regulations adopted by the Commission in Title 83 of The Illinois Administrative Code will be inapplicable to Applicant, since it plans to offer only competitive services.

As a new entrant in a competitive market, Applicant does not possess significant market power. The burden of fully complying with all of the rules and regulations of this Commission generally applicable to local exchange telephone companies would be unduly harsh and would make it impossible for Applicant to effective compete in the cellular radio telecommunications services market. Therefore, Applicant asks that the Commission either waive application or confirm the inapplicability of the provisions of 83 Ill. Adm. Code Parts 210, 220, 240, 285, 300, 305, 705, 710, 720, 725, 730 and 735.

The requested waivers would reduce the economic burdens of regulation and would not be inconsistent with the law or the purposes and policies of Article XIII of the Act. The Commission has recently approved similar waivers for other cellular providers in Dockets 87-0072 and 87-0379. Based upon a review of the foregoing, the provisions of 83 Ill. Adm. Code Parts 210, 220, 240, 285, 300, 305, 705, 710, 720, 725, 730 and 735 may properly be waived or declared inapplicable by the Commission.

The Commission, after reviewing the entire record and being fully advised in the premises, is of the opinion and finds that:

(1) Illinois SMSA Limited Partnership is an Illinois Limited Partnership seeking a Certificate of Service Authority to provide Domestic Public Cellular Radio Telecommunications Services, within the Springfield, Illinois MSA as defined by the FCC (encompassing Sangamon County and portions of Christian and Menard Counties) as a telecommunications carrier within the meaning of Section 13-202 of the Act;

(2) the Commission has jurisdiction over the parties and the subject matter herein;

(3) the recitals of fact and conclusions reached in the prefatory portion of this order are supported by evidence of record and are hereby adopted as findings of fact;

(4) Applicant possesses sufficient technical, financial and managerial resources and abilities to provide Domestic Public Cellular Radio Telecommunications Services in the Springfield, Illinois MSA;

(5) Applicant should be directed to file a tariff pursuant to this order prior to initiating service to the public;

(6) except as provided for in Finding (7) hereinafter, the Parts of Title 83 the Illinois Administrative Code cited by Applicant are inapplicable to a telecommunications carrier providing only competitive services to the public; based on the evidence presented herein, the services Applicant proposes to offer are competitive telecommunications services as defined in Section 13-209 of the Act; if Applicant files rates and tariffs with the Commission that are in compliance with the filing requirements for competitive services under 83 Ill. Adm. Code 745, such tariffs may become effective immediately upon filing and thereafter the Administrative Code provisions cited by Applicant will not be applicable to Applicant; to the extent that Applicant seeks additional waivers or modifications, requests must conform to the requirements of 83 Ill. Adm. Code 750;

(7) pursuant to Section 13-402 of the Act, waiver of Parts 710 and 735 of Title 83 of the Illinois Administrative

Code should be granted to Applicant because such action will reduce the economic burdens of regulation and is not inconsistent with the Act or the purposes and policies of Article XIII.

IT IS THEREFORE ORDERED that Illinois SMSA Limited Partnership be, and is hereby, granted a Certificate of Service Authority pursuant to Articles XIII of The Illinois Public Utilities Act to provide Domestic Public Cellular Radio Telecommunications Service.

IT IS FURTHER ORDERED that the Certificate hereinabove granted shall be the following:

CERTIFICATE OF SERVICE AUTHORITY

IT IS HEREBY CERTIFIED that Illinois SMSA Limited Partnership is authorized to provide Domestic Public Cellular Radio Telecommunications Service within the Springfield, Illinois Metropolitan Statistical Area, as described in Appendix A hereto, encompassing Sangamon County and portions of Christian and Menard Counties in the State of Illinois.

IT IS FURTHER ORDERED that 83 Ill. Adm. Code 210, 220, 240, 285, 300, 305, 705, 710, 720, 725, 730 and 735 be, and the same are, inapplicable or waived, with respect to Illinois SMSA Limited Partnership.

IT IS FURTHER ORDERED that Illinois SMSA Limited Partnership shall file a tariff with the Commission in accordance with Section 13-501 and 13-502 of The Public Utilities Act prior to providing service to the general public.

By order of the Commission this 30th day of September, 1987.

EXAMINER

SECTION CHIEF

Supervisor of Orders

Mary L. Dushnell

Chairman

SPRINGFIELD ILLINOIS CGSA

The Cellular Geographic Service Area for the Springfield Metropolitan Area may generally be described as including the territory within a line beginning at 39° 31' 20" north/ 89° 48' 00" west and extending north to 39° 39' 53" north/89°48' 00" west; then proceeding on an arc with approximately a 12 mile radius to the north north west to the furthest western point at approximately 39° 47' 30" north/ 89° 51' 50" west. The line then continues along the same arc to the north east to the furthest north point approximately 39° 57' 30" north/89° 39' 30" west; then following the same arc to the east and south to a point at 39° 48' 37" north/89° 24' 51" west. The line then proceeds due south to where it meets the Sangamon County/Christian County border; then south along this border a point where Sangamon, Christian and Montgomery Counties meet; then proceeding west along the Sangamon County/Montgomery County border to the point where Sangamon, Montgomery and Macoupin Counties meet and then continues west along the Sangamon County/Macoupin County border to the point of origin.

STATE OF ILLINOIS

ILLINOIS COMMERCE COMMISSION

Illinois SMSA Limited Partnership	:	
	:	
Application for issuance of a Certificate of Service Authority to provide a new Domestic Public Cellular Radio Telecommunications Service to the public in the areas described as Bloomington, Champaign/Urbana/Rantoul and Decatur, Illinois Cellular Geographic Service Areas.	:	87-0519

ORDER

By the Commission:

On November 25, 1987, Illinois SMSA Limited Partnership ("Applicant") filed a verified application for a Certificate of Service Authority to provide Domestic Public Cellular Radio Telecommunications Service to the public in the Bloomington, Champaign/Urbana/Rantoul and Decatur, Illinois Metropolitan Statistical Areas ("MSAs"). For the purposes of this Order and Certification, the territories herein discussed are designated Cellular Geographic Service Areas ("CGSAs") and the caption herein has been changed to reflect this designation.

Pursuant to notice given in accordance with the law and the rules and regulations of the Commission, this matter came on for hearing before a duly authorized Hearing Examiner of the Commission in its offices in Chicago, Illinois, on January 7, 1988. At the hearing, Applicant was represented by counsel. John K. Cusack, Director - External Affairs for Ameritech Mobile Communications, Inc. ("AMCI"), testified and presented evidence on behalf of Applicant. No other appearances were entered. At the conclusion of the hearing, the record was marked "Heard and Taken."

The evidence indicates that Applicant is an Illinois Limited Partnership with its principal place of business in Schaumburg, Illinois. The General Partner, with a 51% ownership interest, is Ameritech Mobile Phone Service of Illinois, Inc. ("AMPS-I"), an Illinois corporation, which has its principal place of business in Schaumburg, Illinois. The Limited Partners are as follows: Inland Cellular Telephone Co., an Illinois corporation with its principal place of business in Champaign, Illinois; Mt. Pulaski Cellular Company, an Illinois corporation with its principal place of business in Lincoln, Illinois; U.S. West NewVector Group, Inc., a Colorado corporation with its principal place of business in Bellevue, Washington; and Midwest Cellular

Associates, an Illinois general partnership with its principal place of business in Mattoon, Illinois. The interest of Inland Cellular Telephone Co. is in the process of being divided equally between Inland and Prairie Cellular Telephone Company. In Docket No. 87-0384, Applicant was granted a Certificate of Authority to provide cellular radio telecommunications service in Springfield, Illinois.

The evidence in this proceeding indicates that Applicant has the financial capability to construct and operate its proposed cellular system. Applicant's General and Limited Partners are affiliates of substantial and well-funded public and private corporations, who have agreed to make both initial and subsequent capital contributions pursuant to the Partnership Agreement admitted into evidence as Petitioner's Exhibit B. American Information Technologies Corporation, the parent of AMCI, which in turn owns 100% of the stock of the General Partner, has stated its intention to fund and support cellular operations as shown in Applicant's Exhibit F. The Limited Partners have access to substantial financial resources through their affiliation with other companies in the telecommunications business.

Applicant's General Partner will enter into contracts with affiliates who have substantial managerial and technical experience in the cellular industry. They currently provide Domestic Public Cellular Radio Telecommunications Services in a number of cities in five states, including Chicago and Springfield, Illinois. These markets include over 160 cell cites.

Applicant seeks Commission authority to provide Domestic Public Cellular Radio Telecommunications Services in the Bloomington, Champaign/Urbana/Rantoul and Decatur, Illinois CGSAs, as described in Appendices A, B and C attached hereto and made a part hereof. The Federal Communications Commission has authorized Applicant to provide cellular telephone services in these areas.

Applicant will initially construct and operate cell sites in each of the three CGSAs. As the cellular market develops, Applicant may construct additional cell sites as needed. Service will be provided 24 hours a day and a combined business/sales office has been established in Springfield. Applicant has also made arrangements for customer repair and billing services.

Applicant intends to separately file tariffs to provide both retail and wholesale service on a competitive basis, pursuant to Section 13-502(b) of The Illinois Public Utilities Act ("Act") and 83 Ill. Adm. Code 745. Mr. Cusack testified that substitutable or functionally equivalent services are available from more than one provider in each of the three CGSAs. These include one and two-way (unregulated) paging, Improved Mobile Telephone

Service, private and public two-way radio and a second cellular carrier which will operate in each of the three CGSAs within 18 months. Until the second carrier builds its system and inaugurates its own service, it is entitled to resell Applicant's services on equal footing with Applicant.

In Docket No. 87-0384, the Commission made certain declarations and granted to Applicant certain waivers and modifications of the rules and regulations of the Commission. Section 13-101 of the Act provides that "[e]xcept to the extent modified or supplemented by the specific provisions of this Article [XIII], Articles I through V, Sections 9-221, 9-222 and 9-250, Articles X and XI of this Act are fully and equally applicable to competitive telecommunications carriers rates and services, and the regulation thereof." Section 13-502 of the Act provides that telecommunications carriers can file tariffs for the offering of provision of competitive services and the Commission has adopted 83 Ill. Adm. Code 745, implementing Section 13-502 and prescribing the procedure for telecommunications carriers to declare their services competitive. To the extent that Applicant continues to comply with Part 745, many of the provisions of the Act as well as regulations adopted by the Commission in Title 83 of the Illinois Administrative Code will continue to be inapplicable to Applicant, since it plans to offer only competitive services.

The additional waivers granted in Docket No. 87-0384 will also continue to apply to Applicant. Applicant does not possess significant market power in the three CGSAs involved in this proceeding. The burden of fully complying with all of the rules and regulations of this Commission generally applicable to local exchange telephone companies would be unduly harsh and would make it impossible for Applicant to effectively compete in the cellular radio telecommunications services market. The waivers previously granted will continue to reduce the economic burdens of regulation and will be consistent with the law and the purposes and policies of Article XIII of the Act. The Commission has recently approved similar waivers for other cellular providers in several proceedings, including Dockets 87-0072, 87-0379, 87-0451 and 87-0452.

The Commission, having considered the entire record herein and being fully advised in the premises, is of the opinion and finds that:

(1) Illinois SMSA Limited Partnership is an Illinois Limited Partnership seeking a Certificate of Service Authority to provide Domestic Public Cellular Radio Telecommunications Services within the Bloomington, Champaign/Urbana/Rantoul and Decatur, Illinois CGSAs as set forth in Appendices A, B and C of this Order and is

a telecommunications carrier within the meaning of Section 13-202 of The Illinois Public Utilities Act;

(2) the Commission has jurisdiction over the parties and the subject matter herein;

(3) Applicant possesses sufficient technical, financial and managerial resources and abilities to provide Domestic Public Cellular Radio Telecommunications Services in the Bloomington, Champaign/Urbana/Rantoul and Decatur, Illinois CGSAs;

(4) Applicant should be directed to file a tariff pursuant to this Order prior to initiating service to the public in the Bloomington, Champaign/Urbana/Rantoul and Decatur, Illinois CGSAs;

(5) based on the evidence presented herein, the services Applicant proposes to offer are competitive telecommunications services as defined in Section 13-209 of The Illinois Public Utilities Act; the declarations and waivers previously granted to Applicant in Docket 87-0384 should continue in effect.

IT IS THEREFORE ORDERED that Illinois SMSA Limited Partnership be, and is hereby, granted a Certificate of Service Authority pursuant to Article XIII of The Illinois Public Utilities Act to provide Domestic Public Cellular Radio Telecommunications Service.

IT IS FURTHER ORDERED that the Certificate hereby granted shall be the following:

CERTIFICATE OF AUTHORITY

IT IS HEREBY CERTIFIED that Illinois SMSA Limited Partnership is authorized to provide Domestic Public Cellular Radio Telecommunications Service within the Bloomington, Champaign/Urbana/Rantoul and Decatur, Illinois Cellular Geographic Service Areas, as described in Appendices A, B and C attached hereto, which are hereby incorporated into and made a part of this Certificate as if set forth in full herein.

IT IS FURTHER ORDERED that the declarations and waivers granted to Illinois SMSA Limited Partnership in Docket 87-0384 shall continue in effect.

IT IS FURTHER ORDERED that Illinois SMSA Limited Partnership shall file a tariff with the Commission in accordance with

Sections 31-501 and 13-502 of The Illinois Public Utilities Act prior to providing service to the general public in its newly certificated areas.

By Order of the Commission this 20th day of January, 1988.

Mary L. Lusbrell
Chairman

EXAMINER DAB
SECTION CHIEF
Supervisor of Orders DT

APPENDIX A

BLOOMINGTON - NORMAL

The cellular Geographic Service Area for the Bloomington-Normal Metropolitan Area may generally be described as including the territory with a line beginning on the McLean/Logan County boundary at 40° 17' 02" north/89° 13' 45" West, then proceeding northeast to a point on an arc at 40° 19' 56" north/89° 10' 10" West; then proceeding along this arc, having approximately a 11.5 mile radius, to the north to the furthest west point at 40° 27' 00" north/89° 15' 00" west. The line then continues along this same arc to the north to 40° 34' 48" north/89° 10' 02" west, then proceeds due north to the McLean/
Fayewell County boundary. The line then follows this boundary to the east and north to 40° 37' 50" north/89° 02' 41" west; it then proceeds east and slightly south to 40° 36' 38" north/88° 53' 30" west. The line now proceeds northeasterly paralleling the direction of the I.C.G. Railroad line yet approximately 2 miles to the west to where it intersects the McLean/Livingston County boundary at 40° 45' 25" north/88° 45' 00" west, then proceeds east along this boundary to 40° 45' 25" north/88° 40' 32" west. The line now proceeds to the southwest to 40° 37' 30" north/88° 45' 40" west, then again southwesterly to 40° 33' 59" north/88° 50' 49" west. The line now proceeds south to 40° 24' 12" north/88° 50' 35" west, then proceeds southeast to 40° 21' 00" north/88° 43' 32" west. The line continues to the south southwest to 40° 19' 05" north/88° 44' 47" west, then proceeds to the west northwest to 40° 21' 33" north/88° 52' 04" west. The line now proceeds in a slight arc to 40° 19' 32" north/88° 55' 12" west, then continues south and west along an arc to the southern most point of the arc at 40° 17' 27" north/88° 58' 26" west, then continues to the west northwest to 40° 19' 26" north/89° 06' 59" west. The line now proceeds southwest to a point on the McLean/Logan County boundary at 40° 17' 00" north/89° 09' 38" west, then follows this boundary west to the point of origin.

APPENDIX B

CHAMPAIGN - URBANA

The Cellular Geographic Service Area for the Champaign-Urbana Metropolitan Area may generally be described as including the territory within a line beginning at 39° 52' 40" north/88° 16' 21" west; then proceeding along an arcing line to the northwest to 39° 58' 38" north/88° 22' 09" west, then proceeding on a shorter arc to the northwest to 40° 01' 30" north/88° .23' 17" west. Again proceeding to the northwest on a greater arc to a point at 40° 06' 49" north/88° 25' 17" west on the Champaign/Piatt County boundary; then proceeding due north to 40° 12' 57" north/88° 25' 17" west. The line proceeds on an arc with approximately a 11 mile radius to the northeast to 40° 22' 09" north/88° 13' 26" west. The line now proceeds in a semicircle with a 4 mile radius up to the Champaign/ Ford County boundary and back southeast to 40° 05' 21" north/88° 05' 08" west; then proceeding again on an arc with approximately an 11 mile radius south southeast to 40° 09' 53" north/88° 01' 07" west. The line again proceeds on a short arc to the southeast to 40° 06' 18" north/87° 56' 26" west, a point on the Champaign/ Vermillion County boundary. The line then proceeds south along this boundary to where Champaign, Vermillion, Edgar and Douglas Counties meet; then proceeding west along the Champaign/ Douglas County boundary to the point of origin.

APPENDIX C

DECATUR

The Cellular Geographic Service Area for the Decatur Metropolitan Area may generally be described as including the territory within a line beginning at 39° 51' 49" north/89° 13' 10" west; then proceeding east to a point on an arc at 39° 51' 49" north/89° 09' 11" west. The line then proceeds along an arc with a radius of approximately 9.5 miles to the north and east to the northern most point on the arc at 39° 58' 38" north/88° 58' 48" west, then continues along the arc to the east and south to 39° 57' 12" north/88° 52' 51" west. The line then proceeds northeast to 39° 59' 29" north/88° 50' 36" west, then continues to the east northeast on a gradual arc to the Macon/Piatt County boundary at 40° 01' 20" north/88° 44' 33" west. The line then proceeds south along the boundary to 39° 59' 50" north/88° 44' 33" west, then continues southwest on a slight arc to 39° 58' 22" north/88° 48' 10" west and then onward to the southwest to the beginning point of an arc at 39° 55' 44" north/88° 50' 36" west. The line then proceeds along an arc with a radius of approximately 9.5 miles southward to the end of the arc at 39° 48' 35" north/88° 48' 30" west, then proceeds on a slight arc to a point on the Macon/Piatt County boundary at 39° 48' 10" north/88° 44' 33" west. The line then proceeds southwest to a point on the Macon/Moultrie County boundary at 39° 44' 11" north/88° 48' 35" west, then along that boundary south to 39° 42' 35" north/88° 48' 35" west, and then proceeds northwest to the beginning of an arc at 39° 44' 50" north/88° 51' 27" west. The line proceeds to follow this arc having approximately a 9.5 mile radius, to the west and south to the end point of the arc at 39° 43' 01" north/88° 58' 45" west, then continues almost due south to a point on the Macon/Shelby County boundary at 39° 39' 12" north/88° 59' 47" west; then proceeds along this boundary to the west to 39° 39' 12" north/89° 01' 29" west. The line now continues to the north and slightly east to 39° 42' 27" north/89° 00' 54" west, then proceeds due west to 39° 42' 27" north/89° 05' 22" west, and then proceeds southwest to a point on the Macon/Christian County boundary at 39° 40' 28" north/89° 08' 30" west. The line continues along the Macon/Christian County boundary to the north to 39° 42' 56" north/89° 08' 30" west, then proceeds northeast to 39° 43' 38" north/89° 06' 32" west, then continues due north to a point on an arc at 39° 45' 00" north/89° 06' 32" west and then proceeds along this arc to the northwest intersecting with the Macon/Christian County boundary at 39° 48' 00" north/89° 08' 33" west and then continues to the end of the arc at 39° 49' 36" north/89° 09' 51" west. The line then proceeds west northwest to a point on the Macon/Sangamon County boundary at 39° 50' 13" north/89° 13' 10" west, then proceeds north along this boundary to the point of origin.

2015 52

Federal Communications Commission

Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
1120 SANCTUARY PKWY, #150 GASA5REG
ALPHARETTA, GA 30009-7630

Call Sign	File Number
KNLF207	0003864847
Radio Service CW - PCS Broadband	

FCC Registration Number (FRN): 0003290673

Grant Date	Effective Date	Expiration Date	Print Date
08-15-2005	06-11-2009	06-23-2015	06-11-2009

Market Number	Channel Block	Sub-Market Designator
MTA003	B	11

Market Name
Chicago

1st Build-out Date	2nd Build-out Date	3rd Build-out Date	4th Build-out Date

Waivers/Conditions:

This authorization is subject to the condition that, in the event that systems using the same frequencies as granted herein are authorized in an adjacent foreign territory (Canada/United States), future coordination of any base station transmitters within 72 km (45 miles) of the United States/Canada border shall be required to eliminate any harmful interference to operations in the adjacent foreign territory and to ensure continuance of equal access to the frequencies by both countries.

This authorization is subject to the condition that the remaining balance of the winning bid amount will be paid in accordance with Part 1 of the Commission's rules, 47 C.F.R. Part 1.

Conditions:
Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at http://wireless.fcc.gov/uls/index.htm?job=home and select "License Search". Follow the instructions on how to search for license information.

32 W 273 Army Trail Road, Suite # 100, Wayne, IL 60184
HUTTER TRANKINA ENGINEERING
CONSULTING STRUCTURAL ENGINEERS
Phone: 630-513-6711 Fax: 630-513-2925
htedesign.com

September 21, 2015

Mr. Michael Callaghan
Terra Consulting Group, Ltd.
600 Busse Highway
2nd Floor
Park Ridge, IL 60068-2568

Re: VZN: Pingree Rd Metra SC – Wood Pole
Loc. # 292279 / Terra # 88063
Hutter Trankina # 15381

Dear Mr. Callaghan:

Per your request, we have analyzed the above-referenced pole, which will be located in Crystal Lake, Illinois. The following paragraphs summarize our findings.

PURPOSE

The purpose of this analysis was to verify the structural adequacy of a new utility pole to resist the proposed equipment loads.

DESCRIPTION

The proposed pole shall be a 55' long, class 1 Southern Yellow Pine. The analysis was performed assuming a standard embedment of 7'-6"; thus, the pole will extend approximately 47'-6" above grade. We assumed the pole embedment is sufficient to support all loads.

ANTENNA CONFIGURATION

The following antenna layout was employed in the analysis:

Elevation	Antenna or Appurtenance	Qty.
30'	Amphenol QXW63206340BFEDIN	3
Varies	Coax Sleeve	1

ANALYSIS PROCEDURE AND RESULTS

The pole was subjected to the ANSI C2-2007 (NESC 2007) Code standards. The following two (2) loading cases were considered:

I. Rule 250B – Grade B: Forces due to a wind speed of 40 mph in conjunction with ½" ice build-up around all elements (i.e. Heavy Loading District); and

II. Rule 250C – Grade B: Forces due to a wind speed of 90 mph.

Pole Rating: 43%

CONCLUSION

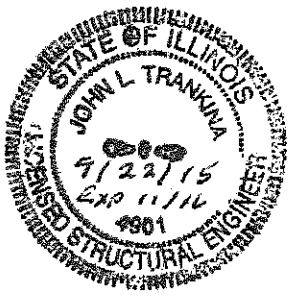
Based on the performed calculations, the utility pole is **structurally acceptable** to resist the wind loads imposed by the proposed equipment.

Should you have any questions regarding this report or require further analysis, please feel free to contact us.

Sincerely,

John C. Matzke
Project Engineer

John L. Trankina
President



Structural Calculations

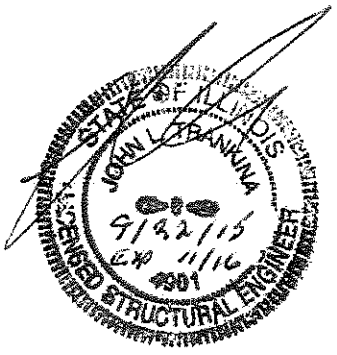
For

Verizon Loc. # 292279

Pingree Rd Metra SC

Crystal Lake, Illinois

September 21, 2015



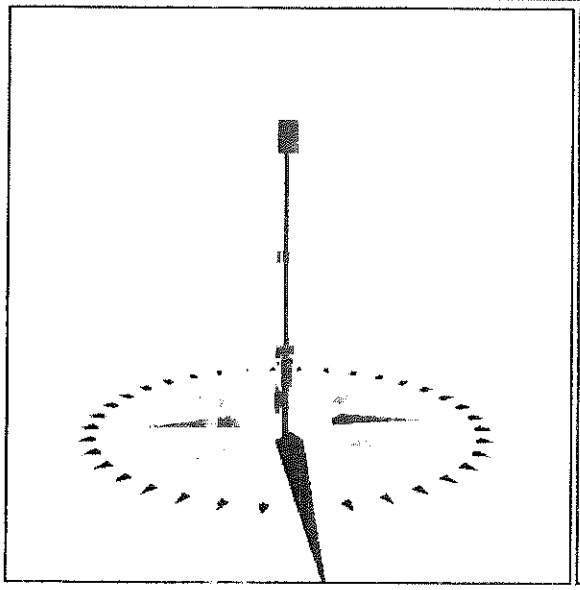
PREPARED BY:
HUTTER TRANKINA ENGINEERING
32 W 273 Army Trail Road, Suite 100, Wayne, IL 60184

Phone: 630-513-6711 Fax: 630-513-2925
htedesign.com

Project # 15381

O-Calc® Pro *Analysis Report*

File Name:	15381 O-Calc.ppIx	Pole Length / Class:	55 / 1	Code:	NESC
Pole Num:	Unset	Pole Species:	SOUTHERN PINE	NESC Rule:	Rule 250B
Aux Data 1	Unset	Setting Depth (ft):	7.50	Const. Grade:	B
Aux Data 2	Unset	G/L Circumference (in):	45.90	Load District:	Heavy
Aux Data 3	Unset	G/L Fiber Stress (psi):	8,000	Ice Thickness (in):	0.50
Aux Data 4	Unset	Allowable Stress (psi):	5,200	Wind Speed (mph):	39.53
Aux Data 5	Unset	Fiber Stress Ht. Reduction:	No	Wind Pressure (psf):	4.00



No Image Available

Pole Capacity Utilization	
Maximum:	26.1%
Groundline:	26.1%
Vertical:	10.9%

Pole Moments	
Max Capac. Util:	33,868 ft-lb
Groundline:	33,868 ft-lb

GROUNDLINE LOAD SUMMARY:*Wind at 20.0°, Applied Moment 33,868 ft-lb at 20.1°, Allowable Momen

	Shear Load (lbs)*	Percent Applied Load	Bending Moment (ft-lb)	Percent of Applied Moment	Percent of Pole Capacity	Bending Stress (+/-psi)	Vertical Load (lbs)	Ve S
Generic Equipment:	718	61.0	**23,903**	70.6	**18.0**	**937**	1,752	
Pole:	459	39.0	**9,965**	29.4	**7.5**	**390**	3,209	
Pole Load:	1,177	100.0	**33,868**	100.0	**25.5**	**1,327**	4,961	
Pole Reserve Capacity:			**98,840**		**74.5**	**3,873**		

Version: 4.11.2/4.11 * includes Load Factor(s) ¹ Worst Wind Per Guy Wire (Guy LF) ² Worst Wind per Guy Wire (Pole LF) ³ Wind at 20.0° (Guy LF)

O-Calc® Pro *Analysis Report*

LOAD SUMMARY BY OWNER

<Undefined>:	718	**23,903**	**937**	1,752
Pole:	459	**9,965**	**390**	3,209
Totals	1,177	**33,868**	**1,327**	4,961

Detailed Load Components

GenericEquipment:		Owner	Height (ft)	Horiz. Offset (in)	Offset Angle (deg)	Rotate Angle (deg)	Unit Weight (lbs)	Unit Height (in)	Unit Depth (in)	Unit Diameter (in)	Unit Length (in)	Tension Moment (ft-lb)*
Box	Siren		50.30	24.62	0.0	0.0	450.00	67.00	41.00	-	37.00	-
Box	Siren Antenna		37.00	17.46	90.0	0.0	10.00	104.00	1.00	-	1.00	-
Box	Amphenol QXW632634BFEDIN		30.00	16.96	0.0	0.0	11.00	23.20	7.10	-	12.00	-
Box	Amphenol QXW632634BFEDIN		30.00	16.96	90.0	0.0	11.00	23.20	7.10	-	12.00	-
Box	Amphenol QXW632634BFEDIN		30.00	16.96	180.0	0.0	11.00	23.20	7.10	-	12.00	-
Cylinder	Coax Sleeve		24.00	12.79	0.0	0.0	50.00	573.00	-	2.00	-	-
Box	Siren Battery Cabinet		14.00	20.01	0.0	0.0	150.00	13.00	15.19	-	28.00	-
Box	Siren Control Box		10.00	21.14	0.0	0.0	150.00	62.50	16.94	-	23.50	-
Box	AC Box		13.00	17.48	90.0	0.0	150.00	23.00	10.00	-	11.00	-
Box	Disconnect		11.00	16.61	90.0	0.0	150.00	8.00	8.00	-	8.00	-
Box	Electric Meter		3.00	17.62	90.0	0.0	25.00	24.00	9.00	-	12.00	-
											Totals:	**0**

Pole Buckling

Buckling Constant	Buckling Column Hgt (ft)	Buckling Section Height (% Buckling Col Hgt.)	Buckling Section Diam. (in)	Min. Buckling Diam. at GL (in)	Diameter at Tip (in)	Diameter at GL (in)	Modulus of Elasticity (psi)	Pole Density (pcf)	Ice Density (pcf)	Pole Tip Height (ft)	Buckling Lc Capacity at (lbs)
2.00	25.39	33.3(	13.54	19.62	8.60	14.62	1,600,000	60.00	57.00	47.50	45,(

Legend

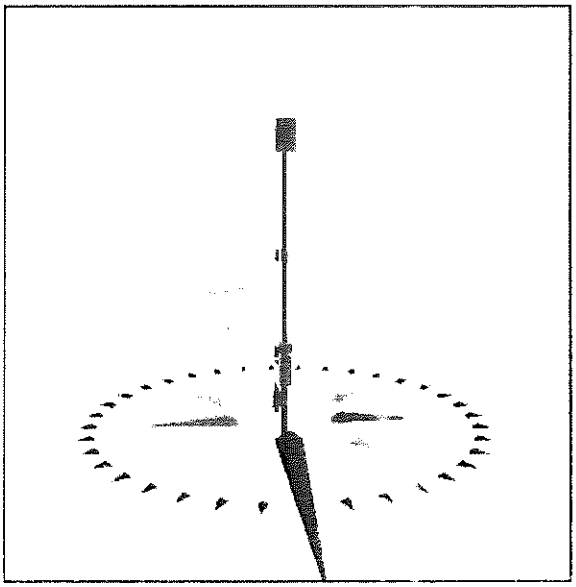
Insulators/Attachment dimensions

	Dimension 1	Dimension 2
Pin	Body Length	Diameter
Post	Body Length	Diameter
Underhung	Body Length	Diameter
Bolt	Length	Width
Spool	Width	Height

Version: 411.2/4.11 * Includes Load Factor(s) [1] Worst Wind Per Guy Wire (Guy LF) [2] Worst Wind per Guy Wire (Pole LF) [3] Wind at 20.0° (Guy LF)

O-Calc® Pro *Analysis Report*

File Name:	**15381 O-Calc.ppl**x	Pole Length / Class:	**55 / 1**	Code:	**NESC**
Pole Num:	**Unset**	Pole Species:	**SOUTHERN PINE**	NESC Rule:	**Rule 250C**
Aux Data 1	**Unset**	Setting Depth (ft):	**7.50**	Const. Grade:	**B**
Aux Data 2	**Unset**	G/L Circumference (in):	**45.90**	Load District:	**Special**
Aux Data 3	**Unset**	G/L Fiber Stress (psi):	**8,000**	Ice Thickness (in):	**0.00**
Aux Data 4	**Unset**	Allowable Stress (psi):	**6,000**	Wind Speed (mph):	**90.00**
Aux Data 5	**Unset**	Fiber Stress Ht. Reduction:	**No**	Wind Pressure (psf):	**20.74**



No Image Available

Pole Capacity Utilization	
Maximum:	42.7%
Groundline:	42.7%
Vertical:	6.3%

Pole Moments	
Max Capac. Util:	**64,846 ft-lb**
Groundline:	**64,846 ft-lb**

GROUNDLINE LOAD SUMMARY:*Wind at 60.0°, Applied Moment 64,846 ft-lb at 59.5°, Allowable Momen

	Shear Load (lbs)*	Percent Applied Load	Bending Moment (ft-lb)	Percent of Applied Moment	Percent of Pole Capacity	Bending Stress (+/-psi)	Vertical Load (lbs)	Ve St
Generic Equipment:	1,375	60.9	**45,720**	70.5	**29.9**	**1,791**	1,168	
Pole:	881	39.1	**19,126**	29.5	**12.5**	**749**	2,140	
Pole Load:	2,256	100.0	**64,846**	100.0	**42.3**	**2,541**	3,308	
Pole Reserve Capacity:			**88,279**		**57.7**	**3,459**		

Version: 4.11.2/4.11 * Includes Load Factor(s) [1] Worst Wind Per Guy Wire (Guy LF) [2] Worst Wind per Guy Wire (Pole LF) [3] Wind at 60.0° (Guy LF)

O-Calc® Pro *Analysis Report*

LOAD SUMMARY BY OWNER

<Undefined>:	1,375	**45,720**	**1,791**	1,168
Pole:	881	**19,126**	**749**	2,140
Totals	2,256	**64,846**	**2,541**	3,308

Detailed Load Components

GenericEquipment:		Owner	Height (ft)	Horiz. Offset (in)	Offset Angle (deg)	Rotate Angle (deg)	Unit Weight (lbs)	Unit Height (in)	Unit Depth (in)	Unit Diameter (in)	Unit Length (in)	Tension Moment (ft-lb)*
Box	Siren		50.30	24.62	0.0	0.0	450.00	67.00	41.00	-	37.00	-
Box	Siren Antenna		37.00	17.46	90.0	0.0	10.00	104.00	1.00	-	1.00	-
Box	Amphenol QXW632634BFEDIN		30.00	16.96	0.0	0.0	11.00	23.20	7.10	-	12.00	-
Box	Amphenol QXW632634BFEDIN		30.00	16.96	90.0	0.0	11.00	23.20	7.10	-	12.00	-
Box	Amphenol QXW632634BFEDIN		30.00	16.96	180.0	0.0	11.00	23.20	7.10	-	12.00	-
Cylinder	Coax Sleeve		24.00	12.79	0.0	0.0	50.00	576.00	-	2.00	-	-
Box	Siren Battery Cabinet		14.00	20.01	0.0	0.0	150.00	18.00	15.19	-	28.00	-
Box	Siren Control Box		10.00	21.14	0.0	0.0	150.00	62.50	16.94	-	23.50	-
Box	AC Box		13.00	17.48	90.0	0.0	150.00	23.00	10.00	-	11.00	-
Box	Disconnect		11.00	16.61	90.0	0.0	150.00	8.00	8.00	-	8.00	-
Box	Electric Meter		3.00	17.52	90.0	0.0	25.00	24.00	9.00	-	12.00	-
											Totals:	**0**

Pole Buckling

Buckling Constant	Buckling Column Hgt (ft)	Buckling Section Height (% Buckling Col. Hgt.)	Buckling Section Diam. (in)	Min. Buckling Diam. at GL (in)	Diameter at Tip (in)	Diameter at GL (in)	Modulus of Elasticity (psi)	Pole Density (pcf)	Ice Density (pcf)	Pole Tip Height (ft)	Buckling Lc Capacity at I (lbs)
2.00	25.39	33.30	13.54	15.45	8.60	14.62	1,600,000	60.00	57.00	47.50	52,6

Legend

Insulators/Attachment dimensions

	Dimension 1	Dimension 2
Pin	Body Length	Diameter
Post	Body Length	Diameter
Underhung	Body Length	Diameter
Bolt	Length	Width
Spool	Width	Height

Version: 4.11.2/4.11

* includes Load Factor(s)

[1] Worst Wind Per Guy Wire (Guy LF)

[2] Worst Wind per Guy Wire (Pole LF)

[3] Wind at 60.0° (Guy LF)

CONSULTANT TEAM

PROJECT CONSULTANT: TERRA CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
(847) 698-6400

STRUCTURAL:

APPROVALS

REAL ESTATE: _____

RF: _____

CONSTRUCTION: _____

OPERATIONS: _____

EQUIPMENT ENGINEERING: _____

PROJECT TYPE

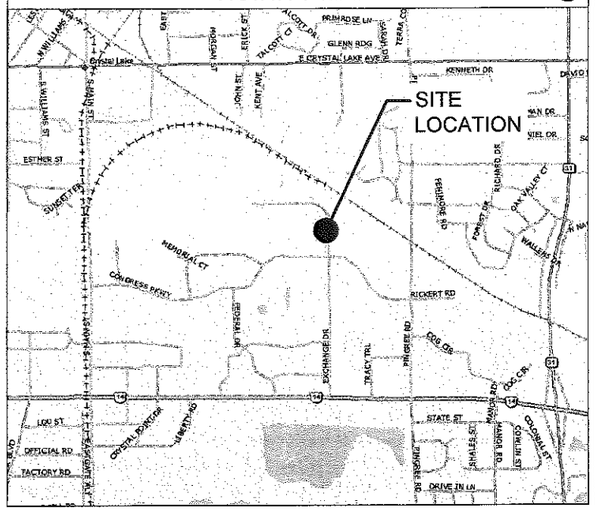
PROPOSED VERIZON WIRELESS SMALL CELL EQUIPMENT AND ANTENNA ON EXISTING UTILITY POLE.

SITE COORDINATES:

LATITUDE: 42° 14' 01.20" N (1A CERTIFICATON)
LONGITUDE: 88° 18' 05.09" W (1A CERTIFICATON)
ELEVATION: ±905' (1A CERTIFICATON)

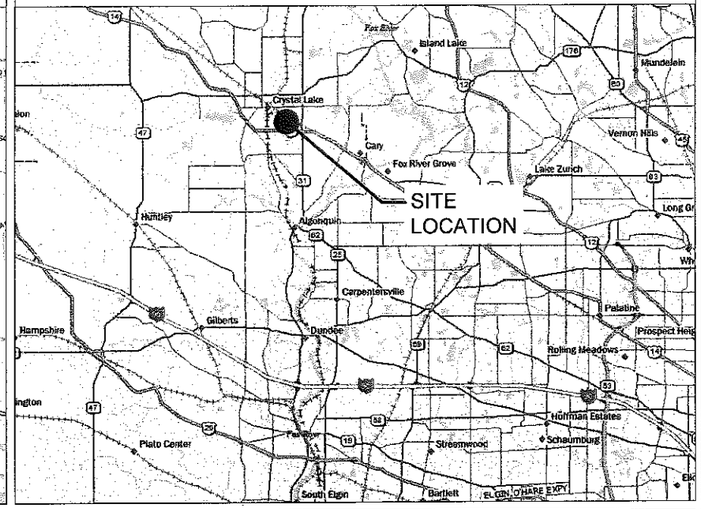
VICINITY MAP

N.T.S.



REGIONAL MAP

N.T.S.



CHICAGO SMSA

limited partnership

CHICAGO SMSA LIMITED PARTNERSHIP
d/b/a VERIZON WIRELESS
1515 WOODFIELD ROAD, SUITE 1400
SCHAUMBURG, ILLINOIS 60173
PHONE: (847) 619-5397 FAX: (847) 706-7415

LOCATION NUMBER: 292279

SITE NAME: PINGREE ROAD METRA SC

282 EXCHANGE DRIVE
CRYSTAL LAKE, IL 60014

OPERATES 24 HOURS
A DAY 365 DAYS A YEAR

Call Before You Dig
JULIE
ILLINOIS ONE CALL SYSTEM
CALL JULIE TOLL FREE
1(800) 892-0123
48 HOURS BEFORE YOU DIG

PROJECT INFORMATION

PROJECT #:	20141048397	
UTILITIES:	POWER: COMED	FIBER: WOW
JURISDICTION:	CITY OF CRYSTAL LAKE	
OCCUPANCY:	UNINHABITED	
ZONING:	-	
CONSTRUCTION TYPE:	CO LO	
PROPERTY OWNER:	-	
APPLICANT:	CHICAGO SMSA limited partnership d/b/a Verizon Wireless 1515 WOODFIELD ROAD SCHAUMBURG, IL 60173	
CONSTRUCTION MANAGER:	JASON EISELEIN (847) 706-7118	
REAL ESTATE MANAGER:	KATHY COGSWELL (847) 619-4270	

SHEET	DRAWING INDEX	REVISION
T-1	TITLE SHEET	-
LP-1	AERIAL LOCATION & EXHIBIT PHOTO	-
ANT-1	EXISTING SITE ELEVATIONS	-
ANT-2	PROPOSED SITE ELEVATIONS	-
ANT-3	PROPOSED ANTENNA CONFIGURATION	-
ANT-4	ANTENNA & EQUIPMENT DETAILS	-
ANT-5	CABINET INFORMATION AND DETAILS	-
E-1	UTILITY ROUTING DETAILS	-
E-2	GROUNDING PLAN & DETAILS	-
S-1	STRUCTURAL DETAILS	-
SP-1	SPECIFICATIONS	-

RECEIVED
SEP 30 2015
BY:

FULL SCALE PRINT IS ON 22"x34" MEDIA

2015 52

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS

TERRA CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS			
NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	08/11/15	LRB

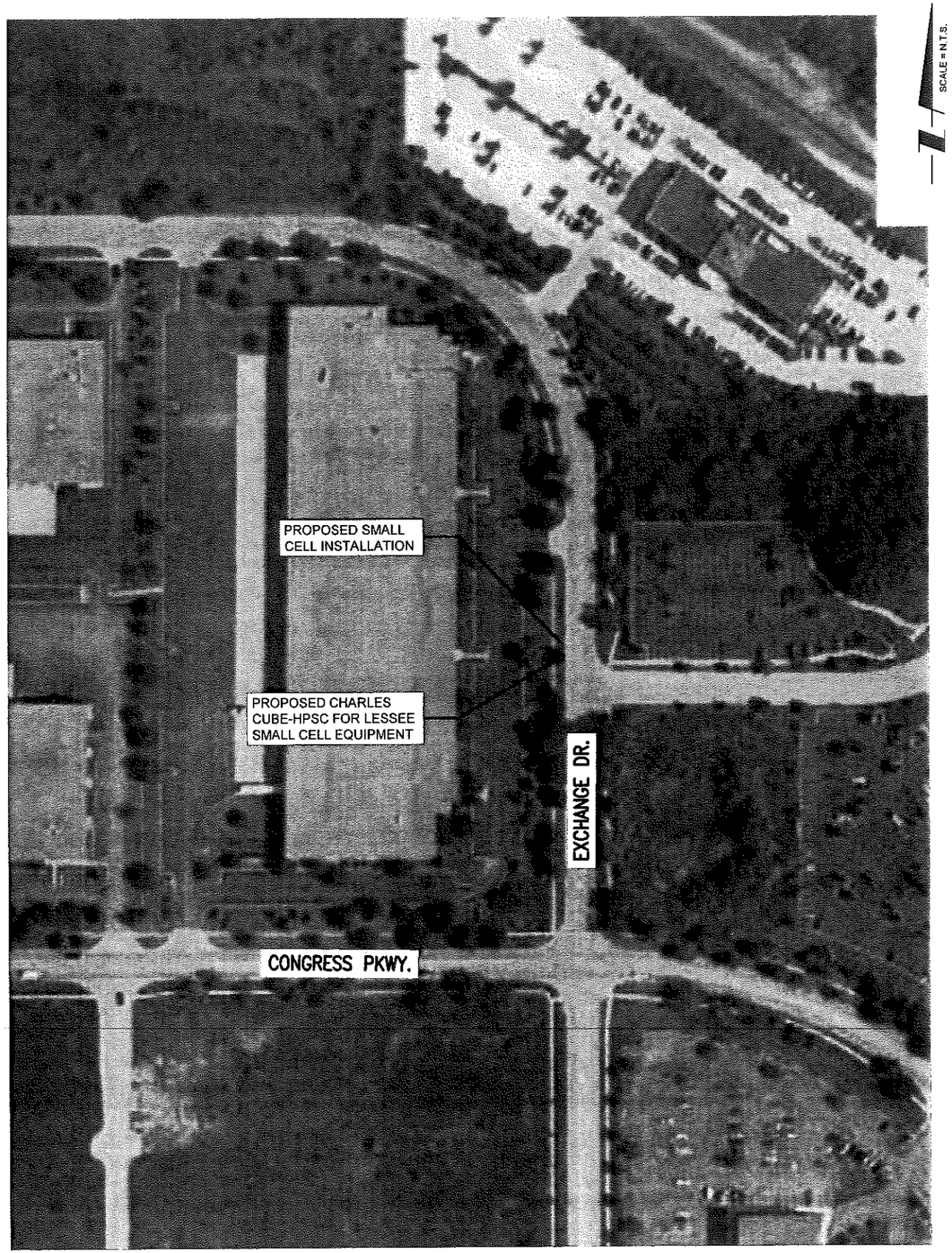
LOC# 292279
PINGREE RD.
METRA SC

282 EXCHANGE DR.
CRYSTAL LAKE, IL 60014

DRAWN BY:	MPC
CHECKED BY:	TAZ
DATE:	06/26/15
PROJECT #:	88-063

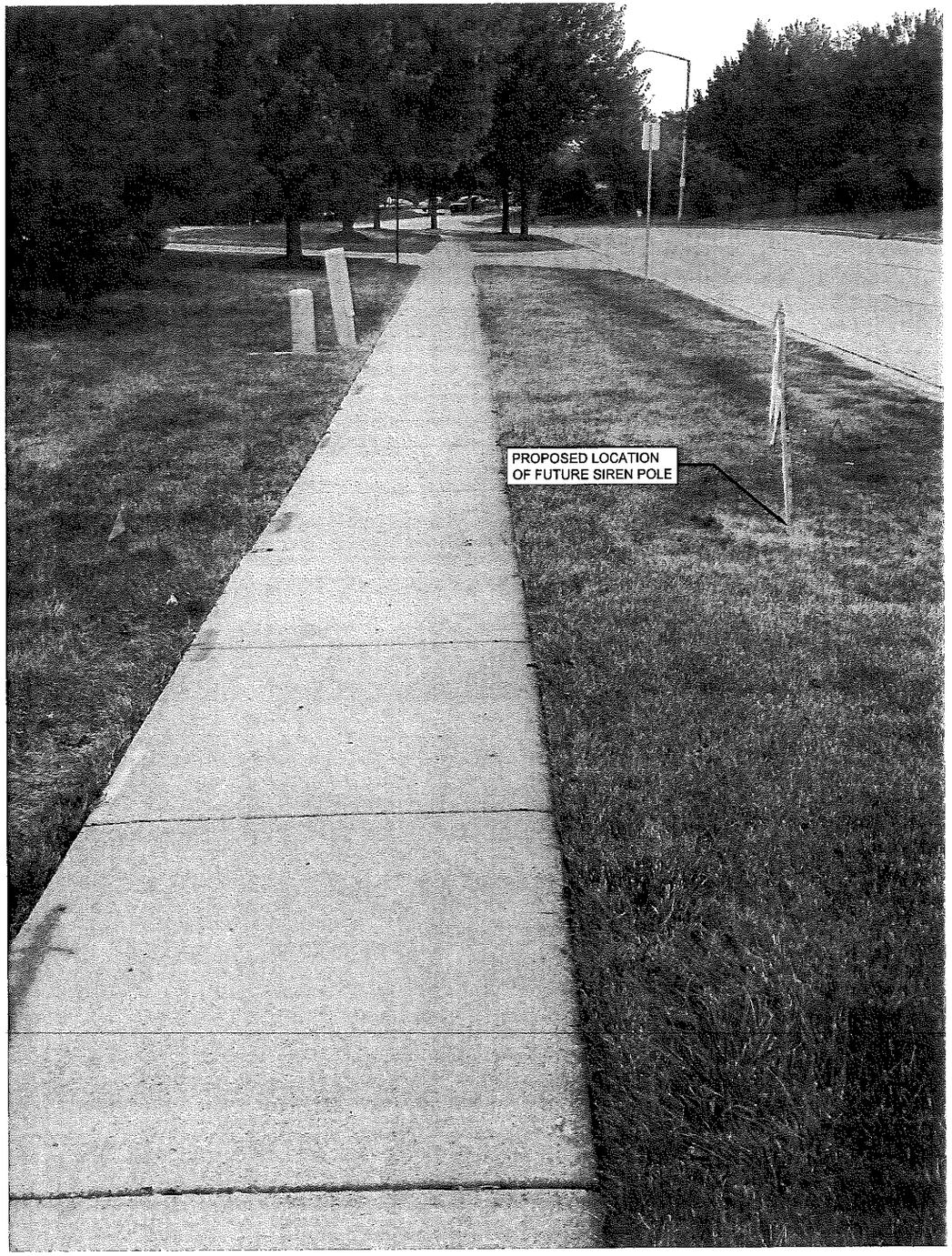
SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1



1 AERIAL LOCATION
SCALE: N.T.S.

SCALE = N.T.S.



2 EXHIBIT PHOTO OF POLE
SCALE: N.T.S.

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS

TERRA CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	06/11/15	LRB

LOC# 292279
PINGREE RD.
METRA SC

282 EXCHANGE DR.
CRYSTAL LAKE, IL 60014

DRAWN BY:	MPC
CHECKED BY:	TAZ
DATE:	06/26/15
PROJECT #:	88-063

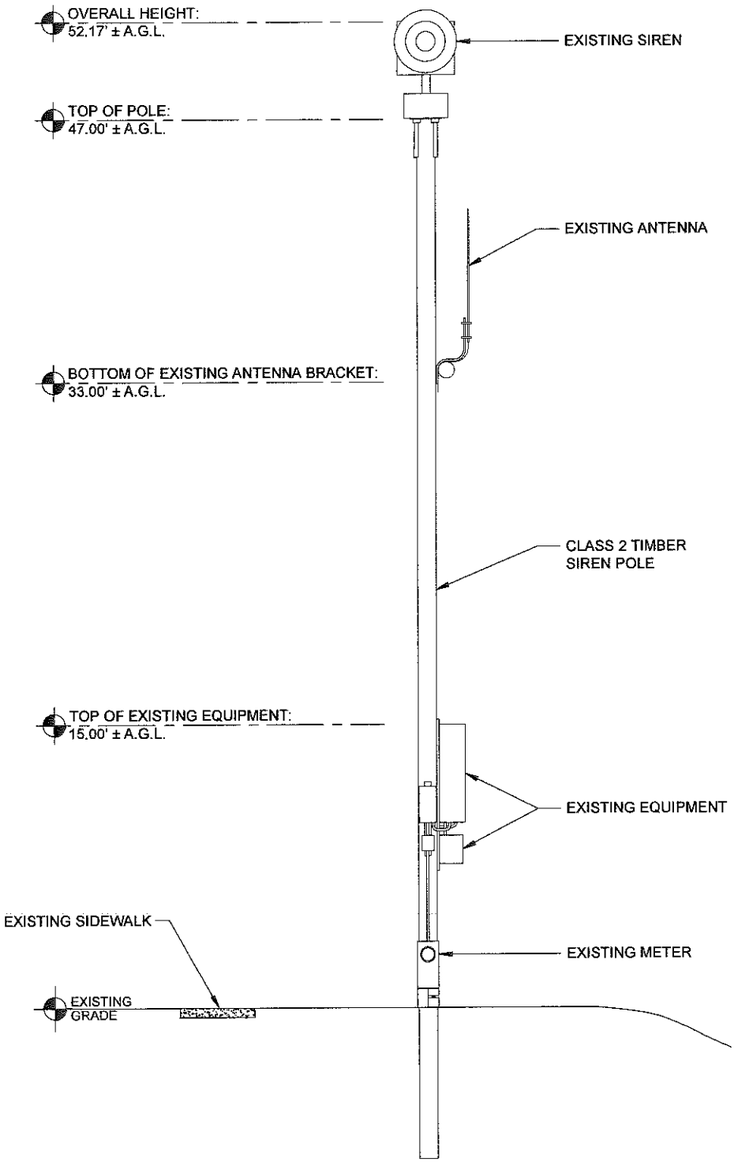
SHEET TITLE
AERIAL LOCATION & EXHIBIT PHOTO

SHEET NUMBER
LP-1

0 1/2" 1" 2"

SCALE: 1/4" = 1'-0"

22" x 34" PRINT IS THE FULL SCALE FORMAT. ANY SIZE OTHER THAN THAT IS AT REDUCED SCALE.



1 EXISTING SOUTH ELEVATION
SCALE: 1/4" = 1'-0" ±

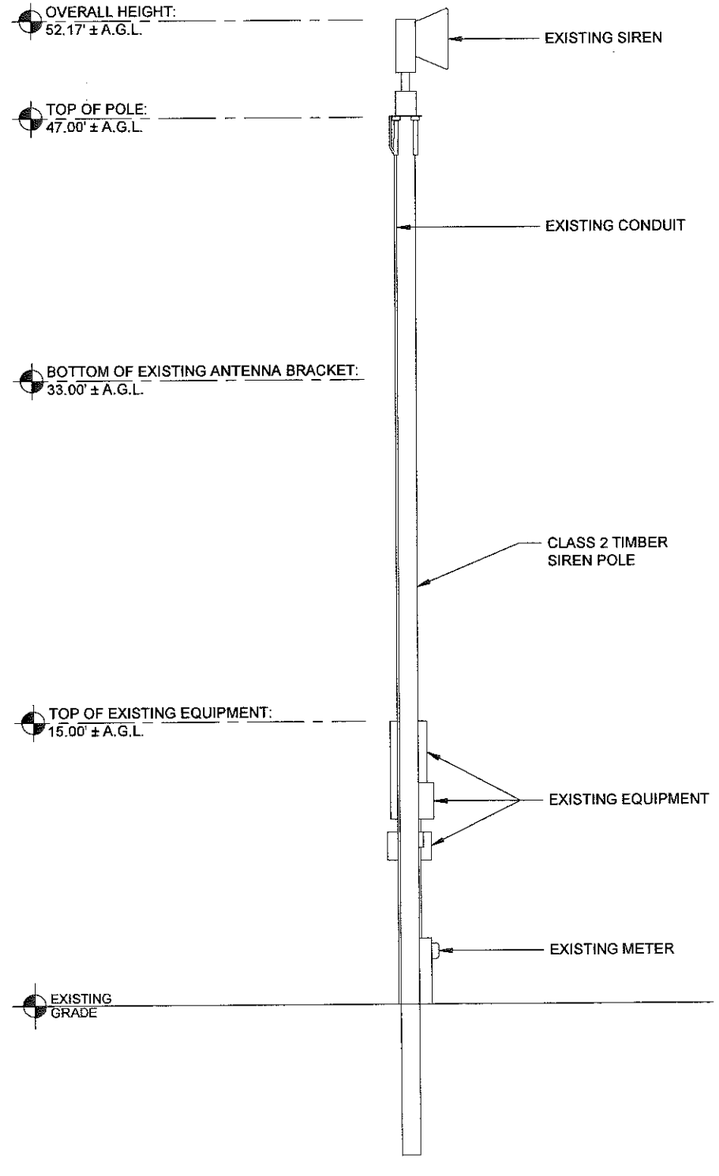
NOTE:
THIS DRAWING IS FOR EXHIBIT AND LAYOUT PURPOSES ONLY.

PLEASE REFER TO STRUCTURAL REPORT PREPARED BY HUTTER TRANKINA ENGINEERING.

0 1/2" 1" 2"

SCALE: 1/4" = 1'-0"

22" x 34" PRINT IS THE FULL SCALE FORMAT. ANY SIZE OTHER THAN THAT IS AT REDUCED SCALE.



2 EXISTING WEST ELEVATION
SCALE: 1/4" = 1'-0" ±

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS

TERRA CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	ISSUED FOR REVIEW	06/11/15	LRB

LOC# 292279
PINGREE RD.
METRA SC

282 EXCHANGE DR.
CRYSTAL LAKE, IL 60014

DRAWN BY:	MPC
CHECKED BY:	TAZ
DATE:	06/26/15
PROJECT #:	88-063

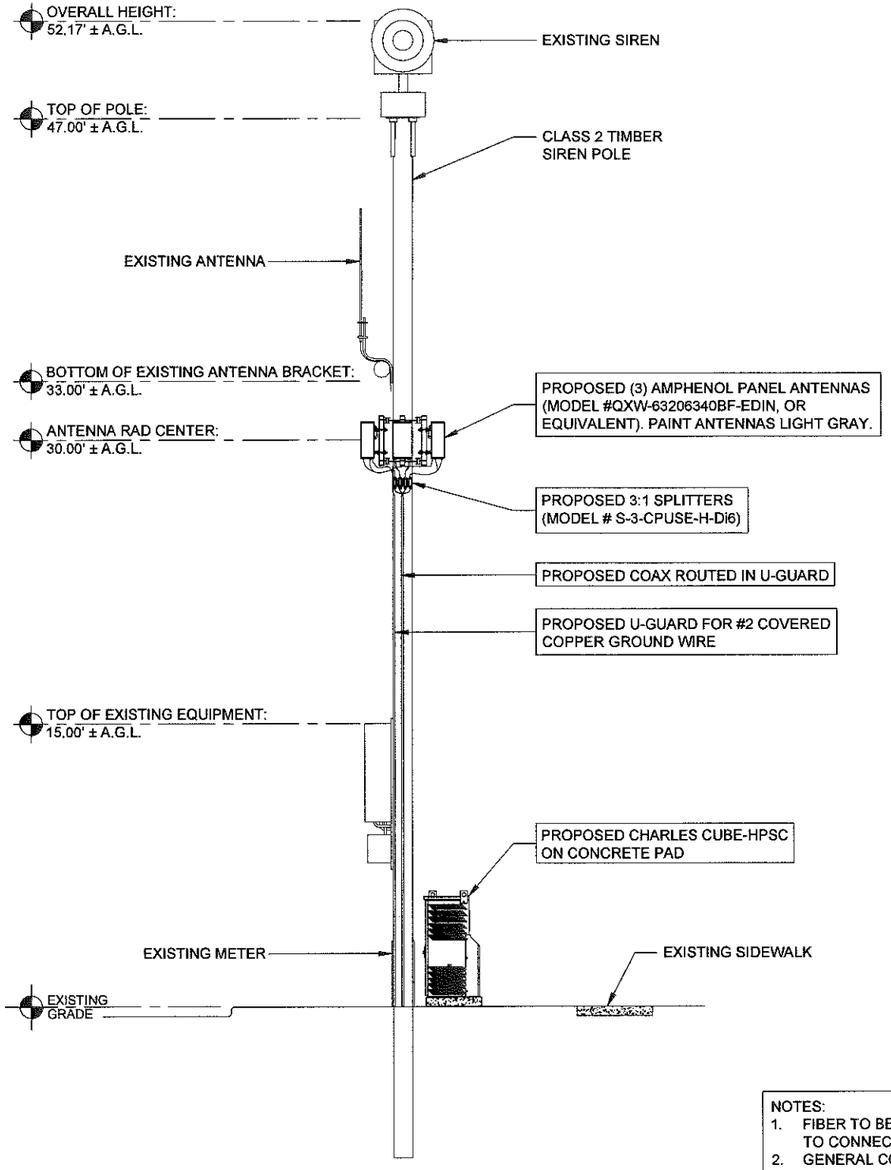
SHEET TITLE
EXISTING SITE ELEVATIONS

SHEET NUMBER
ANT-1

0 1/2" 1" 2"

SCALE: 1/4" = 1'-0"

22" x 34" PRINT IS THE FULL SCALE FORMAT. ANY SIZE OTHER THAN THAT IS AT REDUCED SCALE.



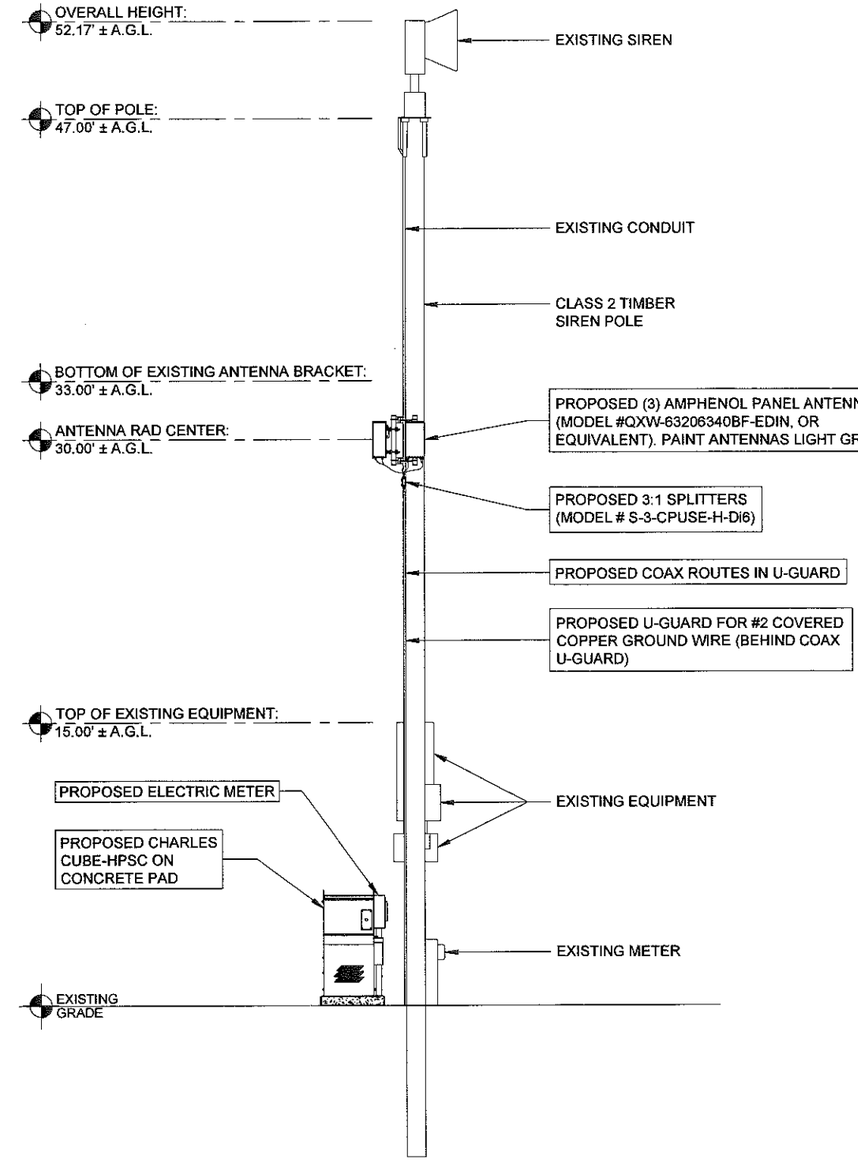
1 PROPOSED NORTH ELEVATION
SCALE: 1/4" = 1'-0" ±

NOTES:
1. FIBER TO BE CLEAN AND TESTED PRIOR TO CONNECTING TO RRU'S.
2. GENERAL CONTRACTOR TO ENSURE BATTERIES ARE NOT CONNECT PRIOR TO COMMERCIAL POWER ACTIVATION.
3. THIS DRAWING IS FOR EXHIBIT AND LAYOUT PURPOSES ONLY. PLEASE REFER TO STRUCTURAL REPORT PREPARED BY HUTTER TRANKINA ENGINEERING.

0 1/2" 1" 2"

SCALE: 1/4" = 1'-0"

22" x 34" PRINT IS THE FULL SCALE FORMAT. ANY SIZE OTHER THAN THAT IS AT REDUCED SCALE.



2 PROPOSED WEST ELEVATION
SCALE: 1/4" = 1'-0" ±

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS

TERRA CONSULTING GROUP, LTD.
800 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
.	ISSUED FOR REVIEW	06/11/15	LRB

LOC# 292279
PINGREE RD.
METRA SC

282 EXCHANGE DR.
CRYSTAL LAKE, IL 60014

DRAWN BY:	MPC
CHECKED BY:	TAZ
DATE:	06/26/15
PROJECT #:	88-063

SHEET TITLE
PROPOSED SITE ELEVATIONS

SHEET NUMBER
ANT-2

EQUIPMENT CHANGE REQUEST FORM - ECR

Name	*Pingree Road Metra SC - Small Cell Build*		***RF Engineer***		*Sabhi Siddiqui*	***Cell ID***	*282 Exchange Dr. (W side of Exchange across from Metra driveway), Crystal Lake, IL*
Location Number	*292279*		***Market***		*Chicago-EL1*	***Address***	
Date of Request	*5/27/2015*		***Carriers***		*700 & AWS*	***Structure Type***	*Utility Pole/Tower*

Sector	Power Required	Antenna Manufacturer	Antenna Model	Centerline*	Azimuth	Mechanical Tilt	Variable Tilt
Alpha	40 W	Amphenol	QXW-63206340BF-EDIN	30	0	0	0
							0
Beta	40 W	Amphenol	QXW-63206340BF-EDIN	30	120	0	0
							0
Gamma	40 W	Pingree	QXW-63206340BF-EDIN	30	240	0	0
							0

***Centerline may vary +/- 3', not to fall below 27'**

	Component	Count	Action	
Passive Components	3-way splitter	4	Install	See Layout Tab
Coax	1/2"	12	Install	Radio to Splitter
	1/2"	4	Install	Splitter to Antenna

Carrier - LTE/AWS	Power Required	Equipment Manufacturer	Equipment Model	CWDM?
700	40 W	Ericsson	RRUS11 B13	No
2100	40 W	Ericsson	RRUS12 B4	-

***When no Cabinets are used AC/DC converters need to be mounted behind the radios**

1 PROPOSED ANTENNA CONFIGURATION
N.T.S.

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS

TERRA CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	ISSUED FOR REVIEW	08/11/15	LRB

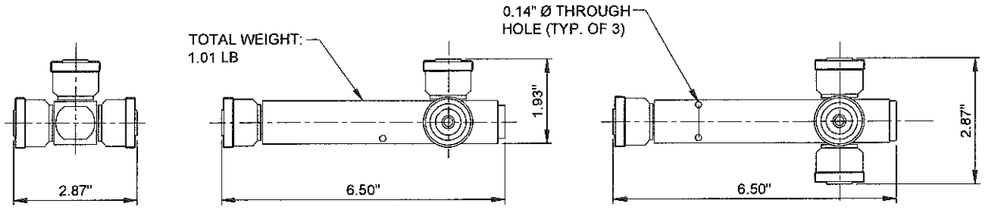
LOC# 292279
PINGREE RD.
METRA SC

282 EXCHANGE DR.
CRYSTAL LAKE, IL 60014

DRAWN BY:	MPC
CHECKED BY:	TAZ
DATE:	06/26/15
PROJECT #:	88-063

SHEET TITLE
PROPOSED ANTENNA CONFIGURATION

SHEET NUMBER
ANT-3



2 COMMSCOPE S-3-CPUSE-H-Di6 SPLITTER DETAIL
SCALE: N.T.S

696-900 / 1710-2170 MHz

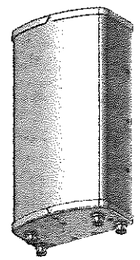
Amphenol ANTENNA SOLUTIONS

QXW-632X634XBF-EDIN

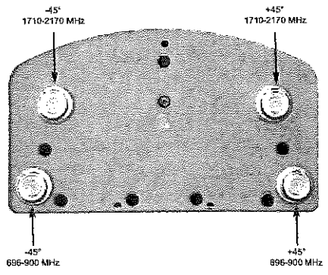
Replace "X" with desired electrical downtilt.

XX-Pol | Dual Band FET Panel | 63° / 63° | 11.6 / 14.3 dBi

Electrical Characteristics	696-900 MHz		1710-2170 MHz		
Frequency bands	696-806	806-900	1710-1880	1850-1990	1900-2170
Polarization	±45°		±45°		
Horizontal beamwidth	70°	65°	65°	63°	61°
Vertical beamwidth	37°	35°	18°	18°	18°
Gain	8.0 dBd / 11.1 dBi	8.5 dBd / 11.6 dBi	11.8 dBd / 13.9 dBi	12.1 dBd / 14.2 dBi	12.2 dBd / 14.3 dBi
Electrical downtilt (X)	0		0		
Impedance	50Ω		50Ω		
VSWR	≤1.5:1		≤1.5:1		
Isolation between ports	25 dB		25 dB		
Input power	500 W		300 W		
Lightning protection	Direct ground				
Connector(s)	4 / 7-16 DIN / Female / Bottom				
Mechanical Characteristics					
Dimensions Length x Width x Depth	589 x 305 x 180 mm		23.2 x 12.0 x 7.1 in		
Weight without mounting brackets	5 kg		11 lbs		
Survival wind speed	> 201 km/hr		> 125 mph		
Wind area	Front: 0.18 m²	Side: 0.11 m²	Front: 1.9 ft²	Side: 1.1 ft²	
Wind load @ 161 km/hr (100 mph)	Front: 219 N	Side: 129 N	Front: 49 lbf	Side: 29 lbf	
Mounting Options	Part Number	Fits Pipe Diameter		Weight	
2-Point Mounting & Downtilt Bracket Kit	36210008	40-115 mm	1.57-4.5 in	4.1 kg	9.0 lbs



Antenna Bottom View

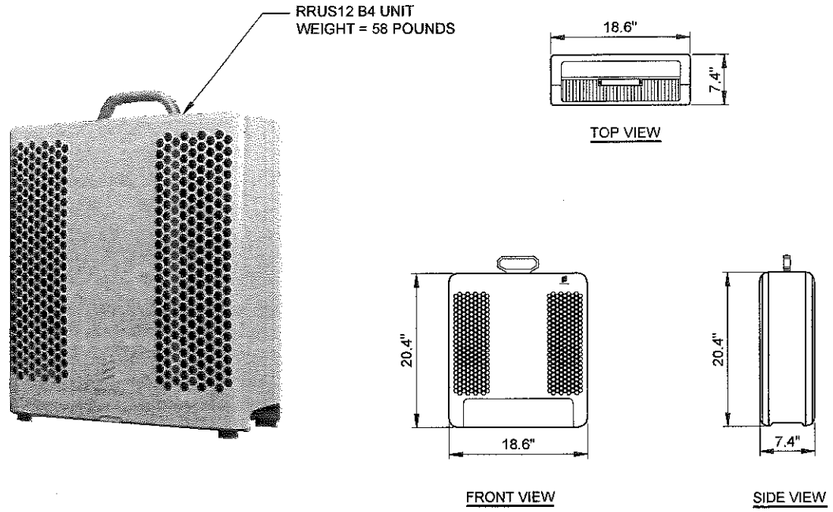


Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to product may be made without notice.

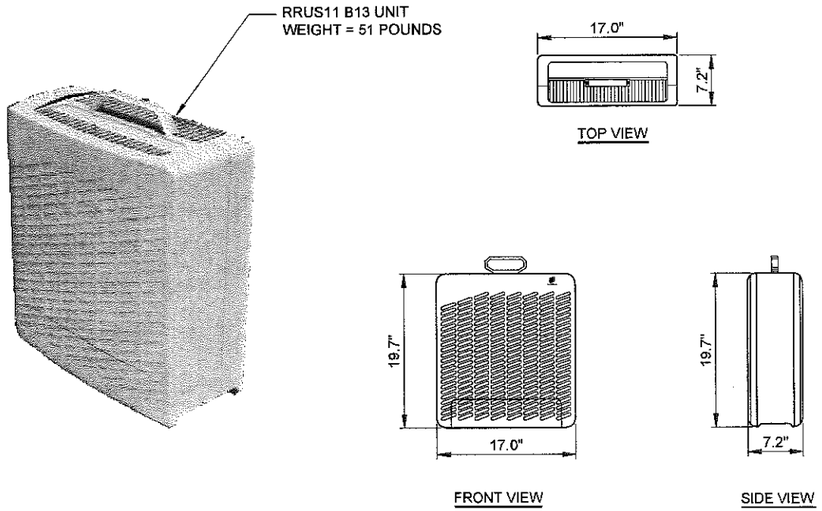
www.amphenol-antennas.com

REV042312

1 ANTENNA SPECIFICATIONS SHEET
N.T.S.



3 RRUS12 B4 INFORMATION
N.T.S.



4 RRUS11 B13 INFORMATION
N.T.S.

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS

TERRA CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
.	ISSUED FOR REVIEW	06/11/15	LRB

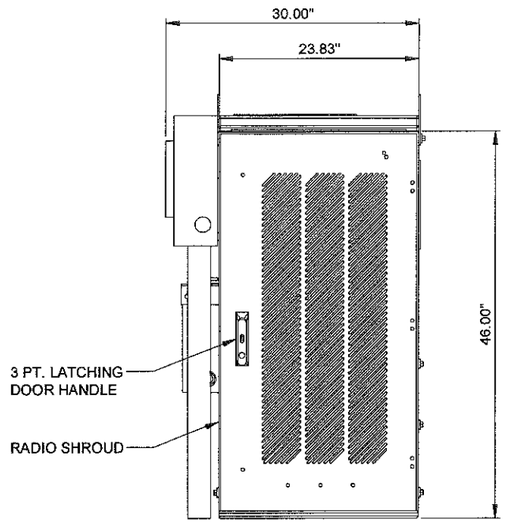
LOC# 292279
PINGREE RD.
METRA SC

282 EXCHANGE DR.
CRYSTAL LAKE, IL 60014

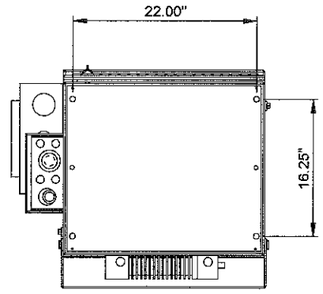
DRAWN BY:	MPC
CHECKED BY:	TAZ
DATE:	06/26/15
PROJECT #:	88-063

SHEET TITLE
ANTENNA & EQUIPMENT DETAILS

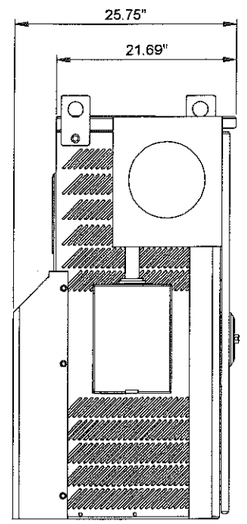
SHEET NUMBER
ANT-4



FRONT VIEW

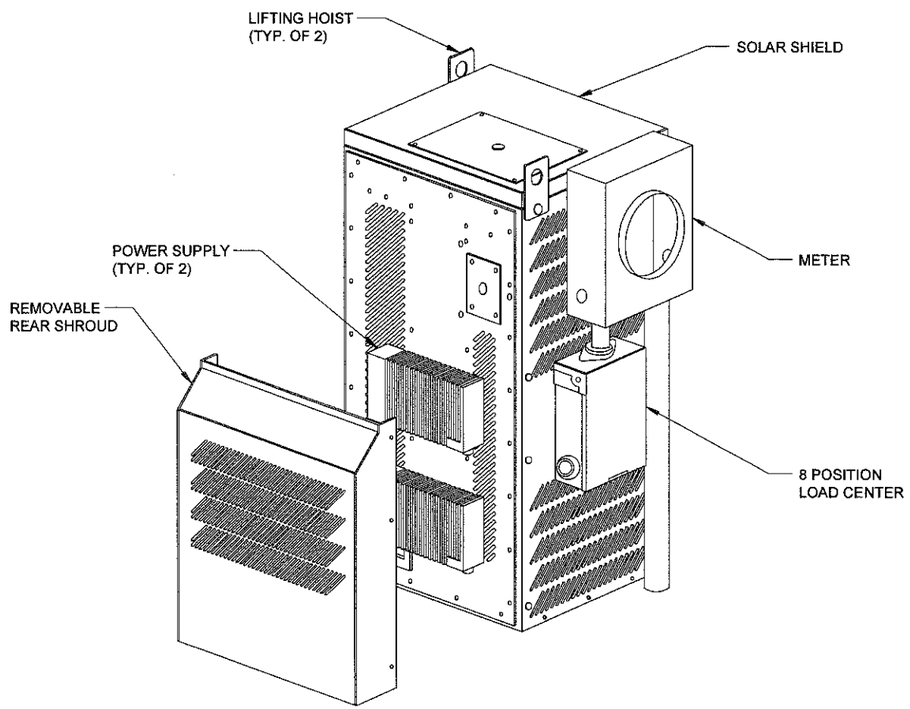


BOTTOM VIEW



SIDE VIEW

1 CHARLES CUBE-HPSC CABINET DIMENSIONS
SCALE: N.T.S



2 CHARLES CUBE-HPSC CABINET COMPONENTS
SCALE: N.T.S

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS

TERRA CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

NO.	DESCRIPTION	DATE	BY
1	ISSUED FOR REVIEW	08/11/15	LRB

REVISIONS

LOC# 292279
PINGREE RD.
METRA SC

282 EXCHANGE DR.
CRYSTAL LAKE, IL 60014

DRAWN BY:	MPC
CHECKED BY:	TAZ
DATE:	06/26/15
PROJECT #:	88-063

SHEET TITLE
CABINET DIMENSIONS AND DETAILS

SHEET NUMBER
ANT-5

UTILITY NOTES:

WORK INCLUDES:

THESE NOTES AND ACCOMPANYING DRAWINGS COMPLEMENT THE PROVISIONS AND INSTALLATIONS BY THE ELECTRICAL CONTRACTOR, OF ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO INSTALL THE ELECTRICAL WORK COMPLETE IN CONNECTION WITH THIS VERIZON WIRELESS SITE AND SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:

1. THE PROVISIONS, INSTALLATION, AND CONNECTION OF A GROUNDING ELECTRODE SYSTEM COMPLETE WITH SECONDARY GROUNDING, AND CONNECTIONS TO THE INCOMING ELECTRICAL DISTRIBUTION EQUIPMENT.
2. THE PROVISION AND INSTALLATION OF AN OVERHEAD ELECTRICAL SERVICE OR UNDERGROUND ELECTRICAL SERVICE AND ALL ASSOCIATED WIRE AND CONDUIT AS REQUIRED AND/OR INDICATED ON PLANS.
3. THE PROVISION, INSTALLATION OF CONDUIT AND CONNECTIONS FOR LOCAL FIBER SERVICE.
4. THE FURNISHING AND INSTALLATION OF THE ELECTRICAL SERVICE ENTRANCE CONDUCTORS, CONDUITS, METER SOCKET, AND CONNECTIONS TO THE SERVICE EQUIPMENT.
5. TWO INCH (2") AND THREE INCH (3") DIAMETER PVC CONDUITS SCHEDULE 40.
6. ALL PVC CONDUITS SHOULD BE LEFT WITH NYLON PULL CORD FOR FUTURE USE.
7. EXCAVATION, TRENCHING, AND BACKFILLING FOR CONDUIT(S), CABLE(S), AND EXTERNAL GROUNDING SYSTEM.

CODES, PERMITS, AND FEES:

1. ALL REQUIRED PERMITS, LICENSES, INSPECTIONS AND APPROVALS SHALL BE SECURED AND ALL FEES FOR SAME PAID BY CONTRACTOR.
2. THE INSTALLATION SHALL COMPLY WITH ALL APPLICABLE CODES: STATE, LOCAL AND NATIONAL, AND THE DESIGN, PERFORMANCE CHARACTERISTICS AND METHODS OF CONSTRUCTION OF ALL ITEMS AND EQUIPMENT SHALL BE IN ACCORDANCE WITH THE LATEST ISSUE OF THE VARIOUS APPLICABLE STANDARD SPECIFICATIONS OF THE FOLLOWING AUTHORITIES:

N.E.C.	NATIONAL ELECTRIC CODE
A.N.S.I.	AMERICAN NATIONAL STANDARDS INSTITUTE
I.E.E.E.	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
A.S.T.M.	AMERICAN SOCIETY FOR TESTING MATERIALS
N.E.M.A.	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
U.L.	UNDERWRITERS LABORATORIES, INC.
N.F.P.A.	NATIONAL FIRE PROTECTION ASSOCIATION

RACEWAYS AND WIRING:

1. WIRING OF EVERY KIND MUST BE INSTALLED IN CONDUIT, UNLESS NOTED OTHERWISE, OR AS APPROVED BY THE ENGINEER.
2. UNLESS OTHERWISE SPECIFIED, ALL WIRING SHALL BE COPPER (CU) TYPE THWN, SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.
3. RACEWAYS SHALL BE GALVANIZED STEEL, SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, UNLESS OTHERWISE NOTED. ALL RACEWAYS SHALL BE APPROVED FOR THE INSTALLATION.
4. PULL OR JUNCTION BOXES SHALL BE PROVIDED AS REQUIRED TO FACILITATE INSTALLATION OF RACEWAYS AND WIRING. PROVIDE JUNCTION AND PULLBOXES FOR CONDUIT RUNS WITH MORE THAN (360) DEGREES OF BENDS.
5. PROVIDE A COMPLETE RACEWAY AND WIRING INSTALLATION, PERMANENTLY AND EFFECTIVELY GROUNDED IN ACCORDANCE WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE AND LOCAL CODES.
6. ALL STEEL CONDUIT SHALL BE BONDED AT BOTH ENDS WITH GROUNDING BUSHING.

GENERAL NOTES:

SEE DETAILS AND SCHEDULES ON DRAWINGS AND SPECIFICATIONS FOR MEANING OF ABBREVIATIONS AND ADDITIONAL REQUIREMENTS AND INFORMATION. CHECK ARCHITECTURAL, STRUCTURAL AND OTHER MECHANICAL AND ELECTRICAL DRAWINGS FOR SCALE, SPACE LIMITATIONS, COORDINATION, AND ADDITIONAL INFORMATION, ETC. REPORT ANY DISCREPANCIES, CONFLICTS, ETC. TO ENGINEER BEFORE SUBMITTING BID. ALL EQUIPMENT FURNISHED BY OTHERS (FBO) SHALL BE PROVIDED WITH PROPER MOTOR STARTERS, DISCONNECTS, CONTROLS, ETC. BY THE ELECTRICAL CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE. THE ELECTRICAL CONTRACTOR SHALL INSTALL AND COMPLETELY WIRE ALL ASSOCIATED EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S WIRE DIAGRAMS AND AS REQUIRED FOR A COMPLETE OPERATING INSTALLATION. ELECTRICAL CONTRACTOR SHALL VERIFY AND COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF (FBO) EQUIPMENT PRIOR TO ROUGH-IN OF CONDUIT AND WIRING TO AVOID CONFLICTS.

COORDINATION WITH UTILITY COMPANY:

THE ELECTRICAL CONTRACTOR SHALL COORDINATE COMPLETE ELECTRICAL SERVICE WITH LOCAL UTILITY COMPANY FOR A COMPLETE OPERATIONS SYSTEM, INCLUDING TRANSFORMER CONNECTIONS, CONCRETE TRANSFORMER PADS, IF REQUIRED, METER SOCKETS, PRIMARY CABLE RACEWAY REQUIREMENTS, SECONDARY SERVICE, ETC. PRIOR TO SUBMITTING BID TO INCLUDE ALL LABOR AND MATERIALS. THE ELECTRICAL CONTRACTOR SHALL INCLUDE IN THE BID ANY OPTIONAL OR EXCESS FACILITY CHARGES ASSOCIATED WITH PROVIDING ELECTRICAL SERVICE FROM LOCAL UTILITY COMPANY. VERIFY BEFORE BIDDING TO INCLUDE ALL COSTS. THE ELECTRICAL CONTRACTOR SHALL VERIFY THE AVAILABLE FAULT CURRENT WITH THE LOCAL UTILITY COMPANY PRIOR TO SUBMITTING BID. ADJUST A.I.C. RATINGS OF ALL OVER CURRENT PROTECTION DEVICES IN DISTRIBUTION EQUIPMENT AS REQUIRED TO COORDINATE WITH AVAILABLE FAULT CURRENT FROM LOCAL UTILITY COMPANY. ALL GROUNDING RODS PROVIDED BY THE POWER OR TELEPHONE UTILITY COMPANIES MUST BE TIED INTO THE MAIN EXTERNAL GROUND RING.

UTILITY CONTACTS:

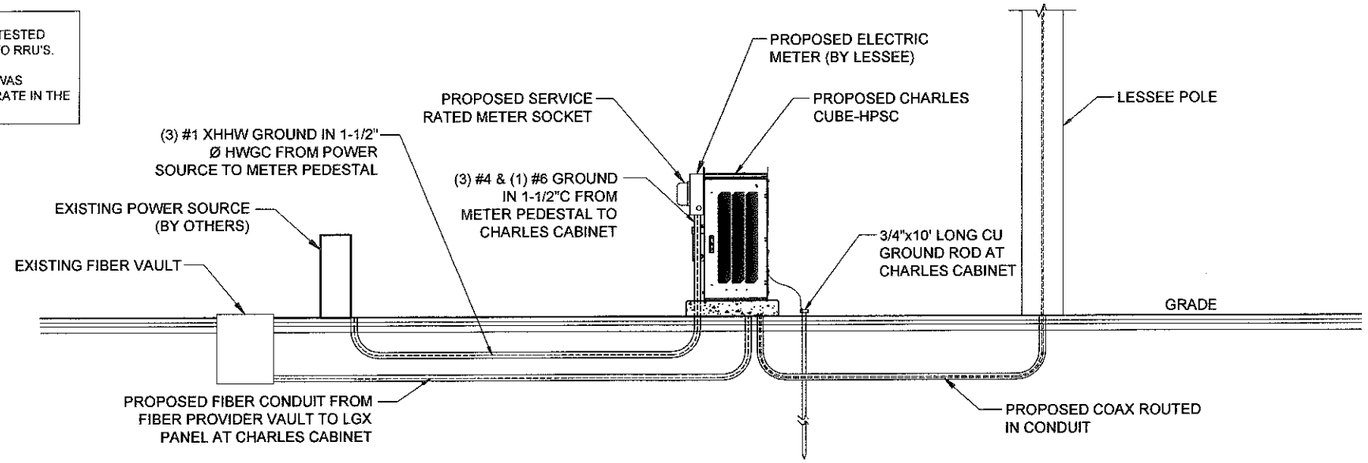
POWER - COMED

ELECTRICAL CONTRACTOR SHALL COORDINATE WITH POWER COMPANY FOR ENTRY INTO FENCED AREA BY EITHER MAILING A KEY TO A SLAVE LOCKED CHAIN AT THE FENCE GATE OR CALLING AND LEAVING A COMBINATION.

FIBER - WOW

FOR CONTINUATION AND CONNECTION OF ELECTRIC AND TELEPHONE SERVICE. COORDINATE WITH ELECTRIC AND PHONE COMPANY

NOTE:
1. FIBER TO BE CLEAN AND TESTED PRIOR TO CONNECTING TO RRU'S.
2. NO FIBER INFORMATION WAS PROVIDED TO DEMONSTRATE IN THE DRAWINGS.



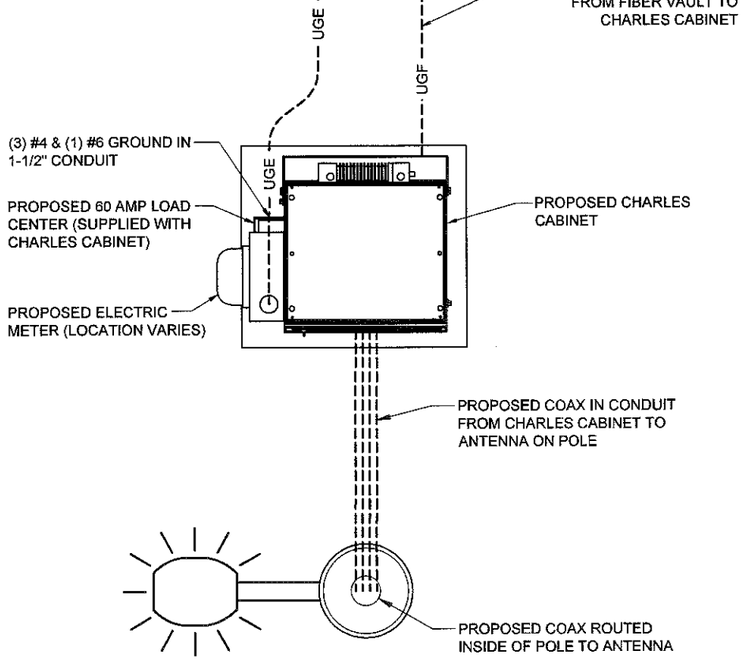
ELECTRICAL SERVICE: 200 AMP 120/240V SINGLE PHASE 3 WIRE

NOTE: VERIFY TELEPHONE ROUTING REQUIREMENTS WITH LOCAL TELEPHONE COMPANY

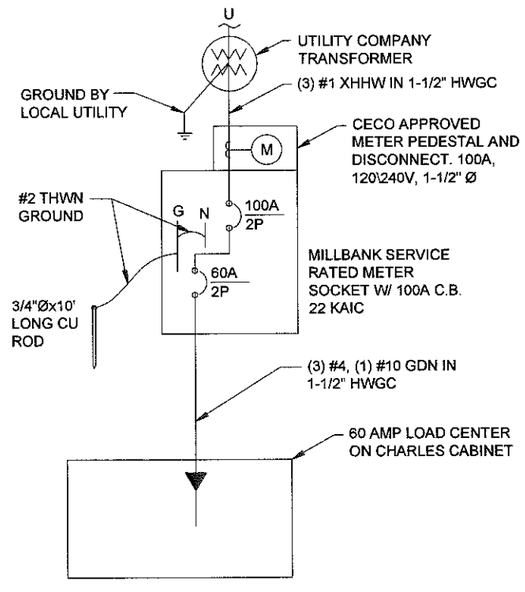
2 ELECTRICAL RISER DIAGRAM
SCALE: N.T.S.

CONTRACTOR SHALL BUILD INTO THE PRICE OF THE BID THE COST OF TWO (2) MOBILIZATIONS:
1) POWER/FIBER PERMIT PULLED PRIOR TO BUILDING PERMIT AND PRELIMINARY WORK (SMART JACK ON A STICK, ETC) COMPLETED PRIOR TO GENERAL CONSTRUCTION
2) RETURN TO COMPLETE GENERAL ELECTRICAL CONSTRUCTION

24" x 36" PRINT IS THE FULL SCALE FORMAT. ANY SIZE OTHER THAN THAT IS AT REDUCED SCALE.



1 UTILITY ROUTING PLAN (UNDERGROUND)
SCALE: N.T.S.



2 SINGLE LINE DIAGRAM
N.T.S.

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS

TERRA CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS			
NO.	DESCRIPTION	DATE	BY
1	ISSUED FOR REVIEW	08/11/15	LRB

LOC# 292279
PINGREE RD.
METRA SC

282 EXCHANGE DR.
CRYSTAL LAKE, IL 60014

DRAWN BY:	MPC
CHECKED BY:	TAZ
DATE:	06/26/15
PROJECT #:	88-063

SHEET TITLE
UTILITY ROUTING DETAILS

SHEET NUMBER
E-1

GROUNDING ELECTRODE SYSTEM NOTES:

1. ALL GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC PROCESS CONNECTIONS SHALL INCLUDE ALL CABLE TO CABLE, SPLICES, ETC. ALL CABLE TO GROUND RODS, GROUND RODS SPLICES AND LIGHTNING PROTECTION SYSTEM AS INDICATED. GROUND FOUNDATION ONLY AS INDICATED BY PM. ALL MATERIALS USED (MOLDS, WELDING, METAL, TOOLS, ETC.) SHALL BE BY EXOTHERMIC PROCESS AND INSTALLED PER MANUFACTURERS RECOMMENDATIONS AND PROCEDURES. GROUND CONDUCTOR SHALL HAVE A MINIMUM 24" BENDING RADIUS.
2. ALL EXOTHERMIC CONNECTIONS ON GALVANIZED SURFACES SHALL BE CLEANED THOROUGHLY AND COLORED TO MATCH SURFACE WITH (2) TWO COATS OF SHERWIN-WILLIAMS GALVITE (WHITE) PAINT B50W3 (OR EQUAL) OR SHERWIN- WILLIAMS SILVERBRITE (ALUMINUM) B59S11 (OR EQUAL).
3. ALL ELECTRICAL & MECHANICAL GROUND CONNECTIONS SHALL HAVE ANTI-OXIDANT COMPOUND APPLIED TO CONNECTION

LEGEND	
SYMBOL	DESCRIPTION
⊗	5/8" DIAMETER x 10'-0" LONG COPPER CLAD GROUND ROD (HARGER-5810)
O	5/8" DIAMETER X 10'-0" LONG COPPER CLAD GROUND ROD WITH INSPECTION WELL
	#2 AWG TNND SOLID BARE COPPER WIRE MINIMUM 42" BELOW GRADE (HARGER-L2)
---UE---	UNDERGROUND ELECTRICAL
---UT---	UNDERGROUND TELEPHONE
---F---	UNDERGROUND FIBER
	EXOTHERMIC WELD
---OE---	OVERHEAD ELECTRICAL SERVICE
---OT---	OVERHEAD TELEPHONE SERVICE

6. UTILITY COMPANY COORDINATION: ELECTRICAL CONTRACTOR SHALL CONFIRM THAT ALL WORK IS IN ACCORDANCE WITH THE RULES OF THE LOCAL UTILITY COMPANY BEFORE SUBMITTING THE BID, THE CONTRACTOR SHALL CHECK WITH THE UTILITY COMPANIES SUPPLYING SERVICE TO THIS PROJECT AND SHALL DETERMINE FROM THEM ALL EQUIPMENT AND CHARGES WHICH THEY WILL REQUIRE AND SHALL INCLUDE THE COST IN THE BID.
7. GROUND TEST: GROUND TESTS SHALL BE PERFORMED AS REQUIRED BY LESSEE STANDARD PROCEDURES. GROUND GRID RESISTANCE SHALL NOT EXCEED 5 OHMS.
8. CONTRACTOR SHALL SUBMIT THE GROUND RESISTANCE TEST REPORT AS FOLLOWS:
   1. ONE (1) COPY TO OWNER REPRESENTATIVE
   2. ONE (1) COPY TO ENGINEER
   3. ONE (1) COPY TO KEEP INSIDE EQUIPMENT ENCLOSURE

TYPICAL KEYED GROUNDING NOTES △

△1 3/O STRANDED SOLID BARE COPPER CONDUCTOR 42" BELOW GRADE (TYPICAL) MINIMUM 24" BENDING RADIUS

△2 ENCLOSURE GROUND (TYP.) IN 1/2" DIAMETER SCHEDULE 40 PVC CONDUIT

△3 #2 AWG TNND SOLID BARE COPPER CONDUCTOR 42" BELOW GRADE (SEE DETAIL, SHEET E-3)

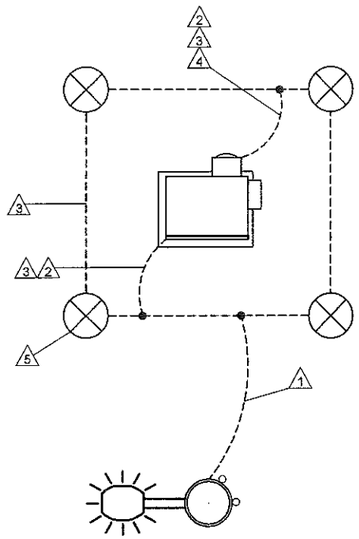
△4 ELECTRIC METER AND ELECTRIC SERVICE GROUNDING, COORDINATE ALTERNATE WITH PM

△5 5/8" DIAMETER X 10'-0" LONG COPPER CLAD GROUND ROD (HARGER-5810) WITH EXOTHERMIC CONNECTION

OPERATES 24 HOURS A DAY 365 DAYS A YEAR

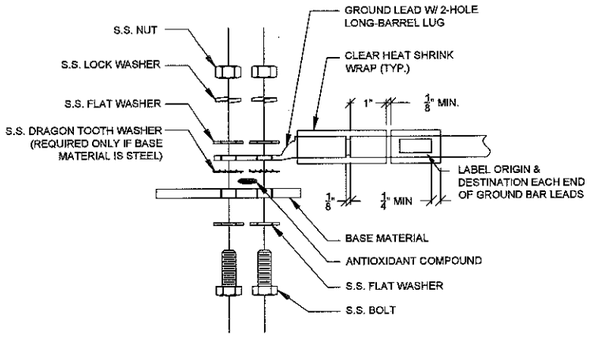
Call Before You Dig JULIE ILLINOIS ONE CALL SYSTEM

CALL JULIE TOLL FREE 1(800) 892-0123 48 HOURS BEFORE YOU DIG

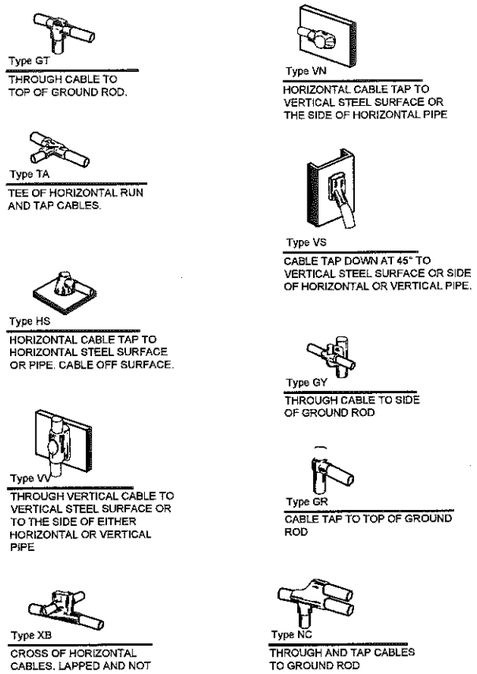


1 TYPICAL NODE GROUNDING PLAN
SCALE: 1" = 2'

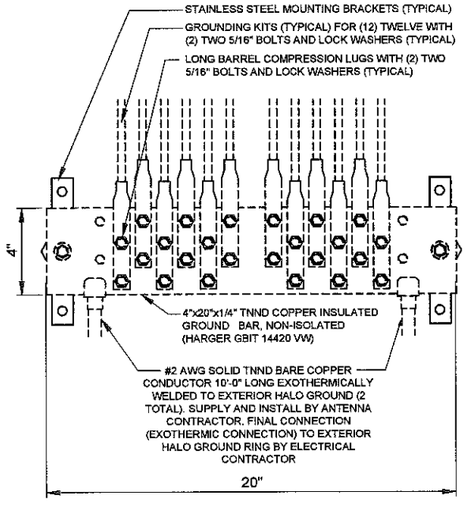
NOTES:
1. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING BELLEVILLES. COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
2. FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH KOPR-SHIELD.
3. GROUND BARS, INSTALL BOLT HEAD TOWARD WALL
4. ENCLOSURES, INSTALL BOLT HEAD ON OUTSIDE OF ENCLOSURE



2 GROUND LIG INSTALLATION DETAIL
N.T.S.



3 EXOTHERMIC WELD DETAILS
EXOTHERMIC AND HARGER ULTRAWELD OR APPROVED EQUAL



4 EXTERIOR GROUND BAR DETAIL
N.T.S.

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS

TERRA CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
1	ISSUED FOR REVIEW	06/11/15	LRB

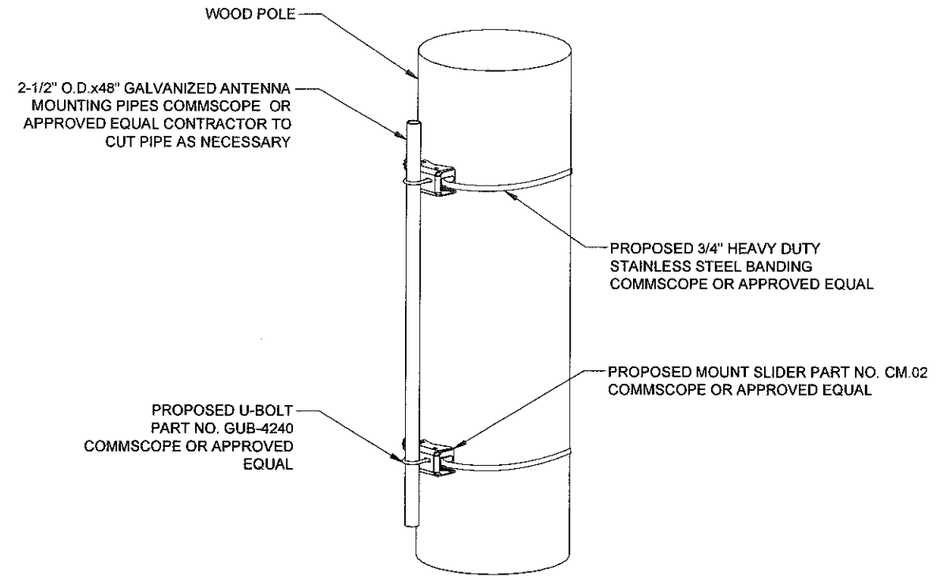
LOC# 292279
PINGREE RD.
METRA SC

282 EXCHANGE DR.
CRYSTAL LAKE, IL 60014

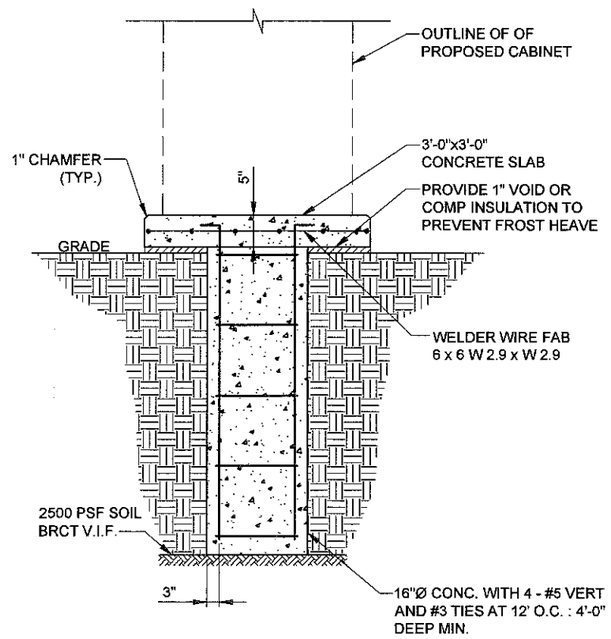
DRAWN BY:	MPC
CHECKED BY:	TAZ
DATE:	06/26/15
PROJECT #:	88-063

SHEET TITLE
GROUNDING PLAN AND DETAILS

SHEET NUMBER
E-2



1 TYPICAL ANTENNA MOUNTING DETAIL
SCALE: N.T.S.



2 CHARLES CABINET FOUNDATION DETAIL
SCALE: N.T.S

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS

TERRA CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS			
NO.	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	08/11/15	LRB

LOC# 292279
PINGREE RD.
METRA SC

282 EXCHANGE DR.
CRYSTAL LAKE, IL 60014

DRAWN BY:	MPC
CHECKED BY:	TAZ
DATE:	06/26/15
PROJECT #:	88-063

SHEET TITLE
STRUCTURAL DETAILS

SHEET NUMBER
S-1

GENERAL

THE CONSTRUCTION DOCUMENT DRAWINGS ARE INTERRELATED. WHEN PERFORMING THE WORK, EACH CONTRACTOR MUST REFER TO ALL DRAWINGS. COORDINATION IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

DIVISION 1: GENERAL REQUIRMENTS

SECTION 01700 – PROJECT CLOSEOUT

PART 1 – GENERAL

A. OBTAIN AND SUBMIT RELEASES ENABLING THE OWNER UNRESTRICTED USE OF THE WORK AND ACCESS TO SERVICES AND UTILITIES; INCLUDE OCCUPANCY PERMITS, OPERATING CERTIFICATES AND SIMILAR RELEASES.

B. SUBMIT RECORD DRAWINGS, DAMAGE OR SETTLEMENT SURVEY, PROPERTY SURVEY, AND SIMILAR FINAL RECORD INFORMATION.

C. COMPLETE FINAL CLEAN UP REQUIREMENTS, INCLUDING TOUCH–UP PAINTING. TOUCH UP AND OTHERWISE REPAIR AND RESTORE MARRED EXPOSED FINISHES.

PART 2 – FINAL CLEANING

1. COMPLETE THE FOLLOWING CLEANING OPERATIONS BEFORE REQUESTING INSPECTION FOR CERTIFICATION OF COMPLETION.
   A. CLEAN THE PROJECT SITE, YARD AND GROUNDS, IN AREAS DISTURBED BY CONSTRUCTION ACTIVITIES, INCLUDING LANDSCAPE DEVELOPMENT AREAS, OF RUBBISH, WASTE MATERIALS, LITTER AND FOREIGN SUBSTANCES. SWEEP PAVED AREAS BROOM CLEAN. REMOVE PETRO–CHEMICAL SPILLS, STAINS AND OTHER FOREIGN DEPOSITS. RAKE GROUNDS THAT ARE NEITHER PLANTED NOR PAVED, TO A SMOOTH EVEN–TEXTURED SURFACE.
   B. REMOVE TOOLS, CONSTRUCTION EQUIPMENT, MACHINERY AND SURPLUS MATERIAL FROM THE SITE.
   C. REMOVE SNOW AND ICE TO PROVIDE SAFE ACCESS TO THE SITE AND EQUIPMENT ENCLOSURE.
   D. CLEAN EXPOSED EXTERIOR HARD–SURFACED FINISHES TO A DIRT–FREE CONDITION, FREE OF STAINS, FILMS AND SIMILAR FOREIGN SUBSTANCES. AVOID DISTURBING NATURAL WEATHERING OF EXTERIOR SURFACES.
   E. REMOVE DEBRIS FROM LIMITED ACCESS SPACES, INCLUDING HANDHOLES, MANHOLES, AND SIMILAR SPACES.
   F. REMOVE LABELS THAT ARE NOT PERMANENT LABELS.
   G. TOUCH–UP AND OTHERWISE REPAIR AND RESTORE MARRED EXPOSED FINISHES AND SURFACES. REPLACE FINISHES AND SURFACES THAT CAN NOT BE SATISFACTORILY REPAIRED OR RESTORED, OR THAT SHOW EVIDENCE OF REPAIR OR RESTORATION. DO NOT PAINT OVER "UL" AND SIMILAR LABELS, INCLUDING ELECTRICAL NAME PLATES.
   H. LEAVE THE PROJECT CLEAN AND READY FOR OCCUPANCY.
   I. DUST–OFF ALL EQUIPMENT, INCLUDING BATTERY PACKS, WITHIN EQUIPMENT ENCLOSURE.
2. REMOVAL OF PROTECTION: REMOVE TEMPORARY PROTECTION AND FACILITIES INSTALLED DURING CONSTRUCTION TO PROTECT PREVIOUSLY COMPLETED INSTALLATIONS DURING THE REMAINDER OF THE CONSTRUCTION PERIOD.

DIVISION 2: SITE WORK

SECTION 02200 – EARTHWORK AND DRAINAGE

PART 1 – GENERAL

1. WORK INCLUDED: SEE SITE PLAN.
2. DESCRIPTIONS
   IF APPLICABLE, ACCESS DRIVE W/ TURNAROUND AREA, LEASE AREA, AND UNDERGROUND UTILITY EASEMENTS ARE TO BE CONSTRUCTED TO PROVIDE A WELL DRAINED, EASILY MAINTAINED, EVEN SURFACE FOR MATERIAL AND EQUIPMENT DELIVERIES AND MAINTENANCE PERSONNEL ACCESS.
3. QUALITY ASSURANCE
   A. APPLY SOIL STERILIZER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS (AS NEEDED).
   B. APPLY AND MAINTAIN GRASS SEED AS RECOMMENDED BY THE SEED PRODUCER (IF REQUIRED).
   C. PLACE AND MAINTAIN VEGETATION LANDSCAPING, IF INCLUDED WITHIN THE CONTRACT, AS RECOMMENDED BY NURSERY INDUSTRY STANDARDS.
4. SEQUENCING
   A. CONFIRM SURVEY STAKES AND SET ELEVATION STAKES PRIOR TO ANY CONSTRUCTION.
   B. IF APPLICABLE, COMPLETELY GRUB THE ACCESS DRIVE W/ TURNAROUND, UNDERGROUND UTILITY EASEMENTS, AND LEASE AREA PRIOR TO FOUNDATION CONSTRUCTION, PLACEMENT OF BACKFILL AND SUB–BASE MATERIAL.
   C. CONSTRUCT TEMPORARY CONSTRUCTION AREA ALONG ACCESS DRIVE.
   D. BRING THE LEASE AREA AND ACCESS DRIVE W/ TURNAROUND TO BASE COURSE ELEVATION PRIOR TO INSTALLING FOUNDATION.
   E. APPLY SOIL STERILIZER PRIOR TO PLACING BASE MATERIALS.
   F. GRADE, SEED, FERTILIZE, AND MULCH ALL AREAS DISTURBED BY CONSTRUCTION (INCLUDING UNDERGROUND UTILITY EASEMENTS) IMMEDIATELY AFTER BRINGING LEASE AREA AND ACCESS DRIVE W/ TURNAROUND TO BASE COURSE ELEVATION, WATER TO ENSURE GROWTH.
   G. REMOVE GRAVEL FROM TEMPORARY CONSTRUCTION ZONE TO AN AUTHORIZED AREA OR AS DIRECTED BY PROJECT MANAGER.
   H. AFTER APPLICATIONS OF FINAL SURFACES, APPLY SOIL STERILIZER TO STONE SURFACES.
5. SUBMITTALS
   A. BEFORE CONSTRUCTION
      IF LANDSCAPING IS APPLICABLE TO THE CONTRACT, SUBMIT TWO COPIES OF THE LANDSCAPE PLAN UNDER NURSERY LETTERHEAD. IF A LANDSCAPE ALLOWANCE WAS INCLUDED IN THE CONTRACT, PROVIDE AN ITEMIZED LISTING OF PROPOSED COSTS ON NURSERY LETTERHEAD (REFER TO PLANS FOR LANDSCAPING REQUIREMENTS).
   B. AFTER CONSTRUCTION
      1. MANUFACTURER'S DESCRIPTION OF PRODUCT AND WARRANTY STATEMENT ON SOIL STERILIZED.
      2. MANUFACTURER'S DESCRIPTION OF PRODUCT ON GRASS SEED AND FERTILIZER
      3. LANDSCAPING WARRANTY STATEMENT.
6. WARRANTY
   A. IN ADDITION TO THE WARRANTY ON ALL CONSTRUCTION COVERED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL REPAIR ALL DAMAGE AND RESTORE AREA AS CLOSE TO ORIGINAL CONDITION AS POSSIBLE AT SITE AND SURROUNDINGS.
   B. SOIL STERILIZATION APPLICATION TO GUARANTEE VEGETATION FREE ROAD AND SITE AREAS FOR ONE YEAR FROM DATE OF FINAL INSPECTION.
   C. DISTURBED AREAS WILL REFLECT GROWTH OF NEW GRASS COVER PRIOR TO FINAL INSPECTION.
   D. LANDSCAPING, IF INCLUDED WITHIN THE SCOPE OF THE CONTRACT, WILL BE GUARANTEED FOR ONE YEAR FROM DATE OF FINAL INSPECTION.

PART 2 – PRODUCTS

1. MATERIALS
   A. SOIL STERILIZER SHALL BE EPA–REGISTERED, PRE–EMERGENCE LIQUID:

TOTAL KILL PRODUCT 910 EPA 10292–7	PHASAR CORPORATION P.O. BOX 5123 DEARBORN, MI 48128 (313) 563–8000
AMBUSH HERBICIDE EPA REGISTERED	FRAMAR INDUSTRIAL PRODUCTS 1435 MORRIS AVE. UNION, NJ 07083 (800) 526–4924

   B. ROAD AND SITE MATERIALS SHALL CONFORM TO IDOT SPECIFICATIONS FILL MATERIAL (UNLESS OTHERWISE NOTED) – ACCEPTABLE SELECT FILL SHALL BE IN ACCORDANCE WITH STATE DEPARTMENT OF HIGHWAY AND TRANSPORTATION STANDARD SPECIFICATIONS..
   C. SOIL STABILIZER FABRIC SHALL BE MIRAFI – 500X.

PART 3 – EXECUTION

1. INSPECTIONS
   LOCAL BUILDING INSPECTORS SHALL BE NOTIFIED NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POURS, UNLESS OTHERWISE SPECIFIED BY JURISDICTION.
2. PREPARATION
   A. CLEAR TREES, BRUSH AND DEBRIS FROM LEASE AREA, ACCESS DRIVE W/ TURN–AROUND AND UNDER GROUND UTILITY EASEMENTS AS REQUIRED FOR CONSTRUCTION.
   B. PRIOR TO OTHER EXCAVATION AND CONSTRUCTION, GRUB ORGANIC MATERIAL TO A MINIMUM OF SIX INCHES (6") BELOW GRADE.
   C. UNLESS OTHERWISE INSTRUCTED BY LESSEE, TRANSPORT ALL REMOVED TREES, BRUSH AND DEBRIS FROM THE PROPERTY TO AN AUTHORIZED LANDFILL.
   D. PRIOR TO PLACEMENT OF FILL OR BASE MATERIALS, ROLL THE SOIL.
   E. WHERE UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED, LINE THE AREAS WITH STABILIZER MAT PRIOR TO PLACEMENT OF FILL OR BASE MATERIAL.
3. INSTALLATION
   A. GRADE OR FILL THE LEASE AREA AND ACCESS DRIVE W/ TURNAROUND AS REQUIRED IN ORDER THAT UPON DISTRIBUTION OF SPOILS, RESULTING FROM EXCAVATIONS, THE RESULTING GRADE WILL CORRESPOND WITH SAID SUB–BASE COURSE. ELEVATIONS ARE TO BE CALCULATED FROM BENCHMARK, FINISHED GRADES, OR INDICATED SLOPES.
   B. CLEAR EXCESS SPOILS, IF ANY, FROM JOB SITE AND DO NOT SPREAD BEYOND THE LIMITS OF PROJECT AREA UNLESS AUTHORIZED BY PROJECT MANAGER AND AGREED TO BY LANDOWNER.
   C. BRING THE ACCESS DRIVE W/ TURNAROUND TO BASE COURSE ELEVATION TO FACILITATE CONSTRUCTION AND OBSERVATION DURING CONSTRUCTION OF THE SITE.
   D. AVOID CREATING DEPRESSIONS WHERE WATER MAY POND.
   E. THE CONTRACT SHALL INCLUDE GRADING, BANKING, AND DITCHING, UNLESS OTHERWISE INDICATED.
   F. WHEN IMPROVING AN EXISTING ACCESS DRIVE, GRADE THE EXISTING DRIVE TO REMOVE ANY ORGANIC MATTER AND SMOOTH THE SURFACE BEFORE PLACING FILL OR STONE.
   G. PLACE FILL OR STONE IN SIX INCH (6") MAXIMUM LIFTS, AND COMPACT BEFORE PLACING NEXT LIFT.
   H. THE TOP SURFACE COURSE, SHALL EXTEND A MINIMUM OF ONE FOOT (1') BEYOND THE SITE FENCE (UNLESS OTHERWISE NOTED) AND SHALL COVER THE AREA AS INDICATED.
   I. APPLY RIPRAP TO THE SIDE SLOPES OF ALL FENCED SITE AREAS, PARKING AREAS, AND ALL OTHER SLOPES GREATER THAN 2:1.
   J. APPLY RIPRAP TO THE SIDES OF DITCHES OR DRAINAGE SWALES.
   K. RIPRAP ENTIRE DITCH FOR SIX FEET (6') IN ALL DIRECTIONS AT CULVERT OPENINGS.
   L. APPLY SEED, FERTILIZER, AND STRAW COVER TO ALL OTHER DISTURBED AREAS, DITCHES, AND DRAINAGE SWALES, NOT OTHERWISE RIPRAPPED.
   M. UNDER NO CIRCUMSTANCES WILL DITCHES, SWALES, OR CULVERTS BE PLACED SO THAT THEY DIRECT WATER TOWARDS, OR PERMIT STANDING WATER IMMEDIATELY ADJACENT TO SHELTER OR EQUIPMENT. IF DESIGNS OR ELEVATIONS ARE IN CONFLICT WITH THIS, ADVISE CONSTRUCTION MANAGER IMMEDIATELY.
   N. IN DITCHES WITH SLOPES GREATER THAN 10%, MOUND DIVERSIONARY HEADWALLS IN THE DITCH AT CULVERT ENTRANCES. POSITION THE HEADWALL AT AN ANGLE NO GREATER THAT 60° OFF THE DITCH LINE. RIPRAP THE UPSTREAM SIDE OF THE HEADWALL AS WELL AS THE DITCH FOR SIX FEET (6') ABOVE THE CULVERT ENTRANCE.
   O. APPLY SEED AND FERTILIZER TO SURFACE CONDITIONS WHICH WILL ENCOURAGE ROOTING. RAKE AREAS TO BE SEEDED TO EVEN THE SURFACE AND LOOSEN THE SOIL.
   P. SOW SEED IN TWO DIRECTIONS IN TWICE THE QUANTITY RECOMMENDED BY THE SEED PRODUCER.
   Q. ENSURE GROWTH OF SEEDED AND LANDSCAPED AREAS, BY WATERING, UP TO THE POINT OF RELEASE FROM THE CONTRACT. CONTINUE TO REWORK THE BARE AREAS UNTIL COMPLETE COVERAGE IS OBTAINED.
4. FIELD QUALITY CONTROL
   COMPACT SOILS TO MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D–1557. AREAS OF SETTLEMENT WILL BE EXCAVATED AND REFILLED AT CONTRACTOR'S EXPENSE. INDICATE PERCENTAGE OF COMPACTION ACHIEVED ON AS–BUILT DRAWINGS.
5. PROTECTION
   A. PROTECT SEEDED AREAS FROM EROSION BY SPREADING STRAW TO A UNIFORM LOOSE DEPTH OF 1–2 INCHES, STAKE AND TIE DOWN AS REQUIRED. USE OF EROSION CONTROL MESH OR MULCH NET WILL BE AN ACCEPTABLE ALTERNATE.
   B. ALL TREES PLACED IN CONJUNCTION WITH A LANDSCAPE CONTRACT WILL BE WRAPPED, TIED WITH HOSE PROTECTED WIRE, AND SECURED TO 2" X 2" X 4'–0" WOODEN STAKES EXTENDING TWO–FEET INTO THE GROUND ON FOUR SIDES OF THE TREE.
   C. PROTECT ALL EXPOSED AREAS AGAINST WASHOUTS AND SOIL EROSION. PLACE STRAW BALES AT THE INLET APPROACH TO ALL NEW OR EXISTING CULVERTS. WHERE THE SITE OR ROAD AREAS HAVE BEEN ELEVATED IMMEDIATELY ADJACENT TO THE RAIL LINE, STAKE EROSION CONTROL FABRIC FULL LENGTH IN THE SWALE TO PREVENT CONTAMINATION OF THE RAIL BALLAST. ALL EROSION CONTROL METHODS SHALL CONFORM TO APPLICABLE BUILDING CODE REQUIREMENTS.

DIVISION 16: ELECTRICAL

SECTION 16050 – BASIC ELECTRICAL MATERIALS AND METHODS

1. CONTRACTOR SHALL REVIEW THE CONTRACT DOCUMENTS PRIOR TO ORDERING THE ELECTRICAL EQUIPMENT AND STARTING THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE ARCHITECT LISTING ANY DISCREPANCIES OR CONFLICTING INFORMATION.
2. ELECTRICAL PLANS, DETAILS AND DIAGRAMS ARE DIAGRAMMATIC ONLY. VERIFY EXACT LOCATIONS AND MOUNTING HEIGHTS OF ELECTRICAL EQUIPMENT WITH OWNER PRIOR TO INSTALLATION.
3. EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANELBOARD, PULLBOX, JUNCTION BOX, SWITCH BOX, ETC. THE TYPE OF TAGGING METHODS SHALL BE IN COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (O.S.H.A.).
4. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN GOOD WORKING CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED "J" WHERE APPLICABLE. MATERIALS SHALL MEET WITH APPROVAL OF ALL GOVERNING BODIES HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA, NBFU AND "UL" LISTED.
5. ALL CONDUIT SHALL HAVE A PULL CORD.
6. PROVIDE PROJECT MANAGER WITH ONE SET OF COMPLETE ELECTRICAL "AS INSTALLED" DRAWINGS AT THE COMPLETION OF THE JOB, SHOWING ACTUAL DIMENSIONS, ROUTINGS, AND CIRCUITS.
7. ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 10,000 A.I.C.
8. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY UBC, NEC AND ALL APPLICABLE CODES.
9. PATCH, REPAIR AND PAINT ANY AREA THAT HAS BEEN DAMAGED IN THE COURSE OF THE ELECTRICAL WORK.
10. PLASTIC PLATES FOR ALL SWITCHES, RECEPTACLES, TELEPHONE AND BLANKED OUTLETS SHALL HAVE ENGRAVED LETTERING WHERE INDICATED ON THE DRAWINGS. WEATHERPROOF RECEPTACLES SHALL HAVE SIERRA #WPD–8 LIFT COVERPLATES.

SECTION 16400 – SERVICE AND DISTRIBUTION

1. WIRE AND CABLE CONDUCTORS SHALL BE COPPER, 600V, TYPE THHN OR THWN, WITH A MIN. SIZE OF #12 AWG, COLOR CODED. ALL RECTIFIER DROPS SHALL BE STRANDED TO ACCEPT CRIMP CONNECTORS.
2. ALL CHEMICAL GROUND RODS SHALL BE "UL" APPROVED.
3. METER SOCKET AMPERES, VOLTAGE, NUMBER OF PHASES SHALL BE AS NOTED ON THE DRAWINGS. MANUFACTURED BY MILBANK OR APPROVED EQUAL, AND SHALL BE UTILITY COMPANY APPROVED.
4. CONDUIT:
   A. RIGID CONDUIT SHALL BE U.L. LABEL GALVANIZED ZINC COATED WITH GALVANIZED ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN CONTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR. RIGID CONDUIT IN CONTACT WITH EARTH SHALL BE 1/2 LAPPED WRAPPED WITH HUNTS WRAP PROCESS NO. 3.
   B. FLEXIBLE METALLIC CONDUIT SHALL HAVE U.L. LISTED LABEL AND MAY BE USED WHERE PERMITTED BY CODE. FITTINGS SHALL BE "JAKE" OR "SQUEEZE" TYPE. ALL FLEXIBLE CONDUITS SHALL HAVE FULL LENGTH GROUND WIRE.
   C. AT A MINIMUM DEPTH OF 42" BELOW GRADE. IT IS REQUIRED AND WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO NOTIFY J.U.L.I.E. AT 1–800–892–0123 OR OTHER SUCH NOTIFYING AGENCY FORTY–EIGHT (48) HOURS PRIOR TO DIGGING.
5. CONTRACTOR TO COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS ARE TO BE PAID BY THE CONTRACTOR.
6. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS WITH WHITE ON BLUE BACKGROUND LETTERING (MINIMUM LETTER HEIGHT SHALL BE ONE FORTH INCH (1/4"). NAMEPLATES SHALL BE FASTENED WITH STAINLESS STEEL SCREWS, NOT ADHESIVE.
7. UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL POTENTIAL GROUNDING TESTS BY AN INDEPENDENT TESTING SERVICE ENGAGED BY THE CONTRACTOR SHALL BE SUBMITTED FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.
8. GROUNDING ELECTRODE SYSTEM
   A. PREPARATION
      1. SURFACE PREPARATION:
         ALL CONNECTIONS SHALL BE MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE FIELD INSPECTED AND MODIFIED TO ENSURE PROPER CONTACT. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED. ALL CONNECTIONS ARE TO HAVE A NON–OXIDIZING AGENT APPLIED PRIOR TO INSTALLATION.
      2. GROUND BAR PREPARATION:
         ALL COPPER GROUND BARS SHALL BE CLEANED, POLISHED AND A NON–OXIDIZING AGENT APPLIED. NO FINGERPRINTS OR DISCOLORED COPPER WILL BE PERMITTED.
      3. SLEEVES:
         ALL GROUNDING CONDUCTORS SHALL RUN THROUGH PVC SLEEVES WHEREVER CONDUCTORS RUN THROUGH WALLS, FLOORS OR CEILINGS. IF CONDUCTORS MUST RUN THROUGH EMT, BOTH ENDS OF CONDUIT SHALL BE GROUNDED. SEAL BOTH ENDS OF CONDUIT WITH SILICONE CAULK.
   B. GROUND BARS
      1. ALL GROUND BARS SHALL BE ONE FORTH INCH (1/4") THICK TINNED COPPER PLATE AND OF SIZE INDICATED ON DRAWINGS.
      2. ALL CONNECTIONS TO THE GROUND BAR SHALL OBSERVE THE FOLLOWING SEQUENCE:
         A. BOLT–HEAD
         B. 2–HOLE LUG
         C. TINNED COPPER BUSS BAR
         D. STAR WASHER
         E. NUT
   C. EXTERNAL CONNECTIONS
      1. ALL BURIED GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC WELD PROCESS. CONNECTIONS SHALL INCLUDE ALL CABLE TO CABLE, SPLICES, TEE'S, CROSSES, ETC. ALL CABLE TO GROUND RODS, GROUND ROD SPLICES AND LIGHTNING PROTECTION SYSTEMS ARE TO BE AS INDICATED. ALL MATERIALS USED (MOLDS, WELDING METAL, TOOLS, ETC.) SHALL BE BY "ULTRAWELD" AND INSTALLED PER MANUFACTURER'S RECOMMENDED PROCEDURES.
      2. ALL ABOVE GRADE GROUNDING AND BONDING CONDUCTORS SHALL BE CONNECTED BY TWO HOLE CRIMP TYPE (COMPRESSION) CONNECTIONS (EXCEPT FOR THE ACEG AND GROUND ROD) MECHANICAL CONNECTIONS, FITTINGS OR CONNECTIONS THAT DEPEND SOLELY ON SOLDER SHALL NOT BE USED. ALL CABLE TO CABLE CONNECTIONS SHALL BE HIGH PRESSURE DOUBLE CRIMP TYPE CONNECTIONS. CONNECTIONS TO STRUCTURAL STEEL SHALL BE EXOTHERMIC WELDS.
   D. GROUND RODS
      ALL GROUND RODS SHALL BE 5/8–INCH DIAMETER X 10'–0" LONG "COPPERWELD" OR APPROVED EQUAL, OF THE NUMBER AND LOCATIONS INDICATED. GROUND RODS SHALL BE DRIVEN FULL LENGTH VERTICAL IN UNDISTURBED EARTH.
   E. GROUND CONDUCTORS
      ALL GROUND CONDUCTORS SHALL BE STANDARD TINNED SOLID BARE COPPER ANNEALED, AND OF SIZE INDICATED ON DRAWINGS UNLESS NOTED OTHERWISE.
   F. LUGS
      1. LUGS SHALL BE 2–HOLE, LONG BARREL. STRAND COPPER UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS. LUGS SHALL BE THOMAS AND BETTS SERIES #548, ...BE OR EQUIVALENT

A.	535 MCM DLO	54880BE
B.	262 MCM DLO	54872BE
C.	#1/0 DLO	54862BE
D.	#4/0 THWN AND BARE	54866BE
E.	#2/0 THWN	54862BE
F.	#2 THHN	54207BE
G.	#6 DLO	54205BE

      2. WHEN THE DIRECTION OF THE CONDUCTOR MUST CHANGE, IT SHALL BE DONE GRADUALLY. THE CURVATURE OF THE TURN SHALL BE DONE IN ACCORDANCE WITH THE FOLLOWING CHART:

GROUNDING CONDUCTOR SIZE	MINIMUM BENDING RADIUS TO INSIDE EDGE
NO. 6 AWG TO NO. 4 AWG	6 INCHES
NO. 2 AWG TO NO. 1/0 AWG	8 INCHES
NO. 2/0 AWG TO 4/0 MCM	12 INCHES
250 MCM TO 750 MCM	24 INCHES

   G. GROUND RING
      1. THE EXTERNAL GROUND RING BETWEEN THE UTILITY POLE ANCHORS SHALL BE MINIMUM NO. 2 A.W.G. SOLID TINNED BARE COPPER CONDUCTOR IN DIRECT CONTACTWITH THE EARTH AT THE DEPTH INDICATED ON THE DRAWINGS. CONDUCTOR BENDS SHALL HAVE A MINIMUM BENDING RADIUS OF EIGHT INCHES (8").
      2. ALL EXTERNAL GROUND RINGS ARE TO BE JOINED TOGETHER AND ALL CONNECTIONS MUST BE ELECTROTHERMICALLY WELDED. NO LUGS OR ACCEPTEDCLAMPS WILL BE.
9. I.E.E.E. FALL POTENTIAL TESTS
   A. FOR RAW LAND SITE
      1. GROUND TESTS SHALL BE PERFORMED AS INDICATED ON DRAWINGS. A BIDDLE GROUND OHMER OR THE METHOD OF USING TWO AUXILIARY GROUND RODS (AS DESCRIBED IN I.E.E.E. STANDARDS NO. 81–1983, PART 1) MAY BE USED. THE I.E.E.E. METHOD REQUIRES THE USE OF AN A.C. TEST CURRENT. THE AUXILIARY TEST RODS MUST BE SUFFICIENTLY FAR AWAY FROM THE ROD UNDER TEST SO THAT THE REGIONS IN WHICH THEIR RESISTANCE IS LOCALIZED DO NOT OVERLAP. THE TEST POINT WILL BE THE GROUND ROD AND WILL CONSIST OF THE THREE POINT FALL OF POTENTIAL MEGGER TEST METHOD, USING THE BIDDLE NULL–BALANCE EARTH TESTER (MEGGER #250220–2 OR EQUIVALENT)
      2. CONTRACTOR TO CONDUCT GROUND RESISTANCE TEST IN THE FORMAT AS FOLLOWS:
10. GROUNDING RESISTANCE TEST REPORT
    UPON COMPLETION OF THE TESTING FOR EACH SITE, A TEST REPORT SHOWING RESISTANCE IN OHMS WITH AUXILIARY POTENTIAL ELECTRODES AT 5 FEET AND 10 FEET INTERVALS UNTIL THE AVERAGE RESISTANCE STARTS INCREASING AND ALSO NOTE THAT 10–15 PHOTOS MUST BE TAKEN TO PROOF ENTIRE EXTERNAL GROUND RING SYSTEM BEFORE BACKFILL. TWO (2) SETS OF TEST DOCUMENTS ARE OF THE INDEPENDENT TESTING SERVICE TO BE BOUND AND SUBMITTED WITHIN ONE (1) WEEK OF WORK COMPLETION.

SECTION 16503 – POLES, POSTS, AND STANDARDS (SINGLE MAST AND SELF SUPPORTING TOWERS)

1. GENERAL
   A. LIGHTNING ROD AND EXTENSION PIPE INCLUDING ALL APPURTENANCES, TO BE FURNISHED BY OWNER, IF REQUIRED.
   B. PROVIDE TEMPORARY LIGHTING FOR TOWER AS PER FAA REGULATIONS DURING CONSTRUCTION, IF REQUIRED.
   C. GROUNDING:
      GROUND TOWER WITH A MINIMUM OF #2 AWG TINNED SOLID BARE COPPER CONDUCTOR CADWELDED TO TOWER BASE PLATE. TWO (2) GROUNDING LEADS PER TOWER BASE PLATE.
      NO EXOTHERMIC WELDS SHALL BE ATTACHED DIRECTLY TO THE MONOPOLE TOWER SHAFT.

SECTION 16745 – TELECOMMUNICATIONS WIRING COMPONENTS (COAXIAL ANTENNA CABLE)

1. GENERAL
   A. ALL MATERIALS, PRODUCTS OR PROCEDURES INCORPORATED INTO WORK SHALL BE NEW AND OF STANDARD COMMERCIAL QUALITY.
   B. CERTAIN MATERIALS AND PRODUCTS WILL BE SUPPLIED BY THE OWNER (REFER TO GENERAL CONDITIONS FOR THE LIST OF OWNER FURNISHED EQUIPMENT, MATERIALS AND SUPPLIES FOR THESE ITEMS). THE CONTRACTOR IS RESPONSIBLE FOR PICKUP AND DELIVERY OF ALL SUCH MATERIALS
   C. ALL OTHER MATERIALS AND PRODUCTS SPECIFIED IN THE CONTRACT DOCUMENTS SHALL BE SUPPLIED BY THE CONTRACTOR.
2. MATERIALS:
   A. COAXIAL CABLE:
      1. INSTALL COAXIAL CABLE AND TERMINATIONS BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS WITH COAXIAL CABLES SUPPORTED AT NO MORE THAN 3'–0" O.C. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURERS' REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE FEET (3') IN EXCESS OF EQUIPMENT LOCATION UNLESS OTHERWISE STATED.
      2. ALL COAX RUN LENGTHS GREATER THAN 175 FEET SHALL BE 1–5/8". ALL COAX. RUN LENGTH BETWEEN 101 FEET AND 174 FEET SHALL BE 1–1/4", AND IN LENGTH LESS THAN OR EQUAL TO 100 FEET SHALL BE 7/8".
3. ANTENNA AND COAXIAL CABLE GROUNDING
   A. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS)
4. COAXIAL CABLE IDENTIFICATION
   A. TO PROVIDE EASY IDENTIFICATION AND UNIFORM MARKING OF ANTENNA CABLING, PLASTIC TAGS SHALL BE USED AT THE FOLLOWING LOCATIONS:
      1. FIRST LOCATION IS AT THE END OF THE COAX NEAREST THE ANTENNA (WHERE THE COAXIAL CABLE AND JUMPER ARE CONNECTED).
      2. SECOND LOCATION IS INSIDE THE EQUIPMENT SHELTER NEAR THE WAVEGUIDE ENTRY PORT.
   B. USE ANDREW CABLE TIES (PT.# 27290) TO SECURE IDENTIFICATION TAGS.
5. TESTING
   LESSEE SHALL PROVIDE AN INDEPENDENT TESTING AGENCY TO PERFORM THE COAXIAL SWEEP TEST & REPORT. THE CONTRACTOR IS TO PROVIDE ONE CLIMBER / QUALIFIED PERSONNEL TO ASSIST IN ANY REPAIRS AND WEATHERPROOFING ONCE THE TEST IS COMPLETE. THE CONTRACTOR IS TO PROVIDE LESSEE WITH A MINIMUM OF 48 HOURS NOTICE PRIOR TO THE TIME OF THE SWEEP TEST.

CHICAGO SMSA
limited partnership
d/b/a VERIZON WIRELESS

TERRA CONSULTING GROUP, LTD.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS			
NO.	DESCRIPTION	DATE	BY
1	ISSUED FOR REVIEW	06/11/15	LRB

LOC# 292279
PINGREE RD.
METRA SC
282 EXCHANGE DR.
CRYSTAL LAKE, IL 60014

DRAWN BY:	MPC
CHECKED BY:	TAZ
DATE:	06/26/15
PROJECT #:	88-063

SHEET TITLE
SPECIFICATIONS

SHEET NUMBER
SP-1