



## MEMORANDUM

**TO:** Mayor Diane Wolfe Marlin and Members of City Council  
**FROM:** Carol J. Mitten, Interim Public Works Director and City Administrator  
Justin M. Swinford, Civil Engineer II  
**DATE:** November 6, 2019  
**RE:** A Resolution Authorizing Small Cell License Agreement with AT&T

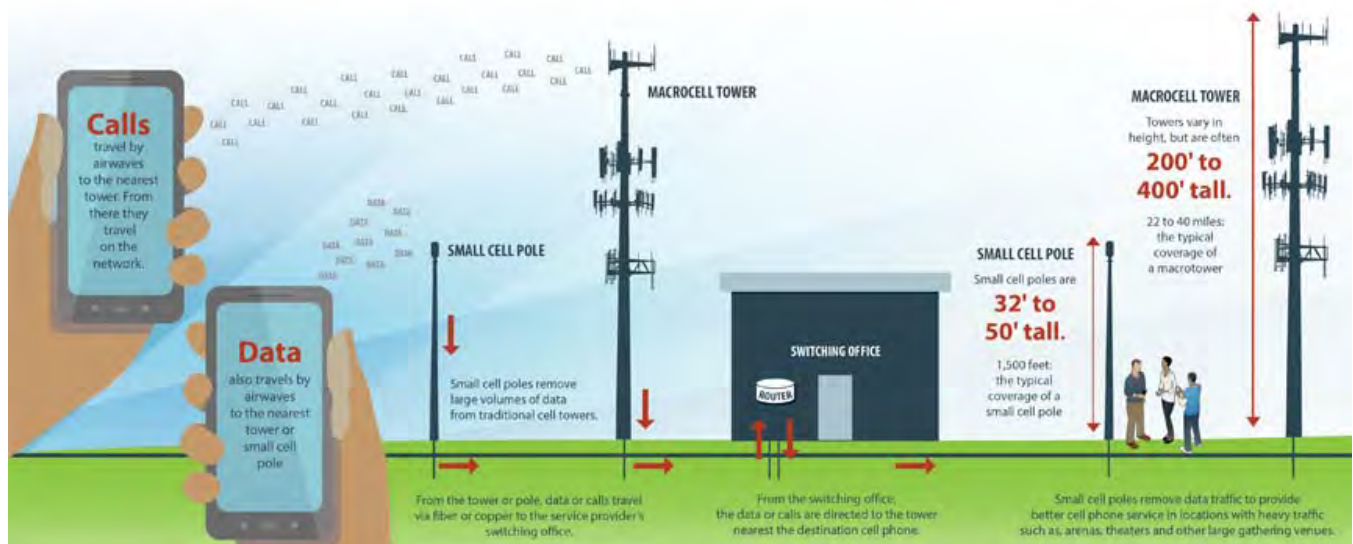
### Action Requested

Approval of the attached resolution entitled “A Resolution Authorizing Small Cell License Agreement with AT&T”.

### Background and Facts

A small cell installation consists of placing radio equipment and antennas, about the size of a large pizza box, on structures such as streetlights, the sides of buildings, or poles. Small cells are a key component of the 5G network and essential for transmitting data to and from wireless devices.

Wireless telecommunications have utilized macro cells, which are those tall cell towers seen along highways and on rooftops. Small cells are lower-power cell sites installed every few blocks instead of miles apart. High-density placement is key for small cells because in addition to traditional low-band spectrum, they transmit data using mid- and high-band spectrum airwaves that cannot travel as far. Small cells also complement the macro network to improve coverage, add targeted capacity, and support new services and user experiences.



AT&T proposes to install small cell equipment at six existing streetlight pole locations within the rights-of-way of the City. The locations are:

- North Lincoln Avenue between Bradley Avenue and Kettering Park Drive
- South Lincoln Avenue between West Oregon Avenue and West Nevada Street
- South Goodwin Avenue between West Oregon Avenue and West Illinois Street
- South Vine Street between East Hollywood Drive and East Fairlawn Drive
- Springfield Avenue between Birch Street and South McCullough Street
- West Green Street between South Goodwin Avenue and Gregory Street

AT&T will remove an existing streetlight pole at each of the locations described above and replace it with a new pole and fixture that includes AT&T's small cell equipment mounted on it. Fiber optic and a new electrical power feed for the small cell equipment will also be installed during the streetlight pole replacement by AT&T.

In accordance with City policy, a license agreement, which is required for these installations, is attached for Council consideration. The proposed details for the small cell equipment are provided in Exhibit A attached to the proposed agreement.

### **Financial Impact**

AT&T will pay for all work associated with the removal and replacement of the existing streetlight poles at those six locations. The City will still be responsible for the electrical costs associated with the light fixture. The City will also be responsible for operation and maintenance of the light fixture and streetlight pole. AT&T will be responsible for maintenance of the small cell equipment. AT&T will also be responsible for the electrical costs associated with the small cell equipment.

The City will receive \$2,100 in permit fees and \$1,200 annually for the small cell sites proposed in the license agreement. Please note that Public Act 100-0585 passed in April 2018 by the State Legislature sets the maximum permit and annual license fees that a municipality can charge a telecommunications provider for small cell installations.

### **Recommendations**

It is recommended that the City Council approve "A Resolution Authorizing Small Cell License Agreement with AT&T".

Attachments: A Resolution Authorizing Small Cell License Agreement with AT&T

License Agreement for Facilities on Structures in Public Right-of-Way Between New Cingular Wireless PCS, LLC d/b/a AT&T Mobility and the City of Urbana, Illinois

**RESOLUTION NO. ~~2019-11-044R~~**

**A RESOLUTION AUTHORIZING SMALL CELL LICENSE AGREEMENT WITH  
AT&T**

**WHEREAS**, the City of Urbana (“City”) is a home rule unit of local government pursuant to Article VII, Section 6, of the Illinois Constitution, 1970, and may exercise any power and perform any function pertaining to its government and affairs, including the power to regulate for the protection of the public health, safety, and welfare; and

**WHEREAS**, the General Assembly enacted the Small Wireless Facilities Deployment Act in 2018 (50 ILCS 840/1 *et seq.*) and the same became effective January 1, 2019; and

**WHEREAS**, the City has been involved in extensive contract negotiations with Cingular Wireless PCS, LLC (“AT&T”) regarding AT&T’s placement of small wireless facilities technology on City-owned light and other poles in various locations in the City and use of City right-of-way for equipment to operate such small wireless facilities; and

**WHEREAS**, the City and AT&T have mutually agreed to certain terms and conditions pursuant to which AT&T may install its small wireless facilities on City infrastructure and in City right-of-way, a copy of which is appended hereto and incorporated herein as an exhibit; and

**WHEREAS**, the City Council deems the available of small wireless facility technology benefits the public in a number of ways including making cellular access more available to citizens and businesses in and visitors to the City benefits the general public in their use and access to cellular and WiFi service.

**NOW, THEREFORE, BE IT RESOLVED** by the City Council of the City of Urbana, Champaign County, Illinois, as follows:

**Section 1.** The City Council shall and does hereby approve the License Agreement in substantially the form of the exhibit appended to and incorporated into this Resolution.

**Section 2.** The Mayor shall be and hereby is authorized to execute the License Agreement in substantially the form of the exhibit appended to and incorporated into this Resolution.

**PASSED BY THE CITY COUNCIL** this \_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

AYES:

NAYS:

ABSENT:

ABSTAINED:

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Charles A. Smyth, City Clerk

**APPROVED BY THE MAYOR** this \_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

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Diane Wolfe Marlin, Mayor

**LICENSE AGREEMENT FOR FACILITIES ON STRUCTURES IN PUBLIC RIGHT-  
OF-WAY  
BETWEEN NEW CINGULAR WIRELESS PCS, LLC d/b/a AT&T MOBILITY  
AND THE CITY OF URBANA, ILLINOIS**

This License Agreement For Facilities On Structures In Public Right-Of-Way (hereinafter referred to as the "Agreement") is entered into by and between Cingular Wireless PCS, LLC, a Delaware limited liability company (hereinafter referred to as "Licensee") and the City of Urbana, Illinois (hereinafter referred to as "City") (hereinafter, collectively, referred to as "Parties" and, singularly and generically, as "Party").

WHEREAS, the City is a home rule unit of local government pursuant to the Illinois Constitution of 1970 and the Illinois Municipal Code (ILCS Const. Art. 7, § 6; 65 ILCS 5/1-1-9) which owns, operates and maintains certain public rights-of-way; and

WHEREAS, Licensee is authorized to do business in the State of Illinois and seeks to install, operate and maintain facilities for personal wireless telecommunications services (hereinafter referred to as a "System"), on existing utility poles, alternative antenna structures, and City-owned infrastructure in conformance with Urbana City Code Chapter 20 governing public rights-of-way and other public places; and

WHEREAS, the City is willing, pursuant to a licensing arrangement, to allow Licensee to install, operate and maintain Licensee's System on existing utility poles, alternative antenna structures, and City-owned infrastructure in conformance with Urbana City Code (cited, "UCC") Chapter 20 governing public rights-of-way and other public places.

NOW for good, valuable and mutual consideration which each Party hereto acknowledges as having in hand received and for the exchange of the mutual terms, conditions and covenants contained in this Agreement, the Parties agree as follows:

**Section 1. Grant of License; Location.** The Licensee is hereby given license upon the terms and conditions set forth in this Agreement to install, operate and maintain its System in conformance with Urbana City Code Chapter 20 on existing utility poles, alternative antenna structures, and City-owned infrastructure located in the public right-of-way as specified in the Location Map and Permits, Plans & Specifications attached hereto as **Exhibit A**.

Public right-of-way means any street, sidewalk, alley, parking, other land or waterway, dedicated or commonly used for pedestrian, bicycle or vehicular traffic or other public purposes, including utility easements, in which the City has the right and authority to authorize, regulate or permit the location of facilities other than those of the City. "Right-of-way" or "rights-of-way" shall not include any real or personal City property that is not specifically described herein and shall not include City buildings, fixtures, or other structures or improvements, regardless of whether or not they are situated in the right-of-way. "Right-of-way" includes easements dedicated to the City or to the public for any public purpose or where use for utilities is a permitted use (UCC Sec. 20-200).

The rights granted to the Licensee by the City are and shall be at all times subordinate to and shall not conflict with the City's use of the public right-of-way.

**Section 2. Term of Agreement.** Subject to the conditions herein stated, the above-described uses of the public way shall exist by authority herein granted for a period of ten (10) years from and after the first date this Agreement is fully executed by the parties.

No use, however extended, under this Agreement shall create or vest in Licensee any ownership or other property rights in existing utility poles, alternative antenna structures, and City-owned infrastructure located now or in the future in the public right-of-way or the public right-of-way itself.

**Section 3. Location; Compliance with Ordinances.** The specific location of the System and its component equipment shall be as shown in the Location Map and Permits, Plans & Specifications attached hereto as **Exhibit A**, which shall be submitted by the Licensee to the City Engineer with the application prior to issuance of a license and shall comply with UCC Sec. 20-500 *et seq*

The System, in its entirety, shall be installed, maintained and used in accordance with the ordinances of the City of Urbana, and the directions from time to time given by the City Engineer. The Licensee shall be subject to all ordinances of general applicability of the City and such other laws and regulations of governmental bodies with regulatory authority over the Licensee or the public right-of-way. Licensee shall install, maintain and use the System and all components thereof in accordance with all applicable regulatory codes.

**Section 4. Payments.** The application for a license agreement to site the System or a component thereof in the public right-of-way shall be accompanied by payment of a non-refundable application fee as set forth in Section 15(e) of the Small Wireless Facilities Deployment Act, 50 ILCS 840/1 *et seq.*(as now or hereafter amended, the “SWFD Act”).

- a) Notwithstanding any contrary provision of State law or local ordinance, applications pursuant to this Section must be accompanied by the required application fee. In addition, for each location for City-owned structure to which the System or component thereof is attached as authorized in the license, an annual fee in accordance with Section 15(i)(3) of the SWFD Act shall be paid by Licensee to the City. Licensee agrees to make annual payments to the City, which shall be drafted and made payable to the “City of Urbana” and shall be sent to the City’s Finance Department, 400 S. Vine Street, Urbana, IL 61801, or such other location specified in writing by the City. Payments shall be made in advance on or before January 30th of

each year. A prorated payment for the first year shall be due within sixty (60) days of signing this Agreement. Interest of one percent (1%) per month of the total amount due and unpaid will apply to any unpaid amount that remains unpaid forty-five (45) days following receipt of written notice from the City.

If the SWFD Act is repealed as provided in Section 90 therein, renewals of permits shall be subject to the City's code provisions or regulations in effect at the end of the then current term. In the event that the City, following repeal of the SWFD pursuant to Section 90 thereof or through some other manner of repeal, elects to increase the annual fee rate provided in Section 4(a) of this Agreement, the City shall give Licensee at least sixty (60) days written notice of any such annual rate increase and in the case the City elects to increase the aforesaid annual rate, Licensee shall have ninety (90) days in which to accept or reject such rate increase. In the event that Licensee rejects such rate increase, Licensee shall remove all of its small wireless facilities as provided in Section 8(c) of this Agreement. Nothing herein shall be deemed as prohibiting the Parties from negotiating a mutually acceptable annual fee in the event the SWFD Act is repealed as provided in Section 90 therein. Notwithstanding the foregoing, in the event a subsequent law replaces or amends the SWFD, the annual fee rates in such law would be applicable to this Agreement.

**Section 5. Transference; Licensee Remains Liable.** The privileges granted under this Agreement may not be transferred to any other person or entity without the express written approval of the City. Such approval shall not be unreasonably withheld. The Licensee may assign the License Agreement to a legal entity which is a successor, subsidiary or affiliate entity of Licensee, without express written approval of the City, if prior written notice is provided to the City with a revised Disclosure Affidavit (**Exhibit B**). In the event the privileges herein



granted are terminated or the Licensee transfers ownership of the System or vacates or ceases to use the System, the Licensee shall, nevertheless, remain liable to the City under the provisions hereof, until said System and all equipment and materials which the Licensee used to install the System herein authorized is completely removed, and the public way is restored as herein required. Any streetlight poles that the System has been mounted on shall remain operational and the electrical costs for the operation of those poles shall remain with the City. Acceptance of payment from an entity or person other than the Licensee shall not constitute a waiver of this provision.

**Section 6. Permits, Plans & Specifications.** The permission and authority herein granted shall not be exercised and no work to the System shall be done until any Permits, Plans & Specifications that are required by the nature of the work to be performed by the Licensee shall have been issued by the Director of Public Works, or other City official authorized to issue such permit(s). The application and permitting process shall be undertaken in accordance with applicable City ordinances to the extent that they do not conflict with the SWFD Act.

**Section 7.1. Installation.** Unless specifically authorized in writing by the City Engineer, the System installed shall be placed and all work in connection with such installation shall be performed so as not to unreasonably interfere with ordinary travel on the right-of-way of the City, or with any water, gas or sanitary or storm sewer pipes or other utility conduits or cable television conduits or wires then in place, or hereafter placed in the right-of-way, or any other lawful use of the right-of-way. Licensee, after doing any excavating, shall leave the surface of the ground in the same condition as existed prior to such excavation, except as provided in **Exhibit A**. All sidewalks, parkways or pavements, including driveway and alley approaches, disturbed by said Licensee shall be restored by it, and the surface to be restored shall be with the

same type of material as that existing prior to its being disturbed unless otherwise specified in writing by the City Engineer. In the event that any right-of-way, real property, or fixed improvement thereon shall become uneven, unsettled, damaged, or otherwise require restoration, repair or replacement because of such disturbance or damage by the Licensee, then the Licensee shall promptly, but in no event longer than thirty (30) days after receipt of notice from the City or the property owner for non-emergency repairs and fourteen (14) days after receipt of notice for repairs that require immediate attention in City's reasonable determination, and at the Licensee's sole cost and expense, restore as nearly as practicable to their former condition said property or improvement which was disturbed or damaged. In connection with repairs requiring immediate attention, City shall contact Licensee at 1-800-638-2822 in addition to providing written notice to Licensee.

Should adverse weather conditions cause a delay in completing the work, the Licensee shall promptly notify the City or the property owner immediately upon onset of the delay. Thereafter, the City Engineer may, in the Engineer's sole discretion, extend such time for work completion to a reasonable date certain. The date extension shall take into account the weather conditions and other factors affecting the work. The Licensee shall complete the work on or before the date certain. Any such restoration of the City's right-of-way by the Licensee shall be made in accordance with such materials and specifications as may, from time to time, be then provided for by ordinance or regulations of the City and to the satisfaction of the City Engineer. Within 10 businessdays of the completion of each installation, the Licensee shall notify the City accordingly. If the Licensee fails to restore the property in accordance with the above, then the City may, if it so desires, contract with a third party for such restoration or utilize its own work forces, to restore such property. The Licensee shall pay the actual cost incurred by the City if it

has utilized a third party for such restoration and, if the City undertakes the restoration work, the Licensee shall reimburse the City for the reasonable value, including labor and materials, or having undertaken such work on its own within sixty (60) days receipt of an invoice evidencing the same.

**7.2. Installation on Streetlight Poles.** Licensee shall furnish and install streetlight poles, foundations, light fixtures, hardware, wiring, and all other incidentals in accordance with the specifications provided in Exhibit A to provide a functional streetlight with matching photometrics to the existing streetlight at the locations identified in Exhibit A. Licensee shall provide a separate electrical power feed for Licensee's System. An electrical disconnect shall be provided within visual line of sight of the pole that shall be accessible by City Staff. A plaque or marker shall be affixed to each City streetlight pole on which Licensee installs its System to identify that the pole has an electrical feed supplied by the Licensee in addition to the City power feed. The streetlight fixture shall have a separate power feed the existing City electrical power supply for the streetlight pole. The streetlight fixture, pole, and any wiring or hardware exclusive of the smart cell equipment shall be owned by the City. Installation of streetlight poles and fixtures including all electric power supply connections and disconnections shall be performed by contractors licensed and approved by the City.

This provision shall not be construed to negate or modify the provisions of Section 6 (Permits) of this Agreement or act as an election of remedies.

**Section 7.3. Obligation to Mark.** The City shall have no obligation to mark the location of Licensee's facilities. Licensee acknowledges that it is a member of the statewide "One Call" Utility Location system (JULIE) and that the Licensee shall remain a member of the statewide "One Call" Utility Location system at all times it engages in the installation, repair,

maintenance, and removal of its System or any part thereof. The City shall have no obligation to alert Licensee to proposed work by itself or others, other than as a participating member of the JULIE system.

**Section 7.4. Maintenance.** The Licensee shall be responsible for all electrical costs for the electrical power consumed by the System at any pole on which Licensee installs or attaches its System. Licensee's electric service shall be separate from the City's existing electric service at a pole. The City will be responsible for operation and maintenance of the light fixture and pole but not the Licensee's System. The City shall have the right to disconnect the Licensee's electrical service for emergency and routine maintenance purposes. Written notification of disconnection for routine maintenance shall be given with at least five (5) business days of notice. No advance notice to disconnect electric service to a Licensee facility will be required in the event such disconnection is necessary to address an emergency but the City shall give the Licensee notice as soon as reasonably practical after such disconnection.

At Licensee's own expense and with advance written approval from the City arborist, Licensee may perform tree trimming to provide adequate clearance around Licensee facilities.

Licensee is solely responsible for RF emissions from Licensee's own equipment and its facilities and to protect against RF interference. Licensee shall make all good faith efforts to correct any interference to RF signals of the City or other third parties. The City may request the temporary removal of Licensee's facilities for maintenance purposes, but in no event shall such temporary removal last longer than five (5) days unless otherwise agreed to between the Parties. Written notification of temporary removal for maintenance shall be given with at least twenty (20) business days of notice. City will not grant after the date of this Agreement a permit, license or any other right to any third party if, at the time such third party applies to use a utility

pole, alternative antenna structure and/or City-owned infrastructure, City knows or has reason to know based on a third party's application and frequency information provided therein that such third party's use may cause interference with the Licensee's existing System, Licensee's use of the utility pole, alternative antenna structure, and/or City-owned infrastructure, or Licensee's ability to comply with the terms and conditions of this Agreement. Notwithstanding anything in the Agreement to the contrary, in the event any of Licensee's Systems are interfering in any way with the University of Illinois, Urbana Champaign's WiFi Network, Licensee may cease operation of the interfering System(s) until such interference is resolved.

Subsequent to the original installation of Licensee's equipment, Licensee may make modifications to or replace the equipment, or may alter, enhance, and upgrade its equipment, so long as such modification, replacement, substitution, alteration, enhancement, or upgrade does not increase pole loading beyond the pole loading that was established in the approved application, or involve placement of equipment outside the area designated in the approved application without obtaining prior written consent of the City. Any modification that would involve increasing the pole loading beyond what was established in the approved application shall require Licensee to submit a new application for such Site. If the modification affects how the equipment attaches to the pole or changes how the power is drawn, then the Licensee shall be required to obtain prior written consent of the City.

**Section 8. Repeal; Relocation; Removal.**

- (a) Repeal. The permission and authority herein granted in connection with a System may be revoked by the City if the Licensee fails or neglects to comply with the conditions of this License Agreement or any City ordinance, but only after being given to cure any such defaults as provided in Section 16 of this Agreement.

- (b) Relocation of System. Upon sixty (60) days' advance written notice, the Licensee shall relocate the applicable System to a mutually agreeable alternate location and shall bear the sole expense of relocation upon the reasonable determination by the City Engineer that it is necessary to relocate said System or any part thereof, for one of the following reasons: (a) if required for the construction, modification, completion, repair, relocation or maintenance of a City or other public agency projected mandated by any Law, judicial opinion or governmental order; (b) because a System is interfering with or adversely affecting proper operation of City-owned infrastructure or communications and Licensee fails to cure such interference during the applicable cure period; or (c) to protect or preserve the public health or safety. The streetlight pole and lighting provided thereby shall remain and be functional after the relocation of the Licensee's System. The City shall remain responsible for the electrical costs of the streetlight after the Licensee's system has been relocated.
- (c) Removal Upon Termination. Within one hundred eighty (180) days of the termination of the privileges herein granted for a System, by lapse of time or otherwise, the Licensee without cost or expense to the City, shall remove the System herein authorized and restore the public way to as good a condition as existed prior to such installation and to the reasonable satisfaction of the City Engineer, reasonable wear and tear and loss by casualty or other causes beyond Licensee's control excepted. In the event of the failure, neglect or refusal of said Licensee to remove the System, the City may, if it so desires, exercise the right to perform said work and charge the cost thereof to said Licensee or contract with another to perform said work and bill the Licensee for the cost of said contract. The cost incurred by the City for

System removal shall be promptly paid by the Licensee within sixty (60) days after a bill is received by Licensee. If Licensee fails to pay during that period, the City may proceed against the surety bond of the Licensee or pursue any other remedies provided by law. The streetlight pole and lighting provided thereby shall remain and be functional after the removal of the Licensee's System. The City shall remain responsible for the electrical costs of the streetlight after the Licensee's System has been removed.

**Section 9. Status Report of Facilities Located in Right-of-Way.** The Licensee shall, within thirty (30) days of receipt of a written request from the City, file with the City Engineer accurate maps of the location and character of all existing installations of all facilities installed in the City's right of way pursuant to this Agreement and any amendments thereto, identifying the facilities as being in use, abandoned during the past year, or otherwise unused. City shall request the location maps no more than one (1) time per calendar year, unless such request is due to a pending emergency or pending infrastructure project. Licensee's maps shall conform to the requirements of UCC Sec. 20-501(a)(7) (concerning as-built plan drawings) and as directed by the City Engineer.

**Section 10. Performance Security.** Within sixty (60) days of execution of this Agreement, the Licensee shall provide to the City a performance bond in the amount of \$20,000.00 for the purpose of guaranteeing the faithful performance of all terms of this Agreement. The performance bond shall be available to the City to satisfy all claims, liens and/or taxes due the City from the Licensee which arise by reason of work by the Licensee, to satisfy any actual damages arising out of a breach of this Agreement, and to satisfy any assessments under this Agreement.

Nothing in this Agreement shall be deemed a waiver of the normal permit and bonding requirements generally applicable to persons performing work in the City's right-of-way.

**Section 11. Insurance.** Licensee shall maintain required insurance with companies eligible to do business in Illinois, rated A- VII or better in the current A.M. Best Key Rating Guide. Licensee shall provide the City with an insurance certificate evidencing such coverage, attached as **Exhibit C** to this Agreement.

Licensee shall maintain commercial general liability insurance (CGL) with a limit of \$1,000,000 each occurrence and in the aggregate. The CGL insurance shall be written on ISO occurrence form CG 00 01 (or substitute form providing equivalent coverage) and shall cover liability arising from premises, operations, independent contractors, personal and advertising injury, and liability assumed under an insured contract. The City, its elected and appointed officers and employees shall be included as additional insured under the CGL as respects this Agreement, using ISO additional insured endorsement 20 26 or substitute providing equivalent coverage. The insurance shall apply as primary insurance with respect to any other insurance or self-insurance programs afforded to the City. There shall be no endorsement or modification of the CGL to make it excess over other available insurance; alternatively, if the CGL states that it is excess or pro rata, the policy shall be endorsed to be primary with respect to the additional insured. There shall be no endorsement or modification of the CGL limiting the scope of coverage for liability assumed under a contract.

Licensee shall maintain worker's compensation insurance and employer's liability insurance. The employer's liability limits shall be \$1,000,000 for bodily injury per accident; or \$1,000,000 per employee for bodily injury by disease.



Licensee shall maintain automobile liability insurance with bodily injury and property damage combined single limits of \$1,000,000 per accident covering vehicles owned, hired or non-owned.

Umbrella or excess liability insurance with single limit of \$5,000,000 per occurrence and in the aggregate in excess of the employer's liability, commercial general liability and automobile liability policies. Licensee may use any combination of primary and excess to meet required total limits.

Notwithstanding the forgoing, Licensee may, in its sole discretion, self insure any of the required insurance under the same terms as required by this Agreement. In the event Licensee elects to self-insure its obligation under this Agreement to include the City as an additional insured, the following conditions apply: (i) the City shall promptly and no later than thirty (30) days after notice thereof provide Licensee with written notice of any claim, demand, lawsuit, or the like for which it seeks coverage pursuant to this Section and provide Licensee with copies of any demands, notices, summonses, or legal papers received in connection with such claim, demand, lawsuit, or the like; (ii) the City shall not settle any such claim, demand, lawsuit, or the like without the prior written consent of Licensee; and (iii) the City shall fully cooperate with Licensee in the defense of the claim, demand, lawsuit, or the like.

#### **Section 12. Indemnification.**

The Licensee shall indemnify, save and hold harmless, defend, and bear the cost of any and all such defense of the City and its elected and appointed officers, employees, and agents (collectively for this Section, the "City"), from and against any and all rights, actions, causes, liabilities, causes of action, remedies, defenses, damages, judgments, orders, decrees, costs, expenses of whatever nature, whether in law, equity or administratively, asserted against the City

and shall be responsible for the payment of any and all attorneys' fees that the City incurs and that arise out of, is related to, or is proximately caused any intentional, willful, wanton, grossly negligent, or negligent act or omission by, for or on behalf of the Licensee in connection with or directly or proximately related to the installation, removal, relocation, alteration, repair, maintenance, modification, or restoration of the System or any part thereof and/or in connection with the Licensee's breach of this Agreement. Notwithstanding anything to the contrary in this paragraph, nothing herein shall be deemed, construed or interpreted as the Licensee's obligation to indemnify, save harmless, defend, or bear the cost of defense of the City for any of the immediate foregoing which arise out of or which are directly related to, or which are proximately caused by the City's sole negligence, wrongful, improper, or illegal act or omission.

Notice in writing shall be promptly given to Licensee of any claim or suit against the City which, by the terms hereof, the Licensee shall be obligated to defend, or against which the Licensee has hereby agreed to save and keep harmless the City. The City shall furnish to the Licensee all information in its possession relating to said claim or suit, and cooperate with said Licensee in the defense of any said claim or suit. The City may, if it so desires, assist in defending any such claim or suit.

The City shall indemnify, save and hold harmless, defend, and bear the cost of any and all such defense of the Licensee and its directors, officers, employees, and agents (collectively for this Section, the "Licensee"), from and against any and all rights, actions, causes, liabilities, causes of action, remedies, defenses, damages, judgments, orders, decrees, costs, expenses of whatever nature, whether in law, equity or administratively, asserted against the Licensee and

shall be responsible for the payment of any and all attorneys' fees that the Licensee incurs and that arise out of, is related to, or is proximately caused any intentional, willful, wanton, grossly negligent, or negligent act or omission by, for or on behalf of the City in connection with or directly or proximately related to the installation, removal, relocation, alteration, repair, maintenance, modification, or restoration of the System or any part thereof and/or in connection with the City's breach of this Agreement. Notwithstanding anything to the contrary in the immediate foregoing, nothing herein shall be deemed as the City's obligation to indemnify, save harmless, defend, or bear the cost of defense of the Licensee for any of the immediate foregoing which arise out of or which are directly related to or proximately caused by the Licensee's sole negligence, wrongful, improper, or illegal conduct. Further, nothing in this paragraph shall be deemed, construed or interpreted as the City's waiver of its rights, defenses and immunities as are or may be provided under the Local Governmental and Governmental Employees Tort Immunity Act (745 ILCS 10/1-101 et seq.).

**Section 13. Licensee Form of Business Disclosure.** Licensee agrees to complete and maintain on file with the City a current Disclosure Affidavit, attached as **Exhibit B** to this Agreement.

**Section 14. Renewal.** This ten (10) year license shall be automatically renewable for four (4) additional five-year terms, provided however that Licensee is in full compliance with the terms and provisions of this Agreement and the City's ordinances at the time of renewal. If for any reason, the Licensee continues to utilize the System beyond the expiration of the term, it shall pay to the City an amount which is 150% of the previous year's payment (prorated to a daily charge) for each and every day the System remains upon the City's right-of-way beyond the applicable removal periods set forth in this Agreement.

**Section 15. Termination.** Licensee's right to maintain the System(s) pertaining to a default, or all Systems if a default pertains to all Systems, may be terminated by the City if the Licensee fails to cure or otherwise remedy any default on any term, condition or covenant contained in this Agreement within the time provided in the notice of default. The City shall give at least sixty (60) days advance written notice to the Licensee of the City's intent to terminate Licensee's right to maintain the System(s) pertaining to a default and said notice shall state the effective date of such termination, provided that delay in curing a default will be excused if due to causes beyond the reasonable control of Licensee.

**Section 16. Default, Cure, Dispute Resolution.** In the event a Party (hereinafter, for this Section, the "Non-Defaulting Party") believes that the other Party (hereinafter, for this Section, the "Defaulting Party") is in default on any term, condition or covenant contained in this Agreement, the Non-Defaulting Party shall send a Notice of Default to the Defaulting Party. The Notice of Default shall describe in reasonable detail sufficient to put the Defaulting Party on notice the nature of the default and give the Defaulting Party sixty (60) days in which to (i) cure the default, (ii) request in writing additional time to cure the default, or (iii) provide in writing evidence insofar as why the Defaulting Party believes it is not in default. The Non-Defaulting Party shall not deny the Defaulting Party's request for a reasonable extension of time in which to cure the default if the Defaulting Party has commenced a good faith effort to cure such default and any delay in curing a default will be excused if due to causes beyond the reasonable control of the Defaulting Party. If the Parties disagree insofar as whether a default has occurred or as to why such cure needs to be extended, the Parties shall in good faith attempt to settle any dispute arising out of or relating to this Agreement through negotiation and, if such negotiation fails, through mediation set forth herein prior to the initiation of any litigation. Good faith

participation in these efforts shall be a condition precedent to any litigation. All negotiations pursuant to this Article shall be confidential and shall be treated as compromise and settlement negotiations. Notwithstanding the immediate forgoing, the Parties recognize that any final settlement agreement, regardless of how arrived at, may be subject to disclosure in response to an Illinois Freedom of Information Request (5 ILCS 140/1 *et seq.*). In the event that such dispute is not resolved within ninety (90) days following initiation of mediation, either Party may initiate and shall maintain litigation in the Circuit Court for the Sixth Judicial Circuit, Champaign County, Illinois.

**Section 17. Binding Effect.** This Agreement shall be fully binding upon the Parties and their successors and assigns.

**Section 18. Effective Date.** This Agreement shall be in full force and effect as of the date the last Party executes this Agreement.

**Section 19. Legal Considerations.** The Parties recognize, acknowledge and hereby reserve their respective rights pursuant to the Federal 1996 Telecommunications Act and the Illinois Simplified Municipal Telecommunications Tax Act (35 ILCS 636/5 -1 *et seq.*), regulations or legal interpretations of the same, and execution of this Agreement is not a waiver of any rights or obligations thereunder.

**Section 20. Jurisdiction.** This Agreement shall be governed by the laws of the State of Illinois.

**Section 21. Severability.** Nothing contained in this Agreement shall be construed to require the commission of any act contrary to law, and wherever there is any conflict between any provision of this Agreement and any law, such law shall prevail. In such event, however, the provisions of this Agreement so affected shall be curtailed and limited only to the extent

necessary to permit compliance with the minimum legal requirement, and no other provisions of this Agreement shall be affected thereby and all such other provisions shall continue in full force and effect. Notwithstanding the immediate forgoing, in the event the terms of this Agreement are affected by any legislative, regulatory, judicial, or other action (“New Law”), the Agreement shall be renegotiated and/or adjusted as follows: (i) if the New Law provides a mandatory right, the Parties shall be subject to the New Law and the Agreement shall be adjusted to conform to such New Law via amendment by the Parties; or (ii) if the New Law provides a permissive right, the terms of the Agreement shall remain unchanged until the negotiations between the Parties to conform the Agreement are completed or a Party obtains a ruling regarding the appropriate conforming terms from a commission or court of competent jurisdiction.

**Section 22. Survival.** The covenants, agreements, indemnifications and representations contained in or made pursuant to this Agreement (including any Exhibits) shall survive the execution and delivery of this Agreement and any related documents. Similarly, any covenants, agreements, indemnification and representations made by Licensee or on its behalf in any Exhibit, certificate, instrument or other document pursuant hereto or in connection herewith shall survive the execution and delivery of such Exhibit, certificate, instrument or document. All covenants, agreements, indemnifications and representations shall be considered to have been relied upon by the City regardless of any research or investigation made by the City or on its behalf. Additionally, all rights and remedies of a party occasioned by any indemnification provisions or by the failure of the other party to fulfill any of its obligations or liabilities under, relating to, or in connection with this Agreement shall survive any closing or termination of this Agreement and will continue in full force and effect thereafter.

**Section 23. Notices.** All notices required by this agreement shall be addressed as follows. Notices shall be deemed given upon receipt thereto:

City/Licensors

Public Works Director  
City of Urbana  
400 S. Vine Street  
Urbana, IL 61801

And City Attorney  
400 S. Vine Street  
Urbana, IL 61801

Licensee

New Cingular Wireless PCS, LLC  
Attn: Network Real Estate Administration  
1025 Lenox Park Blvd NE  
3rd Floor  
Atlanta, GA 30319  
Re: City of Urbana, IL License  
FA#: \_\_\_\_\_; USID#: \_\_\_\_\_

New Cingular Wireless PCS, LLC  
Attn: Legal Department, Network Operations  
Re: City of Urbana, IL License Agreement  
FA#: \_\_\_\_\_; USID#: \_\_\_\_\_  
208 S. Akard Street  
Dallas, TX 75202

Any Party may change its address or other contact information at any time by giving the other Party, and persons named above, written notice of said change.

**Section 25. Full Agreement of the Parties.** This Agreement constitutes the full agreement of the Parties and all intentions and understandings of the Parties are contained herein and shall be deemed to supersede any prior agreement, whether oral or in writing, between the Parties. The Parties represent and warrant that the person who has executed this Agreement on behalf of the respective Party had and has the authority to do so.

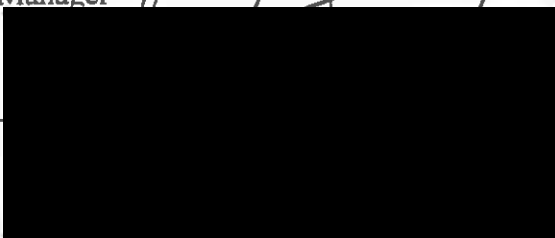
[Signature Page to Follow]

**CITY OF URBANA, ILLINOIS**  
**a municipal corporation**

**NEW CINGULAR WIRELESS PCS, LLC**  
**a Delaware limited liability company**

By: AT&T Mobility Corporation  
Its: Manager

By: \_\_\_\_\_

By: 

Name: \_\_\_\_\_

Name: Blaine C. Thomas

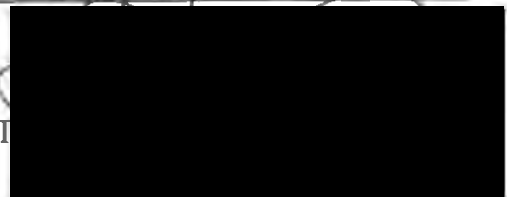
Its: Mayor

Its: Director- Construction & Engineering

Date: \_\_\_\_\_

Date: 07/18/2019

ATTEST: \_\_\_\_\_

ATTEST 

Its: City Clerk

Its: \_\_\_\_\_

APPROVED AS TO FORM FOR CITY:

\_\_\_\_\_  
City Attorney



**LICENSEE ACKNOWLEDGMENT**

STATE OF ILLINOIS)

) ss:

COUNTY OF COOK)

On the 18<sup>th</sup> day of July, 2019, before me personally appeared Blaine C. Thomas, and acknowledged under oath that he is the Director of Construction & Engineering of AT&T Mobility Corporation, the Manager of New Cingular Wireless PCS, LLC, the Tenant named in the attached instrument, and as such was authorized to execute this instrument on behalf of the Tenant.



[Redacted Signature]

Notary Public

Print Name: Constance A. Lamberes

My Commission Expires: November 14, 2023

**CITY ACKNOWLEDGEMENT**

STATE OF ILLINOIS )

) ss.

COUNTY OF CHAMPAIGN )

I, the undersigned, a Notary Public, in and for said County, in the State aforesaid, DO HEREBY CERTIFY THAT \_\_\_\_\_ and \_\_\_\_\_, personally known to me to be the same persons whose names are subscribed to the foregoing instrument, appeared before me this day in person and severally acknowledged that as Mayor and City Clerk, they signed and delivered the said instrument as Mayor and City Clerk, pursuant to authority given by the City Council as their free and voluntary act, and as the free and voluntary act of the City for the uses and purposes therein set forth.

Given under my hand and Notarial Seal this \_\_\_\_\_ day of \_\_\_\_\_, 2019.

\_\_\_\_\_  
Notary Public

Print Name: \_\_\_\_\_

My Commission Expires: \_\_\_\_\_

**Exhibit A: Location Map and Permits, Plans & Specifications**

**Exhibit B: Disclosure Affidavit**

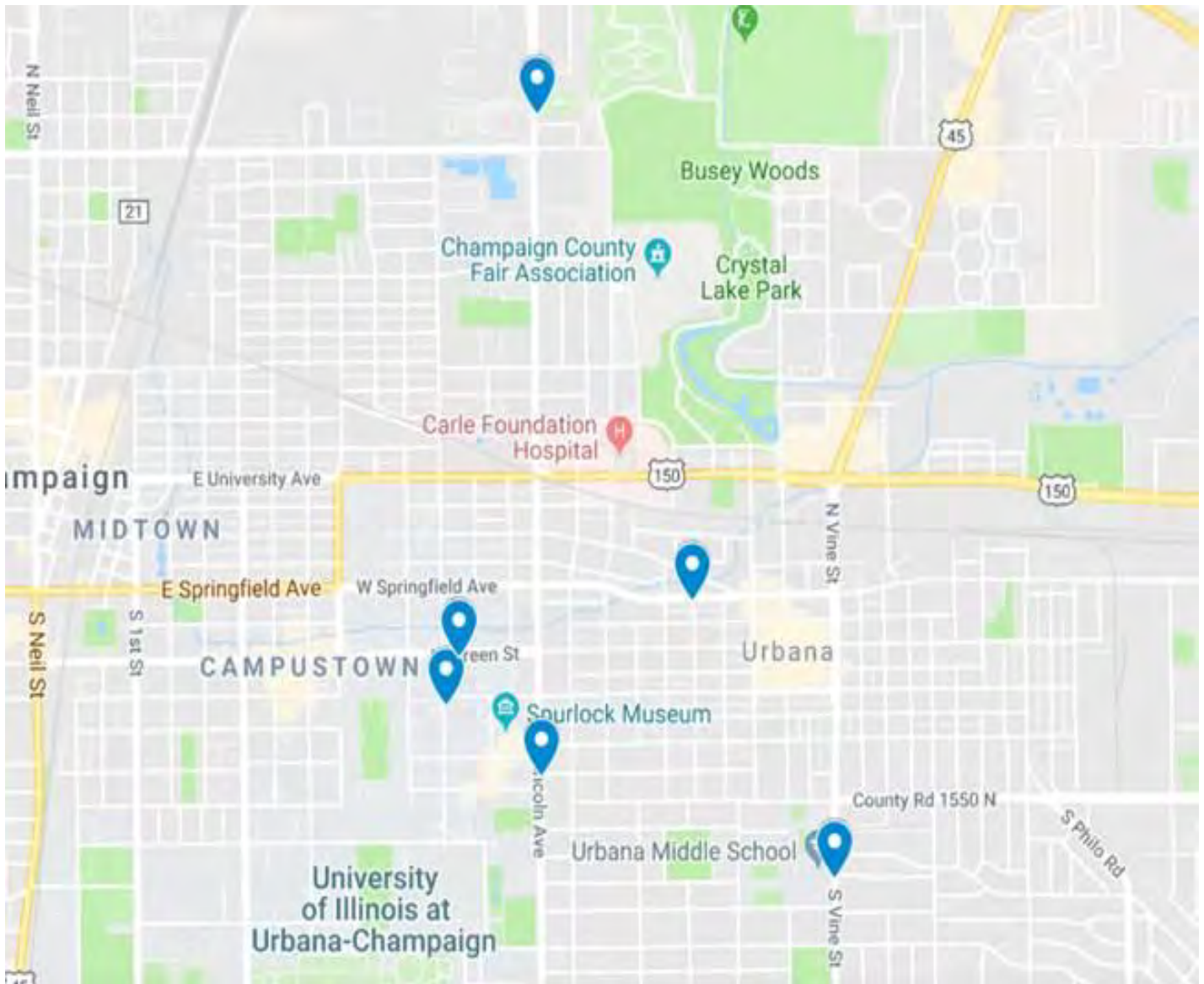
**Exhibit C: Certificate of Insurance**

**EXHIBIT A:**

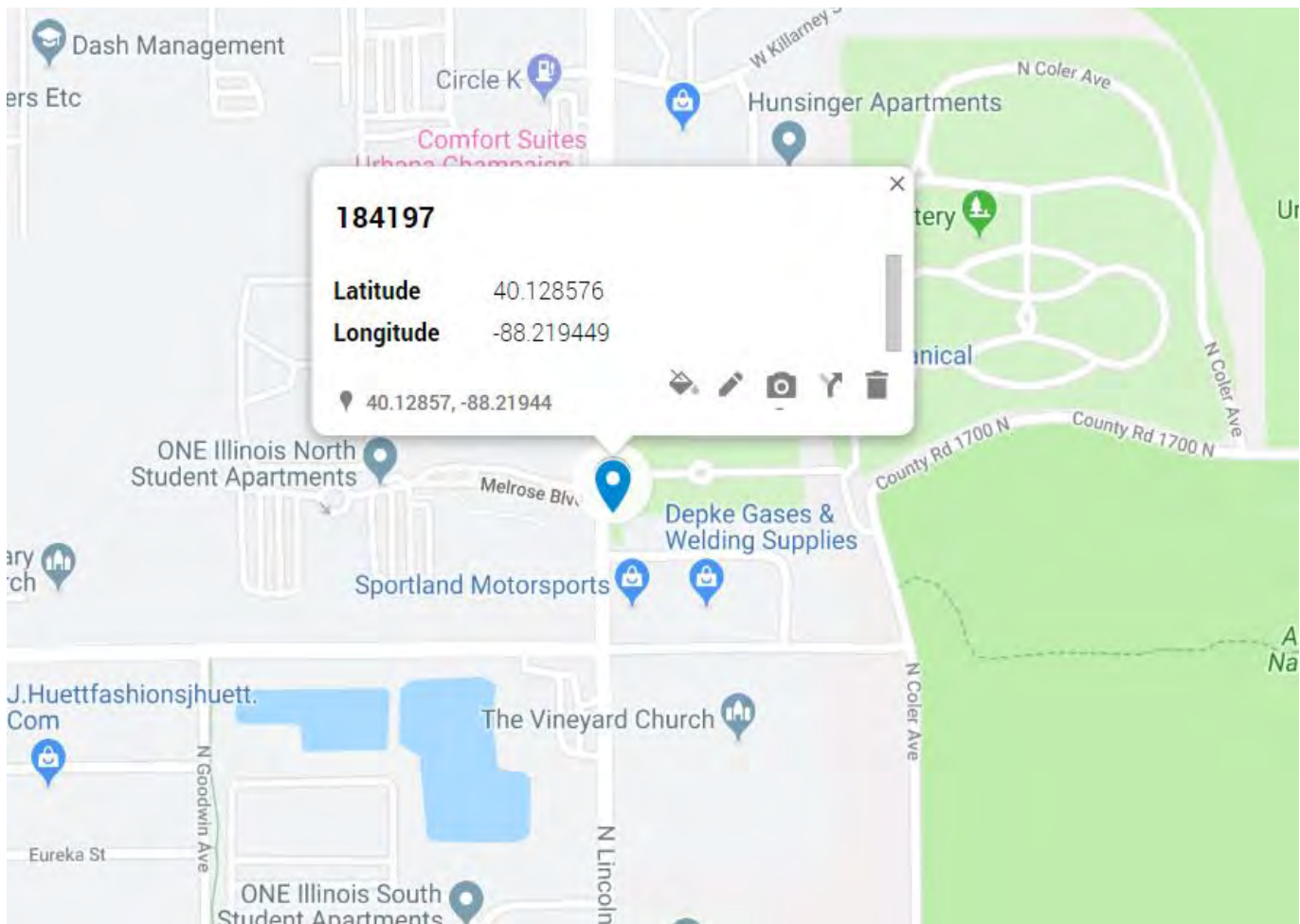
**Location Map and Permits, Plans & Specifications**

(see attached site maps and plans)

SITE MAP OVERVIEW:



PACE: MRCHI025397 / MRCHI025475  
SITE NAME: CRAN\_RCHI\_CHNOS\_004  
USID / NODE: 184197  
ADDRESS: 1614 N. LINCOLN AVENUE, URBANA, IL 61801  
COORDINATES: 40.128576, -88.219449



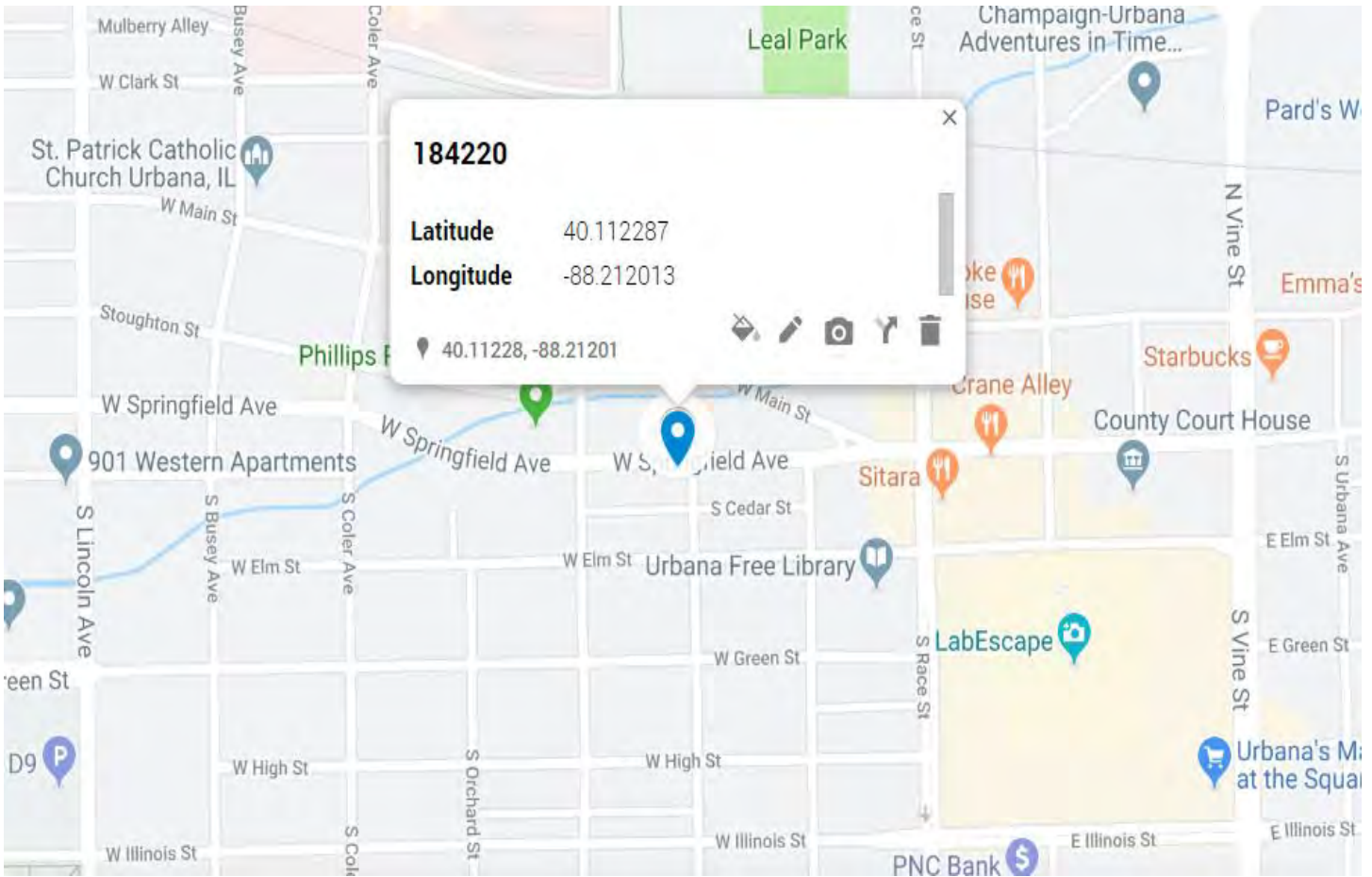
PACE: MRCHI025457 / MRCHI025418

SITE NAME: CRAN\_RCHI\_CHUOI\_015

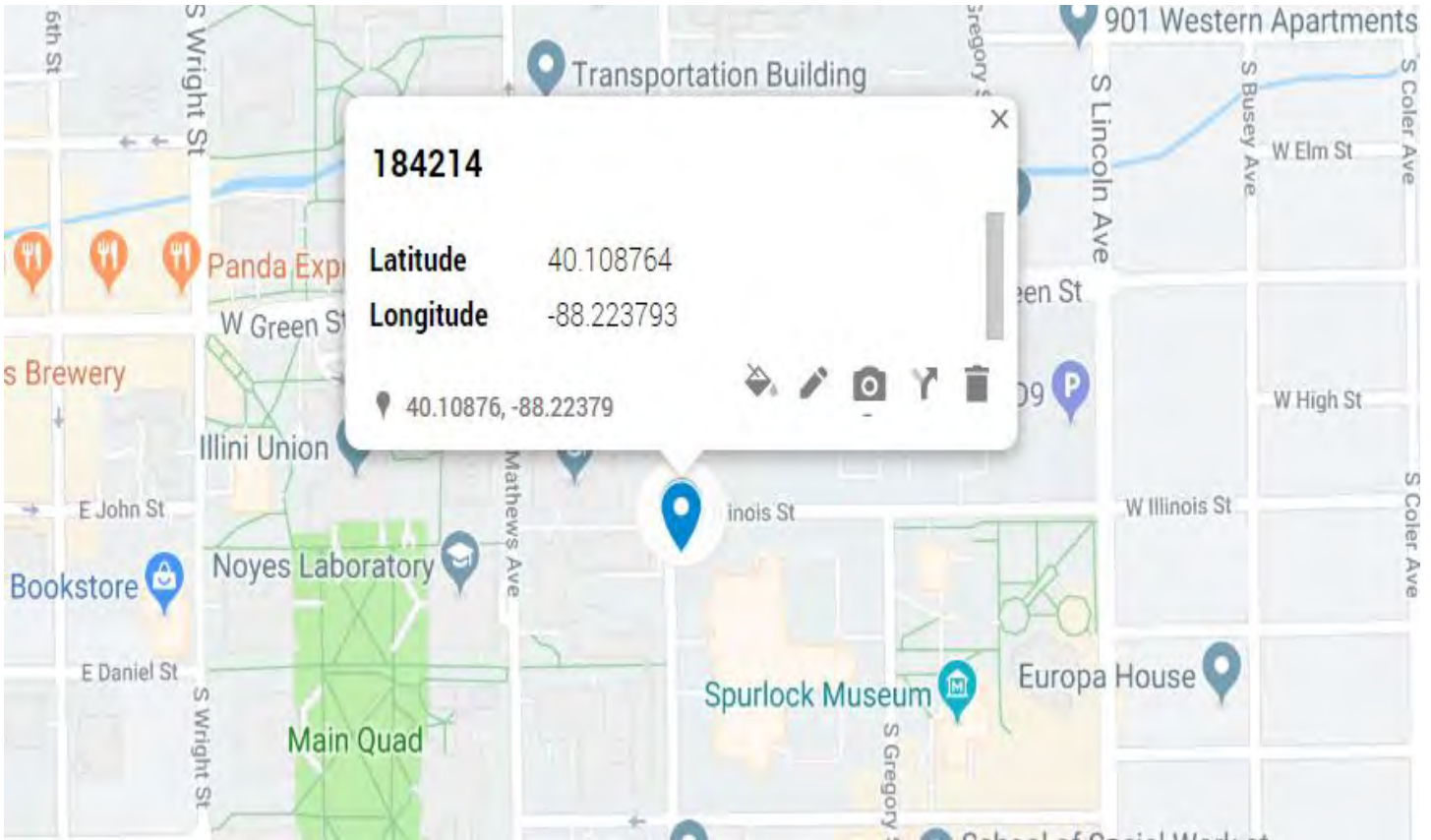
USID / NODE: 184220

ADDRESS: 402 W. SPRINGFIELD AVENUE, URBANA, IL 61801

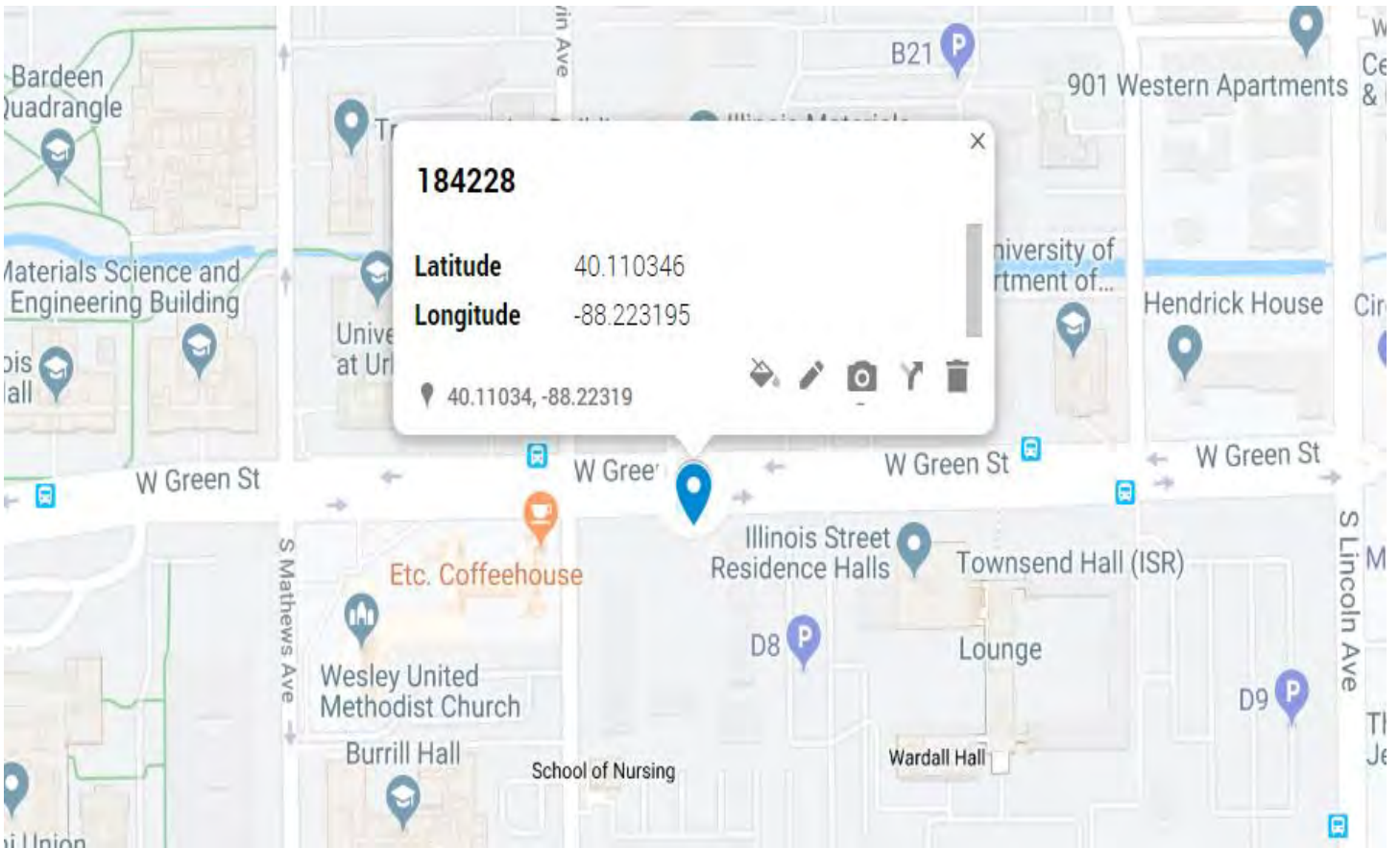
COORDINATES: 40.112287, -88.212013



PACE: MRCHI025422 / MRCHI025403  
SITE NAME: CRAN\_RCHI\_CHUOI\_009  
USID / NODE: 184214  
ADDRESS: 544 S GOODWIN AVENUE, URBANA, IL 61801  
COORDINATES: 40.108764, -88.223793

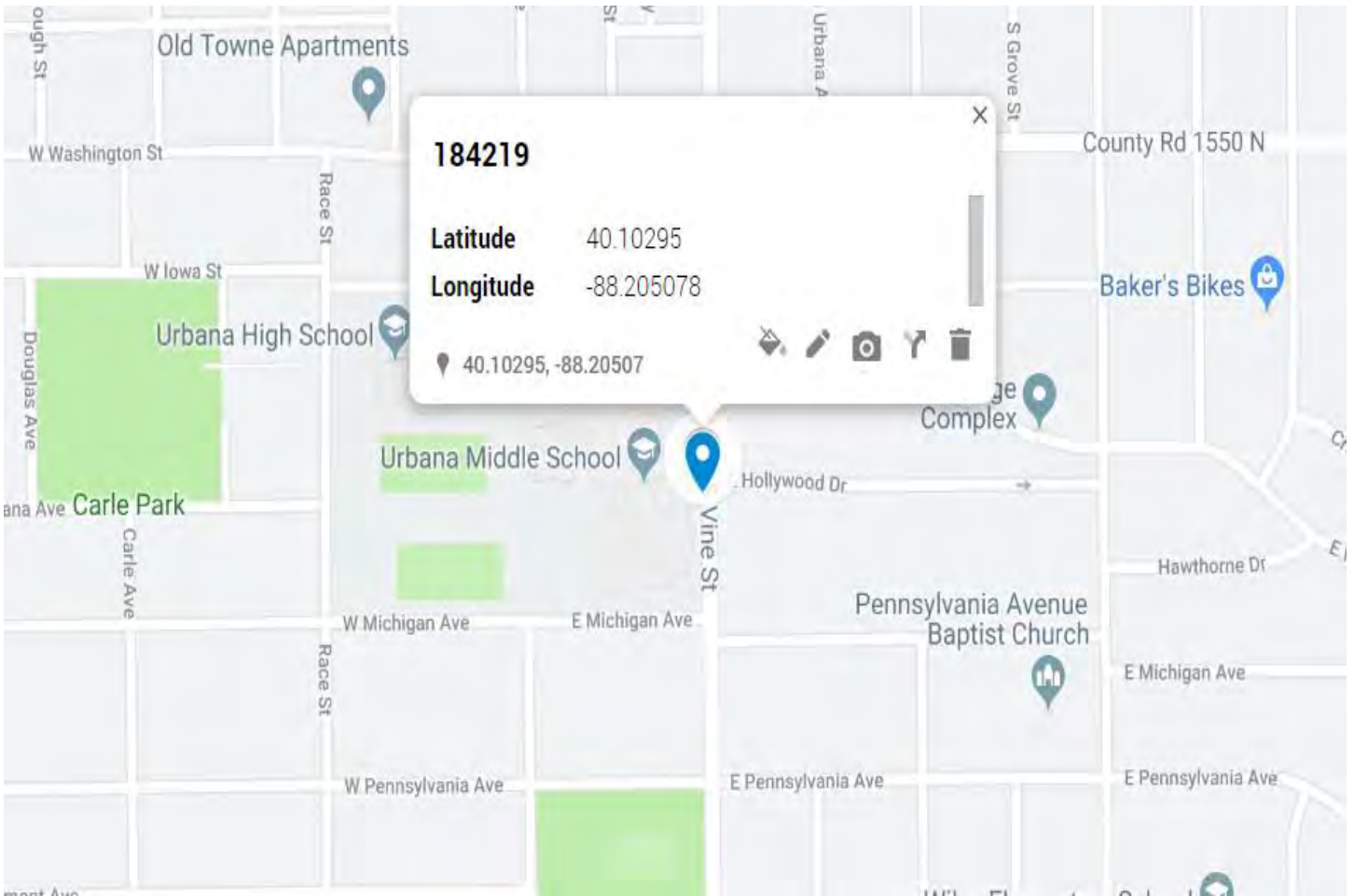


PACE: MRCHI025452 / MRCHI025399  
SITE NAME: CRAN\_RCHI\_CHUOI\_023  
USID / NODE: 184228  
ADDRESS: 1171 W GREEN STREET, URBANA, IL 61801  
COORDINATES: 40.110346, -88.223195

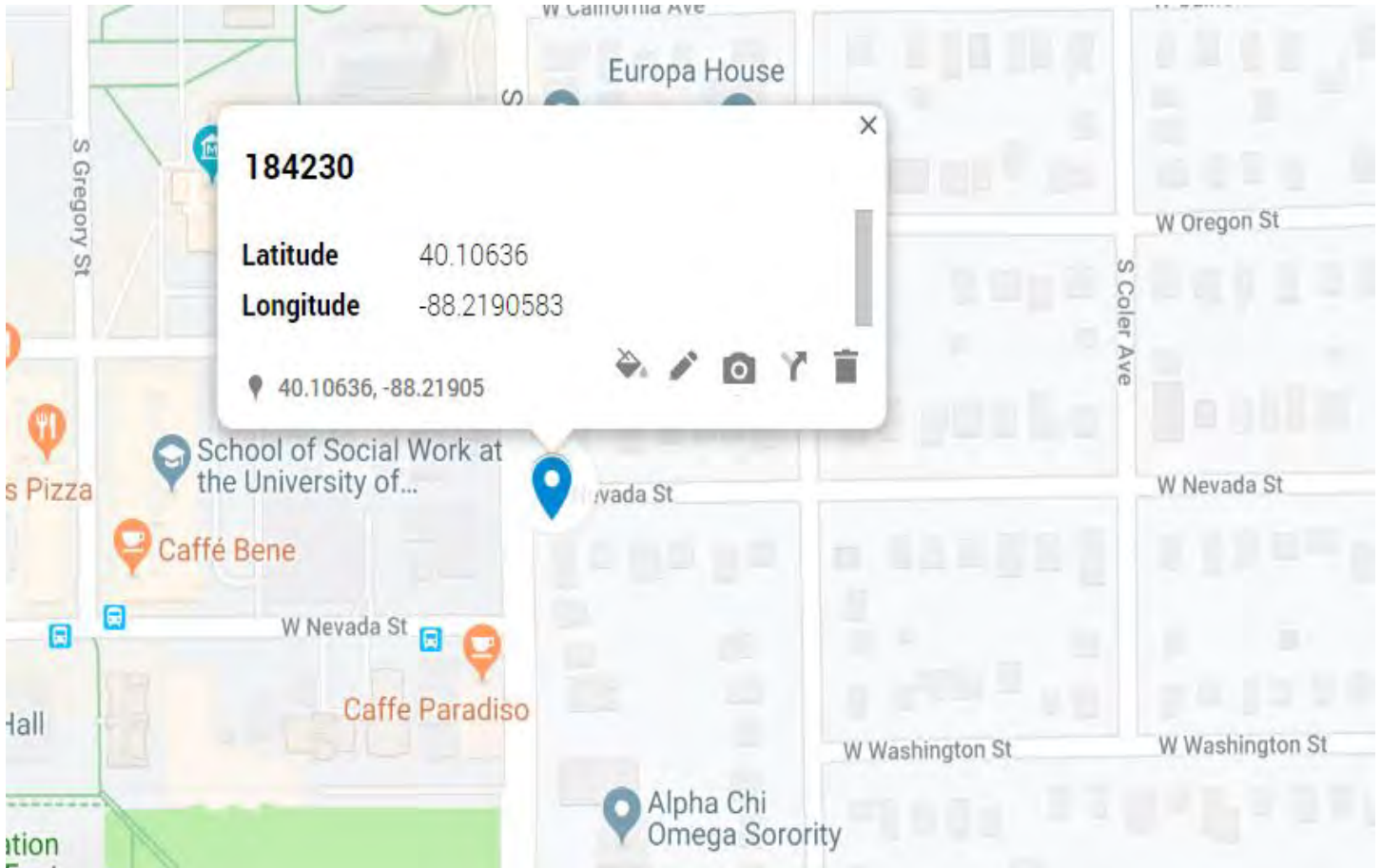




PACE: MRCHI025394 / MRCHI025420  
SITE NAME: CRAN\_RCHI\_CHUOI\_014  
USID / NODE: 184219  
ADDRESS: 1189 S VINE STREET, URBANA, IL 61801  
COORDINATES: 40.102950, -88.205078



PACE: MRCHI025454 / MRCHI025479  
SITE NAME: CRAN\_RCHI\_CHUOI\_026  
USID / NODE: 184230  
ADDRESS: 784 S LINCOLN AVENUE, URBANA, IL 61801  
COORDINATES: 40.106360, -88.2190583



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**SITE PHOTO**



# AT&T MOBILITY

**PROJECT :** LTE 1C&2C MICRO CELL BUILD  
**SITE # :** CRAN\_RCHI\_CHNOS\_004  
**USID / NODE:** 184197  
**FA # :** 14805856  
**PTN # :** 3304A0AAQK / 3304A0AARE  
**PACE # :** MRCHI025397 / MRCHI025475  
**ENODEB NAME :** ILL07001F\_R01  
**JURISDICTION :** CITY OF URBANA

**SITE NAME :** CRAN\_RCHI\_CHNOS\_004  
**ADDRESS :** 1614 N. LINCOLN AVENUE  
 URBANA, IL 61801

**PROJECT INFORMATION**

**SITE NAME:** CRAN\_RCHI\_CHNOS\_004  
**COUNTY:** CHAMPAIGN  
**ADDRESS:** 1614 N. LINCOLN AVENUE  
 URBANA, IL 61801  
**JURISDICTION:** CITY OF URBANA  
**USID:** 184197  
**FA NUMBER:** 14805856  
**PTN:** 3304A0AAQK / 3304A0AARE  
**PACE:** MRCHI025397 / MRCHI025475

**LATITUDE:** 40° 07' 42.37" (40.128576°)  
**LONGITUDE:** 88° 13' 09.88" (-88.219449°)  
**ELEVATION:** 742'

**LIGHT POLE/UTILITY POLE OWNER:** CITY OF URBANA

**APPLICANT:** AT&T MOBILITY  
 930 NATIONAL PARKWAY  
 SCHAUMBURG IL 60173

**AT&T PROJECT MANAGER/SITE ACQUISITION:** VANESSA ROSS  
 (217) 814-2314  
 VF2021@ATT.COM

**AT&T CONSTRUCTION MANAGER:** CHRISTIANA RACHAL  
 CR630A@ATT.COM

**PROJECT CONSULTANTS**

**PROJECT MANAGER:** SAC WIRELESS LLC  
 540 W. MADISON ST. (9TH FLOOR)  
 CHICAGO IL 60661  
 CONTACT: PRITI MORE

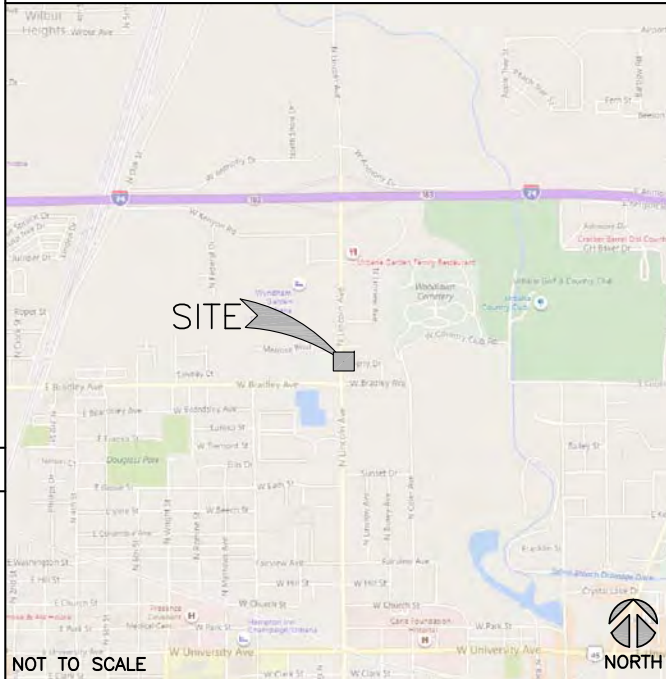
**Kaeva Powell**  
 kaeva.powell@sacw.com  
 847-466-3470

**ARCHITECT:** SAC WIRELESS LLC  
 520 S. MAIN ST., SUITE 2531  
 AKRON, OH 44311  
 317-295-3180

**SAC C.M.:** MARK KLEPACKI  
 EMAIL: MARK.KLEPACKI@SACW.COM

**SAC P.M.:** JAMES HOM  
 EMAIL: JAMES.HOM@SACW.COM

**VICINITY MAP**



**LOCATION MAP**



NOT TO SCALE

NOT TO SCALE

**DRAWING INDEX**

T1	TITLE SHEET
A1	FIBER DELIVERY PLANS (REFERENCE ONLY)
A2	OVERALL SITE PLAN
A3	ENLARGED PLAN
A4	EXISTING LIGHT POLE ELEVATION
A5	PROPOSED LIGHT POLE ELEVATIONS
A6	EQUIPMENT DETAILS (REFERENCE ONLY)
A7	MOUNTING DETAILS
S1	POLE FOUNDATION DETAILS
E1	ELECTRICAL ONE-LINE DIAGRAM
E2	PANEL SCHEDULE & ELECTRICAL DETAILS
E3	GROUNDING DETAILS
RF1	RF PLUMBING DIAGRAM (REFERENCE ONLY)
REF	POLE MANUFACTURER DESIGN (BY OTHERS)

**SCOPE OF WORK**

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

- REMOVE EXISTING LIGHT POLE AND REPLACE WITH NEW 40'-0" VALMONT ALUMINUM (MODEL# 400086106D4Z) LIGHT POLE (100 GRIT SATIN FINISH) PER PLAN
- INSTALL NEW ELECTRIC SERVICE RUN FROM EXISTING SOURCE TO NEW LIGHT POLE. METER SUPPLIED & INSTALLED BY CONTRACTOR.
- INSTALL NEW FIBER SERVICE RUN FROM EXISTING SOURCE TO NEW LIGHT POLE LOCATION AS SHOWN.
- INSTALL NEW POWER & FIBER EQUIPMENT PER PLAN
- INSTALL (1) NEW OMNI ANTENNA
- INSTALL (1) PCS RRUS-4415 & (1) 700 RRUS-11
- INSTALL CABLING AS REQUIRED
- GROUND AS REQUIRED
- LIGHT POLE LUMINARY TO BE SUPPLIED & INSTALLED BY CONTRACTOR. LUMINARY MUST BE APPROVED BY CITY OF URBANA PRIOR TO ORDER.
- STREET LIGHTING HANDHOLE (IF REQUIRED) SUPPLIED & INSTALLED BY CONTRACTOR
- POTHOLES SHALL BE REQUIRED FOR ANY PROPOSED UTILITY CROSSING
- HYDROVAC SHALL BE USED FOR ALL TRENCHING & POTHOLES ACTIVITIES
- CONTRACTOR SHALL MAINTAIN INTEGRITY OF EXISTING POLE DURING REMOVAL & COORDINATE RETURN OF REMOVED POLE TO THE CITY OF URBANA

**UTILITY DELIVERY METHOD TO PROPOSED POLE**

- FIBER - UNDERGROUND
- POWER - UNDERGROUND

**CODE COMPLIANCE**

- 2015 INTERNATIONAL BUILDING CODE W/CITY AMMENDMENTS
- 2014 NATIONAL ELECTRIC CODE W/CITY AMMENDMENTS

**SPECIAL NOTES**

- ALL WORK SHALL BE INSTALLED IN CONFORMANCE WITH CURRENT AT&T CONSTRUCTION INSTALLATION GUIDE.
- EXISTING CONDITIONS WILL BE CHANGED & VERIFIED IN FIELD. IF SIGNIFICANT DEVIATIONS OR DETERIORATION ARE ENCOUNTERED AT THE TIME OF CONSTRUCTION, A REPAIR PERMIT WILL BE OBTAINED & CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY.
- THESE DRAWINGS ARE FULL SIZE & SCALEABLE ON 11"x17" SHEET SIZE.
- STATEMENT THAT COMPLIANCE WITH THE ENERGY CODE IS NOT REQUIRED. -SCOPE OF WORK DOES NOT INVOLVE MODIFICATIONS TO EXTERIOR ENVELOPE OF BUILDING, HVAC SYSTEMS OR ELECTRICAL LIGHTING.

**DO NOT SCALE DRAWINGS**

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ARCHITECT OR ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.



REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
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C	05/02/19	ADDED FOUNDATION	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF ILLINOIS.

CIVIL SEAL

LTE 1C&2C MICRO CELL BUILD  
 14805856  
 CRAN\_RCHI\_CHNOS\_004  
 184197  
 1614 N. LINCOLN AVENUE  
 URBANA, IL 61801

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T1

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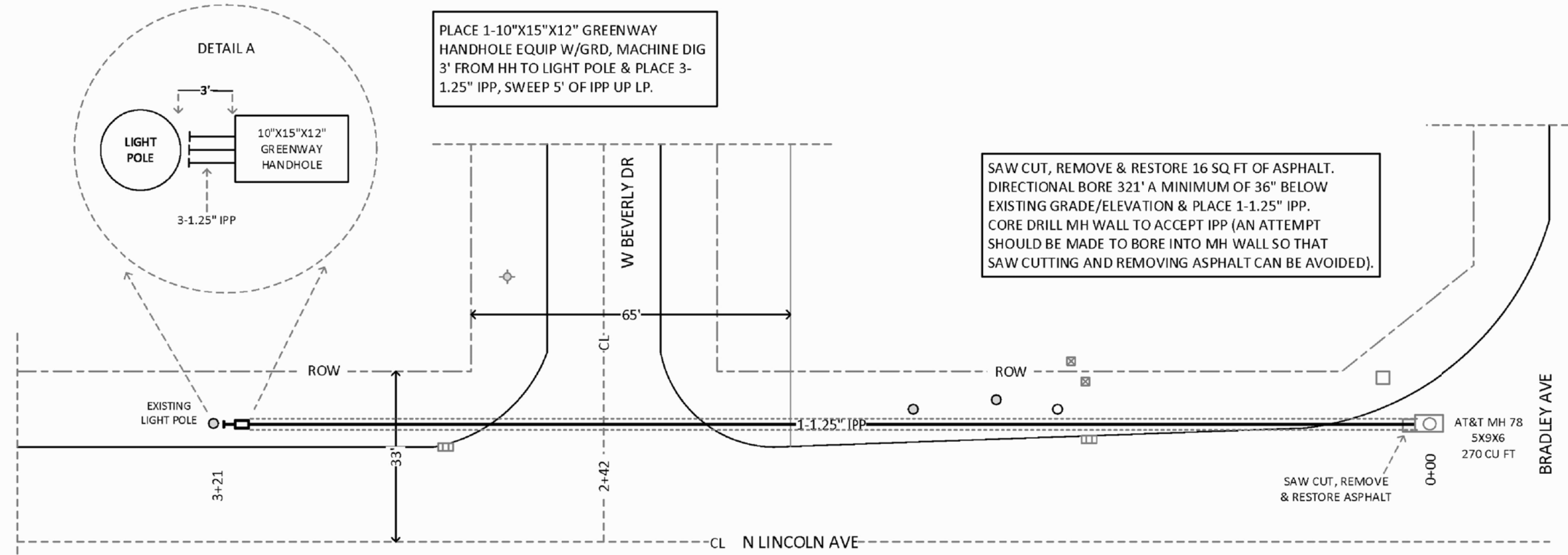
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**FIBER DELIVERY PLANS**

SHEET NUMBER  
**A1**

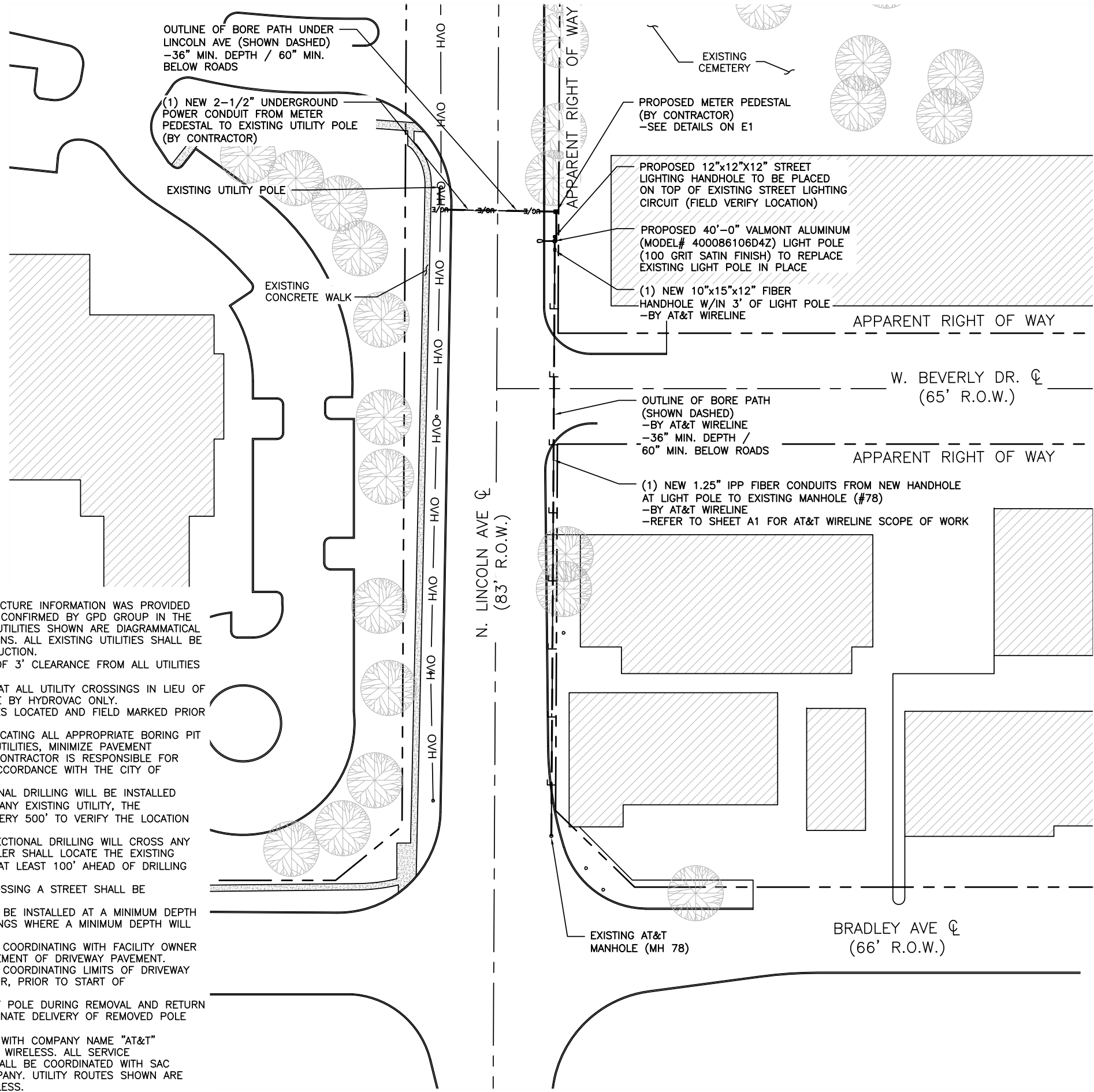
PLACE 1-10"X15"X12" GREENWAY HANDHOLE EQUIP W/GRD, MACHINE DIG 3' FROM HH TO LIGHT POLE & PLACE 3-1.25" IPP, SWEEP 5' OF IPP UP LP.

SAW CUT, REMOVE & RESTORE 16 SQ FT OF ASPHALT. DIRECTIONAL BORE 321' A MINIMUM OF 36" BELOW EXISTING GRADE/ELEVATION & PLACE 1-1.25" IPP. CORE DRILL MH WALL TO ACCEPT IPP (AN ATTEMPT SHOULD BE MADE TO BORE INTO MH WALL SO THAT SAW CUTTING AND REMOVING ASPHALT CAN BE AVOIDED).

**CITY OF URBANA**  
PERMIT SKETCH  
COUNTY: CHAMPAIGN  
TOWNSHIP: CUNNINGHAM  
SECTION: SW ¼ 5  
REF # A01BRSR  
SHEET 1 of 1



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**NOTES:**

1. EXISTING UNDERGROUND UTILITY INFRASTRUCTURE INFORMATION WAS PROVIDED BY SAC WIRELESS. INFORMATION WAS NOT CONFIRMED BY GPD GROUP IN THE FORM OF UTILITY LOCATES. THE EXISTING UTILITIES SHOWN ARE DIAGRAMMATICAL IN NATURE SHOWING APPROXIMATE LOCATIONS. ALL EXISTING UTILITIES SHALL BE LOCATED BY CONTRACTOR DURING CONSTRUCTION.
2. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 3' CLEARANCE FROM ALL UTILITIES & 5' CLEARANCE FROM ALL CONDUITS.
3. CONTRACTOR SHALL PERFORM POTHOLING AT ALL UTILITY CROSSINGS IN LIEU OF DIRECTIONAL BORING. POTHOLING SHALL BE BY HYDROVAC ONLY.
4. CONTRACTOR SHALL HAVE EXISTING UTILITIES LOCATED AND FIELD MARKED PRIOR TO CONSTRUCTION.
5. THE CONTRACTOR SHALL TAKE CARE IN LOCATING ALL APPROPRIATE BORING PIT LOCATIONS IN ORDER TO AVOID EXISTING UTILITIES, MINIMIZE PAVEMENT RESTORATION AND TRAFFIC DISRUPTIONS. CONTRACTOR IS RESPONSIBLE FOR REPAIRING ALL DISTURBED PAVEMENT IN ACCORDANCE WITH THE CITY OF URBANA STANDARD SPECIFICATIONS.
6. AT LOCATIONS WHERE PROPOSED DIRECTIONAL DRILLING WILL BE INSTALLED WITHIN 5' LONGITUDINALLY (PARALLEL) TO ANY EXISTING UTILITY, THE DIRECTIONAL DRILLER SHALL "POTHOLE" EVERY 500' TO VERIFY THE LOCATION AND GRADE OF THE EXISTING UTILITY.
7. AT LOCATIONS WHERE THE PROPOSED DIRECTIONAL DRILLING WILL CROSS ANY EXISTING UNDERGROUND UTILITY, THE DRILLER SHALL LOCATE THE EXISTING UTILITY LINE AND GRADE BY "POTHOLING" AT LEAST 100' AHEAD OF DRILLING OPERATIONS.
8. ANY PROPOSED DIRECTIONAL DRILLING CROSSING A STREET SHALL BE PERPENDICULAR TO STREET DIRECTION.
9. ALL CONDUIT IN CITY RIGHT-OF-WAY WILL BE INSTALLED AT A MINIMUM DEPTH OF 36 INCHES EXCEPT AT STREET CROSSINGS WHERE A MINIMUM DEPTH WILL BE 60 INCHES.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH FACILITY OWNER TO SCHEDULE ANY DEMOLITION & REPLACEMENT OF DRIVEWAY PAVEMENT.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING LIMITS OF DRIVEWAY REPAIR WITH CITY RIGHT OF WAY INSPECTOR, PRIOR TO START OF CONSTRUCTION OR DEMOLITION.
12. CONTRACTOR SHALL MAINTAIN INTEGRITY OF POLE DURING REMOVAL AND RETURN POLE TO THE CITY OF CHAMPAIGN. COORDINATE DELIVERY OF REMOVED POLE WITH CITY RIGHT-OF-WAY INSPECTOR.
13. ALL AT&T HANDHOLES SHALL BE LABELED WITH COMPANY NAME "AT&T"
14. UTILITY COORDINATION PERFORMED BY SAC WIRELESS. ALL SERVICE COORDINATION WITH UTILITY COMPANIES SHALL BE COORDINATED WITH SAC WIRELESS AND VERIFIED WITH UTILITY COMPANY. UTILITY ROUTES SHOWN ARE BASED ON NOTES PROVIDED BY SAC WIRELESS.



**GPD GROUP, INC.**  
 LIC. # - 184-007100  
 520 South Main Street, Suite 2531  
 Akron, OH 44311  
 330.572.2100 Fax: 330.572.2102

REVISIONS			
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CIVIL SEAL

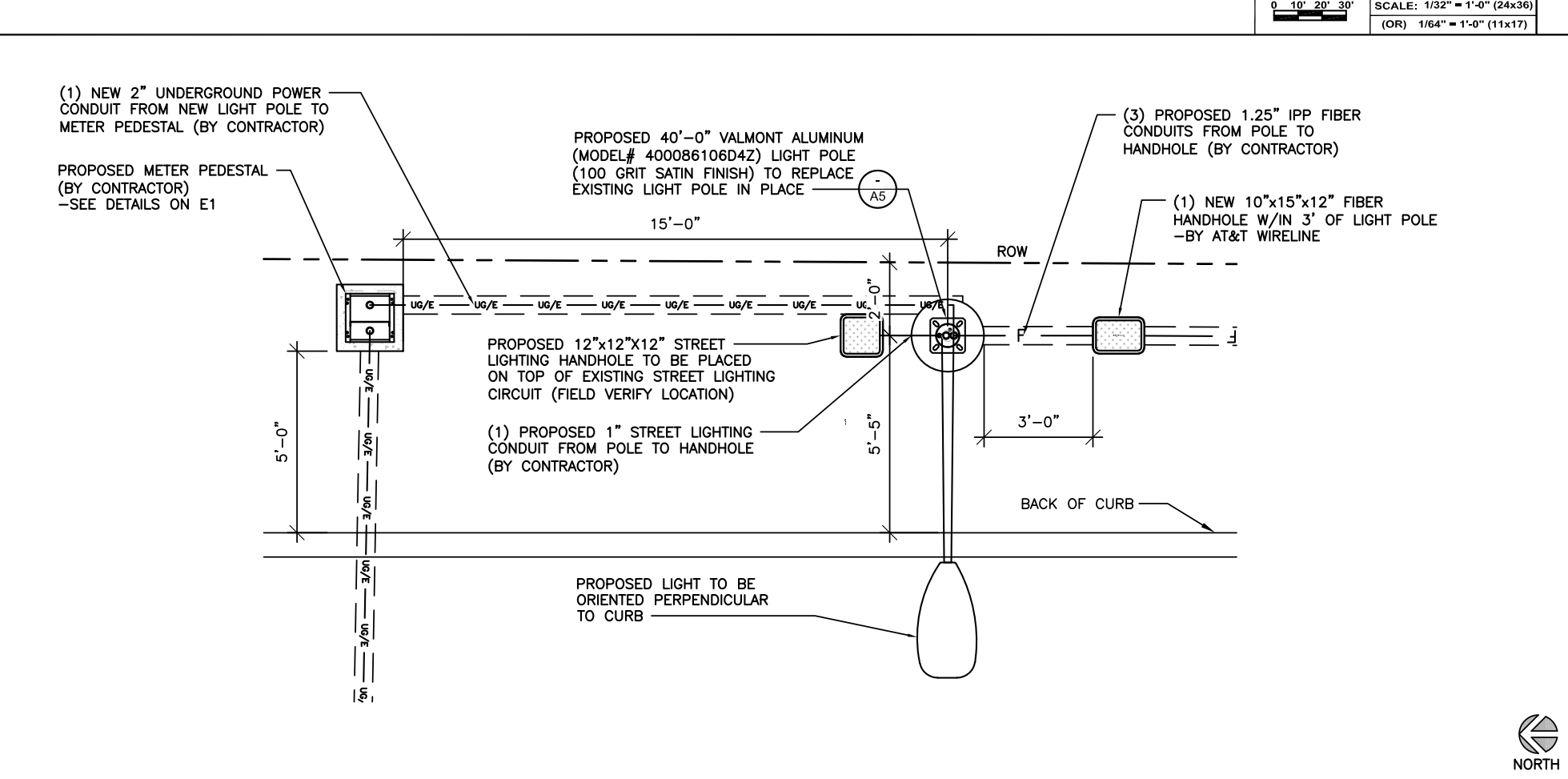
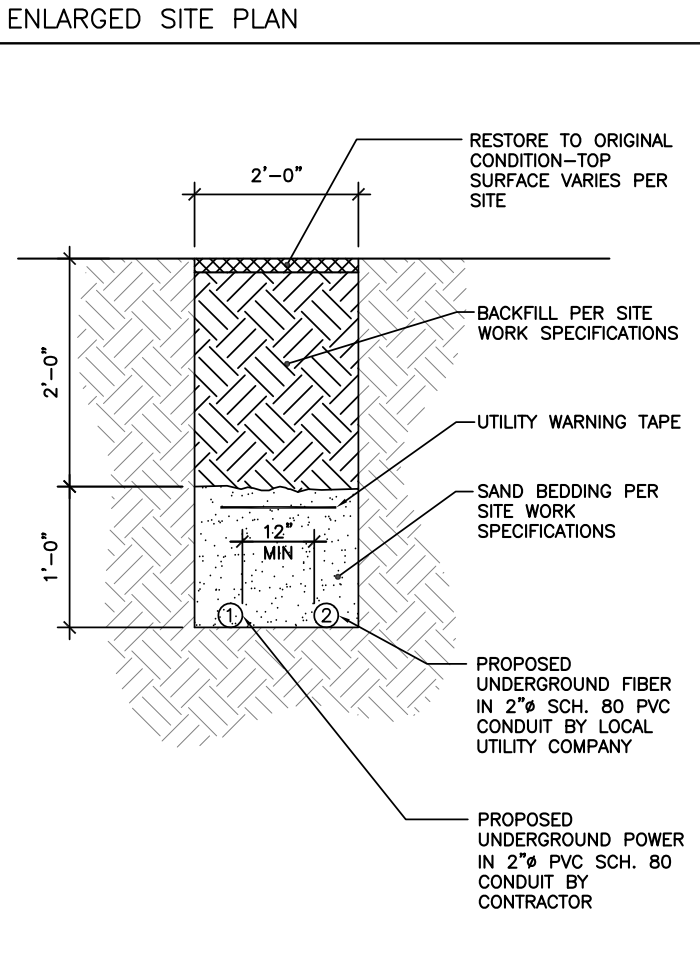
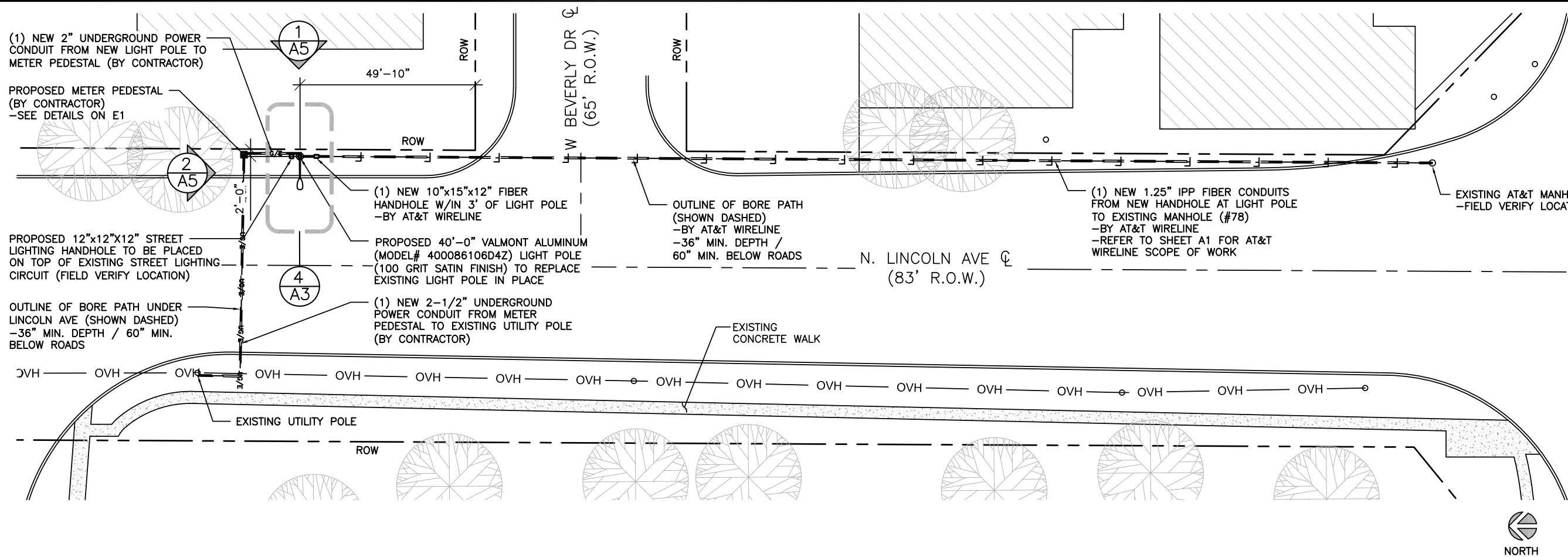
LTE 1C&2C MICRO CELL BUILD  
 14805856  
 CRAN\_RCHI\_CHNOS\_004  
 184197  
 1614 N. LINCOLN AVENUE  
 URBANA, IL 61801

SHEET TITLE  
**OVERALL SITE PLAN**

SHEET NUMBER  
**A2**



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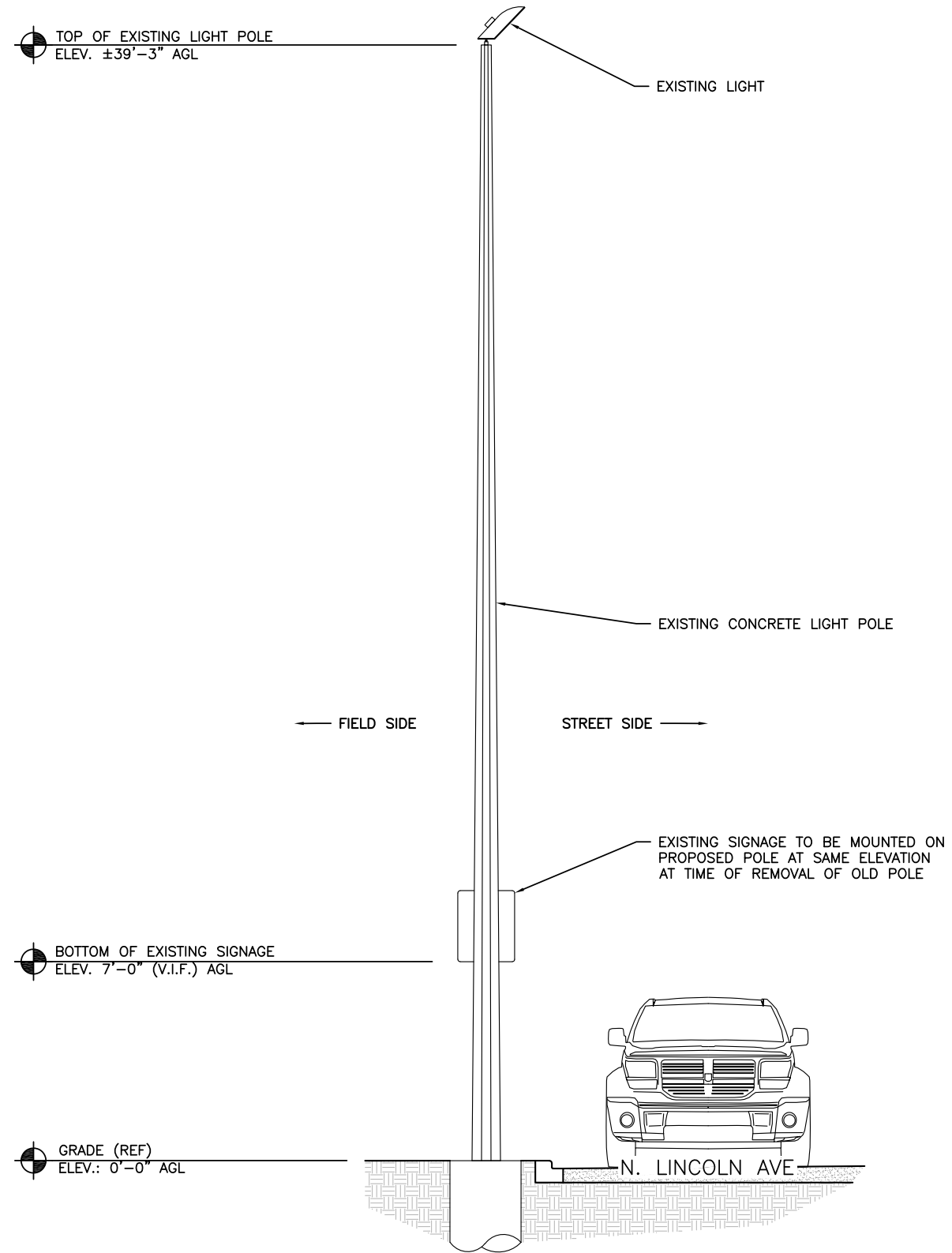
CIVIL SEAL

LTE 1C&2C MICRO CELL BUILD  
14805856  
CRAN\_RCHI\_CHNOS\_004  
184197  
1614 N. LINCOLN AVENUE  
URBANA, IL 61801

SHEET TITLE  
**ENLARGED PLAN**

SHEET NUMBER  
**A3**

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14805856  
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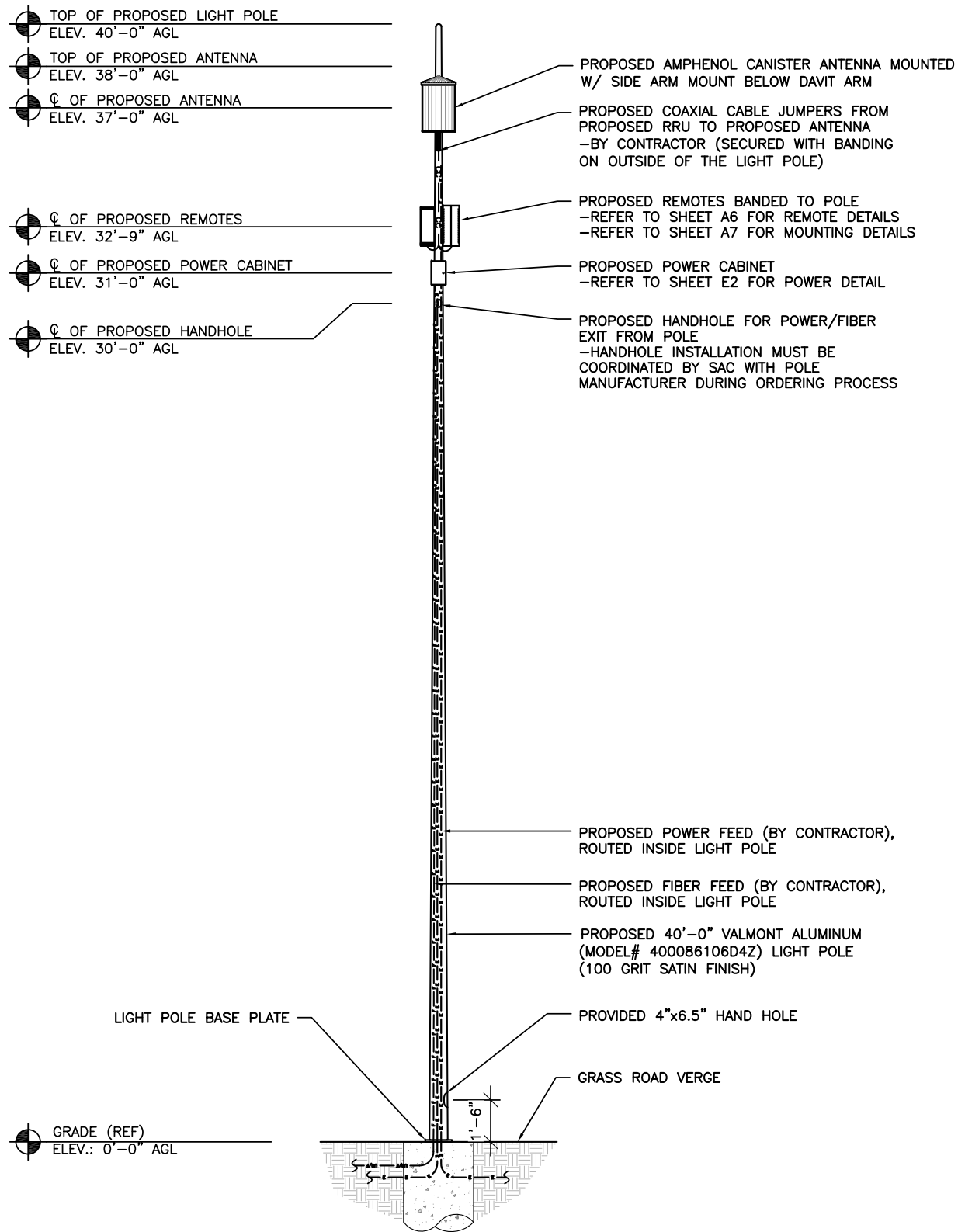
SHEET TITLE

EXISTING  
LIGHT POLE  
ELEVATION

SHEET NUMBER

**A4**

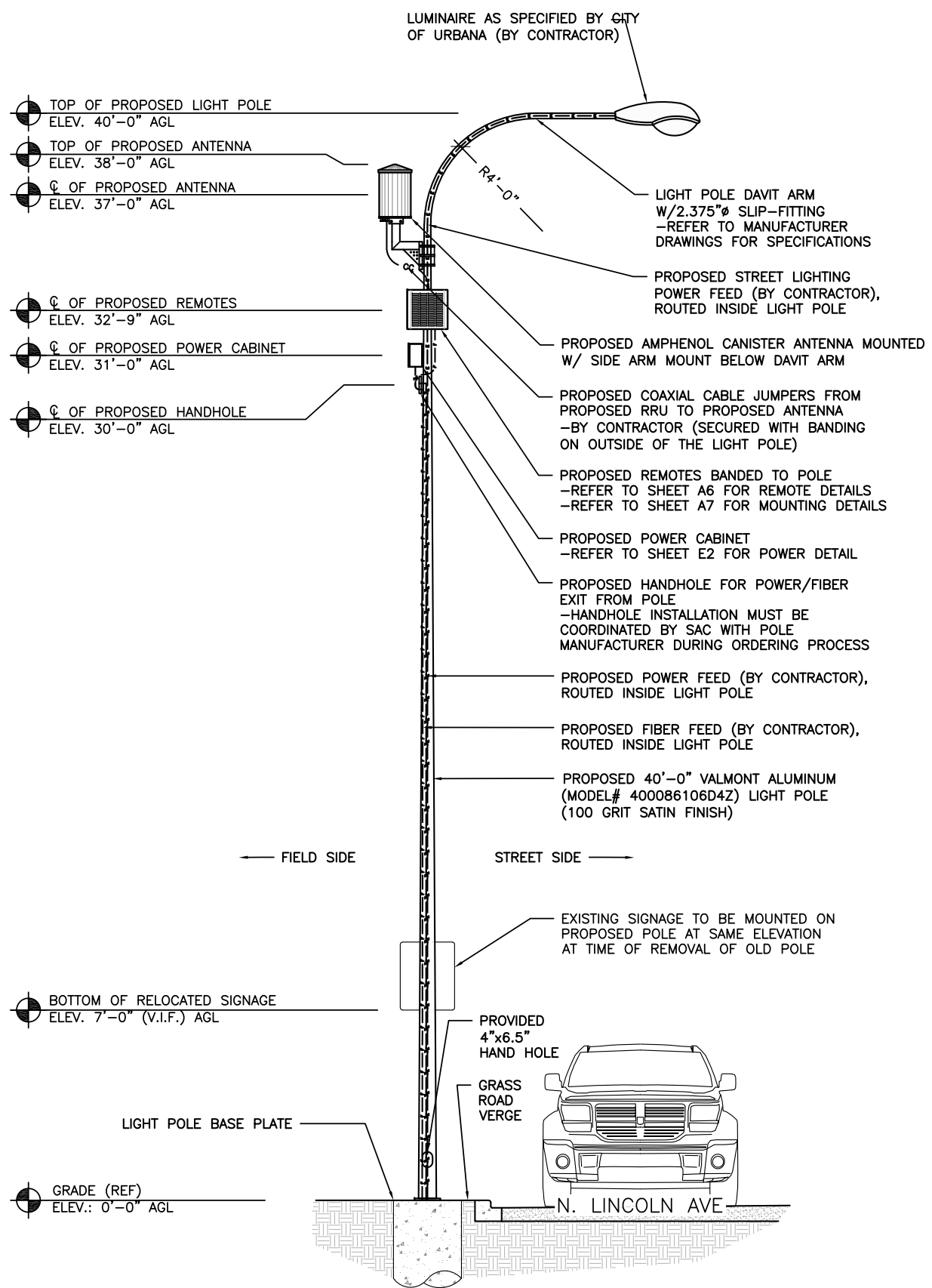
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PROPOSED LIGHT POLE FRONT ELEVATION (FIELD SIDE)

SCALE: 1/4" = 1'-0" (24x36)  
(OR) 1/8" = 1'-0" (11x17)

1



PROPOSED LIGHT POLE SIDE ELEVATION

SCALE: 1/4" = 1'-0" (24x36)  
(OR) 1/8" = 1'-0" (11x17)

2



REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
A	10/25/18	ISSUED FOR REVIEW	DTC
B	03/12/19	REVISED PER COMM.	MRL
C	05/02/19	ADDED FOUNDATION	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

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CIVIL SEAL

LTE 1C&2C MICRO CELL BUILD  
14805856  
CRAN\_RCHI\_CHNOS\_004  
184197  
1614 N. LINCOLN AVENUE  
URBANA, IL 61801

SHEET TITLE  
**PROPOSED LIGHT POLE ELEVATIONS**

SHEET NUMBER  
**A5**



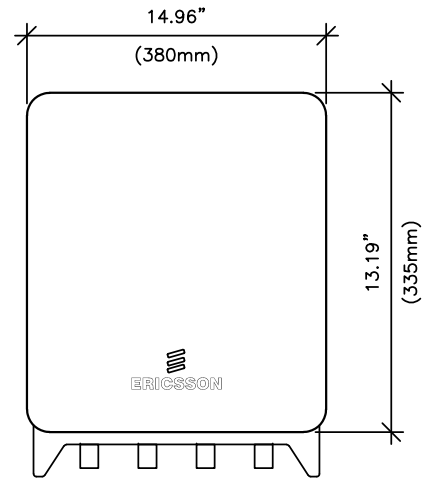
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MANUFACTURER: ERICSSON  
 MODEL: RRUS 4415 B25

**MECHANICAL SPECIFICATIONS:**  
 HEIGHT: 14.96 IN (380mm)  
 WIDTH: 13.19 IN (335mm)  
 DEPTH: 5.39 IN (137mm)  
 WEIGHT: 46 LBS (21kg)

**INTERFACE SPECIFICATIONS:**  
 CPRI: 2x2.5/4.9/9.8/10.1 Gbps  
 (ONLY USE ERICSSON SUPPLIED AND APPROVED SFPs)

EXTERNAL ALARMS: 2



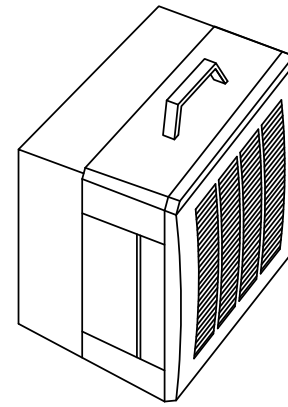
MANUFACTURER: ERICSSON  
 MODEL: RRUS-11

**MECHANICAL SPECIFICATIONS:**  
 HEIGHT: 19.7 IN (500mm)  
 WIDTH: 17.0 IN (431mm)  
 DEPTH: 7.2 IN (182mm)  
 WEIGHT: 50.7 LBS (23kg)

**INTERFACE SPECIFICATIONS:**  
 ANTENNA PORTS: 2x7/16 IEC-169-4  
 OPTICAL INDICATORS: 6  
 EXTERNAL ALARMS: 1  
 FIELD GROUND: 1

**ELECTRICAL SPECIFICATIONS:**  
 POWER SUPPLY: -48 VDC OR 100-250 VAC

**ENVIRONMENTAL SPECIFICATIONS:**  
 NORMAL OPERATING TEMP.: -40°C TO +55°C  
 RELATIVE HUMIDITY: 5-100%



REVISIONS			
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C	05/02/19	ADDED FOUNDATION	MRL

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RRUS 4415 B25 DETAILS

SCALE  
N.T.S. 1

RRUS-11 DETAILS

SCALE  
N.T.S. 2

DETAIL NOT USED

SCALE  
N.T.S. 3

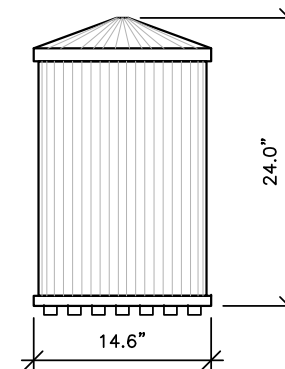
ANTENNA DETAIL

SCALE: NTS

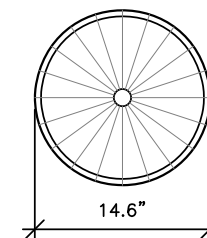
4



IMAGE



SIDE VIEW



TOP VIEW

AMPHENOL MULTI BAND CANISTER ANTENNA  
 MODEL: 2C2U3MT360X06Fxyso  
 COLOR: GREY

MECHANICAL CHARACTERISTICS

- ANTENNA DIMENSIONS (HEIGHT X DIAMETER) : 24.0"x14.6"
- WEIGHT W/OUT MOUNTING BRACKET KIT: TBD LBS
- SURVIVAL WIND SPEED: 150 MPH
- WIND AREA: 2.4 FT<sup>2</sup>
- WIND LOAD (100 MPH): 43 LBF

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REFERENCE ONLY

LTE 1C&2C MICRO CELL BUILD  
 14805856  
 CRAN\_RCHI\_CHNOS\_004  
 184197  
 1614 N. LINCOLN AVENUE  
 URBANA, IL 61801

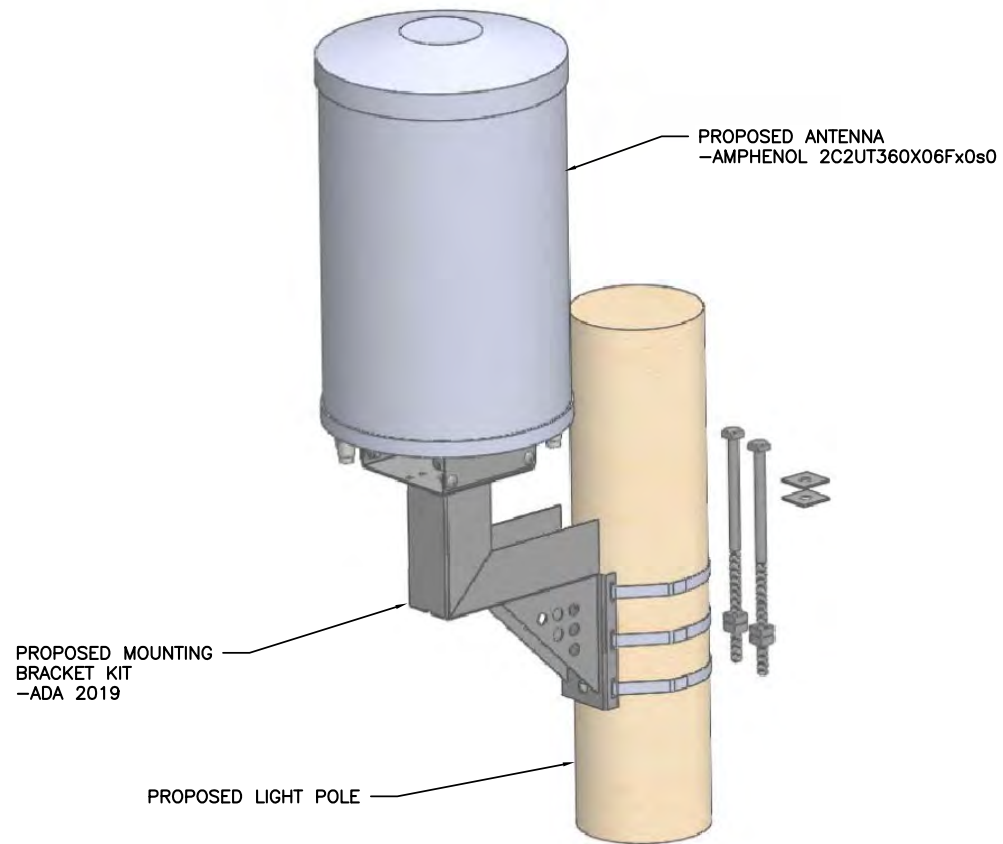
SHEET TITLE

EQUIPMENT  
 DETAILS

SHEET NUMBER

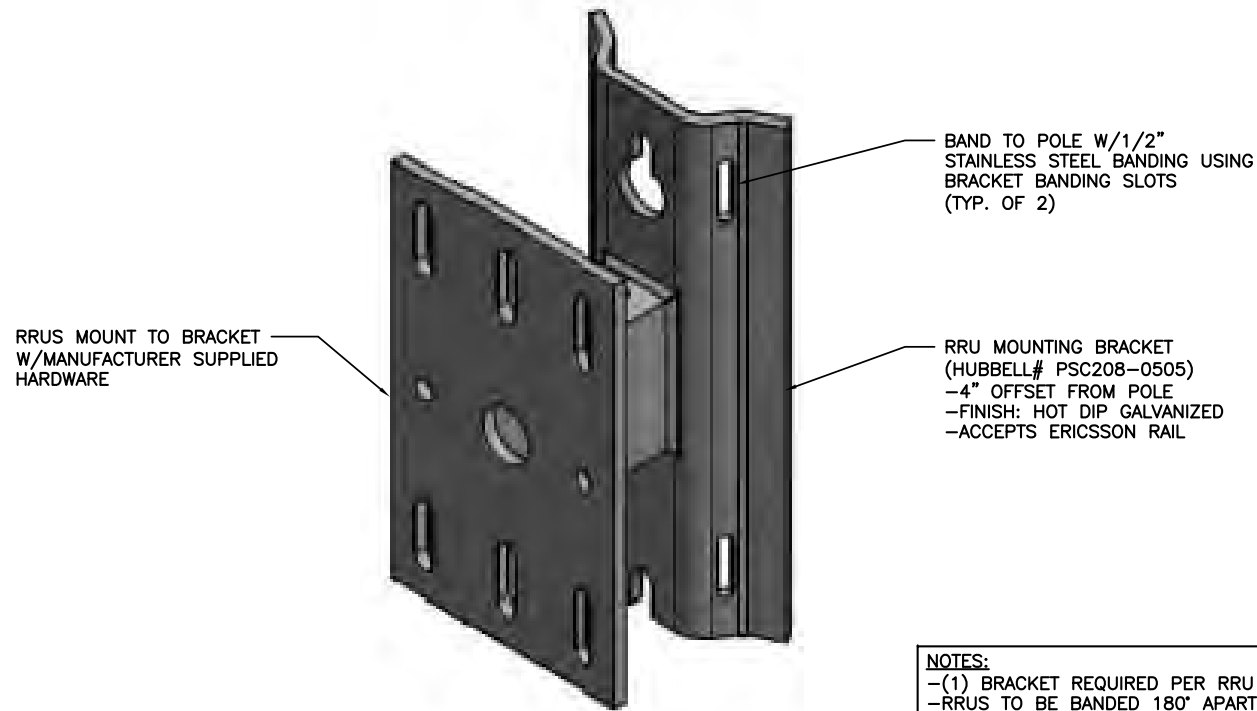
A6

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ANTENNA MOUNTING DETAIL

SCALE  
N.T.S. 1

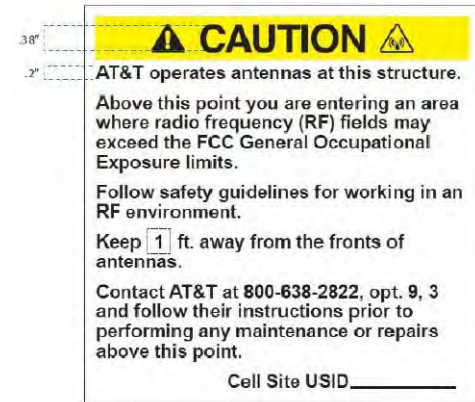


**NOTES:**  
-(1) BRACKET REQUIRED PER RRU  
-RRU TO BE Banded 180° APART ON OPPOSITE SIDES OF POLE

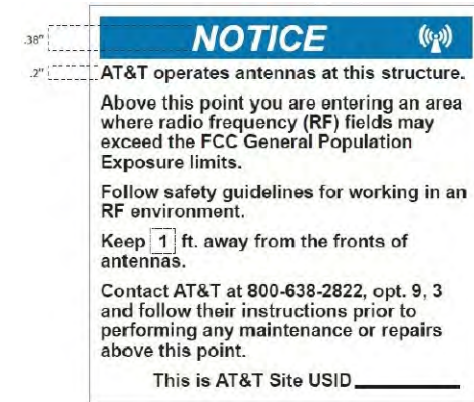
RRU MOUNTING DETAIL

SCALE  
N.T.S. 2

**EXAMPLE CRAN RF CAUTION SIGN**



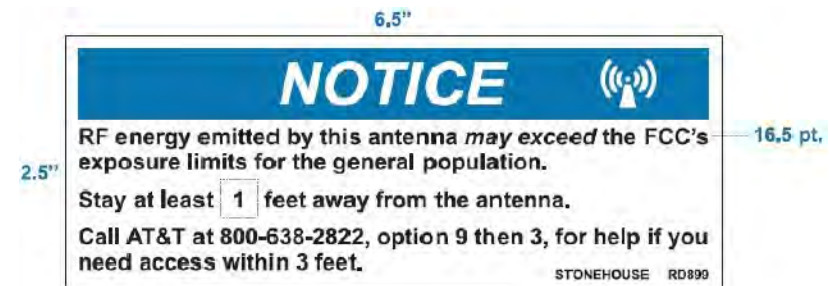
**EXAMPLE CRAN RF NOTICE SIGN**



**EXAMPLE CRAN POLE POWER DISCONNECT SIGN**



**EXAMPLE STONEHOUSE RD899 RF NOTICE SIGN**



CRAN Pole Power Disconnect, RF Notice, and Caution signs shall be ordered through Stonehouse Signs. Three versions are available for each of the signs shown in Figures 16, 17, and 18: .055 Polyethylene - Reflective, .025 Aluminum - Reflective, and Peel Back Label - Reflective. All versions are 6"x6" with font designed to be visible from 2-3 feet away when approached from below to provide warning about ascending into the high RF exposure areas. The RF Caution sign shown in Figure 19 is designed to be visible from 3 feet away and is available in the reflective peel back label version only. It is designed to fit on most of the CRAN/Small Cell antenna types currently deployed. It may also be placed on antenna shrouds as shown in Figures 11 and 12.

**SIGNAGE NOTE:**  
SIGNAGE SHALL BE INSTALLED PER AT&T DIRECTION

AT&T SIGNAGE DETAIL

SCALE: NTS

3



REVISIONS			
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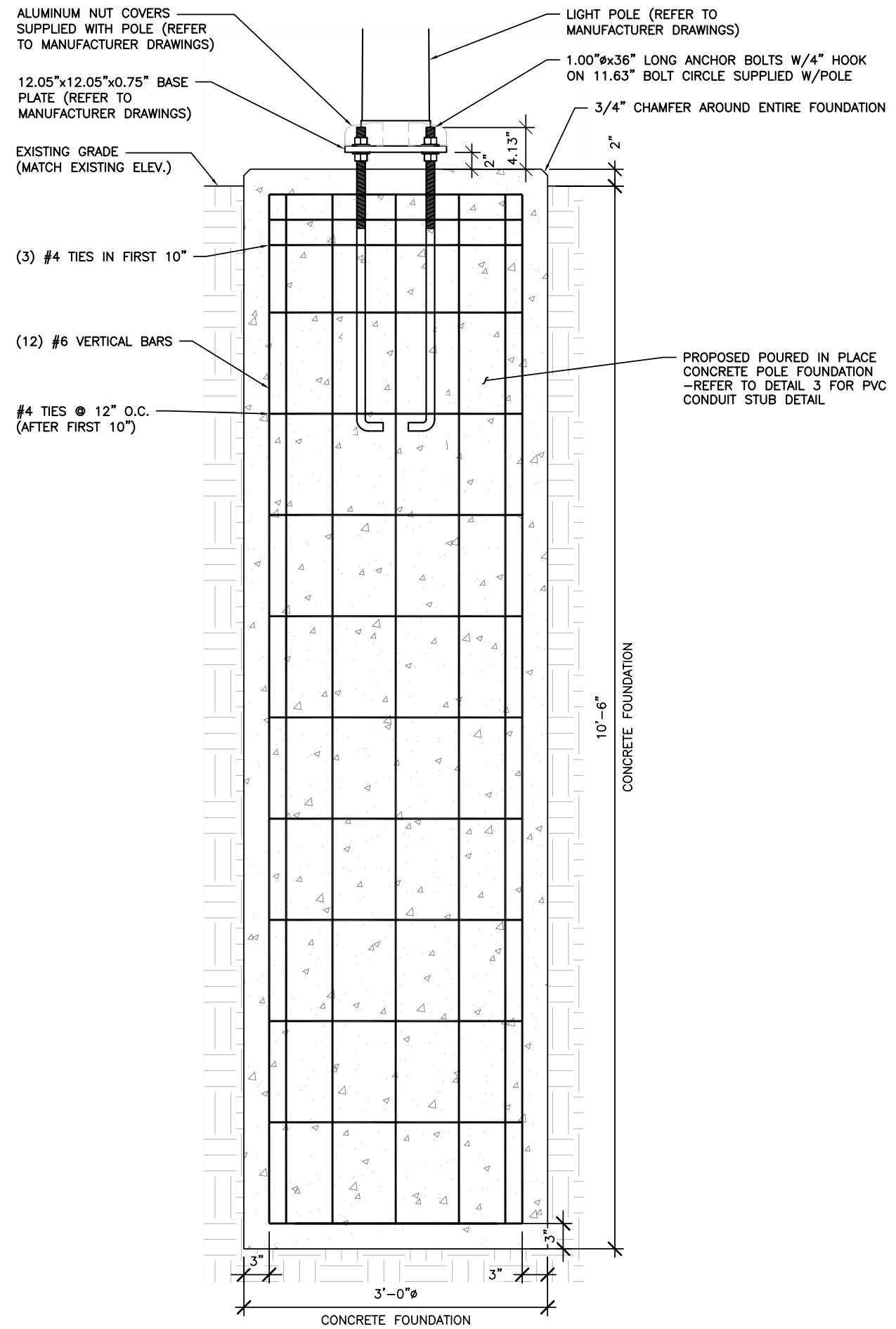
CIVIL SEAL

LTE 1C&2C MICRO CELL BUILD  
14805856  
CRAN\_RCHI\_CHNOS\_004  
184197  
1614 N. LINCOLN AVENUE  
URBANA, IL 61801

SHEET TITLE  
**MOUNTING DETAILS**

SHEET NUMBER  
**A7**

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**STRUCTURAL NOTES:**

1. STRUCTURAL CONCRETE SHALL MEET THE FOLLOWING SPECIFICATIONS:

- SLUMP 4" (±1")
- AIR ENTRAINMENT: 6% (±1%)
- MIN. COMPRESSIVE STRENGTH (F'c): 4,500 PSI @ 28 DAYS
- CONCRETE COVER: 3" ALL SIDES

CONCRETE SHALL BE TESTED BY A REPUTABLE INDEPENDENT THIRD PARTY TESTING AGENCY IN ACCORDANCE WITH LATEST WISCONSIN ACCEPTED EDITION OF ACI-318. FIVE (5) CONCRETE CYLINDERS SHALL BE CAST IN ACCORDANCE WITH LATEST WISCONSIN ACCEPTED EDITION OF ACI-318 AND BE LABORATORY CURED. THE AVERAGE OF THREE (3) CONCRETE CYLINDERS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (F'c) OF 4,500 PSI AT 28 DAYS. THE TESTING RESULTS SHALL BE PROVIDED TO THE CONSTRUCTION MANAGER AND AT&T REPRESENTATIVE.

ALL CONCRETE CONSTRUCTION SHALL CONFORM TO ACI\*96, "STANDARD SPECIFICATION FOR STRUCTURAL CONCRETE" AND ACI 305, 306 AND 307 UNLESS NOTED OTHERWISE.

ALL DETAILING, FABRICATION AND PLACING OF CONCRETE SHALL CONFORM TO ACI 318-11.

2. STRUCTURAL STEEL SHALL MEET THE FOLLOWING SPECIFICATIONS:

- MATERIALS: REINFORCING ANCHOR BOLTS ASTM 615, GRADE 60  
ASTM F1554, GRADE 55
- REINFORCING COVER: TOP 2"  
BOTTOM 3"

3. DESIGN PARAMETERS:

STRUCTURAL ANALYSIS OF THE POLE AND FOUNDATION WAS COMPLETED BY OTHERS. COORDINATE WITH SAC WIRELESS FOR A COPY OF POLE STRUCTURAL ANALYSIS.

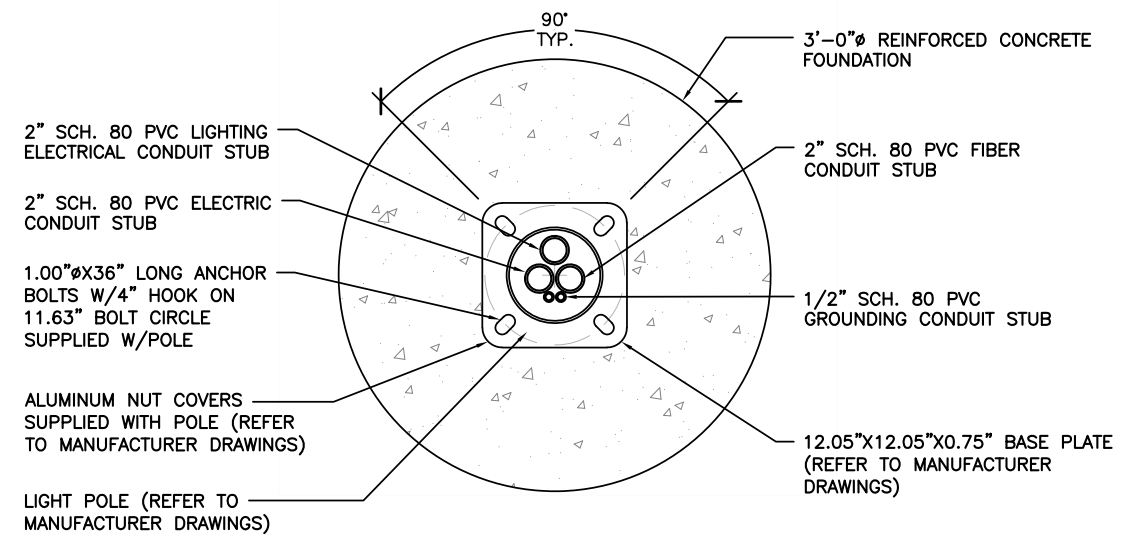
- DESIGN CODES: 2015 INTERNATIONAL BUILDING BUILDING CODE  
TIA-222-G  
ASCE 7-05  
CHAMPAIGN COUNTY, IL
- POLE LOCATION: CHAMPAIGN COUNTY, IL
- BASIC WIND SPEED: 130 MPH
- GUST FACTOR: 1.14
- STRUCTURE CLASS: CLASS II
- EXPOSURE CLASS: B
- TOPOGRAPHIC CATEGORY: 1

PRESUMPTIVE SOIL PARAMETERS: FOUNDATION IS BASED ON AN ALLOWABLE LATERAL BEARING PRESSURE OF AT LEAST 200 PSF/FT.

4. ALL CONTRACTORS SHALL EXERCISE GREAT CARE DURING EXCAVATION. CONTRACTOR SHALL PREDETERMINE UTILITY LOCATIONS AND NOTIFY THE ENGINEER IMMEDIATELY IF DEVIATION FROM PLANS EXIST. CONTRACTOR SHALL CONTACT 811 48 HR. PRIOR TO DIGGING, GRADING, OR DRILLING.

**FOUNDATION NOTES**

SCALE	2
N.T.S.	



FOUNDATION DETAIL

SCALE: NTS 1

FOUNDATION DETAIL

SCALE: NTS 3



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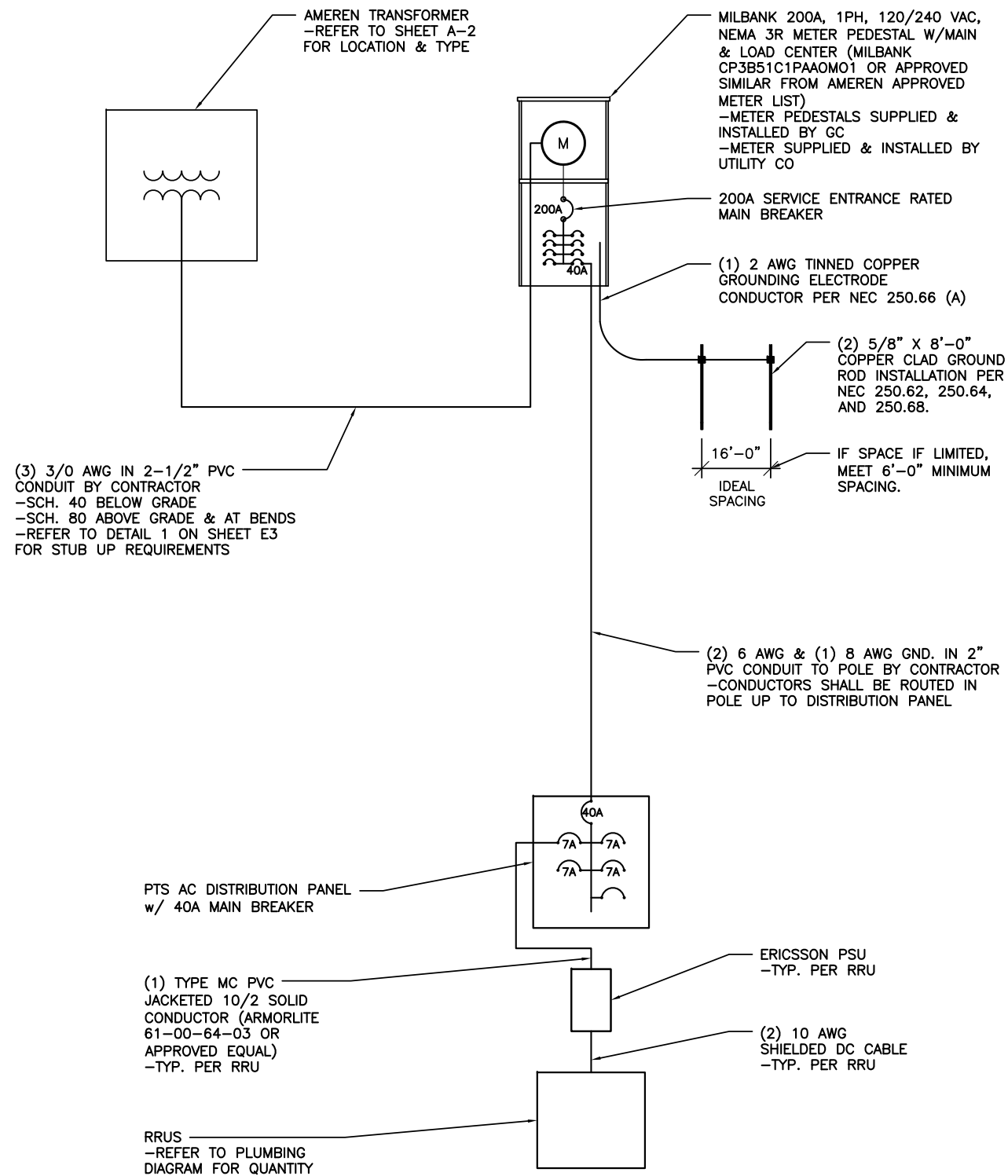
STRUCTURAL SEAL

LTE 1C&2C MICRO CELL BUILD  
14805856  
CRAN\_RCHI\_CHNOS\_004  
184197  
1614 N. LINCOLN AVENUE  
URBANA, IL 61801

SHEET TITLE  
**POLE FOUNDATION DETAILS**

SHEET NUMBER  
**S1**

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ELECTRICAL ONE-LINE DIAGRAM

SCALE  
N.T.S.

1

ELECTRICAL NOTES

ELECTRICAL NOTES:

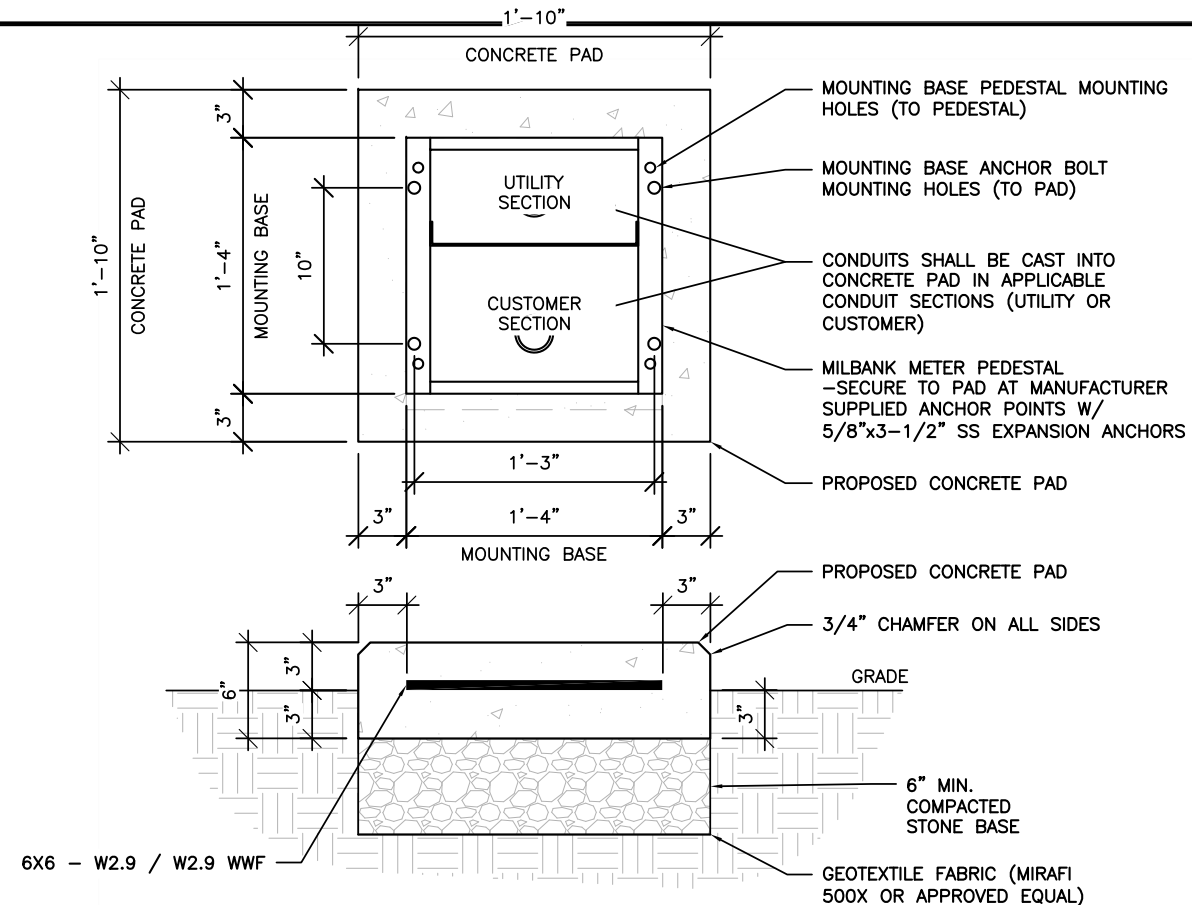
- ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND ALL APPLICABLE CODES.
- CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SUCH THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
- SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING THE INSTALLATION OF GROUNDING AND UNDERGROUND CONDUIT AS TO PREVENT THE LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
- COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC (CADWELD) CONNECTIONS WHEN APPROVED BY CINCINNATI BELL CONSTRUCTION MANAGER.
- SERVICE TO METER PEDESTAL SHALL BE 120/240VAC, 200 AMP, SINGLE PHASE.
- ALL GROUND CONNECTIONS BELOW GRADE SHALL BE EXOTHERMIC (CADWELD).
- ALL GROUND CONNECTIONS ABOVE GRADE SHALL BE FORMED USING TWO (2) HIGH PRESS CRIMPS.
- ALL EXOTHERMIC CONNECTIONS TO THE GROUND RODS SHALL START AT THE TOP AND HAVE A VERTICAL SEPARATION OF 6" FOR EVERY ADDITIONAL CONNECTION.
- ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
- ALL EXTERIOR GROUND CONNECTORS SHALL BE 2 AWG SOLID BARE, TINNED, COPPER UNLESS INDICATED OTHERWISE.
- CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
- USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
- MAXIMUM RESISTANCE OF THE COMPLETED GROUND SYSTEM SHALL NOT EXCEED 5 OHMS. TESTING SHALL BE PERFORMED IN ACCORDANCE WITH PROJECT SPECIFICATIONS FOR FACILITY GROUNDING, USING FALL OF POTENTIAL METHOD.

STANDARD CONDUIT NOTES:

- UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC. ABOVE GROUND CONDUIT, ELBOWS, AND RISERS SHALL BE SCHEDULE 80 PVC.
- UNDERGROUND SERVICE CONDUIT SHALL MEET REQUIRED BURIAL DEPTH PER AMEREN ELECTRIC SERVICE MANUAL.
- G.C. TO STUB UP SERVICE CONDUIT AT UTILITY POLE WITH 90° SWEEPING ELBOW. GC. SHALL COIL SUFFICIENT CONDUCTOR TO REACH SERVICE CONNECTION ON POLE. G.C. SHALL SUPPLY ENOUGH CONDUIT AND RISER HARDWARE FOR AMEREN TO EXTEND SERVICE RISER UP POLE TO SERVICE CONNECTION POINT. REFER TO AMEREN ELECTRIC SERVICE MANUAL FOR REQUIREMENTS.
- ALL CONDUIT WILL BE EQUIPPED WITH 3/8" PULL ROPE AND HAVE A TRACER WIRE. TRACER WIRE NEEDS TO BE LAID ABOVE BURIED CONDUIT.

SCALE  
N.T.S.

3



METER PEDESTAL CONCRETE PAD FOUNDATION DETAIL

SCALE  
N.T.S.

2



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ELECTRICAL SEAL

LTE 1C&2C MICRO CELL BUILD  
14805856  
CRAN\_RCHI\_CHNOS\_004  
184197  
1614 N. LINCOLN AVENUE  
URBANA, IL 61801

SHEET TITLE  
**ELECTRICAL ONE-LINE DIAGRAM**

SHEET NUMBER  
**E1**

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AC POWER PANEL (MILBANK CP3B51C1PAAOM01)											
240 VOLTS, 1-PHASE, 3-WIRE, 200A											
MAIN RATING (A) : 200					SYSTEM VOLTAGE (V) : 240						
DESCRIPTION	VA	c/nc	BKR	POSN	L1	L2	POSN	BKR	c/nc	VA	DESCRIPTION
DISTRIBUTION PANEL	1190	c	40	1	1190		2	--	c	0	
	0	c	--	3		0	4	--	c	0	
	0	c	--	5	0		6	--	c	0	
	0	c	--	7		0	8	--	c	0	
PHASE TOTALS (VA):					1190	0					
CURRENT PER PHASE (A):					12	0	Amperes/phase cannot exceed main breaker rating				
PANEL TOTAL (VA):					1190	Legend: c = continuous, nc = non-continuous					
PANEL CAPACITY (kVA):					48.0	CONNECTED LOAD (kVA): 1.2					
PANEL LOADING (100% non-cont. load) (kVA):					0.0						
PANEL LOADING (125% continuous load) (kVA):					1.5						
PANEL LOADING (TOTAL) (kVA):					1.5						
SPARE CAPACITY (kVA):					46.5						

ELECTRICAL MAIN & LOAD CENTER PANEL SCHEDULE

SCALE N.T.S. 1

MANUFACTURER: MILBANK  
MODEL: CP3B51C1PAAOM01

MECHANICAL SPECIFICATIONS:  
HEIGHT: 48 IN  
WIDTH: 16 IN  
DEPTH: 17 IN

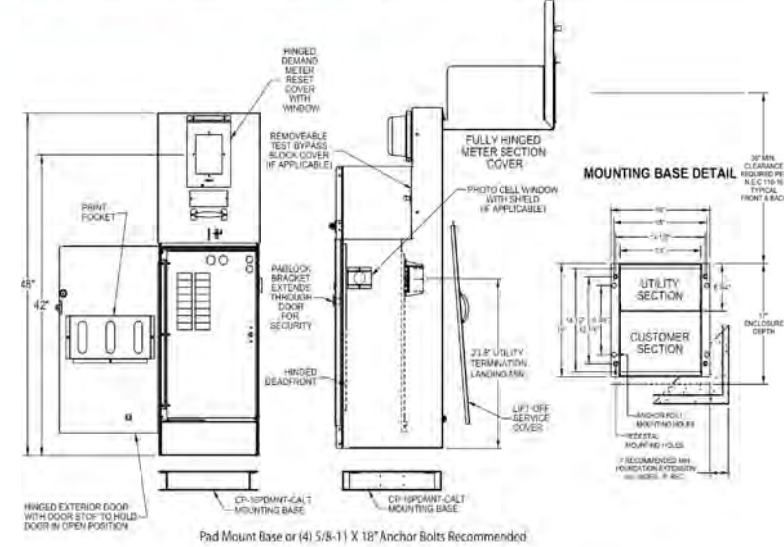
ELECTRICAL SPECIFICATIONS:  
AMPERAGE RATING: 200 A  
OPERATING VOLTAGE: 240 V  
ELECTRICAL PHASE: 1 PH  
MAIN BREAKER SIZE: 200 A  
QTY OF BRANCH CIRCUITS: 20  
LINE SIDE WIRE RANGE: 6 AWG - 350 kcmil

ENVIRONMENT SPECIFICATIONS:  
UL LISTED: YES  
NEMA RATING: 3R

ADDITIONAL SPECIFICATIONS:  
ON AMEREN ENERGY APPROVED LIST (SECTION 1100 OF ELECTRIC SERVICE MANUAL, DATED JANUARY 18, 2018)



"A" Style 16" Metered Commercial Pedestal



SPECIAL NOTE:  
METER PEDESTAL SHALL BE PAINTED TO MATCH AT&T EQUIPMENT IN RIGHT OF WAY. CONTRACTOR SHALL COORDINATE W/AT&T FOR COLOR AND PROVIDE DOCUMENTATION OF SUCH TO CITY OF URBANA FOR APPROVAL PRIOR TO CONSTRUCTION.

AC METER SOCKET W/MAIN & LOAD CENTER DETAIL

SCALE N.T.S. 2

AC POWER PANEL (RAYCAP RSCAC-6533-P-120-D)											
120 VOLTS, 1-PHASE, 2-WIRE, 40A											
MAIN RATING (A) : 40					SYSTEM VOLTAGE (V) : 120						
DESCRIPTION	VA	c/nc	BKR	POSN	L1	L2	POSN	BKR	c/nc	VA	DESCRIPTION
RRUS-11	520	c	7	1	520		2	7	c	0	SPARE
RRUS-4415	670	c	7	3		670	4	7	c	0	SPARE
SPARE	0			5	0						
PHASE TOTALS (VA):					520	670					
CURRENT PER PHASE (A):					5	7	Amperes/phase cannot exceed main breaker rating				
PANEL TOTAL (VA):					1190	Legend: c = continuous, nc = non-continuous					
PANEL CAPACITY (kVA):					4.8	CONNECTED LOAD (kVA): 1.2					
PANEL LOADING (100% non-cont. load) (kVA):					0.0						
PANEL LOADING (125% continuous load) (kVA):					1.5						
PANEL LOADING (TOTAL) (kVA):					1.5						
SPARE CAPACITY (kVA):					3.3						

ELECTRICAL PANEL SCHEDULE

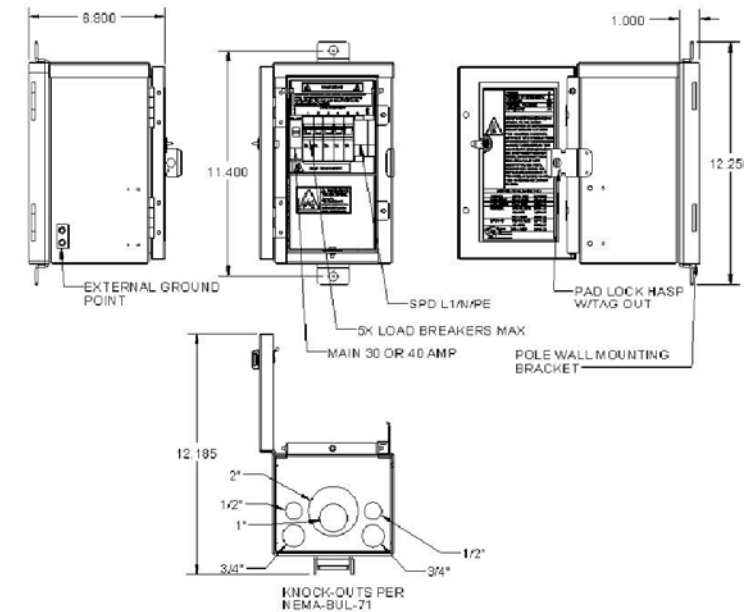
SCALE N.T.S. 3

MANUFACTURER: PTS  
MODEL: PTS90120

MECHANICAL SPECIFICATIONS:  
HEIGHT: 10.13 IN  
WIDTH: 06.15 IN  
DEPTH: 06.00 IN  
WEIGHT: 10 LBS  
MOUNTING: BANDED TO POLE W/1/2" STAINLESS STEEL BANDING THROUGH MANUFACTURER SUPPLIED POLE MOUNTING BRACKET

ELECTRICAL SPECIFICATIONS:  
AMPERAGE: 40A  
OPERATING VOLTAGE: 120V  
QTY OF PROTECTED CIRCUITS: 5

ENVIRONMENT SPECIFICATIONS:  
NORMAL OPERATING TEMP.: -40°C TO +60°C



AC DISTRIBUTION PANEL DETAIL

SCALE N.T.S. 4



REVISIONS			
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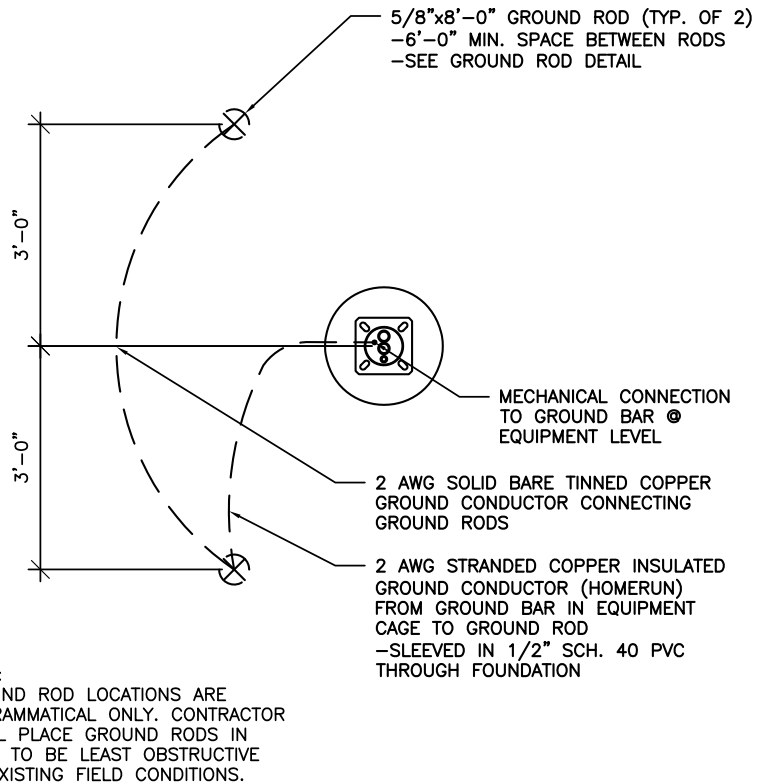
ELECTRICAL SEAL

LTE 1C&2C MICRO CELL BUILD  
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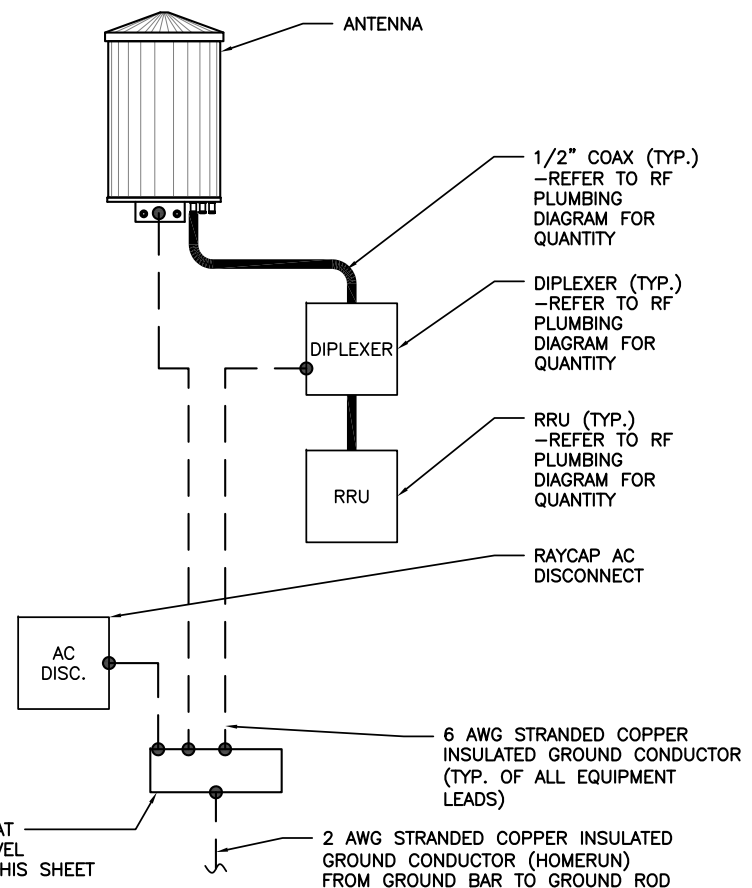
SHEET TITLE  
PANEL SCHEDULE & ELECTRICAL DETAILS

SHEET NUMBER  
**E2**

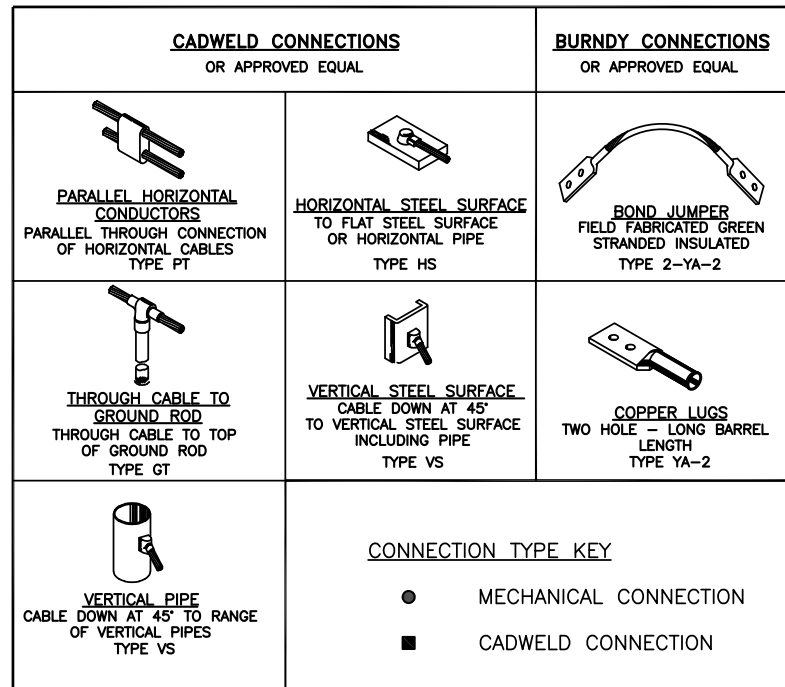
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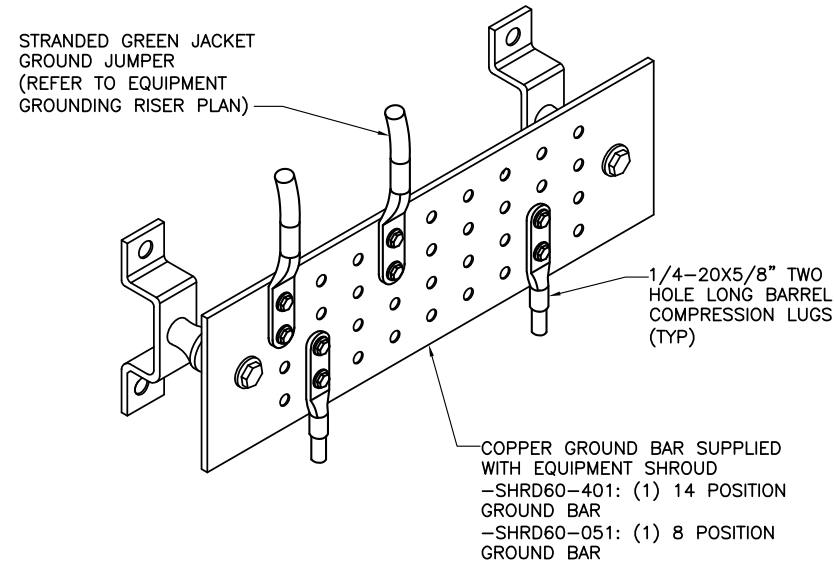
POLE GROUNDING PLAN DETAIL SCALE N.T.S. 1



EQUIPMENT GROUNDING RISER DETAIL SCALE N.T.S. 2



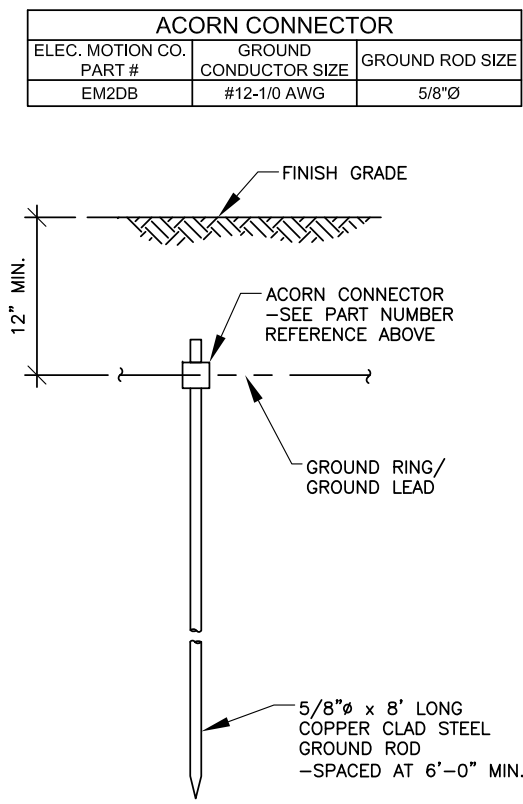
GROUNDING CONNECTIONS DETAIL SCALE N.T.S. 3



- NOTES:**
- CONTRACTOR SHALL UTILIZE LUGGED HOLES PROVIDED. NO DRILLING OF THE BAR WILL BE PERMITTED.
  - ALL HARDWARE SHALL BE 1/4-20 STAINLESS STEEL INCLUDING BELLEVILLES. COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
  - FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL. COAT ALL SURFACES WITH KOPR-SHIELD.

GROUND BAR DETAIL SCALE N.T.S. 4

DETAIL NOT USED SCALE N.T.S. 5



GROUND ROD DETAIL SCALE N.T.S. 6



REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
A	10/25/18	ISSUED FOR REVIEW	DTC
B	03/12/19	REVISED PER COMM.	MRL
C	05/02/19	ADDED FOUNDATION	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF ILLINOIS.

ELECTRICAL SEAL

LTE 1C&2C MICRO CELL BUILD  
14805856  
CRAN\_RCHI\_CHNOS\_004  
184197  
1614 N. LINCOLN AVENUE  
URBANA, IL 61801

SHEET TITLE  
**GROUNDING  
DETAILS**

SHEET NUMBER  
**E3**

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

Diagram - 2 Diagram File Name - Micro 17.vsd

Atoll Site Name - Champaign CRAN HUB-University Location Name - CRAN\_CHAMPAIGN\_U NIVERSITY\_0001 BUILD BBU Market - CENTRAL, ILLINOIS Market Cluster - ILLINOIS/WISCONSIN

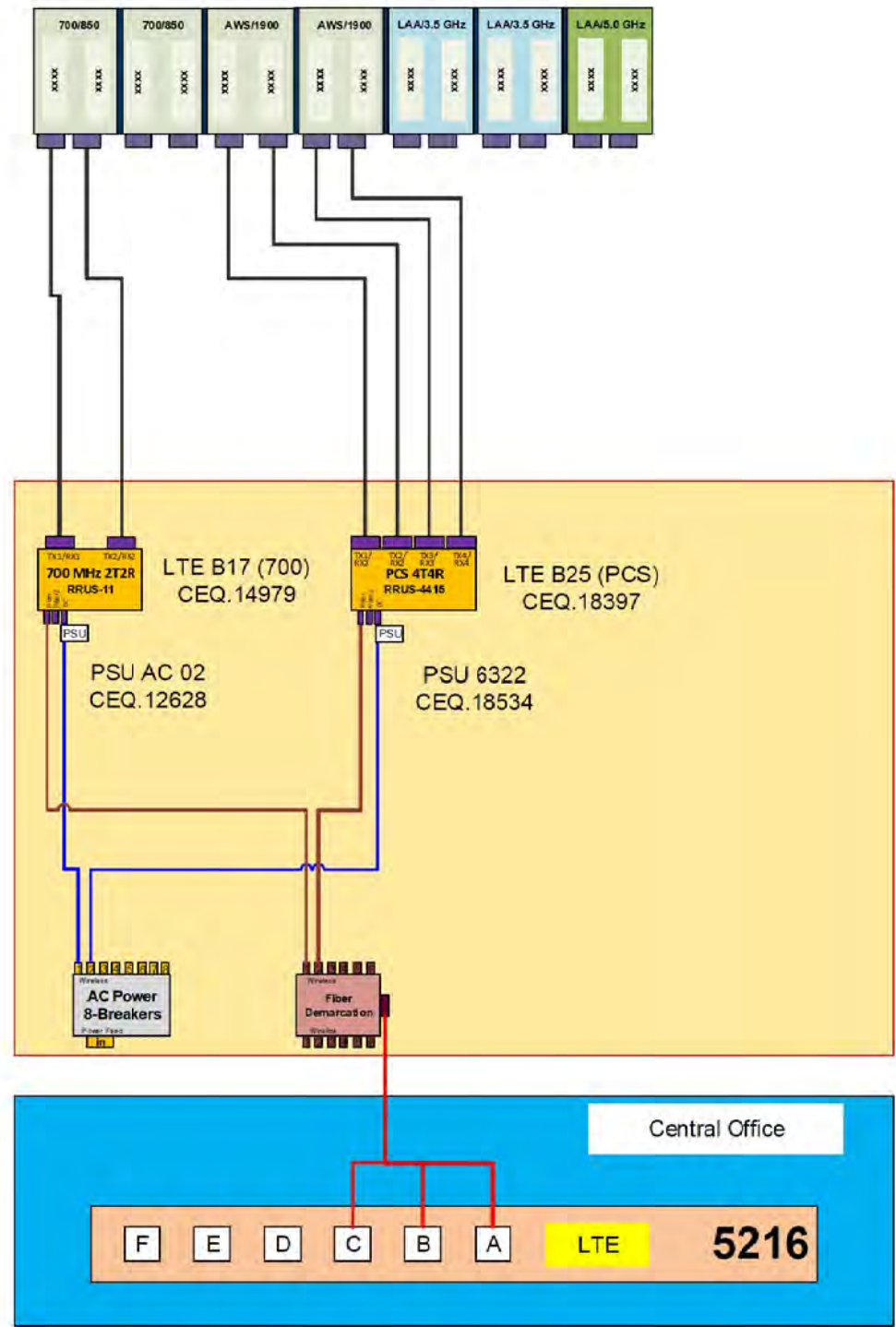
Comments:

Configuration Name	700 MHz 2T2R LTE	700 MHz 4T4R LTE	850 MHz 2T2R LTE	850 MHz 4T4R LTE	1900 MHz 2T2R LTE	1900 MHz 4T4R LTE	2100 MHz 2T2R LTE	2100 MHz 4T4R LTE	5GHz LAA LTE	3.5 GHz LAA LTE	Sector Count	Carrier Count	Antenna LAA location
Micro #17	X	NA	NA	NA	NA	X	NA	NA	NA	NA	1	2	14 Ports Antenna

Amphenol Pseudo-Omni – 14 ports Antenna  
2C2U3MT360X06FxyS0



**Important Note:**  
For detailed radio to antenna wiring refer to the latest 4T4R Antenna/Radio Port Connection Field Notice (RF-HW-2016-234) and the 4T Wiring Playbook



REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
A	10/25/18	ISSUED FOR REVIEW	DTC
B	03/12/19	REVISED PER COMM.	MRL
C	05/02/19	ADDED FOUNDATION	MRL

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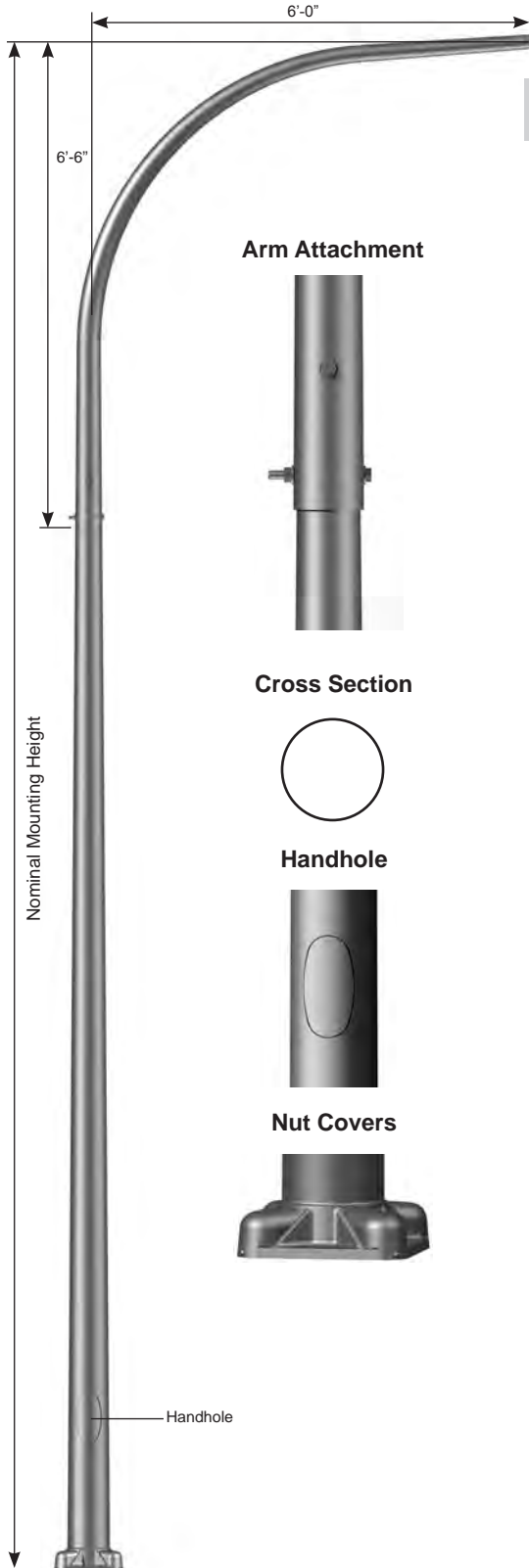
REFERENCE ONLY

LTE 1C&2C MICRO CELL BUILD 14805856  
CRAN\_RCHI\_CHNOS\_004 184197  
1614 N. LINCOLN AVENUE URBANA, IL 61801

SHEET TITLE  
RF PLUMBING DIAGRAM

SHEET NUMBER  
**RF1**

Job Name: _____	Client Name: _____
Job Location - City: _____ State: _____	Created By: _____ Date: _____
Product: _____ Quote: _____	Customer Approval: _____ Date: _____



**SPECIFICATIONS**

**Pole** - The pole shaft is extruded from seamless alloy aluminum.

**Davit Arm** - Davit arms are conically tapered from seamless alloy aluminum to 2.38" OD at the luminaire end. Davit arm members have a 4' bend radius and a 6'-6" rise.

**Davit Arm Attachment** - Connection allows arm to be erected and held in place by gravity and secured by two stainless steel through bolts.

**Handhole** - A covered handhole with hardware and grounding provision are provided.

**Base Cover** - Optional decorative base covers available as special order.

**Anchor Base** - The anchor base is cast from 356 alloy aluminum. The completed assembly is heat-treated to a T6 temper. Aluminum nut covers are included with anchor base unless otherwise specified.

**Anchor Bolts** - Anchor bolts conform to ASTM F1554 Grade 55 and are provided with two hex nuts and two flat washers. Bolts have an "L" bend on one end and are galvanized a minimum of 12" on the threaded end.

**Hardware** - All structural and non-structural fasteners are stainless steel.

**Finish** - The standard finish for the pole assembly and components is satin brushed, natural anodize, duranodic or polyester powder applied coating in accordance with Valmont's Specifications. Additional finish options available upon request.

**Design Criteria** - Please reference Design Criteria Specification for appropriate design conditions.



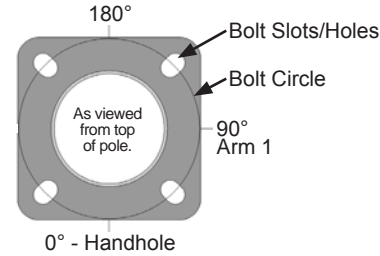
# ROUND TAPERED ALUMINUM Davit Arm 6' Single

Job Name: _____	Client Name: _____
Job Location - City: _____ State: _____	Created By: _____ Date: _____
Product: _____ Quote: _____	Customer Approval: _____ Date: _____

## ANCHORAGE DATA

POLE		BASE PLATE			ANCHOR BOLTS			
BASE OD (IN)	WALL THK (IN)	BOLT CIRCLE		SQUARE (IN)	THK (IN)	DIA x LENGTH x HOOK (IN)	PROJECTION (IN)	± (IN)
		DIA (IN)	± (IN)					
6.00	0.156	9.50	0.75	10.32	0.630	0.75 x 17.00 x 3.00	3.50	N/A
7.00	0.156	10.56	0.43	11.26	0.750	1.00 x 36.00 x 4.00	4.13	N/A
8.00	0.156	11.63	0.37	12.05	0.750	1.00 x 36.00 x 4.00	4.13	N/A
8.00	0.188	11.63	0.37	12.05	0.750	1.00 x 36.00 x 4.00	4.13	N/A
8.00	0.250	11.63	0.37	12.05	0.750	1.00 x 36.00 x 4.00	4.13	N/A
9.00	0.156	13.25	0.75	12.48	1.250	1.00 x 36.00 x 4.00	4.13	N/A
9.00	0.188	13.25	0.75	12.48	1.250	1.00 x 36.00 x 4.00	4.13	N/A

Anchor Base Detail



## LOAD AND DIMENSIONAL DATA

NOMINAL MOUNTING HEIGHT	QUANTITY OF ARMS	MAX WEIGHT <sup>1</sup> (LBS)	DESIGN INFORMATION					POLE DIMENSIONS					MODEL NUMBER
			MAX EPA <sup>1</sup> (SQ FT)	MAX EPA <sup>1</sup> (SQ FT)	MAX EPA <sup>1</sup> (SQ FT)	MAX EPA <sup>1</sup> (SQ FT)	MAX EPA <sup>1</sup> (SQ FT)	POLE HEIGHT	BASE OD (IN)	TOP OD (IN)	WALL THK (IN)	STRUCTURE WEIGHT <sup>2</sup> (LBS)	
			70 MPH w/1.3 GUST	80 MPH w/1.3 GUST	90 MPH w/1.3 GUST	100 MPH w/1.3 GUST	110 MPH w/1.3 GUST						
20'-0"	Single	75	6.0	6.0	6.0	4.7	3.4	13'-6"	6.00	4.00	0.156	69	200065106D4Z
		75	6.0	5.2	3.3	2.0	1.1	18'-6"	6.00	4.00	0.156	83	250065106D4Z
25'-0"	Single	75	6.0	6.0	6.0	4.5	3.2	18'-6"	7.00	4.00	0.156	91	250075106D4Z
		75	4.5	2.3	0.8	N/A	N/A	23'-6"	6.00	4.00	0.156	98	300065106D4Z
30'-0"	Single	75	6.0	5.4	3.4	2.0	1.0	23'-6"	7.00	4.00	0.156	109	300075106D4Z
		75	6.0	6.0	6.0	4.4	2.9	23'-6"	8.00	4.50	0.156	122	300085106D4Z
35'-0"	Single	75	5.0	2.5	1.0	N/A	N/A	28'-6"	7.00	4.00	0.156	124	350075106D4Z
		75	6.0	5.5	3.4	2.0	0.9	28'-6"	8.00	4.50	0.156	139	350085106D4Z
		75	6.0	6.0	5.3	3.5	2.2	28'-6"	8.00	4.50	0.188	160	350086106D4Z
		75	6.0	6.0	6.0	4.2	2.7	28'-6"	9.00	4.50	0.156	153	350095106D4Z
		75	6.0	6.0	6.0	6.0	4.3	28'-6"	9.00	4.50	0.188	176	350096106D4Z
		75	6.0	6.0	6.0	6.0	4.6	28'-6"	8.00	4.50	0.250	200	350088106D4Z
40'-0"	Single	75	5.2	2.6	1.1	N/A	N/A	33'-6"	8.00	4.50	0.156	159	400085106D4Z
		75	6.0	4.6	2.7	1.3	N/A	33'-6"	8.00	4.50	0.188	183	400086106D4Z
		75	6.0	5.6	3.5	1.9	0.8	33'-6"	9.00	4.50	0.156	175	400095106D4Z
		75	6.0	6.0	5.5	3.6	2.1	33'-6"	9.00	4.50	0.188	202	400096106D4Z
		75	6.0	6.0	5.7	3.8	2.3	33'-6"	8.00	4.50	0.250	231	400088106D4Z

- EPA represents the Effective Projected Area of each luminaire. Designs are limited to one luminaire per arm. Variations from sizes above are available upon inquiry at the factory. Satisfactory performance of poles is dependent upon the pole being properly attached to a supporting foundation of adequate design.
- Structure weight is a nominal value which includes the pole shaft, base plate and luminaire arm(s).

## PRODUCT ORDERING CODES

CROSS SECTION	MODEL NUMBER	COLOR		OPTIONS
R				
R = Round	200065106D4Z 250065106D4Z 250075106D4Z 300065106D4Z 300075106D4Z 300085106D4Z 350075106D4Z 350085106D4Z 350086106D4Z 350095106D4Z 350096106D4Z 350088106D4Z 400085106D4Z 400086106D4Z 400095106D4Z 400096106D4Z 400088106D4Z	<b>Polyester Powder</b> DWH = White DSS = Sandstone BR = Burgundy HG = Hunter Green DNA = Natural Aluminum DCG = Charcoal Gray DMB = Medium Bronze SBN = Sanded Brown DNB = New Dark Bronze DDB = Dark Bronze SBK = Sanded Black DBL = Black DSB = Steel Blue DTG = Dark Green DBR = Red SC = Special Color (Contact Factory)	<b>Anodized</b> 204 = Clear Natural 311 = Light Bronze* 312 = Medium Bronze* 313 = Dark Bronze* 335 = Black* *Duranodize Anodize  <b>Brushed</b> SBF = Satin Brushed	See Accessories at valmontstructures.com (Please Specify with Code)

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**PROJECT INFORMATION**

**SITE NAME:** CRAN\_RCHI\_CHUOI\_015  
**COUNTY:** CHAMPAIGN  
**ADDRESS:** 402 W. SPRINGFIELD AVENUE  
 URBANA, IL 61801  
**JURISDICTION:** CITY OF URBANA  
**USID:** 184220  
**FA NUMBER:** 14805800  
**PTN:** 3304A0AAPA / 3304A0AARW  
**PACE:** MRCHI025457 / MRCHI025418

**LATITUDE:** 40° 06' 44.23" (40.112286°)  
**LONGITUDE:** 88° 12' 43.13" (-88.211981°)  
**ELEVATION:** 713'

**LIGHT POLE/UTILITY POLE OWNER:** CITY OF URBANA

**APPLICANT:** AT&T MOBILITY  
 930 NATIONAL PARKWAY  
 SCHAUMBURG IL 60173

**AT&T PROJECT MANAGER/SITE ACQUISITION:** VANESSA ROSS  
 (217) 814-2314  
 VF2021@ATT.COM

**AT&T CONSTRUCTION MANAGER:** CHRISTIANA RACHAL  
 CR630A@ATT.COM

**PROJECT CONSULTANTS**

**PROJECT MANAGER:** KAEVA POWELL  
 KAEVA.POWELL@SACW.COM  
 (847) 466-3470

**ARCHITECT:** GPD GROUP, INC. - 184-007100  
 520 S. MAIN ST., SUITE 2531  
 AKRON, OH 44311  
 317-295-3180

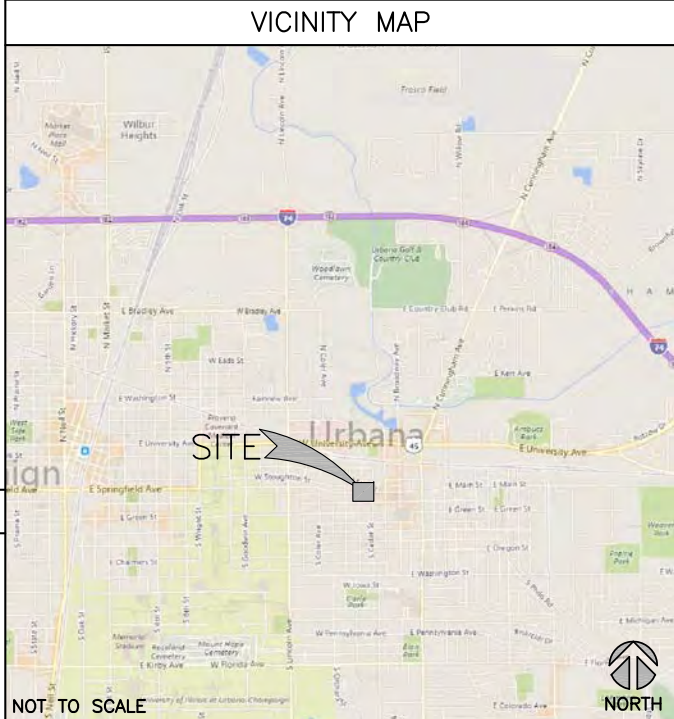
**SAC C.M.:** MARK KLEPACKI  
 EMAIL: MARK.KLEPACKI@SACW.COM

**SAC P.M.:** CHARLIE SHOEMAKER  
 CHARLIE.SHOEMAKER@SACW.COM  
 (847) 466-3540

# AT&T MOBILITY

**PROJECT :** LTE 1C&2C MICRO CELL BUILD  
**SITE # :** CRAN\_RCHI\_CHUOI\_015  
**USID / NODE:** 184220  
**FA # :** 14805800  
**PTN # :** 3304A0AAPA / 3304A0AARW  
**PACE # :** MRCHI025457 / MRCHI025418  
**ENODEB NAME :** ILL07045F\_R02  
**JURISDICTION :** CITY OF URBANA

**SITE NAME :** CRAN\_RCHI\_CHUOI\_015  
**ADDRESS :** 402 W. SPRINGFIELD AVENUE  
 URBANA, IL 61801



NOT TO SCALE

NOT TO SCALE

**DRAWING INDEX**

T1	TITLE SHEET
A1	FIBER DELIVERY PLANS (REFERENCE ONLY)
A2	OVERALL SITE PLAN
A3	ENLARGED PLAN
A4	EXISTING LIGHT POLE ELEVATION
A5	PROPOSED LIGHT POLE ELEVATIONS
A6	EQUIPMENT DETAILS (REFERENCE ONLY)
A7	EQUIPMENT DETAILS (REFERENCE ONLY)
A8	MOUNTING DETAILS (REFERENCE ONLY)
E1	ELECTRICAL ONE-LINE DIAGRAM
E2	PANEL SCHEDULE & ELECTRICAL DETAILS
E3	GROUNDING DETAILS
RF1	RF PLUMBING DIAGRAM (REFERENCE ONLY)
REF	POLE MANUFACTURER DESIGN (BY OTHERS)
REF	EXTENSION PIPE DESIGN (BY OTHERS)
REF	FOUNDATION DESIGN (BY OTHERS)

**SCOPE OF WORK**

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

- REMOVE EXISTING LIGHT POLE AND REPLACE WITH NEW 25'-0" HAPCO RTA25F6B4D1A ALUMINUM RTA 10' DAVIT ARM LIGHT POLE (BLACK POWDER COAT - 5 YR)
- INSTALL NEW ELECTRIC SERVICE RUN FROM EXISTING SOURCE TO REPLACEMENT POLE. METER SUPPLIED & INSTALLED BY CONTRACTOR.
- INSTALL NEW FIBER SERVICE RUN FROM EXISTING SOURCE TO REPLACEMENT POLE LOCATION AS SHOWN.
- INSTALL NEW POWER & FIBER EQUIPMENT PER PLAN
- INSTALL EXTENSION PIPE ON POLE (BLACK TO MATCH POLE)
- INSTALL (1) NEW OMNI ANTENNA
- INSTALL (1) PCS RRUS-4415 & (1) 700 RRUS-11
- INSTALL CABLING AS REQUIRED
- GROUND AS REQUIRED
- LIGHT POLE LUMINARE TO BE SUPPLIED & INSTALLED BY CONTRACTOR (BETA LED, IP66 LEDWAY STREETLIGHT, MODEL STR-LWY-2M-HT-06-C-UL-BK-525-IP-F-SC)
- STREET LIGHTING HANDHOLE (IF REQUIRED) SUPPLIED & INSTALLED BY CONTRACTOR
- POTHOLING SHALL BE REQUIRED FOR ANY PROPOSED UTILITY CROSSING
- HYDROVAC SHALL BE USED FOR ALL TRENCHING & POTHOLING ACTIVITIES
- CONTRACTOR SHALL MAINTAIN INTEGRITY OF EXISTING POLE DURING REMOVAL & COORDINATE RETURN OF REMOVED POLE TO THE CITY OF URBANA
- INSTALL (1) PSU AC 02 & (1) PSU 6322
- REPLACE FOUNDATION
- UNDERGROUND BORE FROM STREET LIGHT TO POLE TO METER PED AND FROM METER PED TO AMEREN UTILITY POLE (POWER SOURCE)

**UTILITY DELIVERY METHOD TO PROPOSED POLE**

- FIBER - UNDERGROUND
- POWER - UNDERGROUND

**CODE COMPLIANCE**

- 2015 INTERNATIONAL BUILDING CODE W/CITY AMMENDMENTS
- 2014 NATIONAL ELECTRIC CODE W/CITY AMMENDMENTS

**SPECIAL NOTES**

- ALL WORK SHALL BE INSTALLED IN CONFORMANCE WITH CURRENT AT&T CONSTRUCTION INSTALLATION GUIDE.
- EXISTING CONDITIONS WILL BE CHANGED & VERIFIED IN FIELD. IF SIGNIFICANT DEVIATIONS OR DETERIORATION ARE ENCOUNTERED AT THE TIME OF CONSTRUCTION, A REPAIR PERMIT WILL BE OBTAINED & CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY.
- THESE DRAWINGS ARE FULL SIZE & SCALEABLE ON 11"x17" SHEET SIZE.
- STATEMENT THAT COMPLIANCE WITH THE ENERGY CODE IS NOT REQUIRED. -SCOPE OF WORK DOES NOT INVOLVE MODIFICATIONS TO EXTERIOR ENVELOPE OF BUILDING, HVAC SYSTEMS OR ELECTRICAL LIGHTING.

**DO NOT SCALE DRAWINGS**

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ARCHITECT OR ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.



**REVISIONS**

REV.	DATE	DESCRIPTION	INITIALS
B	03/12/19	REVISED PER COMM	MRL
C	05/02/19	ADDED FOUNDATION	MRL
D	08/26/19	REVISED PER COMM	AER
E	09/10/19	REVISED PER COMM	AGL
F	09/20/19	REVISED PER COMM	AGL
G	10/04/19	REVISED PER COMM	MRL
O	10/14/19	FINAL CDs	MRL

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I HAVE REVIEWED THIS PLAN, SPECIFIED BY ME OR UNDER MY DIRECT SUPERVISION AND I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF ILLINOIS.

**LEONARDO A. SFERRA**  
 062.069126  
 10/14/2019

*Leonardo Sferra*  
 Signature CIVIL SEAL

**DATE:** 11/30/2019  
**PROJECT:** LTE 1C&2C MICRO CELL BUILD  
**USID:** 184220  
**FA NUMBER:** 14805800  
**PTN:** 3304A0AAPA / 3304A0AARW  
**PACE:** MRCHI025457 / MRCHI025418  
**ADDRESS:** 402 W. SPRINGFIELD AVENUE  
 URBANA, IL 61801

**SHEET TITLE**

TITLE SHEET

**SHEET NUMBER**

T1

NOTE:  
1. SIDEWALK CLOSED AHEAD SIGN IF NEED



A&E

REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
B	03/12/19	REVISED PER COMM	MRL
C	05/02/19	ADDED FOUNDATION	MRL
D	08/26/19	REVISED PER COMM	AER
E	09/10/19	REVISED PER COMM	AGL
F	09/20/19	REVISED PER COMM	AGL
G	10/04/19	REVISED PER COMM	MRL
O	10/14/19	FINAL CDs	MRL

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REFERENCE ONLY

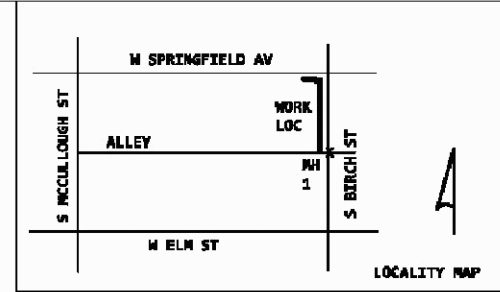
LTE 1C&2C MICRO CELL BUILD  
14805800  
CRAN\_RCHI\_CHU01\_015  
184220  
402 W. SPRINGFIELD AVENUE  
URBANA, IL 61801

SHEET TITLE

FIBER DELIVERY PLANS

SHEET NUMBER

A1



- CONSTRUCTION NOTES:**
1. CALL LOCATOR 48 HOURS BEFORE DIGGING.
  2. RESTORE ALL DISTURBED GROUND TO ORIGINAL OR BETTER CONDITION.
  3. MINOR ADJUSTMENTS TO AVOID FACILITIES WHILE PLACING APPROVED.
  4. CONTRACTOR TO PLACE CONDUIT NO LESS THAN 24" DEPTH.
  5. PROVIDE ALL BARRICADES AND WORK PROTECTION.
  6. REMOVE ALL DEBRIS.
  7. DA IS AN ESTABLISHED AREA WITH FENCES, SHEDS, ETC. TUNNEL ALL TREES & LANDSCAPING PER VLLAGE GUIDELINES.
  8. ALL PROPOSED WORK IN THE EXISTING PUBLIC RIGHT OF WAY OR UTILITY EASEMENT.

**JOB SUMMARY:**  
AT&T CONTRACTOR TO CORE BORE MH

**A** DIRECTIONAL BORE 171'  
AND PLC 1 - 1 1/4" IPP

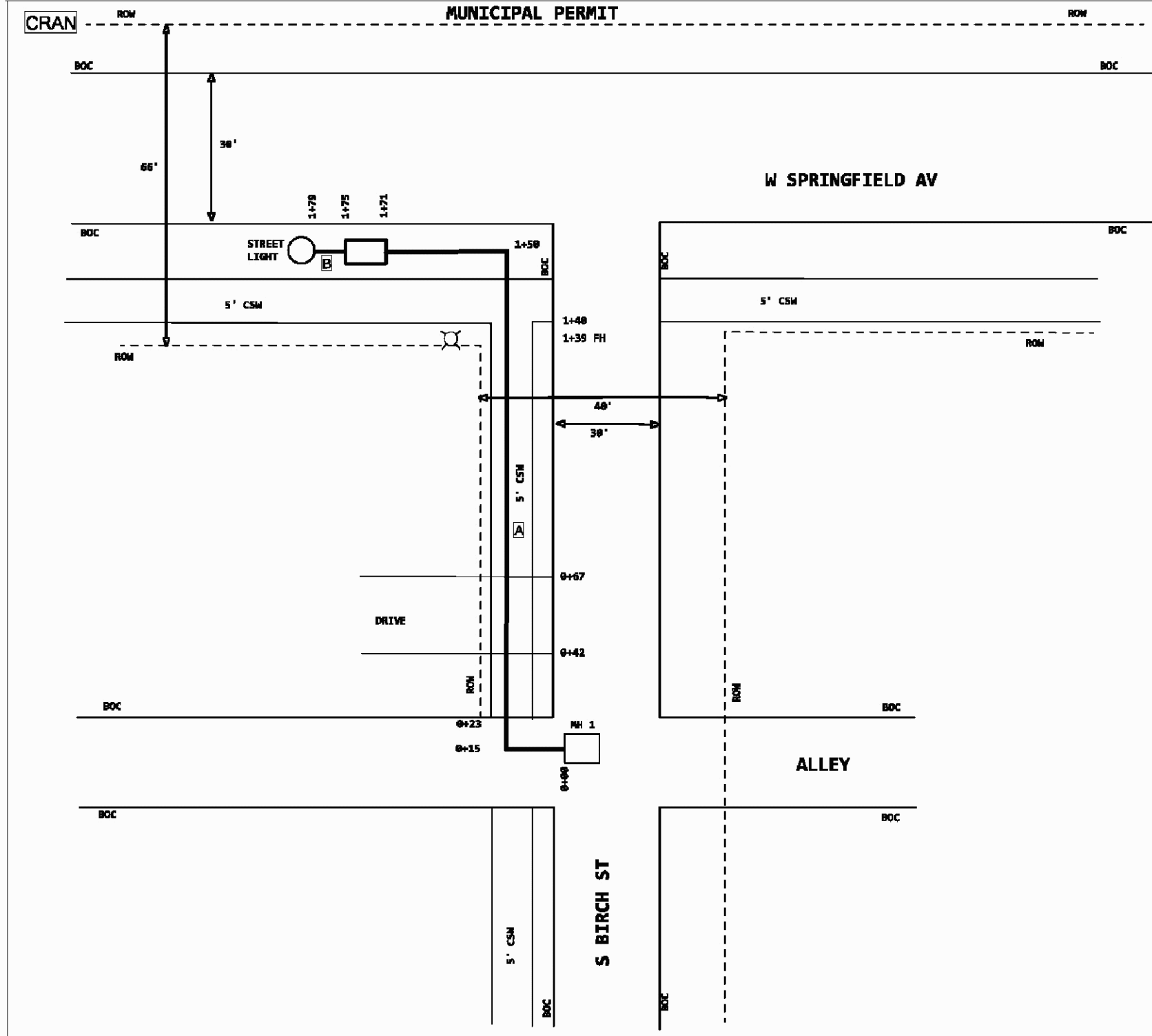
**B** HAND DIG 4'  
AND PLC 1 - 2" PC

PLC 1 - 10" X 15" X 12"  
HANDHOLE

MUNICIPAL PERMIT  
281 S NEIL ST, FLR 1  
CHAMPAIGN, IL 61828

PROJECT # A81CS98  
ENGR: MURPHY, MICHAEL S  
PHONE #: 2173987979  
MUNICIPALITY: Urbana  
COUNTY: Champaign  
TOWNSHIP: Urbana  
QUARTER SECTION: NW 17

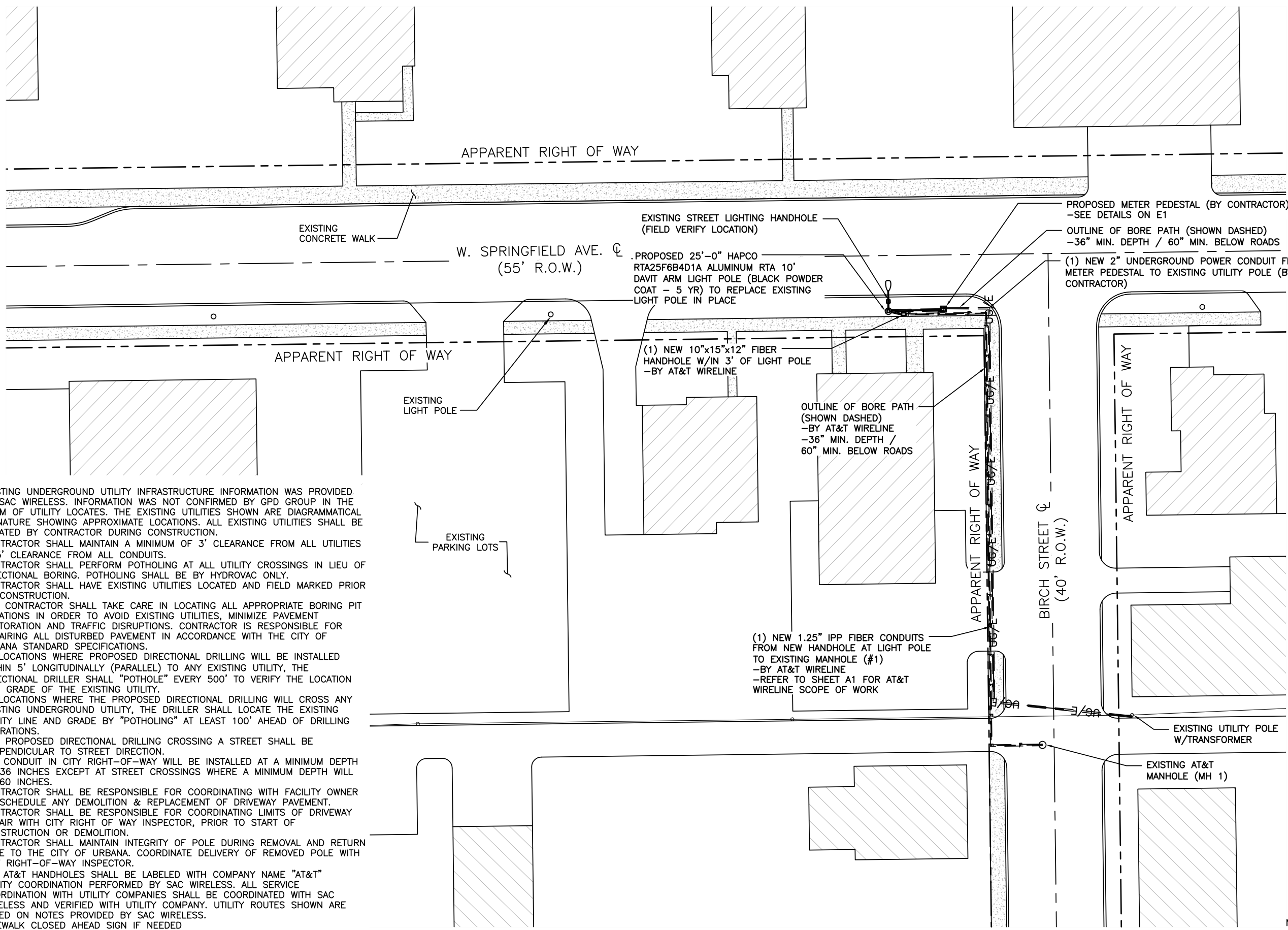
PRINT 1 OF 1



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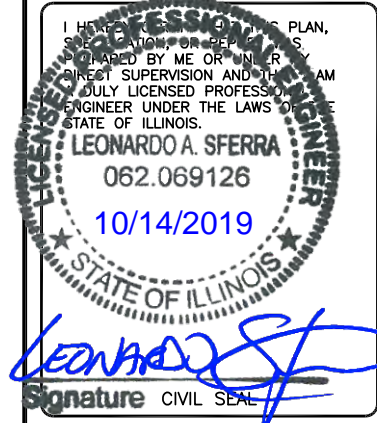
**NOTES:**

1. EXISTING UNDERGROUND UTILITY INFRASTRUCTURE INFORMATION WAS PROVIDED BY SAC WIRELESS. INFORMATION WAS NOT CONFIRMED BY GPD GROUP IN THE FORM OF UTILITY LOCATES. THE EXISTING UTILITIES SHOWN ARE DIAGRAMMATICAL IN NATURE SHOWING APPROXIMATE LOCATIONS. ALL EXISTING UTILITIES SHALL BE LOCATED BY CONTRACTOR DURING CONSTRUCTION.
2. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 3' CLEARANCE FROM ALL UTILITIES & 5' CLEARANCE FROM ALL CONDUITS.
3. CONTRACTOR SHALL PERFORM POTHOLING AT ALL UTILITY CROSSINGS IN LIEU OF DIRECTIONAL BORING. POTHOLING SHALL BE BY HYDROVAC ONLY.
4. CONTRACTOR SHALL HAVE EXISTING UTILITIES LOCATED AND FIELD MARKED PRIOR TO CONSTRUCTION.
5. THE CONTRACTOR SHALL TAKE CARE IN LOCATING ALL APPROPRIATE BORING PIT LOCATIONS IN ORDER TO AVOID EXISTING UTILITIES, MINIMIZE PAVEMENT RESTORATION AND TRAFFIC DISRUPTIONS. CONTRACTOR IS RESPONSIBLE FOR REPAIRING ALL DISTURBED PAVEMENT IN ACCORDANCE WITH THE CITY OF URBANA STANDARD SPECIFICATIONS.
6. AT LOCATIONS WHERE PROPOSED DIRECTIONAL DRILLING WILL BE INSTALLED WITHIN 5' LONGITUDINALLY (PARALLEL) TO ANY EXISTING UTILITY, THE DIRECTIONAL DRILLER SHALL "POTHOLE" EVERY 500' TO VERIFY THE LOCATION AND GRADE OF THE EXISTING UTILITY.
7. AT LOCATIONS WHERE THE PROPOSED DIRECTIONAL DRILLING WILL CROSS ANY EXISTING UNDERGROUND UTILITY, THE DRILLER SHALL LOCATE THE EXISTING UTILITY LINE AND GRADE BY "POTHOLING" AT LEAST 100' AHEAD OF DRILLING OPERATIONS.
8. ANY PROPOSED DIRECTIONAL DRILLING CROSSING A STREET SHALL BE PERPENDICULAR TO STREET DIRECTION.
9. ALL CONDUIT IN CITY RIGHT-OF-WAY WILL BE INSTALLED AT A MINIMUM DEPTH OF 36 INCHES EXCEPT AT STREET CROSSINGS WHERE A MINIMUM DEPTH WILL BE 60 INCHES.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH FACILITY OWNER TO SCHEDULE ANY DEMOLITION & REPLACEMENT OF DRIVEWAY PAVEMENT.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING LIMITS OF DRIVEWAY REPAIR WITH CITY RIGHT OF WAY INSPECTOR, PRIOR TO START OF CONSTRUCTION OR DEMOLITION.
12. CONTRACTOR SHALL MAINTAIN INTEGRITY OF POLE DURING REMOVAL AND RETURN POLE TO THE CITY OF URBANA. COORDINATE DELIVERY OF REMOVED POLE WITH CITY RIGHT-OF-WAY INSPECTOR.
13. ALL AT&T HANDHOLES SHALL BE LABELED WITH COMPANY NAME "AT&T"
14. UTILITY COORDINATION PERFORMED BY SAC WIRELESS. ALL SERVICE COORDINATION WITH UTILITY COMPANIES SHALL BE COORDINATED WITH SAC WIRELESS AND VERIFIED WITH UTILITY COMPANY. UTILITY ROUTES SHOWN ARE BASED ON NOTES PROVIDED BY SAC WIRELESS.
15. SIDEWALK CLOSED AHEAD SIGN IF NEEDED



REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
B	03/12/19	REVISED PER COMM	MRL
C	05/02/19	ADDED FOUNDATION	MRL
D	08/26/19	REVISED PER COMM	AER
E	09/10/19	REVISED PER COMM	AGL
F	09/20/19	REVISED PER COMM	AGL
G	10/04/19	REVISED PER COMM	MRL
O	10/14/19	FINAL CDs	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET



DATE 11/30/2019  
 14805806  
 Exp Date 184220  
 402 W. SPRINGFIELD AVENUE  
 URBANA, IL 61801

SHEET TITLE  
**OVERALL SITE PLAN**

SHEET NUMBER  
**A2**

OVERALL SITE PLAN

30' 0 15' 30' SCALE: 1" = 30'-0" (24x36)  
 (OR) 1/2" = 30'-0" (11x17)

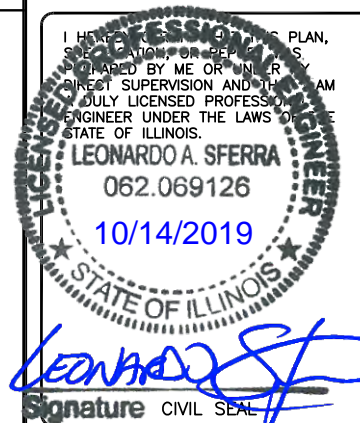
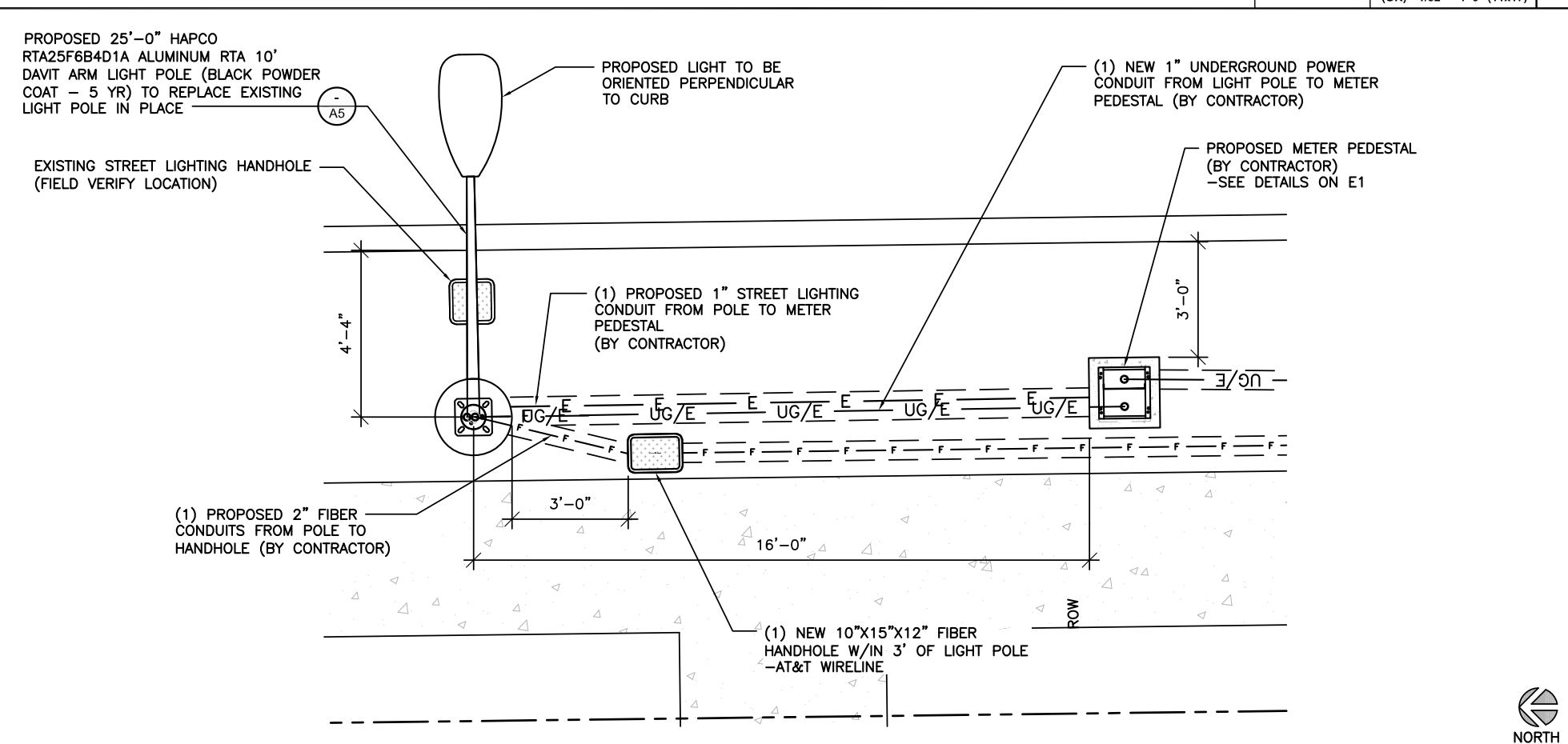
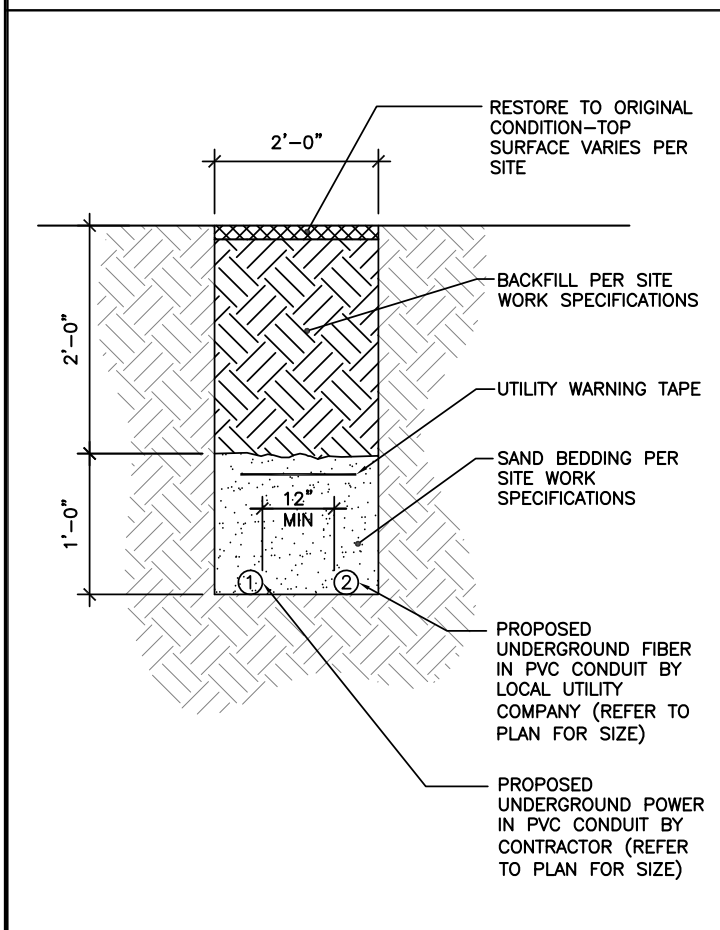
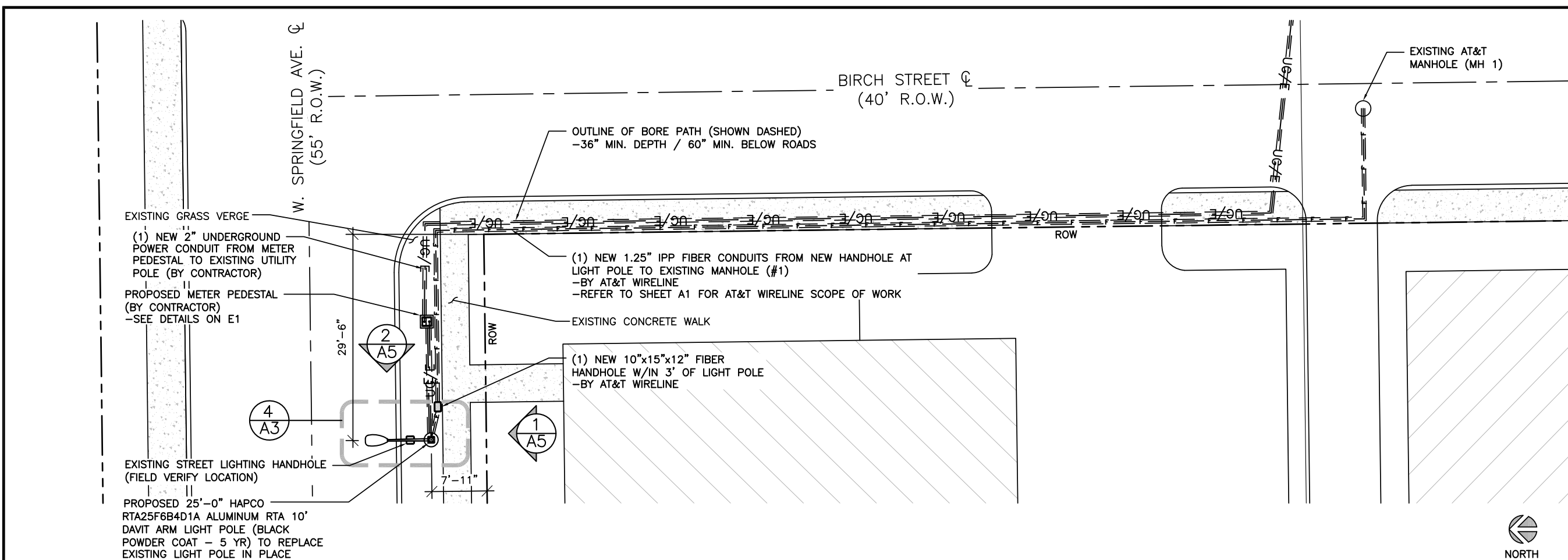


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REVISIONS			
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E	09/10/19	REVISED PER COMM	AGL
F	09/20/19	REVISED PER COMM	AGL
G	10/04/19	REVISED PER COMM	MRL
O	10/14/19	FINAL CDs	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET



DATE: 11/30/2019  
 14805906  
 184220  
 402 W. SPRINGFIELD AVENUE  
 URBANA, IL 61801

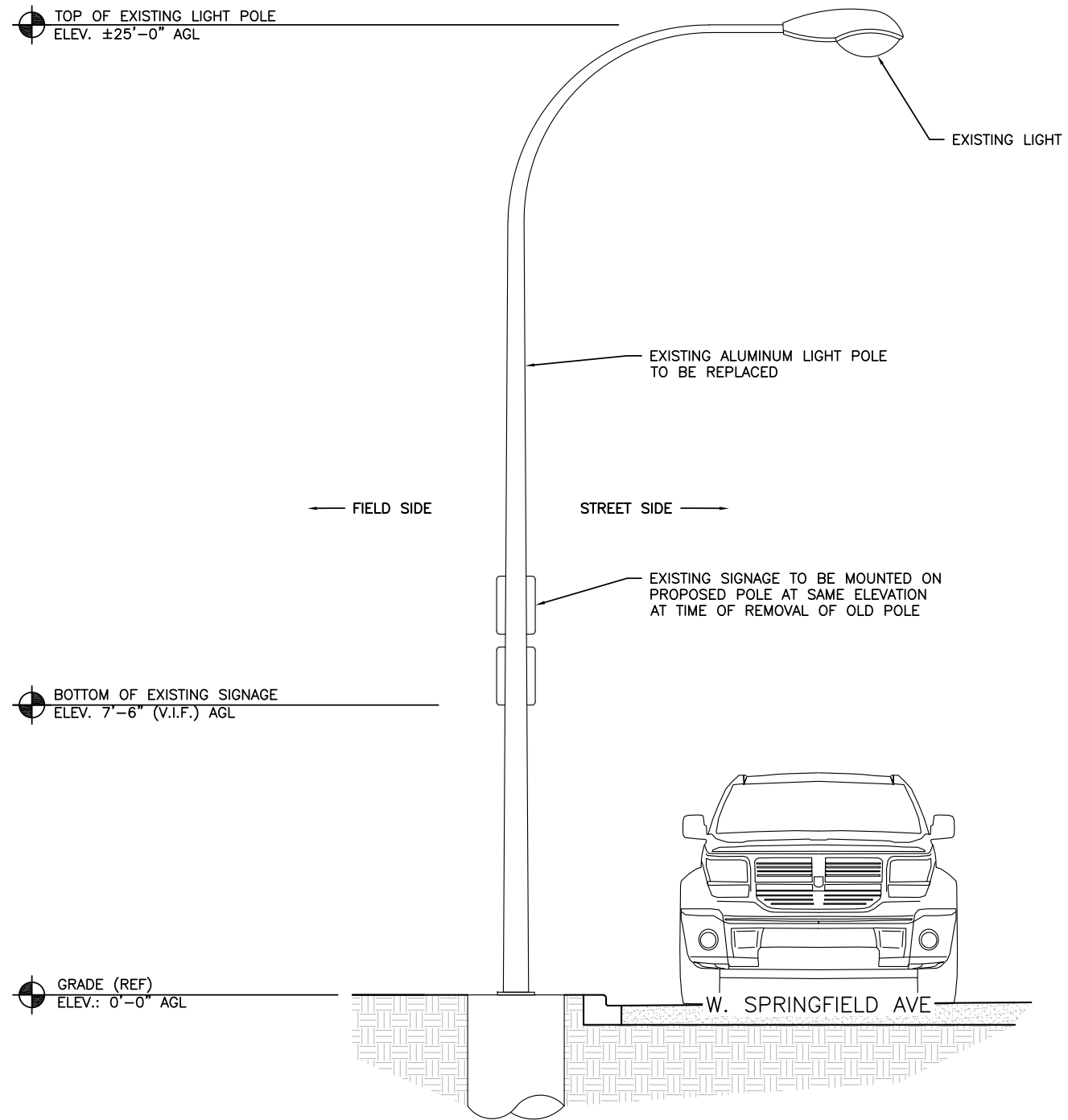
SHEET TITLE  
**ENLARGED PLAN**

SHEET NUMBER  
**A3**

SCALE: N.T.S. 2

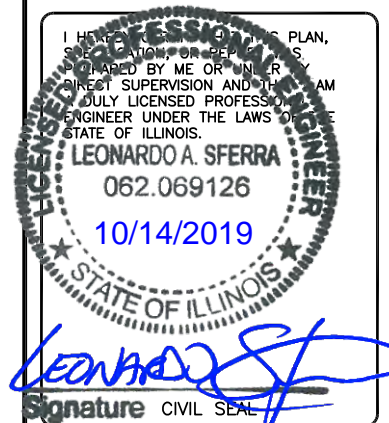
SCALE: N.T.S. 3

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F	09/20/19	REVISED PER COMM	AGL
G	10/04/19	REVISED PER COMM	MRL
D	10/14/19	FINAL CDs	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET



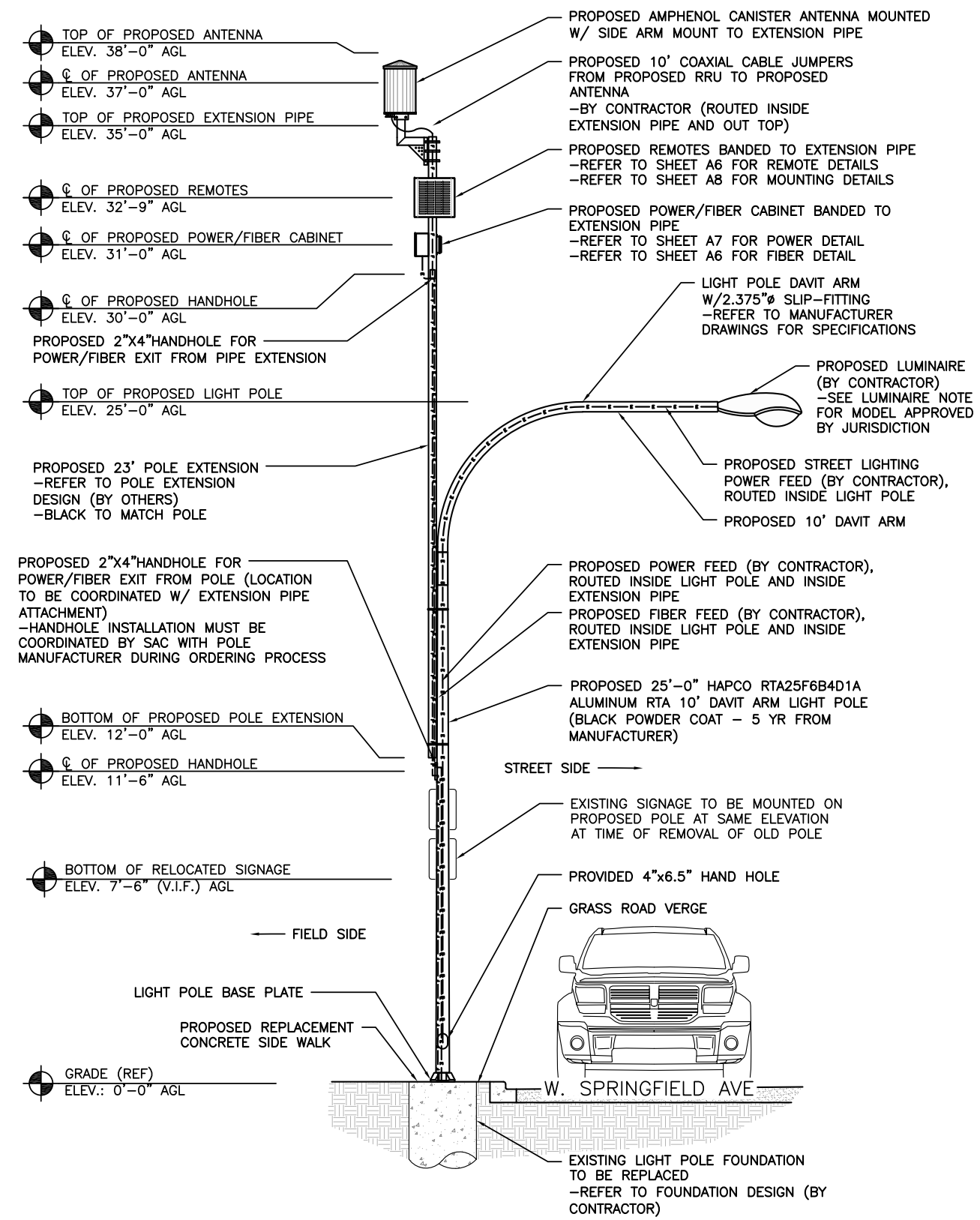
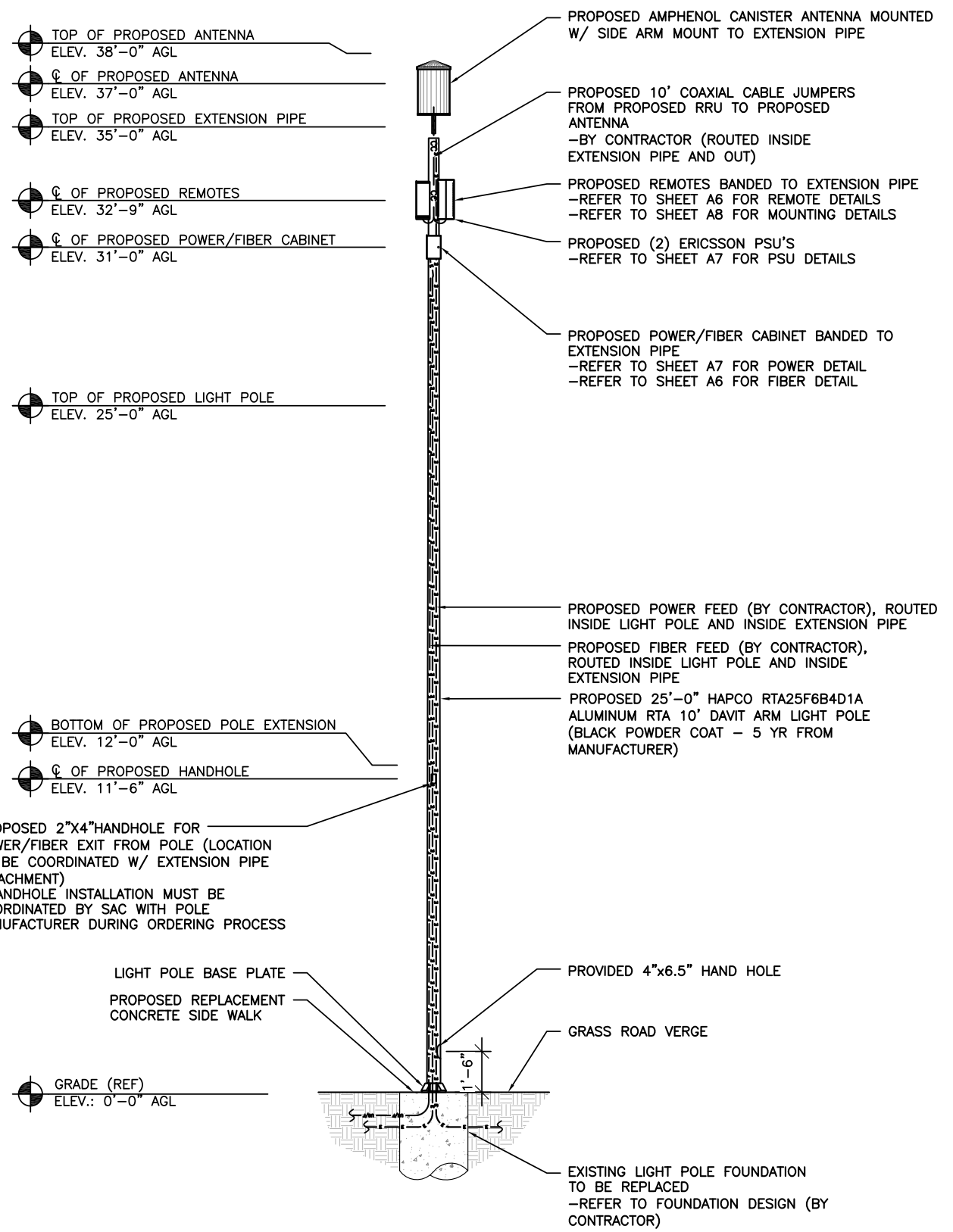
DATE 11/30/2019  
 14805806  
 Exp. Date 184220  
 402 W. SPRINGFIELD AVENUE  
 URBANA, IL 61801

SHEET TITLE  
 EXISTING  
 LIGHT POLE  
 ELEVATION

SHEET NUMBER  
**A4**

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**LUMINAIRE NOTE:**  
BETA LED, IP66 LEDWAY STREETLIGHT, MODEL  
STR-LWY-2M-HT-06-C-UL-BK-525-IP-F-SC

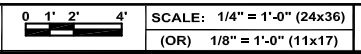


PROPOSED LIGHT POLE FRONT ELEVATION (FIELD SIDE)

PROPOSED LIGHT POLE SIDE ELEVATION



1



2



**GPD GROUP, INC.**  
LIC. # - 184-007100  
520 South Main Street, Suite 2531  
Akron, OH 44311  
330.572.2100 Fax: 330.572.2102

**REVISIONS**

REV.	DATE	DESCRIPTION	INITIALS
B	03/12/19	REVISED PER COMM	MRL
C	05/02/19	ADDED FOUNDATION	MRL
D	08/26/19	REVISED PER COMM	AER
E	09/10/19	REVISED PER COMM	AGL
F	09/20/19	REVISED PER COMM	AGL
G	10/04/19	REVISED PER COMM	MRL
O	10/14/19	FINAL CDs	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

I HAVE REVIEWED THIS PLAN, SPECIFICATIONS AND CONTRACT DOCUMENTS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF ILLINOIS.

**LEONARDO A. SFERRA**  
062.069126  
10/14/2019

*Signature* CIVIL SEAL

DATE: 11/30/2019  
14805909  
7500 P. 201 015  
EPO DATE: 184220  
402 W. SPRINGFIELD AVENUE  
URBANA, IL 61801

SHEET TITLE  
**PROPOSED LIGHT POLE ELEVATIONS**

SHEET NUMBER  
**A5**

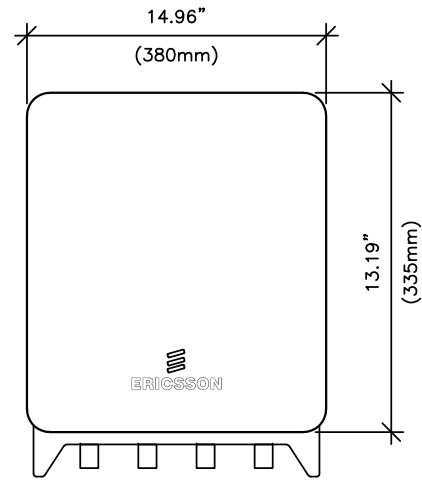
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MANUFACTURER: ERICSSON  
 MODEL: RRUS 4415 B25

**MECHANICAL SPECIFICATIONS:**  
 HEIGHT: 14.96 IN (380mm)  
 WIDTH: 13.19 IN (335mm)  
 DEPTH: 5.39 IN (137mm)  
 WEIGHT: 46 LBS (21kg)

**INTERFACE SPECIFICATIONS:**  
 CPRI: 2x2.5/4.9/9.8/10.1 Gbps  
 (ONLY USE ERICSSON SUPPLIED AND APPROVED SFPs)

EXTERNAL ALARMS: 2



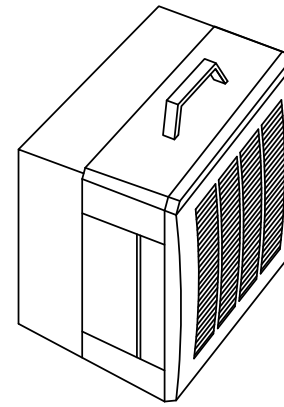
MANUFACTURER: ERICSSON  
 MODEL: RRUS-11

**MECHANICAL SPECIFICATIONS:**  
 HEIGHT: 19.7 IN (500mm)  
 WIDTH: 17.0 IN (431mm)  
 DEPTH: 7.2 IN (182mm)  
 WEIGHT: 50.7 LBS (23kg)

**INTERFACE SPECIFICATIONS:**  
 ANTENNA PORTS: 2x7/16 IEC-169-4  
 OPTICAL INDICATORS: 6  
 EXTERNAL ALARMS: 1  
 FIELD GROUND: 1

**ELECTRICAL SPECIFICATIONS:**  
 POWER SUPPLY: -48 VDC OR 100-250 VAC

**ENVIRONMENTAL SPECIFICATIONS:**  
 NORMAL OPERATING TEMP.: -40°C TO +55°C  
 RELATIVE HUMIDITY: 5-100%



A&E

REVISIONS			
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F	09/20/19	REVISED PER COMM	AGL
G	10/04/19	REVISED PER COMM	MRL
O	10/14/19	FINAL CDs	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

RRUS 4415 B25 DETAILS

SCALE  
N.T.S. 1

RRUS-11 DETAILS

SCALE  
N.T.S. 2

MANUFACTURER: AFL  
 MODEL: OPN-500

**MECHANICAL SPECIFICATIONS:**  
 HEIGHT: 6.3 IN (15.7cm)  
 WIDTH: 7.8 IN (19.7cm)  
 DEPTH: 2.0 IN (5.0cm)  
 WEIGHT: 4.9 LBS (2.2kg)

**INTERFACE SPECIFICATIONS:**  
 PORTS: 1x3/4" NPT, 2x1/2" NPT  
 FIELD GROUND: 1

**ENVIRONMENT SPECIFICATIONS:**  
 NORMAL OPERATING TEMP.: -40°C TO +60°C  
 RELATIVE HUMIDITY: UP TO 95%  
 ENVIRONMENT: OUTDOOR CLASS

\*TO BE INSTALLED BY AT&T WIRELINE



FIBER DEMARC DETAILS

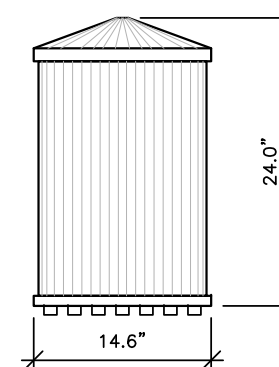
SCALE  
N.T.S. 3

ANTENNA DETAIL

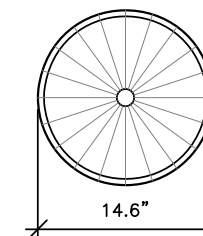
SCALE: NTS 4



IMAGE



SIDE VIEW



TOP VIEW

AMPHENOL MULTI BAND CANISTER ANTENNA  
 MODEL: 2C2U3MT360X06Fxyso  
 COLOR: GREY

MECHANICAL CHARACTERISTICS

- ANTENNA DIMENSIONS (HEIGHT X DIAMETER) : 24.0"x14.6"
- WEIGHT W/OUT MOUNTING BRACKET KIT: TBD LBS
- SURVIVAL WIND SPEED: 150 MPH
- WIND AREA: 2.4 FT<sup>2</sup>
- WIND LOAD (100 MPH): 43 LBF

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF ILLINOIS.

REFERENCE ONLY

LTE 1C&2C MICRO CELL BUILD  
 14805800  
 CRAN\_RCHI\_CHU01\_015  
 184220  
 402 W. SPRINGFIELD AVENUE  
 URBANA, IL 61801

SHEET TITLE

EQUIPMENT  
 DETAILS

SHEET NUMBER

A6



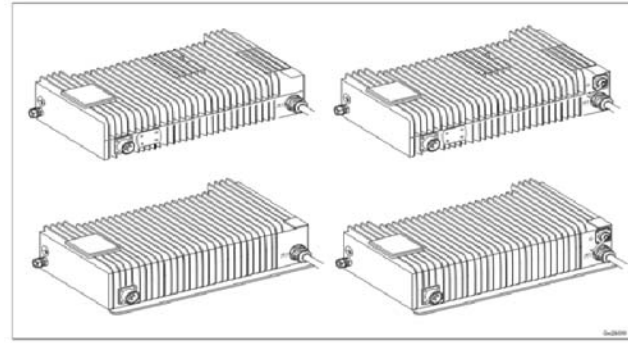
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MANUFACTURER: ERICSSON  
 MODEL: PSU AC 02

**MECHANICAL SPECIFICATIONS:**  
 HEIGHT: 68 mm (2.7 IN)  
 WIDTH: 330 mm (10.8 IN)  
 DEPTH: 179 mm (7.1 IN)  
 WEIGHT: 5.2 kg (11.5 LBS)

**ELECTRICAL SPECIFICATIONS:**  
 POWER SUPPLY: -54.5 VDC OR 100-250 VAC  
 INPUT CURRENT RATING: 9 A AT 100 V AC  
 OUTPUT VOLTAGE: -54.0 TO -55.0 V DC  
 OUTPUT POWER: 700 W

**ENVIRONMENTAL SPECIFICATIONS:**  
 NORMAL OPERATING TEMP.: -40°C TO +55°C



Note: The PSU AC 02 functionality is the same regardless of the exterior chassis types.

ERICSSON PSU AC 02 DETAILS

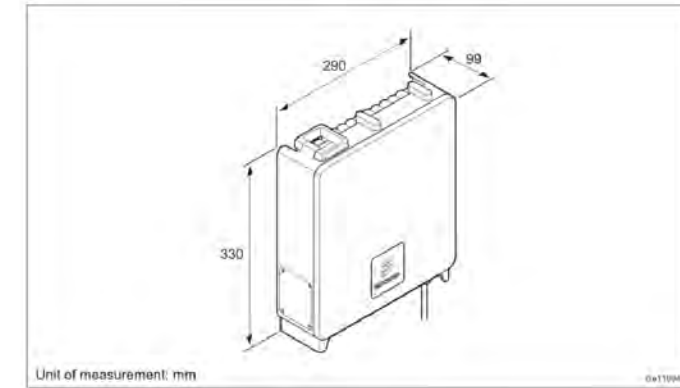
SCALE  
N.T.S. 1

MANUFACTURER: ERICSSON  
 MODEL: PSU 6322

**MECHANICAL SPECIFICATIONS:**  
 HEIGHT: 330 mm (13 IN)  
 WIDTH: 290 mm (11.4 IN)  
 DEPTH: 99 mm (3.9 IN)  
 WEIGHT: 8.6 kg (19.0 LBS)

**ELECTRICAL SPECIFICATIONS:**  
 POWER SUPPLY: -54.5 VDC OR 200-240 VAC  
 OUTPUT VOLTAGE: -54.0 TO -55.0 V DC  
 OUTPUT POWER: 815 W  
 EFFICIENCY: 93%

**ENVIRONMENTAL SPECIFICATIONS:**  
 NORMAL OPERATING TEMP.: -40°C TO +55°C



ERICSSON PSU 6322 DETAILS

SCALE  
N.T.S. 2

MANUFACTURER: RAYCAP  
 MODEL: RSCAC-1333-PS-240-A

**MECHANICAL SPECIFICATIONS:**  
 HEIGHT: 10.43 IN  
 WIDTH: 9.38 IN  
 DEPTH: 6.68 IN  
 WEIGHT: 8 LBS

**ELECTRICAL SPECIFICATIONS:**  
 AMPERAGE: 60A  
 OPERATING VOLTAGE: 120/240V  
 QTY OF PROTECTED CIRCUITS: 10  
 CONNECTION TERMINALS: COMPRESSION LUGS (6 AWG-14 AWG)  
 TERMINAL BLOCK (10 AWG-26 AWG)

**ENVIRONMENT SPECIFICATIONS:**  
 NORMAL OPERATING TEMP.: -40°C TO +80°C  
 ENVIRONMENT: OUTDOOR CLASS NEMA 4X  
 POLYCARBONATE UL 94V-0 RATED



RAYCAP AC DISCONNECT DETAIL

SCALE  
N.T.S. 3

DETAIL NOT USED

SCALE: NTS 4



A&E

REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
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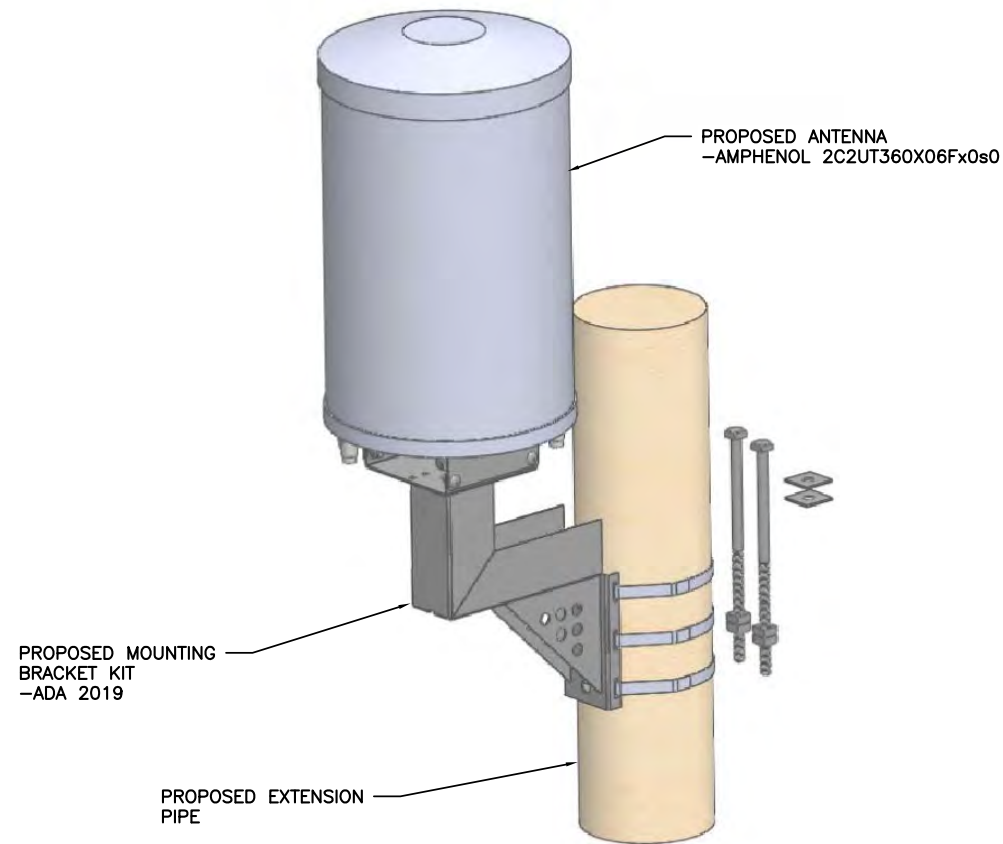
REFERENCE ONLY

LTE 1C&2C MICRO CELL BUILD  
 14805800  
 CRAN\_RCHI\_CHU01\_015  
 184220  
 402 W. SPRINGFIELD AVENUE  
 URBANA, IL 61801

SHEET TITLE  
 EQUIPMENT  
 DETAILS

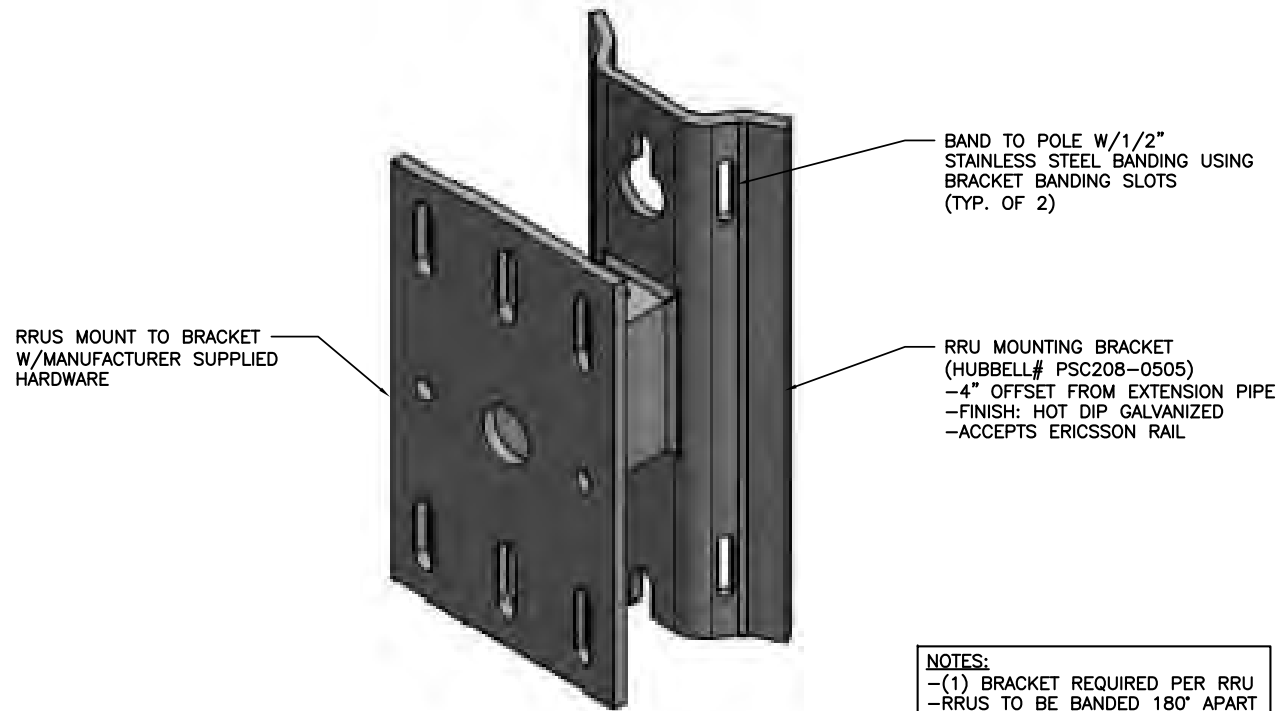
SHEET NUMBER  
**A7**

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ANTENNA MOUNTING DETAIL

SCALE  
N.T.S. 1

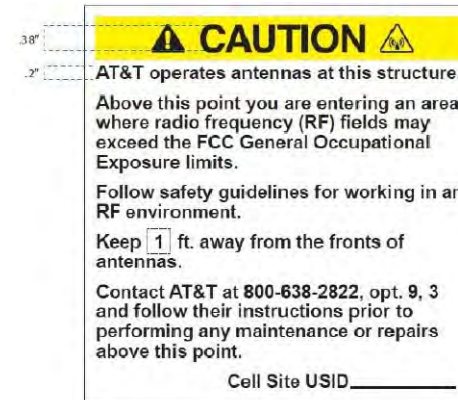


**NOTES:**  
-(1) BRACKET REQUIRED PER RRU  
-RRU TO BE BANDED 180° APART ON OPPOSITE SIDES OF EXTENSION PIPE

RRU MOUNTING DETAIL

SCALE  
N.T.S. 2

**EXAMPLE CRAN RF CAUTION SIGN**

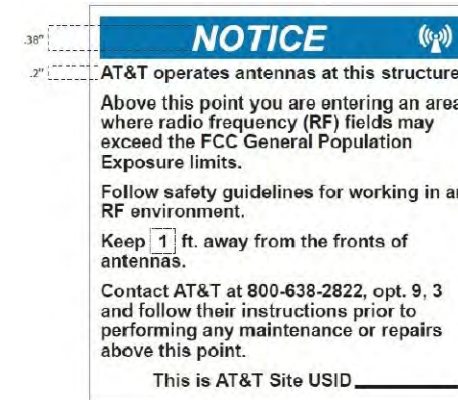


**EXAMPLE CRAN POLE POWER DISCONNECT SIGN**



AT&T SIGNAGE DETAIL

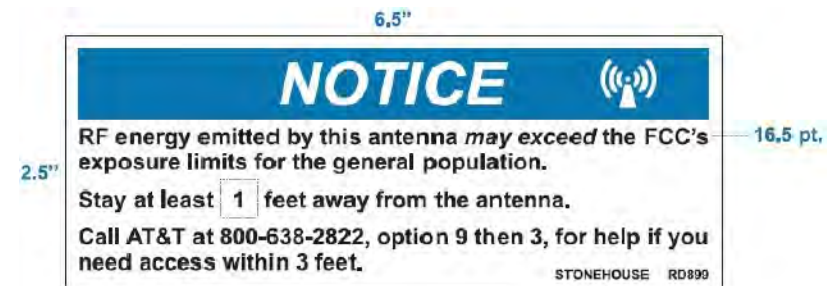
**EXAMPLE CRAN RF NOTICE SIGN**



**EXAMPLE CRAN POLE POWER WARNING SIGN**



**EXAMPLE STONEHOUSE RD899 RF NOTICE SIGN**

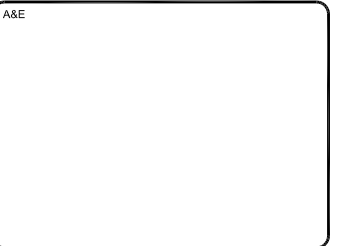


CRAN Pole Power Disconnect, RF Notice, and Caution signs shall be ordered through Stonehouse Signs. Three versions are available for each of the signs shown in Figures 16, 17, and 18: .055 Polyethylene - Reflective, .025 Aluminum - Reflective, and Peel Back Label - Reflective. All versions are 6"x6" with font designed to be visible from 2-3 feet away when approached from below to provide warning about ascending into the high RF exposure areas. The RF Caution sign shown in Figure 19 is designed to be visible from 3 feet away and is available in the reflective peel back label version only. It is designed to fit on most of the CRAN/Small Cell antenna types currently deployed. It may also be placed on antenna shrouds as shown in Figures 11 and 12.

**SIGNAGE NOTE:**  
SIGNAGE SHALL BE INSTALLED PER AT&T DIRECTION

SCALE: NTS

3



REVISIONS			
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G	10/04/19	REVISED PER COMM	MRL
O	10/14/19	FINAL CDs	MRL

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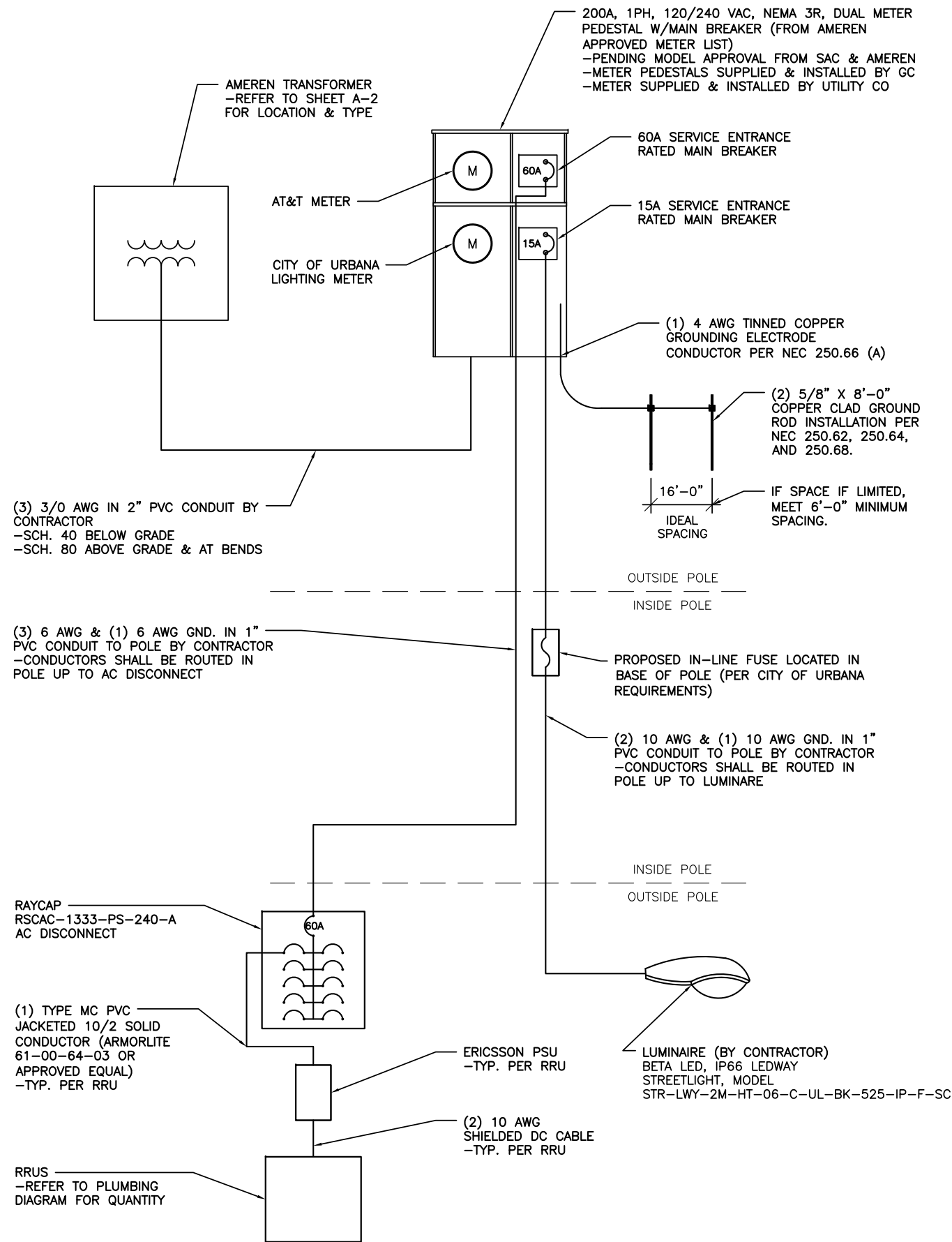
REFERENCE ONLY

LTE 1C&2C MICRO CELL BUILD  
14805800  
CRAN\_RCHI\_CHU01\_015  
184220  
402 W. SPRINGFIELD AVENUE  
URBANA, IL 61801

SHEET TITLE  
**MOUNTING DETAILS**

SHEET NUMBER  
**A8**

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ELECTRICAL ONE-LINE DIAGRAM

SCALE  
N.T.S. 1

DETAIL NOT USED

SCALE  
N.T.S. 2

ELECTRICAL NOTES:

- ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND ALL APPLICABLE CODES.
- CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SUCH THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
- SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING THE INSTALLATION OF GROUNDING AND UNDERGROUND CONDUIT AS TO PREVENT THE LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
- COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC (CADWELD) CONNECTIONS WHEN APPROVED BY CINCINNATI BELL CONSTRUCTION MANAGER.
- SERVICE TO METER PEDESTAL SHALL BE 120/240VAC, 200 AMP, SINGLE PHASE.
- ALL GROUND CONNECTIONS BELOW GRADE SHALL BE EXOTHERMIC (CADWELD).
- ALL GROUND CONNECTIONS ABOVE GRADE SHALL BE FORMED USING TWO (2) HIGH PRESS CRIMPS.
- ALL EXOTHERMIC CONNECTIONS TO THE GROUND RODS SHALL START AT THE TOP AND HAVE A VERTICAL SEPARATION OF 6" FOR EVERY ADDITIONAL CONNECTION.
- ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
- ALL EXTERIOR GROUND CONNECTORS SHALL BE 2 AWG SOLID BARE, TINNED, COPPER UNLESS INDICATED OTHERWISE.
- CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
- USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
- MAXIMUM RESISTANCE OF THE COMPLETED GROUND SYSTEM SHALL NOT EXCEED 5 OHMS. TESTING SHALL BE PERFORMED IN ACCORDANCE WITH PROJECT SPECIFICATIONS FOR FACILITY GROUNDING, USING FALL OF POTENTIAL METHOD.

STANDARD CONDUIT NOTES:

- UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC. ABOVE GROUND CONDUIT, ELBOWS, AND RISERS SHALL BE SCHEDULE 80 PVC.
- UNDERGROUND SERVICE CONDUIT SHALL MEET REQUIRED BURIAL DEPTH PER AMEREN ELECTRIC SERVICE MANUAL.
- G.C. TO STUB UP SERVICE CONDUIT AT UTILITY POLE WITH 90° SWEEPING ELBOW. GC. SHALL COIL SUFFICIENT CONDUCTOR TO REACH SERVICE CONNECTION ON POLE. G.C. SHALL SUPPLY ENOUGH CONDUIT AND RISER HARDWARE FOR AMEREN TO EXTEND SERVICE RISER UP POLE TO SERVICE CONNECTION POINT. REFER TO AMEREN ELECTRIC SERVICE MANUAL FOR REQUIREMENTS.
- ALL CONDUIT WILL BE EQUIPPED WITH 3/8" PULL ROPE AND HAVE A TRACER WIRE. TRACER WIRE NEEDS TO BE LAID ABOVE BURIED CONDUIT.

ELECTRICAL NOTES

SCALE  
N.T.S. 3



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G	10/04/19	REVISED PER COMM	MRL
O	10/14/19	FINAL CDs	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET



Date  
11/20/19  
 MICRO CELL BUILD  
 exp date 14805800  
 CRAN\_RCHI\_CHU01\_015  
 184220  
 402 W. SPRINGFIELD AVENUE  
 URBANA, IL 61801

SHEET TITLE  
**ELECTRICAL ONE-LINE DIAGRAM**

SHEET NUMBER  
**E1**

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AC POWER PANEL (RAYCAP RSCAC-1333-PS-240-A)											
120/240 VOLTS, 1-PHASE, 3-WIRE, 60A											
MAIN RATING (A) :				SYSTEM VOLTAGE (V) : 240							
DESCRIPTION	VA	c/nc	BKR	POSN	L1	L2	POSN	BKR	c/nc	VA	DESCRIPTION
PSU 6322 (4415)	877	c	20	1	877		2		c	0	
PSU AC 02 (RRUS-11)	900	c	20	3		900	4		c	0	
	0	c		5	0		6		c	0	
	0	c		7		0	8		c	0	
	0	c		9	0		10		c	0	
PHASE TOTALS (VA):					877	900					
CURRENT PER PHASE (A):					9		9 Amperes/phase cannot exceed main breaker rating				
PANEL TOTAL (VA):					1777		Legend: c = continuous, nc = non-continuous				
PANEL CAPACITY (kVA):					14.4		CONNECTED LOAD (kVA): 1.8				
PANEL LOADING (100% non-cont. load) (kVA):					0.0						
PANEL LOADING (125% continuous load) (kVA):					2.2						
PANEL LOADING (TOTAL) (kVA):					2.2						
SPARE CAPACITY (kVA):					12.2						

ELECTRICAL PANEL SCHEDULE

SCALE  
N.T.S.

1

DETAIL NOT USED

SCALE  
N.T.S.

2

DETAIL NOT USED

SCALE  
N.T.S.

3

DETAIL NOT USED

SCALE  
N.T.S.

4



REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
B	03/12/19	REVISED PER COMM	MRL
C	05/02/19	ADDED FOUNDATION	MRL
D	08/26/19	REVISED PER COMM	AER
E	09/10/19	REVISED PER COMM	AGL
F	09/20/19	REVISED PER COMM	AGL
G	10/04/19	REVISED PER COMM	MRL
D	10/14/19	FINAL CDs	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR LETTER WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF ILLINOIS.

STEVEN P. SCHAUB  
062-065050  
10/14/2019

Signature  
ELECTRICAL SEAL

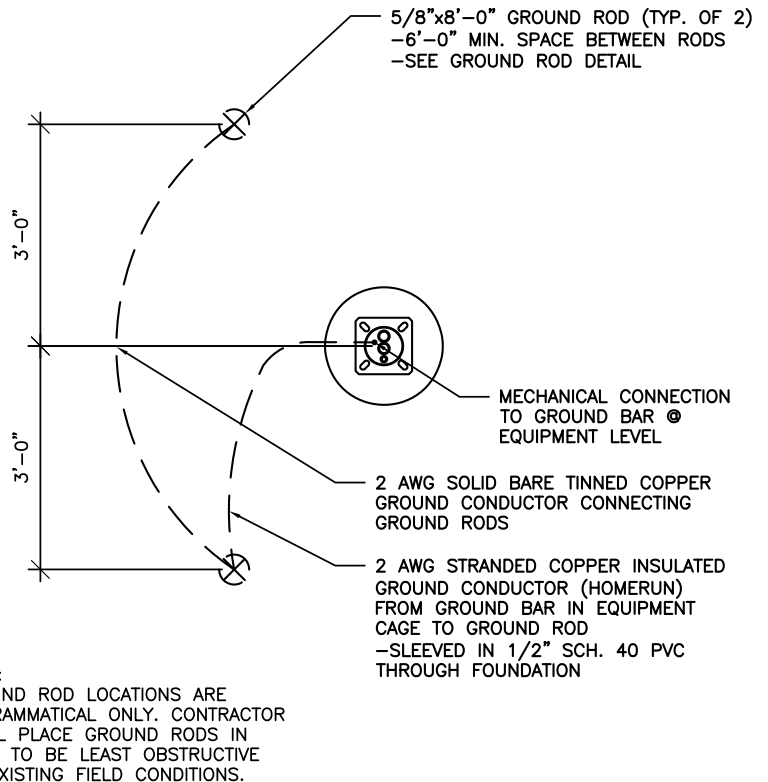
Date  
10/14/2019

LT 1/20/19 MICRO CELL BUILD  
exp date 14805800  
CRAN\_RCHI\_CHU01\_015  
184220  
402 W. SPRINGFIELD AVENUE  
URBANA, IL 61801

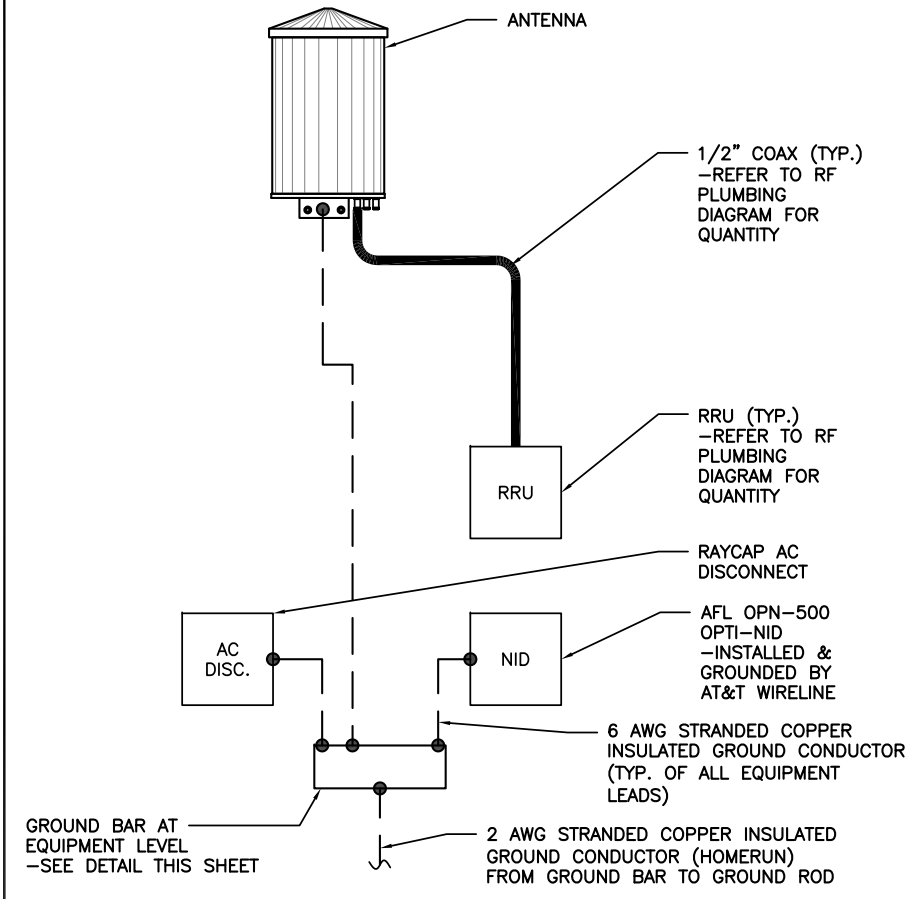
SHEET TITLE  
PANEL SCHEDULE  
& ELECTRICAL  
DETAILS

SHEET NUMBER  
**E2**

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.



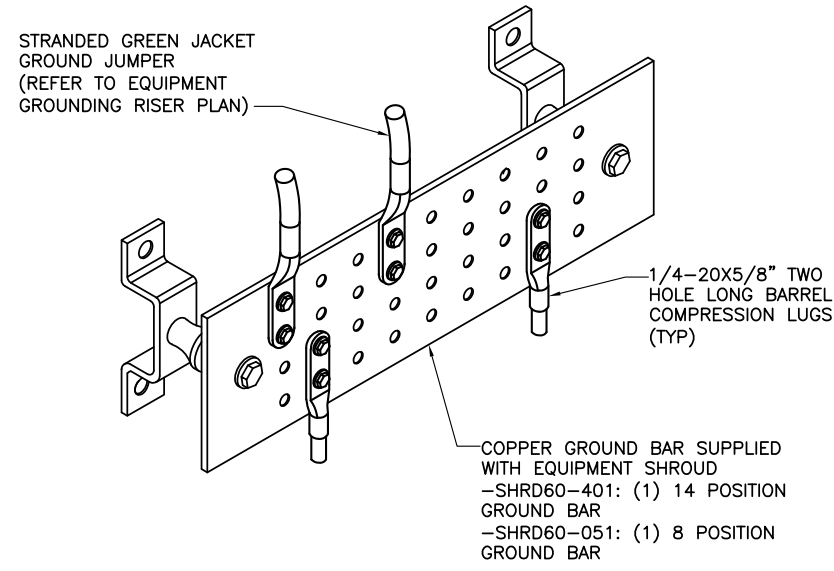
POLE GROUNDING PLAN DETAIL SCALE N.T.S. 1



EQUIPMENT GROUNDING RISER DETAIL SCALE N.T.S. 2

CADWELD CONNECTIONS OR APPROVED EQUAL		BURNDY CONNECTIONS OR APPROVED EQUAL
 PARALLEL HORIZONTAL CONDUCTORS PARALLEL THROUGH CONNECTION OF HORIZONTAL CABLES TYPE PT	 HORIZONTAL STEEL SURFACE TO FLAT STEEL SURFACE OR HORIZONTAL PIPE TYPE HS	 BOND JUMPER FIELD FABRICATED GREEN STRANDED INSULATED TYPE 2-YA-2
 THROUGH CABLE TO GROUND ROD THROUGH CABLE TO TOP OF GROUND ROD TYPE GT	 VERTICAL STEEL SURFACE CABLE DOWN AT 45° TO VERTICAL STEEL SURFACE INCLUDING PIPE TYPE VS	 COPPER LUGS TWO HOLE - LONG BARREL LENGTH TYPE YA-2
 VERTICAL PIPE CABLE DOWN AT 45° TO RANGE OF VERTICAL PIPES TYPE VS	<b>CONNECTION TYPE KEY</b> ● MECHANICAL CONNECTION ■ CADWELD CONNECTION	

GROUNDING CONNECTIONS DETAIL SCALE N.T.S. 3

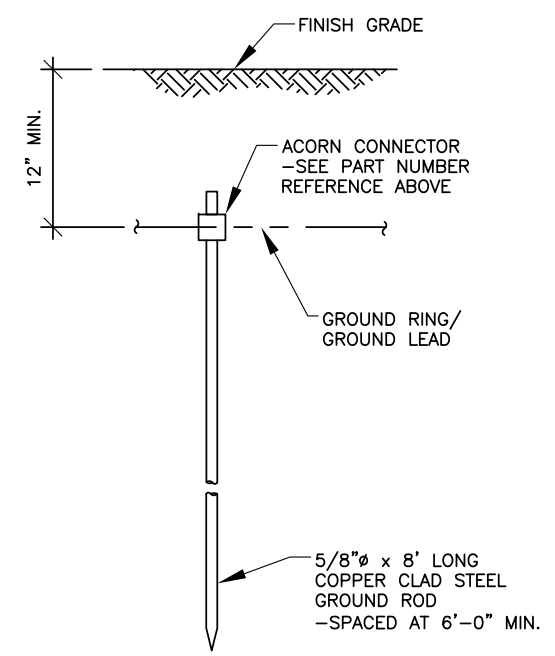


- NOTES:
- CONTRACTOR SHALL UTILIZE LUGGED HOLES PROVIDED. NO DRILLING OF THE BAR WILL BE PERMITTED.
  - ALL HARDWARE SHALL BE 1/4"-20 STAINLESS STEEL INCLUDING BELLEVILLES. COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
  - FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL. COAT ALL SURFACES WITH KOPR-SHIELD.

GROUND BAR DETAIL SCALE N.T.S. 4

DETAIL NOT USED SCALE N.T.S. 5

ACORN CONNECTOR		
ELEC. MOTION CO. PART #	GROUND CONDUCTOR SIZE	GROUND ROD SIZE
EM2DB	#12-1/0 AWG	5/8"Ø

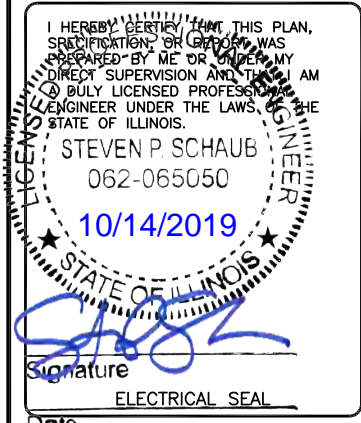


GROUND ROD DETAIL SCALE N.T.S. 6



REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
B	03/12/19	REVISED PER COMM	MRL
C	05/02/19	ADDED FOUNDATION	MRL
D	08/26/19	REVISED PER COMM	AER
E	09/10/19	REVISED PER COMM	AGL
F	09/20/19	REVISED PER COMM	AGL
G	10/04/19	REVISED PER COMM	MRL
O	10/14/19	FINAL CDs	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET



Date: 11/30/19  
MICRO CELL BUILD  
exp date 14805800  
CRAN\_RCHI\_CHU01\_015  
184220  
402 W. SPRINGFIELD AVENUE  
URBANA, IL 61801

SHEET TITLE  
**GROUNDING DETAILS**

SHEET NUMBER  
**E3**

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Diagram - 1  
 Diagram File Name - Pico 02 vsd  
 Campaign CRAN #JOB: UNIVERSITY  
 Location Name - UNIVERSITY\_0301  
 Market - CENTRAL ILLINOIS  
 Market Cluster - ILLINOIS/WISCONSIN  
 Comments:

Configuration Name	700 MHz 2T2R LTE	700 MHz 4T4R LTE	850 MHz 2T2R LTE	850 MHz 4T4R LTE	1900 MHz 2T2R LTE	1900 MHz 4T4R LTE	2100 MHz 2T2R LTE	2100 MHz 4T4R LTE	5GHz LAA LTE	3.5 GHz LAA LTE	Sector Count	Carrier Count	Antenna LAA location
Pico #02	NA	NA	NA	NA	NA	X	NA	NA	X	NA	1	2	14 Ports Antenna

Amphenol Pseudo-Omni – 14 ports Antenna  
 2C2U3MT360X06FxyS0



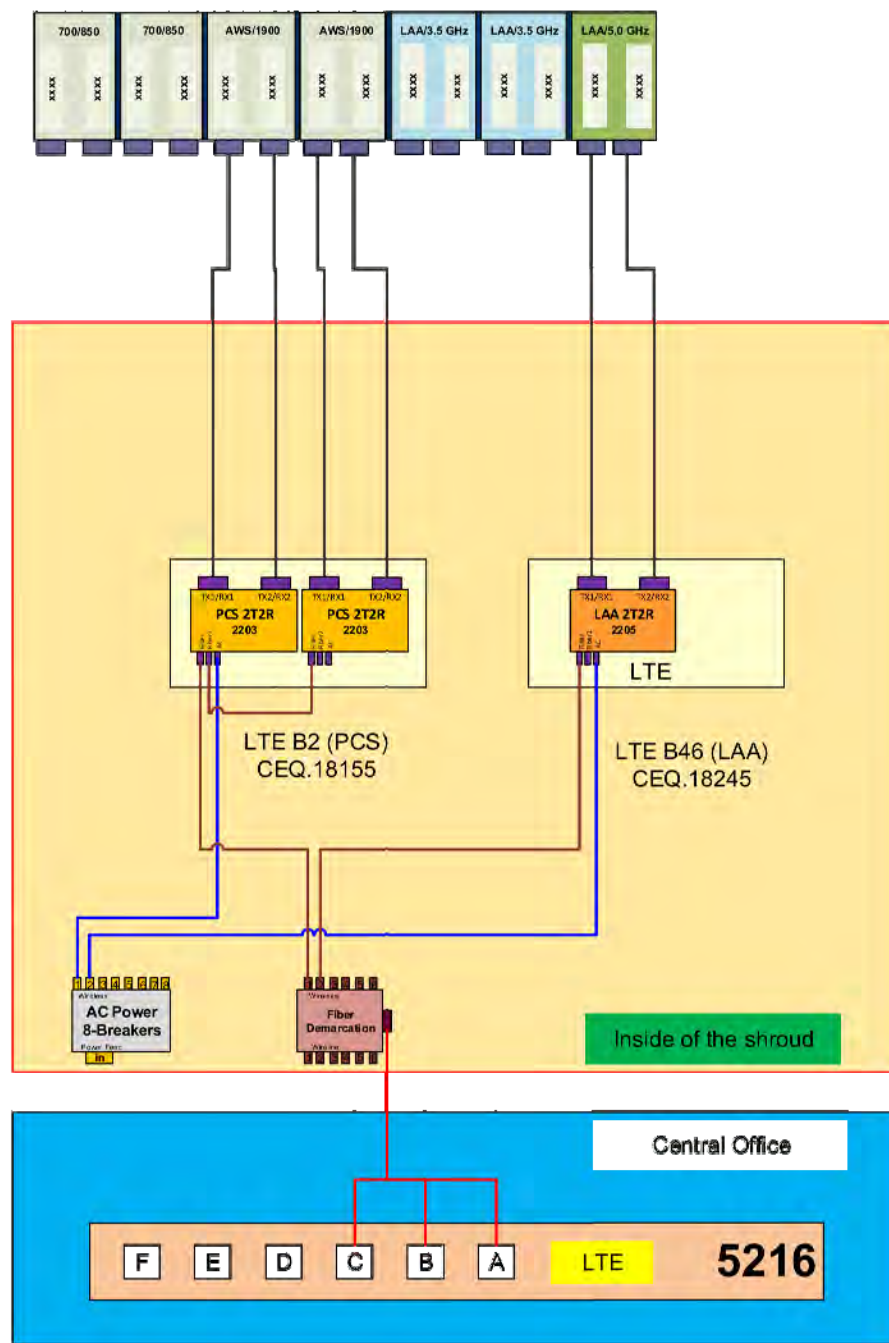
**Important Note:**  
 For detailed radio to antenna wiring refer to the latest 4T4R Antenna/Radio Port Connection Field Notice (RF-HW-2016-234) and the 4T Wiring Playbook

Two Radios

- B2 (PCS) – CEQ.18155
  - B66A (AWS) – CEQ.18167
- One Radio/One Dummy Radio
- B46 (LAA) – CEQ.18245



- HXWXD – 17.12" X 7.87" X 4.13"
- WEIGHT – 21 LBS.
- POWER CONSUMPTION – WATTS MAX
- MINIMUM AC FUSE RATING – 8 AMP
- MAX HEAT DISSIPATION – 20 WATTS



1501 E. WOODFIELD RD.  
 SUITE #300E  
 SCHAUMBURG, IL 60173  
 www.sscw.com  
 847.944.1600

A&E

REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
B	03/12/19	REVISED PER COMM	MRL
C	05/02/19	ADDED FOUNDATION	MRL
D	08/26/19	REVISED PER COMM	AER
E	09/10/19	REVISED PER COMM	AGL
F	09/20/19	REVISED PER COMM	AGL
G	10/04/19	REVISED PER COMM	MRL
D	10/14/19	FINAL CDs	MRL

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REFERENCE ONLY

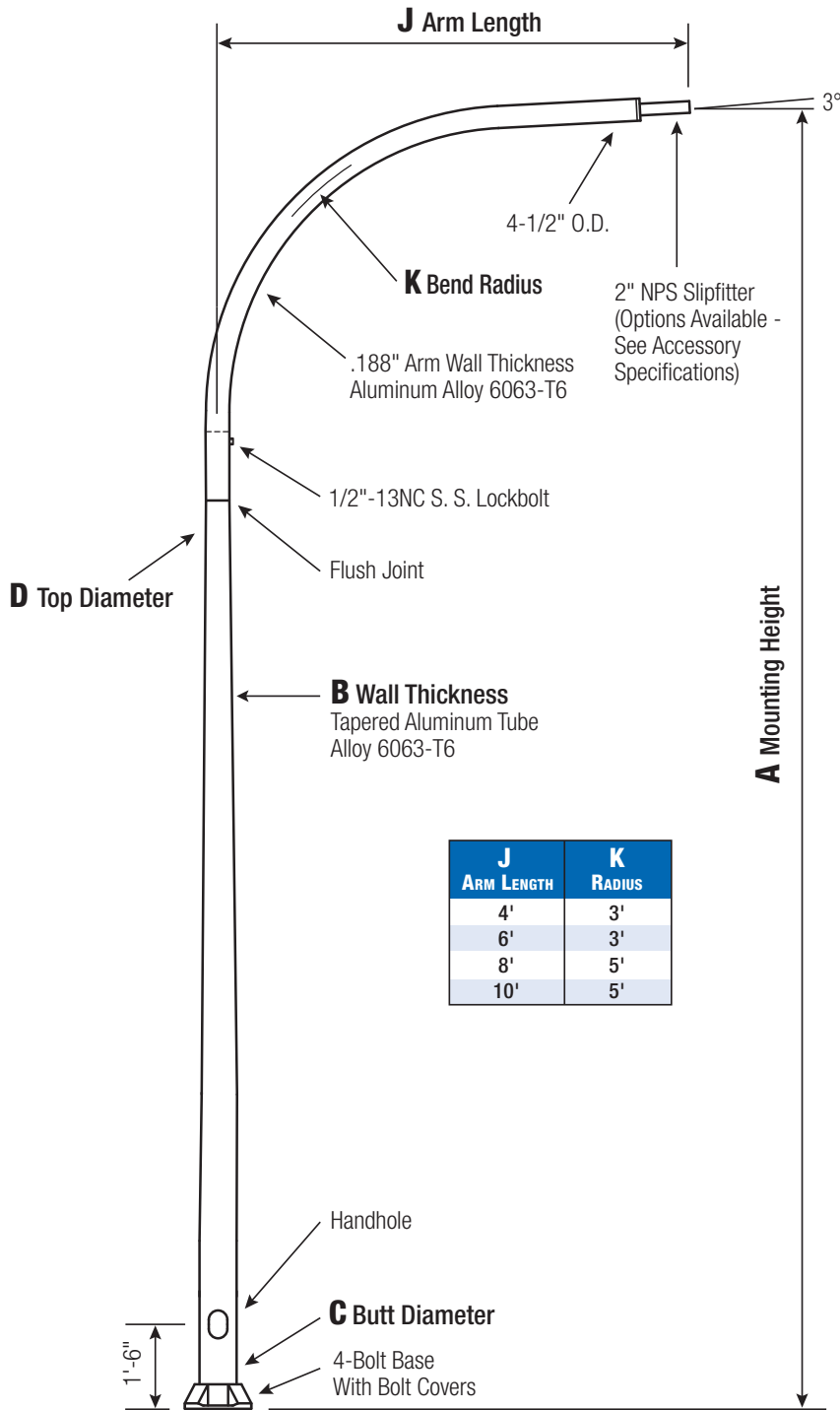
LTE 1C&2C MICRO CELL BUILD  
 14805800  
 CRAN\_RCHI\_CHU01\_015  
 184220  
 402 W. SPRINGFIELD AVENUE  
 URBANA, IL 61801

SHEET TITLE  
 RF  
 PLUMBING  
 DIAGRAM

SHEET NUMBER  
**RF1**

# RTA

## Round Tapered Aluminum Pole with Arms Single Davit — 4-Bolt Base



J ARM LENGTH	K RADIUS
4'	3'
6'	3'
8'	5'
10'	5'

Satin Aluminum or Powder Coated Finish per Customer Specification.

C BUTT DIA.	D TOP DIA.	F BOLT CIR. DIA.	G BASE SQ.	H BOLT PROJ.	I BOLT SIZE
6	4.5	9 - 10	9.75	2.75	1 x 36 x 4
7	4.5	10 - 11	10.5	2.75	1 x 36 x 4
8	4.5	11 - 12	11.25	2.75	1 x 36 x 4
10	6	14 - 15	14	3.25	1 x 48 x 4

Dimensions in Inches

### Pole

Shaft and arm will be constructed of seamless extruded tube of 6063 Aluminum Alloy per the requirements of ASTM B221. The shaft assembly shall be full-length heat treated after base weld to produce a T6 temper.

### Base Style

4-Bolt Cast Aluminum Base Flange of Alloy 356-T6 with Aluminum Bolt Covers (Alloy 356-F) and Stainless Steel Hex Head Attaching Screws.



### Handhole

**6" Butt Diameter** - Reinforced, 3" x 5" curved Cast Aluminum Frame (Alloy 356-T6) with Aluminum Door and two (2) SS Hex Head Screws. A Grounding Provision incorporating a 3/8" diameter hole is provided opposite the Handhole.

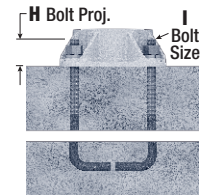
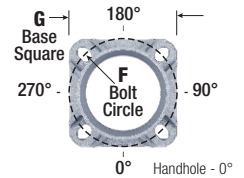
**7"+ Butt Diameters** - Reinforced, 4" x 6" curved Cast Aluminum Frame (Alloy 356-T6) with Aluminum Door and two (2) SS Hex Head Screws. Reinforced Frame will contain a tapped 3/8"-16NC Grounding Provision.



### Anchorage

Anchorage Kit will include four (4) L-shaped Steel Anchor Bolts conforming to AASHTO M314-90 Grade 55. Ten inches (10") of threaded end will be galvanized per ASTM A153.

Kits will contain four (4) Hex Nuts, four (4) Lock Washers, and four (4) Flat Washers (all components Galvanized Steel). A bolt circle template will be provided.



### Vibration Damper

When determined necessary by Hapco, a Vibration Damper will be factory-installed inside the pole shaft. Customer specification of the damper is available.



**WARNING:** Do not install light pole without luminaire.

A Mtg. Hgt.	B WALL THICKNESS	C BUTT DIAMETER	J ARM LENGTH	LUM. WEIGHT	MAXIMUM EPA					OLD CAT. NUMBER	CATALOG NUMBER
					90	100	110	120	130		
20	0.156"	6	4'	35	12.4	9.2	8.4	6.4	5.0	41-031	RTA20C6B4D14-**
20	0.156"	6	6'	35	11.2	8.2	7.4	5.6	4.2	41-032	RTA20C6B4D16-**
20	0.156"	6	8'	35	10.2	7.2	6.5	4.8	3.5	41-033	RTA20C6B4D18-**
20	0.188"	6	4'	35	15.6	11.8	10.8	8.6	6.8	41-001	RTA20D6B4D14-**
20	0.188"	6	6'	35	14.4	10.8	9.8	7.6	5.9	41-002	RTA20D6B4D16-**
20	0.188"	6	8'	35	13.2	9.8	8.8	6.8	5.1	41-003	RTA20D6B4D18-**
25	0.156"	6	4'	35	7.4	5.0	4.4	3.1	2.1		RTA25C6B4D14-**
25	0.156"	6	6'	35	6.6	4.3	3.7	2.4	1.4		RTA25C6B4D16-**
25	0.156"	6	8'	35	5.8	3.6	3.1	1.8	0.9		RTA25C6B4D18-**
25	0.156"	6	10'	35	4.8	2.8	2.2	1.0	-		RTA25C6B4D1A-**
25	0.156"	7	4'	35	12.4	9.2	8.2	6.2	4.8	41-103	RTA25C7B4D14-**
25	0.156"	7	6'	35	11.4	8.2	7.4	5.5	4.1	41-104	RTA25C7B4D16-**
25	0.156"	7	8'	35	10.4	7.5	6.6	4.8	3.4	41-105	RTA25C7B4D18-**
25	0.156"	7	10'	35	9.3	6.4	5.6	3.8	2.5	41-106	RTA25C7B4D1A-**
25	0.156"	8	10'	35	5.7	3.8	3.3	2.1	1.2		RTA25C8B4D1A-**
25	0.188"	6	4'	35	10.0	7.0	6.4	4.7	3.4	41-073	RTA25D6B4D14-**
25	0.188"	6	6'	35	9.0	6.3	5.6	4.0	2.8	41-074	RTA25D6B4D16-**
25	0.188"	6	8'	35	8.2	5.6	4.9	3.4	2.2	41-075	RTA25D6B4D18-**
25	0.188"	6	10'	35	7.2	4.6	4.0	2.5	1.4	41-076	RTA25D6B4D1A-**
25	0.188"	7	4'	35	16.0	12.0	10.8	8.4	6.7	41-079	RTA25D7B4D14-**
25	0.188"	7	6'	35	14.8	11.0	10.0	7.6	5.9	41-080	RTA25D7B4D16-**
25	0.188"	7	8'	35	13.8	10.2	9.2	7.0	5.3	41-081	RTA25D7B4D18-**
30	0.156"	6	4'	35	3.8	2.0	1.5	0.5	-		RTA30C6B4D14-**
30	0.156"	6	6'	35	3.2	1.3	0.9	-	-		RTA30C6B4D16-**
30	0.156"	6	8'	35	2.6	0.8	-	-	-		RTA30C6B4D18-**
30	0.156"	7	4'	35	7.8	5.2	4.6	3.2	2.1	41-145	RTA30C7B4D14-**
30	0.156"	7	6'	35	7.0	4.6	3.9	2.5	1.4	41-146	RTA30C7B4D16-**
30	0.156"	7	8'	35	6.4	4.0	3.4	2.0	0.9	41-147	RTA30C7B4D18-**
30	0.156"	7	10'	35	5.5	3.1	2.5	1.2	-	41-148	RTA30C7B4D1A-**
30	0.156"	8	4'	35	10.6	7.9	7.1	5.3	4.1	41-175	RTA30C8B4D14-**
30	0.156"	8	6'	35	8.5	6.1	5.5	3.9	2.9	41-176	RTA30C8B4D16-**
30	0.156"	8	8'	35	6.7	4.7	4.1	2.9	1.9	41-177	RTA30C8B4D18-**
30	0.156"	8	10'	35	4.8	3.1	2.6	1.5	0.6	41-178	RTA30C8B4D1A-**
30	0.188"	6	4'	35	5.8	3.6	3.0	1.8	1.0		RTA30D6B4D14-**
30	0.188"	6	6'	35	5.1	3.0	2.4	1.2	-		RTA30D6B4D16-**
30	0.188"	6	8'	35	4.5	2.4	1.8	0.7	-		RTA30D6B4D18-**
30	0.188"	6	10'	35	3.6	1.6	1.1	-	-		RTA30D6B4D1A-**
30	0.188"	7	4'	35	10.6	7.6	6.8	5.0	3.6	41-151	RTA30D7B4D14-**
30	0.188"	7	6'	35	9.8	6.8	6.0	4.2	3.0	41-152	RTA30D7B4D16-**
30	0.188"	7	8'	35	9.2	6.2	5.4	3.6	2.4	41-153	RTA30D7B4D18-**
30	0.188"	8	4'	35	15.7	11.9	10.9	8.6	6.7	41-157	RTA30D8B4D14-**
30	0.188"	8	6'	35	13.8	10.5	9.6	7.3	5.7	41-158	RTA30D8B4D16-**
30	0.188"	8	8'	35	11.5	8.5	7.7	5.7	4.3	41-159	RTA30D8B4D18-**
30	0.188"	8	10'	35	9.0	6.5	5.7	3.9	2.7	41-160	RTA30D8B4D1A-**
35	0.156"	7	4'	35	4.3	2.2	1.7	0.6	-		RTA35C7B4D14-**
35	0.156"	7	6'	35	3.6	1.6	1.1	-	-		RTA35C7B4D16-**
35	0.156"	7	8'	35	3.1	1.2	0.6	-	-		RTA35C7B4D18-**
35	0.156"	8	4'	35	8.2	5.5	4.8	3.2	2.0	41-223	RTA35C8B4D14-**
35	0.156"	8	6'	35	6.7	4.5	3.7	2.3	1.3	41-224	RTA35C8B4D16-**
35	0.156"	8	8'	35	5.3	3.3	2.7	1.5	0.9	41-225	RTA35C8B4D18-**
35	0.188"	8	4'	35	11.4	8.0	7.1	5.2	3.8	41-229	RTA35D8B4D14-**
35	0.188"	8	6'	35	10.4	7.3	6.4	4.5	3.1	41-230	RTA35D8B4D16-**
35	0.188"	8	8'	35	9.8	6.7	5.8	4.0	2.6	41-231	RTA35D8B4D18-**
35	0.188"	8	10'	35	7.7	5.1	4.3	2.7	1.5	41-232	RTA35D8B4D1A-**
35	0.219"	8	4'	35	14.2	10.4	9.2	7.0	5.4	41-235	RTA35E8B4D14-**
35	0.219"	8	6'	35	13.4	9.6	8.6	6.4	4.7	41-236	RTA35E8B4D16-**
35	0.219"	8	8'	35	12.6	9.0	8.0	5.8	4.2	41-237	RTA35E8B4D18-**
35	0.219"	8	10'	35	11.3	8.1	7.1	5.0	3.4	41-238	RTA35E8B4D1A-**
35	0.250"	8	4'	35	17.2	12.6	11.4	8.8	6.8	41-241	RTA35F8B4D14-**
35	0.250"	8	6'	35	16.2	11.8	10.8	8.2	6.2	41-242	RTA35F8B4D16-**
35	0.250"	8	8'	35	15.6	11.2	10.0	7.6	5.7	41-243	RTA35F8B4D18-**
35	0.250"	8	10'	35	13.9	10.2	9.2	6.7	4.9	41-244	RTA35F8B4D1A-**
40	0.156"	8	4'	35	4.7	2.5	1.9	0.7	-		RTA40C8B4D14-**
40	0.156"	8	6'	35	4.1	1.9	1.3	-	-		RTA40C8B4D16-**
40	0.156"	8	8'	35	3.4	1.3	0.8	-	-		RTA40C8B4D18-**
40	0.188"	8	6'	35	6.7	4.0	3.3	1.8	0.8	41-326	RTA40D8B4D16-**
40	0.188"	8	8'	35	6.2	3.5	2.8	1.3	-	41-327	RTA40D8B4D18-**
40	0.188"	10	6'	35	15.5	11.5	10.4	8.0	5.9	41-362	RTA40D1C4D16-**
40	0.188"	10	10'	35	11.7	8.3	7.5	5.1	3.5	41-364	RTA40D1C4D1A-**
40	0.219"	8	4'	35	9.8	6.6	5.8	4.0	2.7	41-331	RTA40E8B4D14-**
40	0.219"	8	6'	35	9.2	6.0	5.2	3.4	2.1	41-332	RTA40E8B4D16-**
40	0.219"	8	8'	35	8.6	5.5	4.7	2.9	1.7	41-333	RTA40E8B4D18-**
40	0.250"	8	4'	35	12.2	8.6	7.6	5.6	4.0	41-337	RTA40F8B4D14-**
40	0.250"	8	6'	35	11.6	8.0	7.0	4.8	3.4	41-338	RTA40F8B4D16-**
40	0.250"	8	8'	35	11.0	7.4	6.4	4.4	3.0	41-339	RTA40F8B4D18-**
40	0.250"	8	10'	35	10.0	6.6	5.7	3.7	2.2	41-340	RTA40F8B4D1A-**

### Catalog Number System

The catalog number for Hapco poles utilizes the following identification system.



### Catalog Number Example -

**RTA 30 D 8 B 4 D 16 - 01**

Round Tapered Aluminum, 30' Mounting Height, .188" Wall Thickness, 8" Butt Diameter, 4.5" Top Diameter, 4-Bolt Base, Davit Arm, Single, 6' Arm Length, Satin Aluminum Finish.

#### Wall Thickness

- C = .156"
- D = .188"
- E = .219"
- F = .250"

#### Butt Diameter

- 6 = 6"
- 7 = 7"
- 8 = 8"
- 1 = 10"

#### Top Diameter

- B = 4.5"
- C = 6"

#### Base Style

- 4 = 4-Bolt Base

#### Arm Style

- D = Davit

#### Arm Quantity

- 1 = Single

#### Arm Length

- 4 = 4'
- 6 = 6'
- 8 = 8'
- A = 10'

#### Finish

- O1 = Satin Aluminum
- BA = Black Powder Coat
- BH = White Powder Coat
- BM = Dark Bronze Powder Coat
- BV = Dark Green Powder Coat
- GC = Gray Powder Coat
- \*\* = Specify Finish

### EPA Notes:

Effective Projected Area (EPA) in square feet. EPA's calculated using wind velocity (mph) indicated in accordance with 2009 AASHTO LTS-5 using a 25 year design life. Maximum EPA is based on the luminaire weight shown. Increased luminaire weight may reduce the maximum EPA. If weight is exceeded, or if other design life or code is required, please consult the factory.



Date: **October 1, 2019**

Migirdech Tokat  
SAC Wireless  
540 W Madison St. 9th Floor  
Chicago, IL 60661

**ARCHITECTURE & ENGINEERING DIVISION**  
604 FOX GLEN . BARRINGTON, IL 60010  
847/277-0070 . FAX: 847/277-0080  
AE@westchesterservices.com / www.westchesterservices.com

**Subject: Pole Extension Modification Report**

**AT&T Small Cell**

**Site Number:** MRCHI025457  
**Site Name:** CRAN\_RCHI\_CHUOI\_015  
**FA#:** 14805800

**Engineering Firm Designation:** Westchester Services, LLC

**Site Data:** 402 W Springfield Ave, Urbana, IL 61801  
Champaign County – 25ft Light Pole w/ 23’ Pole Extension  
Migirdech Tokat,

Westchester Services, LLC is pleased to submit this “**Pole Extension Modification Report**” to determine the structural integrity of the above mentioned pole extension.

The purpose of the analysis is to determine acceptability of the pole extension stress level. Based on our analysis we have determined the stress levels to be:

**Existing and Proposed Equipment**

**Sufficient Capacity**

Note: See Table 2-1 for the existing and proposed loading.

Member Type	% Capacity	Pass/Fail
Overall	98.9	Pass

The analysis has been performed in accordance with the NESC 2017 standard and local code requirements.

We at Westchester Services, LLC appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or any other projects please give us a call.

I certify that this report was prepared by me or under my direct supervision and that I am a licensed Structural Engineer under the laws of the State of Illinois.

Joseph Meyer, SE  
Structural Engineer



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## 1) INTRODUCTION

This is a 29ft tall light pole located in Champaign County, IL. The proposed antennas will be mounted on a proposed extension pipe.

## 2) ANALYSIS CRITERIA

The structural analysis was performed for this structure in accordance with the requirements of NESC 2017 Rule 250B Heavy loading.

**Table 2-1 – Proposed Final Antenna Configuration**  
(New antennas in **bold**)

Center Line Elevation (ft)	Antenna(s)	Radio(s)	Mounting System
37.0	<b>(1) 2C2U3MT360X06Fxys0</b>		
32.75		<b>(2) Proposed Remotes</b>	
31.0		<b>(1) Power/Fiber cabinet</b>	

### 3) ANALYSIS PROCEDURE

**Table 3-1 – Documents Provided**

Document	Remarks	Reference	Date	Source
Construction Drawings	GPD	N/A	9/20/19	SAC

#### 3.1) Analysis Method

Risa-3D (version 17.0.4) is a finite element analysis software program was used for modeling and analyzing frame structures. The output from the analysis can be found in Appendix A.

Mathcad 15 is a mathematics software program used for creating hand calc templates. The output of these calculations can be found in Appendix A.

### 4) ANALYSIS RESULTS

**Table 4-1 – Critical Section Capacity (Summary)**

Member Type	Elevation (ft)	% Capacity	Pass/Fail
Extension Pipe	17	92.4	Pass
Connection	17	13.0	Pass
Pole Local Bending	17	98.9	Pass
Overall		98.9	Pass

#### 4.1) Recommendations

See details for information on the proposed extension pipe and connections.

#### 4.2) Conclusions

The light pole has adequate capacity to support the extension pipe and equipment.

## 5) ASSUMPTIONS

- The analysis performed is to the theoretical capacity of the members and connections. No accommodations are taken for any damaged, rusted, deteriorated, or otherwise compromised member conditions. To this, the tower or structure is assumed to be properly maintained and monitored and this analysis cannot be considered to be a condition assessment of the structure.
- The analysis is performed to the minimum design wind, ice, and other environmental loading prescribed by the governing building codes and standards. Any higher loading conditions required by the local jurisdiction or structure owner should be made known to Westchester immediately for analysis. No lesser conditions will be accommodated.
- Member sizes are assumed to be of standard AISC or manufacturer designations unless explicitly specified otherwise. The geometry of the tower or structure is assumed as schematic. Steel grade and concrete strength are assumed to be conservative standard and fully developed unless otherwise specified.
- The information provided to Westchester for analysis is assumed accurate and up to date as supplied. No independent efforts were taken by Westchester to verify the validity of the information supplied. If any additional information is presented at any time that contradicts what is referenced in the analysis, the analysis is invalid and must be performed again with the new information.
- Any reinforcement or modifications are assumed to be fully installed and functional.
- All welds are assumed to have been performed to current welding standards and are assumed to develop their full capacity and to be in good condition. In addition, all bolts and bolt-like anchors are assumed to be fully tightened, fastened, or bonded to the manufacturers' specifications and are assumed to have full capacity.
- Numerous connection details of large-scale structures are unobtainable and are omitted from the structural analysis. This includes, but is not limited to: bolts, welds, flanges, and plates. These connections are considered adequate and are therefore neglected from the analysis. In addition, in the absence of building plans, many wall, floor, and ceiling constructions can only be determined from observable field data and are supplemented by best judgment and experience.
- Antennas, dishes, feedlines, and any other such appurtenances are assumed adequate through manufacturer testing. No analysis is provided for the structural strength or stability of these items unless otherwise specified.
- Equipment mounting systems are assumed structurally sound unless specifically called for in the analysis.
- Soil conditions and foundations are not considered unless specified in the analysis and have no deterioration or defects. For sites located on a building, only local effects of the equipment is considered unless otherwise specified. The overall structure of the building and its foundation are assumed to be unaffected by the telecom equipment.
- Any changes or differences to the site or site plans at any time prior to installation must be brought to the attention of Westchester immediately.

**APPENDIX A**  
**CALCULATIONS**

*References:*

- 1) 2015 International Building Code
- 2) ANSI TIA-222-G, Structural Standard for Antenna Supporting Structures and Antennas
- 3) AISC 360-10 Specification for Structural Steel Buildings
- 4) 2015 Aluminum Design Manual
- 5) 2017 National Electric Safety Code

---

***Input***

$q := 4\text{psf}$

*Design wind pressure per Ref. (5)*

$t_i := 0.5\text{in}$

*Design ice thickness per Ref. (5)*

**Antennas/Radios**

Antenna name/model

Number of antennas

Shielding Factor

"Canister Antenna"  
 "radio"  
 "Power/Fiber"  
 "Extension Pipe"  
 "not used"  
 "not used"  
 "not used"  
 "not used"

$n_{ant} :=$   
 (1)  
 1  
 1  
 1  
 0  
 0  
 0  
 0

ShieldingFactor :=  
 (1)  
 1  
 1  
 1  
 1  
 1  
 1  
 1

Height of antennas\*

Width of antennas\*

Depth of antennas\*

Weight of antennas

$height_{ant} :=$   
 (24)  
 17.1  
 13  
 276  
 0  
 0  
 0  
 0  
 .in

$width_{ant} :=$   
 (14.6)  
 7.9  
 11.4  
 2.875  
 1  
 1  
 1  
 1  
 .in

$depth_{ant} :=$   
 (14.6)  
 4.1  
 3.9  
 2.875  
 1  
 1  
 1  
 1  
 .in

$Weight_{ant} :=$   
 (23)  
 100  
 19  
 133.4  
 0  
 0  
 0  
 0  
 .lbf

Antenna Shape?

1 = Flat

0 = Round

Elevation of antennas

Number of antenna groups

SHAPE :=  
 (0)  
 1  
 1  
 1  
 1  
 1  
 1  
 1  
 1

$z_{ant} :=$   
 (37)  
 32.75  
 31  
 23.5  
 98  
 98  
 98  
 98  
 .ft

$N_{antenna} := 4$

\*Matrix elements with a value of "1" are just placeholder values to prevent divide by 0 / NaN errors.

Wind load calculations collapsed





## *Equipment Frame*

*An analysis of the frame was conducted using RISA 3D with the above outlined equipment and the following load conditions.*

$$F_1 := F_{A_1}$$

$$W_{1.ice} := W_{ant.ice_1}$$

$$F_1 = 9.733 \text{ lbf}$$

*Antenna position 1*

$$W_{1.ice} = 47.642 \text{ lbf}$$

$$F_2 := F_{A_2}$$

$$W_{2.ice} := W_{ant.ice_2}$$

$$F_2 = 3.753 \text{ lbf}$$

*Antenna position 2*

$$W_{2.ice} = 108.675 \text{ lbf}$$

$$F_3 := F_{A_3}$$

$$W_{3.ice} := W_{ant.ice_3}$$

$$F_3 = 4.117 \text{ lbf}$$

*Antenna position 3*

$$W_{3.ice} = 27.836 \text{ lbf}$$

### *RISA 3D Loads Input*

*Wind Load (with ice)*

*Dead Load (with ice)*

*Position 1:*

$$F_1 = 9.733 \text{ lbf}$$

$$W_{1.ice} = 47.642 \text{ lbf}$$

*Position 2:*

$$F_2 = 3.753 \text{ lbf}$$

$$W_{2.ice} = 108.675 \text{ lbf}$$

*Position 3:*

$$F_3 = 4.117 \text{ lbf}$$

$$W_{3.ice} = 27.836 \text{ lbf}$$

$$w_{pipe} := \frac{F_{A_4}}{23ft} = 0.958 \cdot plf$$

*Distributed wind load on pipe*

$$ice_{pipe} := \frac{W_{ant.ice_4} - Weight_{ant_4}}{23ft} = 2.646 \cdot plf$$

*Distributed ice weight on pipe*

*Check Local Bending on Pole*

$$D_{\text{pole}} := 4.5\text{in}$$

$$t_{\text{pole}} := .25\text{in} \quad D_{\text{i.pole}} := D_{\text{pole}} - 2 \cdot t_{\text{pole}} = 4\text{in}$$

$$S_{\text{pole}} := \frac{\pi \cdot (D_{\text{pole}}^4 - D_{\text{i.pole}}^4)}{32 \cdot D_{\text{pole}}} = 3.361 \cdot \text{in}^3$$

$$M_1 := 1121\text{lbf} \cdot 5\text{ft} = 5.605 \times 10^3 \cdot \text{lbf} \cdot \text{ft}$$

*Local moment due to extension*

$$d_{\text{al}} := .1 \cdot \frac{\text{lbf}}{\text{in}^3} \quad A_{\text{arm}} := \frac{\pi \cdot D_{\text{pole}}^2}{4} - \frac{\pi \cdot D_{\text{i.pole}}^2}{4} = 3.338 \cdot \text{in}^2 \quad A_{\text{i.arm}} := \frac{\pi \cdot (D_{\text{pole}} + 1\text{in})^2}{4} - \frac{\pi \cdot D_{\text{pole}}^2}{4}$$

$$\text{wt}_{\text{arm}} := (5\text{ft} + .25 \cdot 2 \cdot \pi \cdot 5\text{ft}) \cdot d_{\text{al}} \cdot A_{\text{arm}} + 35\text{lbf} = 86.487\text{ lbf}$$

*Weight of davit arm and light*

$$\text{wt}_{\text{i.arm}} := (5\text{ft} + .25 \cdot 2 \cdot \pi \cdot 5\text{ft}) \cdot A_{\text{i.arm}} \cdot 56 \frac{\text{lbf}}{\text{ft}^3} = 39.26\text{ lbf}$$

*Weight of ice on davit arm*

$$M_2 := (\text{wt}_{\text{arm}} + \text{wt}_{\text{i.arm}}) \cdot 5\text{ft}$$

$$f_b := \frac{M_1 + M_2}{S_{\text{pole}}} = 22.256 \cdot \text{ksi}$$

$$F_y := 25\text{ksi} \quad \phi := .9$$

$$F_b := \phi \cdot F_y = 22.5 \cdot \text{ksi}$$

$$\frac{f_b}{F_b} = 98.915\% \quad \text{OK}$$

*Check connections*

$$T_{\max} := 1121\text{lb}$$

$$V_{\max} := 423\text{lb}$$

*Use (2) 3/4" 316 Stainless Steel rods at each connection*

$$A_{\text{bolt}} := .334\text{in}^2$$

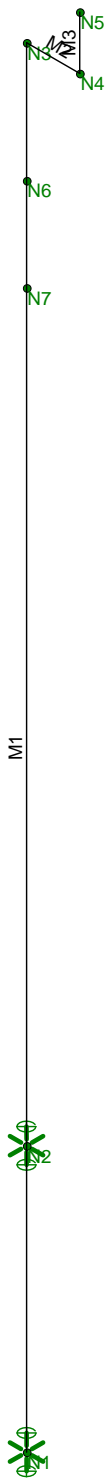
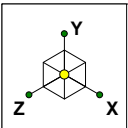
*Eff. area*

$$F_y := 45\text{ksi}$$

$$T_{\text{all}} := .9 \cdot F_y \cdot A_{\text{bolt}} = 13.527 \cdot \text{kip}$$

$$V_{\text{all}} := .6 \cdot F_y \cdot A_{\text{bolt}} = 9.018 \cdot \text{kip}$$

$$\frac{T_{\max}}{T_{\text{all}}} + \frac{V_{\max}}{V_{\text{all}}} = 12.978\% \quad \text{OK}$$





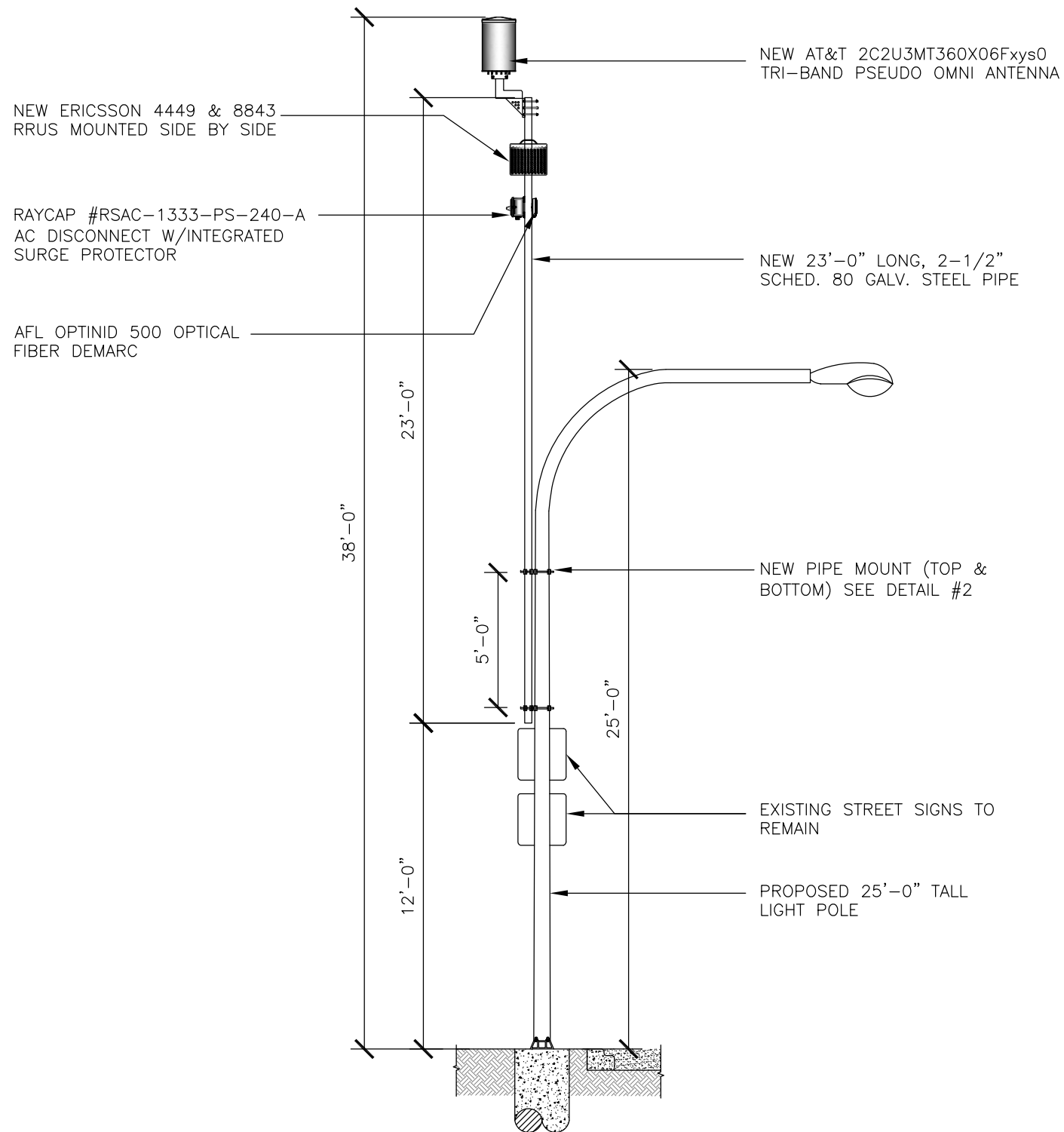




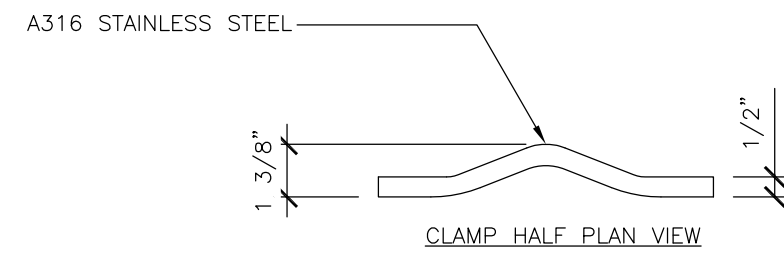
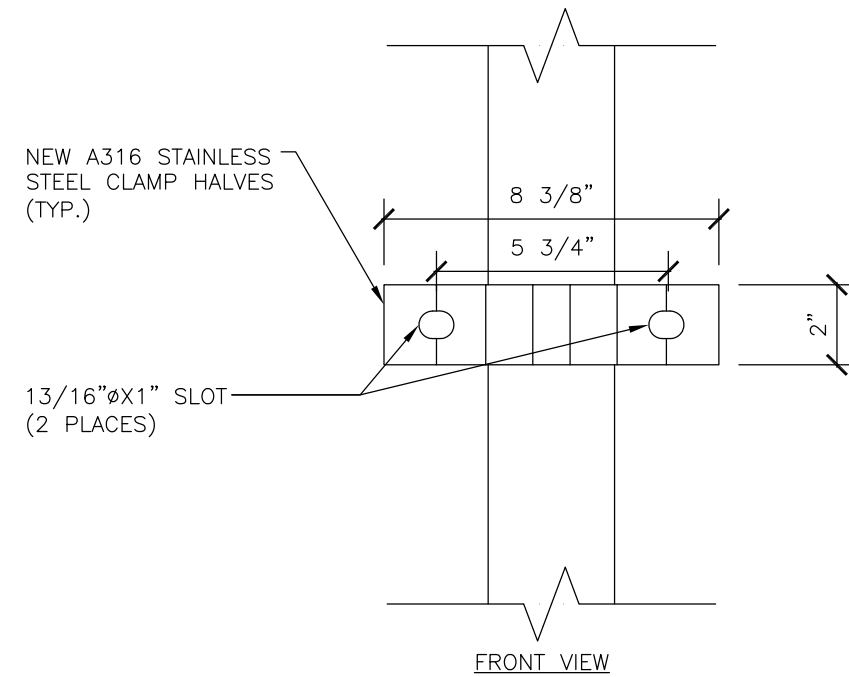
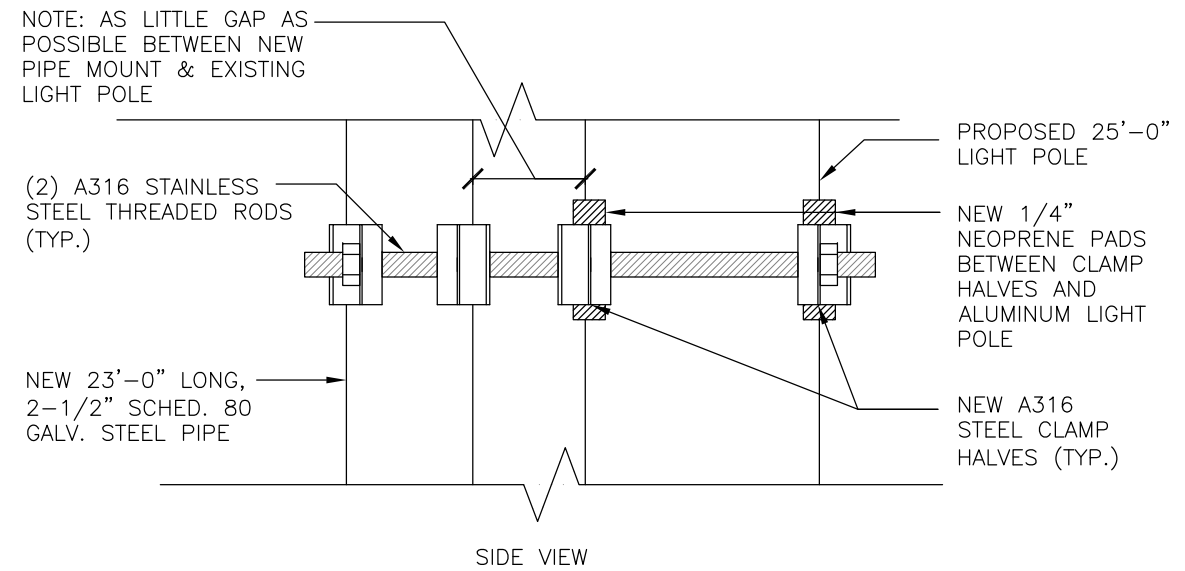




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① LIGHT POLE ELEVATION



② MOUNTING DETAIL

**at&t**  
 930 NATIONAL PKWY.  
 SCHAUMBURG, IL 60173  
 OFFICE: 847.592.3000

**SAC** WIRELESS  
 A NOKIA™ COMPANY  
 540 W. MADISON ST.  
 9TH FLOOR  
 CHICAGO, IL 60661  
 www.sacw.com  
 312.895.4977

**WESTCHESTER SERVICES LLC**  
 604 FOX GLEN  
 BARRINGTON, IL 60010  
 TELEPHONE: 847.277.0070  
 FAX: 847.277.0080  
 AE@WESTCHESTERSERVICES.COM

**JOHN M. BANKS ARCHITECT**  
 604 FOX GLEN  
 BARRINGTON, IL 60010  
 TELEPHONE: 847.277.0070  
 FAX: 847.277.0080  
 JBANKS@WESTCHESTERSERVICES.COM

PROJECT	PROPOSED SMALL CELL NODE
SITE NAME	CRAN_RCHI_CHUOI_015
USID	184220
PACE NUMBER	MRCHI025457
SITE ADDRESS	402 W. SPRINGFIELD AVENUE URBANA, IL 61801
SHEET NAME	
SHEET NUMBER	1 OF 1

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SITE PHOTO



# AT&T MOBILITY

**PROJECT :** LTE 1C&2C PICO CELL BUILD  
**SITE # :** CRAN\_RCHI\_CHUOI\_009  
**USID / NODE:** 184214  
**FA # :** 14805794  
**PTN # :** 3304A0AAPG / 3304A0AAPW  
**PACE # :** MRCHI025422 / MRCH025403  
**ENODE B:** ILL07042F\_R2  
**JURISDICTION :** CITY OF URBANA

**SITE NAME :** CRAN\_RCHI\_CHUOI\_009  
**ADDRESS :** 544 S GOODWIN AVE  
 URBANA, IL 61801

PROJECT INFORMATION

**SITE NAME:** CRAN\_RCHI\_CHUOI\_009  
**COUNTY:** CHAMPAIGN  
**ADDRESS:** 544 S GOODWIN AVE  
 URBANA, IL 61801  
**JURISDICTION:** CITY OF URBANA  
**USID:** 184214  
**FA NUMBER:** 14805794  
**PTN:** 3304A0AAPG / 3304A0AAPW  
**PACE:** MRCHI025422 / MRCH025403

**LATITUDE:** 40° 06' 31.67" (40.108764°)  
**LONGITUDE:** 88° 13' 26.65" (-88.223793°)  
**ELEVATION:** 721'

**LIGHT POLE/UTILITY POLE OWNER:** CITY OF URBANA

**APPLICANT:** AT&T MOBILITY  
 930 NATIONAL PARKWAY  
 SCHAUMBURG IL 60173

**AT&T PROJECT MANAGER/SITE ACQUISITION:** VANESSA ROSS  
 (217) 814-2314  
 VF2021@ATT.COM

**AT&T CONSTRUCTION MANAGER:** CHRISTIANA RACHAL  
 CR630A@ATT.COM

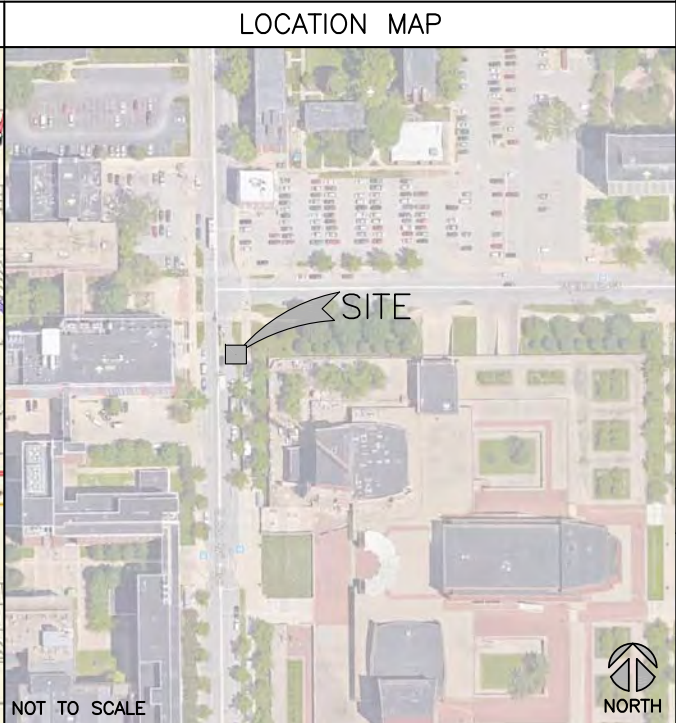
PROJECT CONSULTANTS

**PROJECT MANAGER:** SAC WIRELESS LLC  
 540 W. MADISON ST. (9TH FLOOR)  
 CHICAGO IL 60661  
 CONTACT: PRITI MORE  
 PHONE: (312) 789-4353  
 EMAIL: PRITI.MORE@SACW.COM

**ARCHITECT:** GPD GROUP, INC. - 184-007100  
 520 S. MAIN ST., SUITE 2531  
 AKRON, OH 44311  
 317-295-3180

**SAC C.M.:** MARK KLEPACKI  
 EMAIL: MARK.KLEPACKI@SACW.COM

**SAC P.M.:** JAMES HOM  
 EMAIL: JAMES.HOM@SACW.COM



DRAWING INDEX

T1	TITLE SHEET
A1	FIBER DELIVERY PLANS (REFERENCE ONLY)
A2	OVERALL SITE PLAN
A3	ENLARGED PLAN
A4	EXISTING LIGHT POLE ELEVATION
A5	PROPOSED LIGHT POLE ELEVATIONS
A6	EQUIPMENT SHROUD DETAILS (REFERENCE ONLY)
A7	EQUIPMENT DETAILS (REFERENCE ONLY)
A8	MOUNTING DETAILS
S1	POLE FOUNDATION DETAILS
E1	ELECTRICAL ONE-LINE DIAGRAM
E2	PANEL SCHEDULE & ELECTRICAL DETAILS
E3	GROUNDING DETAILS
RF1	RF PLUMBING DIAGRAM (REFERENCE ONLY)
REF	POLE MANUFACTURER DESIGN (BY OTHERS)

SCOPE OF WORK

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

- REMOVE EXISTING LIGHT POLE AND REPLACE WITH NEW 30' HAPCO DAVIT ARM (RTA30D8B4D1A) LIGHT POLE (BLACK POWDER COAT 5 YR)
- INSTALL NEW ELECTRIC SERVICE RUN FROM EXISTING SOURCE TO NEW LIGHT POLE. METER SUPPLIED & INSTALLED BY CONTRACTOR.
- INSTALL NEW FIBER SERVICE RUN FROM EXISTING SOURCE TO NEW LIGHT POLE LOCATION AS SHOWN.
- INSTALL NEW POWER & FIBER EQUIPMENT PER PLAN
- INSTALL (1) NEW OMNI ANTENNA
- INSTALL (2) PCS 2203 RRUS & (1) LAA 2205 RRU IN CHARLES DENSIFICATION SHROUD
- INSTALL CABLING AS REQUIRED
- GROUND AS REQUIRED
- LIGHT POLE LUMINARY TO BE SUPPLIED & INSTALLED BY CONTRACTOR. LUMINARY MUST BE APPROVED BY CITY OF URBANA PRIOR TO ORDER.
- STREET LIGHTING HANDHOLE (IF REQUIRED) SUPPLIED & INSTALLED BY CONTRACTOR
- POTHOLES SHALL BE REQUIRED FOR ANY PROPOSED UTILITY CROSSING
- HYDROVAC SHALL BE USED FOR ALL TRENCHING & POTHOLES ACTIVITIES
- CONTRACTOR SHALL MAINTAIN INTEGRITY OF EXISTING POLE DURING REMOVAL & COORDINATE RETURN OF REMOVED POLE TO THE CITY OF URBANA

UTILITY DELIVERY METHOD TO PROPOSED POLE

- FIBER - UNDERGROUND
- POWER - UNDERGROUND



REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
A	10/26/18	ISSUED FOR REVIEW	SEK
B	03/12/19	REVISED PER COMM.	MRL
C	05/02/19	ADDED FOUNDATION	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF ILLINOIS.

CIVIL SEAL

LTE 1C&2C PICO CELL BUILD  
 14805794  
 CRAN\_RCHI\_CHUOI\_009  
 184214  
 544 S GOODWIN AVE  
 URBANA, IL 61801

SHEET TITLE  
 TITLE SHEET

SHEET NUMBER  
**T1**

CODE COMPLIANCE

- 2015 INTERNATIONAL BUILDING CODE W/CITY AMMENDMENTS
- 2014 NATIONAL ELECTRIC CODE W/CITY AMMENDMENTS

SPECIAL NOTES

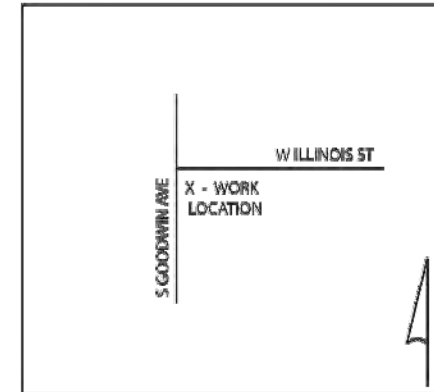
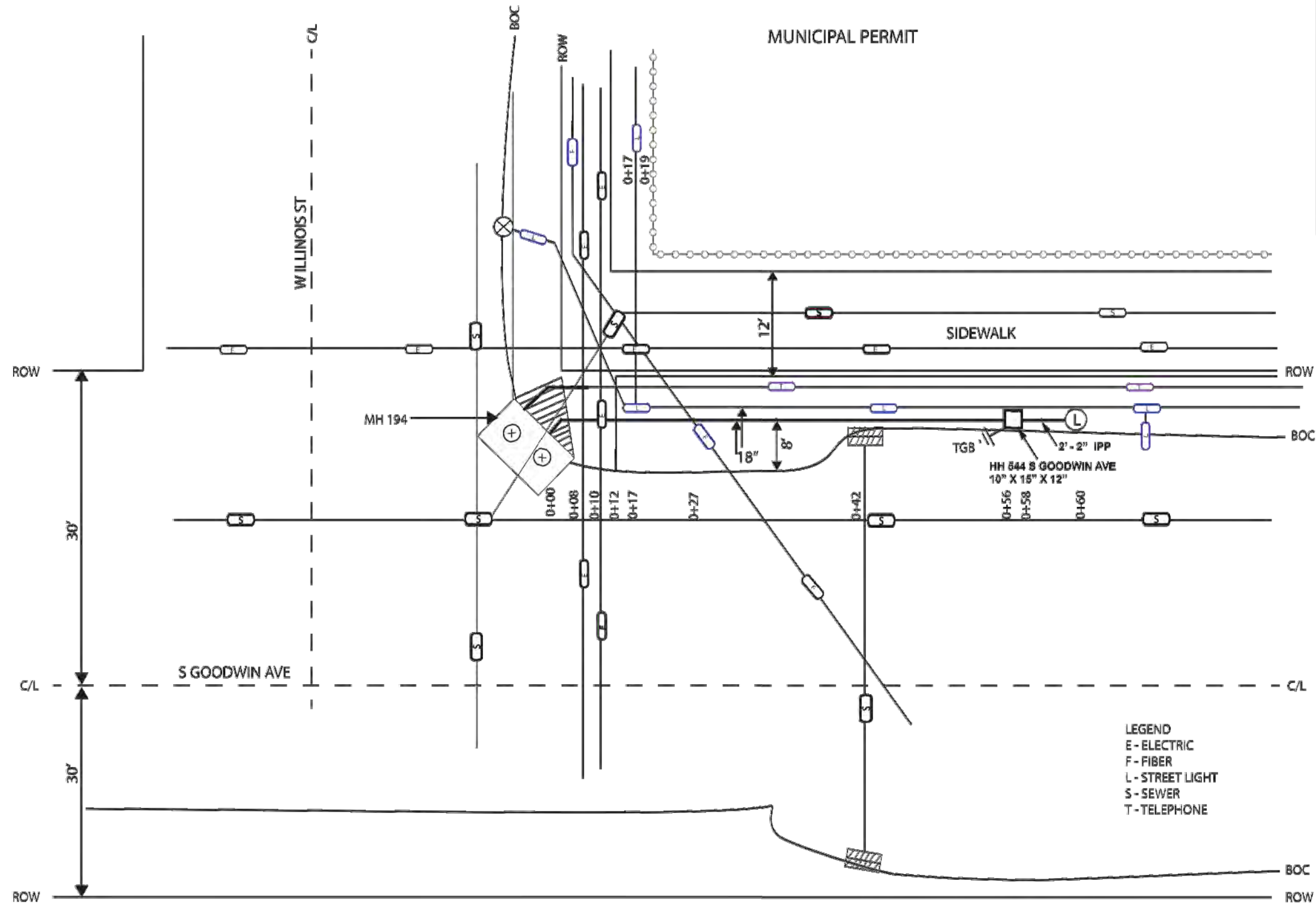
- ALL WORK SHALL BE INSTALLED IN CONFORMANCE WITH CURRENT AT&T CONSTRUCTION INSTALLATION GUIDE.
- EXISTING CONDITIONS WILL BE CHANGED & VERIFIED IN FIELD. IF SIGNIFICANT DEVIATIONS OR DETERIORATION ARE ENCOUNTERED AT THE TIME OF CONSTRUCTION, A REPAIR PERMIT WILL BE OBTAINED & CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY.
- THESE DRAWINGS ARE FULL SIZE & SCALEABLE ON 11"x17" SHEET SIZE.
- STATEMENT THAT COMPLIANCE WITH THE ENERGY CODE IS NOT REQUIRED. -SCOPE OF WORK DOES NOT INVOLVE MODIFICATIONS TO EXTERIOR ENVELOPE OF BUILDING, HVAC SYSTEMS OR ELECTRICAL LIGHTING.

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ARCHITECT OR ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.



THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.



201 S NEIL St, FLR 1  
 Champaign, IL 61820

Job# A01BZJ2  
 Engineer: Michael Murphy  
 Tel No: 217-398-7979  
 Quarter: 18 NE  
 Municipality: Urbana  
 Township: Cunningham  
 County: Champaign  
 Wire Center: Cunningham  
 Sheet 1 of 1



REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
A	10/26/18	ISSUED FOR REVIEW	SEK
B	03/12/19	REVISED PER COMM.	MRL
C	05/02/19	ADDED FOUNDATION	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF ILLINOIS.

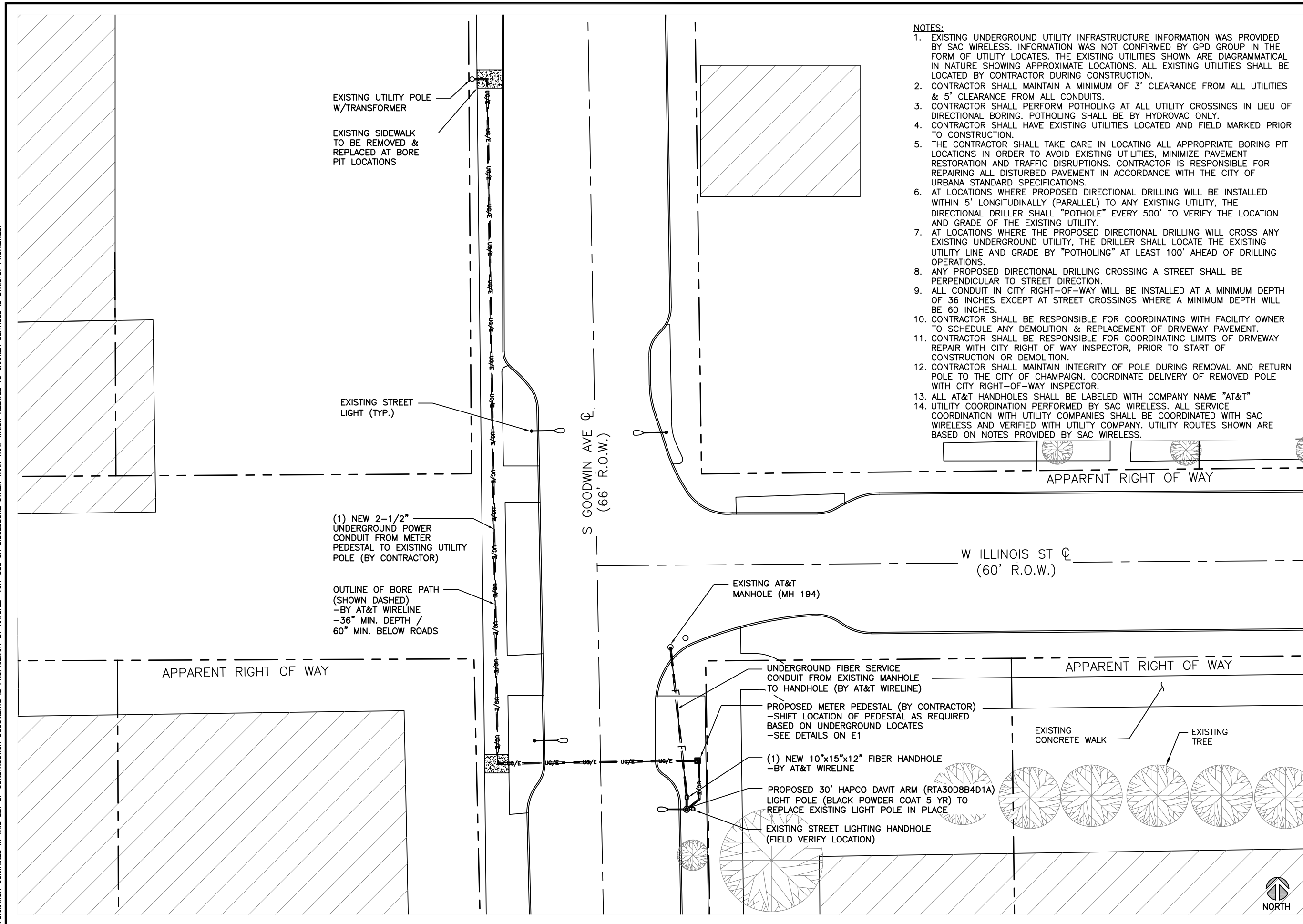
REFERENCE ONLY

LTE 1C&2C PICO CELL BUILD  
 14805794  
 CRAN\_RCHI\_CHUOI\_009  
 184214  
 544 S GOODWIN AVE  
 URBANA, IL 61801

SHEET TITLE  
**FIBER DELIVERY PLANS**

SHEET NUMBER  
**A1**

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.



- NOTES:**
- EXISTING UNDERGROUND UTILITY INFRASTRUCTURE INFORMATION WAS PROVIDED BY SAC WIRELESS. INFORMATION WAS NOT CONFIRMED BY GPD GROUP IN THE FORM OF UTILITY LOCATES. THE EXISTING UTILITIES SHOWN ARE DIAGRAMMATICAL IN NATURE SHOWING APPROXIMATE LOCATIONS. ALL EXISTING UTILITIES SHALL BE LOCATED BY CONTRACTOR DURING CONSTRUCTION.
  - CONTRACTOR SHALL MAINTAIN A MINIMUM OF 3' CLEARANCE FROM ALL UTILITIES & 5' CLEARANCE FROM ALL CONDUITS.
  - CONTRACTOR SHALL PERFORM POTHOLING AT ALL UTILITY CROSSINGS IN LIEU OF DIRECTIONAL BORING. POTHOLING SHALL BE BY HYDROVAC ONLY.
  - CONTRACTOR SHALL HAVE EXISTING UTILITIES LOCATED AND FIELD MARKED PRIOR TO CONSTRUCTION.
  - THE CONTRACTOR SHALL TAKE CARE IN LOCATING ALL APPROPRIATE BORING PIT LOCATIONS IN ORDER TO AVOID EXISTING UTILITIES, MINIMIZE PAVEMENT RESTORATION AND TRAFFIC DISRUPTIONS. CONTRACTOR IS RESPONSIBLE FOR REPAIRING ALL DISTURBED PAVEMENT IN ACCORDANCE WITH THE CITY OF URBANA STANDARD SPECIFICATIONS.
  - AT LOCATIONS WHERE PROPOSED DIRECTIONAL DRILLING WILL BE INSTALLED WITHIN 5' LONGITUDINALLY (PARALLEL) TO ANY EXISTING UTILITY, THE DIRECTIONAL DRILLER SHALL "POTHOLE" EVERY 500' TO VERIFY THE LOCATION AND GRADE OF THE EXISTING UTILITY.
  - AT LOCATIONS WHERE THE PROPOSED DIRECTIONAL DRILLING WILL CROSS ANY EXISTING UNDERGROUND UTILITY, THE DRILLER SHALL LOCATE THE EXISTING UTILITY LINE AND GRADE BY "POTHOLING" AT LEAST 100' AHEAD OF DRILLING OPERATIONS.
  - ANY PROPOSED DIRECTIONAL DRILLING CROSSING A STREET SHALL BE PERPENDICULAR TO STREET DIRECTION.
  - ALL CONDUIT IN CITY RIGHT-OF-WAY WILL BE INSTALLED AT A MINIMUM DEPTH OF 36 INCHES EXCEPT AT STREET CROSSINGS WHERE A MINIMUM DEPTH WILL BE 60 INCHES.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH FACILITY OWNER TO SCHEDULE ANY DEMOLITION & REPLACEMENT OF DRIVEWAY PAVEMENT.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING LIMITS OF DRIVEWAY REPAIR WITH CITY RIGHT OF WAY INSPECTOR, PRIOR TO START OF CONSTRUCTION OR DEMOLITION.
  - CONTRACTOR SHALL MAINTAIN INTEGRITY OF POLE DURING REMOVAL AND RETURN POLE TO THE CITY OF CHAMPAIGN. COORDINATE DELIVERY OF REMOVED POLE WITH CITY RIGHT-OF-WAY INSPECTOR.
  - ALL AT&T HANDHOLES SHALL BE LABELED WITH COMPANY NAME "AT&T"
  - UTILITY COORDINATION PERFORMED BY SAC WIRELESS. ALL SERVICE COORDINATION WITH UTILITY COMPANIES SHALL BE COORDINATED WITH SAC WIRELESS AND VERIFIED WITH UTILITY COMPANY. UTILITY ROUTES SHOWN ARE BASED ON NOTES PROVIDED BY SAC WIRELESS.



REVISIONS			
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B	03/12/19	REVISED PER COMM.	MRL
C	05/02/19	ADDED FOUNDATION	MRL

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CIVIL SEAL

LTE 1C&2C PICO CELL BUILD  
14805794  
CRAN\_RCHI\_CHUOI\_009  
184214  
544 S GOODWIN AVE  
URBANA, IL 61801

SHEET TITLE  
**OVERALL SITE PLAN**

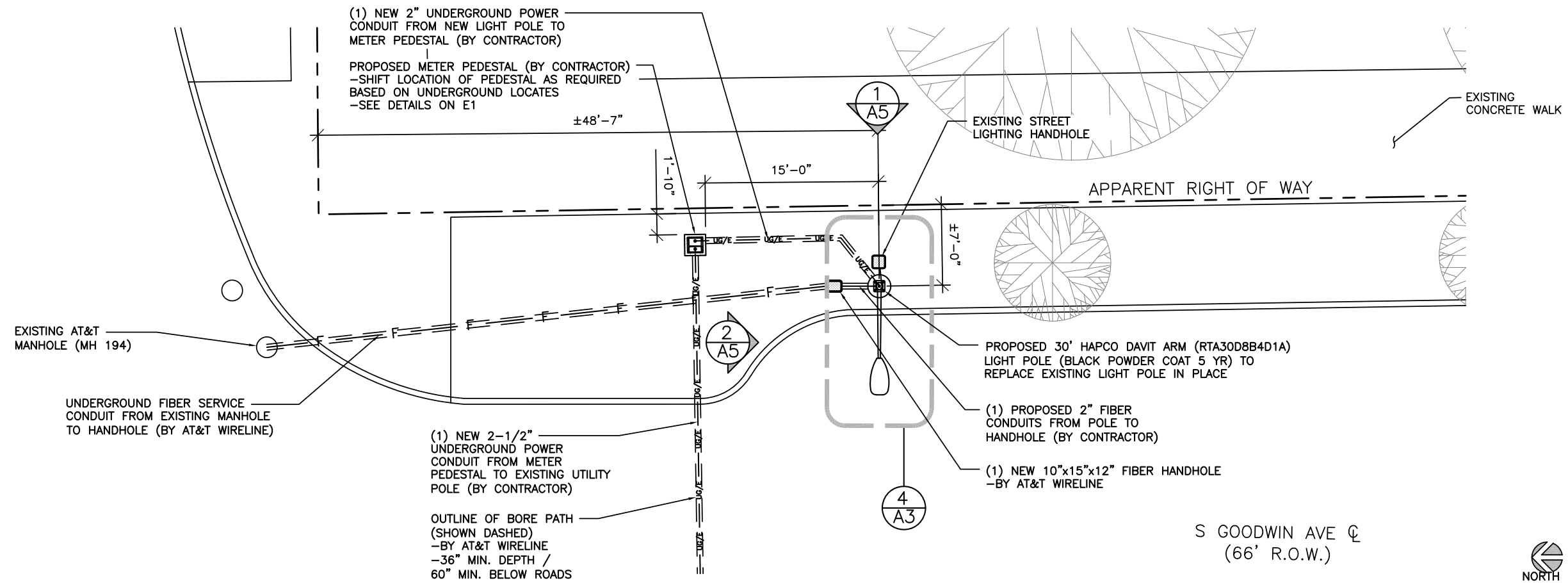
SHEET NUMBER  
**A2**

OVERALL SITE PLAN

SCALE: 1" = 20'-0" (24x36)  
(OR) 1/2" = 20'-0" (11x17)



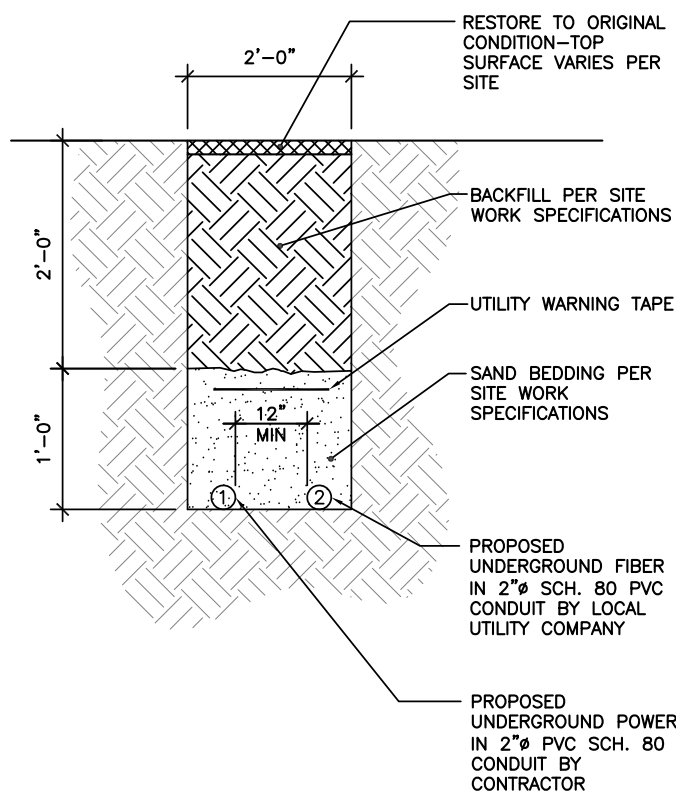
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ENLARGED SITE PLAN

0 3' 6" 12" SCALE: 3/32" = 1'-0" (24x36)  
 (OR) 3/64" = 1'-0" (11x17)

1

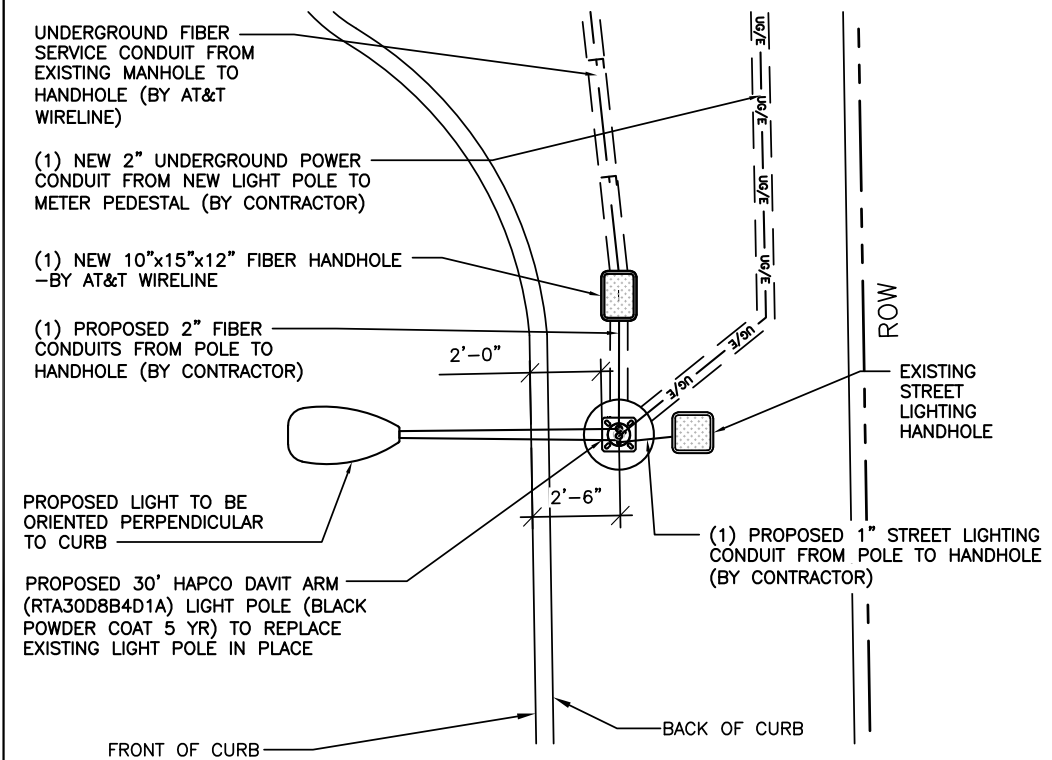


TYPICAL TRENCH DETAIL

SCALE N.T.S.

2

DETAIL NOT USED



LIGHT POLE PLAN

SCALE N.T.S.

4



REVISIONS			
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CIVIL SEAL

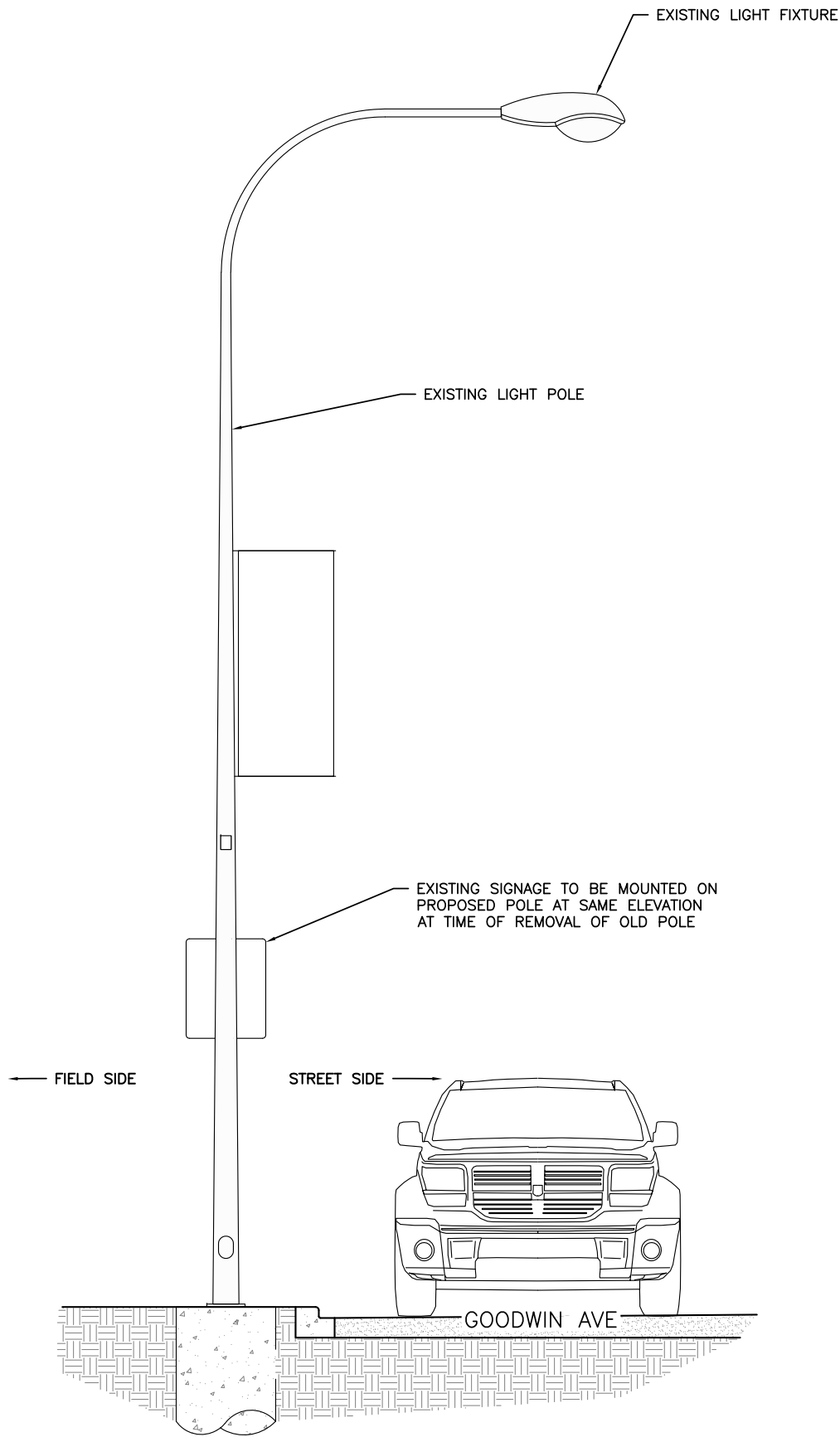
LTE 1C&2C PICO CELL BUILD  
 14805794  
 CRAN\_RCHI\_CHU01\_009  
 184214  
 544 S GOODWIN AVE  
 URBANA, IL 61801

SHEET TITLE  
**ENLARGED PLAN**

SHEET NUMBER  
**A3**

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- 
 CL LIGHTING FIXTURE MOUNT  
 ELEV. ±30'-0" AGL
  
- 
 TOP OF BANNER MOUNT  
 ELEV. ±19'-0" AGL
  
- 
 BOTTOM OF BANNER MOUNT  
 ELEV. ±13'-4" AGL
  
- 
 CL POWER OUTLET  
 ELEV. ±11'-8" AGL
  
- 
 BOTTOM OF STREET SIGN  
 ELEV. ±6'-9" AGL
  
- 
 GRADE (REF)  
 ELEV.: 0'-0" AGL



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 URBANA, IL 61801

SHEET TITLE  
**EXISTING LIGHT POLE ELEVATION**

SHEET NUMBER  
**A4**

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TOP OF PROPOSED LIGHT POLE  
ELEV. 30'-0" AGL

TOP OF PROPOSED ANTENNA  
ELEV. 28'-1" AGL

☉ OF PROPOSED ANTENNA  
ELEV. 27'-0" AGL

TOP OF EQUIPMENT SHROUD  
ELEV. 22'-5" AGL

☉ OF PROPOSED HANDHOLE  
ELEV. 20'-0" AGL

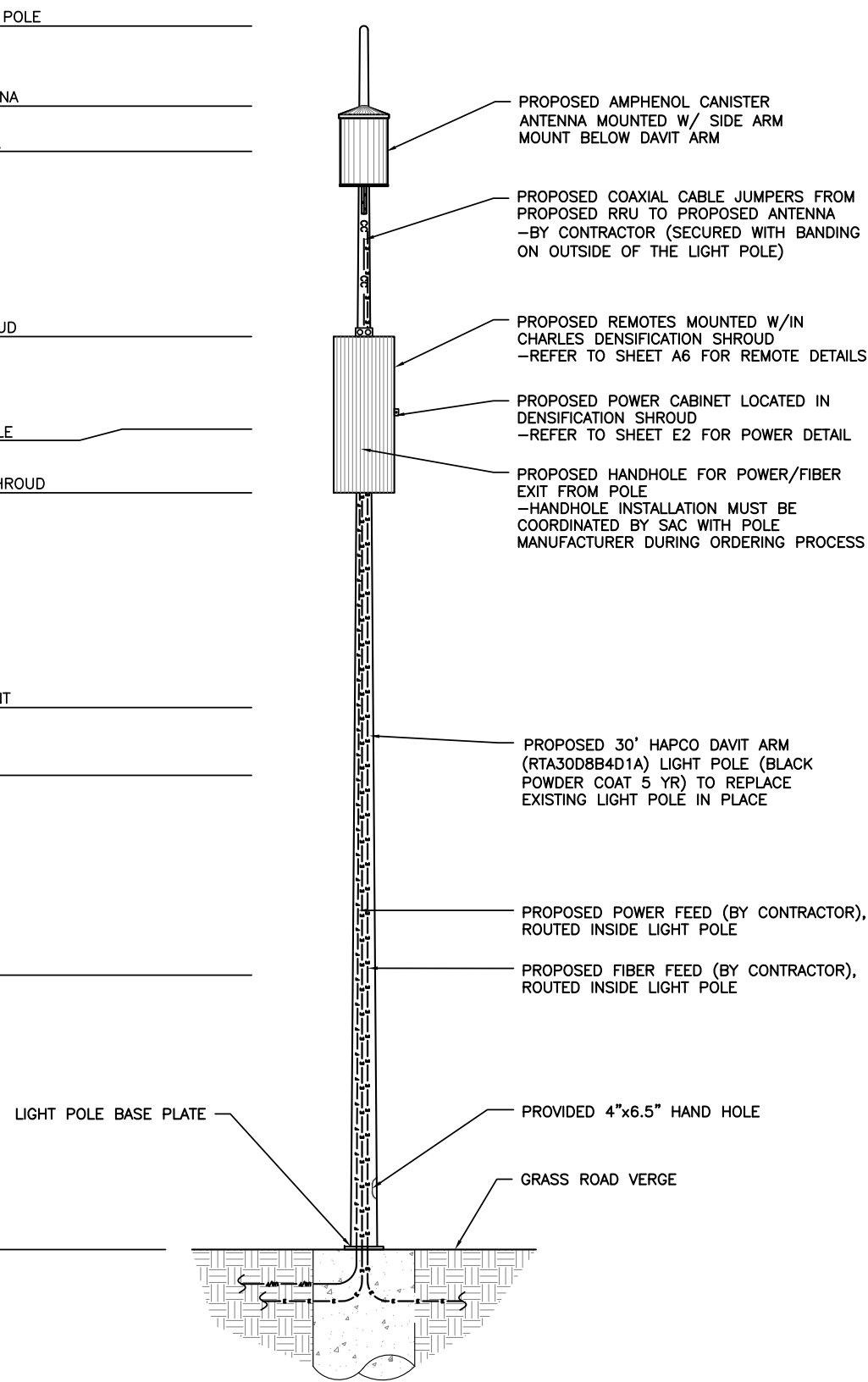
BOTTOM OF EQUIPMENT SHROUD  
ELEV. 18'-7" AGL

BOTTOM OF BANNER MOUNT  
ELEV. ±13'-4" AGL

☉ POWER OUTLET  
ELEV. ±11'-8" AGL

BOTTOM OF STREET SIGN  
ELEV. ±6'-9" AGL

GRADE (REF)  
ELEV.: 0'-0" AGL



TOP OF PROPOSED LIGHT POLE  
ELEV. 30'-0" AGL

TOP OF PROPOSED ANTENNA  
ELEV. 28'-1" AGL

☉ OF PROPOSED ANTENNA  
ELEV. 27'-0" AGL

TOP OF EQUIPMENT SHROUD  
ELEV. 22'-5" AGL

☉ OF PROPOSED HANDHOLE  
ELEV. 20'-0" AGL

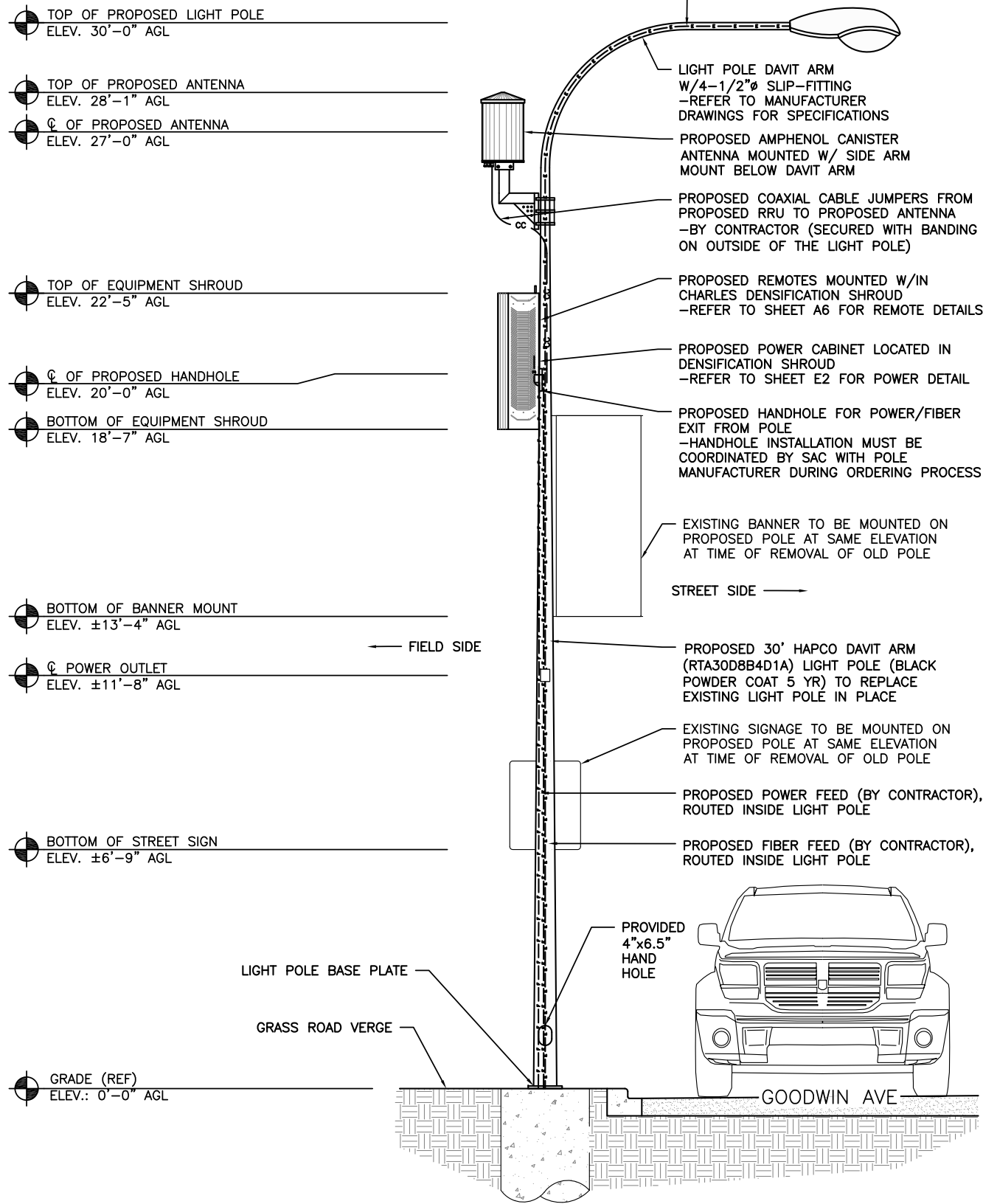
BOTTOM OF EQUIPMENT SHROUD  
ELEV. 18'-7" AGL

BOTTOM OF BANNER MOUNT  
ELEV. ±13'-4" AGL

☉ POWER OUTLET  
ELEV. ±11'-8" AGL

BOTTOM OF STREET SIGN  
ELEV. ±6'-9" AGL

GRADE (REF)  
ELEV.: 0'-0" AGL



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SHEET TITLE  
**PROPOSED LIGHT POLE ELEVATIONS**

SHEET NUMBER  
**A5**

PROPOSED LIGHT POLE FRONT ELEVATION (FIELD SIDE)

0 1' 2' 4'  
SCALE: 1/4" = 1'-0" (24x36)  
(OR) 1/8" = 1'-0" (11x17)

1

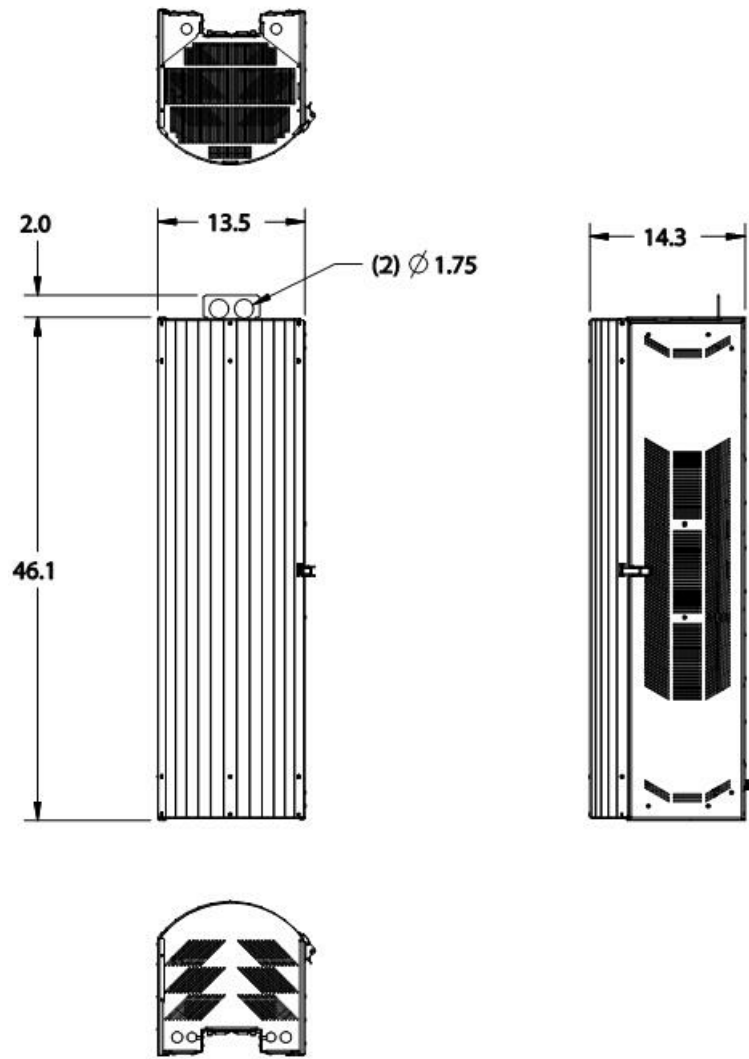
PROPOSED LIGHT POLE SIDE ELEVATION

0 1.5' 3' 5'  
SCALE: 3/16" = 1'-0" (24x36)  
(OR) 3/32" = 1'-0" (11x17)

2



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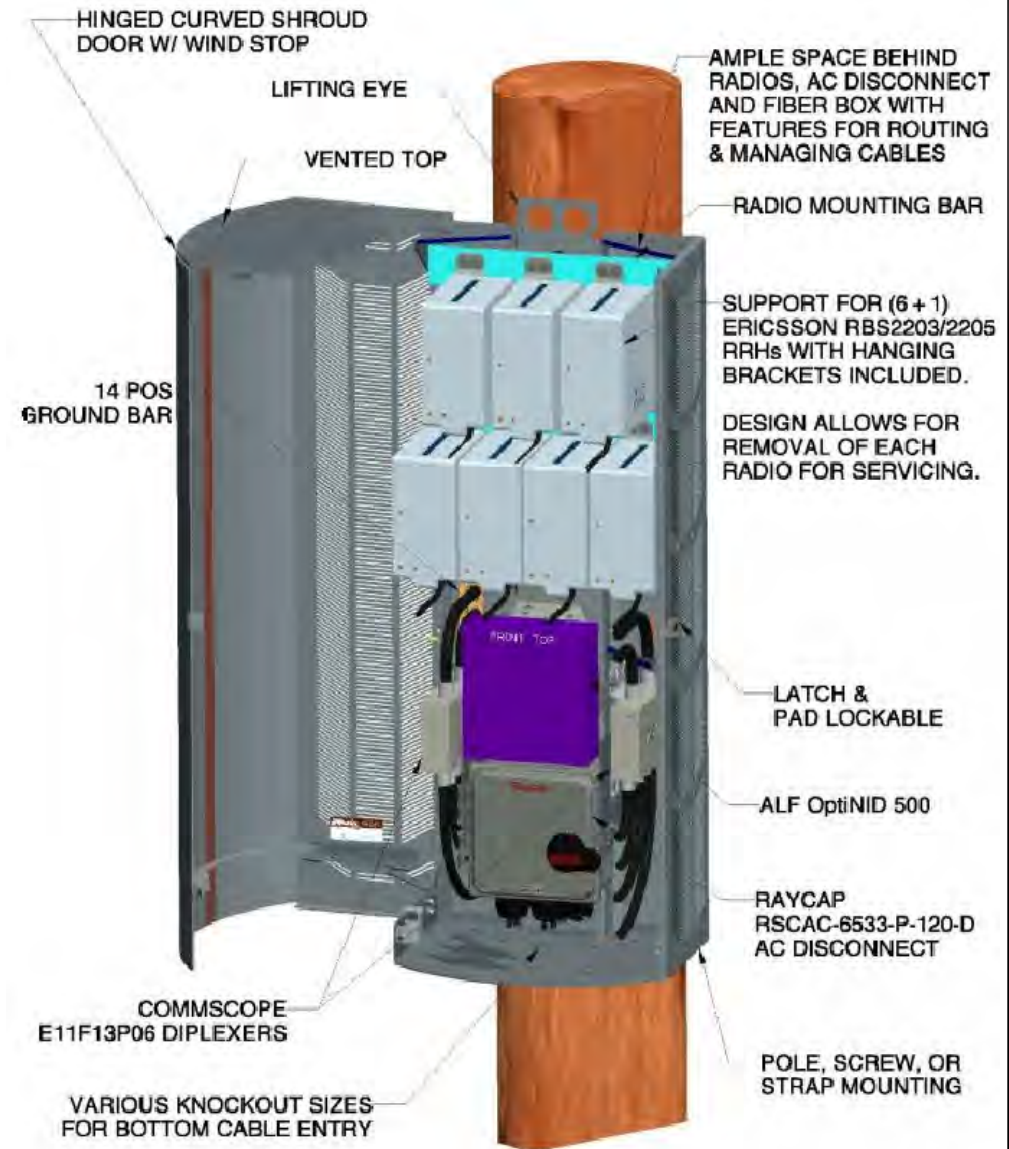
46.1" TALL EQUIPMENT SHROUD DETAIL

1

DETAIL NOT USED

2

EQUIPMENT SHROUD LAYOUT



SCALE: NTS

3



REVISIONS			
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URBANA, IL 61801

SHEET TITLE  
**EQUIPMENT SHROUD DETAILS**

SHEET NUMBER  
**A6**

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MANUFACTURER: ERICSSON  
 MODEL: RADIO 2205

**MECHANICAL SPECIFICATIONS:**  
 HEIGHT: 17.12 IN (435mm)  
 WIDTH: 7.87 IN (200mm)  
 DEPTH: 4.13 IN (105mm)  
 WEIGHT: 21 LBS (9.5kg)

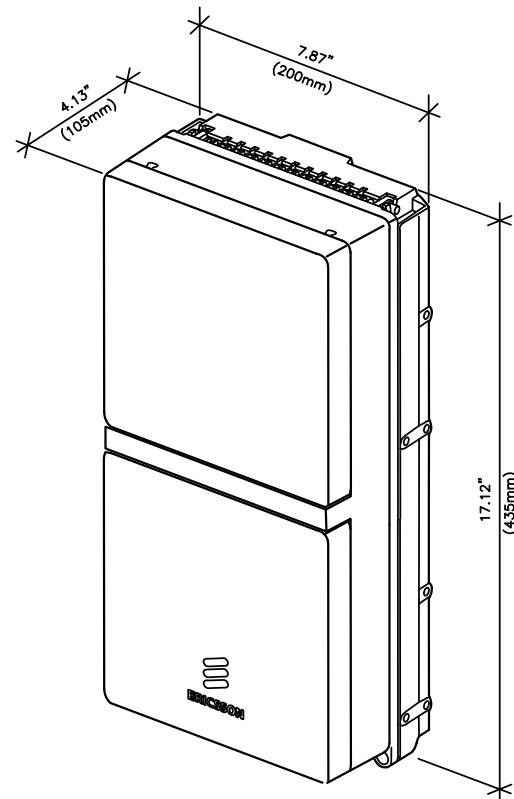
**INTERFACE SPECIFICATIONS:**  
 ANTENNA PORTS: TBD  
 CPRI: TBD

OPTICAL INDICATORS: TBD  
 EXTERNAL ALARMS: TBD  
 FIELD GROUND: TBD

**ELECTRICAL SPECIFICATIONS:**  
 POWER SUPPLY: TBD

**ENVIRONMENT SPECIFICATIONS:**  
 NORMAL OPERATING TEMP.: TBD

RELATIVE HUMIDITY: TBD  
 ENVIRONMENT: TBD



MANUFACTURER: ERICSSON  
 MODEL: RADIO 2203

**MECHANICAL SPECIFICATIONS:**  
 HEIGHT: 17.12 IN (435mm)  
 WIDTH: 7.87 IN (200mm)  
 DEPTH: 4.13 IN (105mm)  
 WEIGHT: 21 LBS (9.5kg)

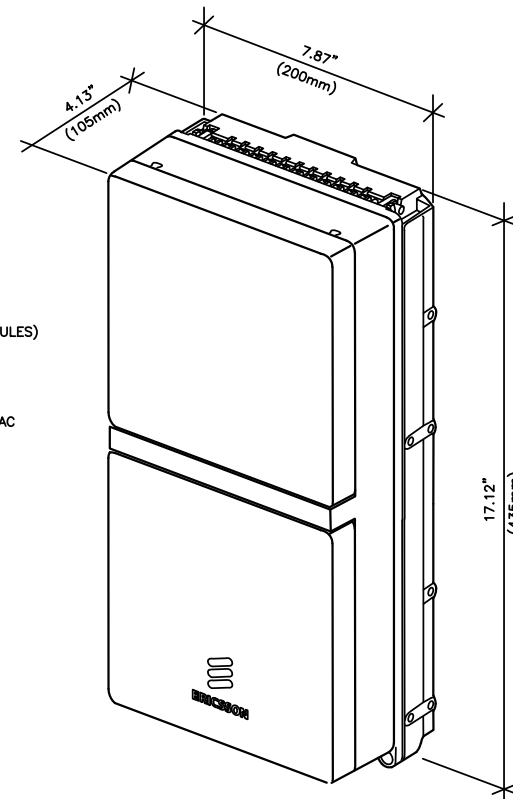
**INTERFACE SPECIFICATIONS:**  
 ANTENNA PORTS: 2x4.3-10 (f)  
 CPRI: 2x2.5/5/10 Gbps (EXCHANGEABLE SFP MODULES)

OPTICAL INDICATORS: 6  
 EXTERNAL ALARMS: 2  
 FIELD GROUND: 1

**ELECTRICAL SPECIFICATIONS:**  
 POWER SUPPLY: -48 VDC OR 100-250 VAC

**ENVIRONMENT SPECIFICATIONS:**  
 NORMAL OPERATING TEMP.: -40°C TO +55°C (COLD START AT -40°C)

RELATIVE HUMIDITY: 5-100%  
 ENVIRONMENT: OUTDOOR CLASS W/IP65



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RRU 2205 DETAIL

SCALE  
N.T.S. 1

RRU 2203 DETAIL

SCALE  
N.T.S. 2

DETAIL NOT USED

SCALE  
N.T.S. 3

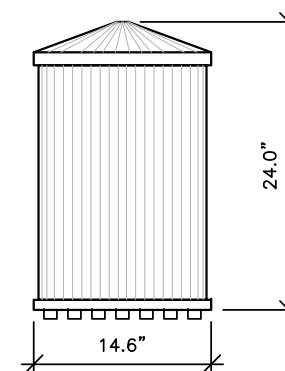
ANTENNA DETAIL

SCALE: NTS

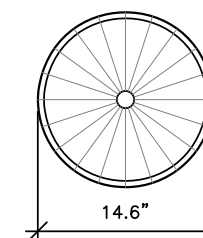
4



IMAGE



SIDE VIEW



TOP VIEW

AMPENOL MULTI BAND CANISTER ANTENNA  
 MODEL: 2C2U3MT360X06Fxyso  
 COLOR: GREY

MECHANICAL CHARACTERISTICS

- ANTENNA DIMENSIONS (HEIGHT X DIAMETER) : 24.0"x14.6"
- WEIGHT W/OUT MOUNTING BRACKET KIT: TBD LBS
- SURVIVAL WIND SPEED: 150 MPH
- WIND AREA: 2.4 FT<sup>2</sup>
- WIND LOAD (100 MPH): 43 LBF

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REFERENCE ONLY

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 14805794  
 CRAN\_RCHI\_CHUOI\_009  
 184214  
 544 S GOODWIN AVE  
 URBANA, IL 61801

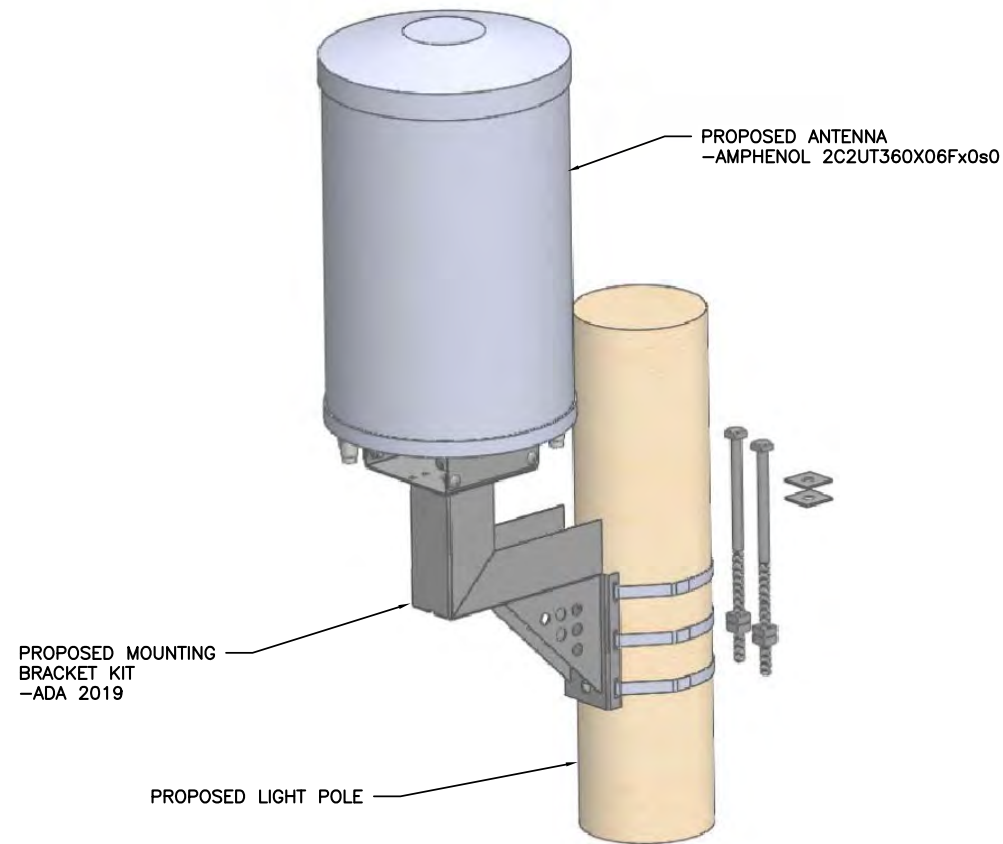
SHEET TITLE

EQUIPMENT DETAILS

SHEET NUMBER

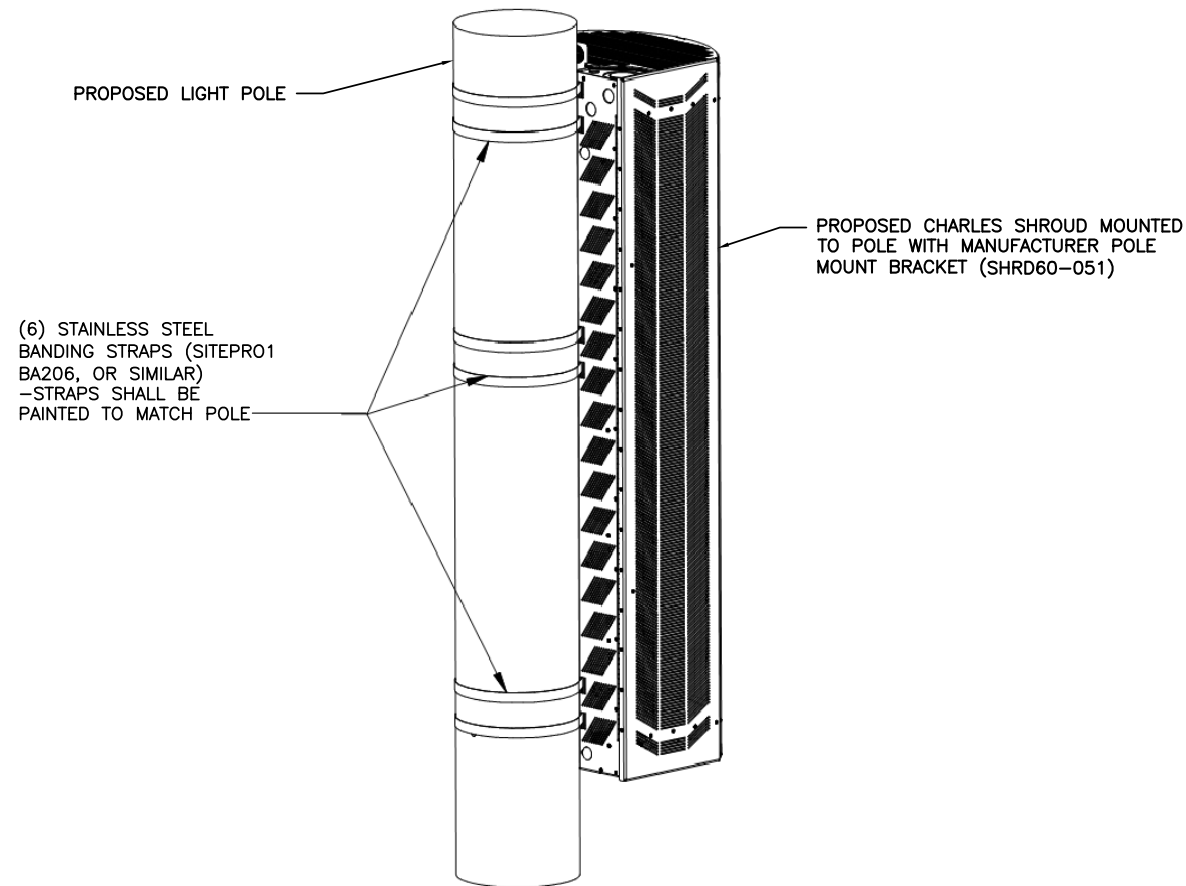
A7

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ANTENNA MOUNTING DETAIL

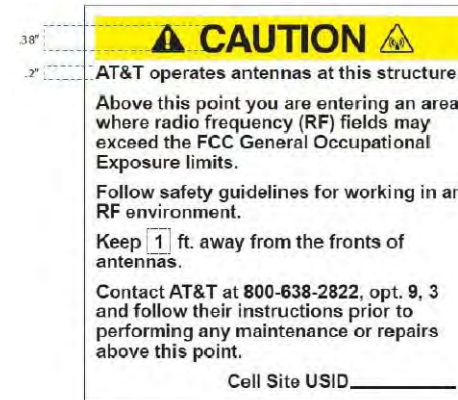
SCALE  
N.T.S. 1



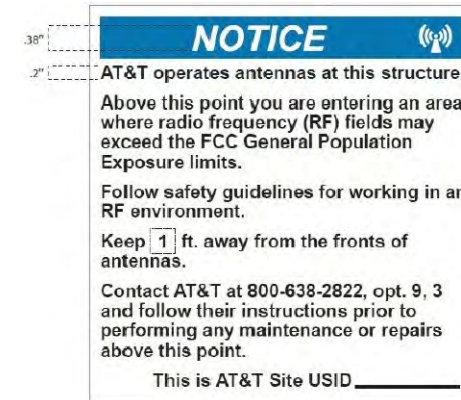
SHROUD MOUNTING DETAIL

SCALE  
N.T.S. 2

EXAMPLE CRAN RF CAUTION SIGN



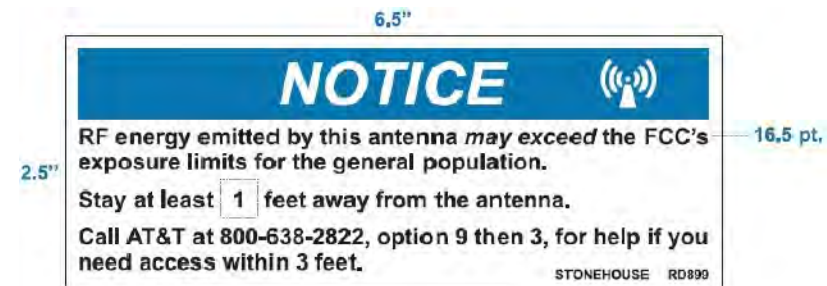
EXAMPLE CRAN RF NOTICE SIGN



EXAMPLE CRAN POLE POWER DISCONNECT SIGN



EXAMPLE STONEHOUSE RD899 RF NOTICE SIGN



CRAN Pole Power Disconnect, RF Notice, and Caution signs shall be ordered through Stonehouse Signs. Three versions are available for each of the signs shown in Figures 16, 17, and 18: .055 Polyethylene - Reflective, .025 Aluminum - Reflective, and Peel Back Label - Reflective. All versions are 6"x6" with font designed to be visible from 2-3 feet away when approached from below to provide warning about ascending into the high RF exposure areas. The RF Caution sign shown in Figure 19 is designed to be visible from 3 feet away and is available in the reflective peel back label version only. It is designed to fit on most of the CRAN/Small Cell antenna types currently deployed. It may also be placed on antenna shrouds as shown in Figures 11 and 12.

SIGNAGE NOTE:  
SIGNAGE SHALL BE INSTALLED PER AT&T DIRECTION

AT&T SIGNAGE DETAIL

SCALE: NTS

3



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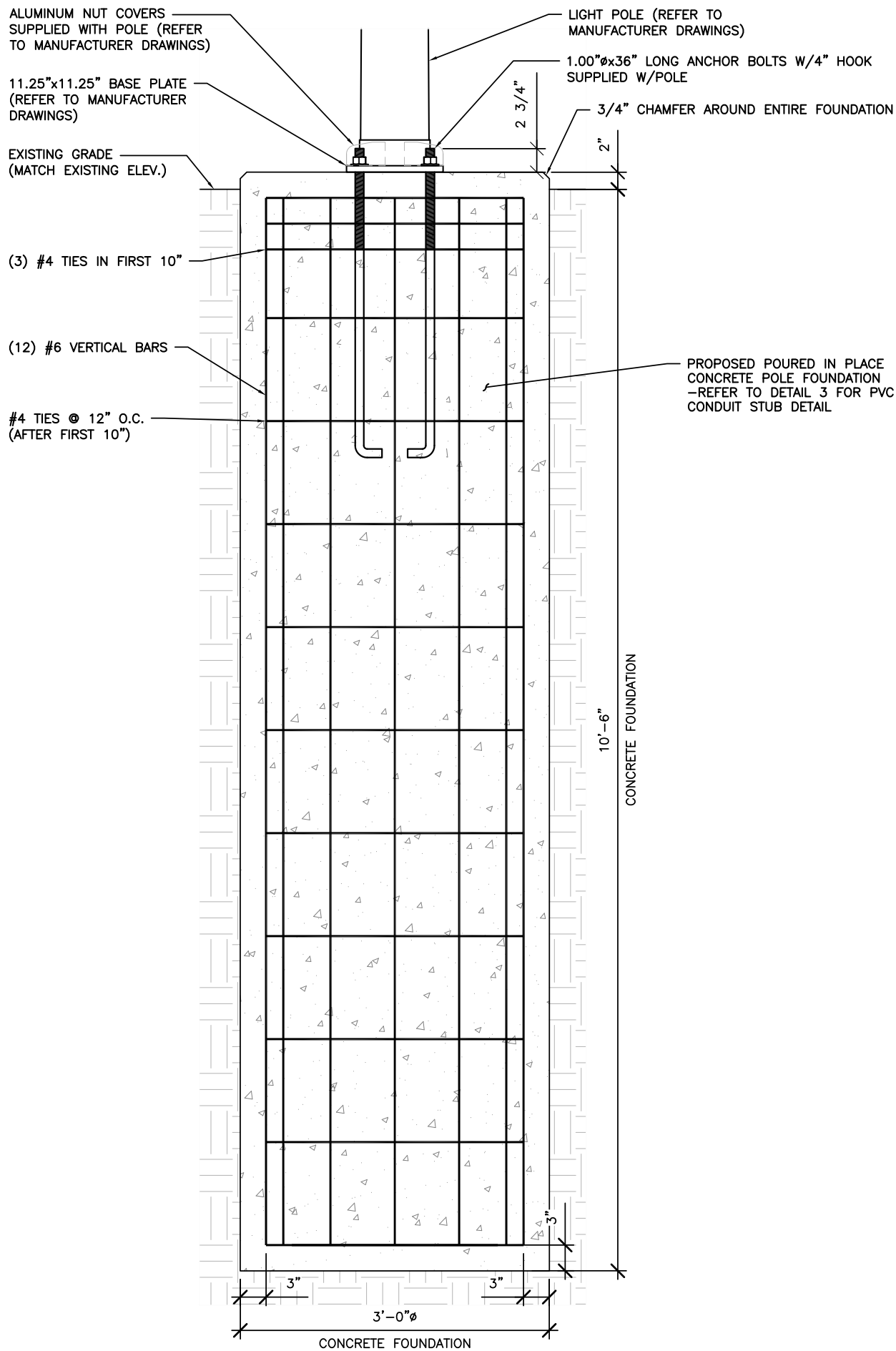
REFERENCE ONLY

LTE 1C&2C PICO CELL BUILD 14805794  
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SHEET TITLE  
MOUNTING DETAILS

SHEET NUMBER  
**A8**

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**STRUCTURAL NOTES:**

1. STRUCTURAL CONCRETE SHALL MEET THE FOLLOWING SPECIFICATIONS:

SLUMP 4" (±1")  
 AIR ENTRAINMENT: 6% (±1%)  
 MIN. COMPRESSIVE STRENGTH (F'c): 4,500 PSI @ 28 DAYS  
 CONCRETE COVER: 3" ALL SIDES

CONCRETE SHALL BE TESTED BY A REPUTABLE INDEPENDENT THIRD PARTY TESTING AGENCY IN ACCORDANCE WITH LATEST WISCONSIN ACCEPTED EDITION OF ACI-318. FIVE (5) CONCRETE CYLINDERS SHALL BE CAST IN ACCORDANCE WITH LATEST WISCONSIN ACCEPTED EDITION OF ACI-318 AND BE LABORATORY CURED. THE AVERAGE OF THREE (3) CONCRETE CYLINDERS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (F'c) OF 4,500 PSI AT 28 DAYS. THE TESTING RESULTS SHALL BE PROVIDED TO THE CONSTRUCTION MANAGER AND AT&T REPRESENTATIVE.

ALL CONCRETE CONSTRUCTION SHALL CONFORM TO ACI\*96, "STANDARD SPECIFICATION FOR STRUCTURAL CONCRETE" AND ACI 305, 306 AND 307 UNLESS NOTED OTHERWISE.

ALL DETAILING, FABRICATION AND PLACING OF CONCRETE SHALL CONFORM TO ACI 318-11.

2. STRUCTURAL STEEL SHALL MEET THE FOLLOWING SPECIFICATIONS:

MATERIALS: REINFORCING ASTM 615, GRADE 60  
 ANCHOR BOLTS ASTM F1554, GRADE 55

REINFORCING COVER: TOP 2"  
 BOTTOM 3"

3. DESIGN PARAMETERS:

STRUCTURAL ANALYSIS OF THE POLE AND FOUNDATION WAS COMPLETED BY OTHERS. COORDINATE WITH SAC WIRELESS FOR A COPY OF POLE STRUCTURAL ANALYSIS.

DESIGN CODES: 2015 INTERNATIONAL BUILDING BUILDING CODE  
 TIA-222-G  
 ASCE 7-05  
 CHAMPAIGN COUNTY, IL

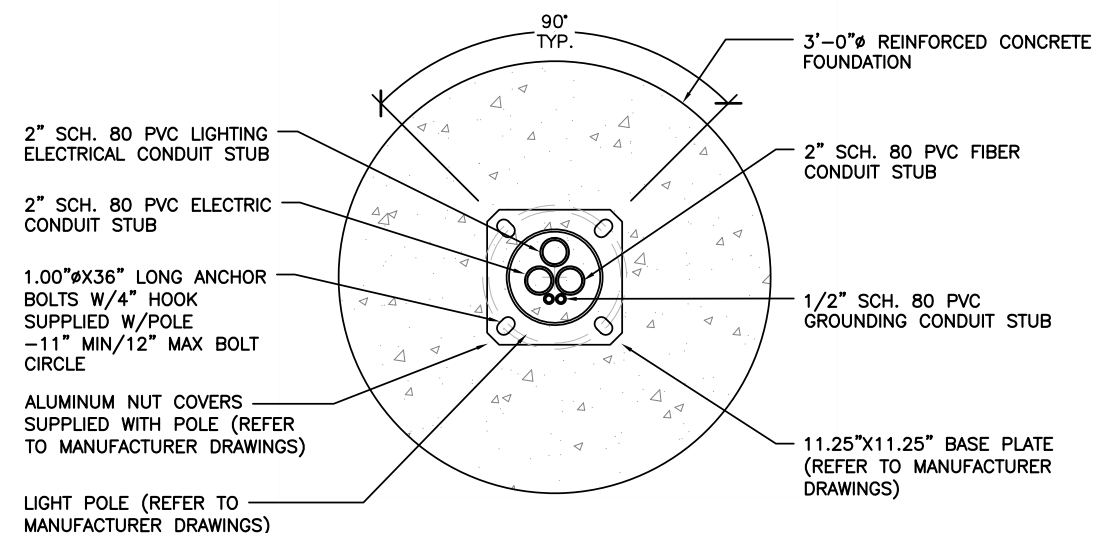
POLE LOCATION:  
 BASIC WIND SPEED: 130 MPH  
 GUST FACTOR: 1.14  
 STRUCTURE CLASS: CLASS II  
 EXPOSURE CLASS: B  
 TOPOGRAPHIC CATEGORY: 1

PRESUMPTIVE SOIL PARAMETERS: FOUNDATION IS BASED ON AN ALLOWABLE LATERAL BEARING PRESSURE OF AT LEAST 200 PSF/FT.

4. ALL CONTRACTORS SHALL EXERCISE GREAT CARE DURING EXCAVATION. CONTRACTOR SHALL PREDETERMINE UTILITY LOCATIONS AND NOTIFY THE ENGINEER IMMEDIATELY IF DEVIATION FROM PLANS EXIST. CONTRACTOR SHALL CONTACT 811 48 HR. PRIOR TO DIGGING, GRADING, OR DRILLING.

**FOUNDATION NOTES**

SCALE	2
N.T.S.	



FOUNDATION DETAIL

SCALE: NTS

1

FOUNDATION DETAIL

SCALE: NTS

3



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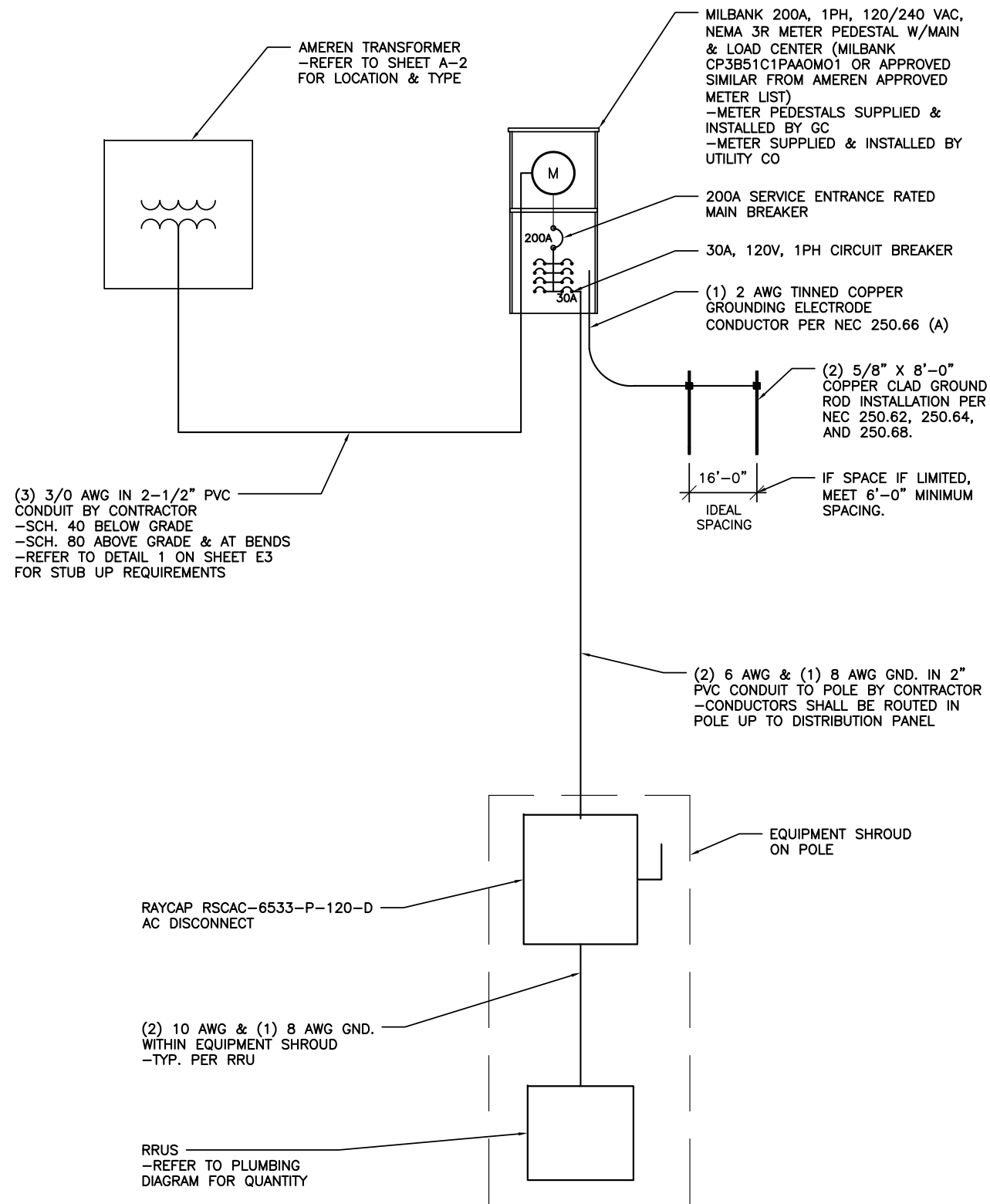
STRUCTURAL SEAL

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 URBANA, IL 61801

SHEET TITLE  
**POLE  
 FOUNDATION  
 DETAILS**

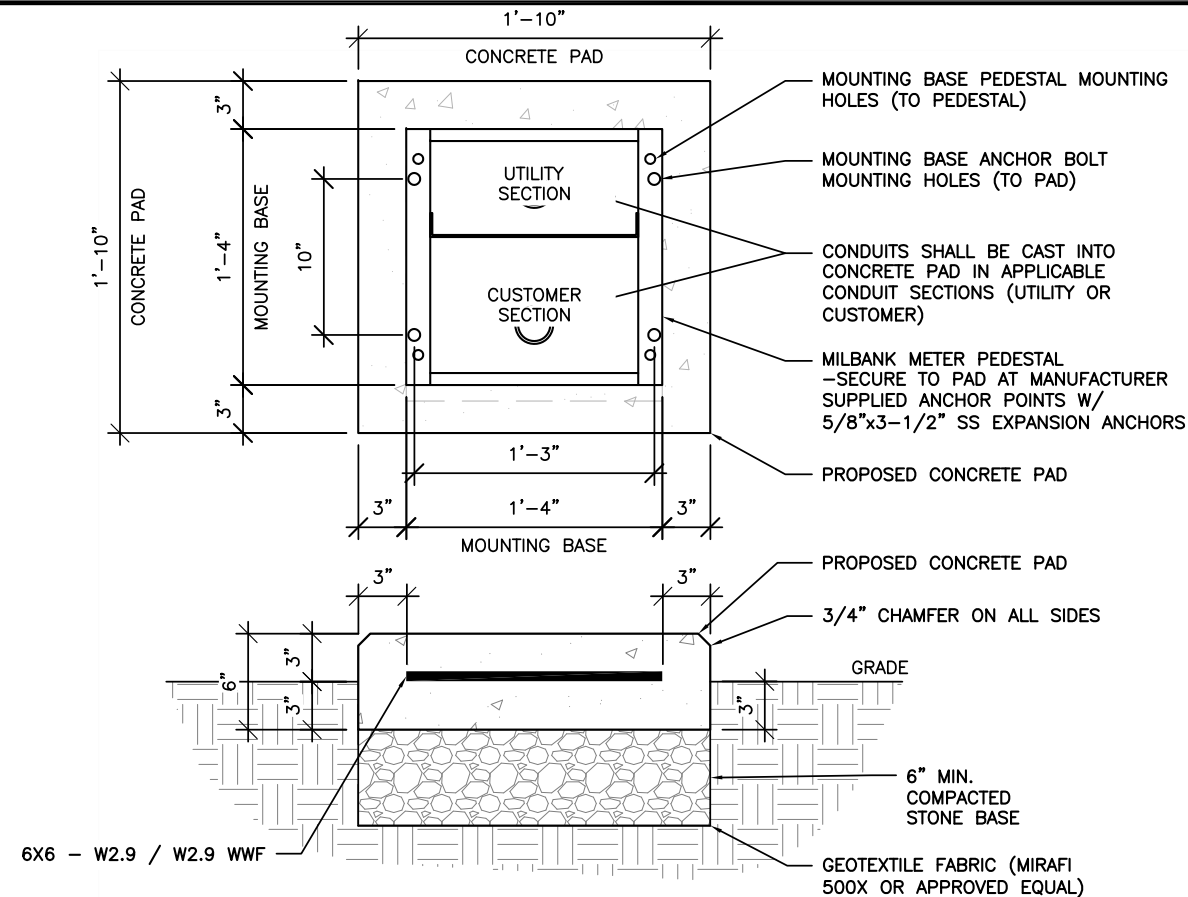
SHEET NUMBER  
**S1**

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ELECTRICAL ONE-LINE DIAGRAM

SCALE  
N.T.S. 1



METER PEDESTAL CONCRETE PAD FOUNDATION DETAIL

SCALE  
N.T.S. 2

**ELECTRICAL NOTES:**

1. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND ALL APPLICABLE CODES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SUCH THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
3. SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING THE INSTALLATION OF GROUNDING AND UNDERGROUND CONDUIT AS TO PREVENT THE LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
4. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC (CADWELD) CONNECTIONS WHEN APPROVED BY CINCINNATI BELL CONSTRUCTION MANAGER.
5. SERVICE TO METER PEDESTAL SHALL BE 120/240VAC, 200 AMP, SINGLE PHASE.
6. ALL GROUND CONNECTIONS BELOW GRADE SHALL BE EXOTHERMIC (CADWELD).
7. ALL GROUND CONNECTIONS ABOVE GRADE SHALL BE FORMED USING TWO (2) HIGH PRESS CRIMPS.
8. ALL EXOTHERMIC CONNECTIONS TO THE GROUND RODS SHALL START AT THE TOP AND HAVE A VERTICAL SEPARATION OF 6" FOR EVERY ADDITIONAL CONNECTION.
9. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
10. ALL EXTERIOR GROUND CONNECTORS SHALL BE 2 AWG SOLID BARE, TINNED, COPPER UNLESS INDICATED OTHERWISE.
11. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
12. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
13. MAXIMUM RESISTANCE OF THE COMPLETED GROUND SYSTEM SHALL NOT EXCEED 5 OHMS. TESTING SHALL BE PERFORMED IN ACCORDANCE WITH PROJECT SPECIFICATIONS FOR FACILITY GROUNDING, USING FALL OF POTENTIAL METHOD.

**STANDARD CONDUIT NOTES:**

1. UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC. ABOVE GROUND CONDUIT, ELBOWS, AND RISERS SHALL BE SCHEDULE 80 PVC.
2. UNDERGROUND SERVICE CONDUIT SHALL MEET REQUIRED BURIAL DEPTH PER AMEREN ELECTRIC SERVICE MANUAL.
3. G.C. TO STUB UP SERVICE CONDUIT AT UTILITY POLE WITH 90° SWEEPING ELBOW. GC. SHALL COIL SUFFICIENT CONDUCTOR TO REACH SERVICE CONNECTION ON POLE. G.C. SHALL SUPPLY ENOUGH CONDUIT AND RISER HARDWARE FOR AMEREN TO EXTEND SERVICE RISER UP POLE TO SERVICE CONNECTION POINT. REFER TO AMEREN ELECTRIC SERVICE MANUAL FOR REQUIREMENTS.
4. ALL CONDUIT WILL BE EQUIPPED WITH 3/8" PULL ROPE AND HAVE A TRACER WIRE. TRACER WIRE NEEDS TO BE LAID ABOVE BURIED CONDUIT.

ELECTRICAL NOTES

SCALE  
N.T.S. 3



REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
A	10/26/18	ISSUED FOR REVIEW	SEK
B	03/12/19	REVISED PER COMM.	MRL
C	05/02/19	ADDED FOUNDATION	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF ILLINOIS.

ELECTRICAL SEAL

LTE 1C&2C PICO CELL BUILD  
14805794  
CRAN\_RCHI\_CHUOI\_009  
184214  
544 S GOODWIN AVE  
URBANA, IL 61801

SHEET TITLE

ELECTRICAL  
ONE-LINE  
DIAGRAM

SHEET NUMBER

**E1**

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

AC POWER PANEL (MILBANK CF3B51C1PAACMO1)											
240 VOLTS, 1-PHASE, 3-WIRE, 200A											
MAIN RATING (A) :					200		SYSTEM VOLTAGE (V) :				
					240						
DESCRIPTION	VA	c/nc	BKR	POSN	L1	L2	POSN	BKR	c/nc	VA	DESCRIPTION
DISTRIBUTION PANEL	2112	c	30	1	2112		2	-	c	0	
	0	c	-	3		0	4	-	c	0	
	0	c	-	5	0		6	-	c	0	
	0	c	-	7		0	8	-	c	0	
PHASE TOTALS (VA):					2112		0				
CURRENT PER PHASE (A):					22		0 Amperes/phase cannot exceed main breaker rating				
PANEL TOTAL (VA):					2112		Legend: c = continuous, nc = non-continuous				
PANEL CAPACITY (kVA):					48.0		CONNECTED LOAD (kVA): 2.1				
PANEL LOADING (100% non-cont. load) (kVA):					0.0						
PANEL LOADING (125% continuous load) (kVA):					2.6						
PANEL LOADING (TOTAL) (kVA):					2.6						
SPARE CAPACITY (kVA):					45.4						

ELECTRICAL MAIN & LOAD CENTER PANEL SCHEDULE

SCALE  
N.T.S.

1

AC POWER PANEL (RAYCAP RSCAC-6533-P-120-D)											
120 VOLTS, 1-PHASE, 2-WIRE, 30A											
MAIN RATING (A) :					30		SYSTEM VOLTAGE (V) :				
					120						
DESCRIPTION	VA	c/nc	BKR	POSN	L1	L2	POSN	BKR	c/nc	VA	DESCRIPTION
RRUS-2203	704	c	7	1	1408		2	7	c	704	RRUS-2205
RRUS-2203	704	c	7	3		704	4	7	c	0	
PHASE TOTALS (VA):					1408		704				
CURRENT PER PHASE (A):					15		7 Amperes/phase cannot exceed main breaker rating				
PANEL TOTAL (VA):					2112		Legend: c = continuous, nc = non-continuous				
PANEL CAPACITY (kVA):					3.6		CONNECTED LOAD (kVA): 2.1				
PANEL LOADING (100% non-cont. load) (kVA):					0.0						
PANEL LOADING (125% continuous load) (kVA):					2.6						
PANEL LOADING (TOTAL) (kVA):					2.6						
SPARE CAPACITY (kVA):					1.0						

ELECTRICAL PANEL SCHEDULE

SCALE  
N.T.S.

3

MANUFACTURER: MILBANK  
MODEL: CP3B51C1PAAOM01

MECHANICAL SPECIFICATIONS:  
HEIGHT: 48 IN  
WIDTH: 16 IN  
DEPTH: 17 IN

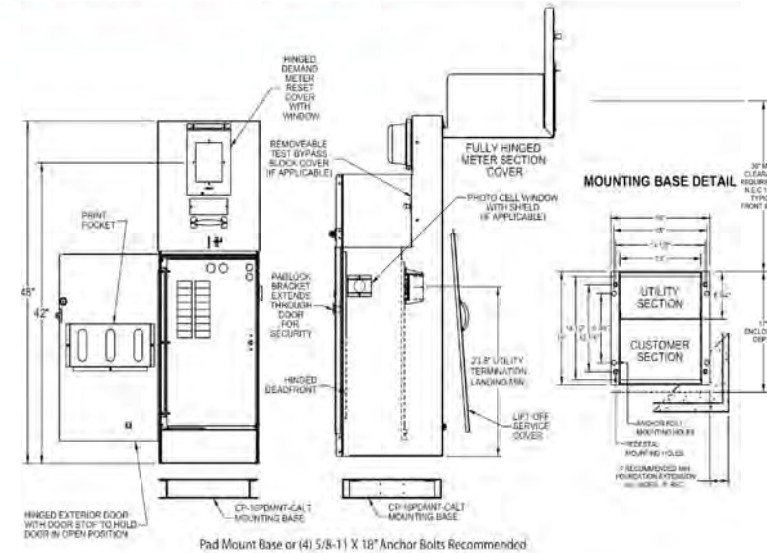
ELECTRICAL SPECIFICATIONS:  
AMPERAGE RATING: 200 A  
OPERATING VOLTAGE: 240 V  
ELECTRICAL PHASE: 1 PH  
MAIN BREAKER SIZE: 200 A  
QTY OF BRANCH CIRCUITS: 20  
LINE SIDE WIRE RANGE: 6 AWG - 350 kcmil

ENVIRONMENT SPECIFICATIONS:  
UL LISTED: YES  
NEMA RATING: 3R

ADDITIONAL SPECIFICATIONS:  
ON AMEREN ENERGY APPROVED LIST (SECTION 1100 OF ELECTRIC SERVICE MANUAL, DATED JANUARY 18, 2018)



"A" Style 16" Metered Commercial Pedestal



SPECIAL NOTE:  
METER PEDESTAL SHALL BE PAINTED TO MATCH AT&T EQUIPMENT IN RIGHT OF WAY. CONTRACTOR SHALL COORDINATE W/AT&T FOR COLOR AND PROVIDE DOCUMENTATION OF SUCH TO CITY OF URBANA FOR APPROVAL PRIOR TO CONSTRUCTION.

AC METER SOCKET W/MAIN & LOAD CENTER DETAIL

SCALE  
N.T.S.

2

MANUFACTURER: RAYCAP  
MODEL: RSCAC-6533-P-120-D

MECHANICAL SPECIFICATIONS:  
HEIGHT: 10.45 IN (265.43 mm)  
WIDTH: 10.28 IN (261.11 mm)  
DEPTH: 7.46 IN (189.48 mm)  
WEIGHT: 1.25 LBS (1.02 kg)

ELECTRICAL SPECIFICATIONS:  
AMPERAGE: 30A  
OPERATING VOLTAGE: 120V  
QTY OF PROTECTED CIRCUITS: 4  
CONNECTION TERMINALS: COMPRESSION LUGS (6 AWG-14 AWG)  
TERMINAL BLOCK (10 AWG-26 AWG)

ENVIRONMENT SPECIFICATIONS:  
NORMAL OPERATING TEMP.: -40°C TO +80°C  
ENVIRONMENT: OUTDOOR CLASS NEMA 4X  
POLYCARBONATE UL 94V-0 RATED



AC DISTRIBUTION PANEL DETAIL

SCALE  
N.T.S.

4



520 South Main Street, Suite 2531  
Akron, OH 44311  
330.572.2100 Fax: 330.572.2102

REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
A	10/26/18	ISSUED FOR REVIEW	SEK
B	03/12/19	REVISED PER COMM.	MRL
C	05/02/19	ADDED FOUNDATION	MRL

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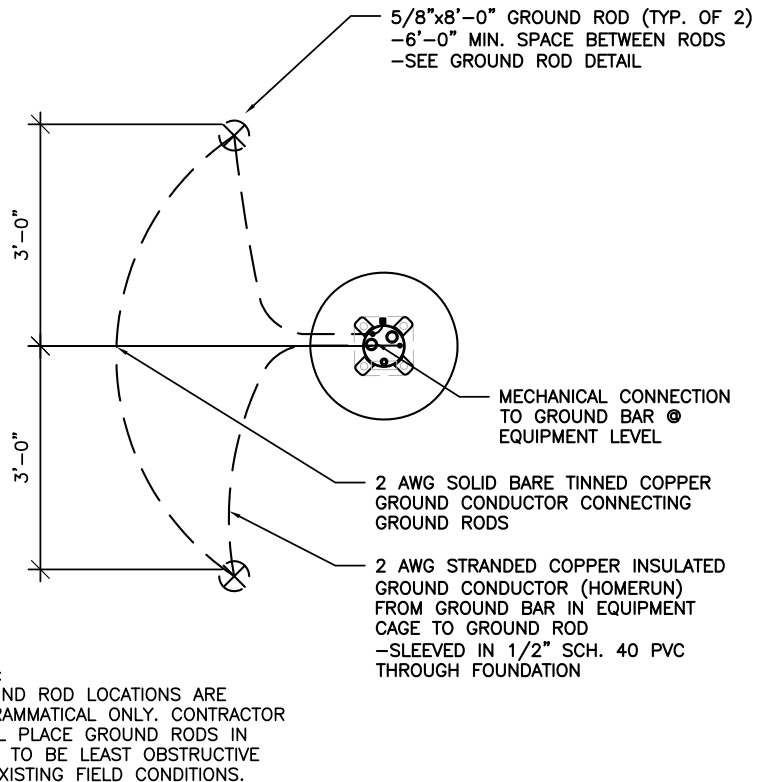
ELECTRICAL SEAL

LTE 1C&2C PICO CELL BUILD  
14805794  
CRAN\_RCHI\_CHU01\_009  
184214  
544 S GOODWIN AVE  
URBANA, IL 61801

SHEET TITLE  
PANEL SCHEDULE  
& ELECTRICAL  
DETAILS

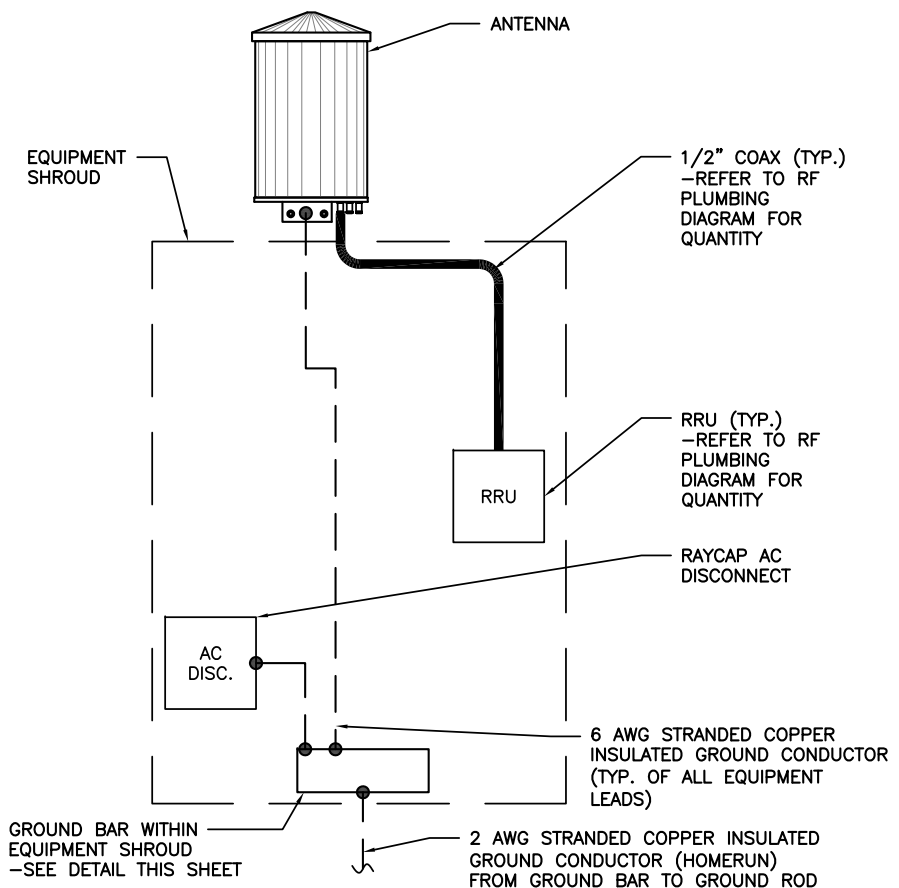
SHEET NUMBER  
**E2**

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NOTE:  
GROUND ROD LOCATIONS ARE  
DIAGRAMMATICAL ONLY. CONTRACTOR  
SHALL PLACE GROUND RODS IN  
FIELD TO BE LEAST OBSTRUCTIVE  
TO EXISTING FIELD CONDITIONS.

POLE GROUNDING PLAN DETAIL SCALE N.T.S. 1

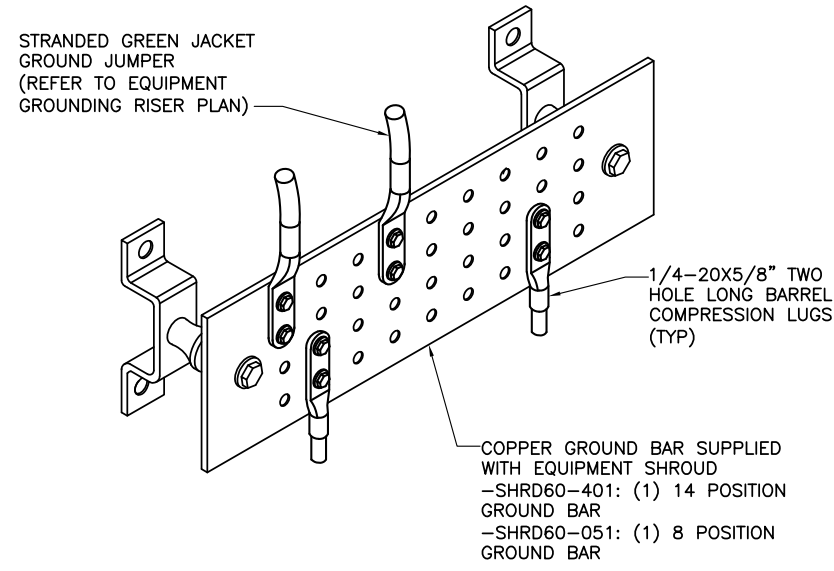


EQUIPMENT GROUNDING RISER DETAIL SCALE N.T.S. 2

CADWELD CONNECTIONS OR APPROVED EQUAL		BURNDY CONNECTIONS OR APPROVED EQUAL	
	PARALLEL HORIZONTAL CONDUCTORS PARALLEL THROUGH CONNECTION OF HORIZONTAL CABLES TYPE PT		HORIZONTAL STEEL SURFACE TO FLAT STEEL SURFACE OR HORIZONTAL PIPE TYPE HS
	THROUGH CABLE TO GROUND ROD THROUGH CABLE TO TOP OF GROUND ROD TYPE GT		VERTICAL STEEL SURFACE CABLE DOWN AT 45° TO VERTICAL STEEL SURFACE INCLUDING PIPE TYPE VS
	VERTICAL PIPE CABLE DOWN AT 45° TO RANGE OF VERTICAL PIPES TYPE VS		BOND JUMPER FIELD FABRICATED GREEN STRANDED INSULATED TYPE 2-YA-2
			COPPER LUGS TWO HOLE - LONG BARREL LENGTH TYPE YA-2

CONNECTION TYPE KEY  
 ● MECHANICAL CONNECTION  
 ■ CADWELD CONNECTION

GROUNDING CONNECTIONS DETAIL SCALE N.T.S. 3



NOTES:  
 1. CONTRACTOR SHALL UTILIZE LUGGED HOLES PROVIDED. NO DRILLING OF THE BAR WILL BE PERMITTED.  
 2. ALL HARDWARE SHALL BE 1/4-20 STAINLESS STEEL INCLUDING BELLEVILLES. COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.  
 3. FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL. COAT ALL SURFACES WITH KOPR-SHIELD.

GROUND BAR DETAIL SCALE N.T.S. 4



DETAIL NOT USED SCALE N.T.S. 5

ACORN CONNECTOR		
ELEC. MOTION CO. PART #	GROUND CONDUCTOR SIZE	GROUND ROD SIZE
EM2DB	#12-1/0 AWG	5/8"Ø

GROUND ROD DETAIL SCALE N.T.S. 6



REVISIONS			
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ELECTRICAL SEAL

LTE 1C&2C PICO CELL BUILD  
 14805794  
 CRAN\_RCHI\_CHUOI\_009  
 184214  
 544 S GOODWIN AVE  
 URBANA, IL 61801

SHEET TITLE  
**GROUNDING DETAILS**

SHEET NUMBER  
**E3**

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Diagram - 1 Diagram File Name - Pico 02.vsd  
 Atoll Site Name - Champaign CRAN HUB- University Location Name - CRAN\_CHAMPAIGN\_U NIVERSITY\_0001 Market - CENTRAL ILLINOIS Market Cluster - ILLINOIS/WISCONSIN  
 Comments:

Configuration Name	700 MHz 2T2R LTE	700 MHz 4T4R LTE	850 MHz 2T2R LTE	850 MHz 4T4R LTE	1900 MHz 2T2R LTE	1900 MHz 4T4R LTE	2100 MHz 2T2R LTE	2100 MHz 4T4R LTE	5GHz LAA LTE	3.5 GHz LAA LTE	Sector Count	Carrier Count	Antenna LAA location
Pico 002	NA	NA	NA	NA	NA	X	NA	NA	X	NA	1	2	14 Ports Antenna

Amphenol Pseudo-Omni – 14 ports Antenna  
 2C2U3MT360X06Fxs0

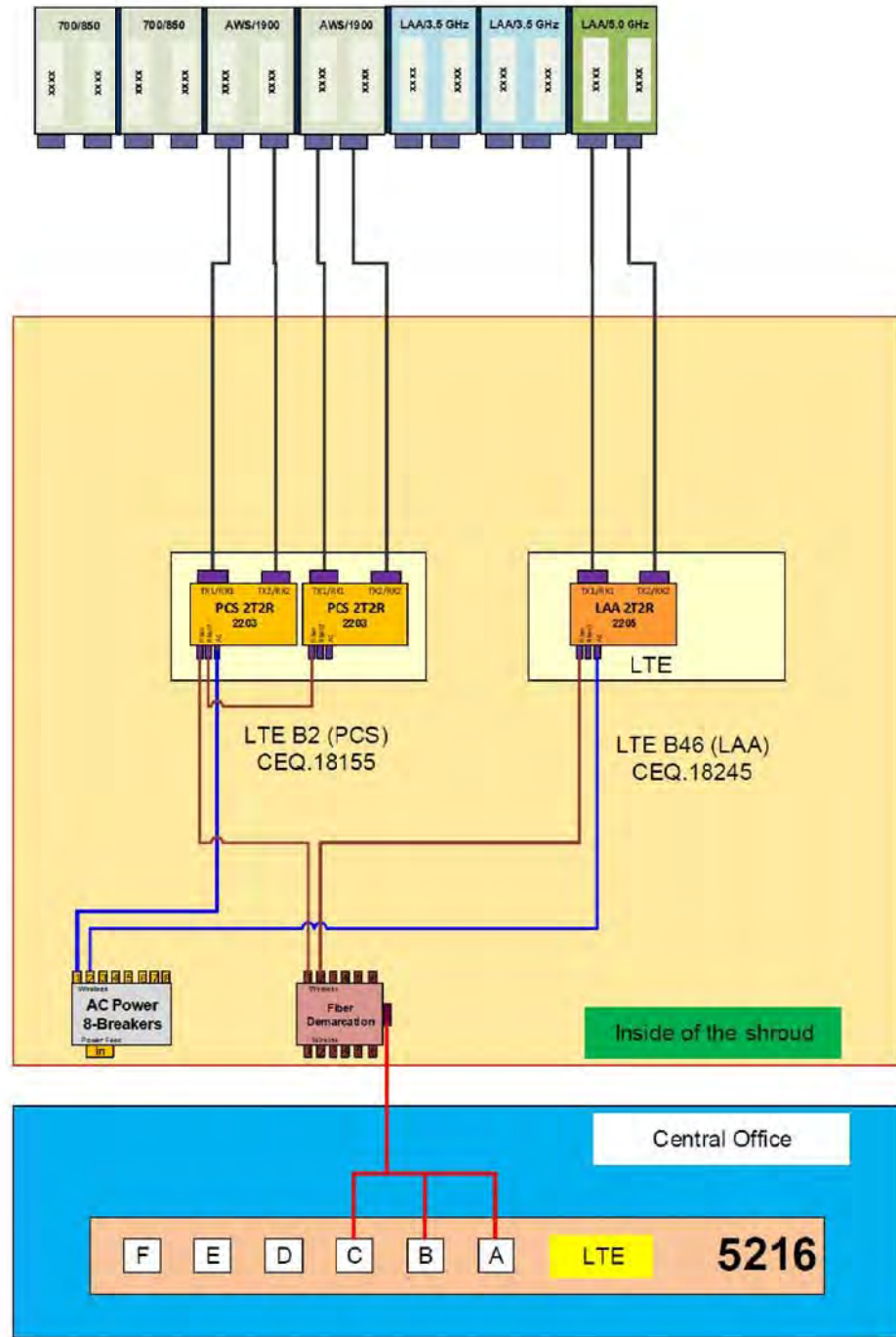


**Important Note:**  
 For detailed radio to antenna wiring refer to the latest 4T4R Antenna/Radio Port Connection Field Notice (RF-HW-2016-234) and the 4T Wiring Playbook

- Two Radios
- B2 (PCS) – CEQ.18155
  - B66A (AWS) – CEQ.18167
- One Radio/One Dummy Radio
- B46 (LAA) – CEQ.18245



- HXWXD – 17.12" X 7.87" X 4.13"
- WEIGHT – 21 LBS.
- POWER CONSUMPTION – WATTS MAX
- MINIMUM AC FUSE RATING – 8 AMP
- MAX HEAT DISSIPATION – 20 WATTS



REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
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REFERENCE ONLY

LTE 1C&2C PICO CELL BUILD 14805794  
 CRAN\_RCHI\_CHU01\_009 184214  
 544 S GOODWIN AVE URBANA, IL 61801

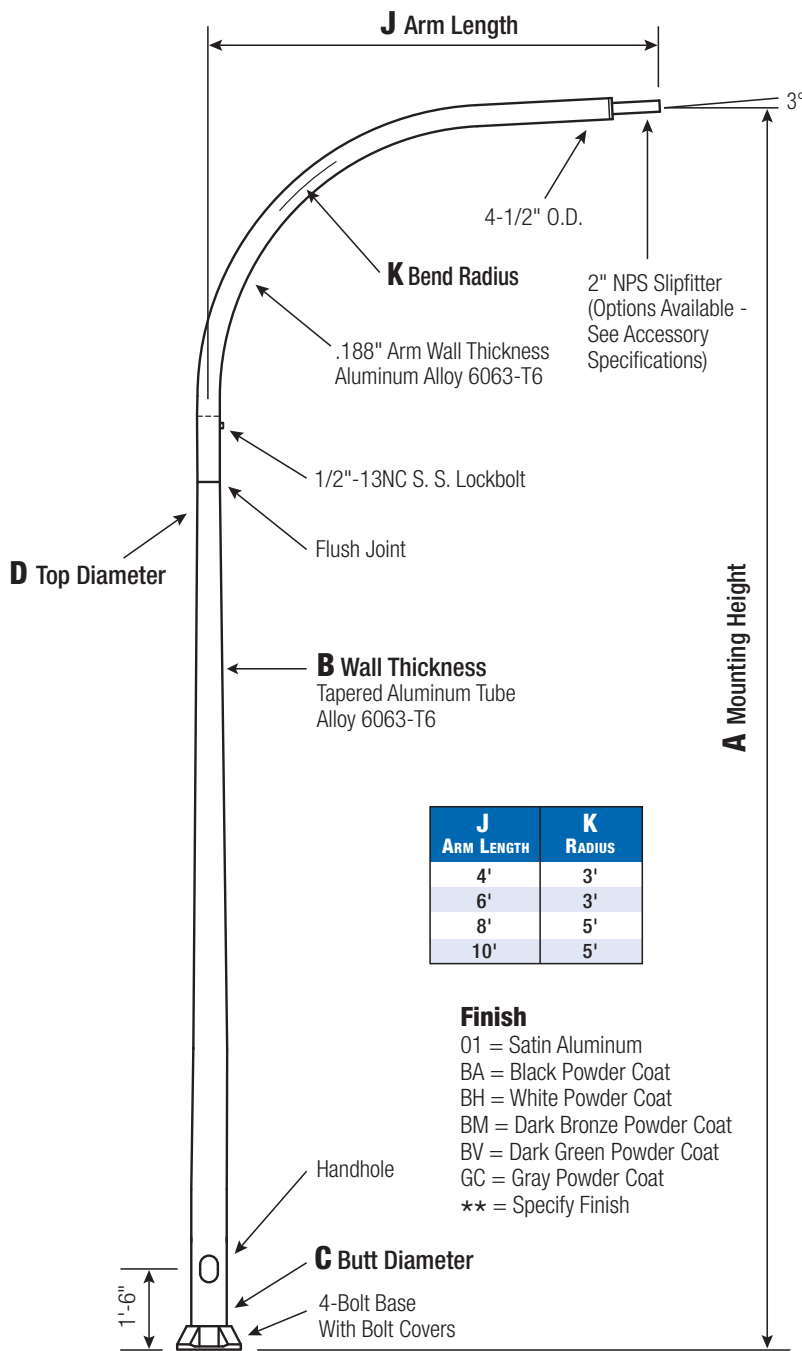
SHEET TITLE  
 RF PLUMBING DIAGRAM

SHEET NUMBER  
**RF1**



# RTA

## Round Tapered Aluminum Pole with Arms Single Davit — 4-Bolt Base



J ARM LENGTH	K RADIUS
4'	3'
6'	3'
8'	5'
10'	5'

### Finish

- O1 = Satin Aluminum
- BA = Black Powder Coat
- BH = White Powder Coat
- BM = Dark Bronze Powder Coat
- BV = Dark Green Powder Coat
- GC = Gray Powder Coat
- \*\* = Specify Finish

# RTA30D8B4D1A -

CATALOG NUMBER

FINISH

### Pole

Shaft and arm will be constructed of seamless extruded tube of 6063 Aluminum Alloy per the requirements of ASTM B221. The shaft assembly shall be full-length heat treated after base weld to produce a T6 temper.

### Base Style

4-Bolt Cast Aluminum Base Flange of Alloy 356-T6 with Aluminum Bolt Covers (Alloy 356-F) and Stainless Steel Hex Head Attaching Screws.

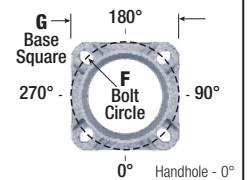


### Handhole

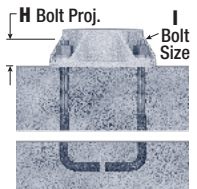
Reinforced, 4" x 6" curved Cast Aluminum Frame (Alloy 356-T6) with Aluminum Door and two (2) SS Hex Head Screws. Reinforced Frame will contain a tapped 3/8"-16NC Grounding Provision.

### Anchorage

Anchorage Kit will include four (4) L-shaped Steel Anchor Bolts conforming to AASHTO M314-90 Grade 55. Ten inches (10") of threaded end will be galvanized per ASTM A153.



Kits will contain four (4) Hex Nuts, four (4) Lock Washers, and four (4) Flat Washers (all components Galvanized Steel). A bolt circle template will be provided.



### Vibration Damper

When determined necessary by Hapco, a Vibration Damper will be factory-installed inside the pole shaft. Customer specification of the damper is available.



**WARNING:**  
Do not install light pole without luminaire.

Satin Aluminum or Powder Coated  
Finish per Customer Specification.

A Mtg. Hgt.	B WALL THICKNESS	C BUTT DIAMETER	J ARM LENGTH	LUM. WEIGHT	MAXIMUM EPA					OLD CAT. NUMBER	CATALOG NUMBER
					90	100	110	120	130		
30	0.188"	8	10'	35	9.0	6.5	5.7	3.9	2.7	41-160	RTA30D8B4D1A-**

C BUTT DIA.	D TOP DIA.	F BOLT CIR. DIA.	G BASE SQ.	H BOLT PROJ.	I BOLT SIZE
8	4.5	11 - 12	11.25	2.75	1 x 36 x 4

Dimensions in Inches

CUSTOMER NAME:	
PROJECT:	LOCATION:
NOTES:	QUANTITY:



26252 Hillman Highway  
Abingdon, VA 24210  
800.368.7171  
www.hapco.com

**EPA Notes:** Effective Projected Area (EPA) in square feet. EPA's calculated using wind velocity (mph) indicated in accordance with 2009 AASHTO LTS-5 using a 25 year design life. Maximum EPA is based on the luminaire weight shown. Increased luminaire weight may reduce the maximum EPA. If weight is exceeded, or if other design life or code is required, please consult the factory.

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**PROJECT INFORMATION**

SITE NAME: CRAN\_RCHI\_CHUOI\_023  
 COUNTY: CHAMPAIGN  
 ADDRESS: 1171 W GREEN ST  
 URBANA, IL 61801  
 JURISDICTION: CITY OF URBANA  
 USID: 184228  
 FA NUMBER: 14805850  
 PTN: 3304A0AAQR / 3304A0AARM  
 PACE: MRCHI025452 / MRCHI025399

LATITUDE: 40° 06' 37.27" (40.1103460°)  
 LONGITUDE: 88° 13' 23.63" (-88.2231950°)  
 ELEVATION: 720'

LIGHT POLE/UTILITY POLE OWNER: CITY OF URBANA

APPLICANT: AT&T MOBILITY  
 930 NATIONAL PARKWAY  
 SCHAUMBURG IL 60173

AT&T PROJECT MANAGER/SITE ACQUISITION: VANESSA ROSS  
 (217) 814-2314  
 VF2021@ATT.COM

AT&T CONSTRUCTION MANAGER: CHRISTIANA RACHAL  
 CR630A@ATT.COM

**PROJECT CONSULTANTS**

PROJECT MANAGER: KAEVA POWELL  
 KAEVA.POWELL@SACW.COM  
 847-466-3470

ARCHITECT: GPD GROUP, INC. - 184-007100  
 520 S. MAIN ST., SUITE 2531  
 AKRON, OH 44311  
 317-295-3180

SAC C.M.: MARK KLEPACKI  
 EMAIL: MARK.KLEPACKI@SACW.COM

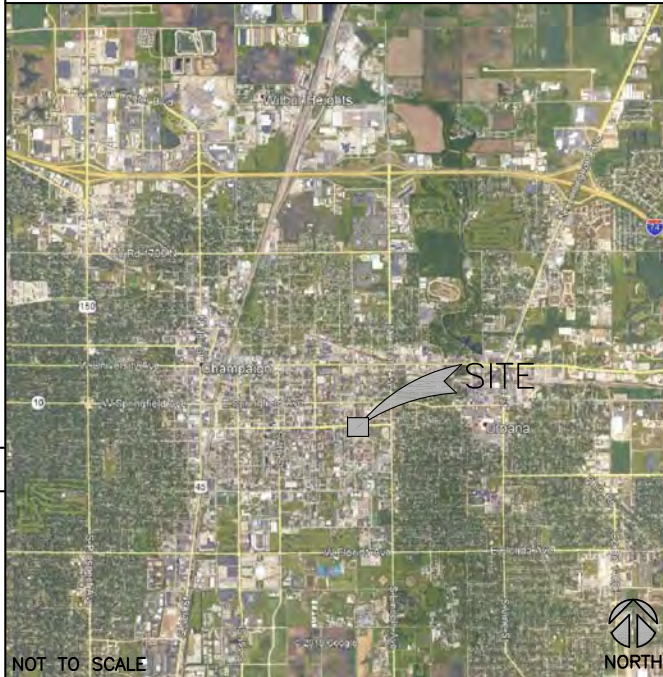
SAC P.M.: CHARLIE SHOEMAKER  
 CHARLIE.SHOEMAKER@SACW.COM  
 847-466-3540

# AT&T MOBILITY

**PROJECT :** LTE 1C&2C MICRO CELL BUILD  
**SITE # :** CRAN\_RCHI\_CHUOI\_023  
**USID / NODE:** 184228  
**FA # :** 14805850  
**PTN # :** 3304A0AAQR / 3304A0AARM  
**PACE # :** MRCHI025452 / MRCHI025399  
**ENODEB NAME :** ILL07049F\_R01  
**JURISDICTION :** CITY OF URBANA

**SITE NAME :** CRAN\_RCHI\_CHUOI\_023  
**ADDRESS :** 1171 W GREEN ST  
 URBANA, IL 61801

**VICINITY MAP**




**LOCATION MAP**



NOT TO SCALE

NOT TO SCALE



TO OBTAIN LOCATION OF PARTICIPANTS UNDERGROUND FACILITIES BEFORE YOU DIG IN ILLINOIS, CALL ILLINOIS ONE CALL  
 TOLL FREE: 1-800-892-0123 OR  
 www.illinois1call.com

ILLINOIS STATE REQUIRES MIN OF 2 WORKING DAYS NOTICE BEFORE YOU EXCAVATE

Know what's below.  
Call before you dig.

DRAWING INDEX	
T1	TITLE SHEET
A1	FIBER DELIVERY PLANS (REFERENCE ONLY)
A2	OVERALL SITE PLAN
A3	ENLARGED PLAN
A4	PROPOSED LIGHT POLE ELEVATIONS
A5	EQUIPMENT DETAILS (REFERENCE ONLY)
A6	EQUIPMENT DETAILS (REFERENCE ONLY)
A7	MOUNTING DETAILS (REFERENCE ONLY)
E1	ELECTRICAL ONE-LINE DIAGRAM
E2	PANEL SCHEDULE & ELECTRICAL DETAILS
E3	GROUNDING DETAILS
RF1	RF PLUMBING DIAGRAM (REFERENCE ONLY)
REF	POLE MANUFACTURER DESIGN (BY OTHERS)
REF	POLE EXTENSION DESIGN (BY OTHERS)
REF	FOUNDATION DESIGN (BY OTHERS)

**SCOPE OF WORK**

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

- REMOVE EXISTING LIGHT POLE AND REPLACE WITH NEW 30'-0" VALMOUNT #300086110D4Z 10' DAVIT ARM LIGHT POLE (BLACK POWDER COAT 5 YR) PER PLAN
- INSTALL NEW ELECTRIC SERVICE RUN FROM EXISTING SOURCE TO REPLACEMENT LIGHT POLE. METER SUPPLIED & INSTALLED BY CONTRACTOR.
- INSTALL NEW FIBER SERVICE RUN FROM EXISTING SOURCE TO REPLACEMENT LIGHT POLE LOCATION AS SHOWN.
- INSTALL NEW POWER & FIBER EQUIPMENT PER PLAN
- INSTALL EXTENSION PIPE ON POLE (BLACK TO MATCH POLE)
- INSTALL (1) NEW OMNI ANTENNA
- INSTALL (1) PCS RRUS-4415 & (1) 700 RRUS-11
- INSTALL CABLING AS REQUIRED
- GROUND AS REQUIRED
- LIGHT POLE LUMINARE TO BE SUPPLIED & INSTALLED BY CONTRACTOR (GE EVOLVE™ STREETLIGHT MDCA-40-S-0-A-2-2-F-MC3-1-U LED)
- STREET LIGHTING HANDHOLE (IF REQUIRED) SUPPLIED & INSTALLED BY CONTRACTOR
- POTHOLING SHALL BE REQUIRED FOR ANY PROPOSED UTILITY CROSSING
- HYDROVAC SHALL BE USED FOR ALL TRENCHING & POTHOLING ACTIVITIES
- CONTRACTOR SHALL MAINTAIN INTEGRITY OF EXISTING POLE DURING REMOVAL & COORDINATE RETURN OF REMOVED POLE TO THE CITY OF URBANA
- INSTALL (1) PSU AC 02 & (1) PSU 6322
- REPLACE FOUNDATION
- UNDERGROUND BORE FROM STREET LIGHT POLE TO METER PED AND FROM METER PED TO AMEREN UTILITY POLE (POWER SOURCE)

UTILITY DELIVERY METHOD TO PROPOSED POLE  
 - FIBER - UNDERGROUND  
 - POWER - UNDERGROUND

**CODE COMPLIANCE**

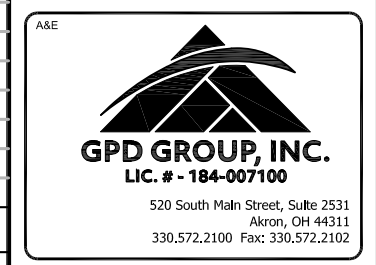
- 2015 INTERNATIONAL BUILDING CODE W/CITY AMMENDMENTS
- 2014 NATIONAL ELECTRIC CODE W/CITY AMMENDMENTS

**SPECIAL NOTES**

- ALL WORK SHALL BE INSTALLED IN CONFORMANCE WITH CURRENT AT&T CONSTRUCTION INSTALLATION GUIDE.
- EXISTING CONDITIONS WILL BE CHANGED & VERIFIED IN FIELD. IF SIGNIFICANT DEVIATIONS OR DETERIORATION ARE ENCOUNTERED AT THE TIME OF CONSTRUCTION, A REPAIR PERMIT WILL BE OBTAINED & CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY.
- THESE DRAWINGS ARE FULL SIZE & SCALEABLE ON 11"x17" SHEET SIZE.
- STATEMENT THAT COMPLIANCE WITH THE ENERGY CODE IS NOT REQUIRED.
- SCOPE OF WORK DOES NOT INVOLVE MODIFICATIONS TO EXTERIOR ENVELOPE OF BUILDING, HVAC SYSTEMS OR ELECTRICAL LIGHTING.

**DO NOT SCALE DRAWINGS**

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ARCHITECT OR ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.



REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
A	03/27/19	ISSUED FOR REVIEW	MW
B	05/02/19	ADDED FOUNDATION	MRL
C	08/27/19	UPDATED PER RL	TJB
D	09/12/19	UPDATED PER DESN	AGL
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F	10/04/19	UPDATED PER COMM.	MRL
G	10/14/19	FINAL CDs	MRL

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**LEONARDO A. SFERRA**  
 062.069126  
 10/14/2019

*Leonardo Sferra*  
 Signature CIVIL SEAL

DATE: 11/30/2019  
 PROJECT: LTE 1C&2C MICRO CELL BUILD  
 SITE # : 14805850  
 USID: CRAN\_RCHI\_CHUOI\_023  
 Exp. Date: 184228  
 1171 W GREEN ST  
 URBANA, IL 61801

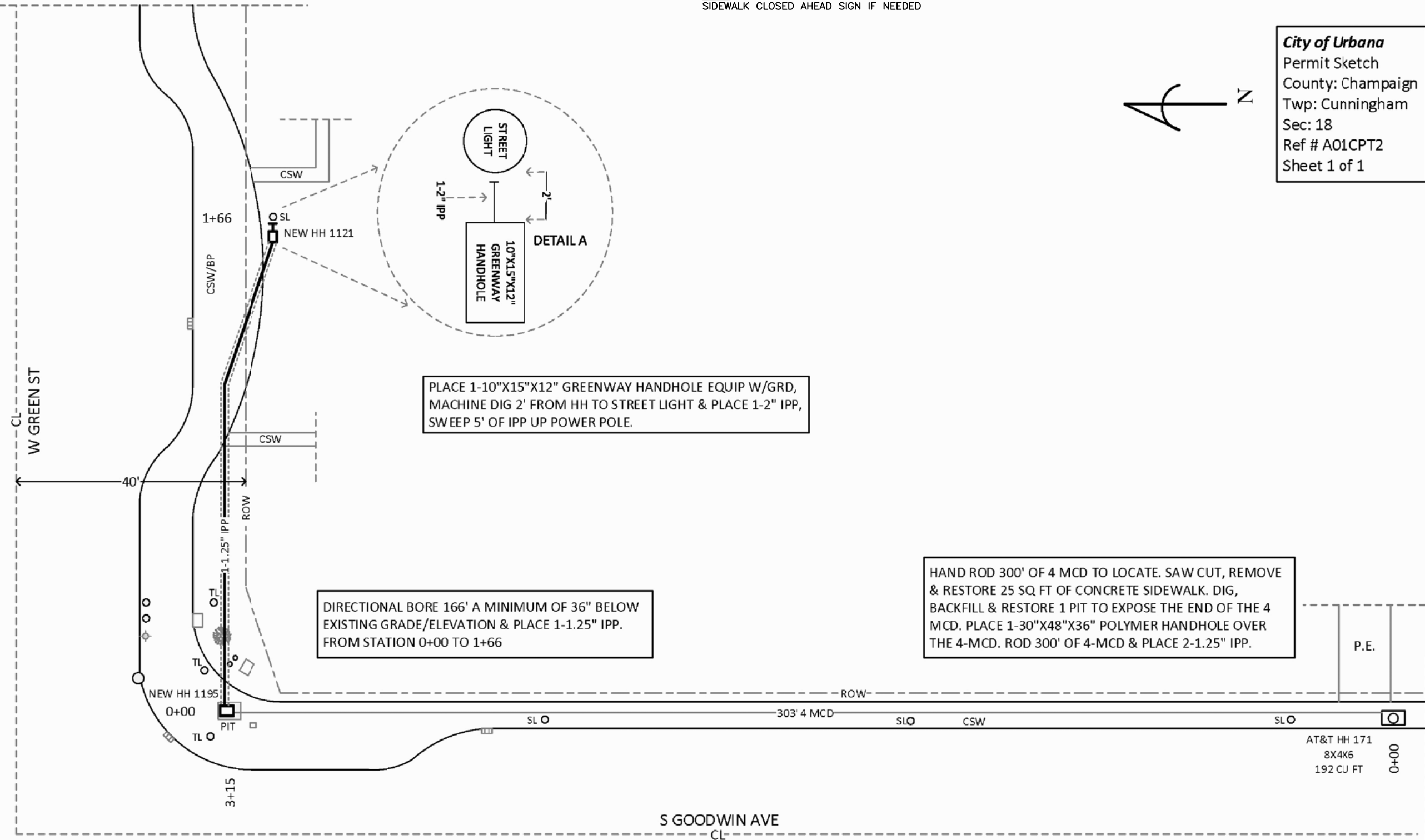
SHEET TITLE  
**TITLE SHEET**

SHEET NUMBER  
**T1**

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NOTE:  
SIDEWALK CLOSED AHEAD SIGN IF NEEDED

**City of Urbana**  
Permit Sketch  
County: Champaign  
Twp: Cunningham  
Sec: 18  
Ref # A01CPT2  
Sheet 1 of 1



PLACE 1-10\"X15\"X12\" GREENWAY HANDHOLE EQUIP W/GRD, MACHINE DIG 2' FROM HH TO STREET LIGHT & PLACE 1-2\" IPP, SWEEP 5' OF IPP UP POWER POLE.

DIRECTIONAL BORE 166' A MINIMUM OF 36\" BELOW EXISTING GRADE/ELEVATION & PLACE 1-1.25\" IPP. FROM STATION 0+00 TO 1+66

HAND ROD 300' OF 4 MCD TO LOCATE. SAW CUT, REMOVE & RESTORE 25 SQ FT OF CONCRETE SIDEWALK. DIG, BACKFILL & RESTORE 1 PIT TO EXPOSE THE END OF THE 4 MCD. PLACE 1-30\"X48\"X36\" POLYMER HANDHOLE OVER THE 4-MCD. ROD 300' OF 4-MCD & PLACE 2-1.25\" IPP.



**SSC WIRELESS**  
1501 E. WOODFIELD RD.  
SUITE #300E  
SCHAUMBURG, IL 60173  
WWW.SSCW.COM  
847.944.1600

A&E

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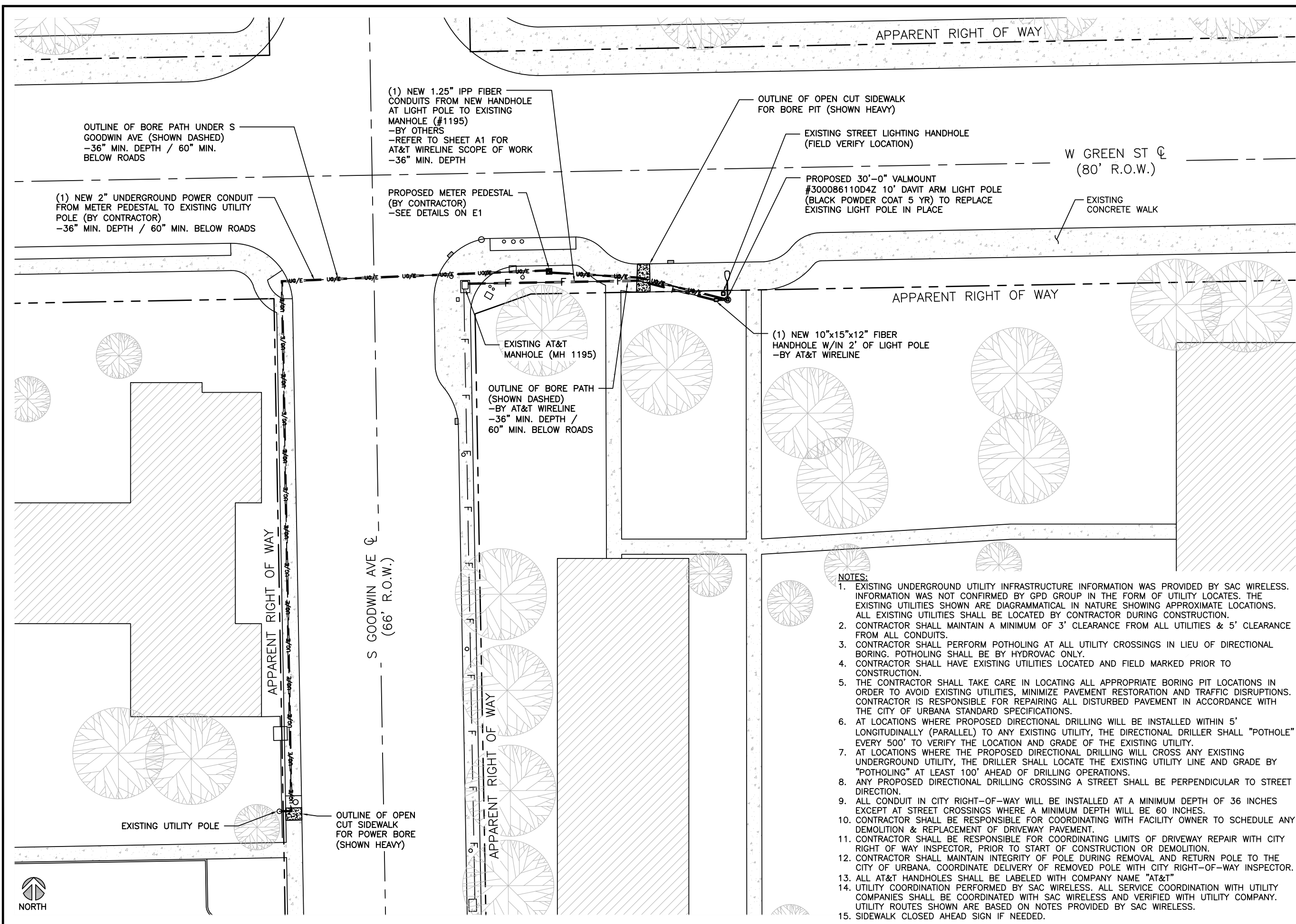
REFERENCE ONLY

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184228  
1171 W GREEN ST  
URBANA, IL 61801

SHEET TITLE  
**FIBER DELIVERY PLANS**

SHEET NUMBER  
**A1**

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- NOTES:**
- EXISTING UNDERGROUND UTILITY INFRASTRUCTURE INFORMATION WAS PROVIDED BY SAC WIRELESS. INFORMATION WAS NOT CONFIRMED BY GPD GROUP IN THE FORM OF UTILITY LOCATES. THE EXISTING UTILITIES SHOWN ARE DIAGMATICAL IN NATURE SHOWING APPROXIMATE LOCATIONS. ALL EXISTING UTILITIES SHALL BE LOCATED BY CONTRACTOR DURING CONSTRUCTION.
  - CONTRACTOR SHALL MAINTAIN A MINIMUM OF 3' CLEARANCE FROM ALL UTILITIES & 5' CLEARANCE FROM ALL CONDUITS.
  - CONTRACTOR SHALL PERFORM POTHOLES AT ALL UTILITY CROSSINGS IN LIEU OF DIRECTIONAL BORING. POTHOLES SHALL BE BY HYDROVAC ONLY.
  - CONTRACTOR SHALL HAVE EXISTING UTILITIES LOCATED AND FIELD MARKED PRIOR TO CONSTRUCTION.
  - THE CONTRACTOR SHALL TAKE CARE IN LOCATING ALL APPROPRIATE BORING PIT LOCATIONS IN ORDER TO AVOID EXISTING UTILITIES, MINIMIZE PAVEMENT RESTORATION AND TRAFFIC DISRUPTIONS. CONTRACTOR IS RESPONSIBLE FOR REPAIRING ALL DISTURBED PAVEMENT IN ACCORDANCE WITH THE CITY OF URBANA STANDARD SPECIFICATIONS.
  - AT LOCATIONS WHERE PROPOSED DIRECTIONAL DRILLING WILL BE INSTALLED WITHIN 5' LONGITUDINALLY (PARALLEL) TO ANY EXISTING UTILITY, THE DIRECTIONAL DRILLER SHALL "POTHOLE" EVERY 500' TO VERIFY THE LOCATION AND GRADE OF THE EXISTING UTILITY.
  - AT LOCATIONS WHERE THE PROPOSED DIRECTIONAL DRILLING WILL CROSS ANY EXISTING UNDERGROUND UTILITY, THE DRILLER SHALL LOCATE THE EXISTING UTILITY LINE AND GRADE BY "POTHOLES" AT LEAST 100' AHEAD OF DRILLING OPERATIONS.
  - ANY PROPOSED DIRECTIONAL DRILLING CROSSING A STREET SHALL BE PERPENDICULAR TO STREET DIRECTION.
  - ALL CONDUIT IN CITY RIGHT-OF-WAY WILL BE INSTALLED AT A MINIMUM DEPTH OF 36 INCHES EXCEPT AT STREET CROSSINGS WHERE A MINIMUM DEPTH WILL BE 60 INCHES.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH FACILITY OWNER TO SCHEDULE ANY DEMOLITION & REPLACEMENT OF DRIVEWAY PAVEMENT.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING LIMITS OF DRIVEWAY REPAIR WITH CITY RIGHT OF WAY INSPECTOR, PRIOR TO START OF CONSTRUCTION OR DEMOLITION.
  - CONTRACTOR SHALL MAINTAIN INTEGRITY OF POLE DURING REMOVAL AND RETURN POLE TO THE CITY OF URBANA. COORDINATE DELIVERY OF REMOVED POLE WITH CITY RIGHT-OF-WAY INSPECTOR.
  - ALL AT&T HANDHOLES SHALL BE LABELED WITH COMPANY NAME "AT&T"
  - UTILITY COORDINATION PERFORMED BY SAC WIRELESS. ALL SERVICE COORDINATION WITH UTILITY COMPANIES SHALL BE COORDINATED WITH SAC WIRELESS AND VERIFIED WITH UTILITY COMPANY. UTILITY ROUTES SHOWN ARE BASED ON NOTES PROVIDED BY SAC WIRELESS.
  - SIDEWALK CLOSED AHEAD SIGN IF NEEDED.



**SAC WIRELESS**  
 1501 E. WOODFIELD RD.  
 SUITE #300E  
 SCHAUMBURG, IL 60173  
 www.sacwireless.com  
 847.944.1600

**GPD GROUP, INC.**  
 LIC. # - 184-007100  
 520 South Main Street, Suite 2531  
 Akron, OH 44311  
 330.572.2100 Fax: 330.572.2102

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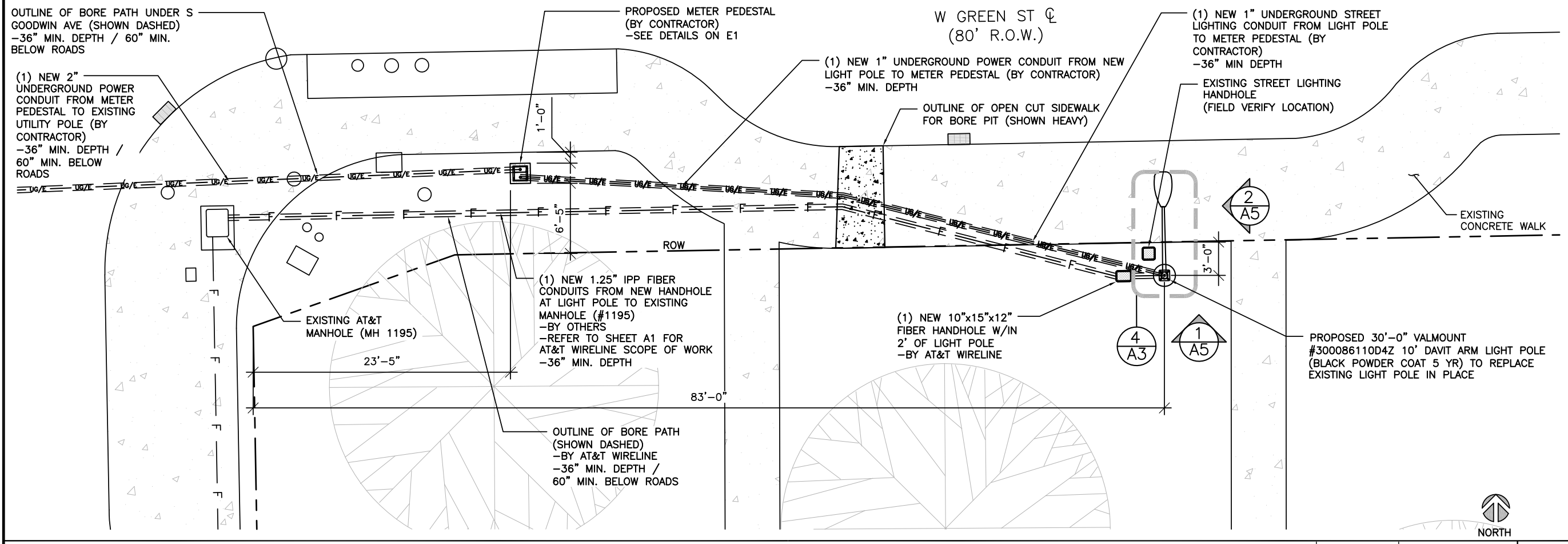
**LEONARDO A. SFERRA**  
 062.069126  
 10/14/2019  
 STATE OF ILLINOIS REGISTERED PROFESSIONAL ENGINEER  
 Signature CIVIL SEAL

DATE: 11/30/2019  
 14805850  
 EXP. DATE: 184228  
 1171 W GREEN ST  
 URBANA, IL 61801

SHEET TITLE  
**OVERALL SITE PLAN**

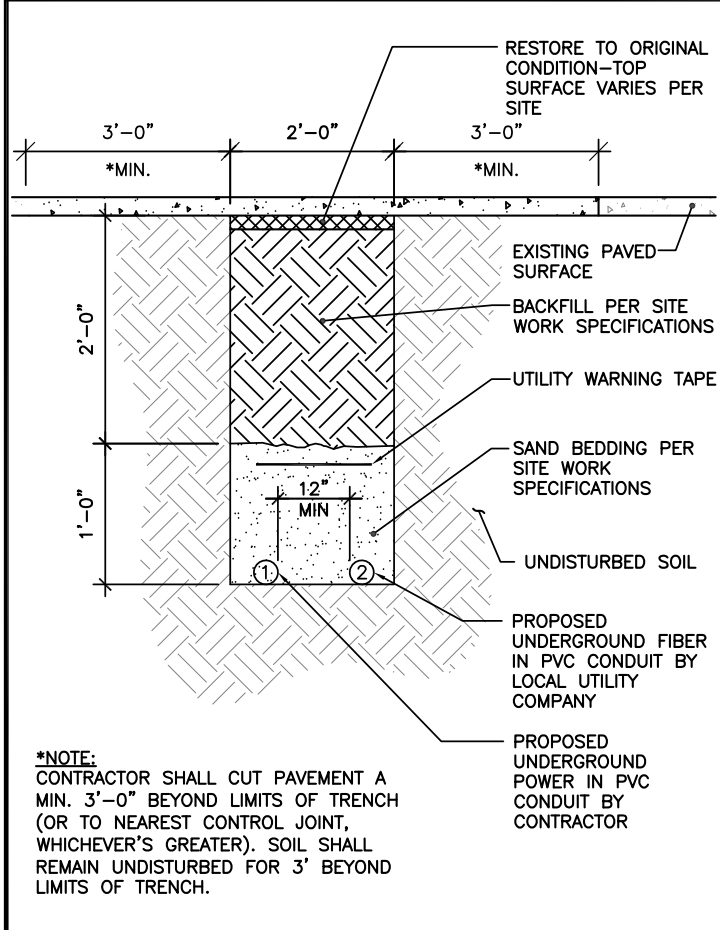
SHEET NUMBER  
**A2**

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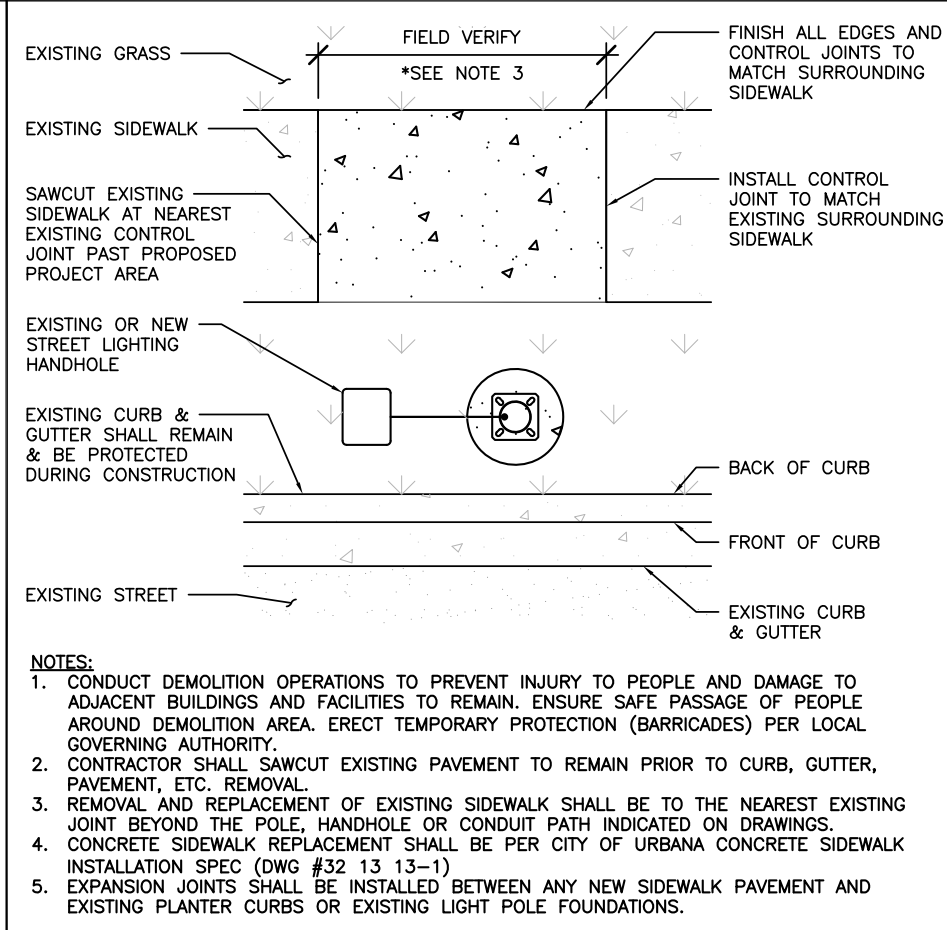
ENLARGED SITE PLAN

0 5' 10' SCALE: 1" = 10'-0" (24x36)  
(OR) 1/2" = 10'-0" (11x17) 1



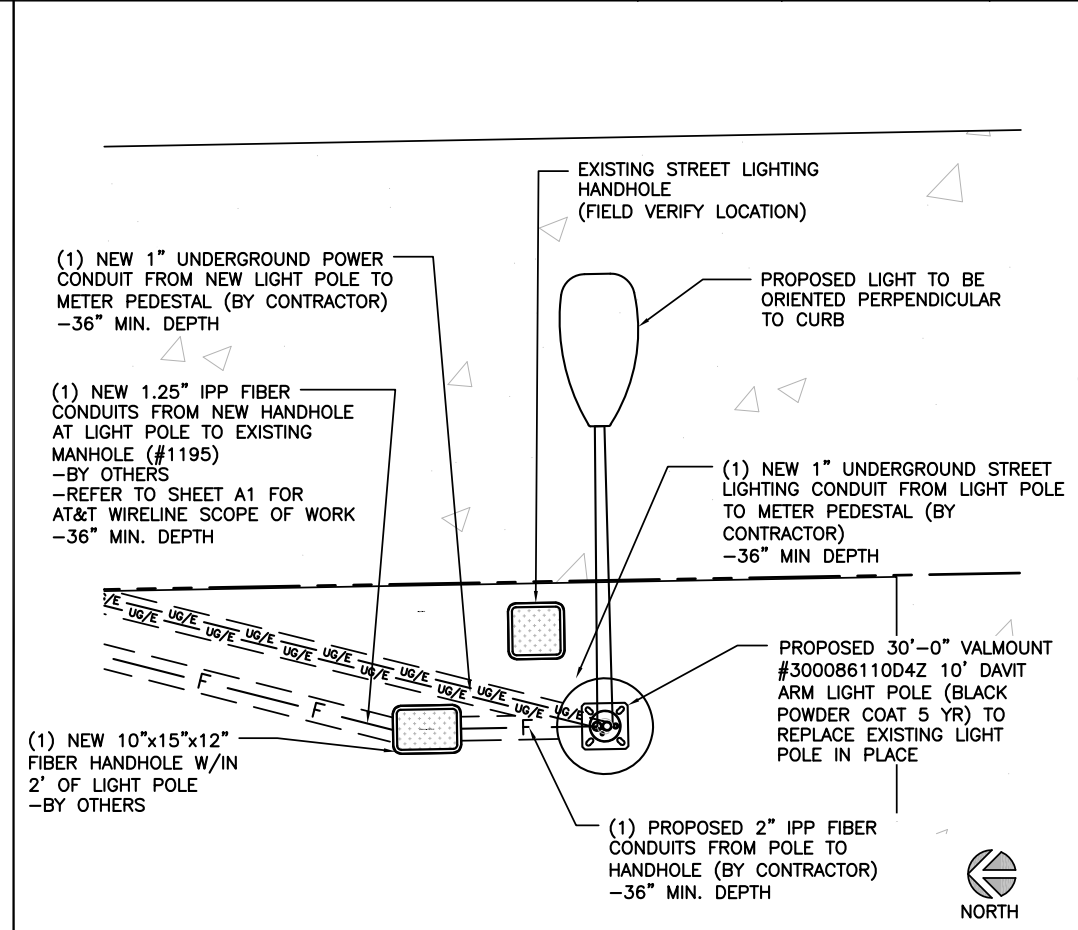
TYPICAL TRENCH DETAIL

SCALE N.T.S. 2



OPEN CUT SIDEWALK DETAIL

SCALE N.T.S. 3



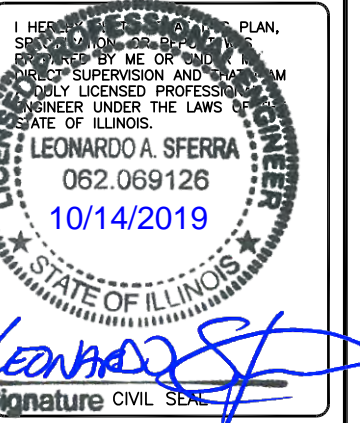
LIGHT POLE PLAN

SCALE N.T.S. 4



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EXP. DATE: 184228  
1171 W GREEN ST  
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SHEET TITLE  
ENLARGED PLAN

SHEET NUMBER  
A3



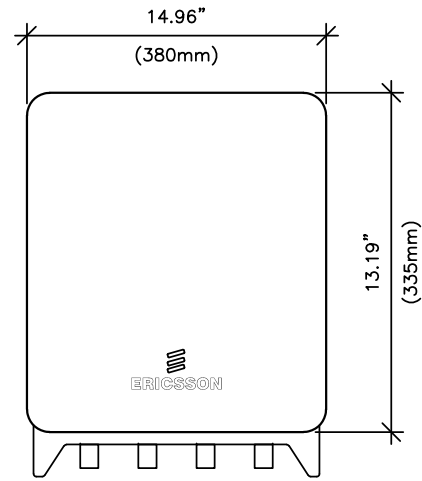
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MANUFACTURER: ERICSSON  
 MODEL: RRUS 4415 B25

**MECHANICAL SPECIFICATIONS:**  
 HEIGHT: 14.96 IN (380mm)  
 WIDTH: 13.19 IN (335mm)  
 DEPTH: 5.39 IN (137mm)  
 WEIGHT: 46 LBS (21kg)

**INTERFACE SPECIFICATIONS:**  
 CPRI: 2x2.5/4.9/9.8/10.1 Gbps  
 (ONLY USE ERICSSON SUPPLIED AND APPROVED SFPs)

EXTERNAL ALARMS: 2



RRUS 4415 B25 DETAILS

SCALE  
N.T.S. 1

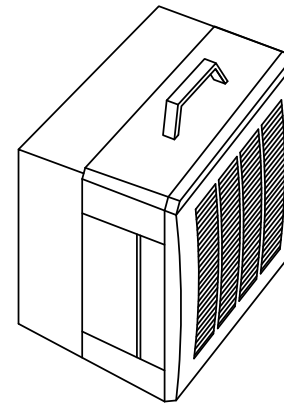
MANUFACTURER: ERICSSON  
 MODEL: RRUS-11

**MECHANICAL SPECIFICATIONS:**  
 HEIGHT: 19.7 IN (500mm)  
 WIDTH: 17.0 IN (431mm)  
 DEPTH: 7.2 IN (182mm)  
 WEIGHT: 50.7 LBS (23kg)

**INTERFACE SPECIFICATIONS:**  
 ANTENNA PORTS: 2x7/16 IEC-169-4  
 OPTICAL INDICATORS: 6  
 EXTERNAL ALARMS: 1  
 FIELD GROUND: 1

**ELECTRICAL SPECIFICATIONS:**  
 POWER SUPPLY: -48 VDC OR 100-250 VAC

**ENVIRONMENTAL SPECIFICATIONS:**  
 NORMAL OPERATING TEMP.: -40°C TO +55°C  
 RELATIVE HUMIDITY: 5-100%



RRUS-11 DETAILS

SCALE  
N.T.S. 2



A&E

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REFERENCE ONLY

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 14805850  
 CRAN\_RCHI\_CHU01-023  
 184228  
 1171 W GREEN ST  
 URBANA, IL 61801

SHEET TITLE

EQUIPMENT DETAILS

SHEET NUMBER

A5

MANUFACTURER: AFL  
 MODEL: OPN-500

**MECHANICAL SPECIFICATIONS:**  
 HEIGHT: 6.3 IN (15.7cm)  
 WIDTH: 7.8 IN (19.7cm)  
 DEPTH: 2.0 IN (5.0cm)  
 WEIGHT: 4.9 LBS (2.2kg)

**INTERFACE SPECIFICATIONS:**  
 PORTS: 1x3/4" NPT, 2x1/2" NPT  
 FIELD GROUND: 1

**ENVIRONMENT SPECIFICATIONS:**  
 NORMAL OPERATING TEMP.: -40°C TO +60°C  
 RELATIVE HUMIDITY: UP TO 95%  
 ENVIRONMENT: OUTDOOR CLASS

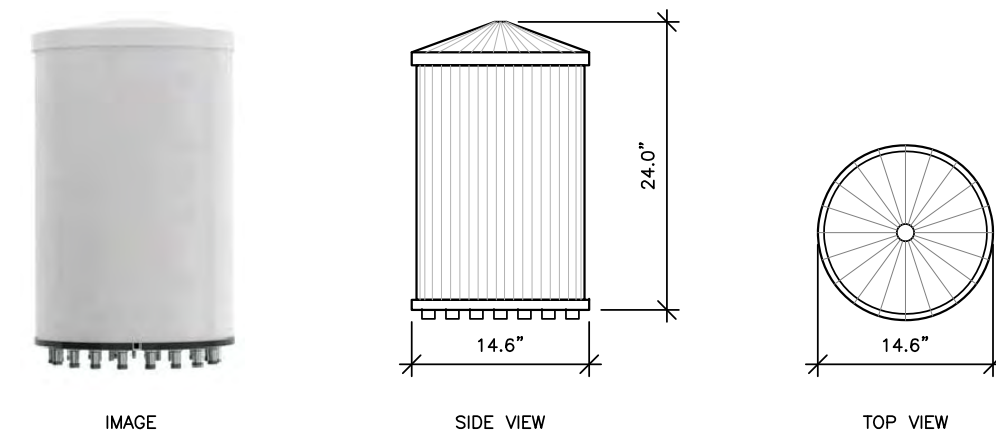
\*TO BE INSTALLED BY AT&T WIRELINE



OPTO-NID-OPN-500

SCALE  
N.T.S. 3

ANTENNA DETAIL



AMPHENOL MULTI BAND CANISTER ANTENNA  
 MODEL: 2C2U3MT360X06Fxyso

COLOR NOTE:  
 CONTRACTOR SHALL PAINT ALL EQUIPMENT ATTACHED TO STREETLIGHT POLE TO MATCH POLE

MECHANICAL CHARACTERISTICS	
- ANTENNA DIMENSIONS (HEIGHT X DIAMETER) :	24.0"x14.6"
- WEIGHT W/OUT MOUNTING BRACKET KIT:	TBD LBS
- SURVIVAL WIND SPEED:	150 MPH
- WIND AREA:	2.4 FT²
- WIND LOAD (100 MPH):	43 LBF

SCALE: NTS 4

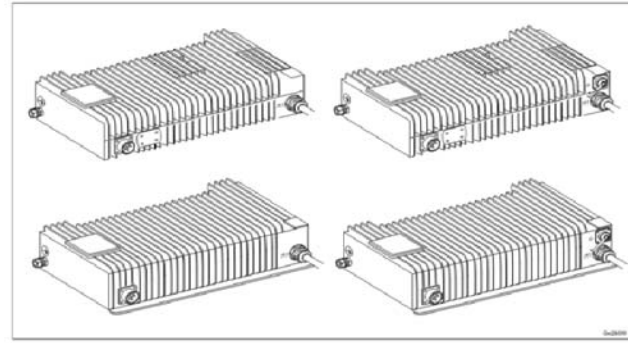
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MANUFACTURER: ERICSSON  
 MODEL: PSU AC 02

**MECHANICAL SPECIFICATIONS:**  
 HEIGHT: 68 mm (2.7 IN)  
 WIDTH: 330 mm (10.8 IN)  
 DEPTH: 179 mm (7.1 IN)  
 WEIGHT: 5.2 kg (11.5 LBS)

**ELECTRICAL SPECIFICATIONS:**  
 POWER SUPPLY: -54.5 VDC OR 100-250 VAC  
 INPUT CURRENT RATING: 9 A AT 100 V AC  
 OUTPUT VOLTAGE: -54.0 TO -55.0 V DC  
 OUTPUT POWER: 700 W

**ENVIRONMENTAL SPECIFICATIONS:**  
 NORMAL OPERATING TEMP.: -40°C TO +55°C



**Note:** The PSU AC 02 functionality is the same regardless of the exterior chassis types.

ERICSSON PSU AC 02 DETAILS

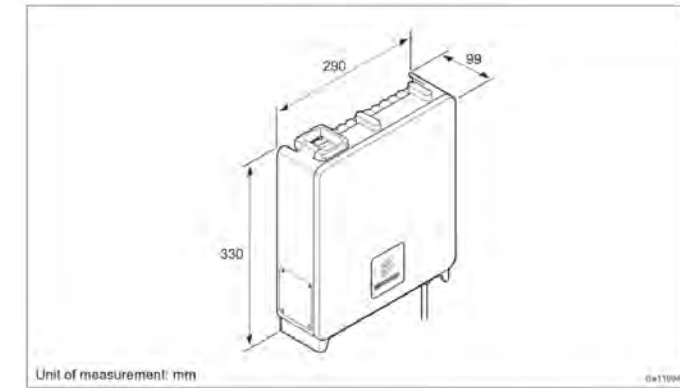
SCALE  
N.T.S. 1

MANUFACTURER: ERICSSON  
 MODEL: PSU 6322

**MECHANICAL SPECIFICATIONS:**  
 HEIGHT: 330 mm (13 IN)  
 WIDTH: 290 mm (11.4 IN)  
 DEPTH: 99 mm (3.9 IN)  
 WEIGHT: 8.6 kg (19.0 LBS)

**ELECTRICAL SPECIFICATIONS:**  
 POWER SUPPLY: -54.5 VDC OR 200-240 VAC  
 OUTPUT VOLTAGE: -54.0 TO -55.0 V DC  
 OUTPUT POWER: 815 W  
 EFFICIENCY: 93%

**ENVIRONMENTAL SPECIFICATIONS:**  
 NORMAL OPERATING TEMP.: -40°C TO +55°C



ERICSSON PSU 6322 DETAILS

SCALE  
N.T.S. 2

MANUFACTURER: RAYCAP  
 MODEL: RSCAC-1333-PS-240-A

**MECHANICAL SPECIFICATIONS:**  
 HEIGHT: 10.43 IN  
 WIDTH: 9.38 IN  
 DEPTH: 6.68 IN  
 WEIGHT: 8 LBS

**ELECTRICAL SPECIFICATIONS:**  
 AMPERAGE: 60A  
 OPERATING VOLTAGE: 120/240V  
 QTY OF PROTECTED CIRCUITS: 10  
 CONNECTION TERMINALS: COMPRESSION LUGS (6 AWG-14 AWG)  
 TERMINAL BLOCK (10 AWG-26 AWG)

**ENVIRONMENT SPECIFICATIONS:**  
 NORMAL OPERATING TEMP.: -40°C TO +80°C  
 ENVIRONMENT: OUTDOOR CLASS NEMA 4X  
 POLYCARBONATE UL 94V-0 RATED



RAYCAP AC DISCONNECT DETAIL

SCALE  
N.T.S. 3

DETAIL NOT USED

SCALE: NTS 4



A&E

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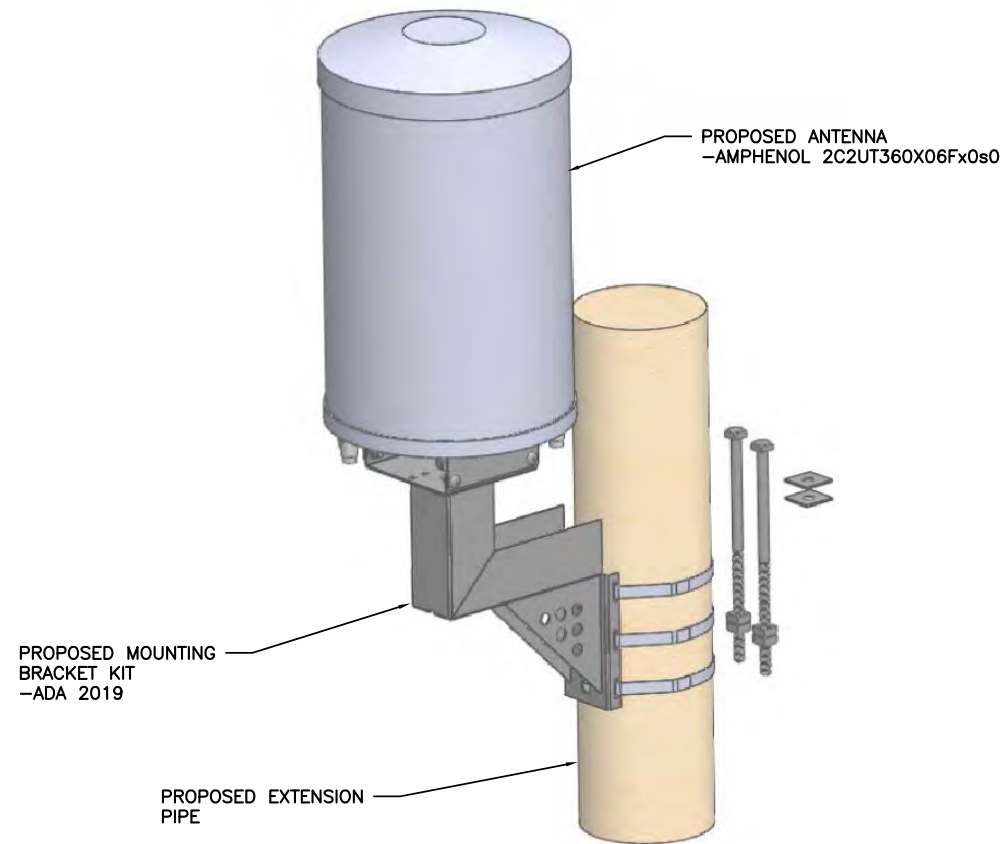
LTE 1C&2C MICRO CELL BUILD  
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 184228  
 1171 W GREEN ST  
 URBANA, IL 61801

SHEET TITLE  
 EQUIPMENT  
 DETAILS

SHEET NUMBER  
**A6**

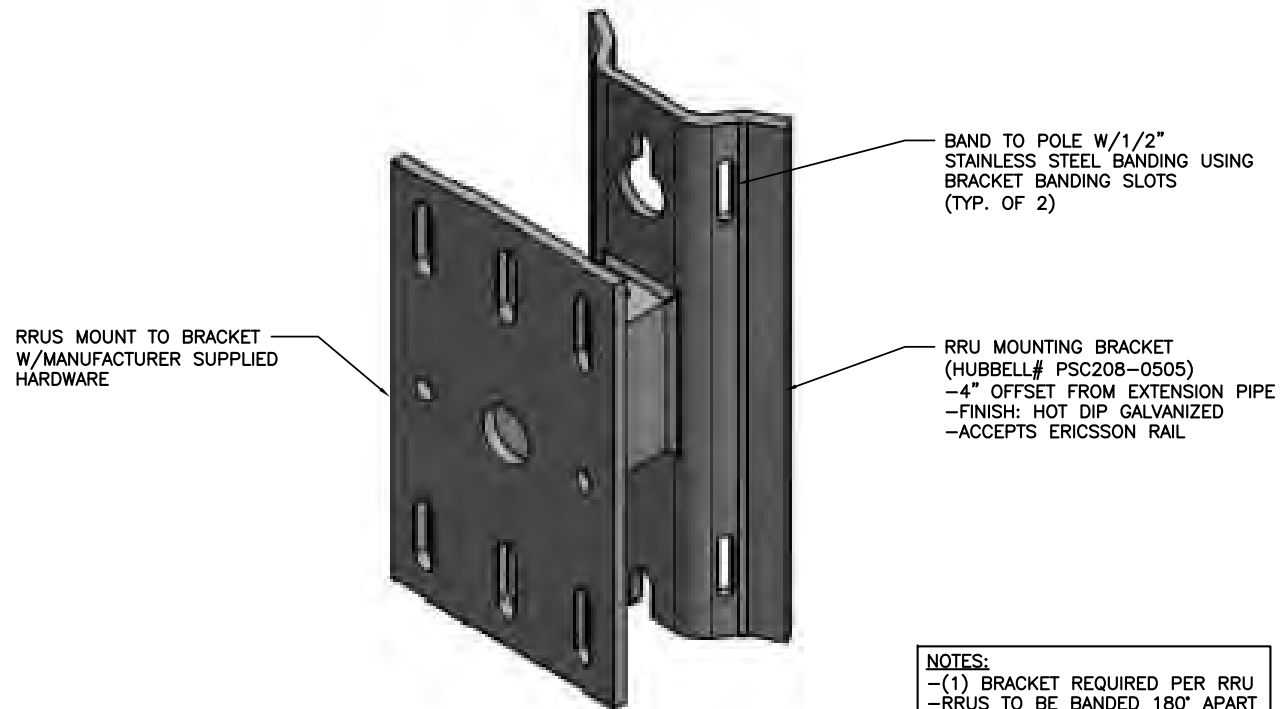


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ANTENNA MOUNTING DETAIL

SCALE	1
N.T.S.	

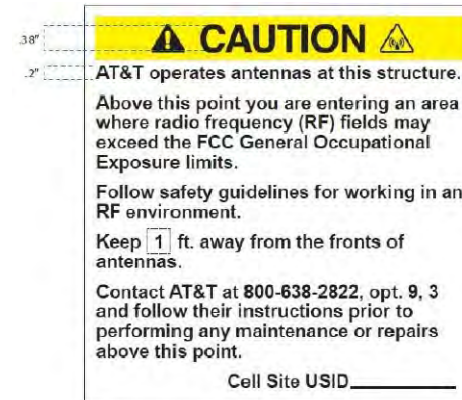


**NOTES:**  
-(1) BRACKET REQUIRED PER RRU  
-RRU TO BE Banded 180° APART ON OPPOSITE SIDES OF EXTENSION PIPE

RRU MOUNTING DETAIL

SCALE	2
N.T.S.	

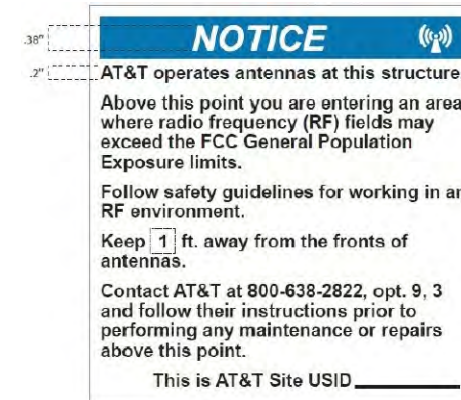
**EXAMPLE CRAN RF CAUTION SIGN**



**EXAMPLE CRAN POLE POWER DISCONNECT SIGN**



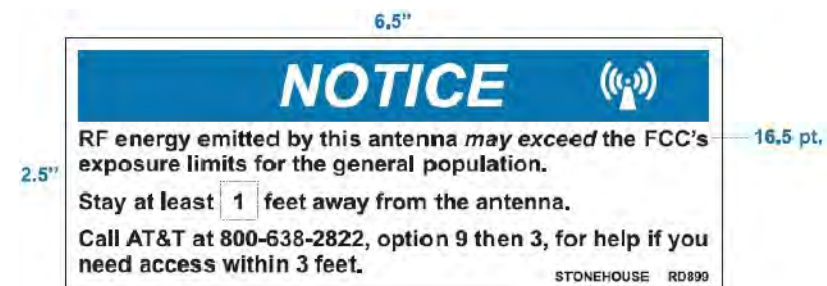
**EXAMPLE CRAN RF NOTICE SIGN**



**EXAMPLE CRAN POLE POWER WARNING SIGN**



**EXAMPLE STONEHOUSE RD899 RF NOTICE SIGN**



CRAN Pole Power Disconnect, RF Notice, and Caution signs shall be ordered through Stonehouse Signs. Three versions are available for each of the signs shown in Figures 16, 17, and 18: .055 Polyethylene - Reflective, .025 Aluminum - Reflective, and Peel Back Label - Reflective. All versions are 6"x6" with font designed to be visible from 2-3 feet away when approached from below to provide warning about ascending into the high RF exposure areas. The RF Caution sign shown in Figure 19 is designed to be visible from 3 feet away and is available in the reflective peel back label version only. It is designed to fit on most of the CRAN/Small Cell antenna types currently deployed. It may also be placed on antenna shrouds as shown in Figures 11 and 12.

**SIGNAGE NOTE:**  
SIGNAGE SHALL BE INSTALLED PER AT&T DIRECTION

AT&T SIGNAGE DETAIL

SCALE: NTS

3



A&E

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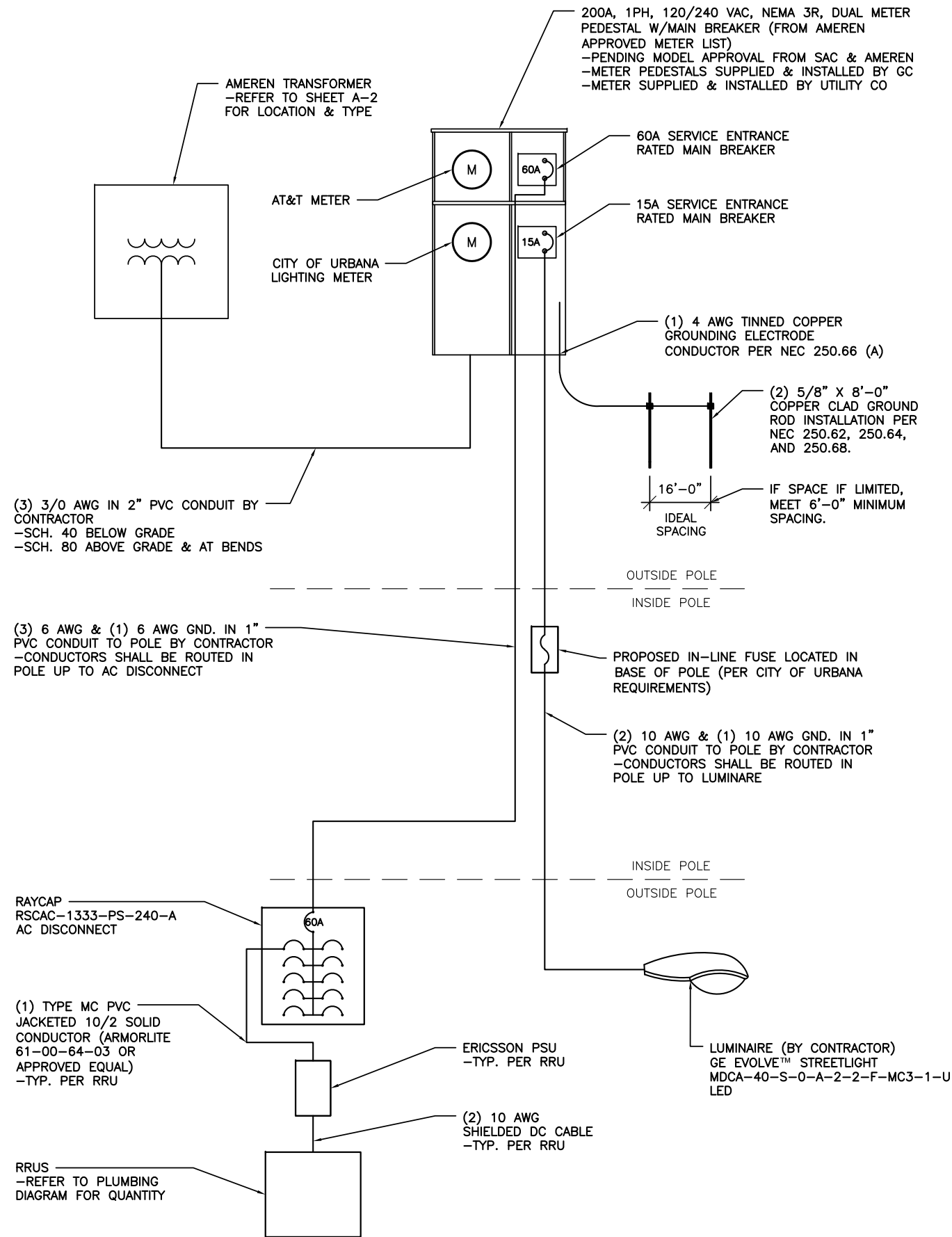
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SHEET TITLE  
**MOUNTING DETAILS**

SHEET NUMBER  
**A7**

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ELECTRICAL ONE-LINE DIAGRAM

SCALE  
N.T.S. 1

DETAIL NOT USED

SCALE  
N.T.S. 2

ELECTRICAL NOTES:

- ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND ALL APPLICABLE CODES.
- CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SUCH THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
- SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING THE INSTALLATION OF GROUNDING AND UNDERGROUND CONDUIT AS TO PREVENT THE LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
- COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC (CADWELD) CONNECTIONS WHEN APPROVED BY CINCINNATI BELL CONSTRUCTION MANAGER.
- SERVICE TO METER PEDESTAL SHALL BE 120/240VAC, 200 AMP, SINGLE PHASE.
- ALL GROUND CONNECTIONS BELOW GRADE SHALL BE EXOTHERMIC (CADWELD).
- ALL GROUND CONNECTIONS ABOVE GRADE SHALL BE FORMED USING TWO (2) HIGH PRESS CRIMPS.
- ALL EXOTHERMIC CONNECTIONS TO THE GROUND RODS SHALL START AT THE TOP AND HAVE A VERTICAL SEPARATION OF 6" FOR EVERY ADDITIONAL CONNECTION.
- ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
- ALL EXTERIOR GROUND CONNECTORS SHALL BE 2 AWG SOLID BARE, TINNED, COPPER UNLESS INDICATED OTHERWISE.
- CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
- USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
- MAXIMUM RESISTANCE OF THE COMPLETED GROUND SYSTEM SHALL NOT EXCEED 5 OHMS. TESTING SHALL BE PERFORMED IN ACCORDANCE WITH PROJECT SPECIFICATIONS FOR FACILITY GROUNDING, USING FALL OF POTENTIAL METHOD.

STANDARD CONDUIT NOTES:

- UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC. ABOVE GROUND CONDUIT, ELBOWS, AND RISERS SHALL BE SCHEDULE 80 PVC.
- UNDERGROUND SERVICE CONDUIT SHALL MEET REQUIRED BURIAL DEPTH PER AMEREN ELECTRIC SERVICE MANUAL.
- G.C. TO STUB UP SERVICE CONDUIT AT UTILITY POLE WITH 90° SWEEPING ELBOW. GC. SHALL COIL SUFFICIENT CONDUCTOR TO REACH SERVICE CONNECTION ON POLE. G.C. SHALL SUPPLY ENOUGH CONDUIT AND RISER HARDWARE FOR AMEREN TO EXTEND SERVICE RISER UP POLE TO SERVICE CONNECTION POINT. REFER TO AMEREN ELECTRIC SERVICE MANUAL FOR REQUIREMENTS.
- ALL CONDUIT WILL BE EQUIPPED WITH 3/8" PULL ROPE AND HAVE A TRACER WIRE. TRACER WIRE NEEDS TO BE LAID ABOVE BURIED CONDUIT.

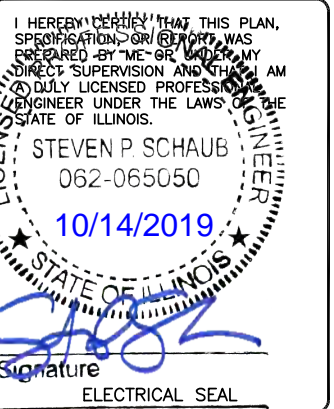
ELECTRICAL NOTES

SCALE  
N.T.S. 3



REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
A	03/27/19	ISSUED FOR REVIEW	MW
B	05/02/19	ADDED FOUNDATION	MRL
C	08/27/19	UPDATED PER RL	TJB
D	09/12/19	UPDATED PER DESN	AGL
E	09/20/19	UPDATED PER COMM.	AGL
F	10/04/19	UPDATED PER COMM.	MRL
G	10/14/19	FINAL CDs	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET



Date  
11/20/19  
LTE 11/20/19 MICRO CELL BUILD  
exp date 14805850  
CRAN\_RCHI\_CHU01-023  
184228  
1171 W GREEN ST  
URBANA, IL 61801

SHEET TITLE  
ELECTRICAL  
ONE-LINE  
DIAGRAM

SHEET NUMBER  
E1

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

AC POWER PANEL (RAYCAP RSCAC-1333-PS-240-A)											
120/240 VOLTS, 1-PHASE, 3-WIRE, 60A											
MAIN RATING (A) :					SYSTEM VOLTAGE (V) :						
60					240						
DESCRIPTION	VA	c/nc	BKR	POSN	L1	L2	POSN	BKR	c/nc	VA	DESCRIPTION
PSU 6322 (4415)	877	c	20	1	877		2		c	0	
PSU AC 02 (RRUS-11)	900	c	20	3		900	4		c	0	
	0	c		5	0		6		c	0	
	0	c		7		0	8		c	0	
	0	c		9	0		10		c	0	
PHASE TOTALS (VA):					877	900					
CURRENT PER PHASE (A):					9	9 Amperes/phase cannot exceed main breaker rating					
PANEL TOTAL (VA):					1777	Legend: c = continuous, nc = non-continuous					
PANEL CAPACITY (kVA):					14.4	CONNECTED LOAD (kVA): 1.8					
PANEL LOADING (100% non-cont. load) (kVA):					0.0						
PANEL LOADING (125% continuous load) (kVA):					2.2						
PANEL LOADING (TOTAL) (kVA):					2.2						
SPARE CAPACITY (kVA):					12.2						

ELECTRICAL PANEL SCHEDULE

SCALE  
N.T.S.

1

DETAIL NOT USED

SCALE  
N.T.S.

2

DETAIL NOT USED

SCALE  
N.T.S.

3

DETAIL NOT USED

SCALE  
N.T.S.

4



REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
A	03/27/19	ISSUED FOR REVIEW	MW
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C	08/27/19	UPDATED PER RL	TJB
D	09/12/19	UPDATED PER DESN	AGL
E	09/20/19	UPDATED PER COMM.	AGL
F	10/04/19	UPDATED PER COMM.	MRL
D	10/14/19	FINAL CDs	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF ILLINOIS.

STEVEN P. SCHAUB  
062-065050  
10/14/2019

Signature  
ELECTRICAL SEAL

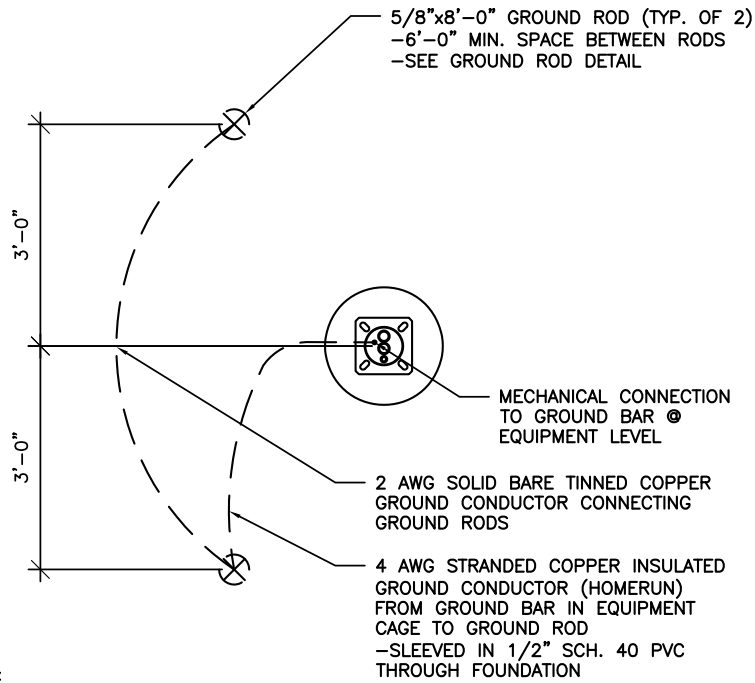
Date  
11/20/19

PROJECT: LTE 1/C20/19 MICRO CELL BUILD  
exp. date 14805850  
CRAN\_RCHI\_CHU01-023  
184228  
1171 W GREEN ST  
URBANA, IL 61801

SHEET TITLE  
PANEL SCHEDULE  
& ELECTRICAL  
DETAILS

SHEET NUMBER  
**E2**

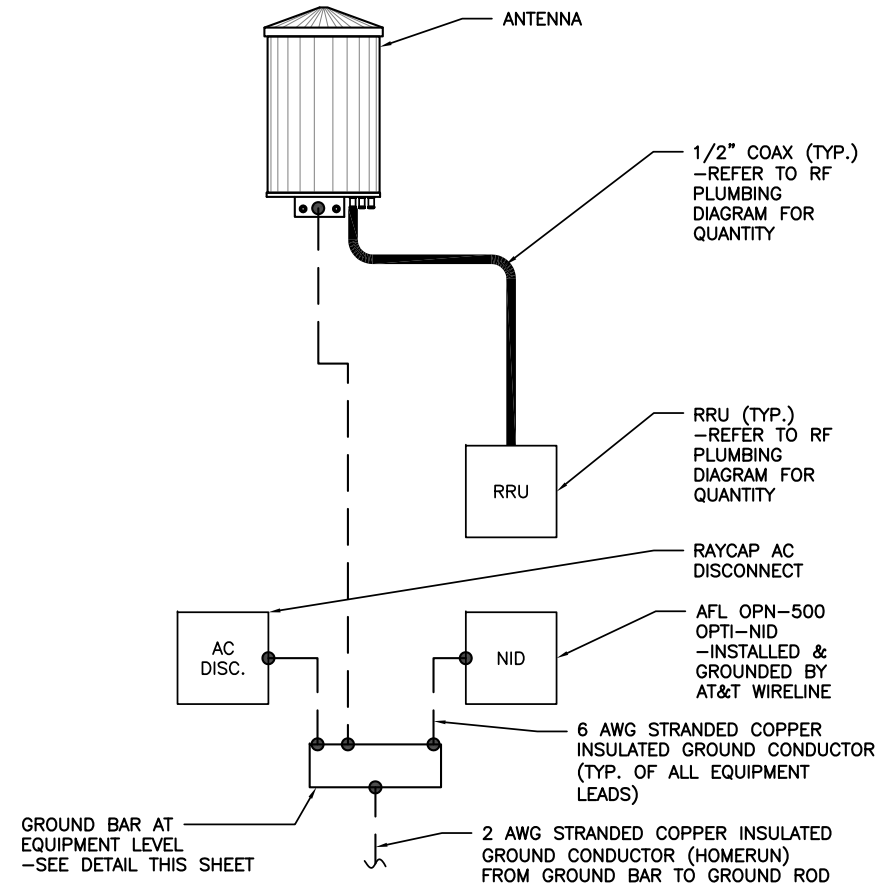
THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.



NOTE:  
GROUND ROD LOCATIONS ARE  
DIAGRAMMATICAL ONLY. CONTRACTOR  
SHALL PLACE GROUND RODS IN  
FIELD TO BE LEAST OBSTRUCTIVE  
TO EXISTING FIELD CONDITIONS.

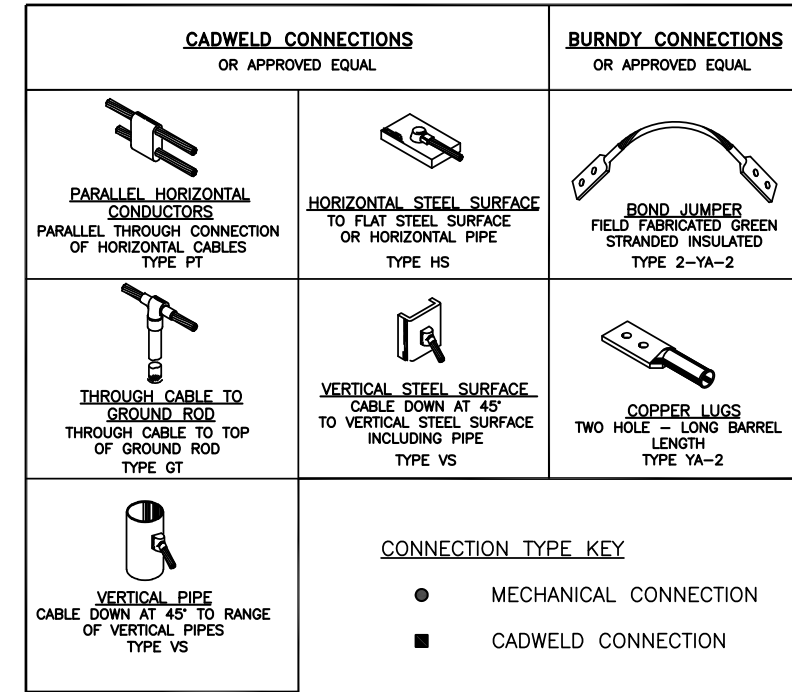
POLE GROUNDING PLAN DETAIL

SCALE  
N.T.S. 1



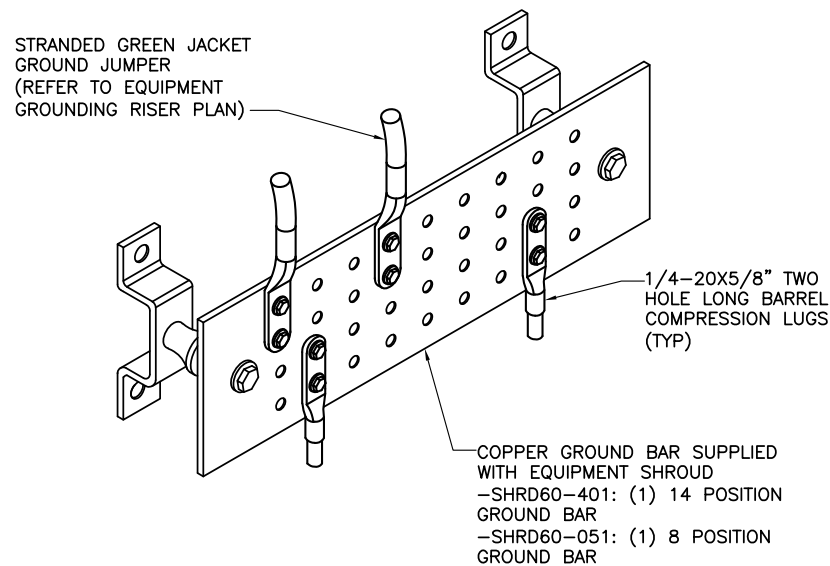
EQUIPMENT GROUNDING RISER DETAIL

SCALE  
N.T.S. 2



GROUNDING CONNECTIONS DETAIL

SCALE  
N.T.S. 3



NOTES:  
1. CONTRACTOR SHALL UTILIZE LUGGED HOLES PROVIDED. NO DRILLING OF THE BAR  
WILL BE PERMITTED.  
2. ALL HARDWARE SHALL BE 1/4-20 STAINLESS STEEL INCLUDING BELLEVILLES. COAT  
ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.  
3. FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG  
AND STEEL. COAT ALL SURFACES WITH KOPR-SHIELD.

GROUND BAR DETAIL

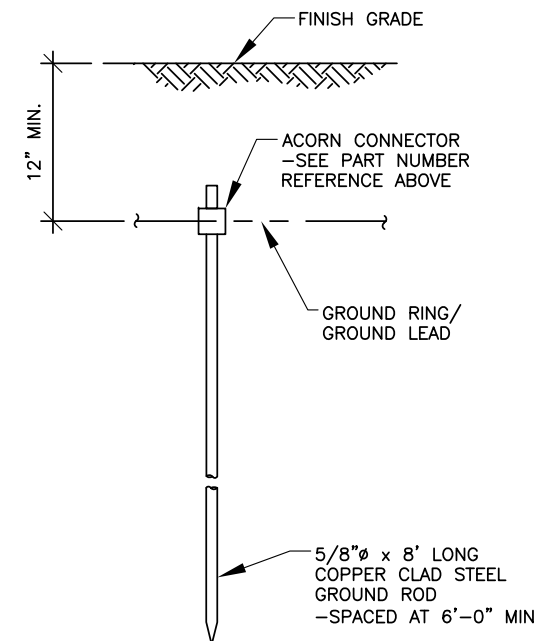
SCALE  
N.T.S. 4



DETAIL NOT USED

SCALE  
N.T.S. 5

ACORN CONNECTOR		
ELEC. MOTION CO. PART #	GROUND CONDUCTOR SIZE	GROUND ROD SIZE
EM2DB	#12-1/0 AWG	5/8"Ø



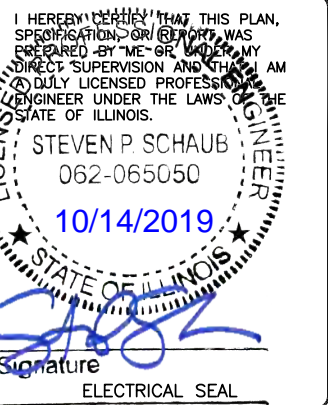
GROUND ROD DETAIL

SCALE  
N.T.S. 6



REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
A	03/27/19	ISSUED FOR REVIEW	MW
B	05/02/19	ADDED FOUNDATION	MRL
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F	10/04/19	UPDATED PER COMM.	MRL
G	10/14/19	FINAL CDs	MRL

NOT FOR CONSTRUCTION UNLESS  
LABELED AS CONSTRUCTION SET



Signature  
Date  
11/20/19  
LTE 11/20/19 MICRO CELL BUILD  
exp date 14805850  
CRAN\_RCHI\_CHU01-023  
184228  
1171 W GREEN ST  
URBANA, IL 61801

SHEET TITLE  
GROUNDING  
DETAILS

SHEET NUMBER  
E3

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Diagram - 2 Diagram File Name - Micro 17.vsd

Atoll Site Name - Champaign CRAN HUB-University Location Name - CRAN\_CHAMPAIGN\_UNIVERSITY\_0001 BUILD BBU Market - CENTRAL, ILLINOIS Market Cluster - ILLINOIS/WISCONSIN

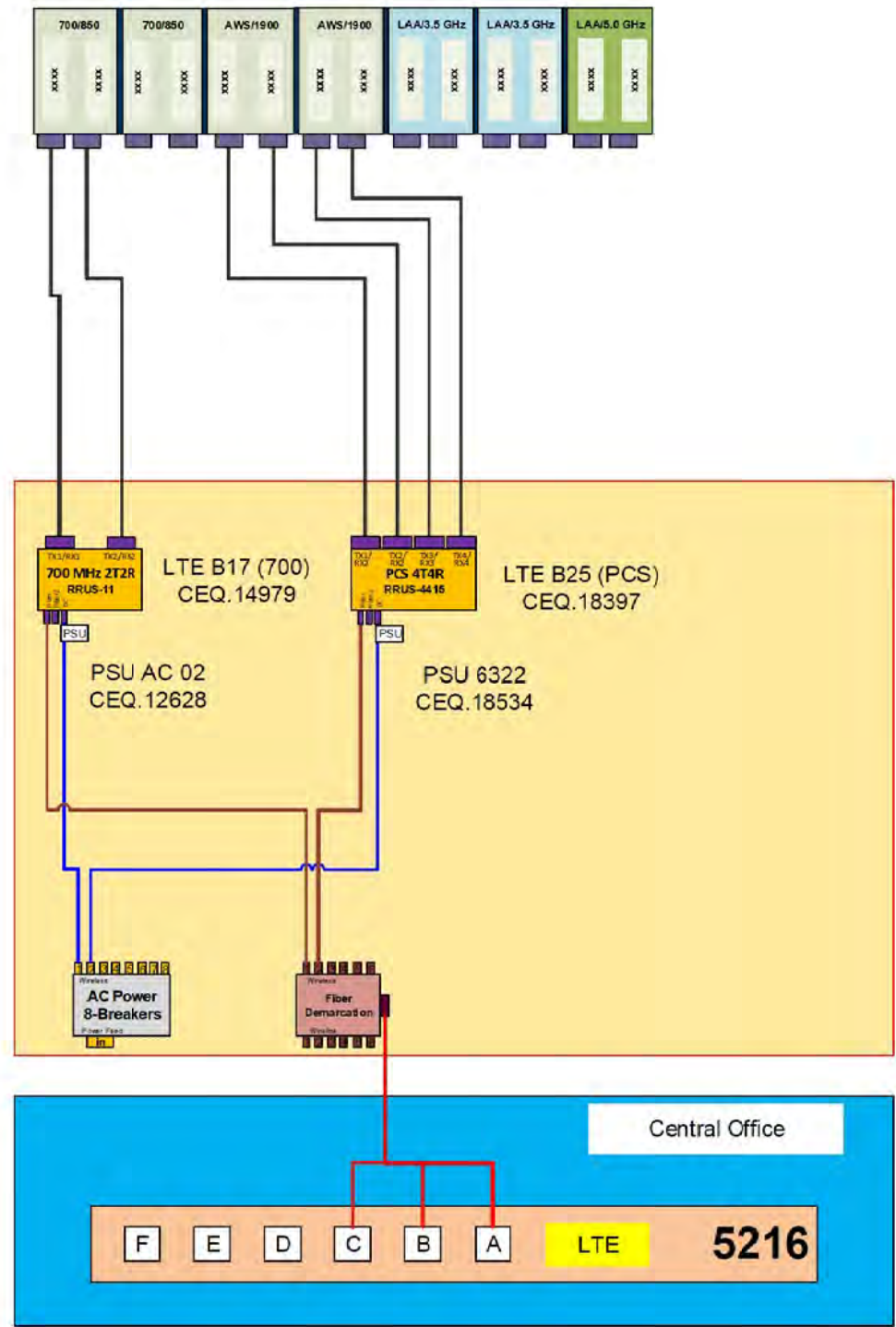
Comments:

Configuration Name	700 MHz 2T2R LTE	700 MHz 4T4R LTE	850 MHz 2T2R LTE	850 MHz 4T4R LTE	1900 MHz 2T2R LTE	1900 MHz 4T4R LTE	2100 MHz 2T2R LTE	2100 MHz 4T4R LTE	5GHz LAA LTE	3.5 GHz LAA LTE	Sector Count	Carrier Count	Antenna LAA location
Micro #17	X	NA	NA	NA	NA	X	NA	NA	NA	NA	1	2	14 Ports Antenna

Amphenol Pseudo-Omni – 14 ports Antenna  
2C2U3MT360X06FxyS0



**Important Note:**  
For detailed radio to antenna wiring refer to the latest 4T4R Antenna/Radio Port Connection Field Notice (RF-HW-2016-234) and the 4T Wiring Playbook



A&E

REVISIONS			
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E	09/20/19	UPDATED PER COMM.	AGL
F	10/04/19	UPDATED PER COMM.	MRL
D	10/14/19	FINAL CDs	MRL

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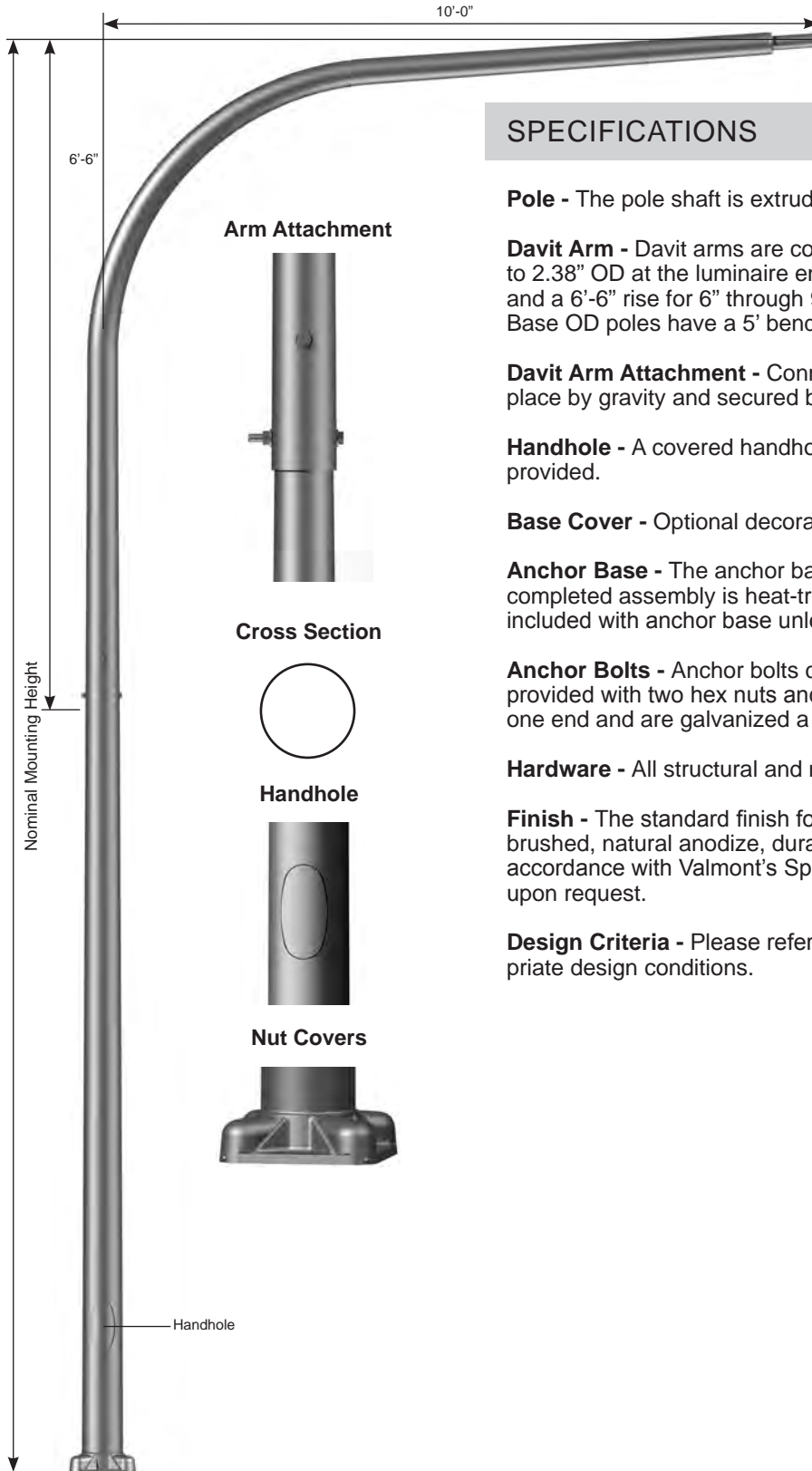
REFERENCE ONLY

LTE 1C&2C MICRO CELL BUILD  
14805850  
CRAN\_RCHI\_CHU01-023  
184228  
1171 W GREEN ST  
URBANA, IL 61801

SHEET TITLE  
RF  
PLUMBING  
DIAGRAM

SHEET NUMBER  
**RF1**

Job Name: _____	Client Name: _____
Job Location - City: _____ State: _____	Created By: _____ Date: _____
Product: _____ Quote: _____	Customer Approval: _____ Date: _____



**SPECIFICATIONS**

**Pole** - The pole shaft is extruded from seamless alloy aluminum.

**Davit Arm** - Davit arms are conically tapered from seamless alloy aluminum to 2.38" OD at the luminaire end. Davit arm members have a 4' bend radius and a 6'-6" rise for 6" through 9" Base OD poles. Davit arm members for 10" Base OD poles have a 5' bend radius and a 6'-6" rise.

**Davit Arm Attachment** - Connection allows arm to be erected and held in place by gravity and secured by two stainless steel through bolts.

**Handhole** - A covered handhole with hardware and grounding provision are provided.

**Base Cover** - Optional decorative base covers available as special order.

**Anchor Base** - The anchor base is cast from 356 alloy aluminum. The completed assembly is heat-treated to a T6 temper. Aluminum nut covers are included with anchor base unless otherwise specified.

**Anchor Bolts** - Anchor bolts conform to ASTM F1554 Grade 55 and are provided with two hex nuts and two flat washers. Bolts have an "L" bend on one end and are galvanized a minimum of 12" on the threaded end.

**Hardware** - All structural and non-structural fasteners are stainless steel.

**Finish** - The standard finish for the pole assembly and components is satin brushed, natural anodize, duranodic or polyester powder applied coating in accordance with Valmont's Specifications. Additional finish options available upon request.

**Design Criteria** - Please reference Design Criteria Specification for appropriate design conditions.

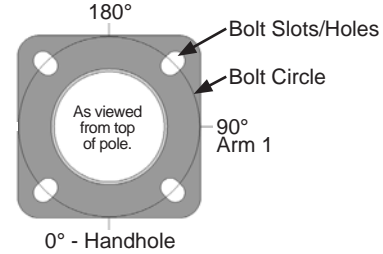
# ROUND TAPERED ALUMINUM Davit Arm 10' Single

Job Name: _____	Client Name: _____
Job Location - City: _____ State: _____	Created By: _____ Date: _____
Product: _____ Quote: _____	Customer Approval: _____ Date: _____

## ANCHORAGE DATA

POLE		BASE PLATE				ANCHOR BOLTS		
BASE OD (IN)	WALL THK (IN)	BOLT CIRCLE		SQUARE (IN)	THK (IN)	DIA x LENGTH x HOOK (IN)	PROJECTION (IN)	± (IN)
		DIA (IN)	± (IN)					
6.00	0.156	9.50	0.75	10.32	0.630	0.75 x 17.00 x 3.00	3.50	N/A
7.00	0.156	10.56	0.43	11.26	0.750	1.00 x 36.00 x 4.00	4.13	N/A
8.00	0.156	11.63	0.37	12.05	0.750	1.00 x 36.00 x 4.00	4.13	N/A
8.00	0.188	11.63	0.37	12.05	0.750	1.00 x 36.00 x 4.00	4.13	N/A
8.00	0.250	11.63	0.37	12.05	0.750	1.00 x 36.00 x 4.00	4.13	N/A
9.00	0.156	13.25	0.75	12.48	1.250	1.00 x 36.00 x 4.00	4.13	N/A
9.00	0.188	13.25	0.75	12.48	1.250	1.00 x 36.00 x 4.00	4.13	N/A
10.00	0.188	14.31	0.69	13.19	1.250	1.00 x 36.00 x 4.00	4.75	N/A

Anchor Base Detail



## LOAD AND DIMENSIONAL DATA

NOMINAL MOUNTING HEIGHT	QUANTITY OF ARMS	MAX WEIGHT <sup>1</sup> (LBS)	DESIGN INFORMATION					POLE DIMENSIONS					MODEL NUMBER
			70 MPH w/1.3 GUST	80 MPH w/1.3 GUST	90 MPH w/1.3 GUST	100 MPH w/1.3 GUST	110 MPH w/1.3 GUST	POLE HEIGHT	BASE OD (IN)	TOP OD (IN)	WALL THK (IN)	STRUCTURE WEIGHT <sup>2</sup> (LBS)	
			MAX EPA <sup>1</sup> (SQ FT)	MAX EPA <sup>1</sup> (SQ FT)	MAX EPA <sup>1</sup> (SQ FT)	MAX EPA <sup>1</sup> (SQ FT)	MAX EPA <sup>1</sup> (SQ FT)						
25'-0"	Single	55	6.0	3.8	2.1	0.9	N/A	18'-6"	6.00	4.00	0.156	90	250065110D4Z
		75	6.0	6.0	4.9	3.2	2.0	18'-6"	7.00	4.00	0.156	98	250075110D4Z
		75	6.0	6.0	6.0	5.7	4.0	18'-6"	8.00	4.50	0.156	109	250085110D4Z
30'-0"	Single	55	6.0	4.1	2.2	1.0	N/A	23'-6"	7.00	4.00	0.156	116	300075110D4Z
		75	6.0	6.0	4.8	3.1	1.8	23'-6"	8.00	4.50	0.156	129	300085110D4Z
		75	6.0	6.0	6.0	4.8	3.2	23'-6"	8.00	4.50	0.188	146	300086110D4Z
		75	6.0	6.0	6.0	5.5	3.7	23'-6"	9.00	4.50	0.156	141	300095110D4Z
35'-0"	Single	70	6.0	4.2	2.3	0.9	N/A	28'-6"	8.00	4.50	0.156	146	350085110D4Z
		75	6.0	6.0	4.0	2.4	1.1	28'-6"	8.00	4.50	0.188	167	350086110D4Z
		75	6.0	6.0	4.8	3.0	1.6	28'-6"	9.00	4.50	0.156	160	350095110D4Z
		75	6.0	6.0	6.0	4.8	3.1	28'-6"	9.00	4.50	0.188	183	350096110D4Z
40'-0"	Single	75	6.0	6.0	6.0	5.2	3.4	28'-6"	8.00	4.50	0.250	207	350088110D4Z
		60	4.0	1.5	N/A	N/A	N/A	33'-6"	8.00	4.50	0.156	166	400085110D4Z
		70	6.0	3.5	1.6	N/A	N/A	33'-6"	8.00	4.50	0.188	190	400086110D4Z
		70	6.0	4.4	2.3	0.9	N/A	33'-6"	9.00	4.50	0.156	182	400095110D4Z
		75	6.0	6.0	4.3	2.5	1.1	33'-6"	9.00	4.50	0.188	209	400096110D4Z
		75	6.0	6.0	4.5	2.7	1.3	33'-6"	8.00	4.50	0.250	238	400088110D4Z
		75	6.0	6.0	6.0	4.0	2.1	33'-6"	10.00	6.00	0.188	246	400006110D4Z

1. EPA represents the Effective Projected Area of each luminaire. Designs are limited to one luminaire per arm. Variations from sizes above are available upon inquiry at the factory. Satisfactory performance of poles is dependent upon the pole being properly attached to a supporting foundation of adequate design.  
 2. Structure weight is a nominal value which includes the pole shaft, base plate and luminaire arm(s).

## PRODUCT ORDERING CODES

CROSS SECTION	MODEL NUMBER	COLOR	OPTIONS
R			
R = Round	250065110D4Z 250075110D4Z 250085110D4Z 300075110D4Z 300085110D4Z 300086110D4Z 300095110D4Z 350085110D4Z 350086110D4Z 350095110D4Z 350096110D4Z 350088110D4Z 400085110D4Z 400086110D4Z 400095110D4Z 400096110D4Z 400088110D4Z 400006110D4Z	<b>Polyester Powder</b> DWH = White DSS = Sandstone BR = Burgundy HG = Hunter Green DNA = Natural Aluminum DCG = Charcoal Gray DMB = Medium Bronze SBN = Sanded Brown DNB = New Dark Bronze DDB = Dark Bronze SBK = Sanded Black DBL = Black DSB = Steel Blue DTG = Dark Green DBR = Red SC = Special Color (Contact Factory)	<b>Anodized</b> 204 = Clear Natural 311 = Light Bronze* 312 = Medium Bronze* 313 = Dark Bronze* 335 = Black*  *Duranodic Anodize  <b>Brushed</b> SBF = Satin Brushed

See Accessories at valmontstructures.com  
(Please Specify with Code)

Date: **October 1, 2019**

Migirdech Tokat  
SAC Wireless  
540 W Madison St. 9th Floor  
Chicago, IL 60661

**ARCHITECTURE & ENGINEERING DIVISION**  
604 FOX GLEN . BARRINGTON, IL 60010  
847/277-0070 . FAX: 847/277-0080  
AE@westchesterservices.com / www.westchesterservices.com

**Subject: Pole Extension Modification Report**

**AT&T Small Cell**

**Site Number:** MRCHI025452  
**Site Name:** CRAN\_RCHI\_CHUOI\_023  
**FA#:** 14805850

**Engineering Firm Designation:** Westchester Services, LLC

**Site Data:** 1171 W Green St, Urbana, IL 61801  
Champaign County – 30ft Light Pole w/ 18’ Pole Extension

Migirdech Tokat,

Westchester Services, LLC is pleased to submit this **“Pole Extension Modification Report”** to determine the structural integrity of the above mentioned pole extension.

The purpose of the analysis is to determine acceptability of the pole extension stress level. Based on our analysis we have determined the stress levels to be:

**Existing and Proposed Equipment**

**Sufficient Capacity**

Note: See Table 2-1 for the existing and proposed loading.

Member Type	% Capacity	Pass/Fail
Overall	89.2	Pass

The analysis has been performed in accordance with the NESC 2017 standard and local code requirements.

We at Westchester Services, LLC appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or any other projects please give us a call.

I certify that this report was prepared by me or under my direct supervision and that I am a licensed Structural Engineer under the laws of the State of Illinois.

Joseph Meyer, SE  
Structural Engineer





## **TABLE OF CONTENTS**

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### **2) ANALYSIS CRITERIA**

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3.1 Analysis Method

### **4) ANALYSIS RESULTS**

Table 4-1 – Critical Section Capacity (Summary)

4.1 Recommendations

### **5) ASSUMPTIONS**

### **6) APPENDIX A**

Calculations

## 1) INTRODUCTION

This is a 30ft tall light pole located in Champaign County, IL. The proposed antennas will be mounted on a proposed extension pipe.

## 2) ANALYSIS CRITERIA

The structural analysis was performed for this structure in accordance with the requirements of NESC 2017 Rule 250B Heavy loading.

**Table 2-1 – Proposed Final Antenna Configuration**  
(New antennas in **bold**)

Center Line Elevation (ft)	Antenna(s)	Radio(s)	Mounting System
37.0	(1) <b>2C2U3MT360X06Fxys0</b>		
32.75		(2) <b>Proposed Remotes</b>	
31.0		(1) <b>Power/Fiber cabinet</b>	

### 3) ANALYSIS PROCEDURE

**Table 3-1 – Documents Provided**

Document	Remarks	Reference	Date	Source
Construction Drawings	GPD	N/A	9/20/19	SAC

#### 3.1) Analysis Method

Risa-3D (version 17.0.4) is a finite element analysis software program was used for modeling and analyzing frame structures. The output from the analysis can be found in Appendix A.

Mathcad 15 is a mathematics software program used for creating hand calc templates. The output of these calculations can be found in Appendix A.

### 4) ANALYSIS RESULTS

**Table 4-1 – Critical Section Capacity (Summary)**

Member Type	Elevation (ft)	% Capacity	Pass/Fail
Extension Pipe	17	66.0	Pass
Connection	17	10.6	Pass
Pole Local Bending	17	89.2	Pass
Overall		89.2	Pass

#### 4.1) Recommendations

See details for information on the proposed extension pipe and connections.

#### 4.2) Conclusions

The light pole has adequate capacity to support the extension pipe and equipment.

## 5) ASSUMPTIONS

- The analysis performed is to the theoretical capacity of the members and connections. No accommodations are taken for any damaged, rusted, deteriorated, or otherwise compromised member conditions. To this, the tower or structure is assumed to be properly maintained and monitored and this analysis cannot be considered to be a condition assessment of the structure.
- The analysis is performed to the minimum design wind, ice, and other environmental loading prescribed by the governing building codes and standards. Any higher loading conditions required by the local jurisdiction or structure owner should be made known to Westchester immediately for analysis. No lesser conditions will be accommodated.
- Member sizes are assumed to be of standard AISC or manufacturer designations unless explicitly specified otherwise. The geometry of the tower or structure is assumed as schematic. Steel grade and concrete strength are assumed to be conservative standard and fully developed unless otherwise specified.
- The information provided to Westchester for analysis is assumed accurate and up to date as supplied. No independent efforts were taken by Westchester to verify the validity of the information supplied. If any additional information is presented at any time that contradicts what is referenced in the analysis, the analysis is invalid and must be performed again with the new information.
- Any reinforcement or modifications are assumed to be fully installed and functional.
- All welds are assumed to have been performed to current welding standards and are assumed to develop their full capacity and to be in good condition. In addition, all bolts and bolt-like anchors are assumed to be fully tightened, fastened, or bonded to the manufacturers' specifications and are assumed to have full capacity.
- Numerous connection details of large-scale structures are unobtainable and are omitted from the structural analysis. This includes, but is not limited to: bolts, welds, flanges, and plates. These connections are considered adequate and are therefore neglected from the analysis. In addition, in the absence of building plans, many wall, floor, and ceiling constructions can only be determined from observable field data and are supplemented by best judgment and experience.
- Antennas, dishes, feedlines, and any other such appurtenances are assumed adequate through manufacturer testing. No analysis is provided for the structural strength or stability of these items unless otherwise specified.
- Equipment mounting systems are assumed structurally sound unless specifically called for in the analysis.
- Soil conditions and foundations are not considered unless specified in the analysis and have no deterioration or defects. For sites located on a building, only local effects of the equipment is considered unless otherwise specified. The overall structure of the building and its foundation are assumed to be unaffected by the telecom equipment.
- Any changes or differences to the site or site plans at any time prior to installation must be brought to the attention of Westchester immediately.

**APPENDIX A**  
**CALCULATIONS**

References:

- 1) 2015 International Building Code
- 2) ANSI TIA-222-G, Structural Standard for Antenna Supporting Structures and Antennas
- 3) AISC 360-10 Specification for Structural Steel Buildings
- 4) 2015 Aluminum Design Manual
- 5) 2017 National Electric Safety Code

---

***Input***

$q := 4\text{psf}$

*Design wind pressure per Ref. (5)*

$t_i := 0.5\text{in}$

*Design ice thickness per Ref. (5)*

**Antennas/Radios**

Antenna name/model

Number of antennas

Shielding Factor

"Canister Antenna"
"radio"
"Power/Fiber"
"Extension Pipe"
"not used"
"not used"
"not used"
"not used"

1
1
1
1
0
0
0
0

$n_{ant} :=$

1
1
1
1
1
1
1
1

ShieldingFactor :=

Height of antennas\*

Width of antennas\*

Depth of antennas\*

Weight of antennas

24
17.1
13
276
0
0
0
0

height<sub>ant</sub> := .in

14.6
7.9
11.4
2.875
1
1
1
1

width<sub>ant</sub> := .in

14.6
4.1
3.9
2.875
1
1
1
1

depth<sub>ant</sub> := .in

23
100
19
133.4
0
0
0
0

Weight<sub>ant</sub> := .lbf

Antenna Shape?

1 = Flat

0 = Round

Elevation of antennas

Number of antenna groups

0
1
1
1
1
1
1
1

SHAPE :=

37
32.75
31
23.5
98
98
98
98

z<sub>ant</sub> := .ft

$N_{antenna} := 4$

\*Matrix elements with a value of "1" are just placeholder values to prevent divide by 0 / NaN errors.

Wind load calculations collapsed



## *Equipment Frame*

*An analysis of the frame was conducted using RISA 3D with the above outlined equipment and the following load conditions.*

$$F_1 := F_{A_1}$$

$$W_{1.ice} := W_{ant.ice_1}$$

$$F_1 = 9.733 \text{ lbf}$$

*Antenna position 1*

$$W_{1.ice} = 47.642 \text{ lbf}$$

$$F_2 := F_{A_2}$$

$$W_{2.ice} := W_{ant.ice_2}$$

$$F_2 = 3.753 \text{ lbf}$$

*Antenna position 2*

$$W_{2.ice} = 108.675 \text{ lbf}$$

$$F_3 := F_{A_3}$$

$$W_{3.ice} := W_{ant.ice_3}$$

$$F_3 = 4.117 \text{ lbf}$$

*Antenna position 3*

$$W_{3.ice} = 27.836 \text{ lbf}$$



### *RISA 3D Loads Input*

*Wind Load (with ice)*

*Dead Load (with ice)*

*Position 1:*

$$F_1 = 9.733 \text{ lbf}$$

$$W_{1.ice} = 47.642 \text{ lbf}$$

*Position 2:*

$$F_2 = 3.753 \text{ lbf}$$

$$W_{2.ice} = 108.675 \text{ lbf}$$

*Position 3:*

$$F_3 = 4.117 \text{ lbf}$$

$$W_{3.ice} = 27.836 \text{ lbf}$$

$$w_{pipe} := \frac{F_{A_4}}{23ft} = 0.958 \cdot plf$$

*Distributed wind load on pipe*

$$ice_{pipe} := \frac{W_{ant.ice_4} - Weight_{ant_4}}{23ft} = 2.646 \cdot plf$$

*Distributed ice weight on pipe*

*Check Local Bending on Pole*

$$D_{\text{pole}} := 4.5\text{in}$$

$$t_{\text{pole}} := .188\text{in} \quad D_{\text{i.pole}} := D_{\text{pole}} - 2 \cdot t_{\text{pole}} = 4.124\text{in}$$

$$S_{\text{pole}} := \frac{\pi \cdot (D_{\text{pole}}^4 - D_{\text{i.pole}}^4)}{32 \cdot D_{\text{pole}}} = 2.636 \cdot \text{in}^3$$

$$M_1 := 768\text{lbf} \cdot 5\text{ft} = 3.84 \times 10^3 \cdot \text{lbf} \cdot \text{ft}$$

*Local moment due to extension*

$$d_{\text{al}} := .1 \cdot \frac{\text{lbf}}{\text{in}^3} \quad A_{\text{arm}} := \frac{\pi \cdot D_{\text{pole}}^2}{4} - \frac{\pi \cdot D_{\text{i.pole}}^2}{4} = 2.547 \cdot \text{in}^2 \quad A_{\text{i.arm}} := \frac{\pi \cdot (D_{\text{pole}} + 1\text{in})^2}{4} - \frac{\pi \cdot D_{\text{pole}}^2}{4}$$

$$\text{wt}_{\text{arm}} := (5\text{ft} + .25 \cdot 2 \cdot \pi \cdot 5\text{ft}) \cdot d_{\text{al}} \cdot A_{\text{arm}} + 35\text{lbf} = 74.283 \text{ lbf}$$

*Weight of davit arm and light*

$$\text{wt}_{\text{i.arm}} := (5\text{ft} + .25 \cdot 2 \cdot \pi \cdot 5\text{ft}) \cdot A_{\text{i.arm}} \cdot 56 \frac{\text{lbf}}{\text{ft}^3} = 39.26 \text{ lbf}$$

*Weight of ice on davit arm*

$$M_2 := (\text{wt}_{\text{arm}} + \text{wt}_{\text{i.arm}}) \cdot 5\text{ft}$$

$$f_b := \frac{M_1 + M_2}{S_{\text{pole}}} = 20.068 \cdot \text{ksi}$$

$$F_y := 25\text{ksi} \quad \phi := .9$$

$$F_b := \phi \cdot F_y = 22.5 \cdot \text{ksi}$$

$$\frac{f_b}{F_b} = 89.19\% \quad \text{OK}$$

*Check connections*

$$T_{\max} := 768\text{lbf}$$

$$V_{\max} := 448\text{lbf}$$

*Use (2) 3/4" 316 Stainless Steel rods at each connection*

$$A_{\text{bolt}} := .334\text{in}^2$$

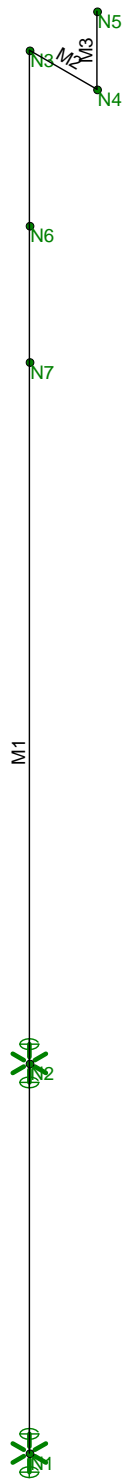
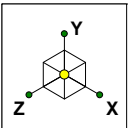
*Eff. area*

$$F_y := 45\text{ksi}$$

$$T_{\text{all}} := .9 \cdot F_y \cdot A_{\text{bolt}} = 13.527 \cdot \text{kip}$$

$$V_{\text{all}} := .6 \cdot F_y \cdot A_{\text{bolt}} = 9.018 \cdot \text{kip}$$

$$\frac{T_{\max}}{T_{\text{all}}} + \frac{V_{\max}}{V_{\text{all}}} = 10.645\% \quad \text{OK}$$





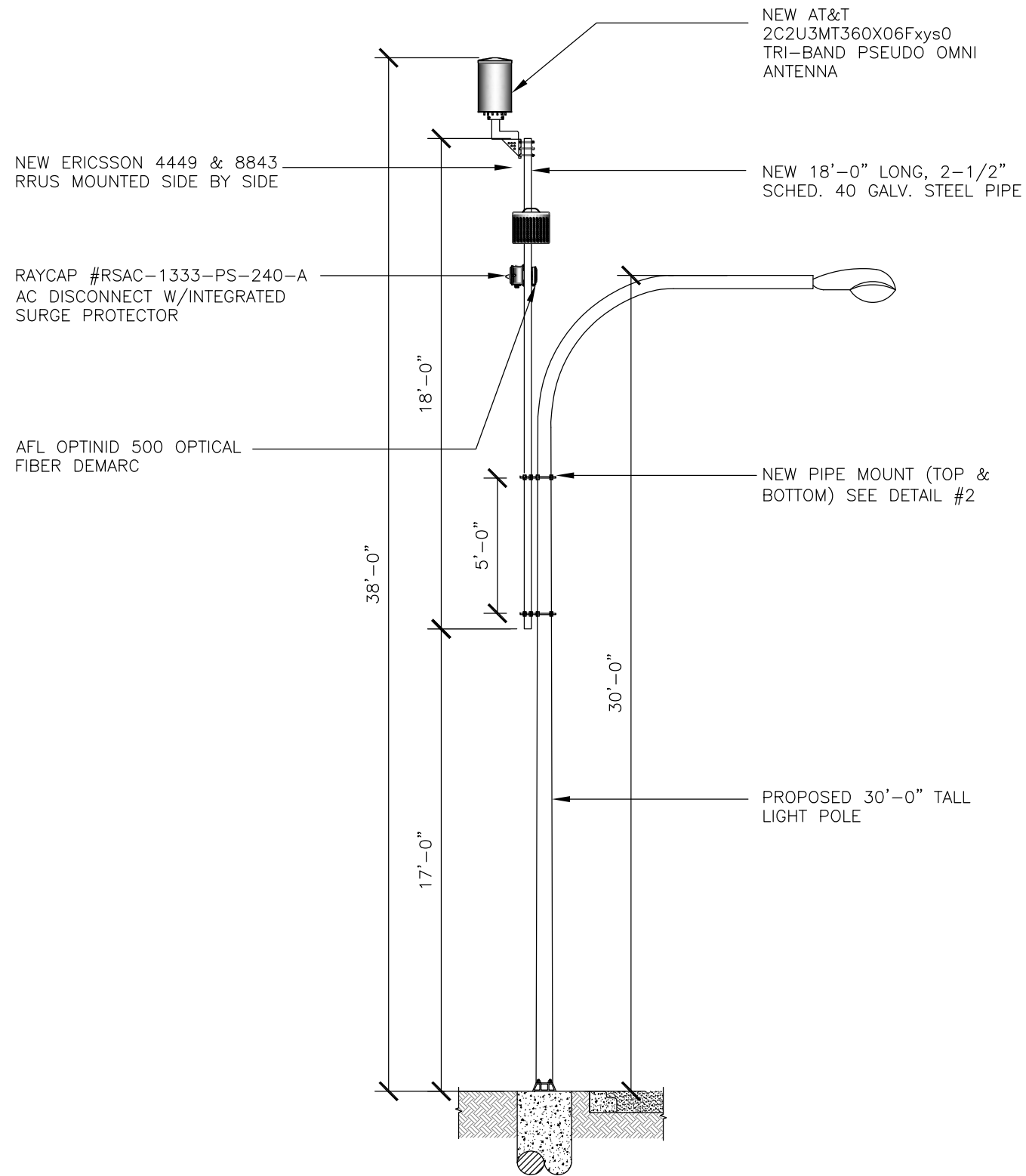




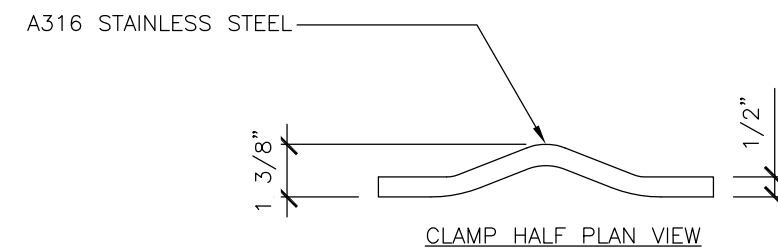
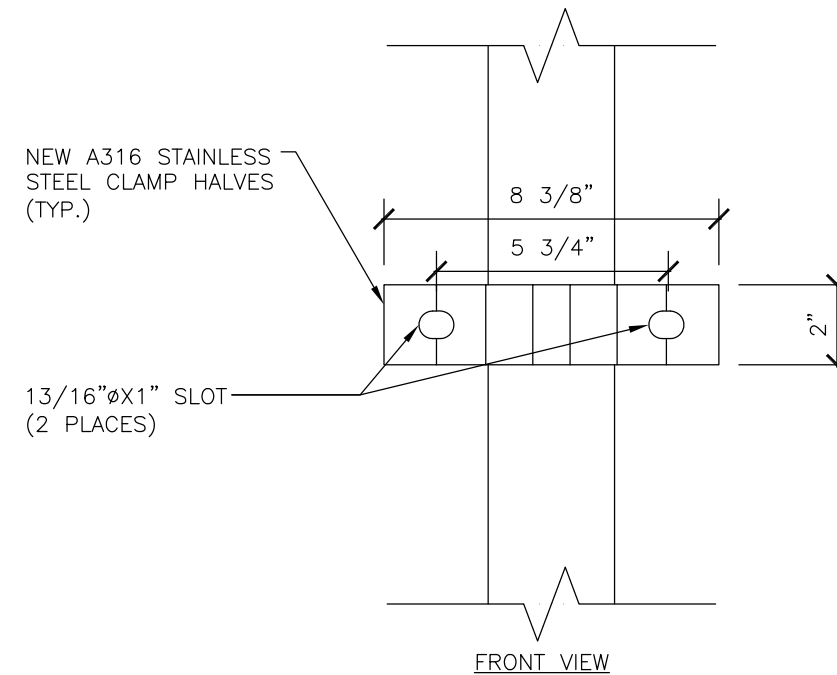
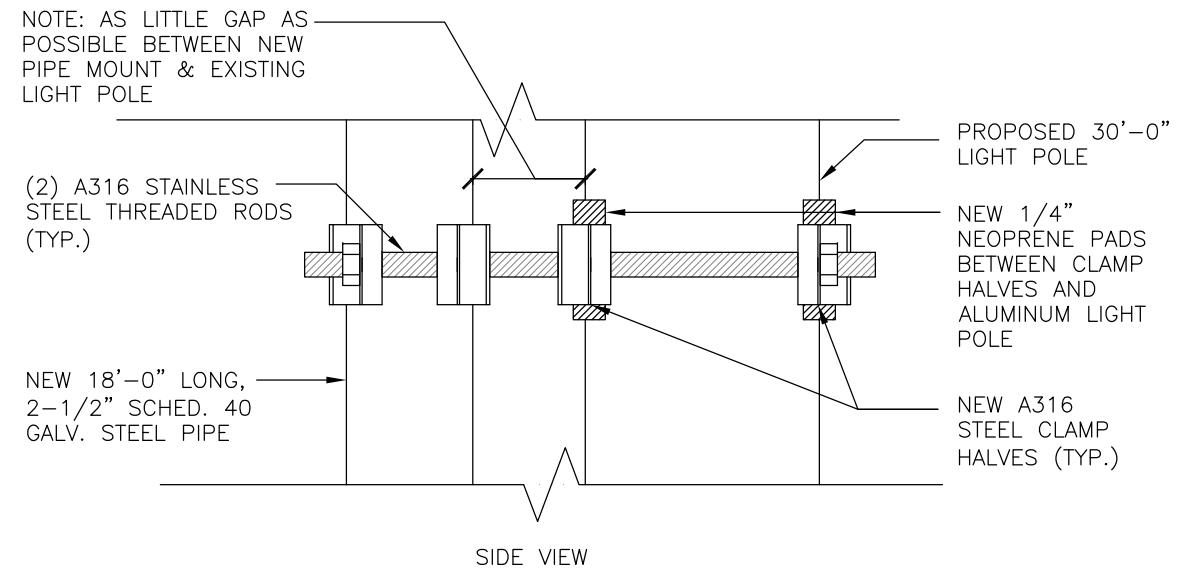




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① LIGHT POLE ELEVATION



② MOUNTING DETAIL



930 NATIONAL PKWY.  
SCHAUMBURG, IL 60173  
OFFICE: 847.592.3000



540 W. MADISON ST.  
9TH FLOOR  
CHICAGO, IL 60661  
www.sacw.com  
312.895.4977



604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847.277.0070  
FAX: 847.277.0080  
AE@WESTCHESTERSERVICES.COM

**JOHN M. BANKS  
ARCHITECT**

604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847.277.0070  
FAX: 847.277.0080  
JBANKS@WESTCHESTERSERVICES.COM

PROJECT	PROPOSED SMALL CELL NODE
SITE NAME	CRAN_RCHI_CHUOI_023
USID	184228
PAGE NUMBER	MRCHI025452
SITE ADDRESS	1171 W GREEN ST URBANA, IL 61801
SHEET NAME	
SHEET NUMBER	1 OF 1

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# AT&T MOBILITY

**PROJECT :** LTE 1C&2C MICRO CELL BUILD  
**SITE # :** CRAN\_RCHI\_CHUOI\_014  
**USID / NODE:** 184219  
**FA # :** 14805799  
**PTN # :** 3304A0AAPB / 3304A0AARX  
**PACE # :** MRCHI025394 / MRCHI025420  
**ENODEB NAME :** ILL07045F\_R01  
**JURISDICTION :** CITY OF URBANA

**SITE NAME :** CRAN\_RCHI\_CHUOI\_014  
**ADDRESS :** 1189 S VINE ST  
 URBANA, IL 61801

## PROJECT INFORMATION

**SITE NAME:** CRAN\_RCHI\_CHUOI\_014  
**COUNTY:** CHAMPAIGN  
**ADDRESS:** 1189 S VINE ST  
 URBANA, IL 61801  
**JURISDICTION:** CITY OF URBANA  
**USID:** 184219  
**FA NUMBER:** 14805799  
**PTN:** 3304A0AAPB / 3304A0AARX  
**PACE:** MRCHI025394 / MRCHI025420

**LATITUDE:** 40° 06' 10.62" (40.10295°)  
**LONGITUDE:** 88° 12' 18.28" (-88.205078°)  
**ELEVATION:** 731'

**LIGHT POLE/UTILITY POLE OWNER:** CITY OF URBANA

**APPLICANT:** AT&T MOBILITY  
 930 NATIONAL PARKWAY  
 SCHAUMBURG IL 60173

**AT&T PROJECT MANAGER/SITE ACQUISITION:** CONSTANCE LAMBERES  
 (847) 330-3427  
 CL644H@ATT.COM

**AT&T CONSTRUCTION MANAGER:** CHRISTIANA RACHAL  
 CR630A@ATT.COM

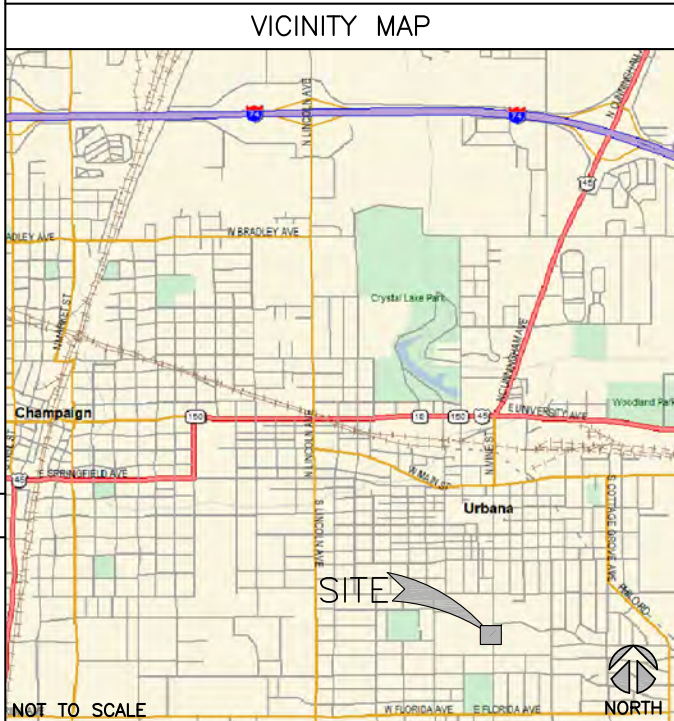
## PROJECT CONSULTANTS

**PROJECT MANAGER:** KAEVA POWELL  
 KAEVA.POWELL@SACW.COM  
 847-466-3470

**ARCHITECT:** GPD GROUP, INC. - 184-007100  
 520 S. MAIN ST., SUITE 2531  
 AKRON, OH 44311  
 317-295-3180

**SAC C.M.:** MARK KLEPACKI  
 EMAIL: MARK.KLEPACKI@SACW.COM

**SAC P.M.:** CHARLIE SHOEMAKER  
 CHARLIE.SHOEMAKER@SACW.COM  
 847-466-3540



NOT TO SCALE

NOT TO SCALE



## DRAWING INDEX

T1	TITLE SHEET
A1	FIBER DELIVERY PLANS (REFERENCE ONLY)
A2	OVERALL SITE PLAN
A3	ENLARGED PLAN
A4	EXISTING LIGHT POLE ELEVATION
A5	PROPOSED LIGHT POLE ELEVATIONS
A6	EQUIPMENT DETAILS (REFERENCE ONLY)
A7	EQUIPMENT DETAILS (REFERENCE ONLY)
A8	MOUNTING DETAILS (REFERENCE ONLY)
E1	ELECTRICAL ONE-LINE DIAGRAM
E2	PANEL SCHEDULE & ELECTRICAL DETAILS
E3	GROUNDING DETAILS
RF1	RF PLUMBING DIAGRAM (REFERENCE ONLY)
REF	POLE MANUFACTURER DESIGN (BY OTHERS)
REF	EXTENSION PIPE DESIGN (BY OTHERS)
REF	FOUNDATION DESIGN (BY OTHERS)

## SCOPE OF WORK

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

- REMOVE EXISTING LIGHT POLE AND REPLACE WITH NEW 30'-0" HAPCO RTA30E1601 6' DAVIT ARM LIGHT POLE (100 GRIT SATIN FINISH) PER PLAN
- INSTALL NEW FIBER SERVICE RUN FROM EXISTING SOURCE TO REPLACEMENT LIGHT POLE LOCATION (TO BE COORDINATED W/AT&T)
- INSTALL NEW POWER & FIBER EQUIPMENT PER PLAN
- INSTALL EXTENSION PIPE ON POLE
- INSTALL (1) NEW OMNI ANTENNA
- INSTALL (1) PCS RRUS-4415 & (1) 700 RRUS-11
- INSTALL CABLING AS REQUIRED
- GROUND AS REQUIRED
- LIGHT POLE LUMINAIRE TO BE SUPPLIED & INSTALLED BY CONTRACTOR (LUMINAIRE SHALL BE METAL HALIDE FULL CUT-OFF 150W WITH FACTORY INSTALLED PHOTO-CONTROL)
- STREET LIGHTING HANDHOLE (IF REQUIRED) SUPPLIED & INSTALLED BY CONTRACTOR
- POTHOLES SHALL BE REQUIRED FOR ANY PROPOSED UTILITY CROSSING
- HYDROVAC SHALL BE USED FOR ALL TRENCHING & POTHOLES ACTIVITIES
- CONTRACTOR SHALL MAINTAIN INTEGRITY OF EXISTING POLE DURING REMOVAL & COORDINATE RETURN OF REMOVED POLE TO THE CITY OF URBANA
- INSTALL (1) PSU AC 02 & (1) PSU 6322
- REPLACE FOUNDATION
- UNDERGROUND BORE FROM STREET LIGHT POLE TO METER PED AND FROM METER PED TO AMEREN UTILITY POLE (POWER SOURCE)

### UTILITY DELIVERY METHOD TO PROPOSED POLE

- FIBER - UNDERGROUND
- POWER - UNDERGROUND

## CODE COMPLIANCE

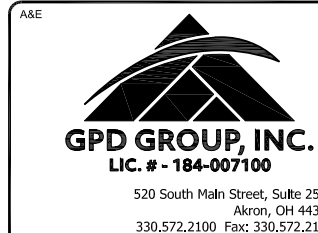
- 2015 INTERNATIONAL BUILDING CODE W/CITY AMMENDMENTS
- 2014 NATIONAL ELECTRIC CODE W/CITY AMMENDMENTS

## SPECIAL NOTES

- ALL WORK SHALL BE INSTALLED IN CONFORMANCE WITH CURRENT AT&T CONSTRUCTION INSTALLATION GUIDE.
- EXISTING CONDITIONS WILL BE CHANGED & VERIFIED IN FIELD. IF SIGNIFICANT DEVIATIONS OR DETERIORATION ARE ENCOUNTERED AT THE TIME OF CONSTRUCTION, A REPAIR PERMIT WILL BE OBTAINED & CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY.
- THESE DRAWINGS ARE FULL SIZE & SCALEABLE ON 11"x17" SHEET SIZE.
- STATEMENT THAT COMPLIANCE WITH THE ENERGY CODE IS NOT REQUIRED. -SCOPE OF WORK DOES NOT INVOLVE MODIFICATIONS TO EXTERIOR ENVELOPE OF BUILDING, HVAC SYSTEMS OR ELECTRICAL LIGHTING.

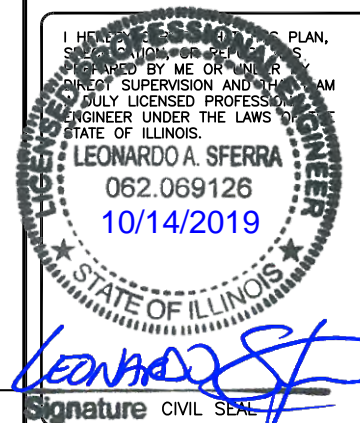
## DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ARCHITECT OR ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.



REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
B	03/12/19	REVISED PER COMM.	MRL
C	05/02/19	ADDED FOUNDATION	MRL
D	08/27/19	REVISED PER COMM.	TJB
E	09/10/19	REVISED PER DESIGN	AGL
F	09/20/19	REVISED PER COMM.	AGL
G	10/04/19	REVISED PER COMM.	MRL
O	10/14/19	FINAL CDs	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

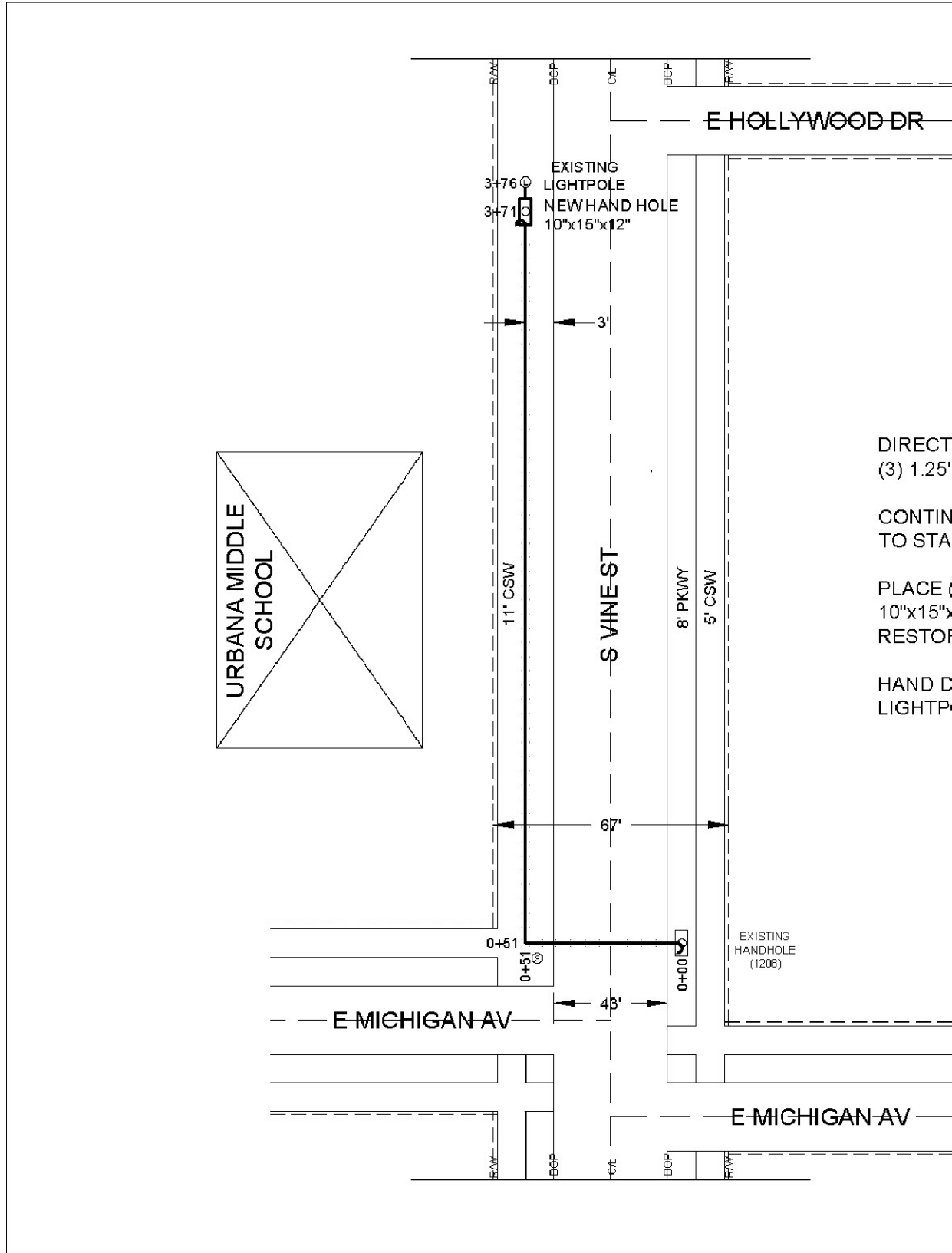


**Signature** CIVIL SEAL  
 Date: 11/30/2019  
 Exp. Date: 11/30/2019  
 1189 S VINE ST  
 URBANA, IL 61801

**SHEET TITLE**  
 TITLE SHEET

**SHEET NUMBER**  
 T1

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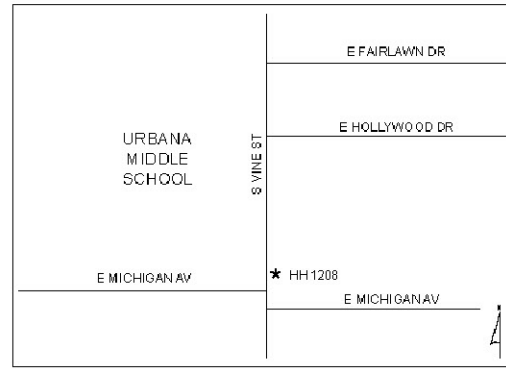
DIRECTIONAL BORE 51ft WEST PLACING  
(3) 1.25" IPP HH 1208 TO STA MARKER 0+51.

CONTINUE DIRECTIONAL BORE NORTH 320ft  
TO STA MARKER 3+71.

PLACE (1) HANDHOLE HDPE BODY/LID  
10"x15"x12" (PID: 1000006143)  
RESTORE CONCRETE SIDEWALK

HAND DIG & PLACE (3) 1.25" IPP 5ft TO EXISTING  
LIGHTPOLE

**LOCATION MAP**



- CONSTRUCTION NOTES:**
- 1) LOCATE ALL UTILITIES AND ALL UNDERGROUND OBSTRUCTIONS PRIOR TO DIGGING
  - 2) WORK AREA PROTECTION REQUIRED
  - 3) PLACE AT&T ID DECALS AT REQUIRED LOCATIONS
  - 4) RESTORE ALL DISTURBED GROUNDS TO ORIGINAL OR BETTER CONDITION
  - 5) AT&T REQUIRES A MINIMUM DEPTH OF 24"
  - 6) AT&T CONTRACTORS TO PROVIDE ALL BARRICADES AND WORK AREA PROTECTIONS
  - 7) AT&T CONTRACTOR TO REMOVE ALL DEBRIS
  - 8) ALL PROPOSED WORK IS IN EXISTING PUBLIC RIGHT OF WAY AND/OR UTILITY EASEMENT

**MUNICIPAL PERMIT**  
**1189 S VINE ST**  
**URBANA, IL**



AT&T PROJECT: A01BR58  
JAMES DARR  
1640 E HAZEL DELL RD FLR. 1  
SPRINGFIELD, IL 62703  
(W) 217-789-8771  
(C) 217-320-8146

PRINT 1 of 1



**SCC WIRELESS**  
1501 E. WOODFIELD RD.  
SUITE #300E  
SCHAUMBURG, IL 60173  
www.sccw.com  
847.944.1600

A&E

REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
B	03/12/19	REVISED PER COMM.	MRL
C	05/02/19	ADDED FOUNDATION	MRL
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G	10/04/19	REVISED PER COMM.	MRL
O	10/14/19	FINAL CDs	MRL

NOT FOR CONSTRUCTION UNLESS  
LABELED AS CONSTRUCTION SET

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF ILLINOIS.

REFERENCE ONLY

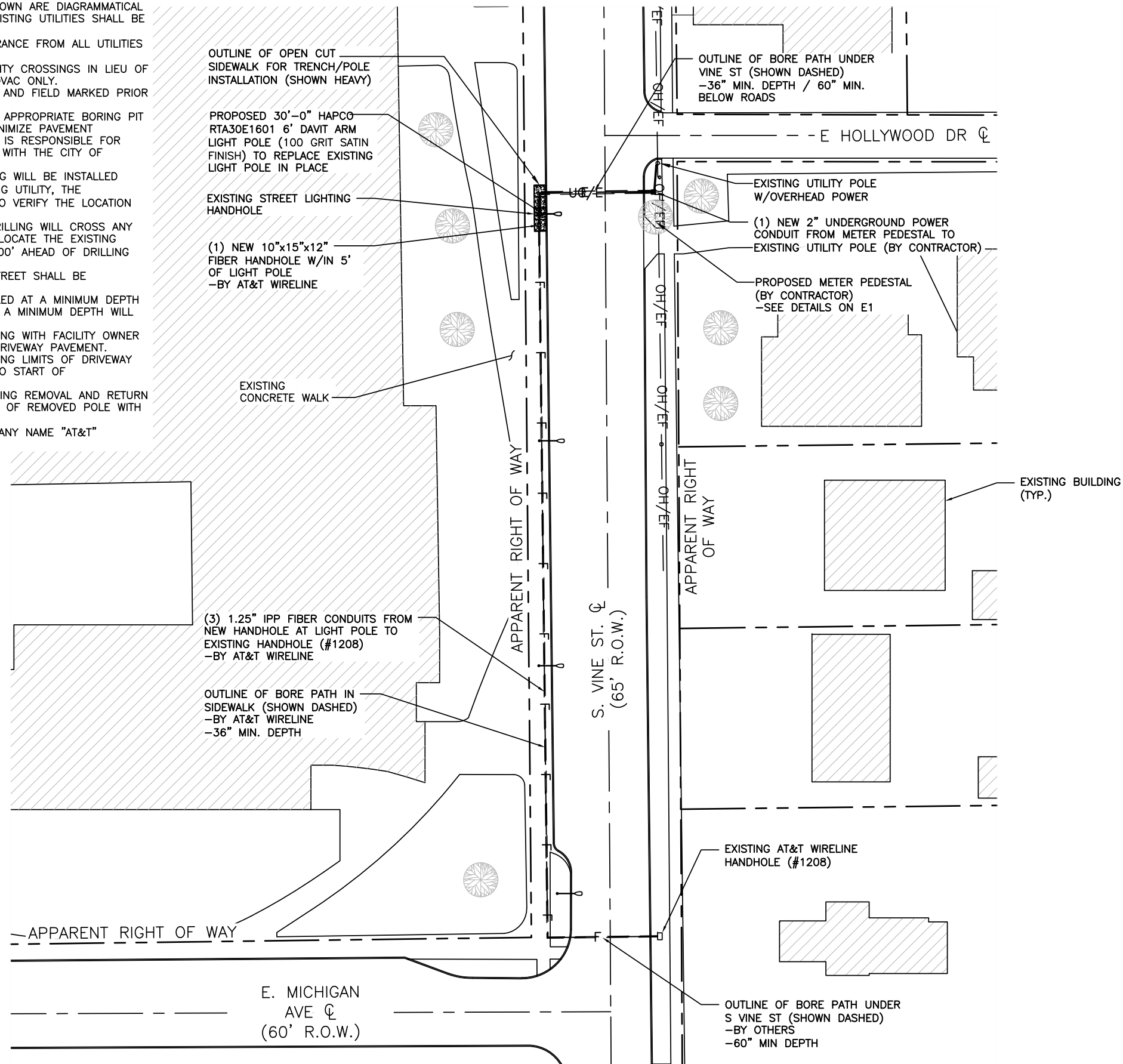
LTE 1C&2C MICRO CELL BUILD  
14805799  
CRAN\_RCHI\_CHU01\_014  
184219  
1189 S VINE ST  
URBANA, IL 61801

SHEET TITLE  
**FIBER DELIVERY PLANS**

SHEET NUMBER  
**A1**

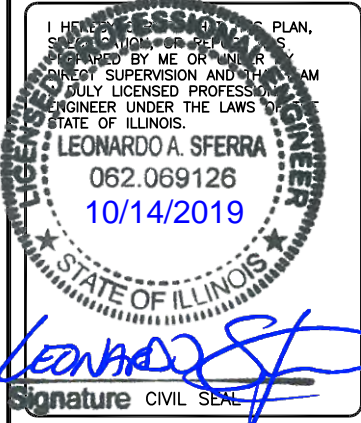
**NOTES:**

- EXISTING UNDERGROUND UTILITY INFRASTRUCTURE INFORMATION WAS PROVIDED BY SAC WIRELESS. INFORMATION WAS NOT CONFIRMED BY GPD GROUP IN THE FORM OF UTILITY LOCATES. THE EXISTING UTILITIES SHOWN ARE DIAGRAMMATICAL IN NATURE SHOWING APPROXIMATE LOCATIONS. ALL EXISTING UTILITIES SHALL BE LOCATED BY CONTRACTOR DURING CONSTRUCTION.
- CONTRACTOR SHALL MAINTAIN A MINIMUM OF 3' CLEARANCE FROM ALL UTILITIES & 5' CLEARANCE FROM ALL CONDUITS.
- CONTRACTOR SHALL PERFORM POTHOLES AT ALL UTILITY CROSSINGS IN LIEU OF DIRECTIONAL BORING. POTHOLES SHALL BE BY HYDROVAC ONLY.
- CONTRACTOR SHALL HAVE EXISTING UTILITIES LOCATED AND FIELD MARKED PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL TAKE CARE IN LOCATING ALL APPROPRIATE BORING PIT LOCATIONS IN ORDER TO AVOID EXISTING UTILITIES, MINIMIZE PAVEMENT RESTORATION AND TRAFFIC DISRUPTIONS. CONTRACTOR IS RESPONSIBLE FOR REPAIRING ALL DISTURBED PAVEMENT IN ACCORDANCE WITH THE CITY OF URBANA STANDARD SPECIFICATIONS.
- AT LOCATIONS WHERE PROPOSED DIRECTIONAL DRILLING WILL BE INSTALLED WITHIN 5' LONGITUDINALLY (PARALLEL) TO ANY EXISTING UTILITY, THE DIRECTIONAL DRILLER SHALL "POTHOLES" EVERY 500' TO VERIFY THE LOCATION AND GRADE OF THE EXISTING UTILITY.
- AT LOCATIONS WHERE THE PROPOSED DIRECTIONAL DRILLING WILL CROSS ANY EXISTING UNDERGROUND UTILITY, THE DRILLER SHALL LOCATE THE EXISTING UTILITY LINE AND GRADE BY "POTHOLES" AT LEAST 100' AHEAD OF DRILLING OPERATIONS.
- ANY PROPOSED DIRECTIONAL DRILLING CROSSING A STREET SHALL BE PERPENDICULAR TO STREET DIRECTION.
- ALL CONDUIT IN CITY RIGHT-OF-WAY WILL BE INSTALLED AT A MINIMUM DEPTH OF 36 INCHES EXCEPT AT STREET CROSSINGS WHERE A MINIMUM DEPTH WILL BE 60 INCHES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH FACILITY OWNER TO SCHEDULE ANY DEMOLITION & REPLACEMENT OF DRIVEWAY PAVEMENT.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING LIMITS OF DRIVEWAY REPAIR WITH CITY RIGHT OF WAY INSPECTOR, PRIOR TO START OF CONSTRUCTION OR DEMOLITION.
- CONTRACTOR SHALL MAINTAIN INTEGRITY OF POLE DURING REMOVAL AND RETURN POLE TO THE CITY OF URBANA. COORDINATE DELIVERY OF REMOVED POLE WITH CITY RIGHT-OF-WAY INSPECTOR.
- ALL AT&T HANDHOLES SHALL BE LABELED WITH COMPANY NAME "AT&T"
- SIDEWALK CLOSED AHEAD SIGN IF NEEDED



REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
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D	08/27/19	REVISED PER COMM.	TJB
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F	09/20/19	REVISED PER COMM.	AGL
G	10/04/19	REVISED PER COMM.	MRL
O	10/14/19	FINAL CDs	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET



DATE: 11/30/2019  
 Exp. Date: 11/30/2021  
 1189 S VINE ST  
 URBANA, IL 61801

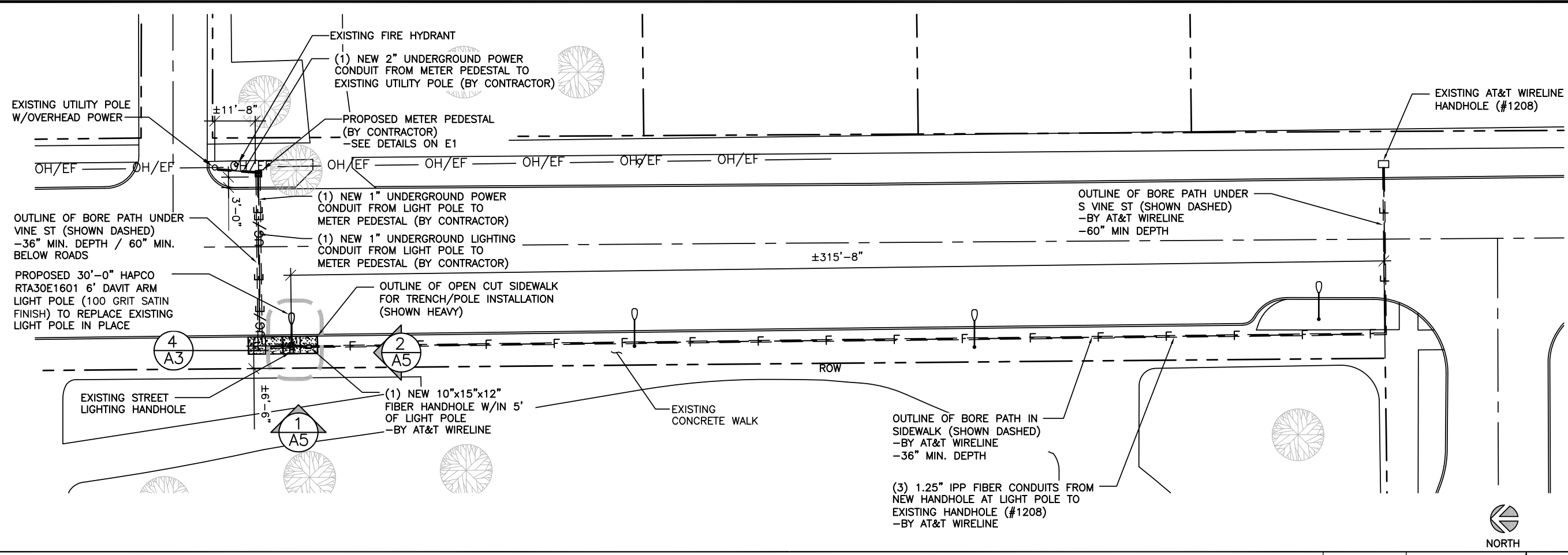
SHEET TITLE  
**OVERALL SITE PLAN**

SHEET NUMBER  
**A2**

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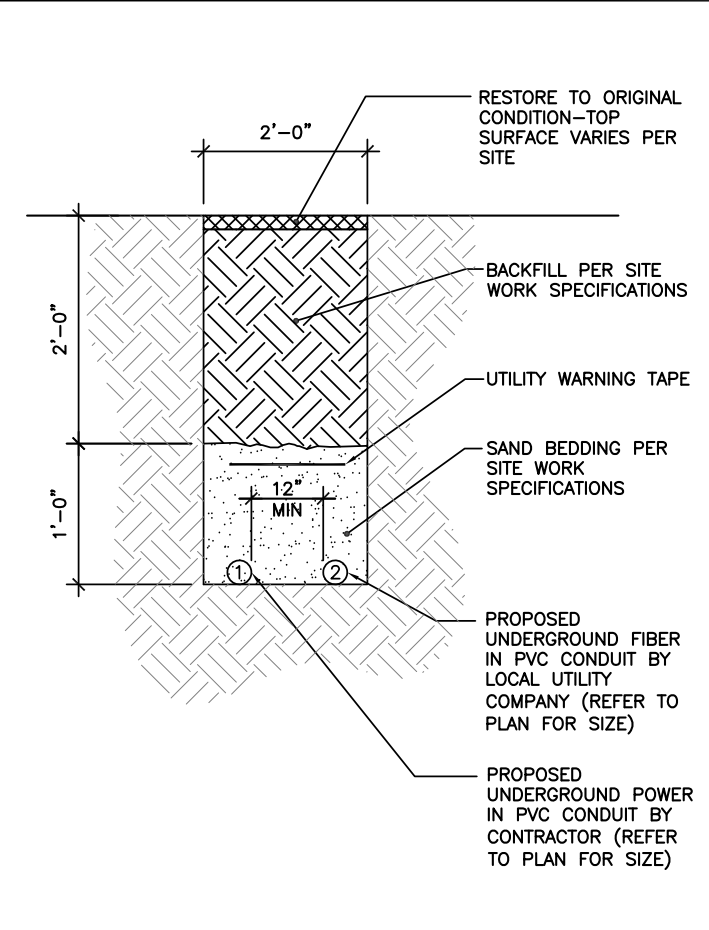


ENLARGED SITE PLAN

SCALE: 3/32" = 1'-0" (24x36)  
(OR) 3/64" = 1'-0" (11x17)

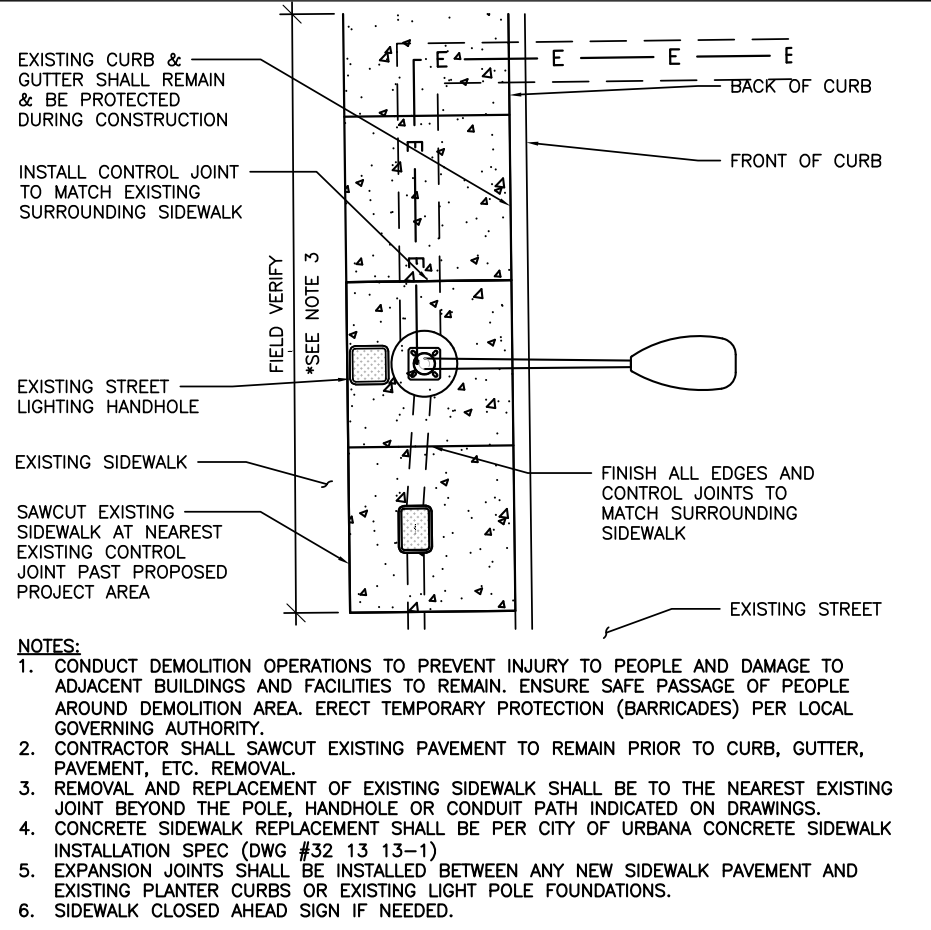
REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
B	03/12/19	REVISED PER COMM.	MRL
C	05/02/19	ADDED FOUNDATION	MRL
D	08/27/19	REVISED PER COMM.	TJB
E	09/10/19	REVISED PER DESIGN	AGL
F	09/20/19	REVISED PER COMM.	AGL
G	10/04/19	REVISED PER COMM.	MRL
O	10/14/19	FINAL CDs	MRL

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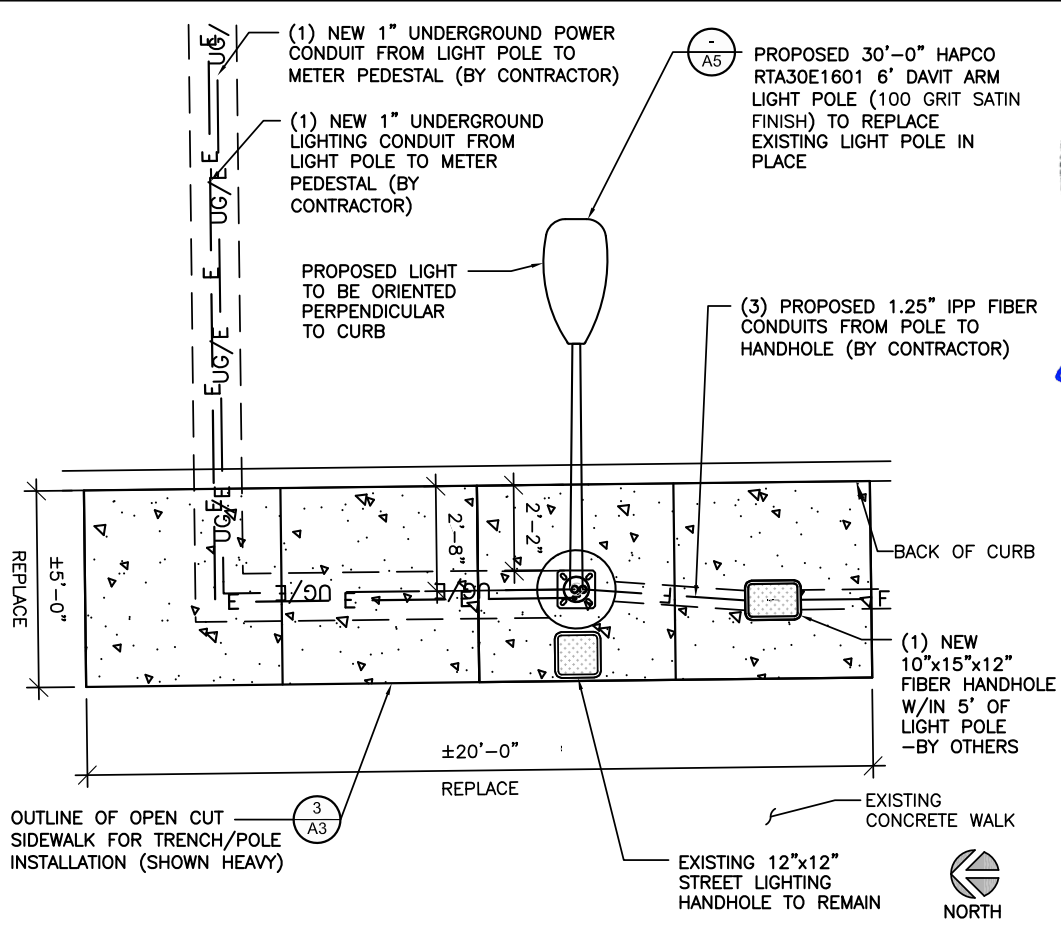
TYPICAL TRENCH DETAIL

SCALE: N.T.S. 2



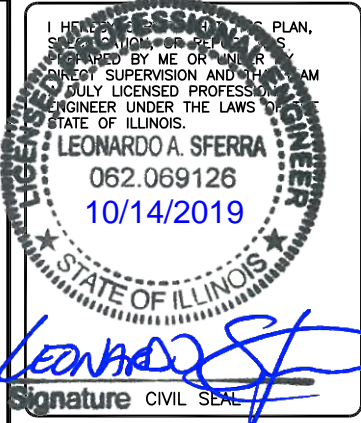
TYPICAL OPEN CUT DETAIL AT PROPOSED POLE

SCALE: N.T.S. 3



LIGHT POLE PLAN

SCALE: N.T.S. 4



1C&2C MICRO CELL BUILD  
11/30/2019  
1189 S VINE ST  
URBANA, IL 61801

SHEET TITLE  
**ENLARGED PLAN**

SHEET NUMBER  
**A3**

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☉ LIGHTING FIXTURE MOUNTS  
ELEV. 30'-0" AGL

EXISTING LIGHT POLE  
TO BE REPLACED

EXISTING SIGNAGE TO BE MOUNTED ON  
PROPOSED POLE AT SAME ELEVATION AT TIME  
OF REMOVAL OF OLD POLE

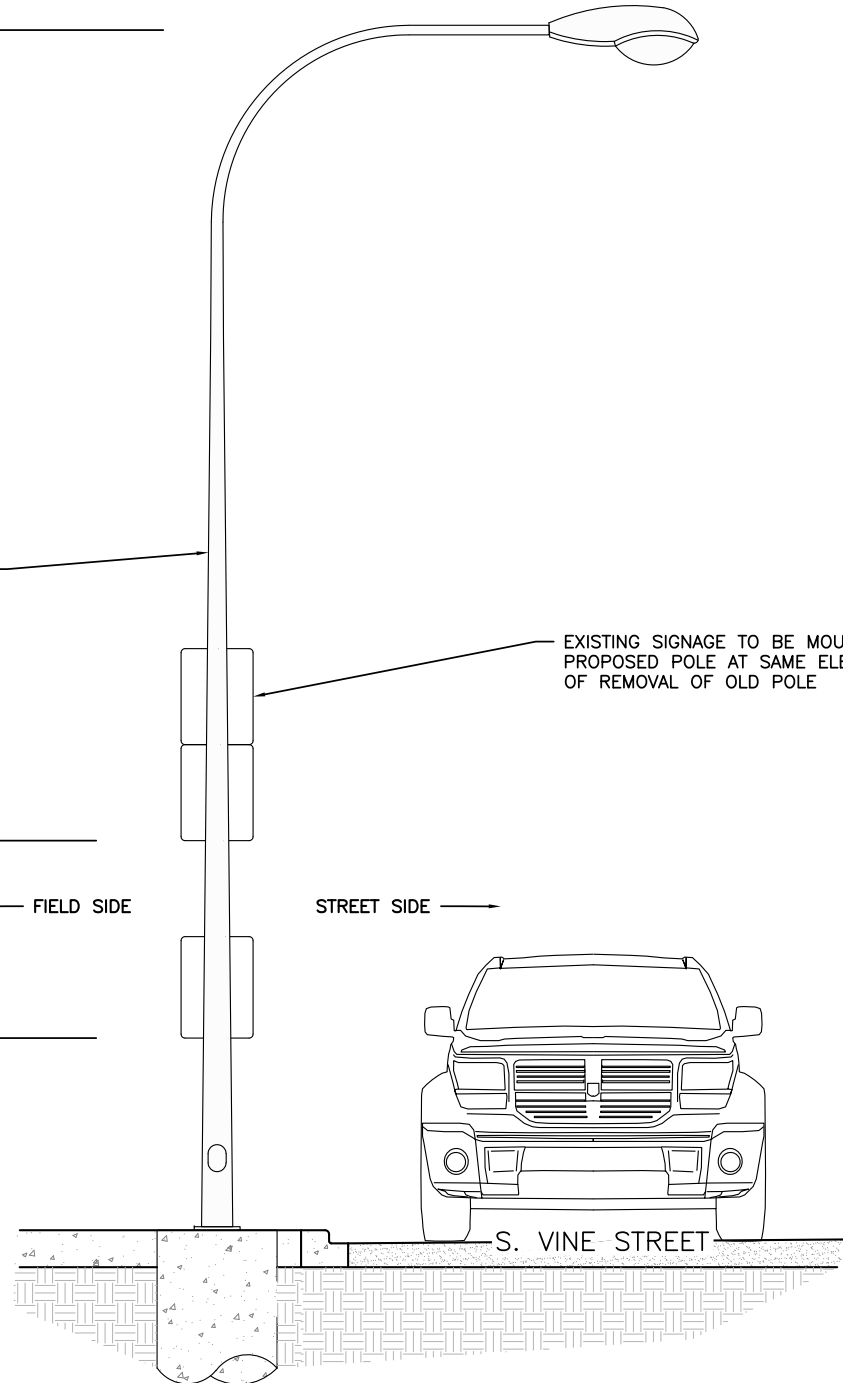
☉ BOTTOM OF EXISTING SIGN  
ELEV. 8'-0" (V.I.F.) AGL

← FIELD SIDE

→ STREET SIDE

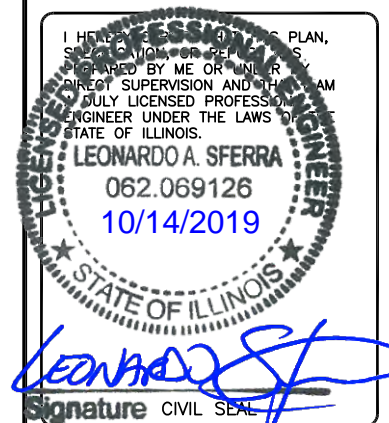
☉ BOTTOM OF EXISTING SIGN  
ELEV. 4'-0" (V.I.F.) AGL

☉ GRADE (REF)  
ELEV.: 0'-0" AGL



REVISIONS			
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G	10/04/19	REVISED PER COMM.	MRL
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NOT FOR CONSTRUCTION UNLESS  
LABELED AS CONSTRUCTION SET

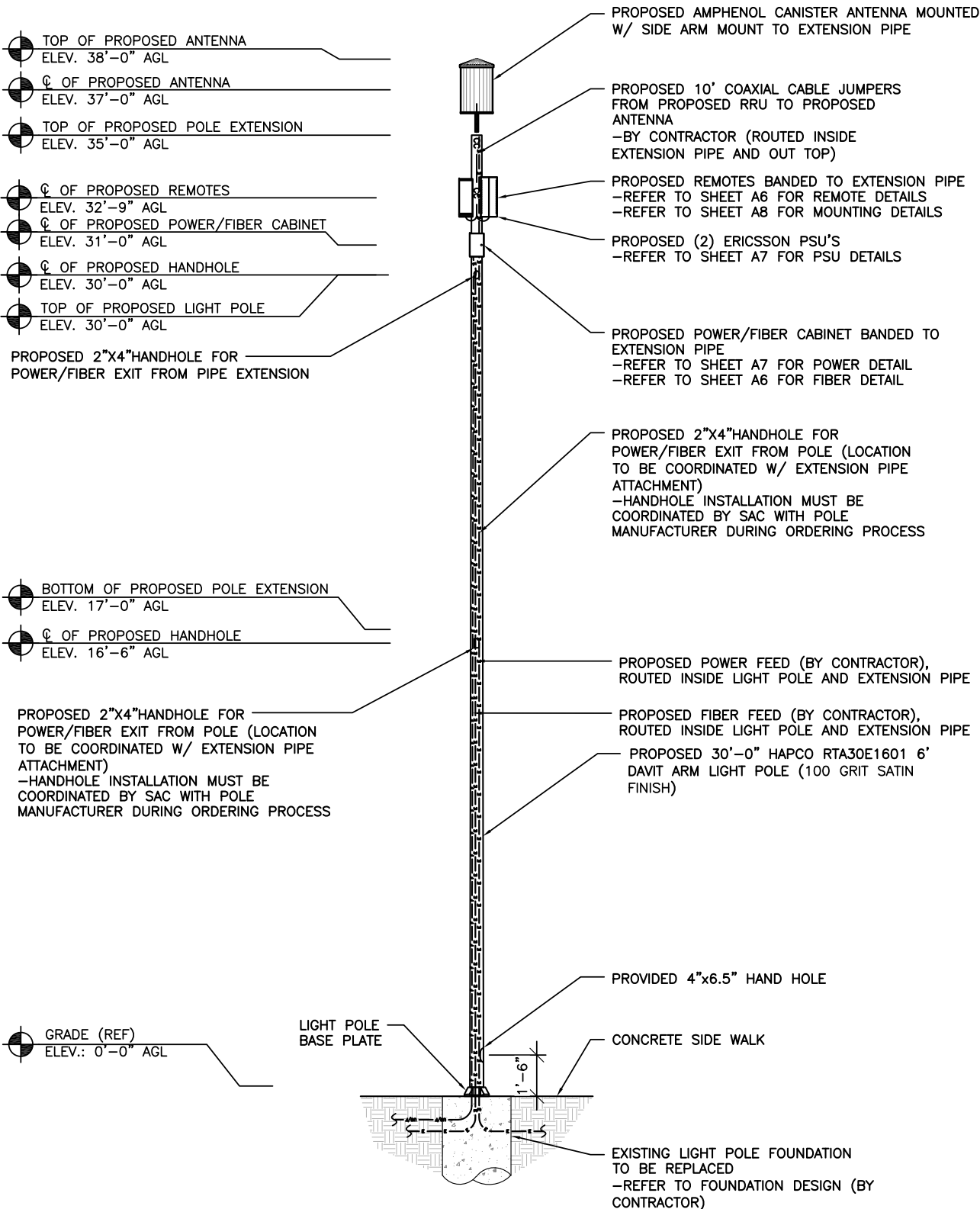


DATE 11/30/2019  
14805798  
Exp. Date 184219  
1189 S VINE ST  
URBANA, IL 61801

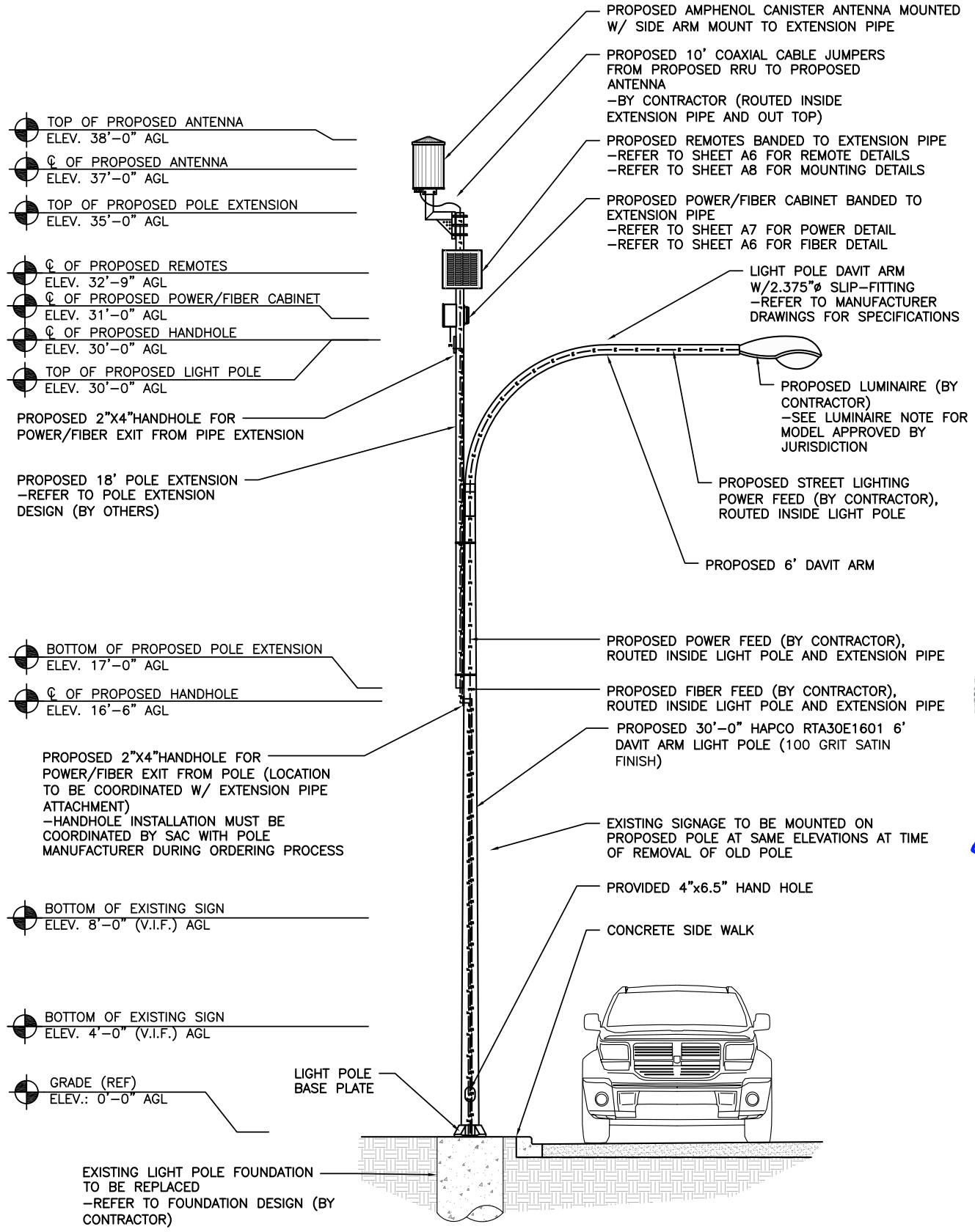
SHEET TITLE  
**EXISTING  
LIGHT POLE  
ELEVATION**

SHEET NUMBER  
**A4**

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

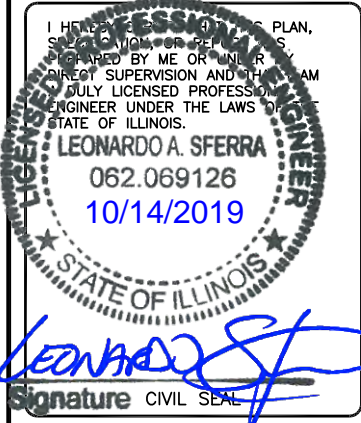


**LUMINAIRE NOTE:**  
LUMINAIRE SHALL BE METAL HALIDE FULL CUT-OFF 150W WITH FACTORY INSTALLED PHOTO-CONTROL



REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
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C	05/02/19	ADDED FOUNDATION	MRL
D	08/27/19	REVISED PER COMM.	TJB
E	09/10/19	REVISED PER DESIGN	AGL
F	09/20/19	REVISED PER COMM.	AGL
G	10/04/19	REVISED PER COMM.	MRL
O	10/14/19	FINAL CDs	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET



DATE: 11/30/2019  
14805798  
184219  
1189 S VINE ST  
URBANA, IL 61801

SHEET TITLE  
**PROPOSED LIGHT POLE ELEVATIONS**

SHEET NUMBER  
**A5**

PROPOSED LIGHT POLE FRONT ELEVATION (FIELD SIDE)

SCALE: 3/16" = 1'-0" (24x36)  
(OR) 3/32" = 1'-0" (11x17)

PROPOSED LIGHT POLE SIDE ELEVATION

SCALE: 3/16" = 1'-0" (24x36)  
(OR) 3/32" = 1'-0" (11x17)

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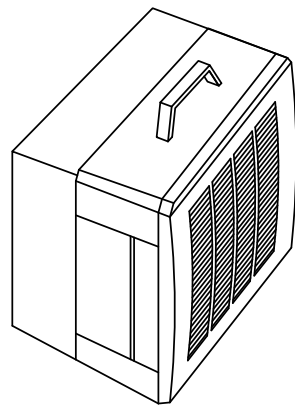
MANUFACTURER: ERICSSON  
 MODEL: RRUS-11

**MECHANICAL SPECIFICATIONS:**  
 HEIGHT: 19.7 IN (500mm)  
 WIDTH: 17.0 IN (431mm)  
 DEPTH: 7.2 IN (182mm)  
 WEIGHT: 50.7 LBS (23kg)

**INTERFACE SPECIFICATIONS:**  
 ANTENNA PORTS: 2x7/16 IEC-169-4  
 OPTICAL INDICATORS: 6  
 EXTERNAL ALARMS: 1  
 FIELD GROUND: 1

**ELECTRICAL SPECIFICATIONS:**  
 POWER SUPPLY: -48 VDC OR 100-250 VAC

**ENVIRONMENTAL SPECIFICATIONS:**  
 NORMAL OPERATING TEMP.: -40°C TO +55°C  
 RELATIVE HUMIDITY: 5-100%



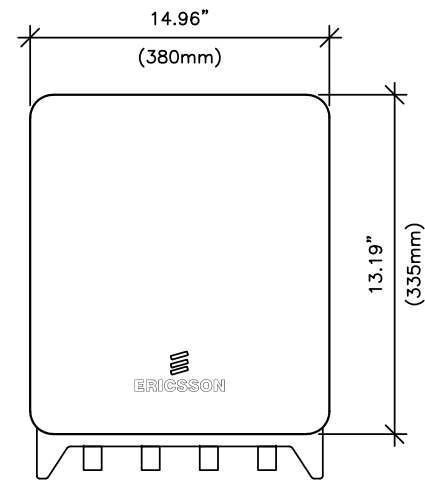
RRUS-11 DETAILS

SCALE  
N.T.S. 1

MANUFACTURER: ERICSSON  
 MODEL: RRUS 4415 B25

**MECHANICAL SPECIFICATIONS:**  
 HEIGHT: 14.96 IN (380mm)  
 WIDTH: 13.19 IN (335mm)  
 DEPTH: 5.39 IN (137mm)  
 WEIGHT: 46 LBS (21kg)

**INTERFACE SPECIFICATIONS:**  
 CPRI: 2x2.5/4.9/9.8/10.1 Gbps  
 (ONLY USE ERICSSON SUPPLIED AND APPROVED SFPs)  
 EXTERNAL ALARMS: 2



RRUS 4415 B25 DETAILS

SCALE  
N.T.S. 2

REVISIONS

REV.	DATE	DESCRIPTION	INITIALS
B	03/12/19	REVISED PER COMM.	MRL
C	05/02/19	ADDED FOUNDATION	MRL
D	08/27/19	REVISED PER COMM.	TJB
E	09/10/19	REVISED PER DESIGN	AGL
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G	10/04/19	REVISED PER COMM.	MRL
D	10/14/19	FINAL CDs	MRL

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REFERENCE ONLY

LTE 1C&2C MICRO CELL BUILD  
 14805799  
 CRAN\_RCHI\_CHU01\_014  
 184219  
 1189 S VINE ST  
 URBANA, IL 61801

SHEET TITLE

EQUIPMENT DETAILS

SHEET NUMBER

A6

MANUFACTURER: AFL  
 MODEL: OPN-500

**MECHANICAL SPECIFICATIONS:**  
 HEIGHT: 6.3 IN (15.7cm)  
 WIDTH: 7.8 IN (19.7cm)  
 DEPTH: 2.0 IN (5.0cm)  
 WEIGHT: 4.9 LBS (2.2kg)

**INTERFACE SPECIFICATIONS:**  
 PORTS: 1x3/4" NPT, 2x1/2" NPT  
 FIELD GROUND: 1

**ENVIRONMENTAL SPECIFICATIONS:**  
 NORMAL OPERATING TEMP.: -40°C TO +60°C  
 RELATIVE HUMIDITY: UP TO 95%  
 ENVIRONMENT: OUTDOOR CLASS

\*TO BE INSTALLED BY AT&T WIRELINE



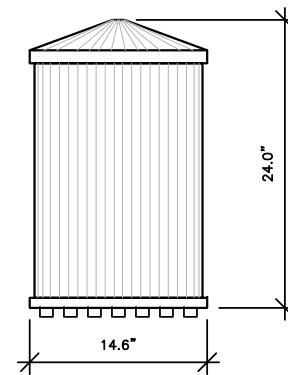
FIBER DEMARC DETAILS

SCALE  
N.T.S. 3

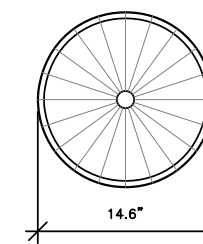


IMAGE

AMPHENOL MULTI BAND CANISTER ANTENNA  
 MODEL: 2C2UT360X06Fx0s0  
 COLOR: BLACK



SIDE VIEW



TOP VIEW

MECHANICAL CHARACTERISTICS

- ANTENNA DIMENSIONS (HEIGHT X DIAMETER) : 24.0"x14.6"
- WEIGHT W/OUT MOUNTING BRACKET KIT: TBD LBS
- SURVIVAL WIND SPEED: 150 MPH
- WIND AREA: 2.4 FT²
- WIND LOAD (100 MPH): 43 LBF

ANTENNA DETAIL

SCALE: NTS

4



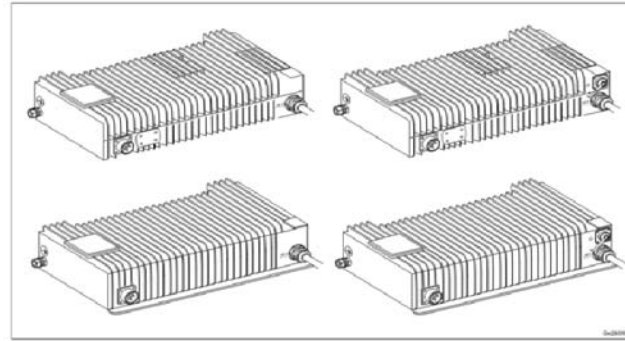
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**MANUFACTURER:** ERICSSON  
**MODEL:** PSU AC 02

**MECHANICAL SPECIFICATIONS:**  
**HEIGHT:** 68 mm (2.7 IN)  
**WIDTH:** 330 mm (10.8 IN)  
**DEPTH:** 179 mm (7.1 IN)  
**WEIGHT:** 5.2 kg (11.5 LBS)

**ELECTRICAL SPECIFICATIONS:**  
**POWER SUPPLY:** -54.5 VDC OR 100-250 VAC  
**INPUT CURRENT RATING:** 9 A AT 100 V AC  
**OUTPUT VOLTAGE:** -54.0 TO -55.0 V DC  
**OUTPUT POWER:** 700 W

**ENVIRONMENTAL SPECIFICATIONS:**  
**NORMAL OPERATING TEMP.:** -40°C TO +55°C



**Note:** The PSU AC 02 functionality is the same regardless of the exterior chassis types.

ERICSSON PSU AC 02 DETAILS

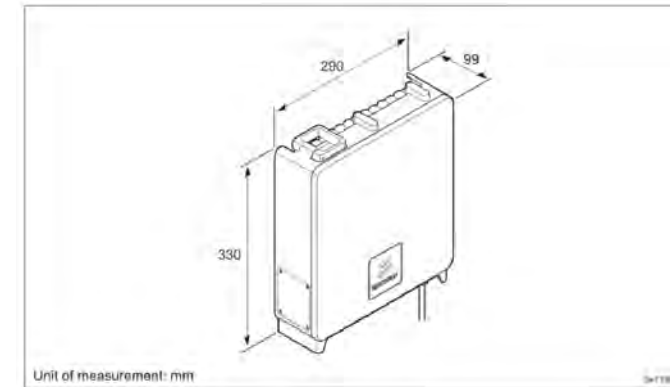
SCALE  
N.T.S. 1

**MANUFACTURER:** ERICSSON  
**MODEL:** PSU 6322

**MECHANICAL SPECIFICATIONS:**  
**HEIGHT:** 330 mm (13 IN)  
**WIDTH:** 290 mm (11.4 IN)  
**DEPTH:** 99 mm (3.9 IN)  
**WEIGHT:** 8.6 kg (19.0 LBS)

**ELECTRICAL SPECIFICATIONS:**  
**POWER SUPPLY:** -54.5 VDC OR 200-240 VAC  
**OUTPUT VOLTAGE:** -54.0 TO -55.0 V DC  
**OUTPUT POWER:** 815 W  
**EFFICIENCY:** 93%

**ENVIRONMENTAL SPECIFICATIONS:**  
**NORMAL OPERATING TEMP.:** -40°C TO +55°C



ERICSSON PSU 6322 DETAILS

SCALE  
N.T.S. 2

**MANUFACTURER:** RAYCAP  
**MODEL:** RSCAC-1333-PS-240-A

**MECHANICAL SPECIFICATIONS:**  
**HEIGHT:** 10.43 IN  
**WIDTH:** 9.38 IN  
**DEPTH:** 6.68 IN  
**WEIGHT:** 8 LBS

**ELECTRICAL SPECIFICATIONS:**  
**AMPERAGE:** 60A  
**OPERATING VOLTAGE:** 120/240V  
**QTY OF PROTECTED CIRCUITS:** 10  
**CONNECTION TERMINALS:** COMPRESSION LUGS (6 AWG-14 AWG)  
 TERMINAL BLOCK (10 AWG-26 AWG)

**ENVIRONMENT SPECIFICATIONS:**  
**NORMAL OPERATING TEMP.:** -40°C TO +80°C  
**ENVIRONMENT:** OUTDOOR CLASS NEMA 4X  
 POLYCARBONATE UL 94V-0 RATED



RAYCAP AC DISCONNECT DETAIL

SCALE  
N.T.S. 3

DETAIL NOT USED

SCALE: NTS 4



A&E

REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
B	03/12/19	REVISED PER COMM.	MRL
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G	10/04/19	REVISED PER COMM.	MRL
D	10/14/19	FINAL CDs	MRL

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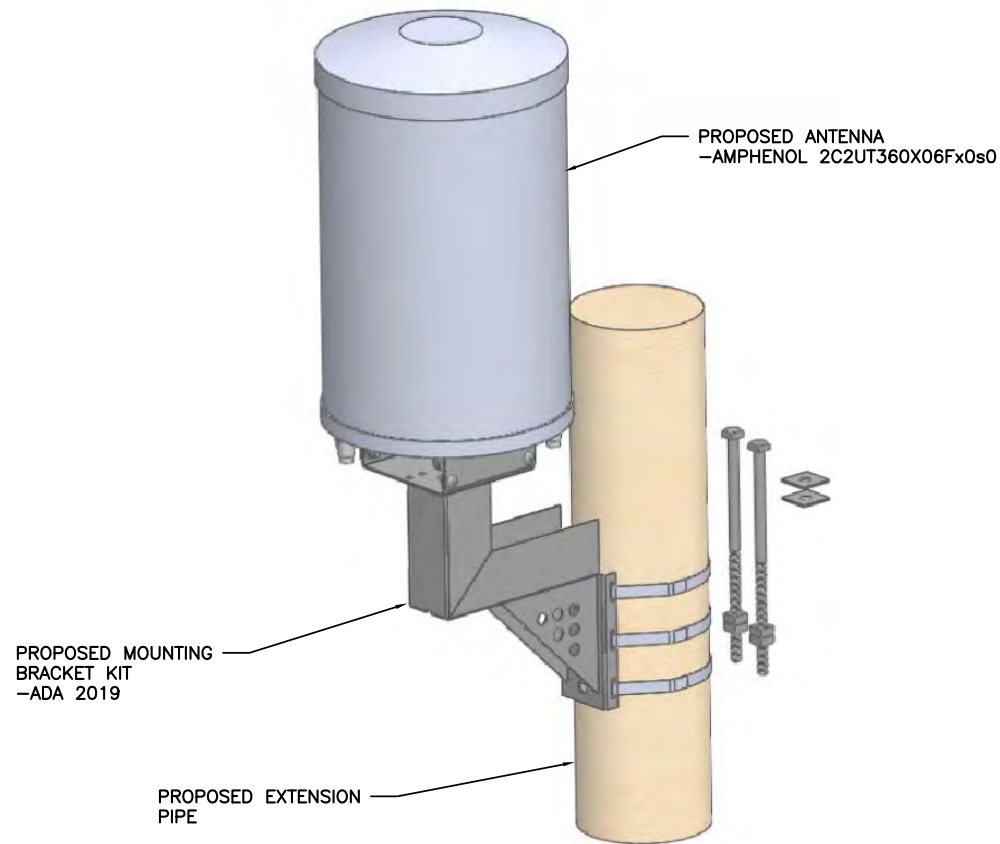
REFERENCE ONLY

LTE 1C&2C MICRO CELL BUILD  
 14805799  
 CRAN\_RCHI\_CHU01\_014  
 184219  
 1189 S VINE ST  
 URBANA, IL 61801

SHEET TITLE  
 EQUIPMENT  
 DETAILS

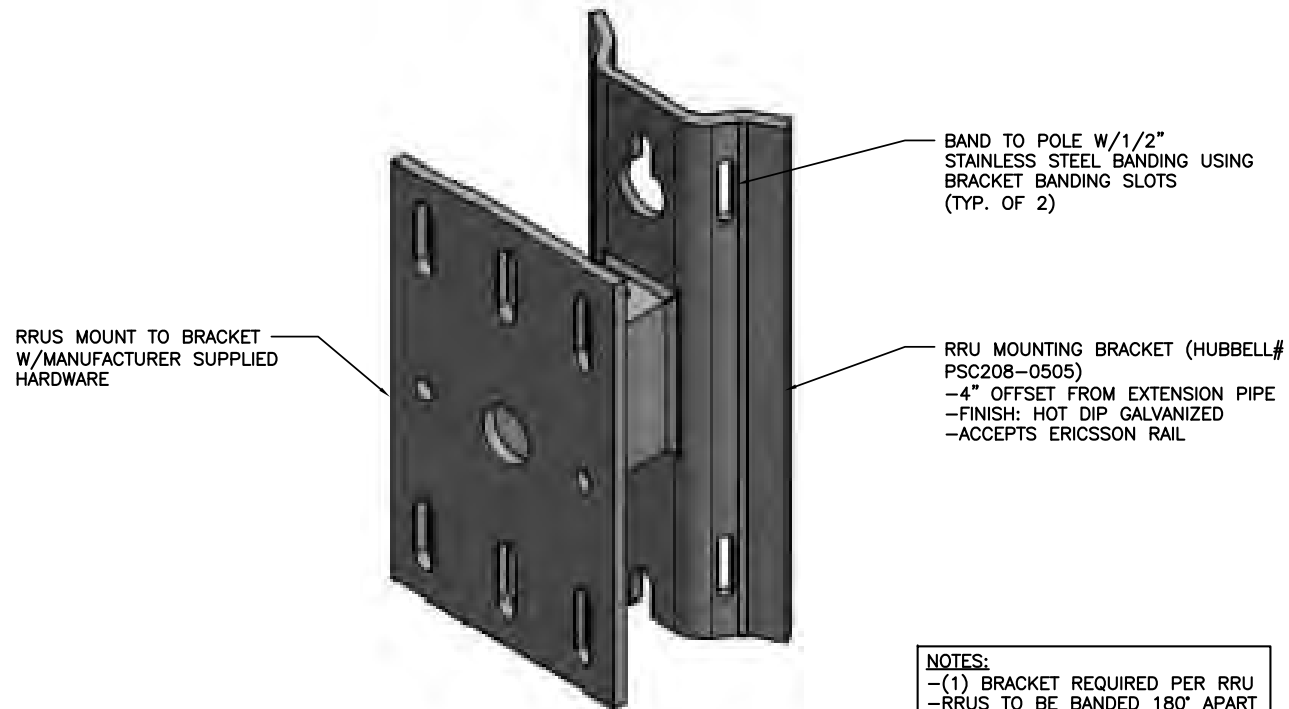
SHEET NUMBER  
**A7**

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ANTENNA MOUNTING DETAIL

SCALE  
N.T.S. 1

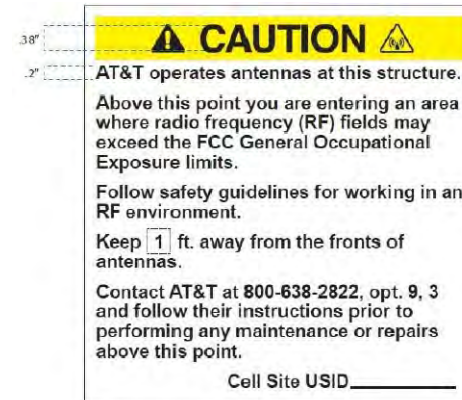


**NOTES:**  
-(1) BRACKET REQUIRED PER RRU  
-RRU TO BE Banded 180° APART ON OPPOSITE SIDES OF EXTENSION PIPE

RRU MOUNTING DETAIL

SCALE  
N.T.S. 2

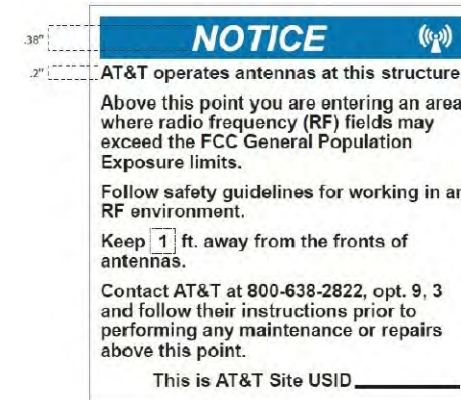
EXAMPLE CRAN RF CAUTION SIGN



EXAMPLE CRAN POLE POWER DISCONNECT SIGN



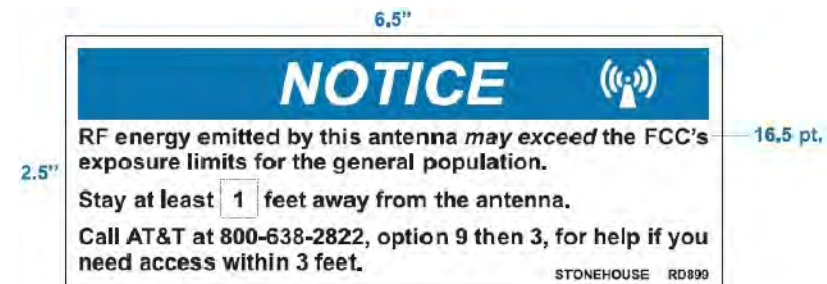
EXAMPLE CRAN RF NOTICE SIGN



EXAMPLE CRAN POLE POWER WARNING SIGN



EXAMPLE STONEHOUSE RD899 RF NOTICE SIGN



CRAN Pole Power Disconnect, RF Notice, and Caution signs shall be ordered through Stonehouse Signs. Three versions are available for each of the signs shown in Figures 16, 17, and 18: .055 Polyethylene - Reflective, .025 Aluminum - Reflective, and Peel Back Label - Reflective. All versions are 6"x6" with font designed to be visible from 2-3 feet away when approached from below to provide warning about ascending into the high RF exposure areas. The RF Caution sign shown in Figure 19 is designed to be visible from 3 feet away and is available in the reflective peel back label version only. It is designed to fit on most of the CRAN/Small Cell antenna types currently deployed. It may also be placed on antenna shrouds as shown in Figures 11 and 12.

**SIGNAGE NOTE:**  
SIGNAGE SHALL BE INSTALLED PER AT&T DIRECTION

AT&T SIGNAGE DETAIL

SCALE: NTS

3



REVISIONS			
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F	09/20/19	REVISED PER COMM.	AGL
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O	10/14/19	FINAL CDs	MRL

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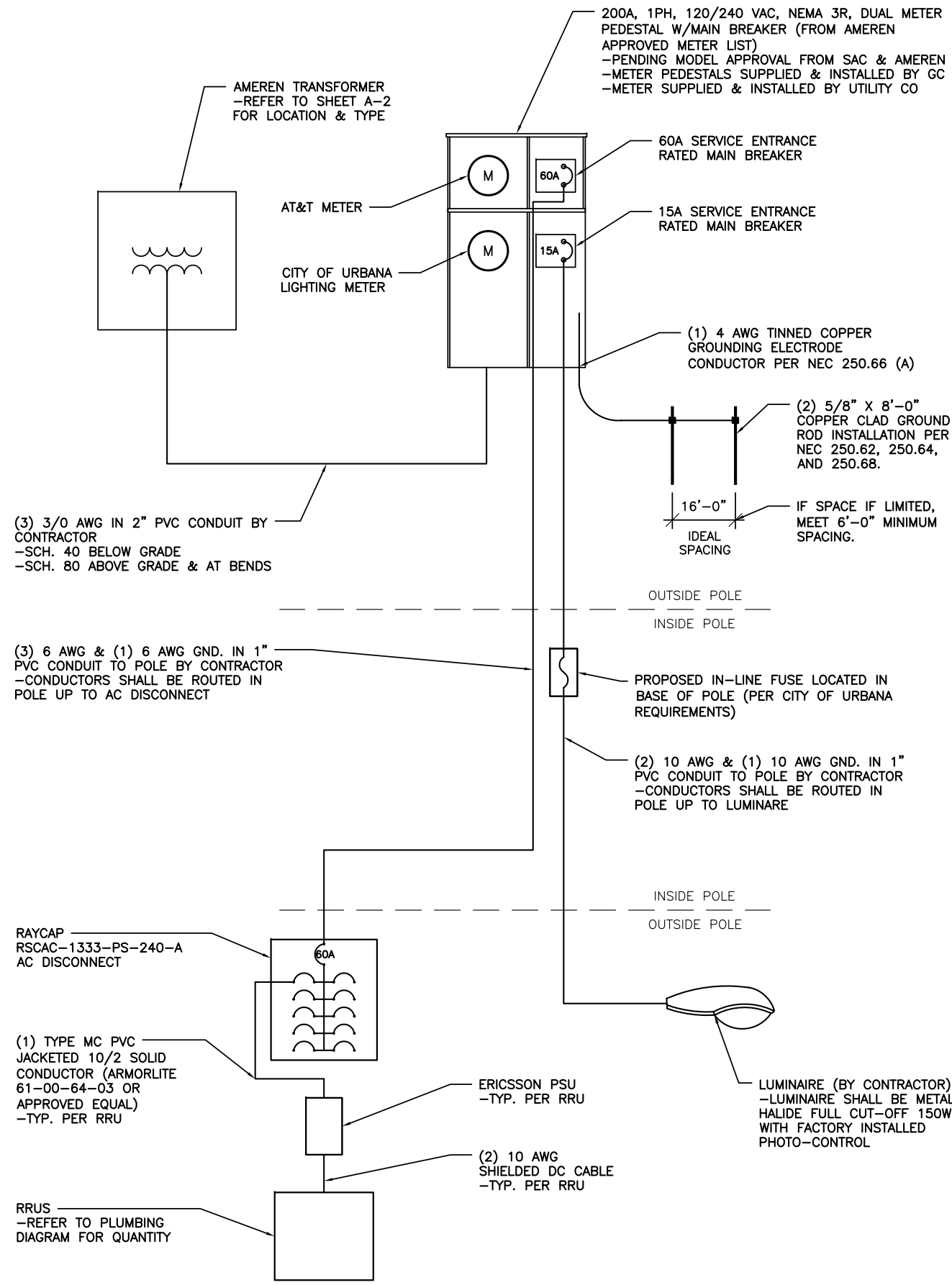
REFERENCE ONLY

LTE 1C&2C MICRO CELL BUILD  
14805799  
CRAN\_RCHI\_CHU01\_014  
184219  
1189 S VINE ST  
URBANA, IL 61801

SHEET TITLE  
MOUNTING DETAILS

SHEET NUMBER  
**A8**

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ELECTRICAL ONE-LINE DIAGRAM

SCALE  
N.T.S. 1

DETAIL NOT USED

SCALE  
N.T.S. 2

ELECTRICAL NOTES:

- ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND ALL APPLICABLE CODES.
- CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SUCH THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
- SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING THE INSTALLATION OF GROUNDING AND UNDERGROUND CONDUIT AS TO PREVENT THE LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
- COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC (CADWELD) CONNECTIONS WHEN APPROVED BY CINCINNATI BELL CONSTRUCTION MANAGER.
- SERVICE TO POLE SHALL BE 120VAC, 40 AMP, SINGLE PHASE.
- ALL GROUND CONNECTIONS BELOW GRADE SHALL BE EXOTHERMIC (CADWELD).
- ALL GROUND CONNECTIONS ABOVE GRADE SHALL BE FORMED USING TWO (2) HIGH PRESS CRIMPS.
- ALL EXOTHERMIC CONNECTIONS TO THE GROUND RODS SHALL START AT THE TOP AND HAVE A VERTICAL SEPARATION OF 6" FOR EVERY ADDITIONAL CONNECTION.
- ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
- ALL EXTERIOR GROUND CONNECTORS SHALL BE 2 AWG SOLID BARE, TINNED, COPPER UNLESS INDICATED OTHERWISE.
- CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
- USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
- MAXIMUM RESISTANCE OF THE COMPLETED GROUND SYSTEM SHALL NOT EXCEED 5 OHMS. TESTING SHALL BE PERFORMED IN ACCORDANCE WITH PROJECT SPECIFICATIONS FOR FACILITY GROUNDING, USING FALL OF POTENTIAL METHOD.

STANDARD CONDUIT NOTES:

- UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC. ABOVE GROUND CONDUIT, ELBOWS, AND RISERS SHALL BE SCHEDULE 80 PVC.
- G.C. TO STUB SERVICE CONDUIT UNDERGROUND WITH 90° SWEEPING ELBOW AND PULL STRING AND CAP CONDUIT. MARKER SHALL BE LEFT INDICATING WHERE STUBBED CONDUIT ENDS FOR UTILITY COMPANY REFERENCE.
- SPARE CONDUITS FROM FUTURE METERS SHALL TERMINATE IN HAND HOLE WITH PULL STRING. CONDUITS AND METERS SHALL BE LABELED CORRESPONDINGLY.
- ALL CONDUIT WILL BE EQUIPPED WITH 3/8" PULL ROPE AND HAVE A TRACER WIRE. TRACER WIRE NEEDS TO BE LAID ABOVE BURIED CONDUIT.

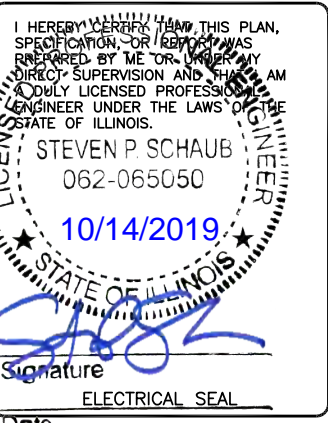
ELECTRICAL NOTES

SCALE  
N.T.S. 3



REVISIONS			
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G	10/04/19	REVISED PER COMM.	MRL
O	10/14/19	FINAL CDs	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET



Date  
 10/20/19  
 LTR 1120 MICRO CELL BUILD  
 exp. date 14805799  
 CRAN\_RCHI\_CHU01\_014  
 184219  
 1189 S VINE ST  
 URBANA, IL 61801

SHEET TITLE  
**ELECTRICAL ONE-LINE DIAGRAM**

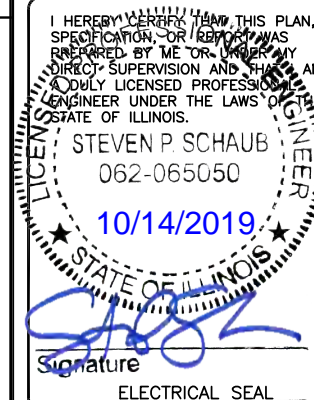
SHEET NUMBER  
**E1**

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E	09/10/19	REVISED PER DESIGN	AGL
F	09/20/19	REVISED PER COMM.	AGL
G	10/04/19	REVISED PER COMM.	MRL
D	10/14/19	FINAL CDs	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET



Date: 10/20/19  
 LTR 11220 MICRO CELL BUILD  
 exp. date 14805799  
 CRAN\_RCHI\_CHU01\_014  
 184219  
 1189 S VINE ST  
 URBANA, IL 61801

SHEET TITLE  
**PANEL SCHEDULE  
 & ELECTRICAL  
 DETAILS**

SHEET NUMBER  
**E2**

AC POWER PANEL (RAYCAP RSCAC-1333-PS-240-A)											
120/240 VOLTS, 1-PHASE, 3-WIRE, 60A											
MAIN RATING (A):					SYSTEM VOLTAGE (V):						
60					240						
DESCRIPTION	VA	c/nc	BKR	POSN	L1	L2	POSN	BKR	c/nc	VA	DESCRIPTION
PSU 6322 (4415)	877	c	20	1	877		2		c	0	
PSU AC 02 (RRUS-11)	900	c	20	3		900	4		c	0	
	0	c		5	0		6		c	0	
	0	c		7		0	8		c	0	
	0	c		9	0		10		c	0	
PHASE TOTALS (VA):					877	900					
CURRENT PER PHASE (A):					9	9 Amperes/phase cannot exceed main breaker rating					
PANEL TOTAL (VA):					1777						
Legend: c = continuous, nc = non-continuous											
PANEL CAPACITY (kVA):					14.4	CONNECTED LOAD (kVA):					1.8
PANEL LOADING (100% non-cont. load) (kVA):					0.0						
PANEL LOADING (125% continuous load) (kVA):					2.2						
PANEL LOADING (TOTAL) (kVA):					2.2						
SPARE CAPACITY (kVA):					12.2						

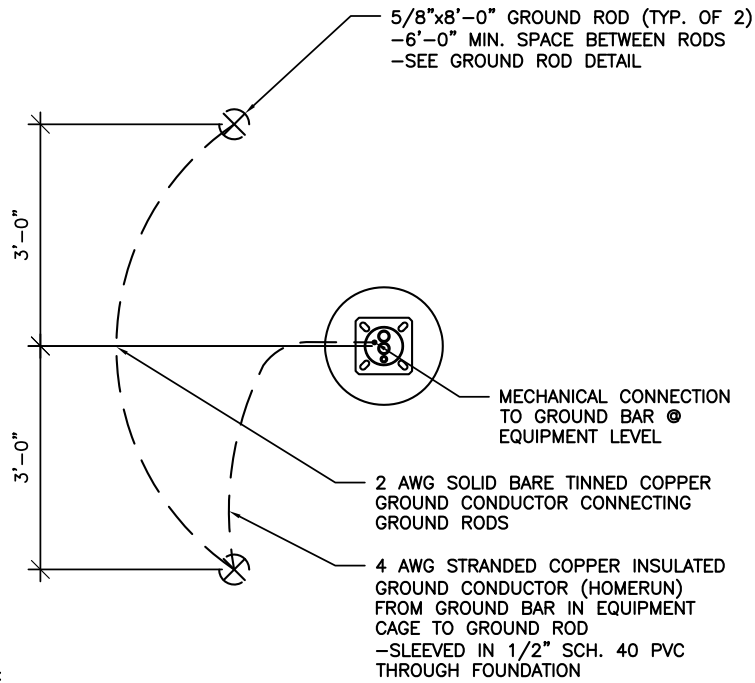
ELECTRICAL PANEL SCHEDULE SCALE N.T.S. 1

DETAIL NOT USED SCALE N.T.S. 2

DETAIL NOT USED SCALE N.T.S. 3

DETAIL NOT USED SCALE N.T.S. 4

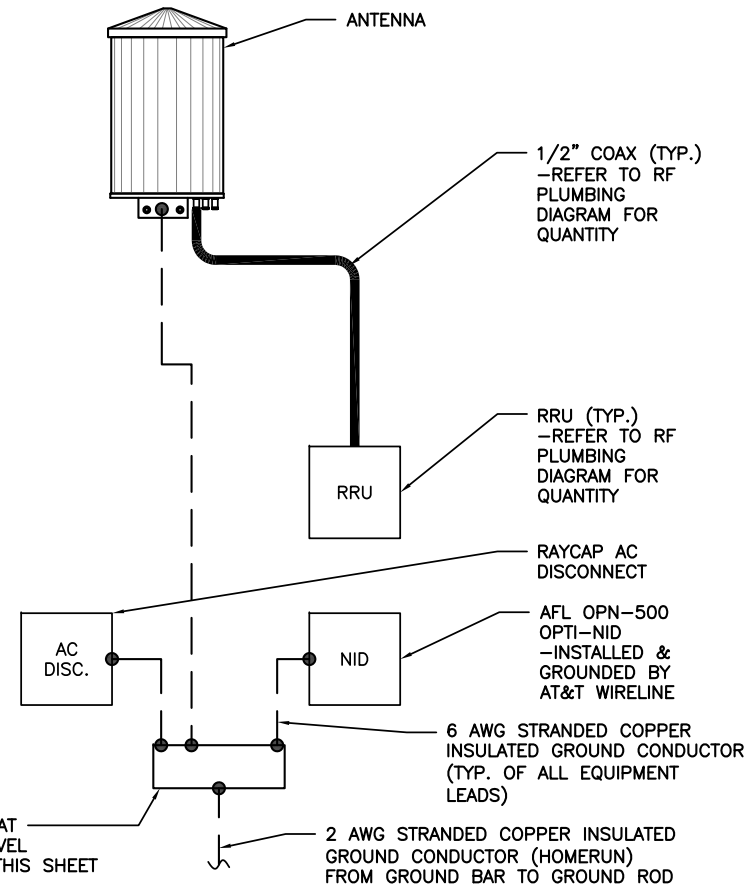
THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.



NOTE:  
GROUND ROD LOCATIONS ARE  
DIAGRAMMATICAL ONLY. CONTRACTOR  
SHALL PLACE GROUND RODS IN  
FIELD TO BE LEAST OBSTRUCTIVE  
TO EXISTING FIELD CONDITIONS.

POLE GROUNDING PLAN DETAIL

SCALE  
N.T.S. 1



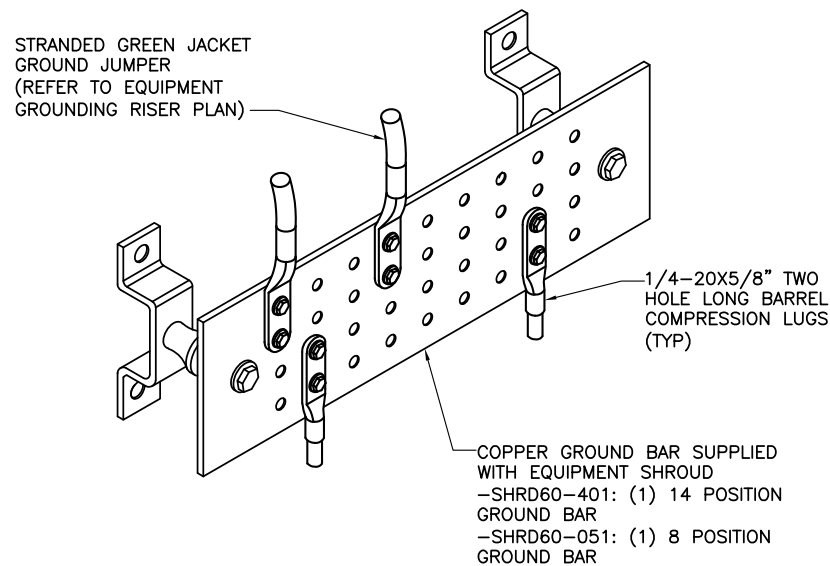
EQUIPMENT GROUNDING RISER DETAIL

SCALE  
N.T.S. 2

CADWELD CONNECTIONS OR APPROVED EQUAL		BURNDY CONNECTIONS OR APPROVED EQUAL
PARALLEL HORIZONTAL CONDUCTORS PARALLEL THROUGH CONNECTION OF HORIZONTAL CABLES TYPE PT	HORIZONTAL STEEL SURFACE TO FLAT STEEL SURFACE OR HORIZONTAL PIPE TYPE HS	BOND JUMPER FIELD FABRICATED GREEN STRANDED INSULATED TYPE 2-YA-2
THROUGH CABLE TO GROUND ROD THROUGH CABLE TO TOP OF GROUND ROD TYPE GT	VERTICAL STEEL SURFACE CABLE DOWN AT 45° TO VERTICAL STEEL SURFACE INCLUDING PIPE TYPE VS	COPPER LUGS TWO HOLE - LONG BARREL LENGTH TYPE YA-2
VERTICAL PIPE CABLE DOWN AT 45° TO RANGE OF VERTICAL PIPES TYPE VS	<b>CONNECTION TYPE KEY</b> MECHANICAL CONNECTION CADWELD CONNECTION	

GROUNDING CONNECTIONS DETAIL

SCALE  
N.T.S. 3

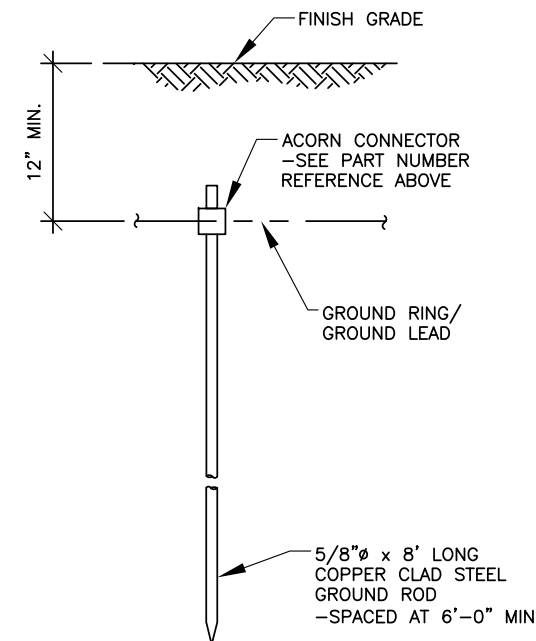


NOTES:  
1. CONTRACTOR SHALL UTILIZE LUGGED HOLES PROVIDED. NO DRILLING OF THE BAR WILL BE PERMITTED.  
2. ALL HARDWARE SHALL BE 1/4-20 STAINLESS STEEL INCLUDING BELLEVILLES. COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.  
3. FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL. COAT ALL SURFACES WITH KOPR-SHIELD.

GROUND BAR DETAIL

SCALE  
N.T.S. 4

ACORN CONNECTOR		
ELEC. MOTION CO.	GROUND CONDUCTOR SIZE	GROUND ROD SIZE
EM2DB	#12-1/0 AWG	5/8"Ø



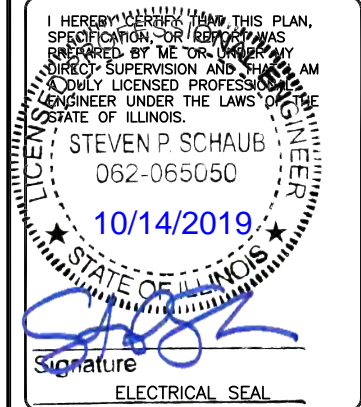
GROUND ROD DETAIL

SCALE  
N.T.S. 6



REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
B	03/12/19	REVISED PER COMM.	MRL
C	05/02/19	ADDED FOUNDATION	MRL
D	08/27/19	REVISED PER COMM.	TJB
E	09/10/19	REVISED PER DESIGN	AGL
F	09/20/19	REVISED PER COMM.	AGL
G	10/04/19	REVISED PER COMM.	MRL
D	10/14/19	FINAL CDs	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET



Date  
11/20/19  
LTC 11220 MICRO CELL BUILD  
exp. date 14805799  
CRAN\_RCHI\_CHU01\_014  
184219  
1189 S VINE ST  
URBANA, IL 61801

SHEET TITLE  
**GROUNDING  
DETAILS**

SHEET NUMBER  
**E3**

DETAIL NOT USED

SCALE  
N.T.S. 5

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

Diagram - 2 Diagram File Name - Micro 17.vsd

Atoll Site Name - Champaign CRAN HUB-University Location Name - CRAN\_CHAMPAIGN\_U Market - CENTRAL, ILLINOIS Market Cluster - ILLINOIS/WISCONSIN

NIVERSITY\_0001 BUILD BBU

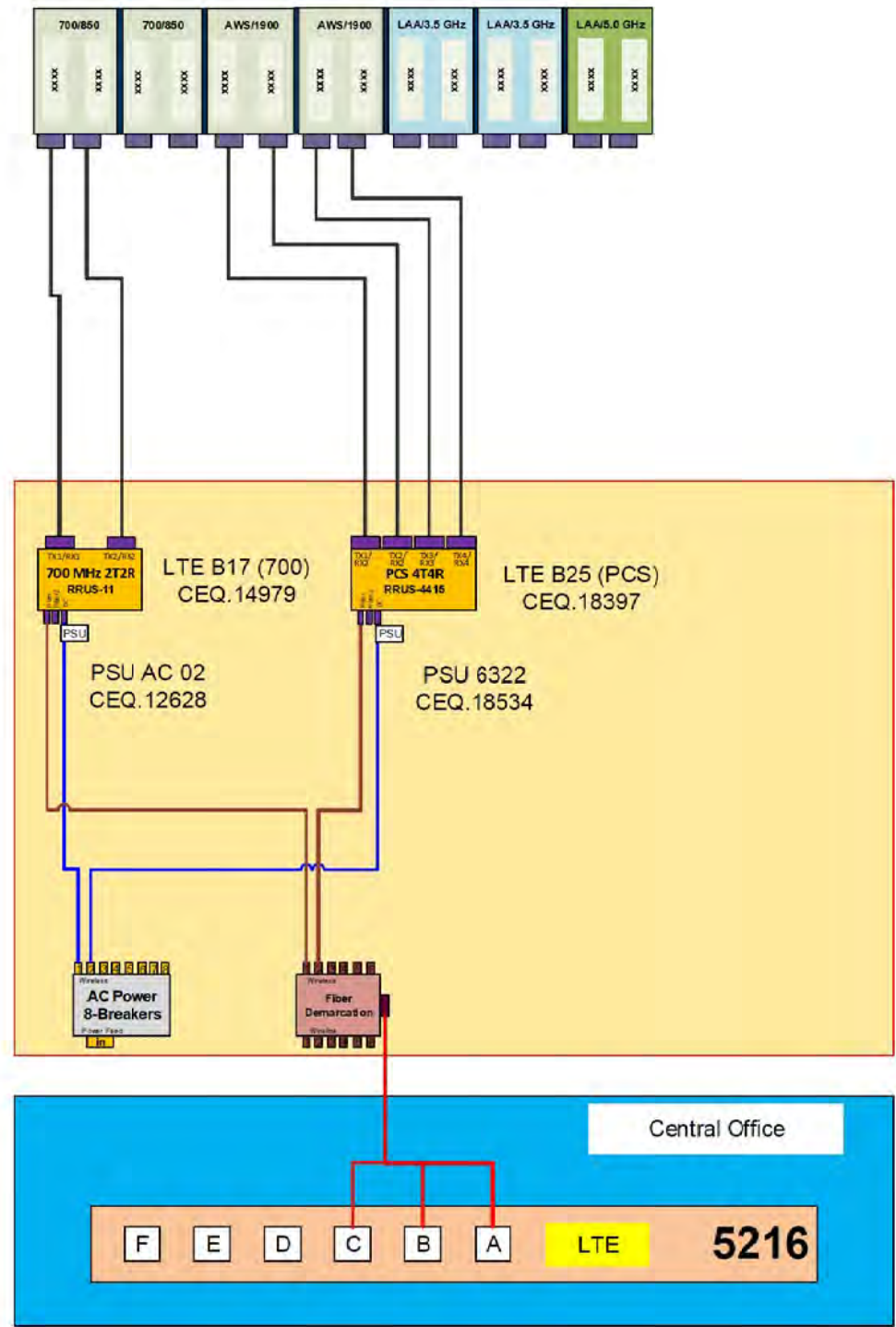
Comments:

Configuration Name	700 MHz 2T2R LTE	700 MHz 4T4R LTE	850 MHz 2T2R LTE	850 MHz 4T4R LTE	1900 MHz 2T2R LTE	1900 MHz 4T4R LTE	2100 MHz 2T2R LTE	2100 MHz 4T4R LTE	5GHz LAA LTE	3.5 GHz LAA LTE	Sector Count	Carrier Count	Antenna LAA location
Micro #17	X	NA	NA	NA	NA	X	NA	NA	NA	NA	1	2	14 Ports Antenna

Amphenol Pseudo-Omni – 14 ports Antenna  
2C2U3MT360X06FxyS0



**Important Note:**  
For detailed radio to antenna wiring refer to the latest 4T4R Antenna/Radio Port Connection Field Notice (RF-HW-2016-234) and the 4T Wiring Playbook



A&E

REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
B	03/12/19	REVISED PER COMM.	MRL
C	05/02/19	ADDED FOUNDATION	MRL
D	08/27/19	REVISED PER COMM.	TJB
E	09/10/19	REVISED PER DESIGN	AGL
F	09/20/19	REVISED PER COMM.	AGL
G	10/04/19	REVISED PER COMM.	MRL
O	10/14/19	FINAL CDs	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF ILLINOIS.

REFERENCE ONLY

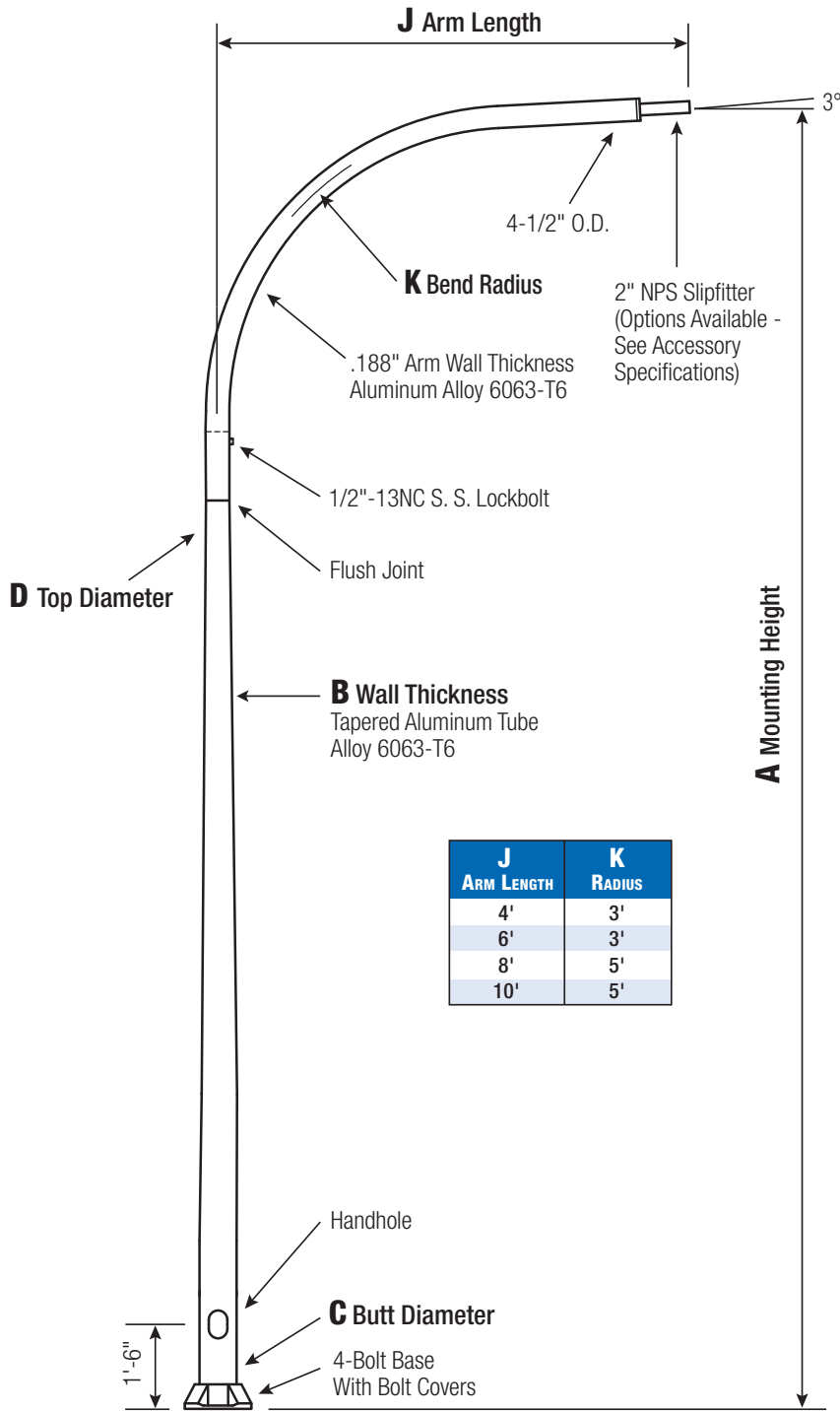
LTE 1C&2C MICRO CELL BUILD  
14805799  
CRAN\_RCHI\_CHU01\_014  
184219  
1189 S VINE ST  
URBANA, IL 61801

SHEET TITLE  
RF  
PLUMBING  
DIAGRAM

SHEET NUMBER  
**RF1**

# RTA

## Round Tapered Aluminum Pole with Arms Single Davit — 4-Bolt Base



J ARM LENGTH	K RADIUS
4'	3'
6'	3'
8'	5'
10'	5'

Satin Aluminum or Powder Coated Finish per Customer Specification.

C BUTT DIA.	D TOP DIA.	F BOLT CIR. DIA.	G BASE SQ.	H BOLT PROJ.	I BOLT SIZE
6	4.5	9 - 10	9.75	2.75	1 x 36 x 4
7	4.5	10 - 11	10.5	2.75	1 x 36 x 4
8	4.5	11 - 12	11.25	2.75	1 x 36 x 4
10	6	14 - 15	14	3.25	1 x 48 x 4

Dimensions in Inches

### Pole

Shaft and arm will be constructed of seamless extruded tube of 6063 Aluminum Alloy per the requirements of ASTM B221. The shaft assembly shall be full-length heat treated after base weld to produce a T6 temper.

### Base Style

4-Bolt Cast Aluminum Base Flange of Alloy 356-T6 with Aluminum Bolt Covers (Alloy 356-F) and Stainless Steel Hex Head Attaching Screws.



### Handhole

**6" Butt Diameter** - Reinforced, 3" x 5" curved Cast Aluminum Frame (Alloy 356-T6) with Aluminum Door and two (2) SS Hex Head Screws. A Grounding Provision incorporating a 3/8" diameter hole is provided opposite the Handhole.

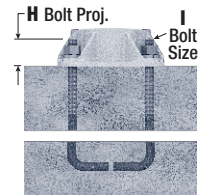
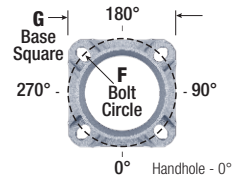
**7"+ Butt Diameters** - Reinforced, 4" x 6" curved Cast Aluminum Frame (Alloy 356-T6) with Aluminum Door and two (2) SS Hex Head Screws. Reinforced Frame will contain a tapped 3/8"-16NC Grounding Provision.



### Anchorage

Anchorage Kit will include four (4) L-shaped Steel Anchor Bolts conforming to AASHTO M314-90 Grade 55. Ten inches (10") of threaded end will be galvanized per ASTM A153.

Kits will contain four (4) Hex Nuts, four (4) Lock Washers, and four (4) Flat Washers (all components Galvanized Steel). A bolt circle template will be provided.



### Vibration Damper

When determined necessary by Hapco, a Vibration Damper will be factory-installed inside the pole shaft. Customer specification of the damper is available.



**WARNING:** Do not install light pole without luminaire.

A Mtg. Hgt.	B Wall Thickness	C Butt Diameter	J Arm Length	Lum. Weight	MAXIMUM EPA					OLD Cat. Number	CATALOG NUMBER
					90	100	110	120	130		
20	0.156"	6	4'	35	12.4	9.2	8.4	6.4	5.0	41-031	RTA20C6B4D14-**
20	0.156"	6	6'	35	11.2	8.2	7.4	5.6	4.2	41-032	RTA20C6B4D16-**
20	0.156"	6	8'	35	10.2	7.2	6.5	4.8	3.5	41-033	RTA20C6B4D18-**
20	0.188"	6	4'	35	15.6	11.8	10.8	8.6	6.8	41-001	RTA20D6B4D14-**
20	0.188"	6	6'	35	14.4	10.8	9.8	7.6	5.9	41-002	RTA20D6B4D16-**
20	0.188"	6	8'	35	13.2	9.8	8.8	6.8	5.1	41-003	RTA20D6B4D18-**
25	0.156"	6	4'	35	7.4	5.0	4.4	3.1	2.1		RTA25C6B4D14-**
25	0.156"	6	6'	35	6.6	4.3	3.7	2.4	1.4		RTA25C6B4D16-**
25	0.156"	6	8'	35	5.8	3.6	3.1	1.8	0.9		RTA25C6B4D18-**
25	0.156"	6	10'	35	4.8	2.8	2.2	1.0	-		RTA25C6B4D1A-**
25	0.156"	7	4'	35	12.4	9.2	8.2	6.2	4.8	41-103	RTA25C7B4D14-**
25	0.156"	7	6'	35	11.4	8.2	7.4	5.5	4.1	41-104	RTA25C7B4D16-**
25	0.156"	7	8'	35	10.4	7.5	6.6	4.8	3.4	41-105	RTA25C7B4D18-**
25	0.156"	7	10'	35	9.3	6.4	5.6	3.8	2.5	41-106	RTA25C7B4D1A-**
25	0.156"	8	10'	35	5.7	3.8	3.3	2.1	1.2		RTA25C8B4D1A-**
25	0.188"	6	4'	35	10.0	7.0	6.4	4.7	3.4	41-073	RTA25D6B4D14-**
25	0.188"	6	6'	35	9.0	6.3	5.6	4.0	2.8	41-074	RTA25D6B4D16-**
25	0.188"	6	8'	35	8.2	5.6	4.9	3.4	2.2	41-075	RTA25D6B4D18-**
25	0.188"	6	10'	35	7.2	4.6	4.0	2.5	1.4	41-076	RTA25D6B4D1A-**
25	0.188"	7	4'	35	16.0	12.0	10.8	8.4	6.7	41-079	RTA25D7B4D14-**
25	0.188"	7	6'	35	14.8	11.0	10.0	7.6	5.9	41-080	RTA25D7B4D16-**
25	0.188"	7	8'	35	13.8	10.2	9.2	7.0	5.3	41-081	RTA25D7B4D18-**
30	0.156"	6	4'	35	3.8	2.0	1.5	0.5	-		RTA30C6B4D14-**
30	0.156"	6	6'	35	3.2	1.3	0.9	-	-		RTA30C6B4D16-**
30	0.156"	6	8'	35	2.6	0.8	-	-	-		RTA30C6B4D18-**
30	0.156"	7	4'	35	7.8	5.2	4.6	3.2	2.1	41-145	RTA30C7B4D14-**
30	0.156"	7	6'	35	7.0	4.6	3.9	2.5	1.4	41-146	RTA30C7B4D16-**
30	0.156"	7	8'	35	6.4	4.0	3.4	2.0	0.9	41-147	RTA30C7B4D18-**
30	0.156"	7	10'	35	5.5	3.1	2.5	1.2	-	41-148	RTA30C7B4D1A-**
30	0.156"	8	4'	35	10.6	7.9	7.1	5.3	4.1	41-175	RTA30C8B4D14-**
30	0.156"	8	6'	35	8.5	6.1	5.5	3.9	2.9	41-176	RTA30C8B4D16-**
30	0.156"	8	8'	35	6.7	4.7	4.1	2.9	1.9	41-177	RTA30C8B4D18-**
30	0.156"	8	10'	35	4.8	3.1	2.6	1.5	0.6	41-178	RTA30C8B4D1A-**
30	0.188"	6	4'	35	5.8	3.6	3.0	1.8	1.0		RTA30D6B4D14-**
30	0.188"	6	6'	35	5.1	3.0	2.4	1.2	-		RTA30D6B4D16-**
30	0.188"	6	8'	35	4.5	2.4	1.8	0.7	-		RTA30D6B4D18-**
30	0.188"	6	10'	35	3.6	1.6	1.1	-	-		RTA30D6B4D1A-**
30	0.188"	7	4'	35	10.6	7.6	6.8	5.0	3.6	41-151	RTA30D7B4D14-**
30	0.188"	7	6'	35	9.8	6.8	6.0	4.2	3.0	41-152	RTA30D7B4D16-**
30	0.188"	7	8'	35	9.2	6.2	5.4	3.6	2.4	41-153	RTA30D7B4D18-**
30	0.188"	8	4'	35	15.7	11.9	10.9	8.6	6.7	41-157	RTA30D8B4D14-**
30	0.188"	8	6'	35	13.8	10.5	9.6	7.3	5.7	41-158	RTA30D8B4D16-**
30	0.188"	8	8'	35	11.5	8.5	7.7	5.7	4.3	41-159	RTA30D8B4D18-**
30	0.188"	8	10'	35	9.0	6.5	5.7	3.9	2.7	41-160	RTA30D8B4D1A-**
35	0.156"	7	4'	35	4.3	2.2	1.7	0.6	-		RTA35C7B4D14-**
35	0.156"	7	6'	35	3.6	1.6	1.1	-	-		RTA35C7B4D16-**
35	0.156"	7	8'	35	3.1	1.2	0.6	-	-		RTA35C7B4D18-**
35	0.156"	8	4'	35	8.2	5.5	4.8	3.2	2.0	41-223	RTA35C8B4D14-**
35	0.156"	8	6'	35	6.7	4.5	3.7	2.3	1.3	41-224	RTA35C8B4D16-**
35	0.156"	8	8'	35	5.3	3.3	2.7	1.5	0.9	41-225	RTA35C8B4D18-**
35	0.188"	8	4'	35	11.4	8.0	7.1	5.2	3.8	41-229	RTA35D8B4D14-**
35	0.188"	8	6'	35	10.4	7.3	6.4	4.5	3.1	41-230	RTA35D8B4D16-**
35	0.188"	8	8'	35	9.8	6.7	5.8	4.0	2.6	41-231	RTA35D8B4D18-**
35	0.188"	8	10'	35	7.7	5.1	4.3	2.7	1.5	41-232	RTA35D8B4D1A-**
35	0.219"	8	4'	35	14.2	10.4	9.2	7.0	5.4	41-235	RTA35E8B4D14-**
35	0.219"	8	6'	35	13.4	9.6	8.6	6.4	4.7	41-236	RTA35E8B4D16-**
35	0.219"	8	8'	35	12.6	9.0	8.0	5.8	4.2	41-237	RTA35E8B4D18-**
35	0.219"	8	10'	35	11.3	8.1	7.1	5.0	3.4	41-238	RTA35E8B4D1A-**
35	0.250"	8	4'	35	17.2	12.6	11.4	8.8	6.8	41-241	RTA35F8B4D14-**
35	0.250"	8	6'	35	16.2	11.8	10.8	8.2	6.2	41-242	RTA35F8B4D16-**
35	0.250"	8	8'	35	15.6	11.2	10.0	7.6	5.7	41-243	RTA35F8B4D18-**
35	0.250"	8	10'	35	13.9	10.2	9.2	6.7	4.9	41-244	RTA35F8B4D1A-**
40	0.156"	8	4'	35	4.7	2.5	1.9	0.7	-		RTA40C8B4D14-**
40	0.156"	8	6'	35	4.1	1.9	1.3	-	-		RTA40C8B4D16-**
40	0.156"	8	8'	35	3.4	1.3	0.8	-	-		RTA40C8B4D18-**
40	0.188"	8	6'	35	6.7	4.0	3.3	1.8	0.8	41-326	RTA40D8B4D16-**
40	0.188"	8	8'	35	6.2	3.5	2.8	1.3	-	41-327	RTA40D8B4D18-**
40	0.188"	10	6'	35	15.5	11.5	10.4	8.0	5.9	41-362	RTA40D1C4D16-**
40	0.188"	10	10'	35	11.7	8.3	7.5	5.1	3.5	41-364	RTA40D1C4D1A-**
40	0.219"	8	4'	35	9.8	6.6	5.8	4.0	2.7	41-331	RTA40E8B4D14-**
40	0.219"	8	6'	35	9.2	6.0	5.2	3.4	2.1	41-332	RTA40E8B4D16-**
40	0.219"	8	8'	35	8.6	5.5	4.7	2.9	1.7	41-333	RTA40E8B4D18-**
40	0.250"	8	4'	35	12.2	8.6	7.6	5.6	4.0	41-337	RTA40F8B4D14-**
40	0.250"	8	6'	35	11.6	8.0	7.0	4.8	3.4	41-338	RTA40F8B4D16-**
40	0.250"	8	8'	35	11.0	7.4	6.4	4.4	3.0	41-339	RTA40F8B4D18-**
40	0.250"	8	10'	35	10.0	6.6	5.7	3.7	2.2	41-340	RTA40F8B4D1A-**

**Catalog Number System**

The catalog number for Hapco poles utilizes the following identification system.



**Catalog Number Example -**

**RTA 30 D 8 B 4 D 16 - 01**

Round Tapered Aluminum, 30' Mounting Height, .188" Wall Thickness, 8" Butt Diameter, 4.5" Top Diameter, 4-Bolt Base, Davit Arm, Single, 6' Arm Length, Satin Aluminum Finish.

**Wall Thickness**

- C = .156"
- D = .188"
- E = .219"
- F = .250"

**Butt Diameter**

- 6 = 6"
- 7 = 7"
- 8 = 8"
- 1 = 10"

**Top Diameter**

- B = 4.5"
- C = 6"

**Base Style**

- 4 = 4-Bolt Base

**Arm Style**

- D = Davit

**Arm Quantity**

- 1 = Single

**Arm Length**

- 4 = 4'
- 6 = 6'
- 8 = 8'
- A = 10'

**Finish**

- O1 = Satin Aluminum
- BA = Black Powder Coat
- BH = White Powder Coat
- BM = Dark Bronze Powder Coat
- BV = Dark Green Powder Coat
- GC = Gray Powder Coat
- \*\* = Specify Finish

**EPA Notes:**

Effective Projected Area (EPA) in square feet. EPA's calculated using wind velocity (mph) indicated in accordance with 2009 AASHTO LTS-5 using a 25 year design life. Maximum EPA is based on the luminaire weight shown. Increased luminaire weight may reduce the maximum EPA. If weight is exceeded, or if other design life or code is required, please consult the factory.



Date: **October 1, 2019**

**ARCHITECTURE & ENGINEERING DIVISION**

604 FOX GLEN . BARRINGTON, IL 60010

847/277-0070 . FAX: 847/277-0080

AE@westchesterservices.com / www.westchesterservices.com

Migirdech Tokat  
SAC Wireless  
540 W Madison St. 9th Floor  
Chicago, IL 60661

**Subject: Pole Extension Modification Report**

**AT&T Small Cell**

**Site Number:** MRCHI025394  
**Site Name:** CRAN\_RCHI\_CHUOI\_014  
**FA#:** 14805799

**Engineering Firm Designation:** Westchester Services, LLC

**Site Data:** **1189 S Vine St, Urbana, IL 61801**  
**Champaign County – 30ft Light Pole w/ 18’ Pole Extension**

Migirdech Tokat,

Westchester Services, LLC is pleased to submit this **“Pole Extension Modification Report”** to determine the structural integrity of the above mentioned pole extension.

The purpose of the analysis is to determine acceptability of the pole extension stress level. Based on our analysis we have determined the stress levels to be:

**Existing and Proposed Equipment**

**Sufficient Capacity**

Note: See Table 2-1 for the existing and proposed loading.

Member Type	% Capacity	Pass/Fail
Overall	89.2	Pass

The analysis has been performed in accordance with the NESC 2017 standard and local code requirements.

We at Westchester Services, LLC appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or any other projects please give us a call.

I certify that this report was prepared by me or under my direct supervision and that I am a licensed Structural Engineer under the laws of the State of Illinois.

Joseph Meyer, SE  
Structural Engineer



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- 2) ANALYSIS CRITERIA**
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- 3) ANALYSIS PROCEDURE**
  - Table 3-1 – Documents Provided
  - 3.1 Analysis Method
- 4) ANALYSIS RESULTS**
  - Table 4-1 – Critical Section Capacity (Summary)
  - 4.1 Recommendations
- 5) ASSUMPTIONS**
- 6) APPENDIX A**
  - Calculations

## 1) INTRODUCTION

This is a 30ft tall light pole located in Champaign County, IL. The proposed antennas will be mounted on a proposed extension pipe.

## 2) ANALYSIS CRITERIA

The structural analysis was performed for this structure in accordance with the requirements of NESC 2017 Rule 250B Heavy loading.

**Table 2-1 – Proposed Final Antenna Configuration**  
(New antennas in **bold**)

Center Line Elevation (ft)	Antenna(s)	Radio(s)	Mounting System
37.0	<b>(1) 2C2U3MT360X06Fxys0</b>		
32.75		<b>(2) Proposed Remotes</b>	
31.0		<b>(1) Power/Fiber cabinet</b>	

### 3) ANALYSIS PROCEDURE

**Table 3-1 – Documents Provided**

Document	Remarks	Reference	Date	Source
Construction Drawings	GPD	N/A	9/20/19	SAC

#### 3.1) Analysis Method

Risa-3D (version 17.0.4) is a finite element analysis software program was used for modeling and analyzing frame structures. The output from the analysis can be found in Appendix A.

Mathcad 15 is a mathematics software program used for creating hand calc templates. The output of these calculations can be found in Appendix A.

### 4) ANALYSIS RESULTS

**Table 4-1 – Critical Section Capacity (Summary)**

Member Type	Elevation (ft)	% Capacity	Pass/Fail
Extension Pipe	17	66.0	Pass
Connection	17	10.6	Pass
Pole Local Bending	17	89.2	Pass
Overall		89.2	Pass

#### 4.1) Recommendations

See details for information on the proposed extension pipe and connections.

#### 4.2) Conclusions

The light pole has adequate capacity to support the extension pipe and equipment.

## 5) ASSUMPTIONS

- The analysis performed is to the theoretical capacity of the members and connections. No accommodations are taken for any damaged, rusted, deteriorated, or otherwise compromised member conditions. To this, the tower or structure is assumed to be properly maintained and monitored and this analysis cannot be considered to be a condition assessment of the structure.
- The analysis is performed to the minimum design wind, ice, and other environmental loading prescribed by the governing building codes and standards. Any higher loading conditions required by the local jurisdiction or structure owner should be made known to Westchester immediately for analysis. No lesser conditions will be accommodated.
- Member sizes are assumed to be of standard AISC or manufacturer designations unless explicitly specified otherwise. The geometry of the tower or structure is assumed as schematic. Steel grade and concrete strength are assumed to be conservative standard and fully developed unless otherwise specified.
- The information provided to Westchester for analysis is assumed accurate and up to date as supplied. No independent efforts were taken by Westchester to verify the validity of the information supplied. If any additional information is presented at any time that contradicts what is referenced in the analysis, the analysis is invalid and must be performed again with the new information.
- Any reinforcement or modifications are assumed to be fully installed and functional.
- All welds are assumed to have been performed to current welding standards and are assumed to develop their full capacity and to be in good condition. In addition, all bolts and bolt-like anchors are assumed to be fully tightened, fastened, or bonded to the manufacturers' specifications and are assumed to have full capacity.
- Numerous connection details of large-scale structures are unobtainable and are omitted from the structural analysis. This includes, but is not limited to: bolts, welds, flanges, and plates. These connections are considered adequate and are therefore neglected from the analysis. In addition, in the absence of building plans, many wall, floor, and ceiling constructions can only be determined from observable field data and are supplemented by best judgment and experience.
- Antennas, dishes, feedlines, and any other such appurtenances are assumed adequate through manufacturer testing. No analysis is provided for the structural strength or stability of these items unless otherwise specified.
- Equipment mounting systems are assumed structurally sound unless specifically called for in the analysis.
- Soil conditions and foundations are not considered unless specified in the analysis and have no deterioration or defects. For sites located on a building, only local effects of the equipment is considered unless otherwise specified. The overall structure of the building and its foundation are assumed to be unaffected by the telecom equipment.
- Any changes or differences to the site or site plans at any time prior to installation must be brought to the attention of Westchester immediately.

**APPENDIX A**  
**CALCULATIONS**

References:

- 1) 2015 International Building Code
- 2) ANSI TIA-222-G, Structural Standard for Antenna Supporting Structures and Antennas
- 3) AISC 360-10 Specification for Structural Steel Buildings
- 4) 2015 Aluminum Design Manual
- 5) 2017 National Electric Safety Code

---

***Input***

q := 4psf

Design wind pressure per Ref. (5)

t<sub>i</sub> := 0.5·in

Design ice thickness per Ref. (5)

**Antennas/Radios**

Antenna name/model

Number of antennas

Shielding Factor

"Canister Antenna"  
 "radio"  
 "Power/Fiber"  
 "Extension Pipe"  
 "not used"  
 "not used"  
 "not used"  
 "not used"

$n_{ant} :=$   
 (1  
 1  
 1  
 1  
 0  
 0  
 0  
 0)

ShieldingFactor :=  
 (1  
 1  
 1  
 1  
 1  
 1  
 1  
 1)

Height of antennas\*

Width of antennas\*

Depth of antennas\*

Weight of antennas

$height_{ant} :=$   
 (24  
 17.1  
 13  
 276  
 0  
 0  
 0  
 0) ·in

$width_{ant} :=$   
 (14.6  
 7.9  
 11.4  
 2.875  
 1  
 1  
 1  
 1) ·in

$depth_{ant} :=$   
 (14.6  
 4.1  
 3.9  
 2.875  
 1  
 1  
 1  
 1) ·in

$Weight_{ant} :=$   
 (23  
 100  
 19  
 133.4  
 0  
 0  
 0  
 0) ·lbf

Antenna Shape?

1 = Flat

0 = Round

Elevation of antennas

Number of antenna groups

SHAPE :=  
 (0  
 1  
 1  
 1  
 1  
 1  
 1  
 1)

$z_{ant} :=$   
 (37  
 32.75  
 31  
 23.5  
 98  
 98  
 98  
 98) ·ft

$N_{antenna} := 4$

\*Matrix elements with a value of "1" are just placeholder values to prevent divide by 0 / NaN errors.

Wind load calculations collapsed





## *Equipment Frame*

*An analysis of the frame was conducted using RISA 3D with the above outlined equipment and the following load conditions.*

$$F_1 := F_{A_1}$$

$$W_{1.ice} := W_{ant.ice_1}$$

$$F_1 = 9.733 \text{ lbf}$$

*Antenna position 1*

$$W_{1.ice} = 47.642 \text{ lbf}$$

$$F_2 := F_{A_2}$$

$$W_{2.ice} := W_{ant.ice_2}$$

$$F_2 = 3.753 \text{ lbf}$$

*Antenna position 2*

$$W_{2.ice} = 108.675 \text{ lbf}$$

$$F_3 := F_{A_3}$$

$$W_{3.ice} := W_{ant.ice_3}$$

$$F_3 = 4.117 \text{ lbf}$$

*Antenna position 3*

$$W_{3.ice} = 27.836 \text{ lbf}$$

### *RISA 3D Loads Input*

*Wind Load (with ice)*

*Dead Load (with ice)*

*Position 1:*

$$F_1 = 9.733 \text{ lbf}$$

$$W_{1.ice} = 47.642 \text{ lbf}$$

*Position 2:*

$$F_2 = 3.753 \text{ lbf}$$

$$W_{2.ice} = 108.675 \text{ lbf}$$

*Position 3:*

$$F_3 = 4.117 \text{ lbf}$$

$$W_{3.ice} = 27.836 \text{ lbf}$$

$$w_{pipe} := \frac{F_{A_4}}{23ft} = 0.958 \cdot plf$$

*Distributed wind load on pipe*

$$ice_{pipe} := \frac{W_{ant.ice_4} - Weight_{ant_4}}{23ft} = 2.646 \cdot plf$$

*Distributed ice weight on pipe*

*Check Local Bending on Pole*

$$D_{\text{pole}} := 4.5\text{in}$$

$$t_{\text{pole}} := .188\text{in} \quad D_{\text{i.pole}} := D_{\text{pole}} - 2 \cdot t_{\text{pole}} = 4.124\text{in}$$

$$S_{\text{pole}} := \frac{\pi \cdot (D_{\text{pole}}^4 - D_{\text{i.pole}}^4)}{32 \cdot D_{\text{pole}}} = 2.636 \cdot \text{in}^3$$

$$M_1 := 768\text{lbf} \cdot 5\text{ft} = 3.84 \times 10^3 \cdot \text{lbf} \cdot \text{ft}$$

*Local moment due to extension*

$$d_{\text{al}} := .1 \cdot \frac{\text{lbf}}{\text{in}^3} \quad A_{\text{arm}} := \frac{\pi \cdot D_{\text{pole}}^2}{4} - \frac{\pi \cdot D_{\text{i.pole}}^2}{4} = 2.547 \text{in}^2 \quad A_{\text{i.arm}} := \frac{\pi \cdot (D_{\text{pole}} + 1\text{in})^2}{4} - \frac{\pi \cdot D_{\text{pole}}^2}{4}$$

$$\text{wt}_{\text{arm}} := (5\text{ft} + .25 \cdot 2 \cdot \pi \cdot 5\text{ft}) \cdot d_{\text{al}} \cdot A_{\text{arm}} + 35\text{lbf} = 74.283 \text{lbf}$$

*Weight of davit arm and light*

$$\text{wt}_{\text{i.arm}} := (5\text{ft} + .25 \cdot 2 \cdot \pi \cdot 5\text{ft}) \cdot A_{\text{i.arm}} \cdot 56 \frac{\text{lbf}}{\text{ft}^3} = 39.26 \text{lbf}$$

*Weight of ice on davit arm*

$$M_2 := (\text{wt}_{\text{arm}} + \text{wt}_{\text{i.arm}}) \cdot 5\text{ft}$$

$$f_b := \frac{M_1 + M_2}{S_{\text{pole}}} = 20.068 \cdot \text{ksi}$$

$$F_y := 25\text{ksi} \quad \phi := .9$$

$$F_b := \phi \cdot F_y = 22.5 \cdot \text{ksi}$$

$$\frac{f_b}{F_b} = 89.19\% \quad \text{OK}$$

*Check connections*

$$T_{\max} := 768\text{lbf}$$

$$V_{\max} := 448\text{lbf}$$

*Use (2) 3/4" 316 Stainless Steel rods at each connection*

$$A_{\text{bolt}} := .334\text{in}^2$$

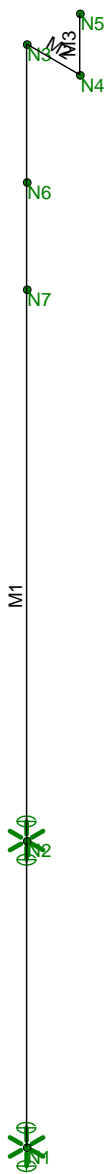
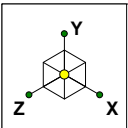
*Eff. area*

$$F_y := 45\text{ksi}$$

$$T_{\text{all}} := .9 \cdot F_y \cdot A_{\text{bolt}} = 13.527 \text{ kip}$$

$$V_{\text{all}} := .6 \cdot F_y \cdot A_{\text{bolt}} = 9.018 \text{ kip}$$

$$\frac{T_{\max}}{T_{\text{all}}} + \frac{V_{\max}}{V_{\text{all}}} = 10.645 \% \quad \text{OK}$$





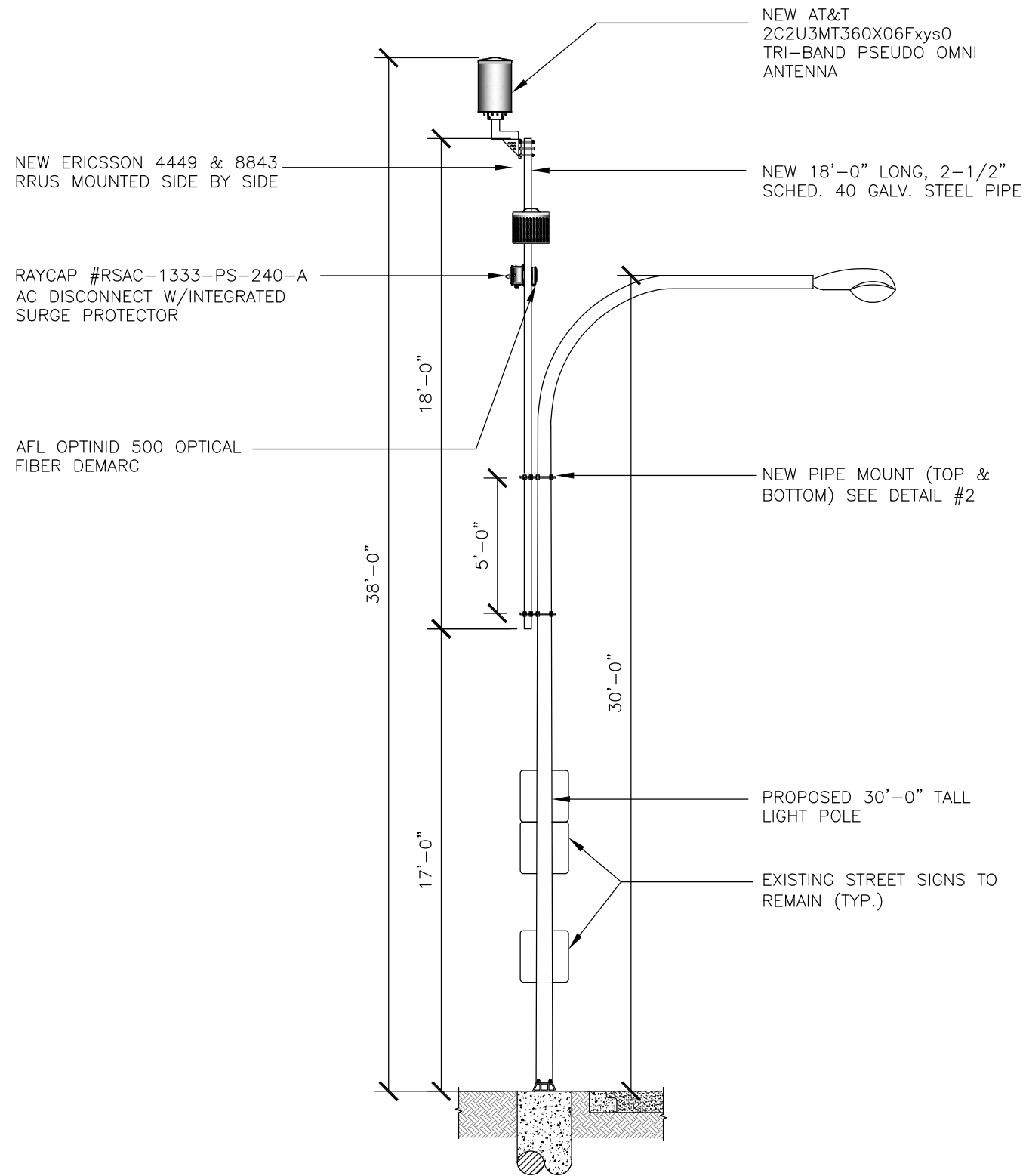




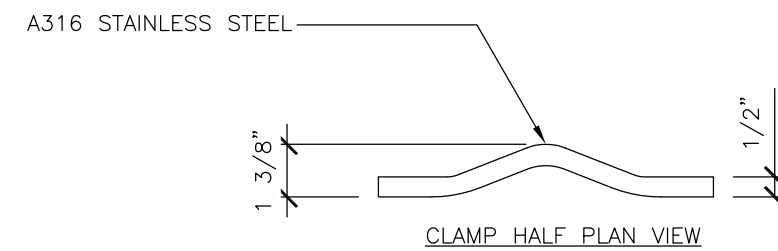
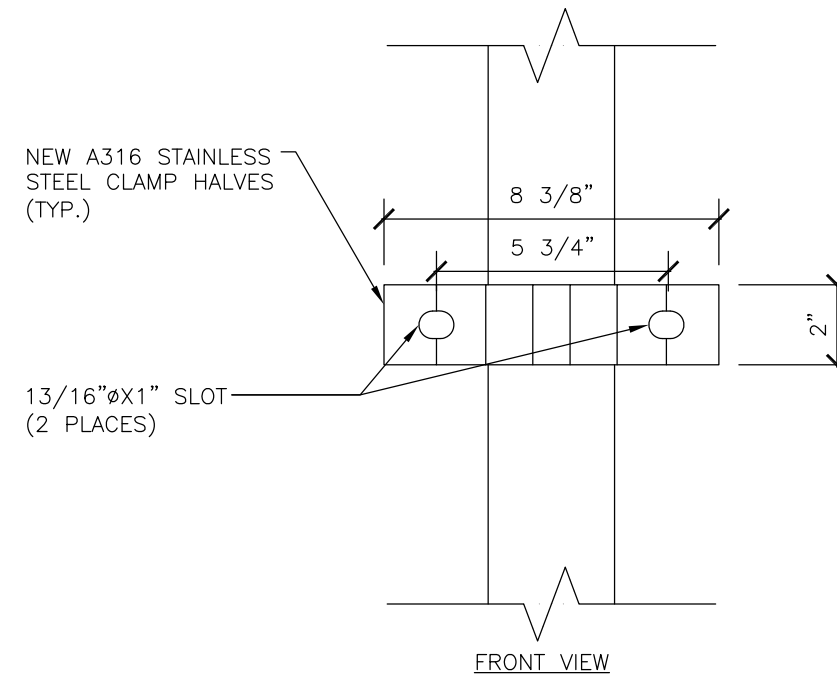
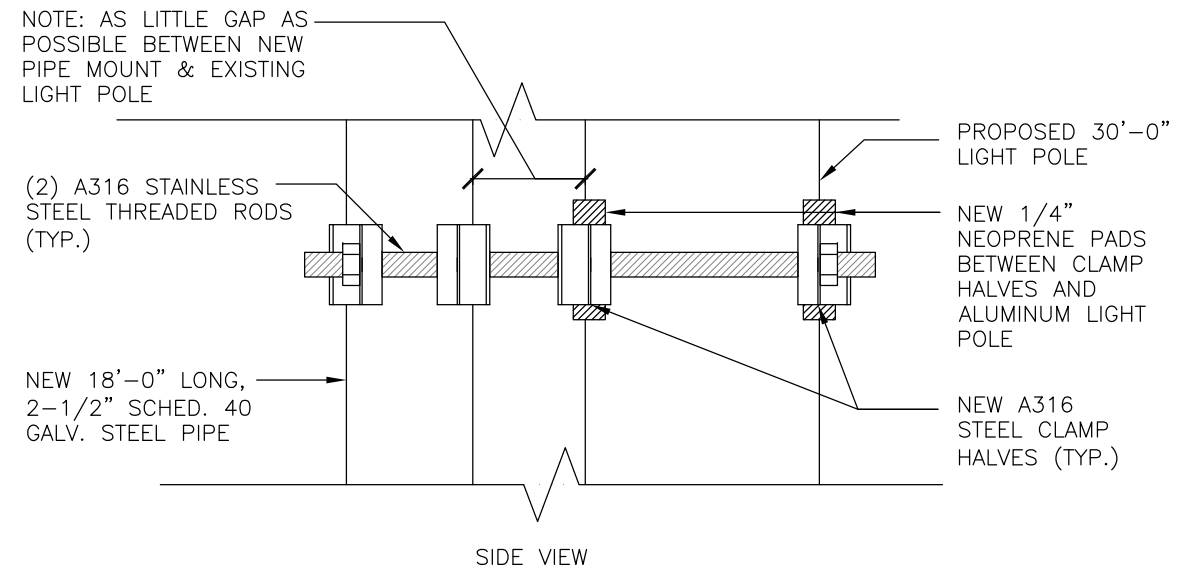




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① LIGHT POLE ELEVATION



② MOUNTING DETAIL

**at&t**  
930 NATIONAL PKWY.  
SCHAUMBURG, IL 60173  
OFFICE: 847.592.3000

**SAC**  
WIRELESS  
A NOKIA™ COMPANY  
540 W. MADISON ST.  
9TH FLOOR  
CHICAGO, IL 60661  
www.sacw.com  
312.895.4977

**WESTCHESTER**  
SERVICES LLC

604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847.277.0070  
FAX: 847.277.0080  
AE@WESTCHESTERSERVICES.COM

**JOHN M. BANKS**  
ARCHITECT  
604 FOX GLEN  
BARRINGTON, IL 60010  
TELEPHONE: 847.277.0070  
FAX: 847.277.0080  
JBANKS@WESTCHESTERSERVICES.COM

PROJECT	PROPOSED SMALL CELL NODE
SITE NAME	CRAN_RCHI_CHOUI_014
USID	184219
PACE NUMBER	MRCHI025394
SITE ADDRESS	1189 S VINE ST URBANA, IL 61801
SHEET NAME	
SHEET NUMBER	1 OF 1

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**PROJECT INFORMATION**

**SITE NAME:** CRAN\_RCHI\_CHUOI\_026  
**COUNTY:** CHAMPAIGN  
**ADDRESS:** 784 S LINCOLN AVE  
 CHAMPAIGN, IL 61801  
**JURISDICTION:** CITY OF URBANA  
**USID:** 184230  
**FA NUMBER:** 14805853  
**PTN:** 3304A0AAQN / 3304A0AARJ  
**PACE:** MRCHI025454 / MRCHI025479

**LATITUDE:** 40° 06' 22.82" (40.106339°)  
**LONGITUDE:** 88° 13' 09.21" (-88.219225°)  
**ELEVATION:** 732'

**LIGHT POLE/UTILITY POLE OWNER:** CITY OF URBANA

**APPLICANT:** AT&T MOBILITY  
 930 NATIONAL PARKWAY  
 SCHAUMBURG IL 60173

**AT&T PROJECT MANAGER/SITE ACQUISITION:** VANESSA ROSS  
 (217) 814-2314  
 VF2021@ATT.COM

**AT&T CONSTRUCTION MANAGER:** CHRISTIANA RACHAL  
 CR630A@ATT.COM

**PROJECT CONSULTANTS**

**PROJECT MANAGER:** SAC WIRELESS LLC  
 540 W. MADISON ST. (9TH FLOOR)  
 CHICAGO IL 60661  
 CONTACT: PRITI MORE  
 PHONE: (312) 789-4353  
 EMAIL: PRITI.MORE@SACW.COM

**ARCHITECT:** GPD GROUP, INC. - 184-007100  
 520 S. MAIN ST., SUITE 2531  
 AKRON, OH 44311  
 317-295-3180

**SAC C.M.:** MARK KLEPACKI  
 EMAIL: MARK.KLEPACKI@SACW.COM

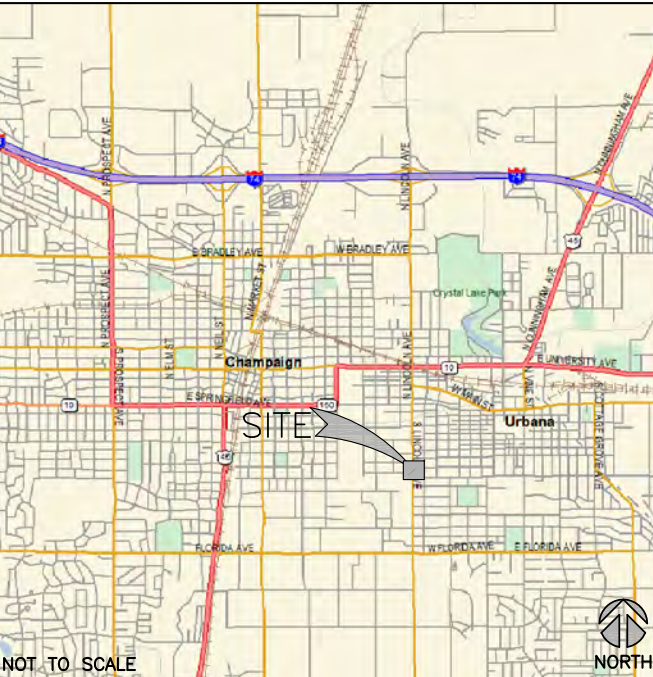
**SAC P.M.:** JAMES HOM  
 EMAIL: JAMES.HOM@SACW.COM

# AT&T MOBILITY

**PROJECT :** LTE 1C&2C PICO CELL BUILD  
**SITE # :** CRAN\_RCHI\_CHUOI\_026  
**USID / NODE:** 184230  
**FA # :** 14805853  
**PTN # :** 3304A0AAQN / 3304A0AARJ  
**PACE # :** MRCHI025454 / MRCHI025479  
**ENODEB NAME :** ILL07050F\_R02  
**JURISDICTION :** CITY OF URBANA

**SITE NAME :** CRAN\_RCHI\_CHUOI\_026  
**ADDRESS :** 784 S LINCOLN AVE  
 CHAMPAIGN, IL 61801

**VICINITY MAP**



**LOCATION MAP**



NOT TO SCALE

NOT TO SCALE

TO OBTAIN LOCATION OF PARTICIPANTS UNDERGROUND FACILITIES BEFORE YOU DIG IN ILLINOIS, CALL ILLINOIS ONE CALL  
 TOLL FREE: 1-800-892-0123 OR  
 www.illinois1call.com

ILLINOIS STATUTE REQUIRES MIN OF 2 WORKING DAYS NOTICE BEFORE YOU EXCAVATE

**DRAWING INDEX**

T1	TITLE SHEET
A1	FIBER DELIVERY PLANS (REFERENCE ONLY)
A2	OVERALL SITE PLAN
A3	ENLARGED PLAN
A4	EXISTING LIGHT POLE ELEVATION
A5	PROPOSED LIGHT POLE ELEVATIONS
A6	EQUIPMENT SHROUD DETAILS (REFERENCE ONLY)
A7	EQUIPMENT DETAILS (REFERENCE ONLY)
A8	MOUNTING DETAILS
S1	POLE FOUNDATION DETAILS
E1	ELECTRICAL ONE-LINE DIAGRAM
E2	PANEL SCHEDULE & ELECTRICAL DETAILS
E3	GROUNDING DETAILS
RF1	RF PLUMBING DIAGRAM (REFERENCE ONLY)
REF	POLE MANUFACTURER DESIGN (BY OTHERS)

**SCOPE OF WORK**

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

- REMOVE EXISTING LIGHT POLE AND REPLACE WITH NEW 30' HAPCO DOUBLE DAVIT ARM (RTA30E8C4D2601) LIGHT POLE (100 GRIT SATIN FINISH)
- INSTALL NEW ELECTRIC SERVICE RUN FROM EXISTING SOURCE TO NEW LIGHT POLE. METER SUPPLIED & INSTALLED BY CONTRACTOR.
- INSTALL NEW FIBER SERVICE RUN FROM EXISTING SOURCE TO NEW LIGHT POLE LOCATION AS SHOWN.
- INSTALL NEW POWER & FIBER EQUIPMENT PER PLAN
- INSTALL (1) NEW OMNI ANTENNA
- INSTALL (2) PCS 2203 RRUS & (1) LAA 2205 RRU IN CHARLES DENSIFICATION SHROUD
- INSTALL CABLING AS REQUIRED
- GROUND AS REQUIRED
- LIGHT POLE LUMINARY TO BE SUPPLIED & INSTALLED BY CONTRACTOR. LUMINARY MUST BE APPROVED BY CITY OF URBANA PRIOR TO ORDER.
- STREET LIGHTING HANDHOLE (IF REQUIRED) SUPPLIED & INSTALLED BY CONTRACTOR
- POTHOLES SHALL BE REQUIRED FOR ANY PROPOSED UTILITY CROSSING
- HYDROVAC SHALL BE USED FOR ALL TRENCHING & POTHOLES ACTIVITIES
- CONTRACTOR SHALL MAINTAIN INTEGRITY OF EXISTING POLE DURING REMOVAL & COORDINATE RETURN OF REMOVED POLE TO THE CITY OF URBANA

**UTILITY DELIVERY METHOD TO PROPOSED POLE**

- FIBER - UNDERGROUND
- POWER - UNDERGROUND

**CODE COMPLIANCE**

- 2015 INTERNATIONAL BUILDING CODE W/CITY AMMENDMENTS
- 2014 NATIONAL ELECTRIC CODE W/CITY AMMENDMENTS

**SPECIAL NOTES**

- ALL WORK SHALL BE INSTALLED IN CONFORMANCE WITH CURRENT AT&T CONSTRUCTION INSTALLATION GUIDE.
- EXISTING CONDITIONS WILL BE CHANGED & VERIFIED IN FIELD. IF SIGNIFICANT DEVIATIONS OR DETERIORATION ARE ENCOUNTERED AT THE TIME OF CONSTRUCTION, A REPAIR PERMIT WILL BE OBTAINED & CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY.
- THESE DRAWINGS ARE FULL SIZE & SCALEABLE ON 11"x17" SHEET SIZE.
- STATEMENT THAT COMPLIANCE WITH THE ENERGY CODE IS NOT REQUIRED. -SCOPE OF WORK DOES NOT INVOLVE MODIFICATIONS TO EXTERIOR ENVELOPE OF BUILDING, HVAC SYSTEMS OR ELECTRICAL LIGHTING.

**DO NOT SCALE DRAWINGS**

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ARCHITECT OR ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.



**REVISIONS**

REV.	DATE	DESCRIPTION	INITIALS
A	10/31/18	ISSUED FOR REVIEW	SEK
B	03/12/19	REVISED PER COMM.	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF ILLINOIS.

CIVIL SEAL

LTE 1C&2C PICO CELL BUILD  
 14805853  
 CRAN\_RCHI\_CHUOI\_026  
 184230  
 784 S LINCOLN AVE  
 CHAMPAIGN, IL 61801

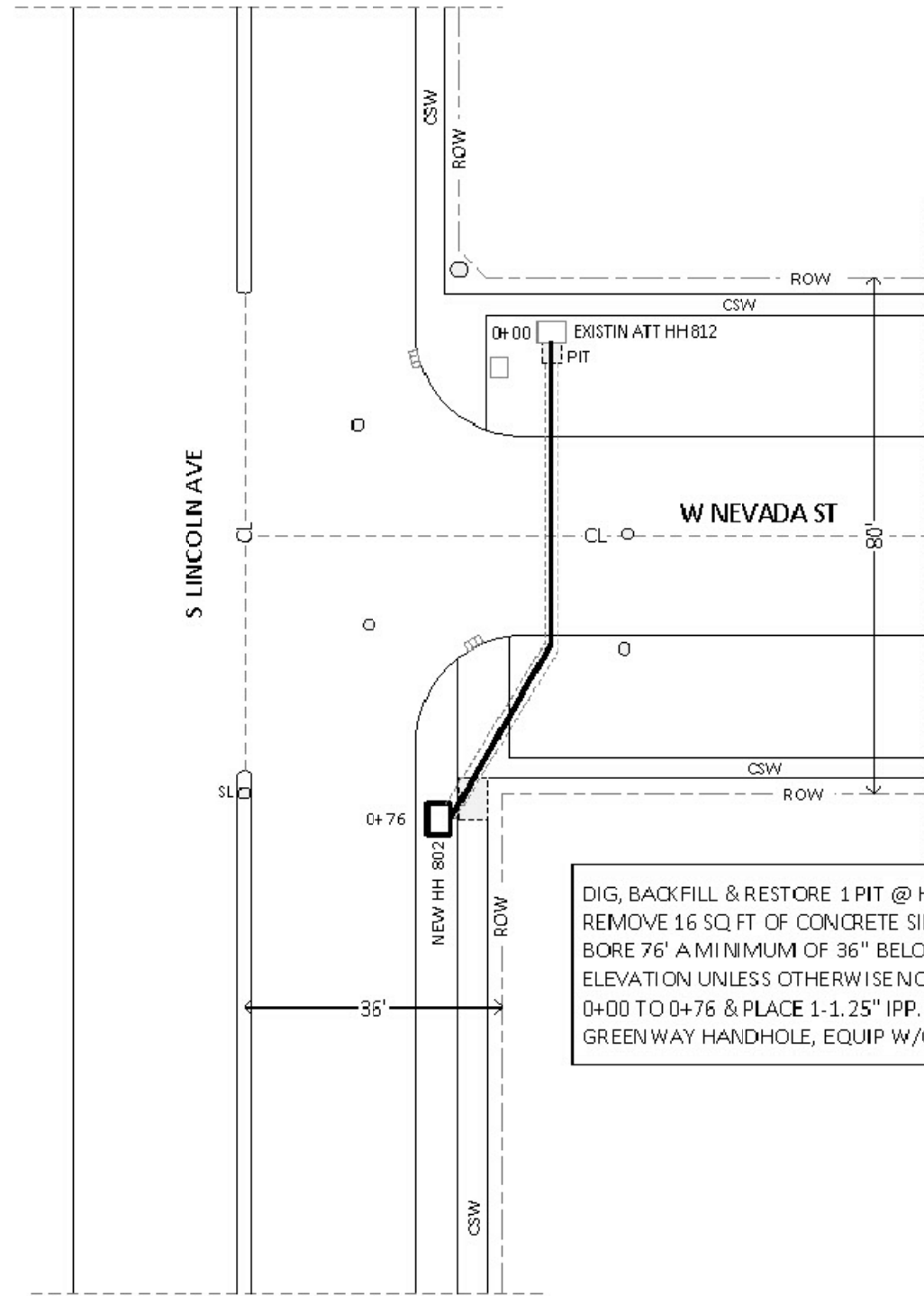
SHEET TITLE

TITLE SHEET

SHEET NUMBER

T1

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.



DIG, BACKFILL & RESTORE 1 PIT @ HH 812 TO PLACE IPP, REMOVE 16 SQ FT OF CONCRETE SIDEWALK, DIRECTIONAL BORE 76' A MINIMUM OF 36" BELOW EXISTING GRADE/ ELEVATION UNLESS OTHERWISE NOTED, FROM STATION 0+00 TO 0+76 & PLACE 1-1.25" IPP. PLACE 1-10"X15"X.2" GREENWAY HANDHOLE, EQUIP W/GRD.



City of Urbana  
 Permit Sketch  
 County: Champaign  
 Twp: Cunningham  
 Qtr Sec: 17  
 Ref # A01CQ2N  
 Sheet 1 of 1



REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
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REFERENCE ONLY

LTE 1C&2C PICO CELL BUILD  
 14805853  
 CRAN\_RCHI\_CHU01\_026  
 184230  
 784 S LINCOLN AVE  
 CHAMPAIGN, IL 61801

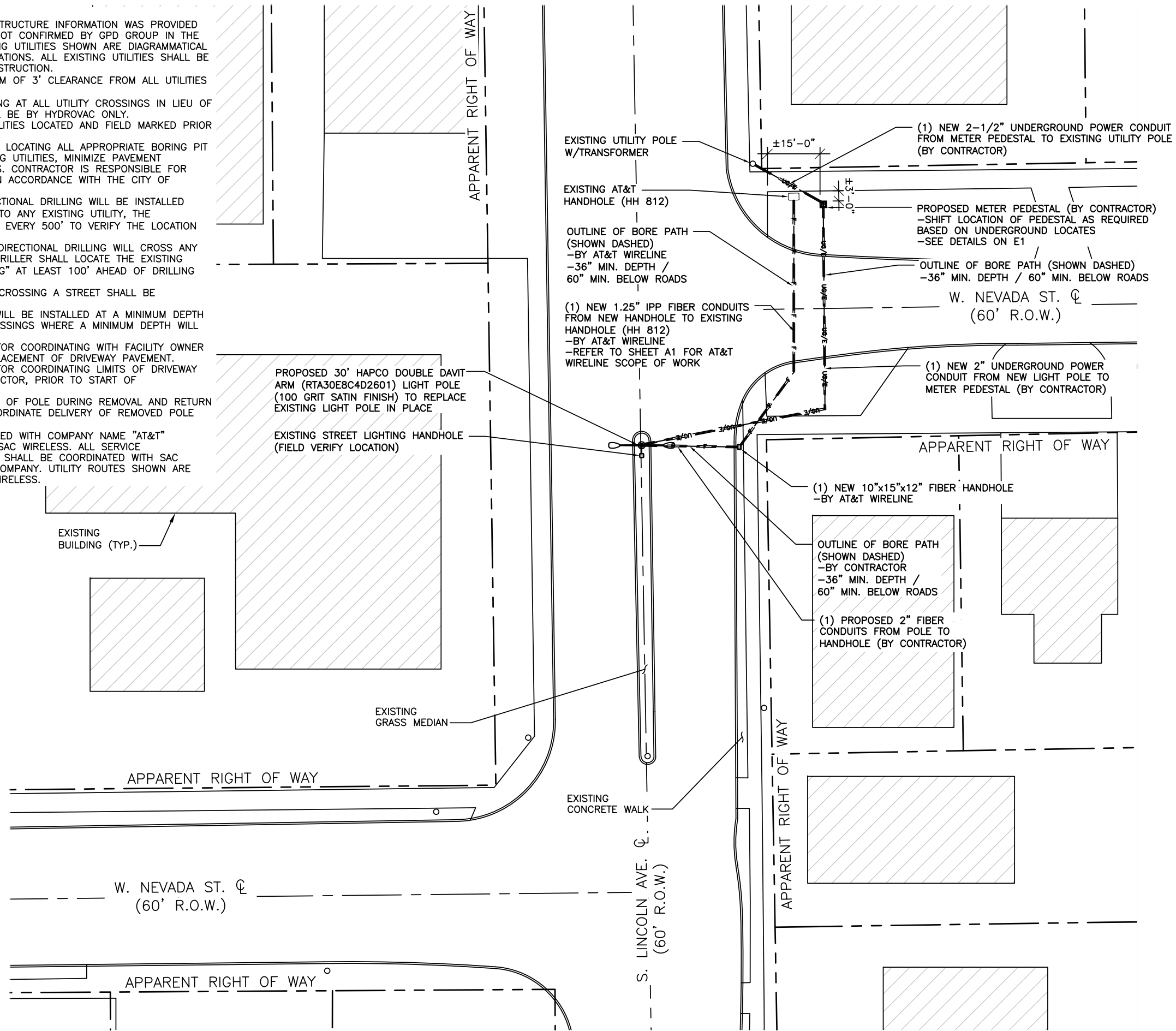
SHEET TITLE  
 FIBER DELIVERY PLANS

SHEET NUMBER  
**A1**

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

**NOTES:**

- EXISTING UNDERGROUND UTILITY INFRASTRUCTURE INFORMATION WAS PROVIDED BY SAC WIRELESS. INFORMATION WAS NOT CONFIRMED BY GPD GROUP IN THE FORM OF UTILITY LOCATES. THE EXISTING UTILITIES SHOWN ARE DIAGRAMMATICAL IN NATURE SHOWING APPROXIMATE LOCATIONS. ALL EXISTING UTILITIES SHALL BE LOCATED BY CONTRACTOR DURING CONSTRUCTION.
- CONTRACTOR SHALL MAINTAIN A MINIMUM OF 3' CLEARANCE FROM ALL UTILITIES & 5' CLEARANCE FROM ALL CONDUITS.
- CONTRACTOR SHALL PERFORM POTHOLING AT ALL UTILITY CROSSINGS IN LIEU OF DIRECTIONAL BORING. POTHOLING SHALL BE BY HYDROVAC ONLY.
- CONTRACTOR SHALL HAVE EXISTING UTILITIES LOCATED AND FIELD MARKED PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL TAKE CARE IN LOCATING ALL APPROPRIATE BORING PIT LOCATIONS IN ORDER TO AVOID EXISTING UTILITIES, MINIMIZE PAVEMENT RESTORATION AND TRAFFIC DISRUPTIONS. CONTRACTOR IS RESPONSIBLE FOR REPAIRING ALL DISTURBED PAVEMENT IN ACCORDANCE WITH THE CITY OF URBANA STANDARD SPECIFICATIONS.
- AT LOCATIONS WHERE PROPOSED DIRECTIONAL DRILLING WILL BE INSTALLED WITHIN 5' LONGITUDINALLY (PARALLEL) TO ANY EXISTING UTILITY, THE DIRECTIONAL DRILLER SHALL "POTHOLE" EVERY 500' TO VERIFY THE LOCATION AND GRADE OF THE EXISTING UTILITY.
- AT LOCATIONS WHERE THE PROPOSED DIRECTIONAL DRILLING WILL CROSS ANY EXISTING UNDERGROUND UTILITY, THE DRILLER SHALL LOCATE THE EXISTING UTILITY LINE AND GRADE BY "POTHOLING" AT LEAST 100' AHEAD OF DRILLING OPERATIONS.
- ANY PROPOSED DIRECTIONAL DRILLING CROSSING A STREET SHALL BE PERPENDICULAR TO STREET DIRECTION.
- ALL CONDUIT IN CITY RIGHT-OF-WAY WILL BE INSTALLED AT A MINIMUM DEPTH OF 36 INCHES EXCEPT AT STREET CROSSINGS WHERE A MINIMUM DEPTH WILL BE 60 INCHES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH FACILITY OWNER TO SCHEDULE ANY DEMOLITION & REPLACEMENT OF DRIVEWAY PAVEMENT.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING LIMITS OF DRIVEWAY REPAIR WITH CITY RIGHT OF WAY INSPECTOR, PRIOR TO START OF CONSTRUCTION OR DEMOLITION.
- CONTRACTOR SHALL MAINTAIN INTEGRITY OF POLE DURING REMOVAL AND RETURN POLE TO THE CITY OF CHAMPAIGN. COORDINATE DELIVERY OF REMOVED POLE WITH CITY RIGHT-OF-WAY INSPECTOR.
- ALL AT&T HANDHOLES SHALL BE LABELED WITH COMPANY NAME "AT&T"
- UTILITY COORDINATION PERFORMED BY SAC WIRELESS. ALL SERVICE COORDINATION WITH UTILITY COMPANIES SHALL BE COORDINATED WITH SAC WIRELESS AND VERIFIED WITH UTILITY COMPANY. UTILITY ROUTES SHOWN ARE BASED ON NOTES PROVIDED BY SAC WIRELESS.



REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
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CIVIL SEAL

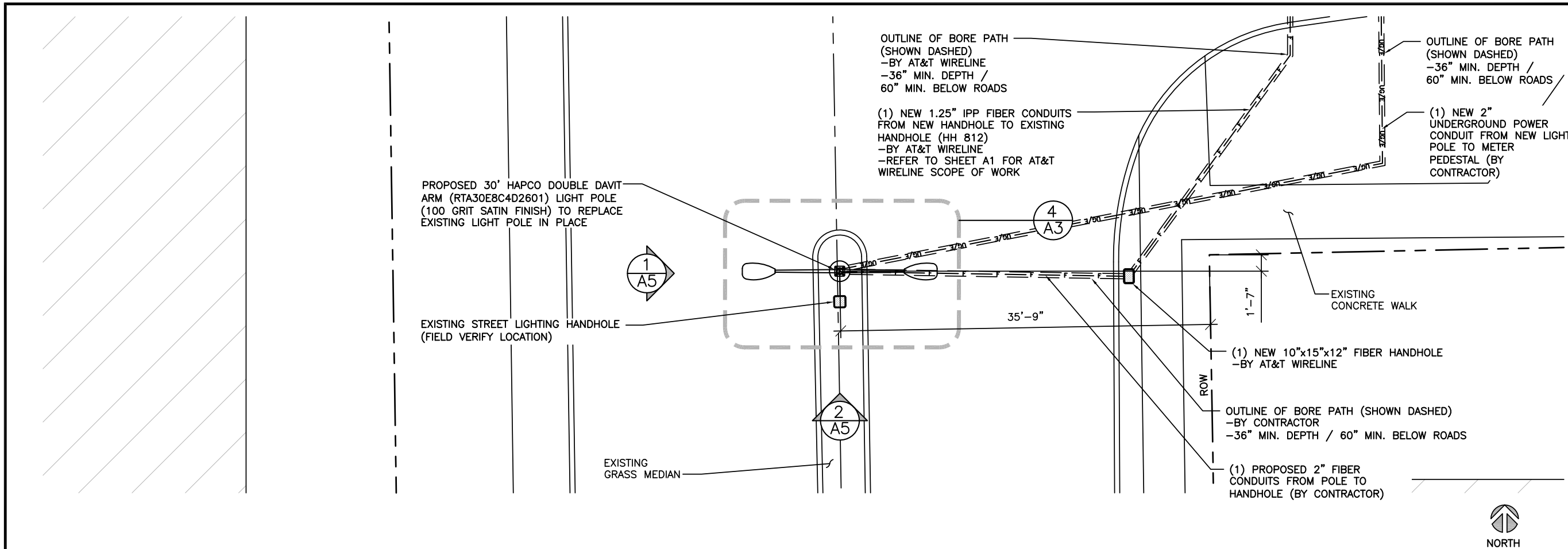
LTE 1C&2C PICO CELL BUILD  
14805853  
CRAN\_RCHI\_CHU01\_026  
184230  
784 S LINCOLN AVE  
CHAMPAIGN, IL 61801

SHEET TITLE  
**OVERALL SITE PLAN**

SHEET NUMBER  
**A2**



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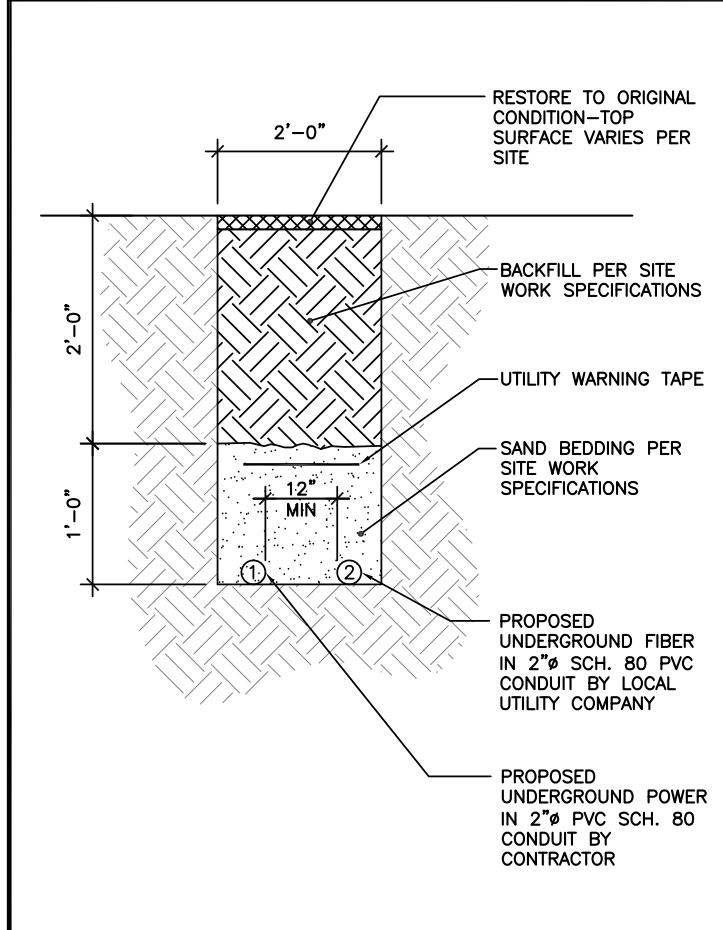


ENLARGED SITE PLAN

0 3' 6" 12" SCALE: 3/32" = 1'-0" (24x36)  
 (OR) 3/64" = 1'-0" (11x17)

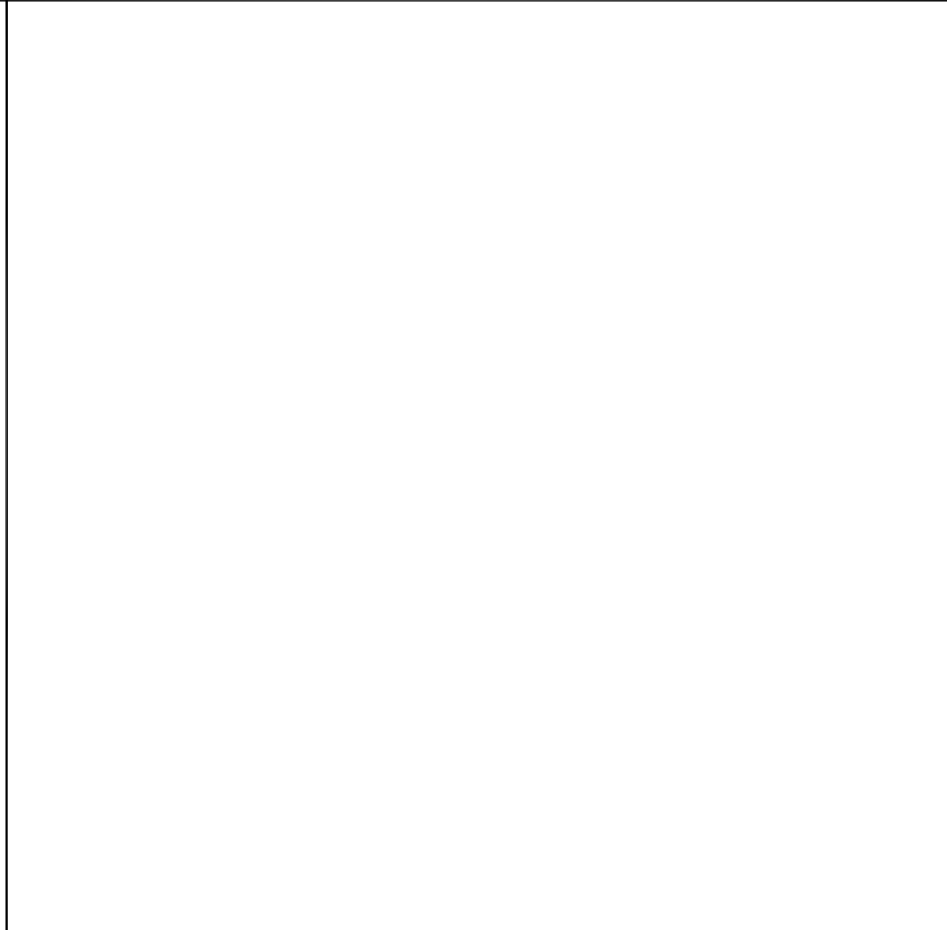
REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
A	10/31/18	ISSUED FOR REVIEW	SEK
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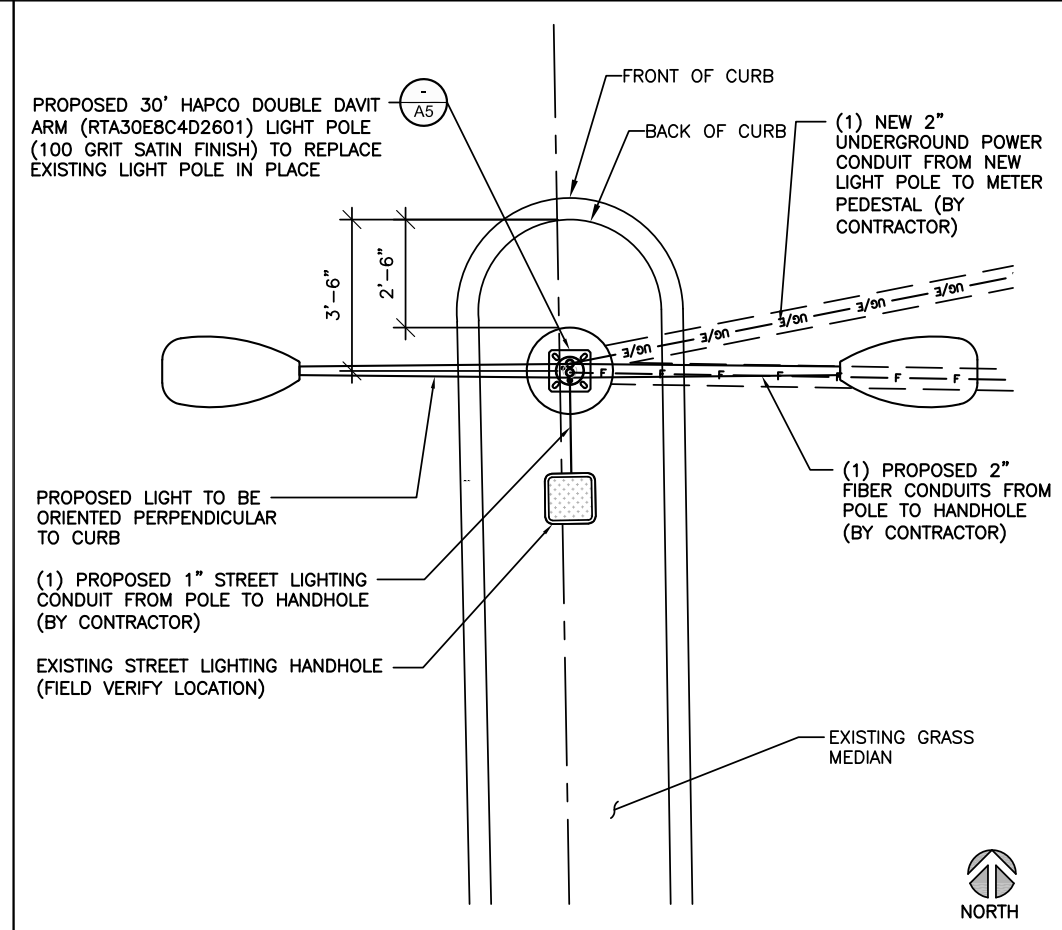
TYPICAL TRENCH DETAIL

SCALE N.T.S. 2



DETAIL NOT USED

SCALE N.T.S. 3



LIGHT POLE PLAN

SCALE N.T.S. 4

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CIVIL SEAL

LTE 1C&2C PICO CELL BUILD  
 14805853  
 CRAN\_RCHI\_CHU01\_026  
 184230  
 784 S LINCOLN AVE  
 CHAMPAIGN, IL 61801

SHEET TITLE  
**ENLARGED PLAN**

SHEET NUMBER  
**A3**



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TOP OF EXISTING LIGHT POLE  
ELEV. ±30'-0" AGL



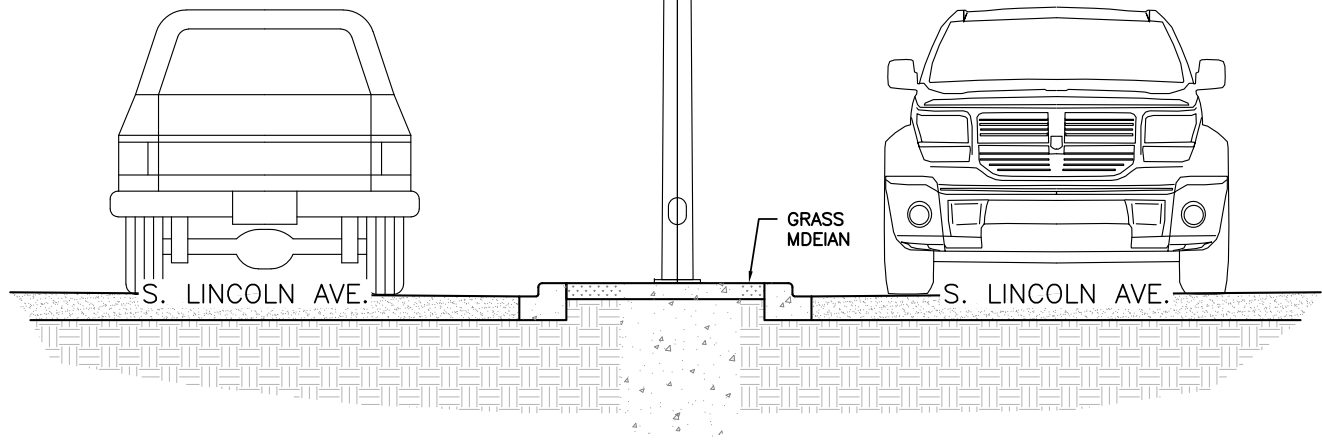
EXISTING LIGHT ARM (TYP.)

EXISTING LIGHT POLE

← STREET SIDE

STREET SIDE →

GRADE (REF)  
ELEV.: 0'-0" AGL



S. LINCOLN AVE.

S. LINCOLN AVE.

GRASS  
MDEIAN



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CIVIL SEAL

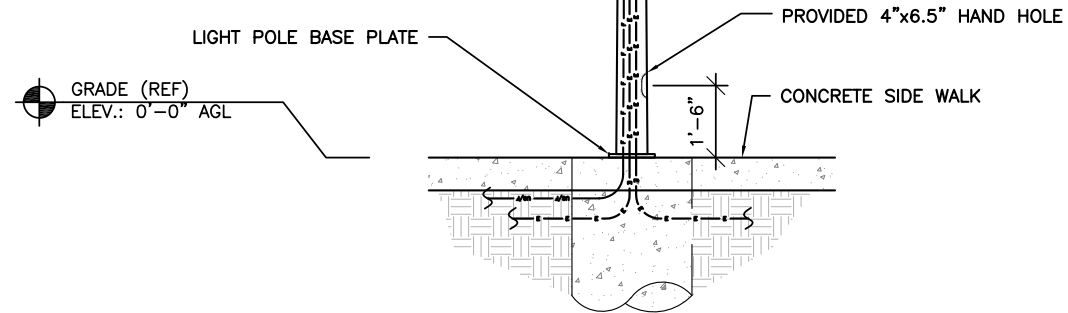
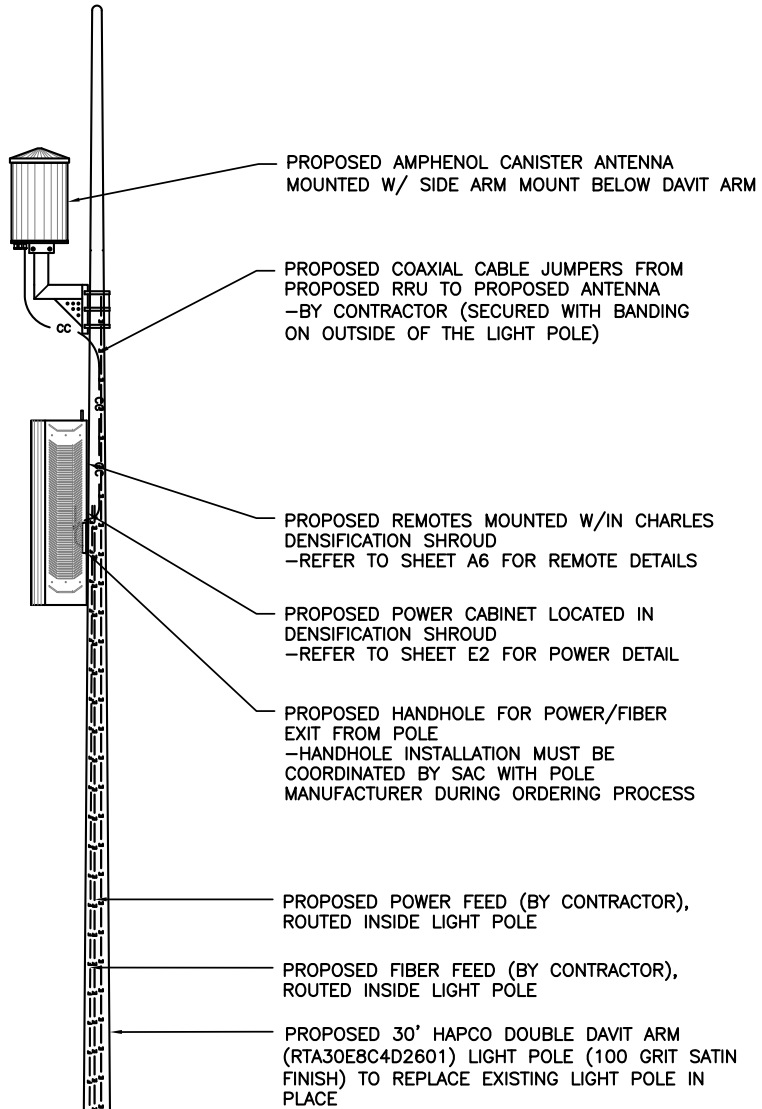
LTE 1C&2C PICO CELL BUILD  
14805853  
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184230  
784 S LINCOLN AVE  
CHAMPAIGN, IL 61801

SHEET TITLE  
**EXISTING  
LIGHT POLE  
ELEVATION**

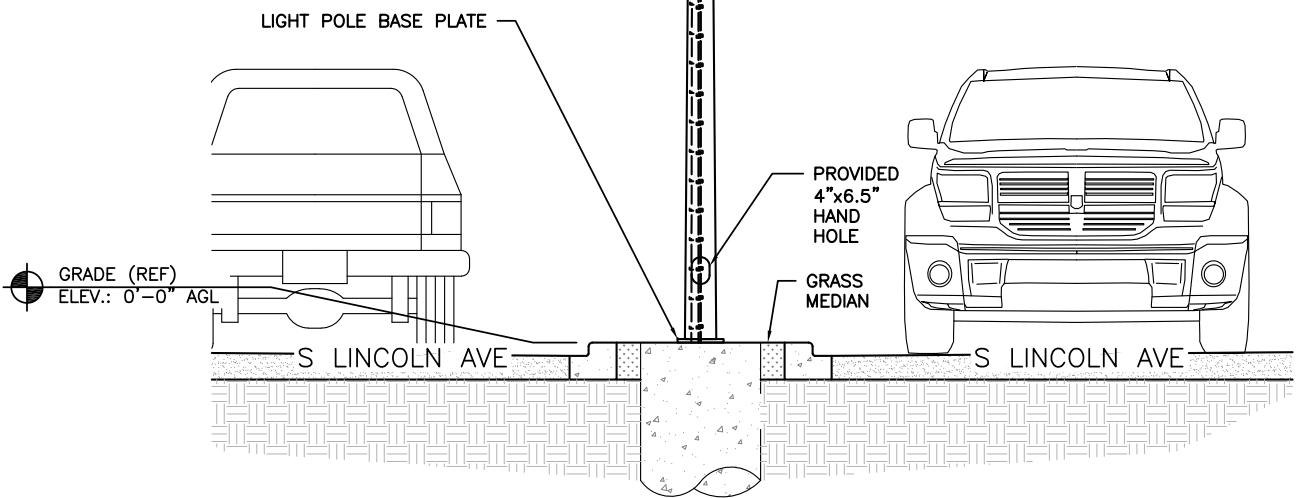
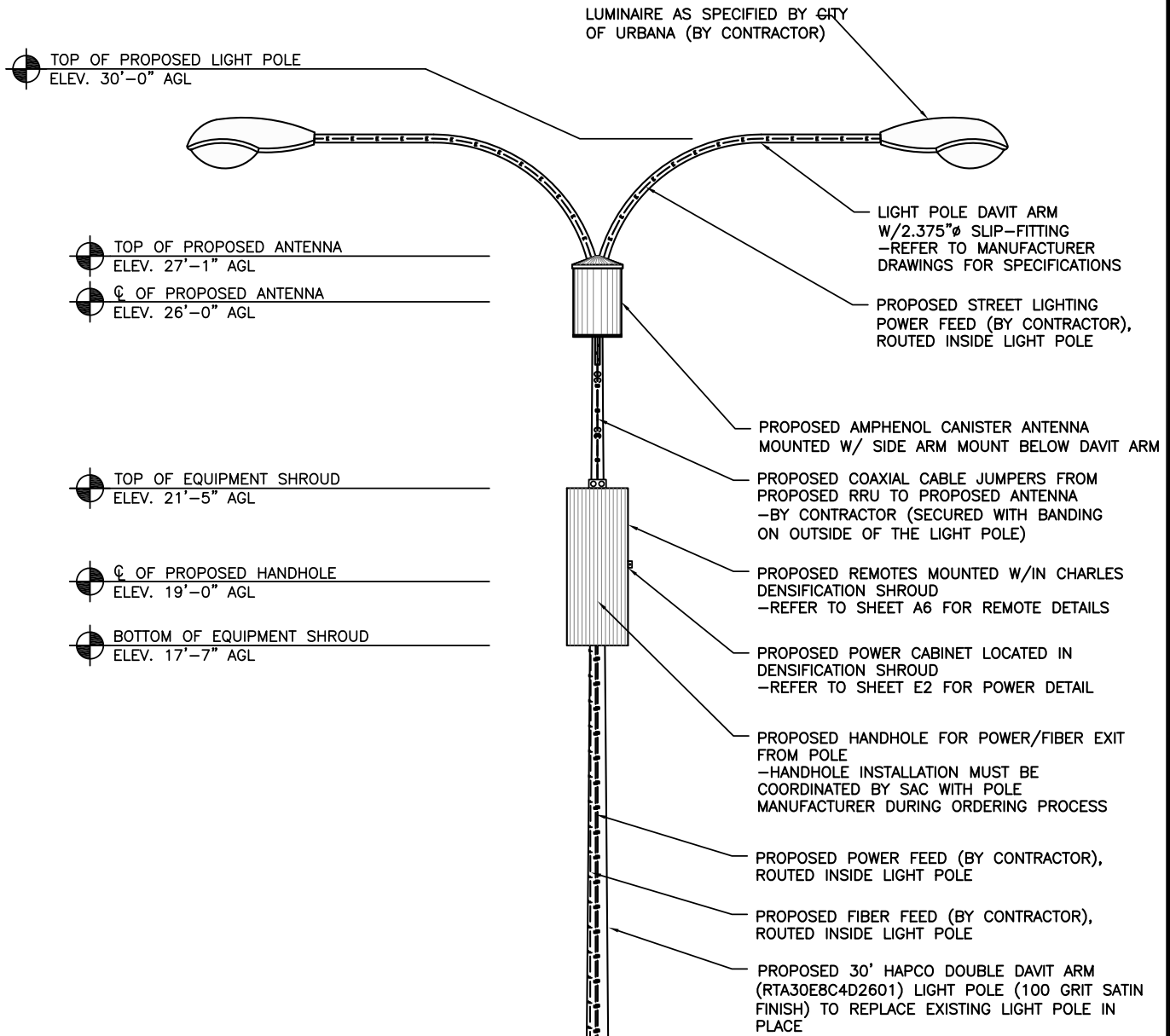
SHEET NUMBER  
**A4**

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- TOP OF PROPOSED LIGHT POLE  
ELEV. 30'-0" AGL
- TOP OF PROPOSED ANTENNA  
ELEV. 27'-1" AGL
- CL OF PROPOSED ANTENNA  
ELEV. 26'-0" AGL
- TOP OF EQUIPMENT SHROUD  
ELEV. 21'-5" AGL
- CL OF PROPOSED HANDHOLE  
ELEV. 19'-0" AGL
- BOTTOM OF EQUIPMENT SHROUD  
ELEV. 17'-7" AGL



- TOP OF PROPOSED LIGHT POLE  
ELEV. 30'-0" AGL
- TOP OF PROPOSED ANTENNA  
ELEV. 27'-1" AGL
- CL OF PROPOSED ANTENNA  
ELEV. 26'-0" AGL
- TOP OF EQUIPMENT SHROUD  
ELEV. 21'-5" AGL
- CL OF PROPOSED HANDHOLE  
ELEV. 19'-0" AGL
- BOTTOM OF EQUIPMENT SHROUD  
ELEV. 17'-7" AGL



REVISIONS			
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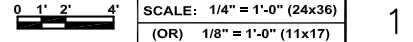
CIVIL SEAL

LTE 1C&2C PICO CELL BUILD  
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CRAN\_RCHI\_CHU01\_026  
184230  
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SHEET TITLE  
**PROPOSED LIGHT POLE ELEVATIONS**

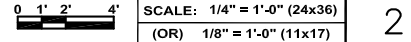
SHEET NUMBER  
**A5**

PROPOSED LIGHT POLE FRONT ELEVATION



1

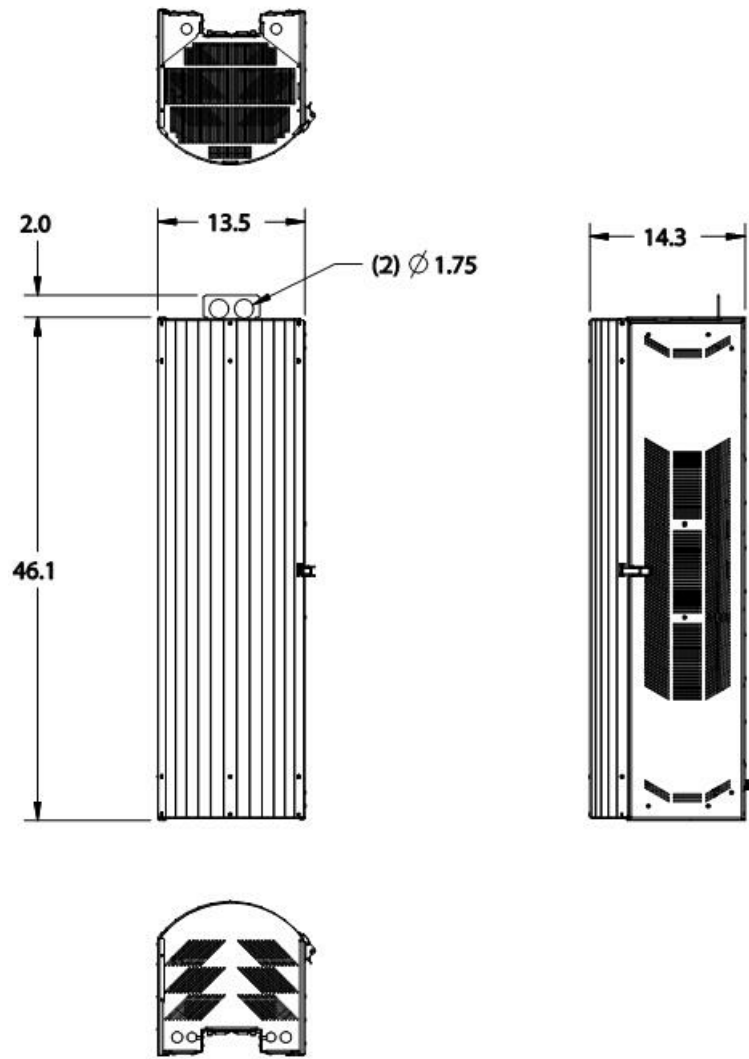
PROPOSED LIGHT POLE SIDE ELEVATION



2



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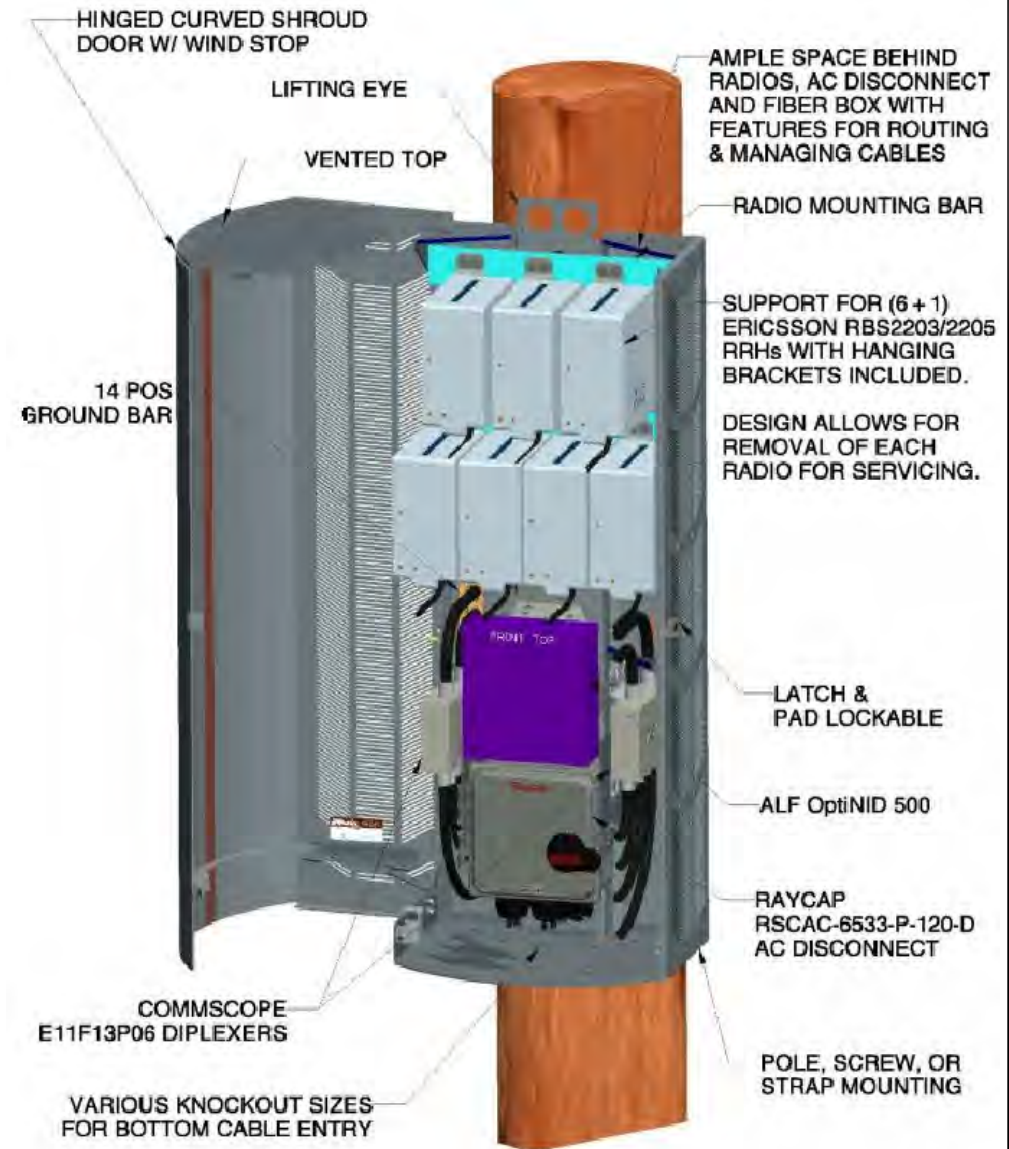
46.1" TALL EQUIPMENT SHROUD DETAIL

1

DETAIL NOT USED

2

EQUIPMENT SHROUD LAYOUT



SCALE: NTS

3



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CHAMPAIGN, IL 61801

SHEET TITLE  
**EQUIPMENT SHROUD DETAILS**

SHEET NUMBER  
**A6**

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MANUFACTURER: ERICSSON  
 MODEL: RADIO 2205

**MECHANICAL SPECIFICATIONS:**  
 HEIGHT: 17.12 IN (435mm)  
 WIDTH: 7.87 IN (200mm)  
 DEPTH: 4.13 IN (105mm)  
 WEIGHT: 21 LBS (9.5kg)

**INTERFACE SPECIFICATIONS:**  
 ANTENNA PORTS: TBD  
 CPRI: TBD

OPTICAL INDICATORS: TBD  
 EXTERNAL ALARMS: TBD  
 FIELD GROUND: TBD

**ELECTRICAL SPECIFICATIONS:**  
 POWER SUPPLY: TBD

**ENVIRONMENT SPECIFICATIONS:**  
 NORMAL OPERATING TEMP.: TBD

RELATIVE HUMIDITY: TBD  
 ENVIRONMENT: TBD



MANUFACTURER: ERICSSON  
 MODEL: RADIO 2203

**MECHANICAL SPECIFICATIONS:**  
 HEIGHT: 17.12 IN (435mm)  
 WIDTH: 7.87 IN (200mm)  
 DEPTH: 4.13 IN (105mm)  
 WEIGHT: 21 LBS (9.5kg)

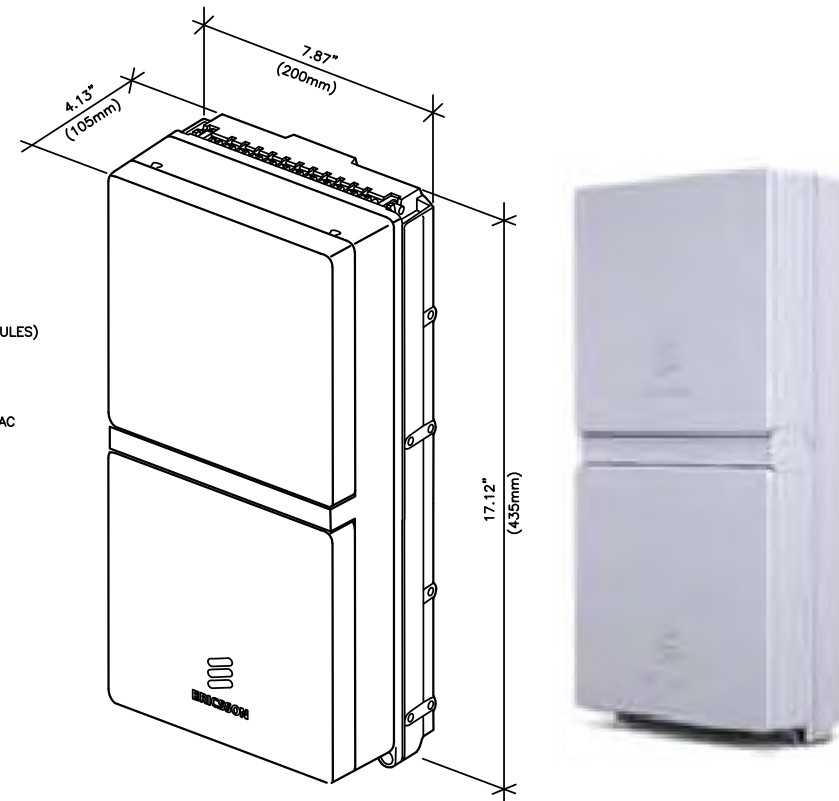
**INTERFACE SPECIFICATIONS:**  
 ANTENNA PORTS: 2x4.3-10 (f)  
 CPRI: 2x2.5/5/10 Gbps (EXCHANGEABLE SFP MODULES)

OPTICAL INDICATORS: 6  
 EXTERNAL ALARMS: 2  
 FIELD GROUND: 1

**ELECTRICAL SPECIFICATIONS:**  
 POWER SUPPLY: -48 VDC OR 100-250 VAC

**ENVIRONMENT SPECIFICATIONS:**  
 NORMAL OPERATING TEMP.: -40°C TO +55°C (COLD START AT -40°C)

RELATIVE HUMIDITY: 5-100%  
 ENVIRONMENT: OUTDOOR CLASS W/IP65



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RRU 2205 DETAIL

SCALE  
N.T.S. 1

RRU 2203 DETAIL

SCALE  
N.T.S. 2

DETAIL NOT USED

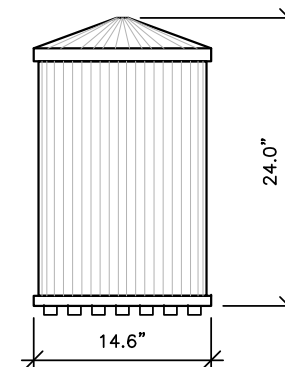
SCALE  
N.T.S. 3

ANTENNA DETAIL

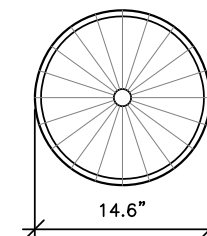
SCALE: NTS 4



IMAGE



SIDE VIEW



TOP VIEW

AMPHENOL MULTI BAND CANISTER ANTENNA  
 MODEL: 2C2U3MT360X06Fxyso  
 COLOR: GREY

MECHANICAL CHARACTERISTICS

- ANTENNA DIMENSIONS (HEIGHT X DIAMETER) : 24.0"x14.6"
- WEIGHT W/OUT MOUNTING BRACKET KIT: TBD LBS
- SURVIVAL WIND SPEED: 150 MPH
- WIND AREA: 2.4 FT<sup>2</sup>
- WIND LOAD (100 MPH): 43 LBF

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REFERENCE ONLY

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 CHAMPAIGN, IL 61801

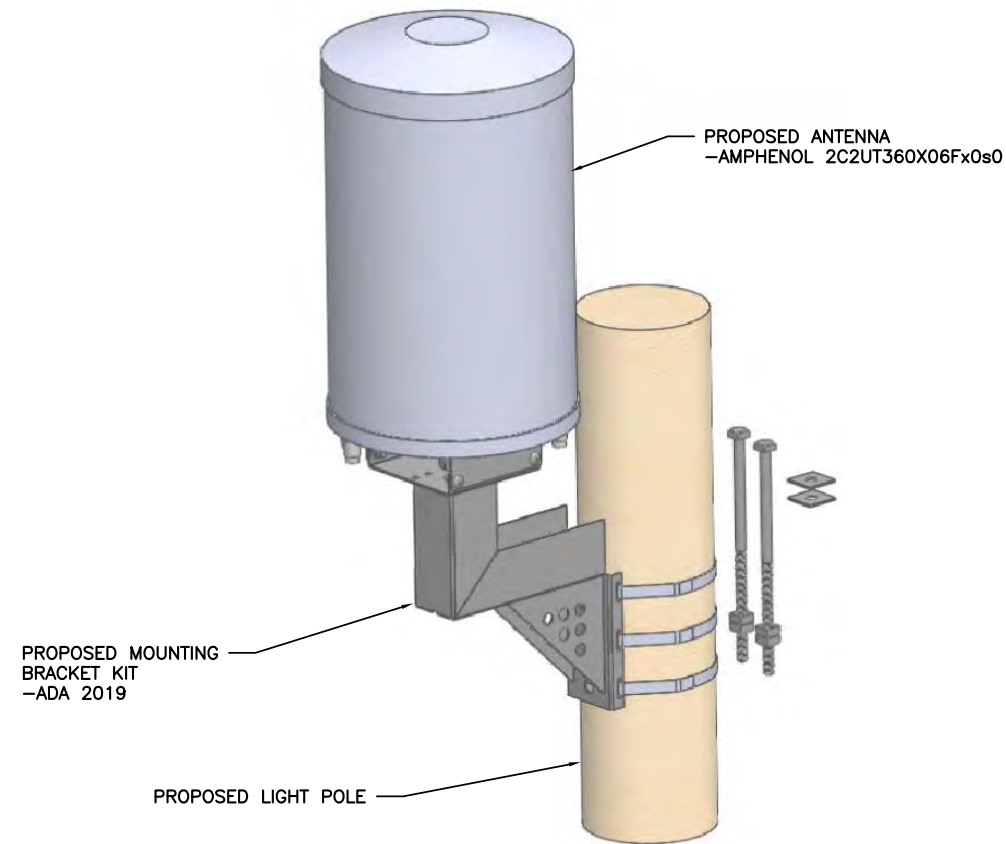
SHEET TITLE

EQUIPMENT  
 DETAILS

SHEET NUMBER

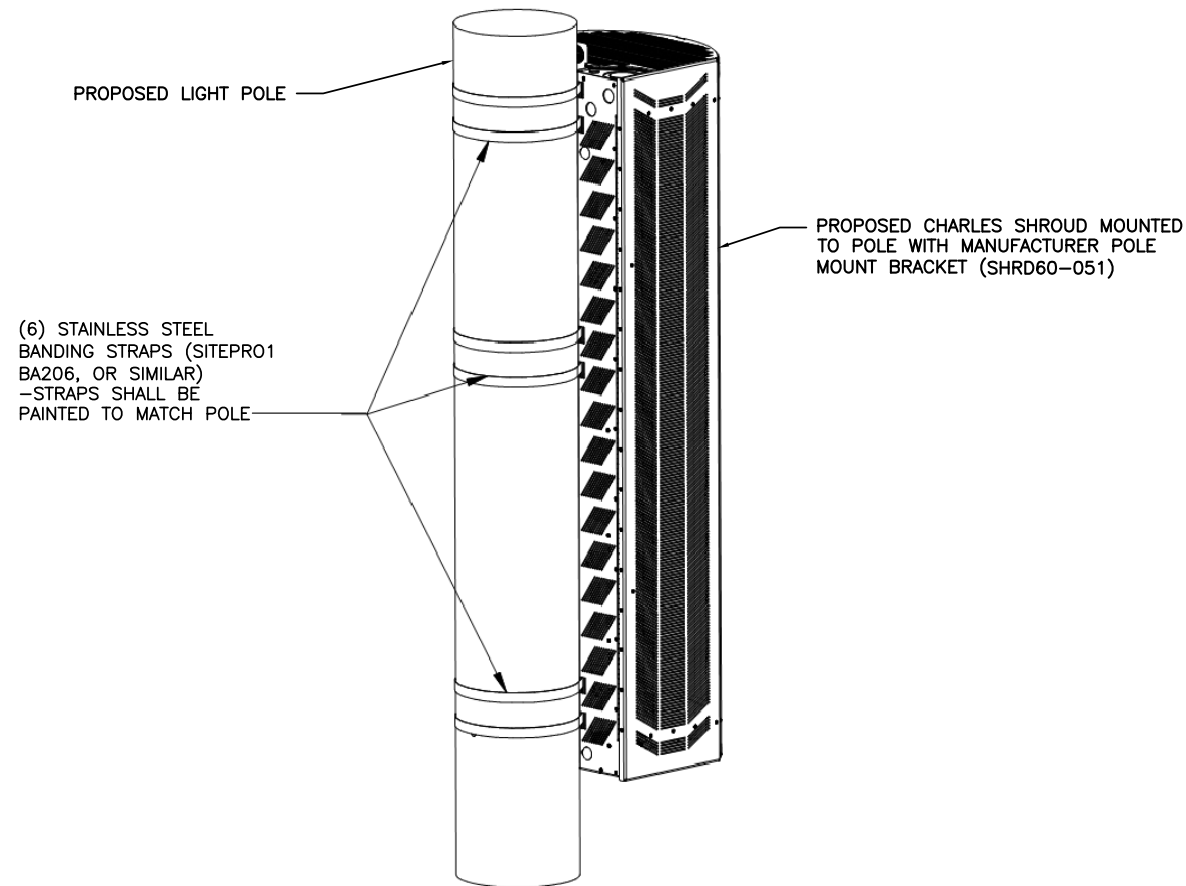
**A7**

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ANTENNA MOUNTING DETAIL

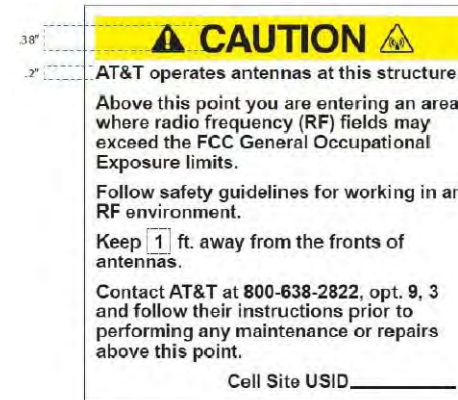
SCALE	1
N.T.S.	



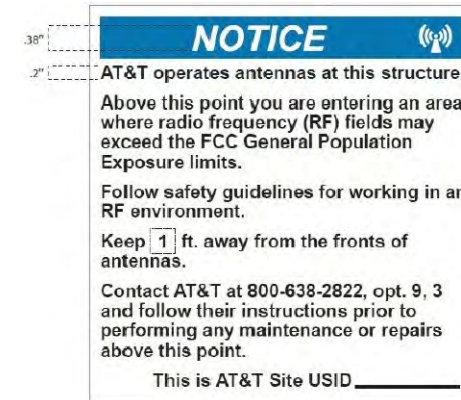
SHROUD MOUNTING DETAIL

SCALE	2
N.T.S.	

EXAMPLE CRAN RF CAUTION SIGN



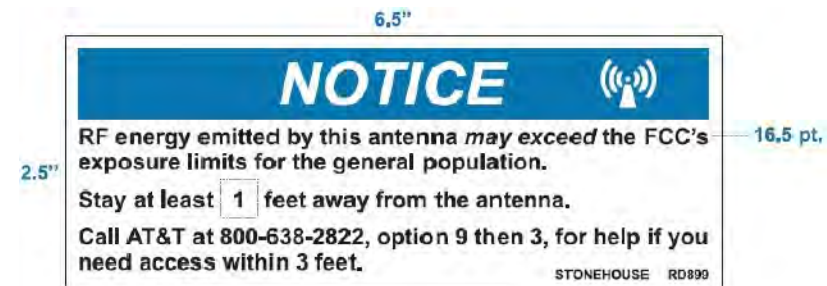
EXAMPLE CRAN RF NOTICE SIGN



EXAMPLE CRAN POLE POWER DISCONNECT SIGN



EXAMPLE STONEHOUSE RD899 RF NOTICE SIGN



CRAN Pole Power Disconnect, RF Notice, and Caution signs shall be ordered through Stonehouse Signs. Three versions are available for each of the signs shown in Figures 16, 17, and 18: .055 Polyethylene - Reflective, .025 Aluminum - Reflective, and Peel Back Label - Reflective. All versions are 6"x6" with font designed to be visible from 2-3 feet away when approached from below to provide warning about ascending into the high RF exposure areas. The RF Caution sign shown in Figure 19 is designed to be visible from 3 feet away and is available in the reflective peel back label version only. It is designed to fit on most of the CRAN/Small Cell antenna types currently deployed. It may also be placed on antenna shrouds as shown in Figures 11 and 12.

**SIGNAGE NOTE:**  
SIGNAGE SHALL BE INSTALLED PER AT&T DIRECTION

AT&T SIGNAGE DETAIL

SCALE: NTS

3



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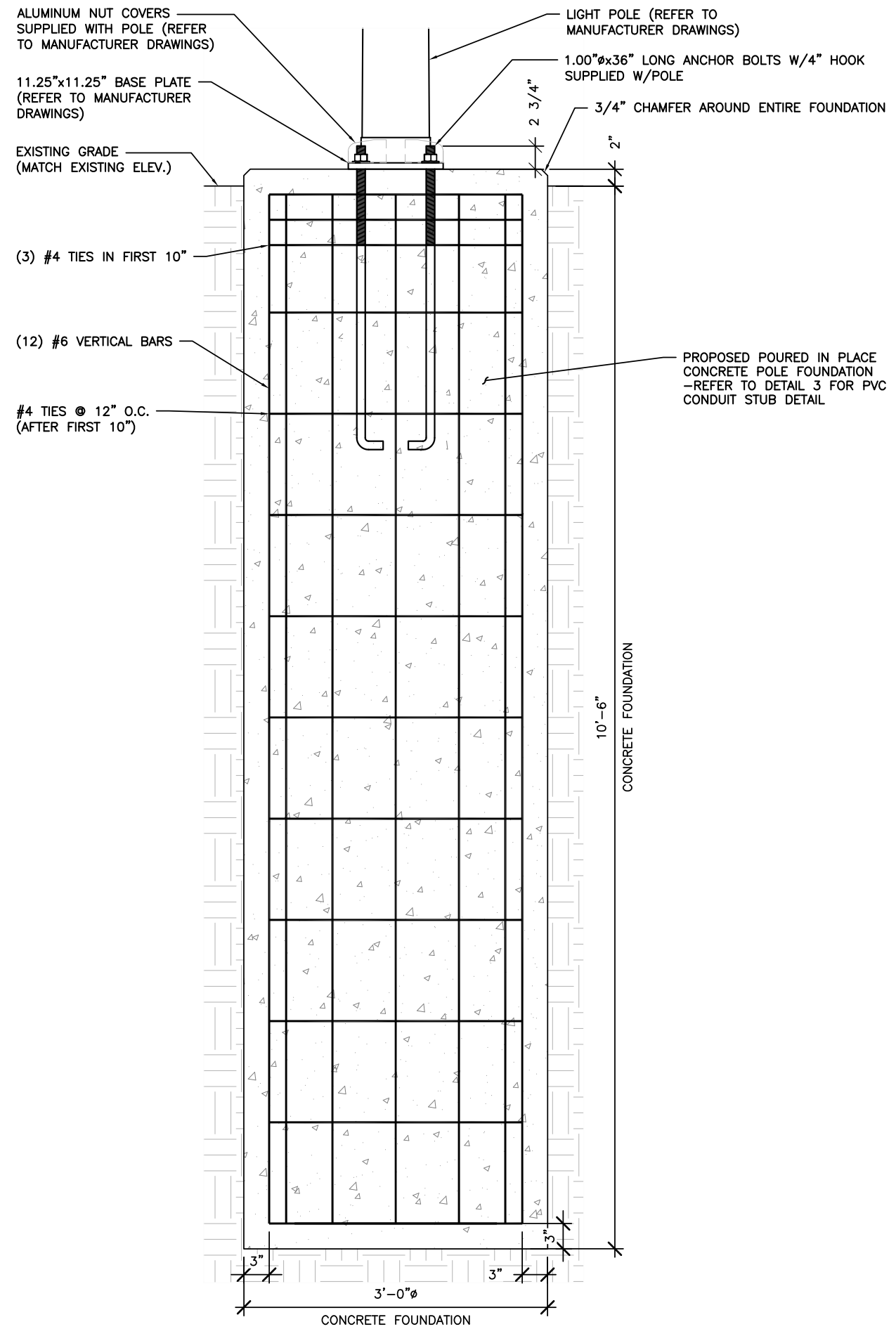
CIVIL SEAL

LTE 1C&2C PICO CELL BUILD  
14805853  
CRAN\_RCHI\_CHU01\_026  
184230  
784 S LINCOLN AVE  
CHAMPAIGN, IL 61801

SHEET TITLE  
**MOUNTING  
DETAILS**

SHEET NUMBER  
**A8**

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**STRUCTURAL NOTES:**

1. STRUCTURAL CONCRETE SHALL MEET THE FOLLOWING SPECIFICATIONS:

SLUMP	4" (±1")
AIR ENTRAINMENT:	6% (±1%)
MIN. COMPRESSIVE STRENGTH (F'c):	4,500 PSI @ 28 DAYS
CONCRETE COVER:	3" ALL SIDES

CONCRETE SHALL BE TESTED BY A REPUTABLE INDEPENDENT THIRD PARTY TESTING AGENCY IN ACCORDANCE WITH LATEST WISCONSIN ACCEPTED EDITION OF ACI-318. FIVE (5) CONCRETE CYLINDERS SHALL BE CAST IN ACCORDANCE WITH LATEST WISCONSIN ACCEPTED EDITION OF ACI-318 AND BE LABORATORY CURED. THE AVERAGE OF THREE (3) CONCRETE CYLINDERS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (F'c) OF 4,500 PSI AT 28 DAYS. THE TESTING RESULTS SHALL BE PROVIDED TO THE CONSTRUCTION MANAGER AND AT&T REPRESENTATIVE.

ALL CONCRETE CONSTRUCTION SHALL CONFORM TO ACI\*96, "STANDARD SPECIFICATION FOR STRUCTURAL CONCRETE" AND ACI 305, 306 AND 307 UNLESS NOTED OTHERWISE.

ALL DETAILING, FABRICATION AND PLACING OF CONCRETE SHALL CONFORM TO ACI 318-11.

2. STRUCTURAL STEEL SHALL MEET THE FOLLOWING SPECIFICATIONS:

MATERIALS:	REINFORCING ANCHOR BOLTS	ASTM 615, GRADE 60 ASTM F1554, GRADE 55
REINFORCING COVER:	TOP	2"
	BOTTOM	3"

3. DESIGN PARAMETERS:

STRUCTURAL ANALYSIS OF THE POLE AND FOUNDATION WAS COMPLETED BY OTHERS. COORDINATE WITH SAC WIRELESS FOR A COPY OF POLE STRUCTURAL ANALYSIS.

DESIGN CODES: 2015 INTERNATIONAL BUILDING BUILDING CODE

POLE LOCATION: TIA-222-G  
ASCE 7-05  
CHAMPAIGN COUNTY, IL

BASIC WIND SPEED: 130 MPH

GUST FACTOR: 1.14

STRUCTURE CLASS: CLASS II

EXPOSURE CLASS: B

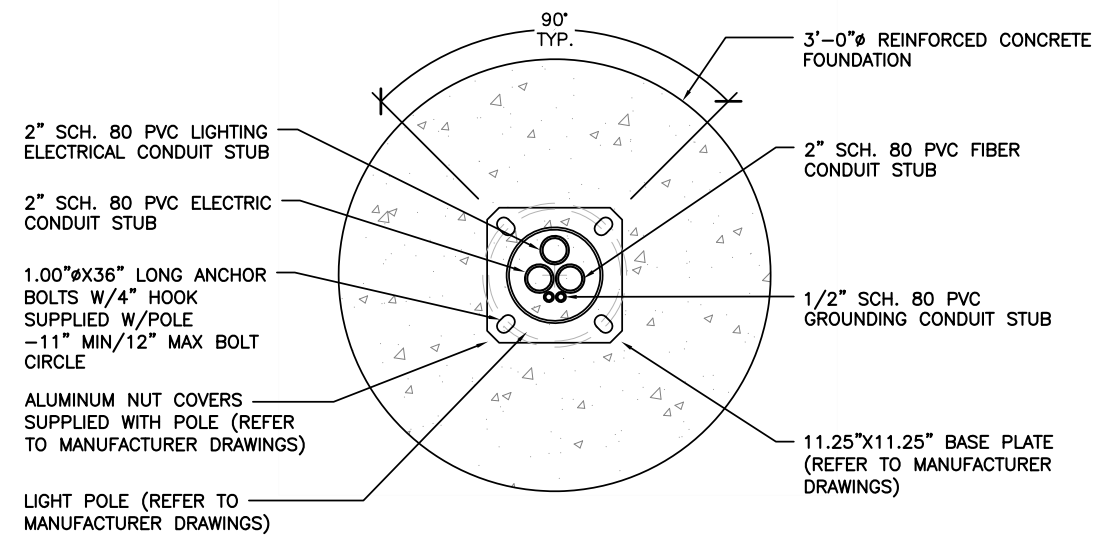
TOPOGRAPHIC CATEGORY: 1

PRESUMPTIVE SOIL PARAMETERS: FOUNDATION IS BASED ON AN ALLOWABLE LATERAL BEARING PRESSURE OF AT LEAST 200 PSF/FT.

4. ALL CONTRACTORS SHALL EXERCISE GREAT CARE DURING EXCAVATION. CONTRACTOR SHALL PREDETERMINE UTILITY LOCATIONS AND NOTIFY THE ENGINEER IMMEDIATELY IF DEVIATION FROM PLANS EXIST. CONTRACTOR SHALL CONTACT 811 48 HR. PRIOR TO DIGGING, GRADING, OR DRILLING.

**FOUNDATION NOTES**

SCALE	2
N.T.S.	



FOUNDATION DETAIL

SCALE: NTS

1

FOUNDATION DETAIL

SCALE: NTS

3



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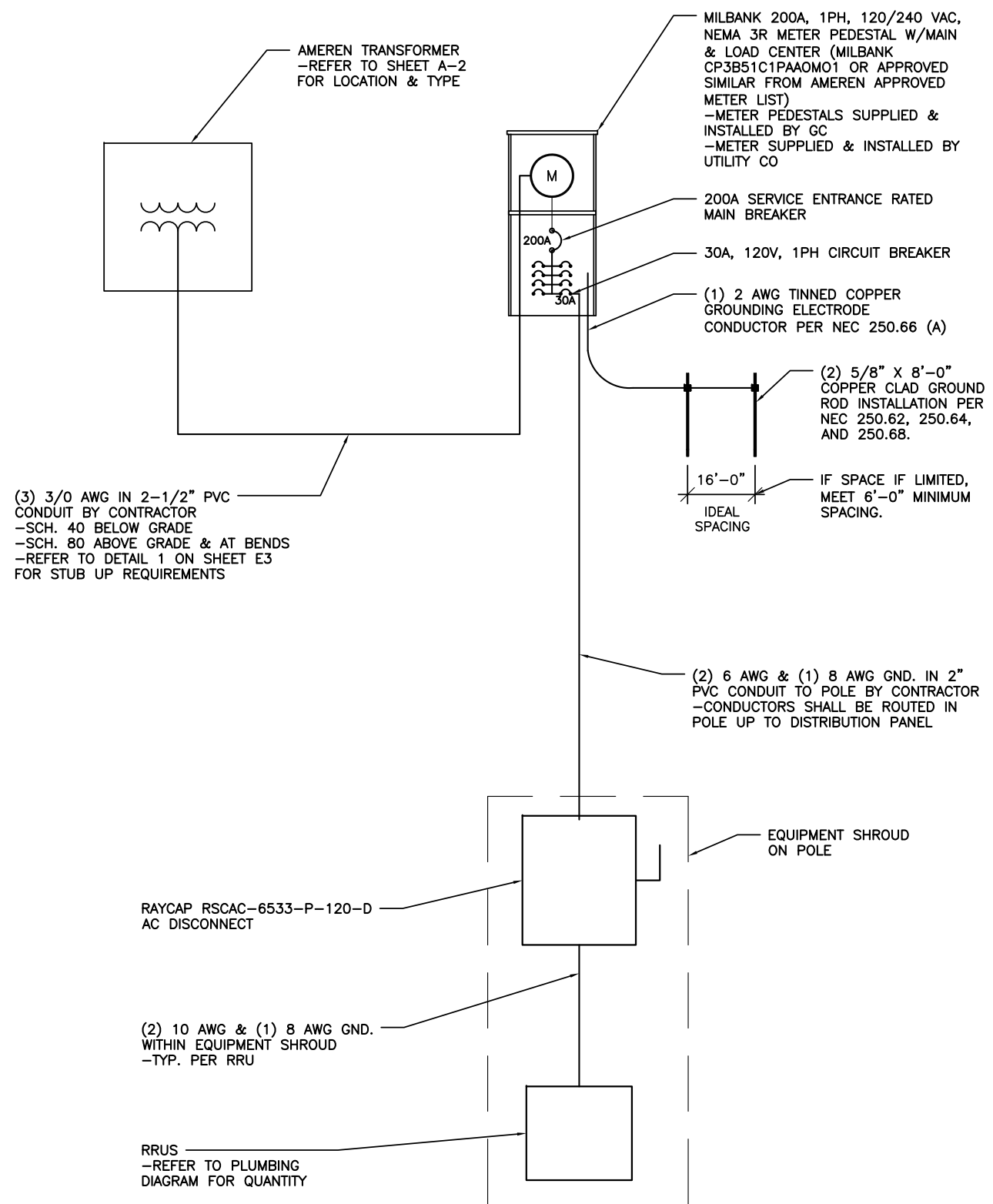
STRUCTURAL SEAL

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SHEET TITLE  
**POLE FOUNDATION DETAILS**

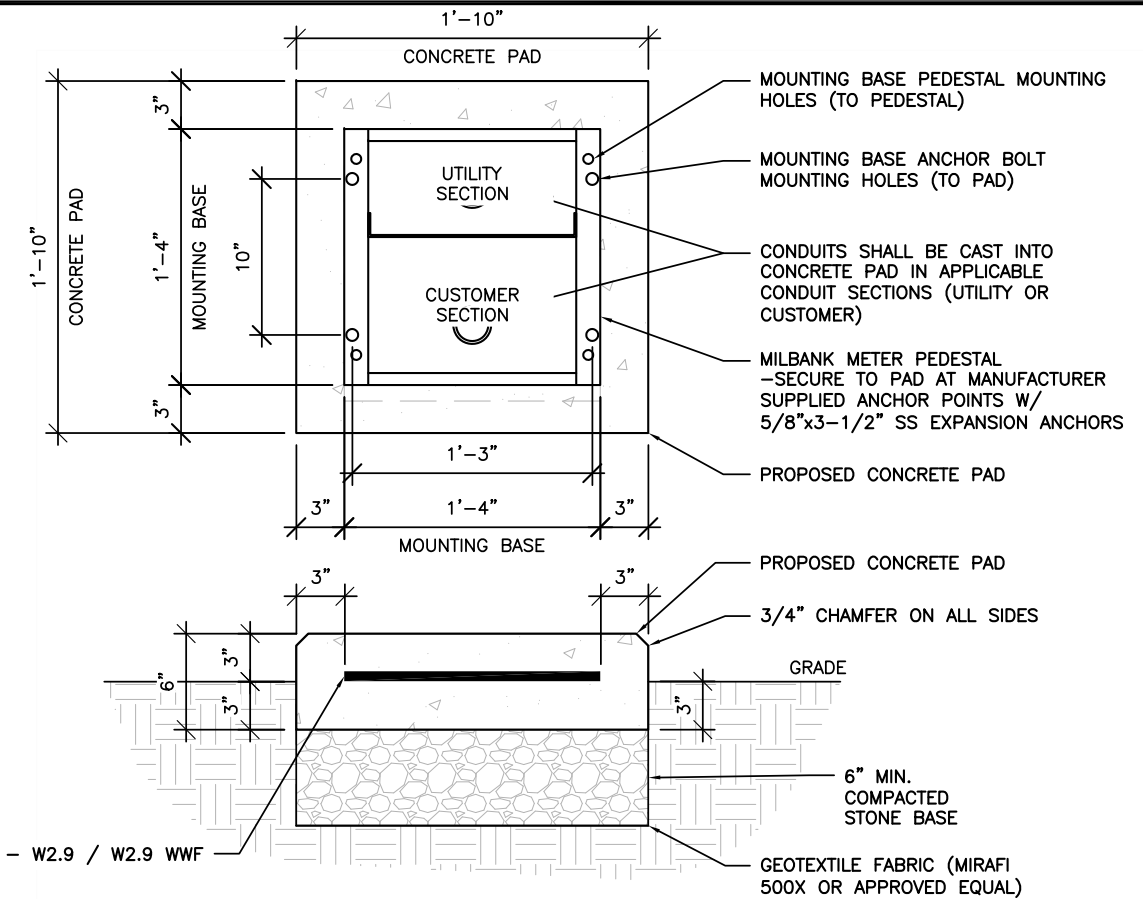
SHEET NUMBER  
**S1**

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ELECTRICAL ONE-LINE DIAGRAM

SCALE	1
N.T.S.	



METER PEDESTAL CONCRETE PAD FOUNDATION DETAIL

SCALE	2
N.T.S.	

ELECTRICAL NOTES:

- ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND ALL APPLICABLE CODES.
- CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SUCH THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
- SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING THE INSTALLATION OF GROUNDING AND UNDERGROUND CONDUIT AS TO PREVENT THE LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
- COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC (CADWELD) CONNECTIONS WHEN APPROVED BY CINCINNATI BELL CONSTRUCTION MANAGER.
- SERVICE TO METER PEDESTAL SHALL BE 120/240VAC, 200 AMP, SINGLE PHASE.
- ALL GROUND CONNECTIONS BELOW GRADE SHALL BE EXOTHERMIC (CADWELD).
- ALL GROUND CONNECTIONS ABOVE GRADE SHALL BE FORMED USING TWO (2) HIGH PRESS CRIMPS.
- ALL EXOTHERMIC CONNECTIONS TO THE GROUND RODS SHALL START AT THE TOP AND HAVE A VERTICAL SEPARATION OF 6" FOR EVERY ADDITIONAL CONNECTION.
- ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
- ALL EXTERIOR GROUND CONNECTORS SHALL BE 2 AWG SOLID BARE, TINNED, COPPER UNLESS INDICATED OTHERWISE.
- CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
- USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
- MAXIMUM RESISTANCE OF THE COMPLETED GROUND SYSTEM SHALL NOT EXCEED 5 OHMS. TESTING SHALL BE PERFORMED IN ACCORDANCE WITH PROJECT SPECIFICATIONS FOR FACILITY GROUNDING, USING FALL OF POTENTIAL METHOD.

STANDARD CONDUIT NOTES:

- UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC. ABOVE GROUND CONDUIT, ELBOWS, AND RISERS SHALL BE SCHEDULE 80 PVC.
- UNDERGROUND SERVICE CONDUIT SHALL MEET REQUIRED BURIAL DEPTH PER AMEREN ELECTRIC SERVICE MANUAL.
- G.C. TO STUB UP SERVICE CONDUIT AT UTILITY POLE WITH 90° SWEEPING ELBOW. GC. SHALL COIL SUFFICIENT CONDUCTOR TO REACH SERVICE CONNECTION ON POLE. G.C. SHALL SUPPLY ENOUGH CONDUIT AND RISER HARDWARE FOR AMEREN TO EXTEND SERVICE RISER UP POLE TO SERVICE CONNECTION POINT. REFER TO AMEREN ELECTRIC SERVICE MANUAL FOR REQUIREMENTS.
- ALL CONDUIT WILL BE EQUIPPED WITH 3/8" PULL ROPE AND HAVE A TRACER WIRE. TRACER WIRE NEEDS TO BE LAID ABOVE BURIED CONDUIT.

ELECTRICAL NOTES

SCALE	3
N.T.S.	



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ELECTRICAL SEAL

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SHEET TITLE  
**ELECTRICAL ONE-LINE DIAGRAM**

SHEET NUMBER  
**E1**

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AC POWER PANEL (MILBANK U5871-XL-100-5T9-AMS)											
240 VOLTS, 1-PHASE, 3-WIRE, 100A											
MAIN RATING (A) :					SYSTEM VOLTAGE (V) :						
100					240						
DESCRIPTION	VA	c/nc	BKR	POSN	L1	L2	POSN	BKR	c/nc	VA	DESCRIPTION
DISTRIBUTION PANEL	2112	c	30	1	2112		2	-	c	0	
	0	c	-	3		0	4	-	c	0	
	0	c	-	5	0		6	-	c	0	
	0	c	-	7		0	8	-	c	0	
PHASE TOTALS (VA):					2112	0					
CURRENT PER PHASE (A):					22	0	Amperes/phase cannot exceed main breaker rating				
PANEL TOTAL (VA):					2112	Legend: c = continuous, nc = non-continuous					
PANEL CAPACITY (kVA):					24.0	CONNECTED LOAD (kVA): 2.1					
PANEL LOADING (100% non-cont. load) (kVA):					0.0						
PANEL LOADING (125% continuous load) (kVA):					2.6						
PANEL LOADING (TOTAL) (kVA):					2.6						
SPARE CAPACITY (kVA):					21.4						

ELECTRICAL MAIN & LOAD CENTER PANEL SCHEDULE SCALE N.T.S. 1

AC POWER PANEL (RAYCAP RSCAC-6533-P-120-D)											
120 VOLTS, 1-PHASE, 2-WIRE, 30A											
MAIN RATING (A) :					SYSTEM VOLTAGE (V) :						
30					120						
DESCRIPTION	VA	c/nc	BKR	POSN	L1	L2	POSN	BKR	c/nc	VA	DESCRIPTION
RRUS-2203	704	c	7	1	1408		2	7	c	704	RRUS-2205
RRUS-2203	704	c	7	3		704	4	7	c	0	
PHASE TOTALS (VA):					1408	704					
CURRENT PER PHASE (A):					15	7	Amperes/phase cannot exceed main breaker rating				
PANEL TOTAL (VA):					2112	Legend: c = continuous, nc = non-continuous					
PANEL CAPACITY (kVA):					3.6	CONNECTED LOAD (kVA): 2.1					
PANEL LOADING (100% non-cont. load) (kVA):					0.0						
PANEL LOADING (125% continuous load) (kVA):					2.6						
PANEL LOADING (TOTAL) (kVA):					2.6						
SPARE CAPACITY (kVA):					1.0						

ELECTRICAL PANEL SCHEDULE SCALE N.T.S. 3

MANUFACTURER: MILBANK  
 MODEL: CP3B51C1PAAOM01

**MECHANICAL SPECIFICATIONS:**  
 HEIGHT: 48 IN  
 WIDTH: 16 IN  
 DEPTH: 17 IN

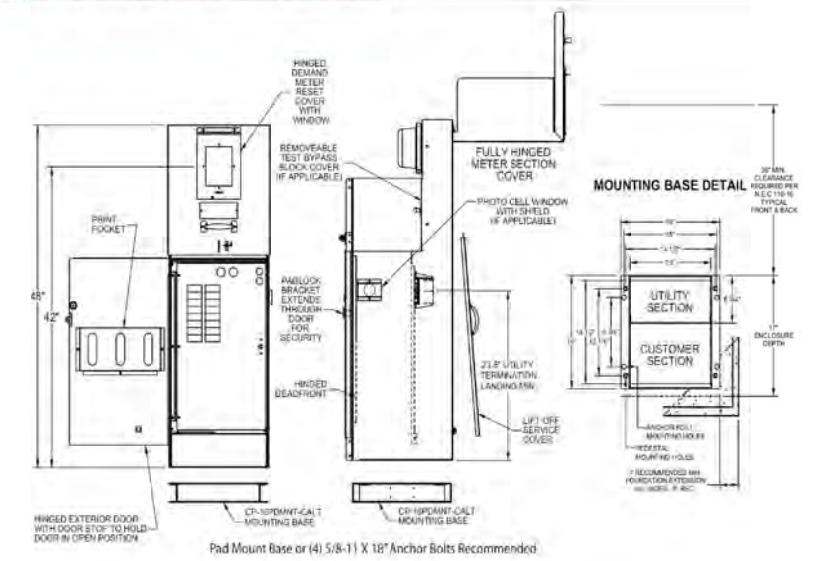
**ELECTRICAL SPECIFICATIONS:**  
 AMPERAGE RATING: 200 A  
 OPERATING VOLTAGE: 240 V  
 ELECTRICAL PHASE: 1 PH  
 MAIN BREAKER SIZE: 200 A  
 QTY OF BRANCH CIRCUITS: 20  
 LINE SIDE WIRE RANGE: 6 AWG - 350 kcmil

**ENVIRONMENT SPECIFICATIONS:**  
 UL LISTED: YES  
 NEMA RATING: 3R

**ADDITIONAL SPECIFICATIONS:**  
 ON AMEREN ENERGY APPROVED LIST (SECTION 1100 OF ELECTRIC SERVICE MANUAL, DATED JANUARY 18, 2018)



"A" Style 16" Metered Commercial Pedestal



**SPECIAL NOTE:**  
 METER PEDESTAL SHALL BE PAINTED TO MATCH AT&T EQUIPMENT IN RIGHT OF WAY. CONTRACTOR SHALL COORDINATE W/AT&T FOR COLOR AND PROVIDE DOCUMENTATION OF SUCH TO CITY OF URBANA FOR APPROVAL PRIOR TO CONSTRUCTION.

AC METER SOCKET W/MAIN & LOAD CENTER DETAIL SCALE N.T.S. 2

MANUFACTURER: RAYCAP  
 MODEL: RSCAC-6533-P-120-D

**MECHANICAL SPECIFICATIONS:**  
 HEIGHT: 10.45 IN (265.43 mm)  
 WIDTH: 10.28 IN (261.11 mm)  
 DEPTH: 7.46 IN (189.48 mm)  
 WEIGHT: 1.25 LBS (1.02 kg)

**ELECTRICAL SPECIFICATIONS:**  
 AMPERAGE: 30A  
 OPERATING VOLTAGE: 120V  
 QTY OF PROTECTED CIRCUITS: 4  
 CONNECTION TERMINALS: COMPRESSION LUGS (6 AWG-14 AWG)  
 TERMINAL BLOCK (10 AWG-26 AWG)

**ENVIRONMENT SPECIFICATIONS:**  
 NORMAL OPERATING TEMP.: -40°C TO +80°C  
 ENVIRONMENT: OUTDOOR CLASS NEMA 4X  
 POLYCARBONATE UL 94V-0 RATED



AC DISTRIBUTION PANEL DETAIL SCALE N.T.S. 4



REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
A	10/31/18	ISSUED FOR REVIEW	SEK
B	03/12/19	REVISED PER COMM.	MRL

NOT FOR CONSTRUCTION UNLESS LABELED AS CONSTRUCTION SET

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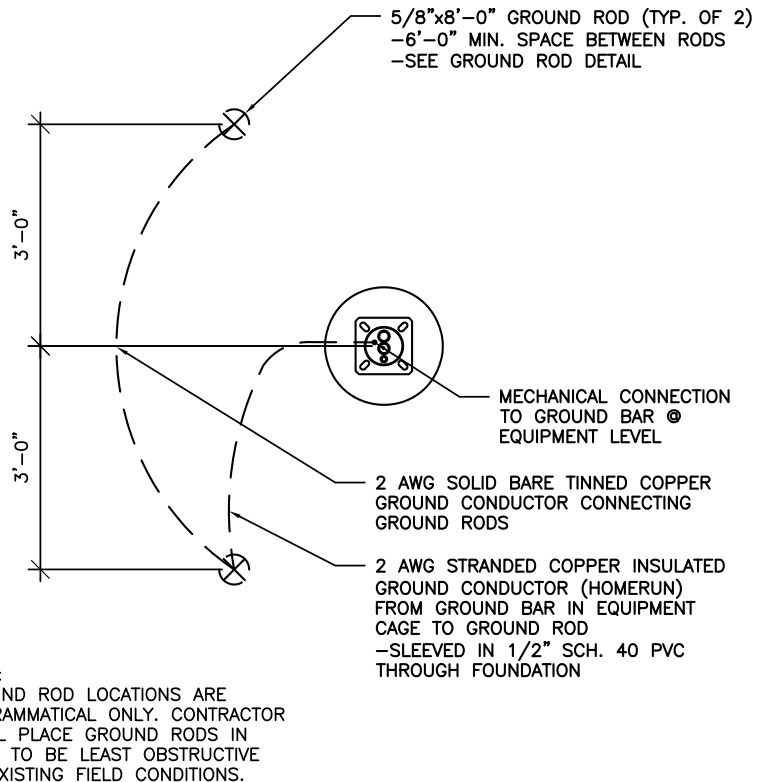
ELECTRICAL SEAL

LTE 1C&2C PICO CELL BUILD  
 14805853  
 CRAN\_RCHI\_CHU01\_026  
 184230  
 784 S LINCOLN AVE  
 CHAMPAIGN, IL 61801

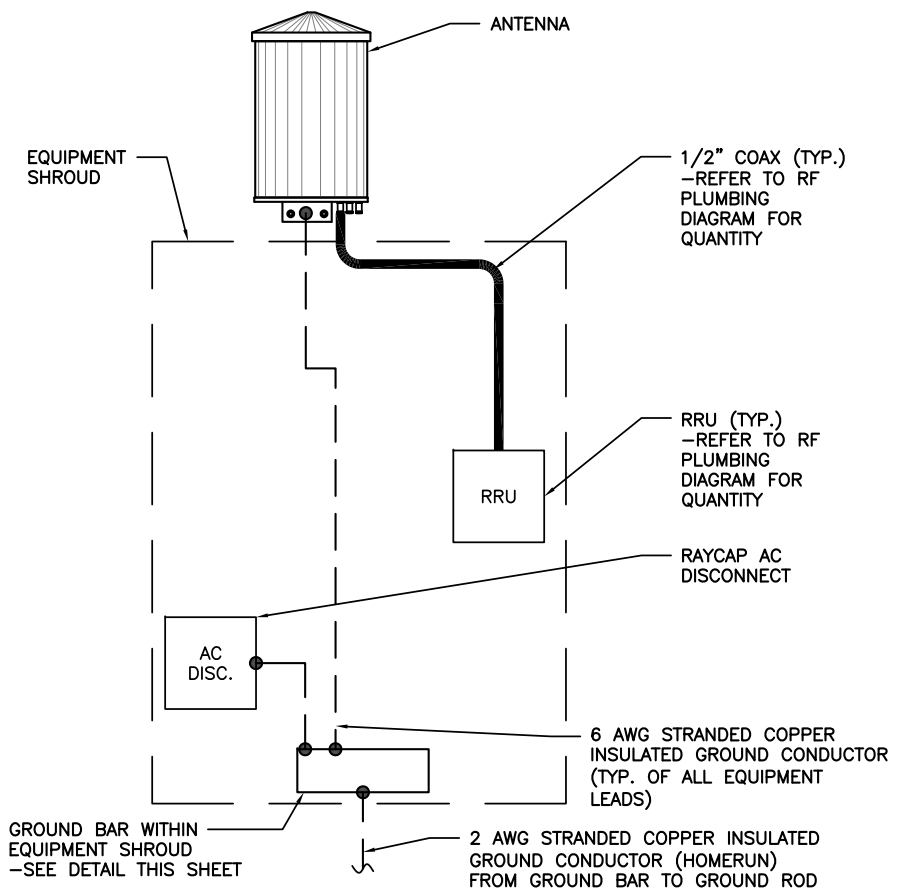
SHEET TITLE  
 PANEL SCHEDULE & ELECTRICAL DETAILS

SHEET NUMBER  
**E2**

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.



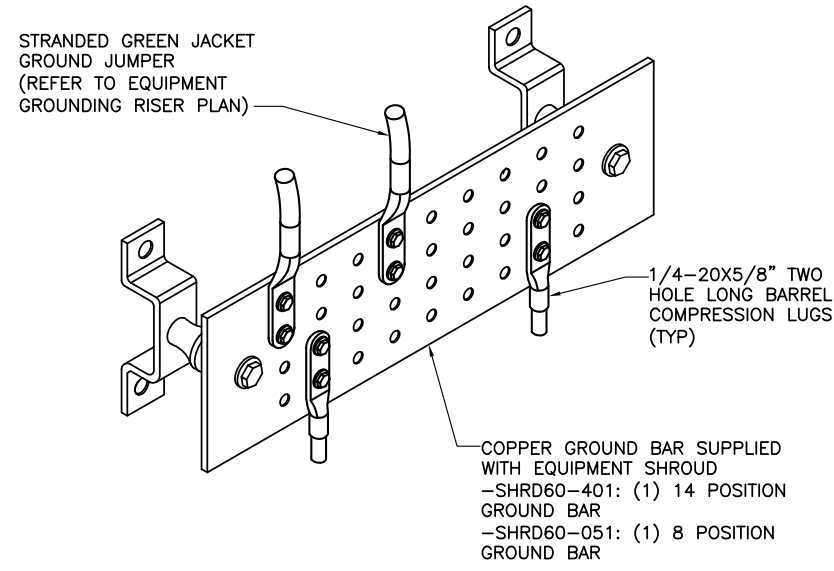
POLE GROUNDING PLAN DETAIL SCALE N.T.S. 1



EQUIPMENT GROUNDING RISER DETAIL SCALE N.T.S. 2

CADWELD CONNECTIONS OR APPROVED EQUAL		BURNDY CONNECTIONS OR APPROVED EQUAL
PARALLEL HORIZONTAL CONDUCTORS PARALLEL THROUGH CONNECTION OF HORIZONTAL CABLES TYPE PT	HORIZONTAL STEEL SURFACE TO FLAT STEEL SURFACE OR HORIZONTAL PIPE TYPE HS	BOND JUMPER FIELD FABRICATED GREEN STRANDED INSULATED TYPE 2-YA-2
THROUGH CABLE TO GROUND ROD THROUGH CABLE TO TOP OF GROUND ROD TYPE GT	VERTICAL STEEL SURFACE CABLE DOWN AT 45° TO VERTICAL STEEL SURFACE INCLUDING PIPE TYPE VS	COPPER LUGS TWO HOLE - LONG BARREL LENGTH TYPE YA-2
VERTICAL PIPE CABLE DOWN AT 45° TO RANGE OF VERTICAL PIPES TYPE VS	<b>CONNECTION TYPE KEY</b> MECHANICAL CONNECTION CADWELD CONNECTION	

GROUNDING CONNECTIONS DETAIL SCALE N.T.S. 3



- NOTES:
- CONTRACTOR SHALL UTILIZE LUGGED HOLES PROVIDED. NO DRILLING OF THE BAR WILL BE PERMITTED.
  - ALL HARDWARE SHALL BE 1/4-20 STAINLESS STEEL INCLUDING BELLEVILLES. COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
  - FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL. COAT ALL SURFACES WITH KOPR-SHIELD.

GROUND BAR DETAIL SCALE N.T.S. 4



DETAIL NOT USED SCALE N.T.S. 5

ACORN CONNECTOR		
ELEC. MOTION CO. PART #	GROUND CONDUCTOR SIZE	GROUND ROD SIZE
EM2DB	#12-1/0 AWG	5/8"Ø

GROUND ROD DETAIL SCALE N.T.S. 6



REVISIONS			
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B	03/12/19	REVISED PER COMM.	MRL

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ELECTRICAL SEAL

LTE 1C&2C PICO CELL BUILD  
14805853  
CRAN\_RCHI\_CHU01\_026  
184230  
784 S LINCOLN AVE  
CHAMPAIGN, IL 61801

SHEET TITLE  
**GROUNDING  
DETAILS**

SHEET NUMBER  
**E3**

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Diagram - 1 Diagram File Name - Pico 02.vsd  
 Atoll Site Name - Champaign CRAN HUB- University Location Name - CRAN\_CHAMPAIGN\_U NIVERSITY\_0001 Market - CENTRAL ILLINOIS Market Cluster - ILLINOIS/WISCONSIN  
 Comments:

Configuration Name	700 MHz 2T2R LTE	700 MHz 4T4R LTE	850 MHz 2T2R LTE	850 MHz 4T4R LTE	1900 MHz 2T2R LTE	1900 MHz 4T4R LTE	2100 MHz 2T2R LTE	2100 MHz 4T4R LTE	5GHz LAA LTE	3.5 GHz LAA LTE	Sector Count	Carrier Count	Antenna LAA location
Pico 002	NA	NA	NA	NA	NA	X	NA	NA	X	NA	1	2	14 Ports Antenna

Amphenol Pseudo-Omni – 14 ports Antenna  
 2C2U3MT360X06Fxs0

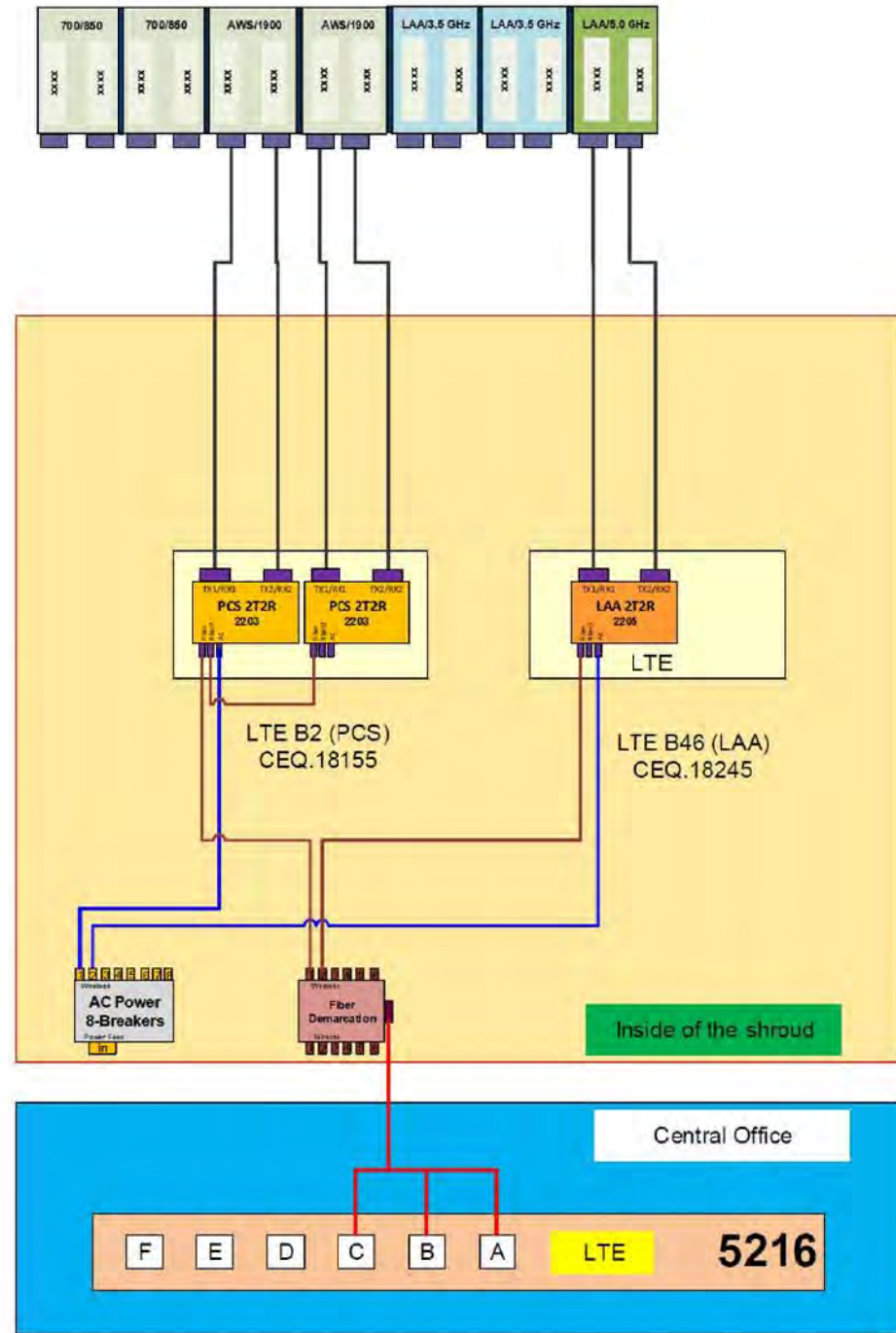


**Important Note:**  
 For detailed radio to antenna wiring refer to the latest 4T4R Antenna/Radio Port Connection Field Notice (RF-HW-2016-234) and the 4T Wiring Playbook

- Two Radios**
- B2 (PCS) – CEQ.18155
  - B66A (AWS) – CEQ.18167
- One Radio/One Dummy Radio**
- B46 (LAA) – CEQ.18245



- HXWXD – 17.12" X 7.87" X 4.13"
- WEIGHT – 21 LBS.
- POWER CONSUMPTION – WATTS MAX
- MINIMUM AC FUSE RATING – 8 AMP
- MAX HEAT DISSIPATION – 20 WATTS



REVISIONS			
REV.	DATE	DESCRIPTION	INITIALS
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REFERENCE ONLY

LTE 1C&2C PICO CELL BUILD 14805853  
 CRAN\_RCHI\_CHU01\_026 184230  
 784 S LINCOLN AVE CHAMPAIGN, IL 61801

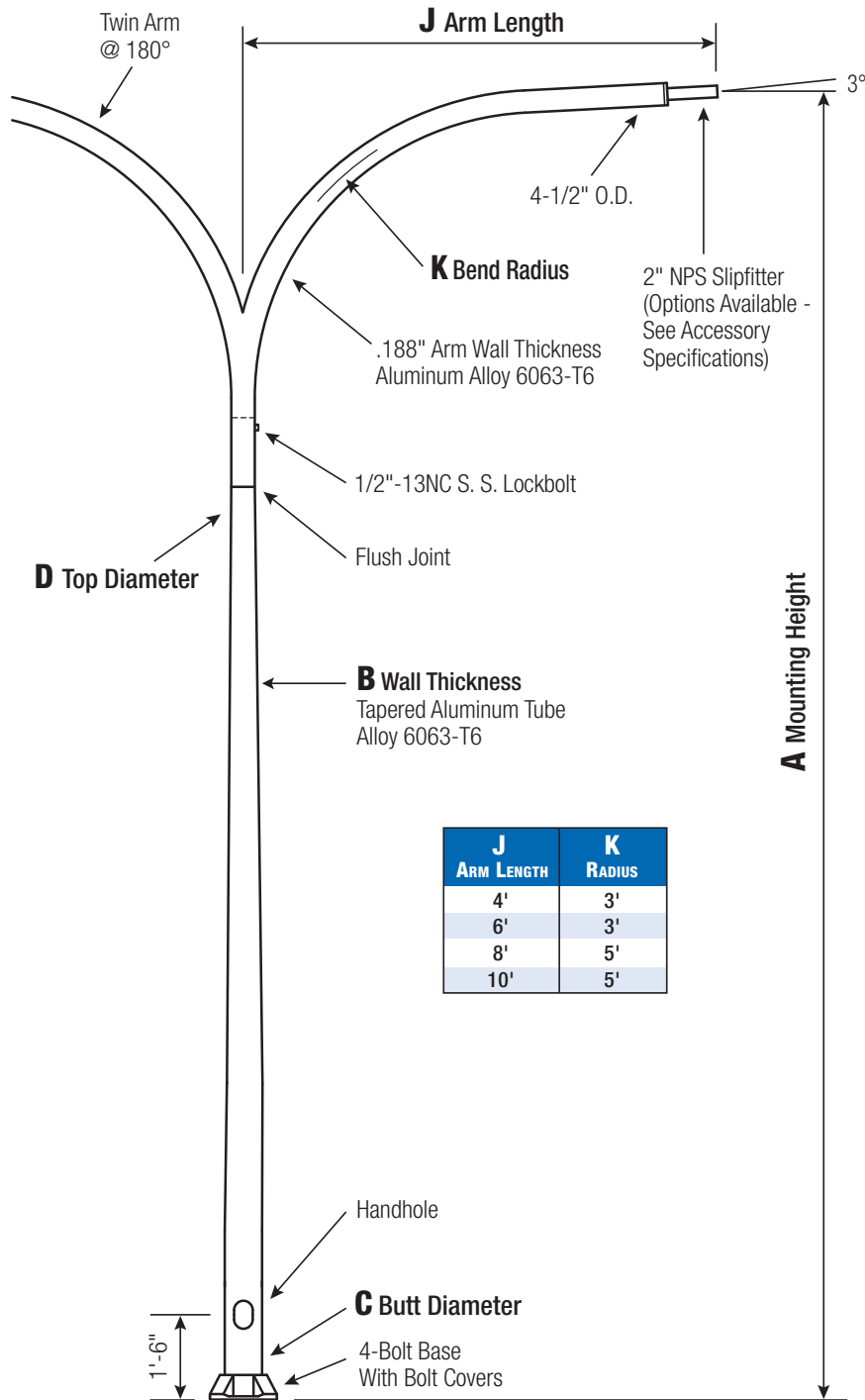
SHEET TITLE  
 RF PLUMBING DIAGRAM

SHEET NUMBER  
**RF1**



# RTA

## Round Tapered Aluminum Pole with Arms Double Davit — 4-Bolt Base



J ARM LENGTH	K RADIUS
4'	3'
6'	3'
8'	5'
10'	5'

Satin Aluminum or Powder Coated Finish per Customer Specification.

C BUTT DIA.	D TOP DIA.	F BOLT CIR. DIA.	G BASE SQ.	H BOLT PROJ.	I BOLT SIZE
6	4.5	9 - 10	9.75	2.75	1 x 36 x 4
7	4.5	10 - 11	10.5	2.75	1 x 36 x 4
8	4.5	11 - 12	11.25	2.75	1 x 36 x 4
10	6	14 - 15	14	3.25	1 x 48 x 4

Dimensions in Inches

### Pole

Shaft and arms will be constructed of seamless extruded tube of 6063 Aluminum Alloy per the requirements of ASTM B221. The shaft assembly shall be full-length heat treated after base weld to produce a T6 temper.

### Base Style

4-Bolt Cast Aluminum Base Flange of Alloy 356-T6 with Aluminum Bolt Covers (Alloy 356-F) and Stainless Steel Hex Head Attaching Screws.



### Handhole

**6" Butt Diameter** - Reinforced, 3" x 5" curved Cast Aluminum Frame (Alloy 356-T6) with Aluminum Door and two (2) SS Hex Head Screws. A Grounding Provision incorporating a 3/8" diameter hole is provided opposite the Handhole.

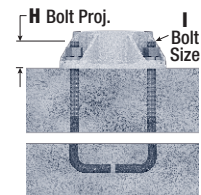
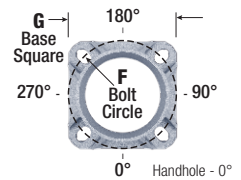
**7"+ Butt Diameters** - Reinforced, 4" x 6" curved Cast Aluminum Frame (Alloy 356-T6) with Aluminum Door and two (2) SS Hex Head Screws. Reinforced Frame will contain a tapped 3/8"-16NC Grounding Provision.



### Anchorage

Anchorage Kit will include four (4) L-shaped Steel Anchor Bolts conforming to AASHTO M314-90 Grade 55. Ten inches (10") of threaded end will be galvanized per ASTM A153.

Kits will contain four (4) Hex Nuts, four (4) Lock Washers, and four (4) Flat Washers (all components Galvanized Steel). A bolt circle template will be provided.



### Vibration Damper

When determined necessary by Hapco, a Vibration Damper will be factory-installed inside the pole shaft. Customer specification of the damper is available.



**WARNING:** Do not install light pole without luminaire.

A Mtg. Hgt.	B WALL THICKNESS	C BUTT DIAMETER	J ARM LENGTH	LUM. WEIGHT	MAXIMUM EPA PER ARM					OLD CAT. NUMBER	CATALOG NUMBER
					90	100	110	120	130		
20	0.156"	6	4'	35	5.8	4.2	3.7	2.7	2.0	42-031	RTA20C6B4D24-**-
20	0.156"	6	6'	35	5.4	3.7	3.2	2.2	1.5	42-032	RTA20C6B4D26-**-
20	0.156"	6	8'	35	4.7	3.1	2.6	1.6	0.9	42-033	RTA20C6B4D28-**-
20	0.188"	6	4'	35	7.5	5.6	5.0	3.8	2.9	42-001	RTA20D6B4D24-**-
20	0.188"	6	6'	35	7.0	5.0	4.5	3.3	2.4	42-002	RTA20D6B4D26-**-
20	0.188"	6	8'	35	6.4	4.4	3.9	2.7	1.8	42-003	RTA20D6B4D28-**-
20	0.156"	7	4'	35	9.2	7.0	6.3	4.9	3.8	42-025	RTA20C7B4D24-**-
20	0.156"	7	6'	35	8.8	6.4	5.8	4.4	3.3	42-026	RTA20C7B4D26-**-
20	0.156"	7	8'	35	8.2	5.8	5.2	3.8	2.7	42-027	RTA20C7B4D28-**-
20	0.188"	7	4'	35	11.6	8.8	8.1	6.4	5.1	42-007	RTA20D7B4D24-**-
20	0.188"	7	6'	35	11.2	8.4	7.6	5.9	4.6	42-008	RTA20D7B4D26-**-
20	0.188"	7	8'	35	10.4	7.8	7.0	5.3	4.0	42-009	RTA20D7B4D28-**-
25	0.156"	6	4'	35	3.1	1.8	1.5	0.8	-	-	RTA25C6B4D24-**-
25	0.156"	6	6'	35	2.5	1.3	1.0	-	-	-	RTA25C6B4D26-**-
25	0.188"	6	4'	35	4.4	2.9	2.5	1.7	1.0	42-073	RTA25D6B4D24-**-
25	0.188"	6	6'	35	3.8	2.4	2.0	1.1	0.5	42-074	RTA25D6B4D26-**-
25	0.188"	6	8'	35	3.2	1.7	1.3	0.5	-	42-075	RTA25D6B4D28-**-
25	0.188"	6	10'	35	2.6	1.1	0.7	-	-	42-076	RTA25D6B4D2A-**-
25	0.156"	7	4'	35	5.6	4.0	3.5	2.5	1.7	42-103	RTA25C7B4D24-**-
25	0.156"	7	6'	35	5.2	3.4	3.0	2.0	1.2	42-104	RTA25C7B4D26-**-
25	0.156"	7	8'	35	4.5	2.8	2.3	1.3	0.6	42-105	RTA25C7B4D28-**-
25	0.156"	7	10'	35	3.9	2.2	1.7	0.7	-	42-106	RTA25C7B4D2A-**-
25	0.188"	7	4'	35	7.4	5.4	4.8	3.6	2.7	42-079	RTA25D7B4D24-**-
25	0.188"	7	6'	35	7.0	4.9	4.4	3.1	2.2	42-080	RTA25D7B4D26-**-
25	0.188"	7	8'	35	6.3	4.2	3.7	2.5	1.5	42-081	RTA25D7B4D28-**-
25	0.156"	8	6'	35	7.1	5.1	4.7	3.5	2.5	-	RTA25C8B4D26-**-
25	0.156"	8	8'	35	6.5	4.5	4.1	2.9	1.9	-	RTA25C8B4D28-**-
25	0.156"	8	10'	35	5.9	3.9	3.5	2.3	1.5	-	RTA25C8B4D2A-**-
25	0.188"	8	4'	35	11.0	8.4	7.6	6.0	4.7	42-085	RTA25D8B4D24-**-
25	0.188"	8	6'	35	10.6	7.9	7.1	5.5	4.2	42-086	RTA25D8B4D26-**-
25	0.188"	8	8'	35	9.8	7.2	6.5	4.8	3.5	42-087	RTA25D8B4D28-**-
25	0.188"	8	10'	35	9.4	6.6	5.9	4.2	2.9	42-088	RTA25D8B4D2A-**-
30	0.188"	6	4'	35	2.1	1.0	0.7	-	-	-	RTA30D6B4D24-**-
30	0.156"	7	4'	35	3.2	1.9	1.5	0.8	-	42-145	RTA30C7B4D24-**-
30	0.156"	7	6'	35	2.6	1.3	1.0	-	-	42-146	RTA30C7B4D26-**-
30	0.156"	7	8'	35	2.0	0.7	-	-	-	42-147	RTA30C7B4D28-**-
30	0.156"	8	4'	35	5.3	3.7	3.3	2.3	1.5	42-175	RTA30C8B4D24-**-
30	0.156"	8	6'	35	4.9	3.1	2.7	1.7	1.0	42-176	RTA30C8B4D26-**-
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30	0.156"	8	10'	35	3.5	1.9	1.5	0.5	-	42-178	RTA30C8B4D2A-**-
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30	0.219"	8	4'	35	9.2	6.8	6.2	4.7	3.6	42-163	RTA30E8B4D24-**-
30	0.219"	8	6'	35	8.8	6.3	5.6	4.2	3.0	42-164	RTA30E8B4D26-**-
30	0.219"	8	8'	35	8.0	5.6	5.0	3.5	2.4	42-165	RTA30E8B4D28-**-
30	0.219"	8	10'	35	7.4	5.0	4.4	2.8	1.8	42-166	RTA30E8B4D2A-**-
30	0.250"	8	4'	35	11.0	8.2	7.5	5.8	4.6	42-169	RTA30F8B4D24-**-
30	0.250"	8	6'	35	10.6	7.8	7.0	5.3	4.0	42-170	RTA30F8B4D26-**-
30	0.250"	8	8'	35	9.8	7.0	6.3	4.6	3.4	42-171	RTA30F8B4D28-**-
30	0.250"	8	10'	35	9.2	6.4	5.6	4.0	2.7	42-172	RTA30F8B4D2A-**-
35	0.156"	8	4'	35	3.3	1.9	1.5	0.7	-	42-223	RTA35C8B4D24-**-
35	0.156"	8	6'	35	2.7	1.3	1.0	-	-	42-224	RTA35C8B4D26-**-
35	0.156"	8	8'	35	2.0	0.6	-	-	-	42-225	RTA35C8B4D28-**-
35	0.188"	8	4'	35	4.8	3.2	2.7	1.8	1.1	42-229	RTA35D8B4D24-**-
35	0.188"	8	6'	35	4.3	2.6	2.2	1.2	0.5	42-230	RTA35D8B4D26-**-
35	0.188"	8	8'	35	3.6	1.9	1.5	0.5	-	42-231	RTA35D8B4D28-**-
35	0.188"	8	10'	35	3.0	1.3	0.8	-	-	42-232	RTA35D8B4D2A-**-
35	0.219"	8	4'	35	6.4	4.4	3.8	2.7	1.9	42-235	RTA35E8B4D24-**-
35	0.219"	8	6'	35	5.8	3.8	3.3	2.2	1.3	42-236	RTA35E8B4D26-**-
35	0.250"	8	4'	35	7.8	5.6	5.0	3.6	2.6	42-241	RTA35F8B4D24-**-
35	0.250"	8	6'	35	7.2	5.0	4.4	3.1	2.1	42-242	RTA35F8B4D26-**-
35	0.250"	8	8'	35	6.6	4.3	3.7	2.4	1.4	42-243	RTA35F8B4D28-**-
35	0.250"	8	10'	35	5.8	3.6	3.0	1.8	0.8	42-244	RTA35F8B4D2A-**-
35	0.188"	10	8'	35	9.4	6.8	6.0	4.4	3.1	42-249	RTA35D1C4D28-**-
35	0.188"	10	10'	35	8.8	6.2	5.4	3.8	2.4	42-250	RTA35D1C4D2A-**-
40	0.188"	8	4'	35	2.8	1.4	1.1	-	-	42-325	RTA40D8B4D24-**-
40	0.188"	8	6'	35	2.2	0.8	0.5	-	-	42-326	RTA40D8B4D26-**-
40	0.188"	8	8'	35	1.5	-	-	-	-	42-327	RTA40D8B4D28-**-
40	0.250"	8	4'	35	5.2	3.4	3.0	1.9	1.1	42-337	RTA40F8B4D24-**-
40	0.250"	8	6'	35	4.7	2.8	2.4	1.3	0.6	42-338	RTA40F8B4D26-**-
40	0.250"	8	8'	35	4.0	2.2	1.7	0.6	-	42-339	RTA40F8B4D28-**-
40	0.250"	8	10'	35	3.3	1.5	1.0	-	-	42-340	RTA40F8B4D2A-**-
40	0.188"	10	6'	35	7.0	5.0	4.4	3.0	2.0	42-375	RTA40D1C4D26-**-
40	0.188"	10	8'	35	6.4	4.3	3.8	2.4	1.3	42-363	RTA40D1C4D28-**-
40	0.188"	10	10'	35	5.8	3.6	3.1	1.8	0.7	42-364	RTA40D1C4D2A-**-
40	0.250"	10	10'	35	9.8	7.0	6.2	4.4	2.9	42-376	RTA40F1C4D2A-**-

**Catalog Number System**

The catalog number for Hapco poles utilizes the following identification system.



**Catalog Number Example -**

**RTA 30 D 8 B 4 D 26 - 01**

Round Tapered Aluminum, 30' Mounting Height, .188" Wall Thickness, 8" Butt Diameter, 4.5" Top Diameter, 4-Bolt Base, Davit Arm, Double, 6' Arm Length, Satin Aluminum Finish.

**Wall Thickness**

- C = .156"
- D = .188"
- E = .219"
- F = .250"

**Butt Diameter**

- 6 = 6"
- 7 = 7"
- 8 = 8"
- 1 = 10"

**Top Diameter**

- B = 4.5"
- C = 6"

**Base Style**

- 4 = 4-Bolt Base

**Arm Style**

- D = Davit

**Arm Quantity**

- 2 = Double

**Arm Length**

- 4 = 4'
- 6 = 6'
- 8 = 8'
- A = 10'

**Finish**

- O1 = Satin Aluminum
- BA = Black Powder Coat
- BH = White Powder Coat
- BM = Dark Bronze Powder Coat
- BV = Dark Green Powder Coat
- GC = Gray Powder Coat
- \*\* = Specify Finish

**EPA Notes:**

Effective Projected Area (EPA) in square feet. EPA's calculated using wind velocity (mph) indicated in accordance with 2009 AASHTO LTS-5 using a 25 year design life. Maximum EPA is based on the luminaire weight shown. Increased luminaire weight may reduce the maximum EPA. If weight is exceeded, or if other design life or code is required, please consult the factory.

**EXHIBIT B:**

**DISCLOSURE AFFIDAVIT**



C. PARTNERSHIP OR LLC

The partners or members are as follows: (Attach additional sheets if necessary)

<u>AT&amp;T Mobility Corporation</u>	<u>1801 Valley View Ln, Farmers Branch, TX 75234</u>
Name	Home Address
_____	_____
Name	Home Address
_____	_____
Name	Home Address
_____	_____

The business address is 1025 Lenox Park Blvd NE Atlanta, GA 30319

Telephone: (800) 331-0500

D. INDIVIDUAL PROPRIETORSHIP

The business address is \_\_\_\_\_

\_\_\_\_\_ Telephone: \_\_\_\_\_

My home address is \_\_\_\_\_

\_\_\_\_\_ Telephone: \_\_\_\_\_

E. Under penalty of perjury, **NEW CINGULAR WIRELESS PCS, LLC**  
(Licensee's Name)

certifies that 74-2955068 is its correct Federal Taxpayer  
(FEIN/SSN)

Identification Number, or in the case of an individual or sole proprietorship, Social Security  
Number. [Redacted]

LICENSEE [Redacted]  
By: [Redacted]  
Angelo Sopikidis  
Its: Area Manager- Real Estate & Construction

Subscribed and sworn to before me this 25th day of June, 2019.



[Redacted Signature]  
Notary Public

**EXHIBIT C:**

**Certificate of Insurance**

(see attached COI)





**ADDITIONAL REMARKS SCHEDULE**

<b>AGENCY</b> Marsh USA Inc.		<b>NAMED INSURED</b> New Cingular Wireless PCS, LLC One AT&T Plaza 208 South Akard Street, Room 1830.06 Dallas, TX 75202	
<b>POLICY NUMBER</b>		<b>EFFECTIVE DATE:</b>	
<b>CARRIER</b>	<b>NAIC CODE</b>		

**ADDITIONAL REMARKS**

**THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,**  
**FORM NUMBER: 25 FORM TITLE: Certificate of Liability Insurance**

Excess Workers' Compensation - MWXS 31363919 (OH-WA)  
 Self Insured Retentions  
 OH & WA - \$500,000,000 (except Terrorism)  
 OH & WA - \$600,000,000 Terrorism

.....

Excess Automobile Liability - MWZX MWZX 31363719 (MI)  
 Combined Single Limit - \$1,000,000  
 Self Insured Retention - \$1,000,000