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BILL NO. R-15-03-22

RESOLUTION NO. R-28-15

A RESOLUTION APPROVING THE LICENSE AGREEMENT – DUPONT WATER TOWER BETWEEN THE CITY OF FORT WAYNE AND SPRINTCOM, INC. BY AND THROUGH ITS BOARD OF PUBLIC WORKS FOR CITY UTILITIES.

WHEREAS, City Utilities, through the Board of Public Works, (Resolution Number: 102-3-18-15-1) desires to lease space on the Dupont Water Tower located at 1016 East Dupont Road, Fort Wayne, In to SprintCom, Inc. for a wireless communication site; and

WHEREAS, the Initial Term of lease shall be for five (5) years commencing on the date as set forth in the License Agreement Section 2. Term. Said License Agreement shall automatically renew for four (4) additional successive periods of five (5) years; and

WHEREAS, the License Fee revenue of said Lease shall be THIRTY-TWO THOUSAND, SEVENTEEN AND 50/100 DOLLARS – (\$32,017.50) payable on an annual basis. On each anniversary of the effective date of the Initial Term and Renewal Term the fee shall be increased by four percent (4%); and

WHEREAS, said Lease Agreement requires the approval of the Common Council of the City of Fort Wayne.

NOW, THEREFORE, BE IT RESOLVED BY THE COMMON COUNCIL OF THE CITY OF FORT WAYNE, INDIANA:

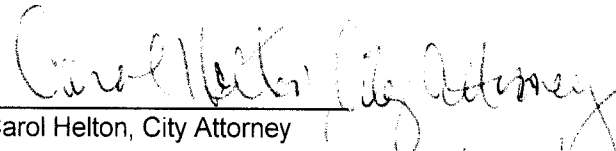

SECTION 1. That said License Agreement between the City of Fort Wayne, Indiana, and SprintCom, Inc. (Exhibit "A" attached hereto and made a part hereof), is hereby approved by the Common Council of the City of Fort Wayne, Indiana.

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SECTION 2. That this Resolution shall be in full force and effect from and after its passage and any and all necessary approval by the Mayor.


Council Member

APPROVED AS TO FORM AND LEGALITY


Carol Helton, City Attorney


Memo

Date: March 19, 2015
To: Common Council Members
From: Ben Groeneweg, City Utilities Engineering
Re: Lease of wireless communication site Resolution Number: 102-3-18-15-1

Council District #2

City Utilities is proposing to lease space on the Dupont Water Tower to Sprint for a wireless communication site.

Implication of not being approved:

- The Utility will be out the revenue from the lease. The potential is between \$173k (five year minimal) and \$1.3M (25 year maximum)

If Prior Approval is being Requested, Justify: Not required for this contract

City Utilities recommends, and the Board of Public Works has approved, the lease to Sprint for \$32,017.50/ year with an annual increase of 4%. The term of the lease will be five years with the option to renew four more times at five years each.

The revenue of said lease will fund City Utilities O&M and capital projects.

Council Introduction Date: March 24, 2015

CC: BOW
Matthew Wirtz
Diane Brown
File

Dupont Water Tower
1016 Dupont Road
Fort Wayne, IN 46825

Resolution #102-3-18-15-1
Lease of Wireless Communication Site



Site Number 884384

LICENSE AGREEMENT

This License Agreement ("License") is made and entered into effective the 18 day of March, 2015, by and between the Board of Public Works, City of Fort Wayne, Indiana ("Licensor") and SprintCom, Inc., a Kansas corporation ("Licensee"), and is entered into under the following circumstances:

- a. Licensor owns the real estate located in Allen County, State of Indiana, and the legal description is set forth in the attached Exhibit A ("Land").
- b. Licensor agrees to grant Licensee a license to occupy and use a portion of the Land for purposes of allowing Licensee to operate its communications business on the Land.

NOW THEREFORE, in mutual consideration of the promises contained herein, the parties agree as follows:

1. License Granted

- a. **Premises.** Licensor grants to Licensee a license to occupy and use a portion of the Land generally shown on Exhibit B attached hereto ("Site"), together with all appropriate easements, rights and privileges in order to allow Licensee (and its employees, agents and sublicensees, with prior written approval of Licensor, such approval shall not be unreasonably withheld, conditioned or delayed) access from public roads and utility sources to the Site and to provide utility services to the Site over the Land ("Easements") and for the use by Licensee in its communications business (Tower Business (as defined below)) (the Site and Easements may be referred to as the "Premises").
- b. **Licensee's Tower Business.** Licensee's Tower Business generally consists of the installation, construction, and maintenance of a communications tower and other improvements, personal property and facilities necessary to operate its communications system, including, without limitation, radio transmitting and receiving antennas, microwave dishes, equipment shelters and/or cabinets and related cables and utility lines and a location based system, as such location based system may be required by any county, state or federal agency/department, including, without limitation, mounting hardware, coaxial cable, base units and other associated equipment ("Tower") on the Site in support of its communications business. In connection with its Tower Business, Licensee has the right to install, construct, remove, replace and maintain the Tower. If Licensor's proposed Site consists of a pre-existing water tower or similar structure owned and maintained by Licensor, all references to Licensee's construction of a communications tower shall not apply and "Tower" shall refer instead only to the other improvements and other associated equipment.

and Licensor has obtained all necessary approvals and complied with all applicable statutory, regulatory, or other legal requirements prerequisite to executing this License.

- b. The persons executing this License on behalf of Licensor have the authority to sign the License on behalf of Licensor.
 - c. The License is the legal, valid, and binding obligation of Licensor and is enforceable against Licensor in accordance with its terms.
 - d. With respect to environmental matters, (i) Licensor has no knowledge of the existence of Hazardous Materials of any kind on, in or under the Premises, (ii) there are no proceedings pending or threatened where allegations have been made that there are violations of the Environmental Laws with respect to the Premises, and (iii) Licensor has not received any notice from any governmental authority or any person or entity claiming that there have been any violations of the Environmental Laws with respect to environmental contamination of the Premises. "Hazardous Materials" means any hazardous or toxic substance, material, or waste which is or becomes regulated by or designated as a hazardous substance or waste by any governmental authority, and includes, without limitation, a hazardous substance as defined in Section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act and any hazardous waste defined pursuant to Section 1004 of the Federal Resource Conservation and Recovery Act. "Environmental Laws" means the Resource Conservation and Recovery Act and the Comprehensive Environmental Response, Compensation and Liability Act and all other federal, state, and local laws or regulations dealing with environmental matters (including without limitation laws and regulations dealing with underground storage tanks).
- 5. Utilities.** Licensee shall be responsible for and provide payment of all utility services used by Licensee or any of Licensee's sublicensees. Licensee shall separately meter charges for the consumption of electric and any other utilities associated with its use of the Property and shall pay all costs associated therewith. All utilities will be buried. The location of all utilities will be approved by Licensor prior to installation.
- 6. Insurance.**
- a. Licensor is a self-insured governmental entity, with limited liability subject to Indiana Code, as set forth in the attached certificate.
 - b. Licensee shall maintain in full force and effect during the term of this License (including any Renewal Terms) comprehensive general liability insurance with limits of \$2,000,000 per occurrence/ \$5,000,000 aggregate for bodily injuries or death of persons, and property damage occurring on or with respect to the Premises and Licensor shall be listed as an

additional insured under this policy. Licensee, as a condition precedent to the issuance of this license, shall provide to Licensor a certificate of insurance (Exhibit E) certifying that such insurance coverage is in effect and the certificate shall provide that the insurance Licensee shall not terminate or modify the coverage without providing at least ten (10) days prior written notice to Licensor. The coverage amounts set forth may be met by a combination of underlying and umbrella policies so long as in combination the limits equal or exceed those stated.

- c. Licensee shall maintain in full force and effect such property and casualty insurance as it deems necessary or desirable with respect to its Tower (not Licensor water tower) and other improvements made or added to the Premises by Licensee.
7. **Destruction of the Tower.** In the event Licensee's Tower is totally demolished or substantially destroyed as a result of any casualty, then Licensee may, upon approval by Licensor, rebuild the Tower. If Licensee decides to rebuild the Tower, Licensee may construct and maintain on the Premises a temporary tower or other structure in order to continue its Tower Business. If Licensee elects to terminate the License, then Licensee shall give written notice to Licensor of its election to terminate the License within thirty (30) days after the casualty and the License shall terminate effective as of the date of such notice.
8. **Destruction of Water Tower.** If the water tower is destroyed, dismantled, or removed, Licensee shall, upon approval by Licensor, have the right to construct its own tower, at its cost, of design approved by Licensor, which approval shall not be unreasonably withheld or delayed, at a location as close as reasonably possible to the location of the water tower so as to give Licensee similar radio signal coverage as Licensee enjoyed from the water tower. Licensor may deny construction of a replacement tower for any and all reasons that it, in its sole option, considers reasonable. In such a case the License would be considered terminated as described below. If a replacement water tower is constructed anywhere on Licensor's property, Licensee shall have the right to place Licensee's antenna and appurtenance on top of the new replacement water tower at Licensee's cost and in a similar manner as Licensee's antenna and appurtenance on the existing water tower. If the Property, water tower, or Antenna Facilities are destroyed or damaged so as, in Licensee's judgment to render the site unusable for Licensee's Tower Business, Licensee may elect to terminate this License upon thirty (30) days written notice to Licensor. In the event Licensee elects to terminate this License, Licensee shall be entitled to reimbursement of any prepaid fee prorated prior to the date of termination.
9. **Repainting of Water Tower.** Licensee agrees to cooperate with and accommodate repairs and routine maintenance (including but not limited to preparation and containment for painting) of the water tower. Such repairs and maintenance shall be completed by Licensor at Licensor's sole cost in an expeditious manner so as to minimize disruption of Licensee's use of the

Premises. Any special accommodation required to protect or dismount equipment owned by Licensee will be an expense borne by Licensee, provided that Licensor will notify Licensee at least forty-five (45) days in advance of the date when the water tower is scheduled to be painted, repaired, rebuilt or scheduled for general maintenance. Shortly before the painting date, Licensee may place a temporary antenna array on a crane parked near the site. Licensee may then remove the antennas from the water tower and the painting will proceed as it normally does. If cabling or related structure is determined to interfere with painting it will be removed as well. Once the painting or repair is finished, Licensee will then re-attach the antennas where they were and will have them painted to match the newly repaired/painted water tower. All costs incurred in removing the antenna, placement of a temporary antenna array, reattaching and painting the antennas shall be the sole responsibility of Licensee.

10. Assignment. Licensee may assign or transfer this License only with the prior written consent of Licensor, upon ninety (90) days prior written notice, and such consent shall not be unreasonably withheld or delayed. Notwithstanding the foregoing, Licensee will have the right without consent of Licensor but with written notice, to sublease (or other transfer or allow the use of) all or any portion of the Premises or assign its right under this License in whole or in part to: (a) any entity controlling, controlled by or under common control with Licensee (b) any entity acquiring substantially all of the assets of Licensee; (c) any entity that is authorized to sell telecommunications products or services under the "Sprint" or "Sprint PCS" brand name or any successor brand name(s) or other brand name(s) used or licensed by Licensee's parent corporation ("Contract Affiliate"); or (d) any successor entity in a merger or consolidation involving Licensee. Licensor will not be entitled to any additional rent or other fee for its review or approval. Tenant or any Contract Affiliate will not be released from its obligations under this License.

11. Default by Licensee. A default by Licensee will have occurred under this License if anyone or more of the following has occurred:

- a. Licensee fails to pay the full amount of any installment of the Fee when due and Licensee has not paid such amount within fifteen (15) days after receipt of notice of default from Licensor; or
- b. Licensee fails to observe or perform any other provision of this License for thirty (30) days after Licensor has given Licensee written notice of the nature of Licensee's failure (Section 14 Noninterference may supersede this clause); provided however that so long as Licensee diligently pursues a cure of said default, Licensee shall be entitled to an additional thirty (30) days to cure any said default, or
- c. Licensee files a petition in bankruptcy or Licensee seeks the appointment of a receiver under state law or Licensee consents to or acquiesces in such a petition or appointment of a receiver or liquidator, or Licensee makes an assignment for the benefit of creditors; or

- d. Licensee admits its inability to pay debts as they become due, or Licensee fails to obtain a dismissal of any petition under the bankruptcy law or for a receiver or liquidator under state law within thirty (30) days after the commencement of that proceeding.

12. Remedies of Licensor for Default by Licensee. Upon Licensee's default, in addition to all other rights or remedies available at law or in equity, Licensor may terminate this License and Licensee shall remove the fence and Storage Buildings and the Tower to one (1) foot below grade and restore the Site to a reasonably even grade (any and all property restored to the condition it was when originally received), unless at Licensor's option, Licensor has provided written notice to Licensee within fifteen (15) days after giving Licensee notice of default of Licensor's desire that the Tower remain on the Land, in which case Licensee shall have no obligation to remove the fence, Storage Buildings and the Tower and the fence, Storage Buildings and the Tower shall become the property of Licensor. In the event of Licensee's default and if so requested by Licensee at the time of such default, Licensor shall mail written notice of such default to Licensee's lender to the address provided by Licensee.

13. Taxes. The parties recognize that Licensor, as a municipal corporation, is a political subdivision of the State of Indiana and the Land is currently tax exempt. If the Land or the Premises should ever become taxable, then Licensor shall pay when due all real property taxes for the Land, including the Premises. In the event that Licensor fails to pay any such real property taxes or other fees and assessments, Licensee shall have the right, but not the obligation, to pay such owed amounts and deduct them from the Fee due under this License. Notwithstanding the foregoing, Licensee agrees to pay all taxes assessed against the Tower, the Storage Buildings, or other improvements or property owned by Licensee or any of Licensee's sublicensees only for so long as this License remains in effect. If Licensor receives notice of any personal property or real property tax assessment against Licensor, which may affect Licensee and is directly attributable to Licensee's installation, Licensor shall provide timely notice of the assessment to Licensee sufficient to allow Licensee to consent to or challenge such assessment, whether in a Court, administrative proceeding, or other venue, on behalf of Licensor and/or Licensee. Further, Licensor shall provide to Licensee any and all documentation associated with the assessment and shall execute any and all documents reasonably necessary to effectuate the intent of this Section 13. In the event real property taxes are assessed against Licensor or Licensee for the Premises or the Land, Licensee shall have the right, but not the obligation, to terminate this License without further liability after thirty (30) days' written notice to Licensor, provided Licensee pays any real property taxes assessed as provided herein.

14. Noninterference. If the Tower is a water tower owned and maintained by Licensor, Licensee's installation, operation, and use of its transmission facilities under this License shall not damage or interfere in any way with Licensor's water tower operations or related repair and maintenance activities. Licensor, at all

times during this License, reserves the right to take any action it deems necessary, in its sole discretion, to repair, maintain, alter, or improve the Tower and to temporarily interfere with Licensee's improvements as may be reasonably necessary in order to carry out any of such activities. Licensor agrees to give reasonable advance notice of such activities to Licensee and reasonably cooperate with Licensee to carry out such activities with a minimum amount of interference with Licensee's transmission operations.

- a. Licensee agrees to install radio equipment of types and frequencies which shall at all times and at Licensee's sole cost, comply with such technical industry standards as may from time to time be established by Licensor for the Premises, consistent with FCC requirements, including without limitation, technical standards relating to frequency compatibility, radio interference protection, antenna type and location and physical installation. The current standards include, are but not limited to all applicable federal, state and local laws, ordinances, and regulations (including without limitation the Federal Communication Commission, Federal Aviation Administration, and local building and fire codes) and the rules and regulations and access and safety procedures for the Premises adopted from time to time by Licensor. In the event Licensee requires the Site to offer electrical power and phone service, the costs of supplying these types of services will be the sole expense of Licensee. If, in the sole and reasonable judgment of Licensor, any electrical, electromagnetic, radio frequency or other interference to equipment properly located on the Tower and Premises shall result from the operation of Licensee's equipment, provided that such equipment is in operation as of the date of this License, Licensee shall eliminate such interference within twenty-four (24) hours following verbal notice from Licensor or, otherwise, cease operations (except for short tests necessary for the elimination of such interference) until the interference has been corrected, provided, however, that if an emergency situation exists, which Licensor reasonably determines in its sole judgment to be attributable to Licensee's equipment, Licensor shall immediately notify Licensee verbally, who shall act immediately. Licensee shall defend, by counsel reasonably acceptable to Licensor and hold Licensor and the owner and their respective agents, partners, and employees harmless from and against any and all losses, damages, liabilities, claims, liens, costs and expenses, including without limitation court costs and reasonable attorneys' fees and expenses, arising in connection with such shutdown. Licensee agrees to cease operation (except for short tests necessary for the elimination of the interference) until the interference has been corrected to the satisfaction of Licensor in the case of interference attributable to Licensee's equipment. If such interference has not been corrected within ten (10) days, Licensor or Licensee may, at their sole option, either terminate this License, or may require that Licensee immediately remove from the Premises the specific item of equipment causing such interference. All installations, additions, partitions, hardware, fixtures and improvements, temporary or permanent,

placed there by Licensee ("Premises Improvements") shall, within ninety (90) days of the termination of this License ("Removal Term") by lapse of time or otherwise or upon the earlier termination of Licensee's right to possession, be removed from the Premises at Licensee's sole cost and expense. Licensee shall continue to pay the then current monthly rent during the Removal Term until Licensee has removed all Premises Improvements from the Premises. If Licensee does not remove its equipment from the Premises within 60 days after expiration or termination of this License, Owner may remove and store the equipment at Tenant's expense. Tenant must reimburse Owner for the actual removal and storage costs within 30 days after Owner provides to Tenant an invoice for the costs and reasonable supporting documentation. Licensee shall be liable for all claims, damage, cost, expenses, awards, fines, judgments, and attorney fees (including, without limitation, costs, attorney fees, expert witness fees, and other expenses of litigation) of every nature arising out of or in connection with Premises Improvements as long as Premises Improvements remain on the Premises. Licensee shall repair any damage to the Premises caused by the Premises Improvements and the removal thereof, and restore the Premises to its condition prior to the execution of this License, reasonable wear and tear excepted. Licensee's removal of Premises Improvements from the Premises shall be deemed complete upon Licensor's approval, not to be unreasonably withheld, of an independent third party engineer's inspection of the Premises. Licensee shall keep its equipment and the areas immediately surrounding neat and clean. Licensee shall conduct its business and control its agents, employees, invitees and visitors in such manner as not to create any nuisance, or interfere with, annoy or disturb any other Licensee or occupant to the Storage Building, Licensor shall have no obligation to maintain, operate or safeguard the equipment. Licensor agrees to cause the prompt elimination of any disruption or interference with Licensee's equipment attributable to the equipment of Licensor's licensees operating in or about the Premises which is placed in operation after the date of this License. If such disruption or interference is not cured within ten (10) days following written notice from Licensee, Licensee may terminate this License at any time while such interference continues. Licensor agrees to protect Licensee's antenna or antenna equipment from the interference from future licensees or tenants of Licensor.

15. Property of Licensee and Its Sublicensees. The Tower, the Storage Buildings, and the radio and communications equipment owned by Licensee or Licensee's sublicensees shall at all times remain personal property and shall not be considered fixtures or otherwise be considered permanently installed on or in the Premises. Upon expiration or termination of the License, Licensee shall promptly remove the Tower and all footers associated with said Tower and restore the Site to a reasonably even grade. Licensee shall further remove all associated facilities and feed cables and take all action necessary to restore the Site to its original condition, reasonable wear and tear excepted. Licensee shall have sole

responsibility for the maintenance, repair, and security of its Tower, Storage Buildings, and any other of its improvements, and shall keep the same in good repair and condition during the License term. Licensee shall adhere to OSHA safety requirements. Licensee shall place no advertising on the Site or on any structure on the Site, other than signs required by law or regulation. No equipment shall be stored on the Property outside of the Storage Buildings, and all appropriate permits must be obtained prior to construction and use of the Storage Buildings. All antenna panels shall be painted to match the water tower.

16. Covenants by Licensee to Comply with Laws. Licensee covenants and agrees that it shall at all times comply with all laws with respect to its possession of the Premises and the operation of its Tower Business on the Premises. Without otherwise limiting the foregoing, Licensee shall at all times comply with the Environmental Laws with respect to its possession of the Premises and the operation of its Tower Business.

17. Indemnification.

- a. Licensee agrees to indemnify and hold Licensor harmless from and against any and all injuries or damage to property as a result of the ownership and maintenance of the Tower by Licensee and Licensee's or sublicensee's operation of the Tower Business; provided, however, Licensee or sublicensee shall not be obligated to indemnify Licensor in the event the injuries or property damage are caused by the negligence or willful misconduct of Licensor.
- b. Licensor agrees to indemnify and hold Licensee harmless from and against any and all injuries or damage to property, to the extent allowable by law, as a result of the ownership of the Premises by Licensor and the operation of any business activities by Licensor, ; provided, however, that Licensor shall not be obligated to indemnify Licensee in the event the injuries or property damage are caused by the negligence or willful misconduct of Licensee or its sublicensees.

18. Conditions Precedent to Licensee's Obligations. Licensee's obligations under this License are subject to the completion and satisfaction of the following conditions precedent ("Conditions Precedent"):

- a. Licensee's obligations under this License are conditioned upon Licensee's satisfaction, at Licensee's sole cost and expense, in its sole discretion, with the status of the title to the Premises and that the Premises are free and clear of any liens, encumbrances, or exceptions other than those which do not interfere with Licensee's intended Tower Business (Exhibit D).

Licensee must, at Licensee's sole cost and expense, obtain an evaluation done by Dixon Engineering, Inc. 1104 Third Ave., Lake Odessa, Michigan (phone: (616) 374-3221), determining and verifying the structural integrity of the water tower and the water tower's ability to adequately

carry the loads imposed by the antennas and their associated cables, brackets, etc. In addition the installation should be reviewed to verify non-interference with other operating issues with the tank. That includes, but is not limited to, installation of cables, cable trays and hangers, etc. Such installation plan must be approved to preclude the need for removal when painting of the Tower may happen. Finally, work must be designed to meet applicable OSHA standards. Dixon Engineering's certification along with their review must be provided to and approved by Licensor as a condition precedent to the issuing of this License (Exhibit E).

c. If as a result of the search of the title or otherwise it is disclosed there is a mortgage on the Premises, then the mortgagee must execute a non-disturbance agreement in form acceptable to Licensee which assures Licensee of its right to occupy and use the Premises in the event of default on the mortgage.

- b. Licensee's satisfaction, in its sole discretion, of the condition of the Premises, including without limitation, the environmental condition of the Premises and the suitability of installing the Tower on the Premises.
- c. The determination by Licensee, in its sole discretion, that the Premises are properly zoned to allow Licensee to operate its Tower Business, including without limitation the construction of the Tower on the Premises.
- d. Licensor's written approval of the location of the Premises as shown on the Survey and of all construction plans the Tower and Storage Buildings, which approval shall not be unreasonably withheld.

Licensor shall reasonably cooperate with and assist Licensee in causing the Conditions Precedent to be completed and satisfied, and including without limitation, Licensor shall execute such documents and otherwise cooperate with and assist Licensee in obtaining the title insurance, the Survey, soil tests, environmental tests, and any necessary permits, approvals, consents and licenses from any applicable governmental authorities or agencies (including proper zoning classification). However, Licensor does not guarantee any such necessary permits, approvals, consents, and/or Licenses shall be granted to Licensee.

19. Information and Documents to be Provided by Licensor and Licensee's Right of Access to Premises. Upon execution of this License, Licensee (and its agents) may enter upon the Premises for purposes of obtaining the Survey, conducting soil tests, performing environmental studies, inspecting the Premises, and otherwise conducting such other tests as it deems necessary or desirable for purposes of determining the suitability of operating its Tower Business on the Premises, excluding the inner most Water Tank compound without scheduling an escort.

20. Completion of Construction. Licensee shall provide Licensor "as built" drawings of the equipment installed on the water tower and improvements

installed on the Property which show the actual location of all equipment and improvements. Such drawings shall be accompanied by a completed and detailed inventory of all equipment, personal property, and antenna facilities actually placed on the water tower. Licensor reserves the right to have all installation work inspected by a qualified third party consultant to ensure that it has been installed per the original plans and specifications. The third party inspection fees are the responsibility of the Licensee. Any modifications made during the construction must be reviewed and approved by Dixon Engineering and Licensor prior to installation.

21. Modification of Tower. Licensee may update or replace the Tower from time to time with the prior written approval of Licensor, provided that the replacement facilities are not greater in number or size than the existing facilities and provided that their location on the licensed portions of the water tower is satisfactory to Licensor. Licensee shall submit to Licensor a proposal for any such replacement facilities, and for any supplemental materials as may be reasonably requested for Licensor's evaluation and approval, which approval shall not be unreasonably withheld or delayed. All costs for required structural studies, plan review, and third party inspection, shall be paid by Licensee within thirty (30) days of receipt of a detailed invoice.

22. Confidentiality of City Information/Non-Disclosure. Licensee understands and agrees that data, materials, fees and information disclosed to Licensee may contain confidential and protected data. Therefore, the Licensee promises and assures that data, material, fees and information gathered, based upon or disclosed to the Supplier for the purpose of this contract, will not be disclosed to others or discussed with other parties without the prior written consent of the City. This contract and the terms associated with it may not be released to any other party without prior written consent of the City of Fort Wayne, Indiana.

23. Miscellaneous.

- a. **Benefit of Parties.** All of the terms and provisions of this License shall be binding upon and inure to the benefit of the parties and their respective successors, assigns, entities, and heirs.
- b. **Counterparts.** This License may be executed simultaneously in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.
- c. **Notices.** All notices, requests, demands or other communications which are required or may be given pursuant to the terms of this License shall be in writing, and delivery shall be sufficient in all respects if delivered personally or by registered or certified mail, postage prepaid, or by fax, or by private courier, addressed as follows:

If to Licensor:

City Utilities Engineering
200 E Berry Street, Suite 270
Fort Wayne, Indiana 46802

With a copy to:

City Attorney
200 E Berry Street, Suite 430
Fort Wayne, Indiana 46802

If to Licensee:

BY MAIL:

Sprint Property Services
Mailstop: KSOPHT0101-Z2650
6391 Sprint Parkway
Overland Park, KS 66251-2650

with a copy to:

Sprint Legal Department
Mailstop: KSOPHT0101-Z2020
6391 Sprint Parkway
Overland Park, KS 66251-2020
Attn: Real Estate Attorney

or to such other address as may be specified in writing by any of the above.

- d. **Entire Agreement.** This License, including the Exhibits attached hereto and any documents or agreements specifically referred to herein, contain the entire understanding of the parties with respect to the subject matter hereof. There are no representations, promises, warranties, covenants, agreements or undertakings other than those expressly set forth or provided for in this License. This License supersedes all prior agreements and understandings between the parties with respect to the transactions contemplated hereby.
- e. **Governing Law.** This License shall be governed by and construed and enforced according to the laws of the State of Indiana. If any provision hereof is held to be invalid or unenforceable, it shall be enforceable to the fullest extent allowed by law and the remainder of this License shall continue in full force and effect.
- f. **Construction of License.** For purposes of interpreting and construing this License, no party shall be considered the drafter of the License.

g. **Memorandum of License.** At Licensee's request, Licensor shall execute a recordable Memorandum of this License and such other documents reasonably requested by Licensee as may be necessary to protect Licensee's license interest.

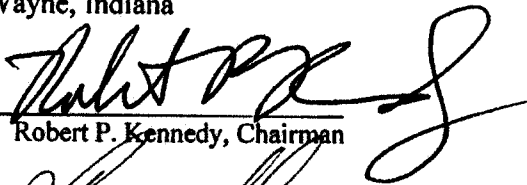
IN WITNESS WHEREOF, the parties have entered into this License effective as of the first date set forth above.

LICENSOR:

BOARD OF PUBLIC WORKS

City of Fort Wayne, Indiana

BY:


Robert P. Kennedy, Chairman

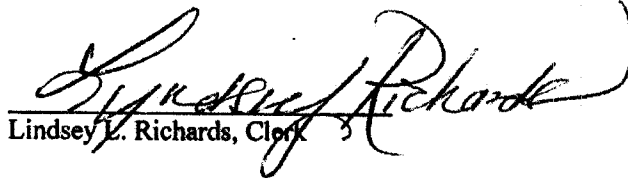
BY:


Kumar Menon, Member

BY:


Mike Avila, Member

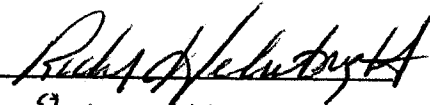
ATTEST:


Lindsey L. Richards, Clerk

LICENSEE:

SPRINTCOM, INC., a Kansas corporation

By:


Richard Helmbright

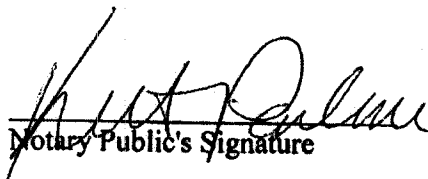
STATE OF OHIO)
) SS:
COUNTY OF FRANKLIN)

Before me, the Undersigned, a Notary Public in and for said County and State, this ___ day of _____ 2015, personally appeared Richard Helmbright, the Market Manager of SprintCom, Inc., and acknowledged the execution of the above and foregoing License Agreement on behalf of said corporation.

WITNESS my hand and notarial seal.

My Commission Expires:

Oct 10, 2018


Notary Public's Signature

Kerstin Palmer
Notary Public's Printed Name

Resident of Franklin County, OHIO



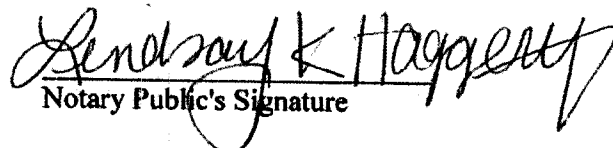
KERSTIN PALMER
Notary Public, State of Ohio
My Commission Expires
October 10, 2018

STATE OF IN)
) SS:
COUNTY OF Allen)

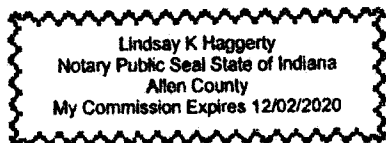
Before me the undersigned, a Notary Public in and for said county and state this 18 day of March 2015, personally appeared Robert P Kennedy Director, Fort Wayne Board of Public Works and acknowledged the execution of the above and foregoing License Agreement to be his voluntary act and deed for the uses and purposes therein set forth.

My Commission Expires:

12/02/2020


Notary Public's Signature

Lindsay K Haggerty
Notary Public's Printed Name



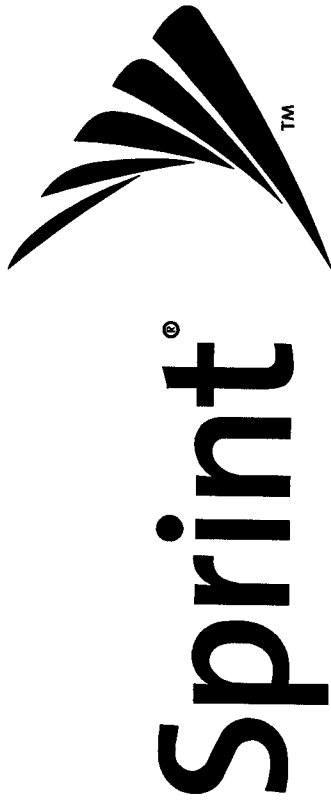
Resident of Allen County, Indiana.

EXHIBIT A
(legal description)

Part of the Northeast Quarter of Section 1, Township 31 North, Range 12 East, Allen County, Indiana, more particularly described as follows:

Beginning at the Northwest corner of the Northeast Quarter of Section 1, Township 31 North, Range 12 East, Allen County, Indiana; thence Easterly along the North line of the NE 1/4 of Section 1-31-12 a distance of 100.0 feet; thence Southerly with a deflection angle to the right of 89 degrees 24 minutes and parallel to the West line of the NE 1/4 of Section 1-31-12 a distance of 190 feet; thence Westerly with a deflection angle to the right of 90 degrees 36 minutes and parallel to the North line of Section 1-31-12 a distance of 100.0 feet to a point on the West line of the NE 1/4 of Section 1-31-12; thence Northerly with a deflection angle to the right of 89 degrees 24 minutes and along the West line of the NE 1/4 of Section 1-31-12 a distance of 190 feet to the point of beginning, containing 0.44 acres of land, more or less.

Dupont Water Tower
1016 Dupont Road
Fort Wayne, IN 46825



PROJECT: OCEAN
NETWORK VISION & 2.5 EQUIPMENT
SITE NAME: USC 884403 FORT WAYNE
SITE CASCADE: CH51XC384
SITE NUMBER: 884384
SITE ADDRESS: 1016 EAST DUPONT ROAD
FORT WAYNE, IN 46825
SITE TYPE: EXISTING 150'-0" WATER TANK



PLANS PREPARED BY:
FIRST GROUP ENGINEERING
5925 LAKESIDE BLVD.
INDIANAPOLIS, IN 46278

DATE:
M.A. PARTNER:



ENGINEERING LICENSE:
W. COBB
NO. 12543
STATE OF INDIANA

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ISSUED FOR S&S		07/26/11	WML	2
ISSUED FOR S&S		07/26/11	WML	3

SITE NAME:
USC 884403
FORT WAYNE

SITE CASCADE:
884384 - CH51XC384

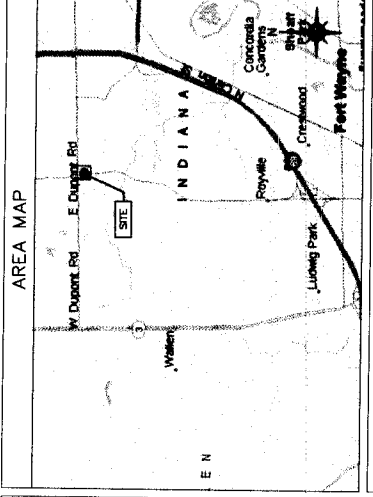
SITE ADDRESS:
1016 EAST DUPONT ROAD
FORT WAYNE, IN 46825

SHEET DESCRIPTION:
TITLE SHEET

SHEET NUMBER:
T-1

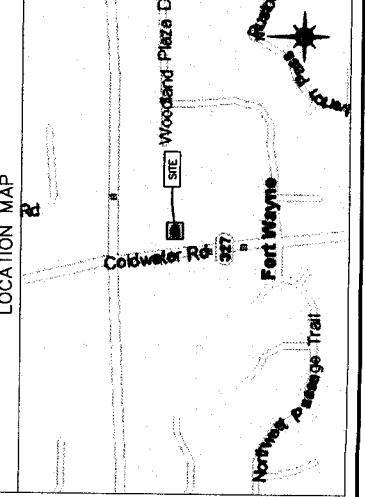
SHT NO.	SHEET TITLE:	REV:	ENGINEER:
T-1	TITLE SHEET	2	DWC
SP-1	SPRINT SPECIFICATIONS	2	DWC
SP-2	SPRINT SPECIFICATIONS	2	DWC
A-1	SITE PLAN	2	DWC
A-2	TOWER ELEVATIONS & ANTENNA DETAILS	2	DWC
A-2A	ANTENNA & HYBRID CABLE DETAILS	2	DWC
A-3	RF DATA SHEET	2	DWC
A-4	RF DATA SHEET	2	DWC
A-5	RF DATA SHEET	2	DWC
A-6	ANTENNA DETAILS	2	DWC
A-6A	ANTENNA & HYBRID CABLE DETAILS	2	DWC
A-6B	ALUMINUM HYBRID CABLE DETAILS	2	DWC
A-7	BREAKOUT & EQUIPMENT DETAILS	2	DWC
A-7A	FRONT & REAR CABINET DETAILS	2	DWC
A-7B	REAR CABINET DETAILS	2	DWC
A-8	EQUIPMENT DETAILS	2	DWC
RF-1	ANTENNA & CABLE COLOR CODING DETAILS	2	DWC
E-1	GROUNDING DETAILS	2	DWC
E-2	DC POWER DETAILS & PANEL SCHEDULES	2	DWC
E-3	DC POWER ONE-LINE DETAILS	2	DWC
F-1	DISHALL FIBER PLAN	2	DWC
F-2	ENLARGED FIBER PLAN	2	DWC
F-3	AV (NID) ENCLOSURE ONE-LINE DIAGRAM	2	DWC
F-4	STANDARD DETAILS	2	DWC
S-1	STRUCTURAL DRAWINGS	2	OTHERS
S-2	STRUCTURAL DRAWINGS	2	OTHERS
S-3	PLATFORM DETAILS	2	DWC
S-4	PLATFORM DETAILS	2	DWC

PROJECT DESCRIPTION
 • INSTALL NETWORK VISION & 2.5 EQUIPMENT
 • INSTALL IMES BBU CABINET
 • INSTALL (16) BATTERIES IN PROPOSED IMES BATTERY CABINET
 • INSTALL (6) ANTENNA PIPES AND MOUNTS
 • INSTALL (6) PANEL ANTENNAS
 • INSTALL (9) PRR'S MOUNT TO PROPOSED PIPE
 • INSTALL (2) HYBRID CABLES
 • INSTALL PROPOSED PPC CABINET
 • INSTALL PROPOSED 6' X 16' ELEVATED STEEL PLATFORM

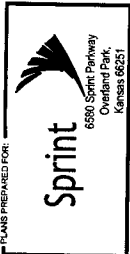


SITE INFORMATION
PROPERTY OWNER:
 FIRST GROUP ENGINEERING
 5925 LAKESIDE BLVD.
 FORT WAYNE, IN 46825
CONTACT: STEVE SIMMONS
 PHONE: (317) 740-1624
SITE ADDRESS:
 1016 EAST DUPONT ROAD
 FORT WAYNE, IN 46825
 ALLEN COUNTY
GEOGRAPHIC COORDINATES:
 LATITUDE: 41° 10' 34.2800" N, (41.177300)
 LONGITUDE: 85° 07' 50.5200" W, (-85.130700)
ZONING JURISDICTION:
 CITY OF FORT WAYNE
ZONING DISTRICT:
 UNMANNED WIRELESS TELECOMMUNICATIONS FACILITY
POWER COMPANY:
 WESTERN MICHIGAN POWER SERVICE (260) 244-6111
AAV PROVIDER:
 US SIGNAL
 POWER SERVICE (866) 2-SIGNAL
SPRINT CONSTRUCTION MANAGER:
 RICHARD DUNAP
 PHONE: (773) 424-4341
 EMAIL: richard.dunap@sprint.com
EQUIPMENT SUPPLIER:
 SAMUNG TELECOMMUNICATIONS AMERICA (STA)
 1501 EAST LOOKOUT DRIVE
 FORT WAYNE, IN 46825
 PHONE: (872) 761-7000

APPLICABLE CODES
 • ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALL IN ACCORDANCE WITH THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSIDERED TO PERMIT WORK NOT CONFORMING TO THESE CODES.
 ALL WORK SHALL COMPLY WITH THE FOLLOWING APPLICABLE CODES:
 2008 INDIANA BUILDING CODE (2008 IBC WITH STATE AMENDMENTS)
 1999 INDIANA PLUMBING CODE
 2008 INDIANA ELECTRICAL CODE
 2008 INDIANA ELECTRICAL CODE (2008 NEC WITH AMENDMENTS)
 IN THE EVENT OF CONFLICT, THE MOST RESTRICTIVE CODE SHALL PREVAIL.



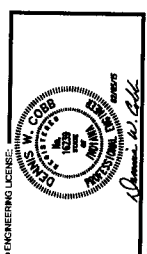
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PLANS PREPARED BY:
FIRST GROUP ENGINEERING
 5925 LAKESIDE BLVD.
 INDIANAPOLIS, IN 46278

PLANS PREPARED BY:
 TITLE: _____
 PROJECT: _____
 SHEET: _____

DATE: _____
 DRAWN BY: _____
 CHECKED BY: _____
 APPROVED BY: _____



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SITE NAME:
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FORT WAYNE

SITE ADDRESS:
884384 - CH51XC384

SHEET NUMBER:
1016 EAST DUPONT ROAD
FORT WAYNE, IN 46825

SHEET DESCRIPTION:
SPRINT
SPECIFICATIONS

SHEET NUMBER:
SP-1

SECTION 01.300 - CELL SITE CONSTRUCTION

NOISE TO PROCEED.
 NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF WORK ORDER.
 SITE CLEANNESS:
 CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE ALL REMAINING RUBBISH, DEBRIS, TEMPORARY FACILITIES, AND SURPLUS MATERIAL.

SECTION 01.400 - SUBMITTALS & TESTS

ALTERNATIVES:
 CONTRACTOR'S REQUEST ANY ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINT'S CONSTRUCTION MANAGER FOR REVIEW AND APPROVAL. ONLY THOSE REQUESTS MADE IN WRITING, NO VERBAL APPROVALS WILL BE CONSIDERED.
 TESTS AND INSPECTIONS:
 A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.
 B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
 1. COAX SWEEPS AND FIBER TESTS PER TS-0200 REV 4 ANTENNA LINE ACCEPTANCE STANDARDS.
 2. AZIMUTH AND DOWNTILT: PROVIDE AN AUTOMATED REPORT UPLOADED TO SITERIA USING A COMMERCIAL MADE-FOR-THE-PURPOSE ELECTRONIC ANTENNA ALIGNMENT TOOL (MAT). INSTALL AZIMUTH, CENTERLINE AND DOWNTILT MUST CORRELATE WITH RF COMPARISON DATA.
 3. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.
 4. ALL TESTING REQUIRED BY APPLICABLE INSTALLATION MOPS.
 C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:
 1. AZIMUTH, DOWNTILT, AZL FROM SUNSHINE INSTRUMENTS - ANTENNA/ALIGN ALIGNMENT TOOL (MAT).
 2. SWEEP AND FIBER TESTS.
 3. SCALABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT.
 4. ALL AVAILABLE JURISDICTIONAL PERMIT AND OCCUPANCY INFORMATION.
 5. PDF SCAN OF REDLINE MARK-UPS SUITABLE FOR USE IN ELECTRONIC AS-BUILT DRAWING PRODUCTION.
 7. LEN WALKERS.
 8. FINAL PAYMENT APPLICATION.
 9. REQUIRED FINAL CONSTRUCTION PHOTOS.
 10. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS.
 11. APPLICABLE POST-ITIP TUSIS INCLUDING DOCUMENT UPLOADED COMPLETED IN SITERIA (SPRINT'S DOCUMENT REPOSITORY OF RECORD).
 12. CLOSEOUT PHOTOGRAPHS AND CLOSEOUT CHECKLIST: SPRINT WILL PROVIDE SEPARATE GUIDANCE.

SECTION 01.200 - COMPANY FURNISHED MATERIAL AND EQUIPMENT

A. COMPANY FURNISHED MATERIAL AND EQUIPMENT IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DRAWINGS.
 B. CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT TO ENSURE IT IS PROTECTED AND HANDLED PROPERLY THROUGHOUT THE CONSTRUCTION DURATION.
 C. CONTRACTOR IS RESPONSIBLE FOR RECEIPT OF SPRINT FURNISHED EQUIPMENT AT CELL SITE OR CONTRACTORS LOCATION. CONTRACTOR TO COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.

SECTION 11.700 - ANTENNA ASSEMBLY, REMOTE RADIO UNITS AND CABLE INSTALLATION

SUMMARY:
 THIS SECTION SPECIFIES INSTALLATION OF ANTENNAS, RRUS, AND CABLE EQUIPMENT, INSTALLATION, AND TESTING OF COAXIAL FIBER CABLE.
 ANTENNAS AND RRUS:
 THE NUMBER AND TYPE OF ANTENNAS AND RRUS TO BE INSTALLED IS DETAILED ON THE CONSTRUCTION DRAWINGS.
 HYBRID CABLE:
 HYBRID CABLE WILL BE DC/FIBER AND FURNISHED FOR INSTALLATION AT EACH SITE. CABLE SHALL BE INSTALLED PER THE CONSTRUCTION DRAWINGS AND THE APPLICABLE MANUFACTURER'S REQUIREMENTS.
 JUMPER AND CONNECTORS:
 FURNISH AND INSTALL 1/2" COAX JUMPER CABLES BETWEEN THE RRUS AND ANTENNAS. JUMPERS SHALL BE TYPE LDF 4, F/LG 12-50, OR 540, OR FAL 540. SUPER-FLEX CABLES ARE NOT ACCEPTABLE. JUMPERS BETWEEN THE RRUS AND ANTENNAS OR TOWER TOP AMPLIFIERS SHALL CONSIST OF 1/2 INCH FOM DIRECTIONAL OUTDOOR RATED COAXIAL CABLE. MIN. LENGTH FOR JUMPER SHALL BE 10'-0".
 REMOTE ELECTRICAL, ILL (RETE) CABLES:
 MISCELLANEOUS:
 INSTALL SPLITTERS, COMBINERS, FILTERS PER RF DATA SHEET, FURNISHED BY SPRINT.
 ANTENNA INSTALLATION:
 THE CONTRACTOR SHALL ASSEMBLE ALL ANTENNAS ON-SITE IN ACCORDANCE WITH THE INSTRUCTIONS SUPPLIED BY THE MANUFACTURER. ANTENNA HEIGHT, AZIMUTH, AND FEED ORIENTATION INFORMATION SHALL BE A DESIGNATED ON THE CONSTRUCTION DRAWINGS.
 A. THE CONTRACTOR SHALL POSITION THE ANTENNA ON TOWER PIPE MOUNTS SO THAT THE BOTTOM SPLIT IS LEVEL. THE PIPE MOUNTS SHALL BE PLUMB TO WITHIN 1 DEGREE.
 B. ANTENNA MOUNTING REQUIREMENTS: PROVIDE ANTENNA MOUNTING HARDWARE AS INDICATED ON THE DRAWINGS.
 HYBRID CABLE INSTALLATION:
 A. THE CONTRACTOR SHALL ROUTE, TEST, AND INSTALL ALL CABLES AS INDICATED ON THE CONSTRUCTION DRAWINGS AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
 B. THE INSTALL PATTERN OF THE CABLES SHALL NOT BE LESS THAN THE MANUFACTURER'S SPECIFICATIONS FOR BENDING RADIUS.
 C. EXTORLE CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE CABLES DURING HANDLING AND INSTALLATION.
 1. RESERVE MAIN HYBRID CABLES: ALL CABLES SHALL BE INSTALLED INSIDE MONOPOLE WITH CABLE SUPPORT CRIPS AS REQUIRED BY THE MANUFACTURER.
 2. PASTING INDIVIDUAL FIBER AND DC CABLES ABOVE BREAKOUT ENCLOSURE (MEDIUSA), WITHIN THE MISS CABINET AND ANY INTERMEDIATE DISTRIBUTION BOXES:
 a. FIBER: SUPPORT FIBER BUNDLES USING 1/2" VELCRO STRAPS OF THE REQUIRED LENGTH AT 18" O.C. STRAPS SHALL BE UV, OIL, AND WATER RESISTANT AND SUITABLE FOR INDUSTRIAL INSTALLATIONS AS MANUFACTURED BY TETTEL OR APPROVED EQUAL.
 b. DC: SUPPORT DC BUNDLES WITH ZIP TIES OF THE ADEQUATE LENGTH. ZIP TIES SHALL BE UV RESISTANT AND MANUFACTURED BY HULLO PRODUCTS OR EQUAL.
 3. PASTING JUMPERS: SECURE JUMPERS TO THE SIDE ARMS OR HEAD FRAMES USING STAINLESS STEEL TIE WRAPS OR STAINLESS STEEL BUTTERFLY CLIPS.
 4. CABLE INSTALLATION:
 a. INSPECT CABLE PRIOR TO USE FOR SHIPPING DAMAGE. NOTIFY THE CONSTRUCTION MANAGER.
 b. CABLE ROUTING: CABLE INSTALLATION SHALL BE PLANNED TO ENSURE THAT THE LINES WILL BE PROTECTED AND IDENTIFIED IN THE CABLE ENVELOPE AS INDICATED ON THE DRAWINGS. AVOID TWISTING AND CROSSINGS.
 c. MOST CABLE USING PROPER HOISTING GRIPS. DO NOT EXCEED MANUFACTURER'S RECOMMENDED MAXIMUM BEND RADIUS.
 5. GROUNDING OF TRANSMISSION LINES: ALL TRANSMISSION LINES SHALL BE GROUNDING AS INDICATED ON DRAWINGS.
 6. HYBRID CABLE COLOR CODING: ALL COLOR CODING SHALL BE AS REQUIRED IN TS 0200 REV 4.
 7. HYBRID CABLE LABELING: INDIVIDUAL HYBRID AND DC BUNDLES SHALL BE LABELED ALPHA-NUMERICALLY ACCORDING TO SPRINT CELL SITE ENGINEERING NOTICE - EN 2012-001, REV 1
 WEATHERPROOFING EXTERIOR CONNECTORS AND HYBRID CABLE GROUND KITS:
 A. ALL FIBER & COAX CONNECTORS AND GROUND KITS SHALL BE WEATHERPROOFED.
 B. WEATHERPROOFING USING ONE OF THE FOLLOWING METHODS. ALL INSTALLATIONS MUST BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INDUSTRY BEST PRACTICES.
 1. COLD SHRINK: ENCOMPASS CONNECTOR IN COLD SHRINK TUBING AND PROVIDE A DOUBLE WRAP OF 2 ELECTRICAL TAPE EXTENDING 2" BEYOND TUBING. PROVIDE A 3/4" COLD SHRINK COX SERIES OR EQUAL.
 2. SELF-AMALGAMATING TAPE: CLEAN SURFACES. APPLY A DOUBLE WRAP OF SELF-AMALGAMATING TAPE. PROVIDE A SECOND WRAP OF SELF-AMALGAMATING TAPE. PROVIDE A SECOND WRAP OF SELF-AMALGAMATING TAPE. PROVIDE A SECOND WRAP OF WIRE ELECTRICAL TAPE EXTENDING 2" BEYOND THE SELF-AMALGAMATING TAPE.
 3. 3/4" SLM LOCK CLOSURE 716: SUBSTITUTIONS WILL NOT BE ALLOWED.
 4. OPEN FLAME ON JOE SITE IS NOT ACCEPTABLE.

SECTION 01.100 - SCOPE OF WORK

THE WORK SHALL COMPLY WITH ALL APPLICABLE ADOPTED CODES AND STANDARDS, AND PORTIONS THEREOF.
 PRECEDENCE:
 SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE.
 SITE MANAGER:
 CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS PRIOR TO PROCEEDING WITH CONSTRUCTION.
 ON-SITE SUPERVISION:
 THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
 DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE:
 THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.
 A. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. PROVIDE ALL MATERIALS AND LABOR AS REQUIRED TO PROTECT AND MAINTAIN FIELD CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
 B. CONTRACTOR SHALL NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY VARIATIONS PRIOR TO PROCEEDING WITH THE WORK. DIMENSIONS SHALL BE AS SHOWN UNLESS OTHERWISE NOTED. OTHERWISE, MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
 C. MARK THE FIELD SET OF DRAWINGS IN RED, DOCUMENTING ANY CHANGES FROM THE CONSTRUCTION DOCUMENTS.
 METHODS OF PROTECTION (MOPS) FOR CONSTRUCTION:
 CONTRACTOR SHALL PERFORM WORK AS DESCRIBED IN:
 A. COAX COLOR CODING SWEEPS AND FIBER TESTING TS-0200 AND EI-0668
 B. CABLE LABELING EN-2012-00
 C. APPLICABLE INSTALLATION MOPS IDENTIFIED ELSEWHERE IN THE CONTRACT DOCUMENTS

SECTION 01.200 - COMPANY FURNISHED MATERIAL AND EQUIPMENT

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 C. CONTRACTOR IS RESPONSIBLE FOR RECEIPT OF SPRINT FURNISHED EQUIPMENT AT CELL SITE OR CONTRACTORS LOCATION. CONTRACTOR TO COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.



PLANS PREPARED BY:
FIRST GROUP ENGINEERING
 5925 LAKESIDE BLVD.
 INDIANAPOLIS, IN 46278

CEN

M.A. PARTNER:



ENGINEERING LICENSE:

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ISSUED FOR PERMITS		02/27/14	MMB	4
ISSUED FOR PERMITS		02/27/14	MMB	5

SITE VALUE:
 USC 884403
 FORT WAYNE

SITE ADDRESS:
 884384 - CH51XC384

SHEET DESCRIPTION:
 1016 EAST DUPONT ROAD
 FORT WAYNE, IN 46825

SHEET NUMBER:
 ANTENNA & HYBRID
 CABLE DETAILS

SHEET NUMBER:
 A-2A

PROPOSED 800/1900 ANTENNA SCHEDULE

SECTOR	ANTENNA NUMBER	ANTENNA MANUFACTURER	ANTENNA MODEL	HYBRID CABLES	CABLE JUMPERS	AZMUTH	RAD CENTER	ELECT TILT	MECH TILT	RRH MODEL	JUMPER SIZE	JUMPER LENGTH	RF FILTER
1B	800/1900 MHz	KAW	ET-X-TS-70-15-62-18-IR-RD	(1) SUSPENSIVE HYBRID CABLE 240' LONG	(4) @ 45'	0°	156'	-2	0	RRH-C2/RRH-P4	1/2"	8'	N/A
2B	800/1900 MHz	KAW	ET-X-TS-70-15-62-18-IR-RD		(4) @ 45'	180°	156'	-2	0	RRH-C2/RRH-P4	1/2"	8'	N/A
3B	800/1900 MHz	KAW	ET-X-TS-70-15-62-18-IR-RD		(4) @ 45'	280°	156'	-2	0	RRH-C2/RRH-P4	1/2"	8'	N/A

PROPOSED 2.5 ANTENNA SCHEDULE

SECTOR	ANTENNA NUMBER	ANTENNA MANUFACTURER	ANTENNA MODEL	AUXILIARY HYBRID CABLES	AUXILIARY CABLE JUMPERS	AZMUTH	RAD CENTER	ELECT TILT	MECH TILT	RRH MODEL	JUMPER SIZE	JUMPER LENGTH	RF FILTER
1C	2500 MHz	KAW	ET-X-WA-18-85-8P	EXISTING	(2) @ 45'	0°	156'	-2	0	RRH-V3	1/2"	8'	N/A
2C	2500 MHz	KAW	ET-X-WA-18-85-8P		(2) @ 45'	180°	156'	-2	0	RRH-V3	1/2"	8'	N/A
3C	2500 MHz	KAW	ET-X-WA-18-85-8P		(2) @ 45'	280°	156'	-2	0	RRH-V3	1/2"	8'	N/A

- NOTES
1. DIMENSIONS OF EXISTING ANTENNAS SPACING OR PLATFORMS ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY PRIOR TO START OF CONSTRUCTION (SEE GENERAL NOTES SHEETS 04-1 AND 04-2).
 2. PROPOSED SPRINT ANTENNAS INCLUDE RESPECTIVE RRH'S WHICH SHALL BE MOUNTED ON A PIPE BEHIND THE ANTENNA SIMILAR TO THAT SHOWN ON SHEET A-2.
 3. FIELD TO VERIFY EXISTING JUMPERS BEFORE PROCEEDING THE ANTENNA. IF REQUIRED, PRIOR APPROVAL FROM SPRINT TO BE GRANTED BEFORE RELOCATION OF ANTENNAS.

NOTE:
 SPRINT TO UTILIZE EXISTING US CELLULAR ACCESS AND UTILITY EXEMPTIONS. SEE ATTACHED SURVEY FOR LOCATIONS AND LEGAL DESCRIPTIONS.

ANTENNA & HYBRID CABLE DETAILS
 SCALE: N.T.S.

PLANS PREPARED FOR:



PLANS PREPARED BY:

FIRST GROUP ENGINEERING
5925 LAKESIDE BLVD.
INDIANAPOLIS, IN 46278

DATE:

M.A. PARTNER:

ENGINEERING LICENSE:



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USC 884403
FORT WAYNE

SITE CASCAD:

884384 - CH15XC384

SITE ADDRESS:

1016 EAST DUPONT ROAD
FORT WAYNE, IN 46825

SHEET DESCRIPTION:

RF DATA SHEET

SHEET NUMBER:

A-4

**NOT USED
AT THIS TIME**

RRU CABLE MARKING LOCATIONS DIAGRAM

SCALE: N.T.S.

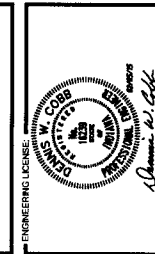
1



PLANS PREPARED BY:
FIRST GROUP ENGINEERING
5925 LAKESIDE BLVD.
INDIANAPOLIS, IN 46278

CLIENT:

MAIL PARTNER:



ENGINEERING LICENSE:

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1	ISSUED FOR SPS FINAL		02/25/14	MM	0
2	ISSUED FOR SPS FINAL		02/24/14	MM	1
3	ISSUED FOR SPS FINAL		02/24/14	MM	2
4	ADDED DESIGN SHEETS		02/25/14	MM	3

SITE NAME:
USC 884403
FORT WAYNE

SITE GASCODE:
884384 - CH51XC384

SITE ADDRESS:
1016 EAST DUPONT ROAD
FORT WAYNE, IN 46825

SHEET DESCRIPTION:
RF DATA SHEET

SHEET NUMBER:
A-5

ANTENNA MOUNTING NOTES

- APPROXIMATE LENGTH OF (1) HYBRID CABLE RUN = APPROX. LENGTH OF ICE BRIDGE + ANTENNA MOUNTING HEIGHT + 20 FEET
- CONTRACTOR SHALL VERIFY THE DOWNHILL OF EACH ANTENNA WITH A DIGITAL LEVEL.
- CONTRACTOR TO CONFIRM HYBRID CABLE COLOR CODING PRIOR TO CONSTRUCTION.

CABLE MARKING NOTES

- ALL CABLES SHALL BE MARKED WITH 2" TAPE OR STABILIZED, UL APPROVED TAPE.
- THE FIRST RING SHALL BE CLOSEST TO THE ANTENNA AND THE SECOND RING SHALL BE APPROXIMATELY 2" FROM THE END CONNECTOR, WEATHERPROOFING, OR BREAKOUT UNIT. THERE SHALL BE 1" SPACE BETWEEN EACH RING.
- A 2" GAP SHALL SEPARATE THE CABLE COLOR CODE FROM THE FREQUENCY COLOR CODE. THE RINGS FOR THE FREQUENCY CODE SHALL BE PLACED NEXT TO EACH OTHER WITH NO SPACES.
- THE 2" COLORED TAPE(S) SHALL BE WRAPPED A MINIMUM OF 3 TIMES AROUND THE INDIVIDUAL CABLES, AND THE TAPE SHALL BE KEPT IN THE SAME LOCATION AS MUCH AS POSSIBLE.
- SITES WITH MORE THAN FOUR (4) SECTORS SHALL MARK THE INDIVIDUAL CABLES WITH CAPACITY FOLLOWING THE PATTERN IN WHICH IDENTIFIED BY BLUE BANDS OF TAPE.
- HYBRID FIBER CABLE SHALL BE SECTOR IDENTIFIED INSIDE THE CABINET ON WHITE TAPE. THE MAIN LINE SHOULD BE IDENTIFIED BEFORE AND AFTER THE BREAKOUT UNIT (MEDIUSA), AS WELL AS BEFORE AND AFTER ANY ENTRANCE OR EXIT.
- HFC "MAIN TRUNK" WILL NOT BE MARKED WITH THE FREQUENCY CODES AS IT CONTAINS ALL FREQUENCIES.
- INDIVIDUAL POWER Pairs AND FIBER BUNDLES SHALL BE IDENTIFIED WITH BOTH THE CABLE AND FREQUENCY.

NOT USED AT THIS TIME

REVISIONS:	DESCRIPTION	DATE	BY	REV
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2	ISSUED FOR PERMITS	02/27/14	MLL	0
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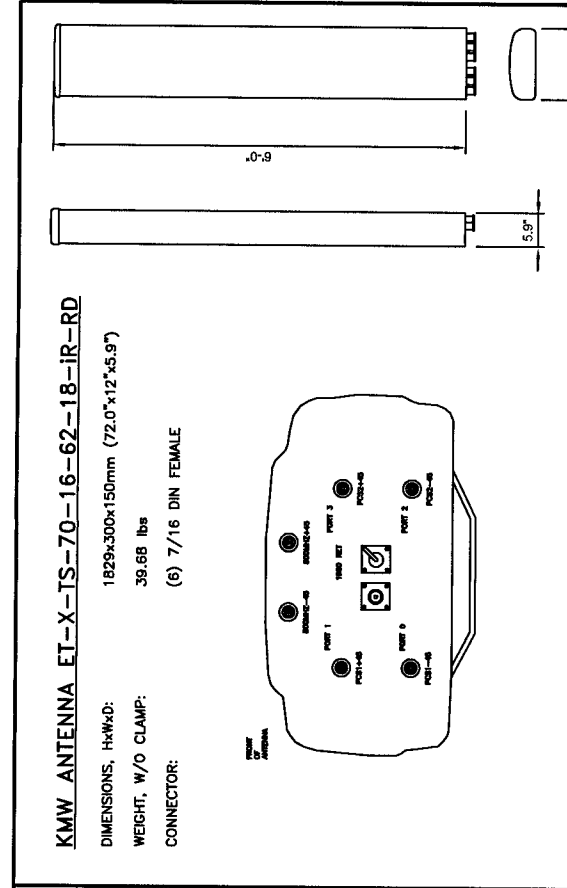
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USC 884403
FORT WAYNE

SITE CAGE CODE:
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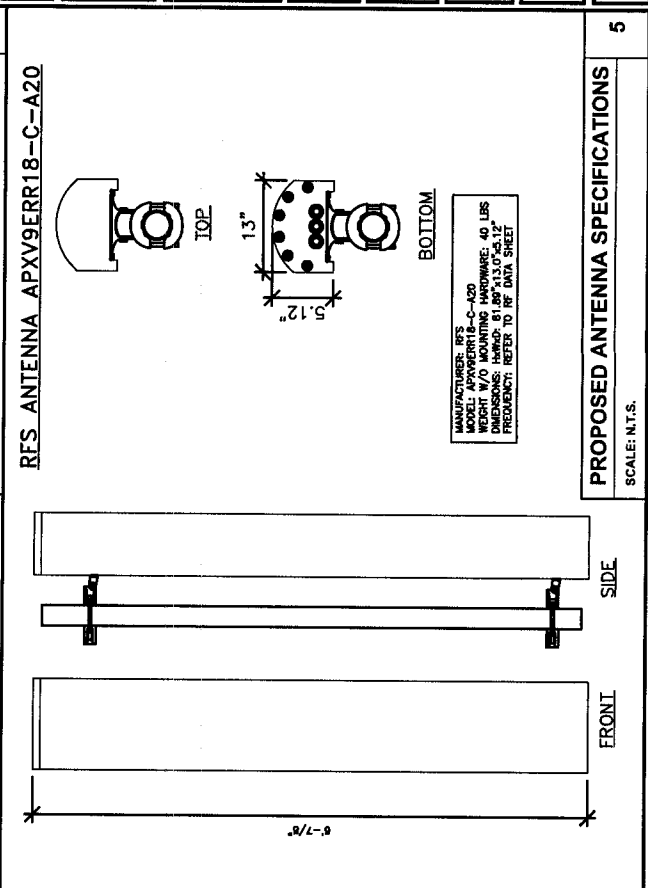
SITE ADDRESS:
1016 EAST DUPONT ROAD
FORT WAYNE, IN 46825

SHEET DESCRIPTION:
ANTENNA & HYBRID
CABLE DETAILS

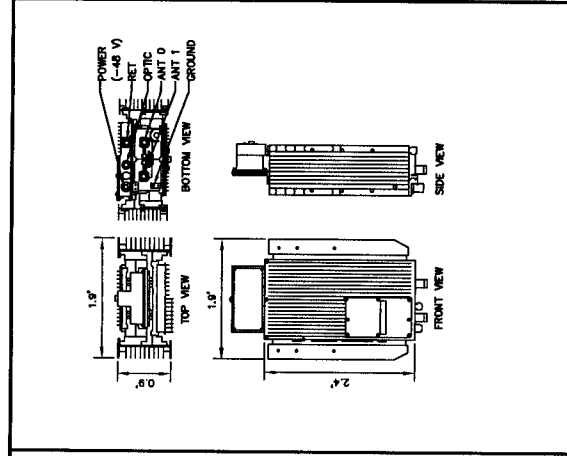
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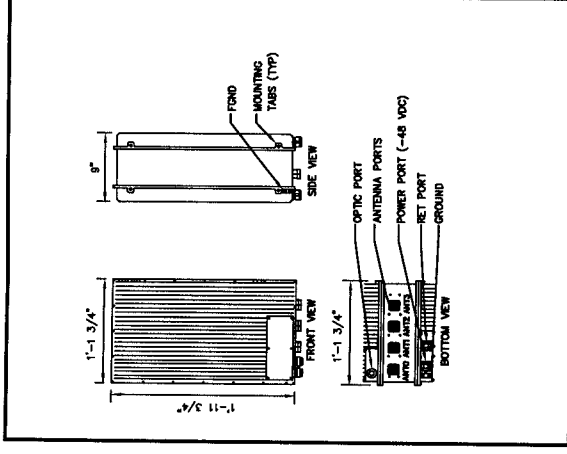
PROPOSED ANTENNA SPECIFICATIONS
 SCALE: N.T.S. **3**



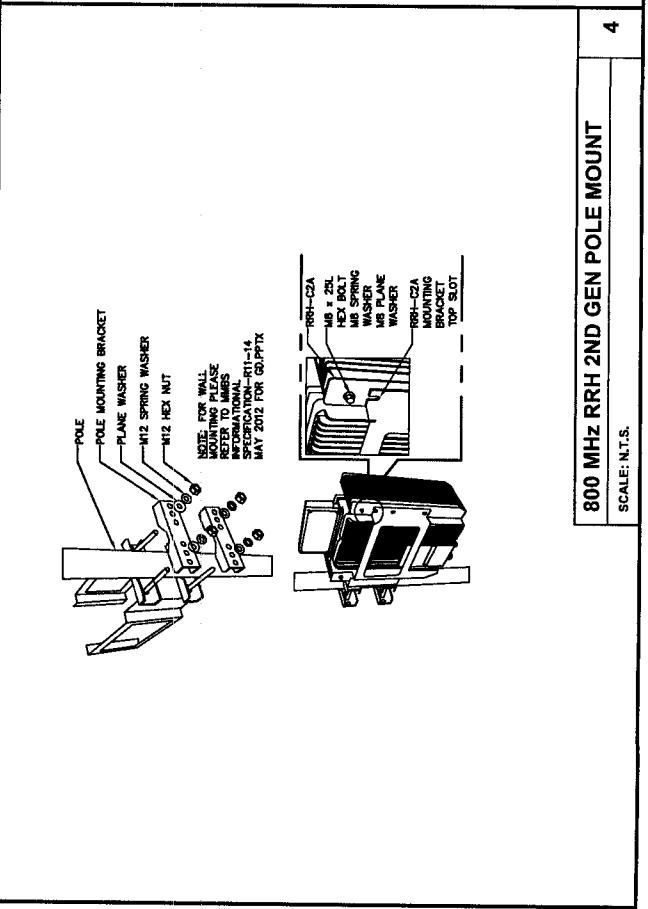
PROPOSED ANTENNA SPECIFICATIONS
 SCALE: N.T.S. **5**



800 MHz RRH-C2A
MECHANICAL SPECIFICATIONS
 SCALE: N.T.S. **2**



1900 MHz RRH-P4
MECHANICAL SPECIFICATIONS
 SCALE: N.T.S. **1**



800 MHz RRH 2ND GEN POLE MOUNT
 SCALE: N.T.S. **4**

REVISION	DESCRIPTION	DATE	BY	CHK
1	ISSUED FOR SPS FINAL	04/20/11	W.C.	W.C.
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3	ISSUED FOR SPS FINAL	07/01/11	W.C.	W.C.
4	ISSUED FOR SPS FINAL	07/01/11	W.C.	W.C.
5	ISSUED FOR SPS FINAL	07/01/11	W.C.	W.C.

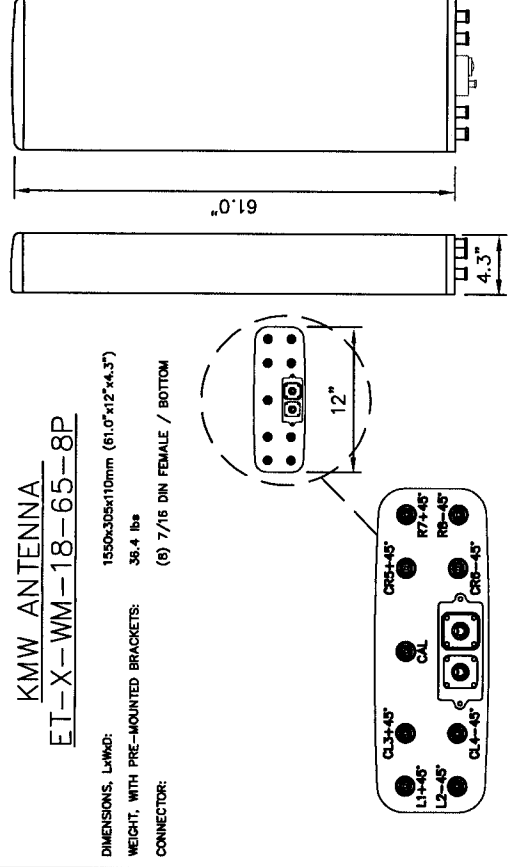
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USC 884403
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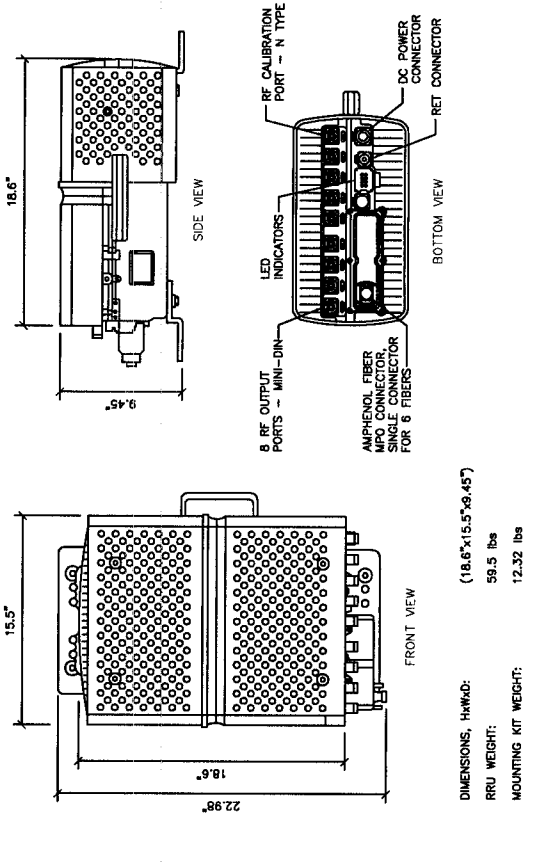
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1016 EAST DUPONT ROAD
FORT WAYNE, IN 46825

SHEET DESCRIPTION:
ANTENNA & HYBRID
CABLE DETAILS

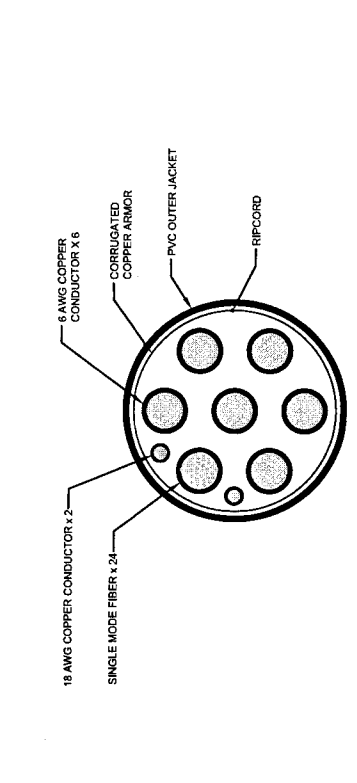
SHEET NUMBER:
A-6A



2.5 ANTENNA DETAIL
 SCALE: N.T.S.



2.5 RRU DETAIL
 SCALE: N.T.S.



HYBRID CABLE CROSS-SECTION & DATA
 SCALE: N.T.S.

Number, size (AWG)	6/6 AWG + 2/24 #18
Voltage	600
Outer Jacket	PVC
Shielding	Corrugated Copper
Max shield resistance (ohm/ft @ 20 c)	0.0035
Drain	rib
Ripcord	rip
Dc conductor material	Kevlar
Dc conductor size (awg)	Copper
Max Dc resistance (ohm/1000ft)	0.411 @ 20 deg C
Color Code	Black/red
Alarm Conductor Material	Copper
Alarm conductor size (awg)	18
Max Dc resistance (ohm/1000ft)	8.7
Color Code	TBD
Fiber Cables	SM
Outer Diameter (in) - Nominal	1.24
Weight (lb/ft)	1.05
Minimum Bend Radius (ft)	15
Stand Moment (lb-ft)	TBD
Tensile Strength (lb)	325
Crush Resistance, FOTP-41 (N/mm)	22
Strength Member	No
Operating Temperature Range (low)	-40 deg C
Operating Temperature Range (high)	+80 deg C
Fiber Type	Low Water Peak Single Mode Loose Tube
Fiber Standard Compliance	ITU-T Rec. G.652.D, G.657.A2 IEC 60793-2-50 Type B.1.3 & B.6 A4B
Fiber Coating Diameter (um)	242 +/- 0.007mm 0.9 +/- 0.005mm
Fiber Count	24
Number of fiber subunits	1
Fiber count each subunit	24
Fiber count jackets	FR Jacket
Max attenuation, 1310 nm (dB/km)	Less than equal 0.5
Max attenuation, 1550 nm (dB/km)	Less than equal 0.5

HYBRID CABLE CROSS-SECTION & DATA
 SCALE: N.T.S.

2. Auxiliary Hybrid Fiber Cable

Auxiliary Hybrid Fiber Cables are slightly different from NV HFCs. They will differ depending on cable manufacturer. Figure 1. Samsung's FTTA Solution - Auxiliary Hybrid Fiber Cable shows Samsung's FTTA solution for the Auxiliary Hybrid Fiber cable, and Table 1. Samsung's FTTA Solution - Auxiliary Hybrid Fiber Cable Specifications shows its general specifications.

Figure 1. Samsung's FTTA Solution - Auxiliary Hybrid Fiber Cable

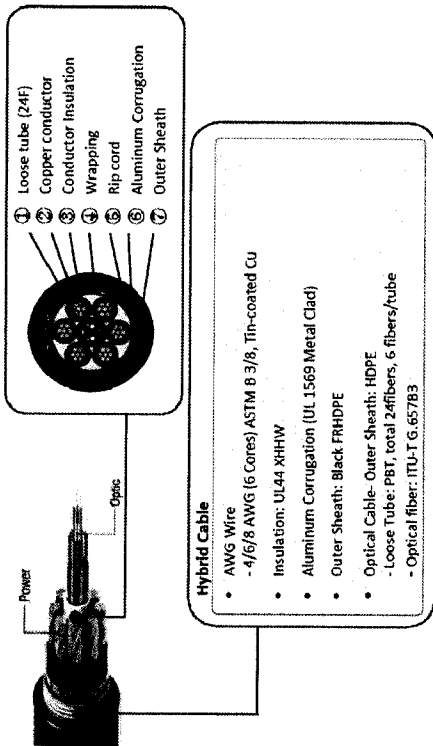


Table 1. Samsung's FTTA Solution - Auxiliary Hybrid Fiber Cable Specifications

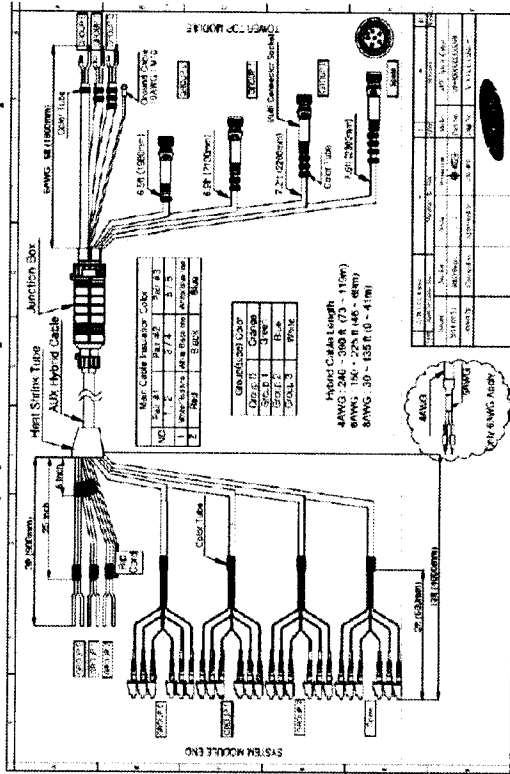
Distance Range	30 ft - 130 ft	130 ft - 225 ft	225 ft - 300 ft
Wire size/count	#6 / 3 pairs	#6 / 3 pairs	#4 / 3 pairs
Fiber count	24 fibers	24 fibers	24 fibers
Fiber breakout (Top)	4 sets of 6 fibers	4 sets of 6 fibers	4 sets of 6 fibers
Fiber breakout (Bottom)	4 sets of 6 fibers, LC connectors	4 sets of 6 fibers, LC connectors	4 sets of 6 fibers, LC connectors
Diameter	-1.13 inch	-1.2 inch	-1.4 inch
Weight per foot	-0.725 lb/ft (2.38 lb/m)	-0.97 lb/ft (3.17 lb/m)	-1.36 lb/ft (4.47 lb/m)
Bend radius	16.9 inches	18 inches	21 inches
Refinings	UL and UV	UL and UV	UL and UV
Outer Sheath (Thickness)	1.6 mm	1.6 mm	1.6 mm
Aluminum conduit (Thickness)	0.4 mm	0.4 mm	0.4 mm

AUXILIARY HYBRID FIBER CABLE & DATA

SCALE: N.T.S.

1

The overall description of Samsung Auxiliary Hybrid Fiber Cable is shown in Figure 2. Samsung Auxiliary Hybrid Fiber Optic Cable - Overall Description. Figure 2. Samsung Auxiliary Hybrid Fiber Optic Cable - Overall Description

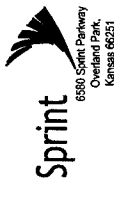


AUXILIARY HYBRID FIBER OPTIC CABLE DETAIL

SCALE: N.T.S.

2

PLANS PREPARED FOR:



PLANS PREPARED BY:

FIRST GROUP ENGINEERING
 5925 LAKESIDE BLVD.
 INDIANAPOLIS, IN 46278

DESK:

MLA PARTNER:



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ISSUED FOR S&S FINAL		07/24/14	MM	3

SITE NAME:
 USC 884403
 FORT WAYNE

SITE ADDRESS:
 884384 - CH451XC384

SHEET ADDRESS:
 1016 EAST DUPONT ROAD
 FORT WAYNE, IN 46825

SHEET DESCRIPTION:
 AUXILIARY HYBRID
 CABLE DETAILS

SHEET NUMBER:
 A-6B

REVISIONS:	DESCRIPTION	DATE	BY	REV
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ISSUED FOR S&S FINAL		07/21/11	_____	1
ISSUED FOR S&S FINAL		07/21/11	_____	2
ADDED DOOR & SHEETS		07/20/11	_____	3

SITE NAME:

USC 884403
FORT WAYNE

SITE CALLSIGN:

884-384 - CH51XC-384

SITE ADDRESS:

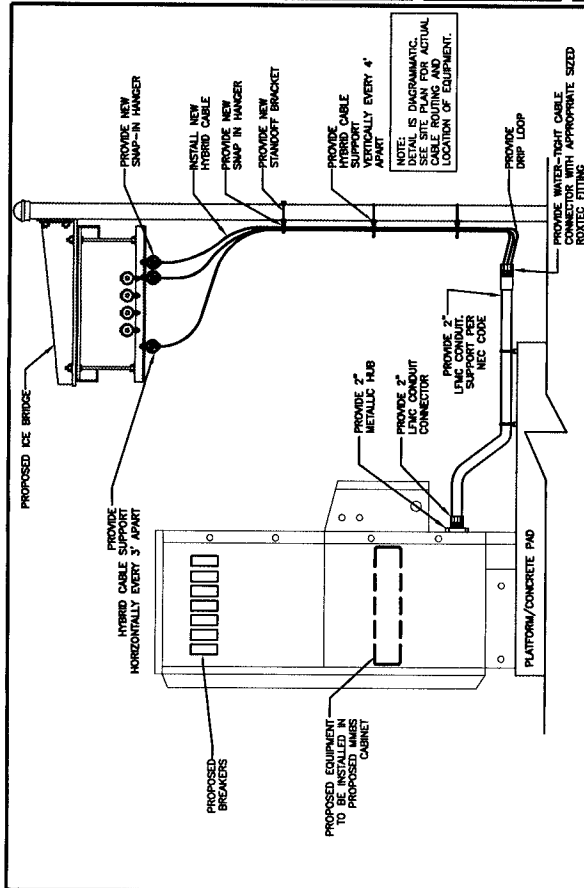
1016 EAST DUPONT ROAD
FORT WAYNE, IN 46825

SHEET DESCRIPTION:

BREAKOUT & EQUIPMENT DETAILS

SHEET NUMBER:

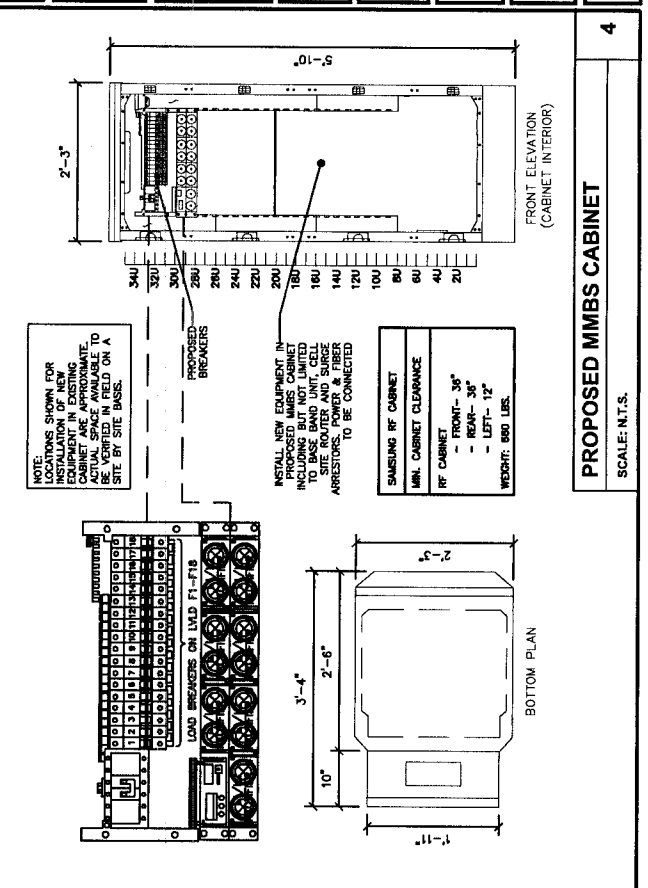
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PROPOSED CABLE ROUTE FROM CABINET

SCALE: N.T.S.

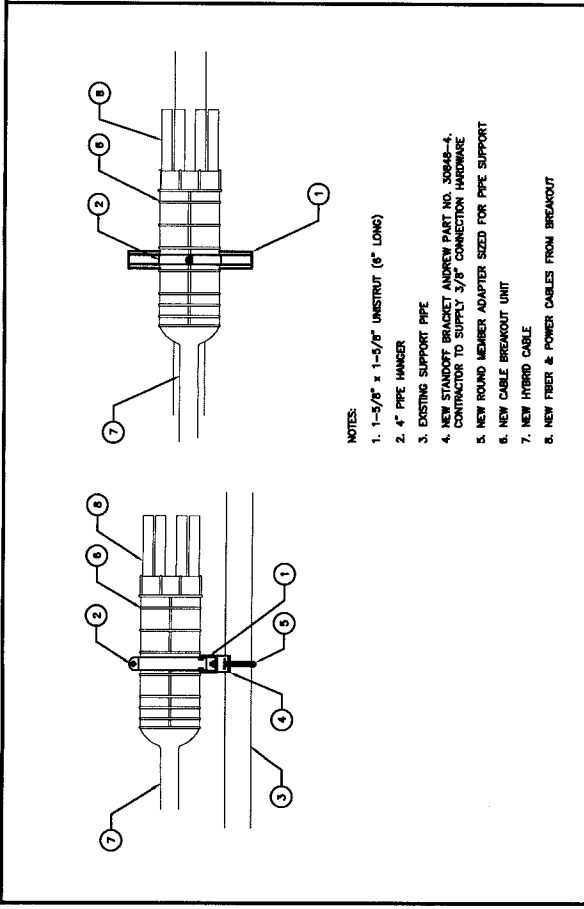
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PROPOSED MMBs CABINET

SCALE: N.T.S.

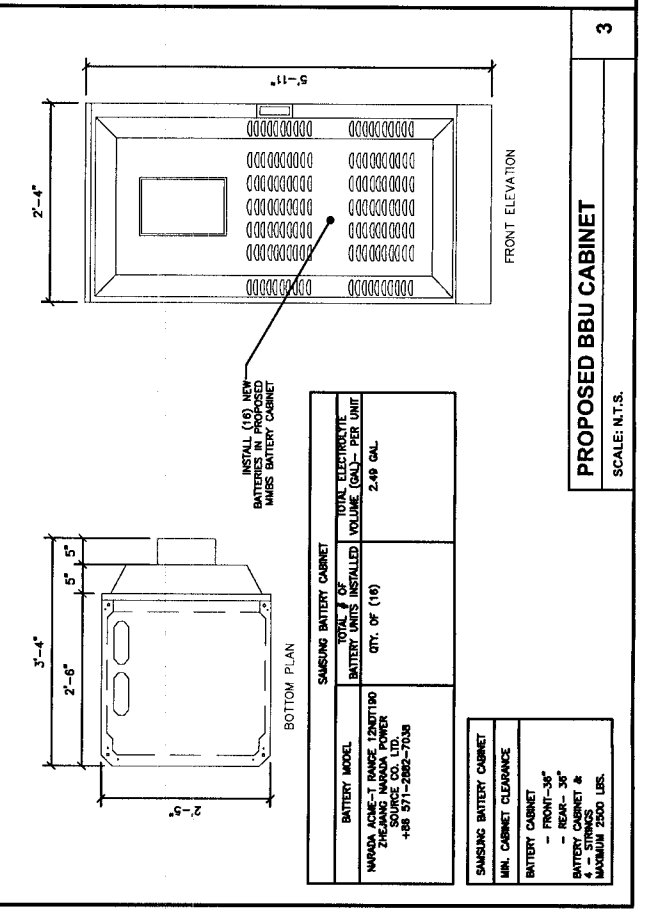
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HYBRID BREAKOUT DETAIL

SCALE: N.T.S.

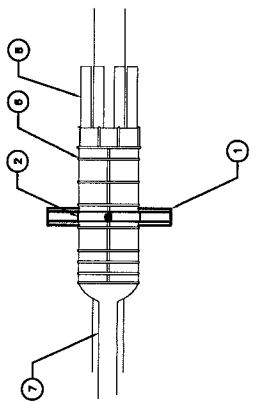
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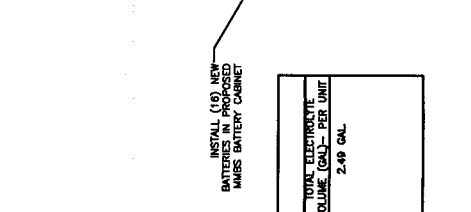
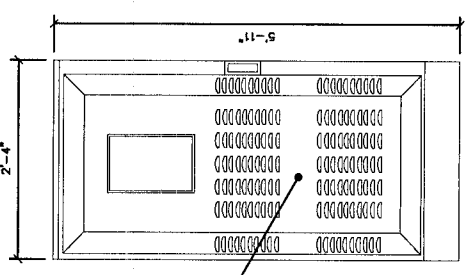
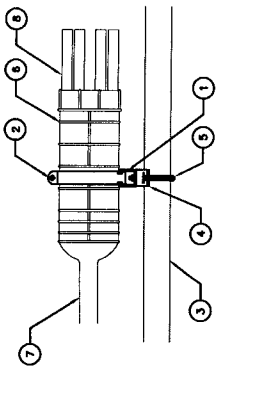
PROPOSED BBU CABINET

SCALE: N.T.S.

3

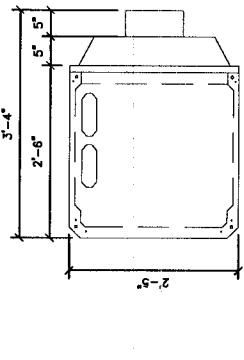


- NOTES:
- 1-5/8" x 1-5/8" UNISTRUT (6" LONG)
 - 4" PIPE HANGER
 - EXISTING SUPPORT PIPE
 - NEW STANDOFF BRACKET ANDREW PART NO. 30848-4. CONTRACTOR TO SUPPLY 3/8" CONNECTION HARDWARE
 - NEW ROUND NUTTER ADAPTER SIZED FOR PIPE SUPPORT
 - NEW HYBRID CABLE
 - NEW FIBER & POWER CABLES FROM BREAKOUT



BATTERY MODEL	TOTAL # OF BATTERY UNITS INSTALLED	TOTAL ELECTROLYTE VOLUME (GAL.) - PER UNIT
WYDADA ICH-7 RANGE 12V/110 ZHEJIANG WANDA POWER SOURCE CO. LTD. +86 571-2862-7038	QTY: 06 (16)	2.49 GAL.

SAMSUNG BATTERY CABINET
MIN. CABINET CLEARANCE
BATTERY CABINET
- FRONT- 36"
- REAR- 36"
- LEFT- 12"
- RIGHT- 12"
MAXIMUM 2500 LBS.



INSTALL (16) NEW BATTERIES IN PROPOSED MMBs BATTERY CABINET

SAMSUNG BATTERY CABINET
MIN. CABINET CLEARANCE
BATTERY CABINET
- FRONT- 36"
- REAR- 36"
- LEFT- 12"
- RIGHT- 12"
MAXIMUM 2500 LBS.

2.3.1 Power Supply

The following shows the configuration of the A-type single cabinet's power supply.

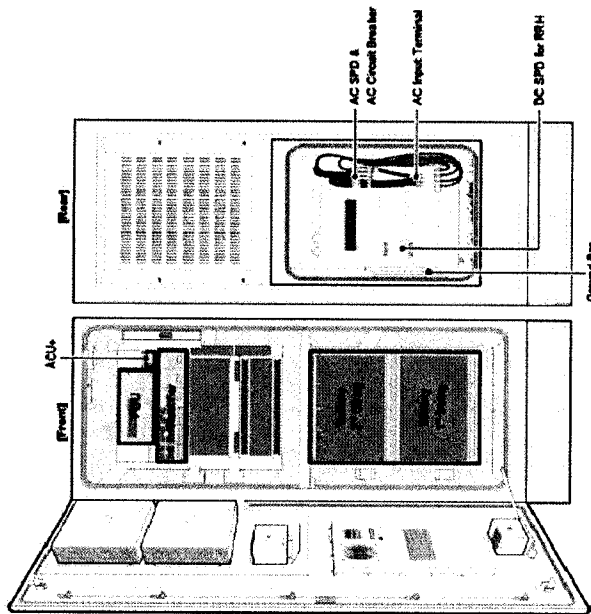


Figure 23. Power Supply Configuration of A-Type Single Cabinet

Item	Description
PDU	Power Distribution Unit Divides the DC power from the rectifier to provide a supply to the UADU, RRH and additional devices.
ACU+	Advanced Controller Unit Plus Controls the rectifier and collects alarms reported by the IO monitor.

Power Input

The following are the power specifications for the Smart MDS.

Specification	Value
DU Input Voltage	-48 VDC (Voltage Variation Range: -40~-56 VDC)
RRH-BS Input Voltage	-48 VDC (Voltage Variation Range: -36~-56 VDC)
a. UADU and RRH-BS are supplied with -48 VDC power from DU cabinet's rectifier.	
b. Voltage variation range is based on instantaneous input power.	

FRONT & REAR CABINET DETAILS

SCALE: N.T.S.

1

2.3 A-Type Single Cabinet

A UADU can be installed on A-type single cabinet to support outdoor environment as shown below.

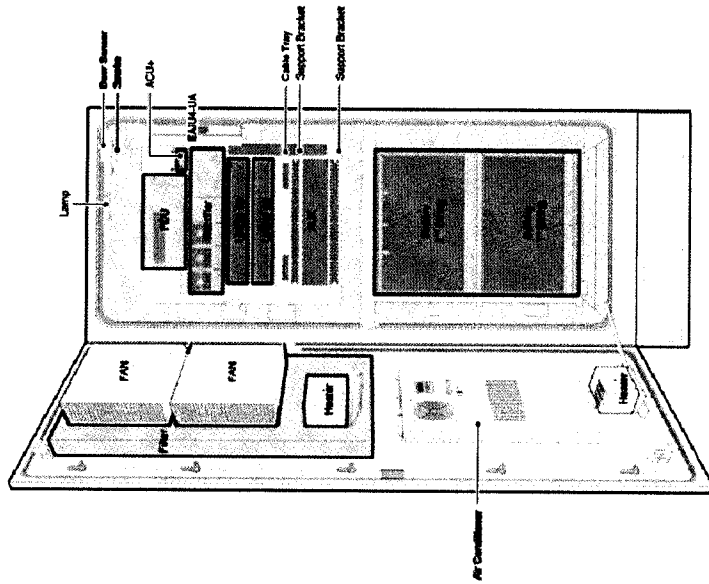


Figure 21. A-type Single Cabinet Configuration (Front)

Cabinet Dimension and Weight

The following are the dimensions and weight of the Smart MDS.

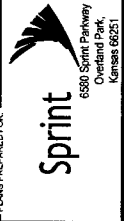
Size	UADU	RRH-BS	RRH-BS (with fan guard and MFC box)	UADU	RRH-BS	Outdoor Cabinet
UADU (W x D x H)	11.78" x 15.18" x 3.46" (W x D x H)	13.78" x 6.75" x 17.72" (W x D x H)	15.00" x 6.65" x 21.25" (W x D x H)	11.78" x 15.18" x 3.46" (W x D x H)	13.78" x 6.75" x 17.72" (W x D x H)	13.78" x 6.75" x 17.72" (W x D x H)
Weight	27.58 lb (12.5 kg)	79.00 lb (35.8 kg)	86.3 lb (39.1 kg)	27.58 lb (12.5 kg)	79.00 lb (35.8 kg)	86.3 lb (39.1 kg)

SINGLE CABINET DETAILS

SCALE: N.T.S.

2

PLANS PREPARED FOR:



PLANS PREPARED BY:

FIRST GROUP ENGINEERING
5925 LAKESIDE BLYD.
INDIANAPOLIS, IN 46278

DEAL:

MLA PARTNER:

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ISSUED FOR S&S FINAL		07/29/14	ML	2
ADDED DOORS SHEETS		07/29/14	ML	3

SITE NAME:

USC 884403
FORT WAYNE

SITE ADDRESS:

884-384 - CH51XC384

SHEET NUMBER:

1016 EAST DUPONT ROAD
FORT WAYNE, IN 46825

SHEET DESCRIPTION:

FRONT CABINET
DETAILS

SHEET NUMBER:

A-7A

REVISION:	DESCRIPTION	DATE	BY	REV
ISSUED FOR BIDS FINAL		06/20/14	AML	0
ISSUED FOR BIDS FINAL		06/27/14	AML	1
ISSUED FOR BIDS FINAL		07/01/14	AML	2
ADDED DOOR & SHEETS		02/09/15	AML	3

SITE NAME:
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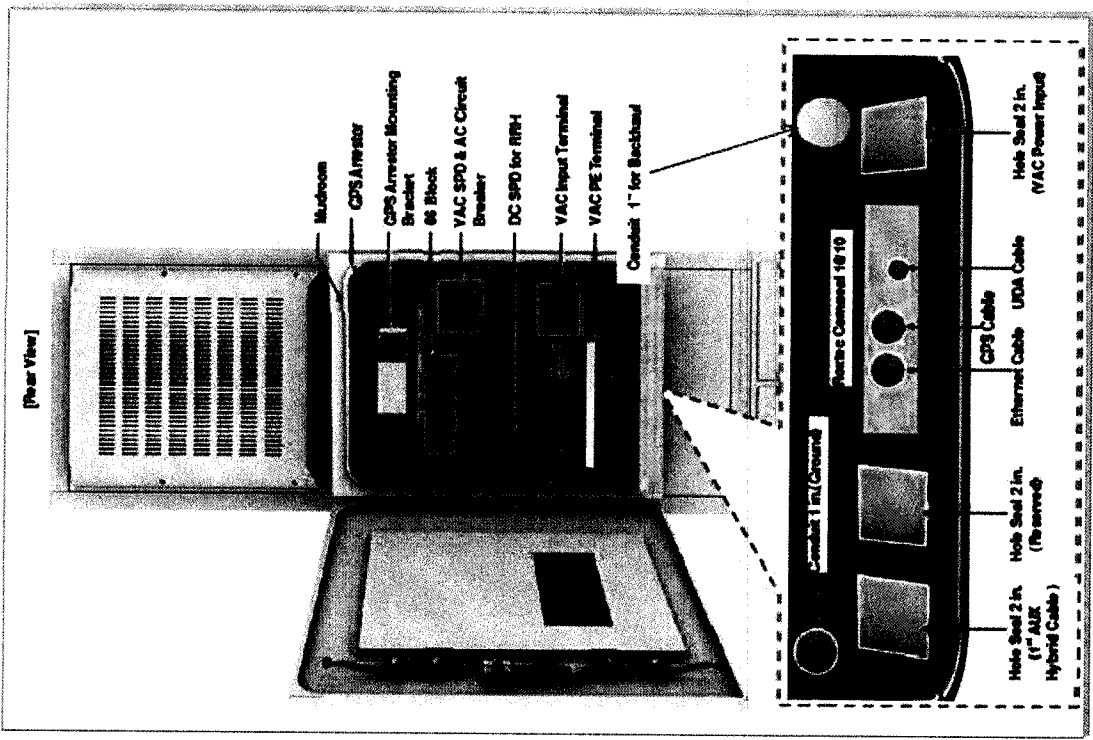
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 884384 - CH51XC384

SHEET DESCRIPTION:
 1016 EAST DUPONT ROAD
 FORT WAYNE, IN 46825

REAR CABINET
 DETAILS

SHEET NUMBER:
A-7B

A-Type Single Cabinet



SINGLE CABINET DETAILS

SCALE: N.T.S.

101 Smart MBS (with A-Type Single Cabinet) System Description Version 1.0

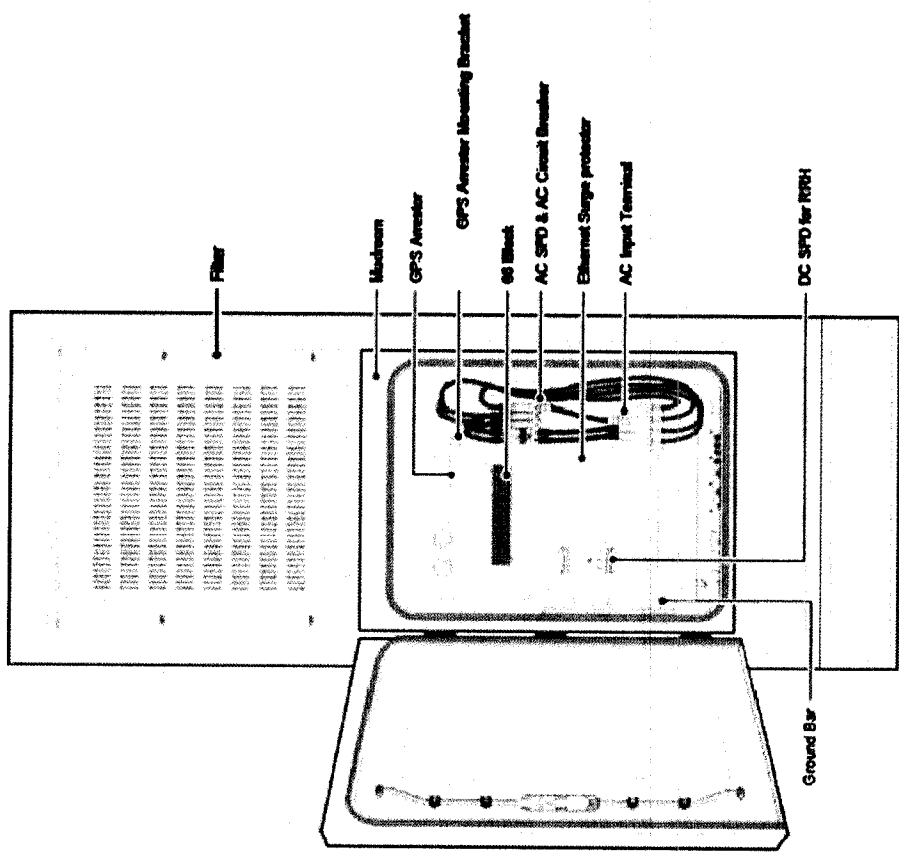


Figure 22. A-Type Single Cabinet Configuration (Rear)

REAR CABINET DETAILS

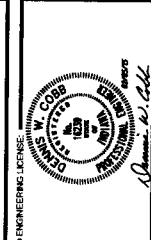
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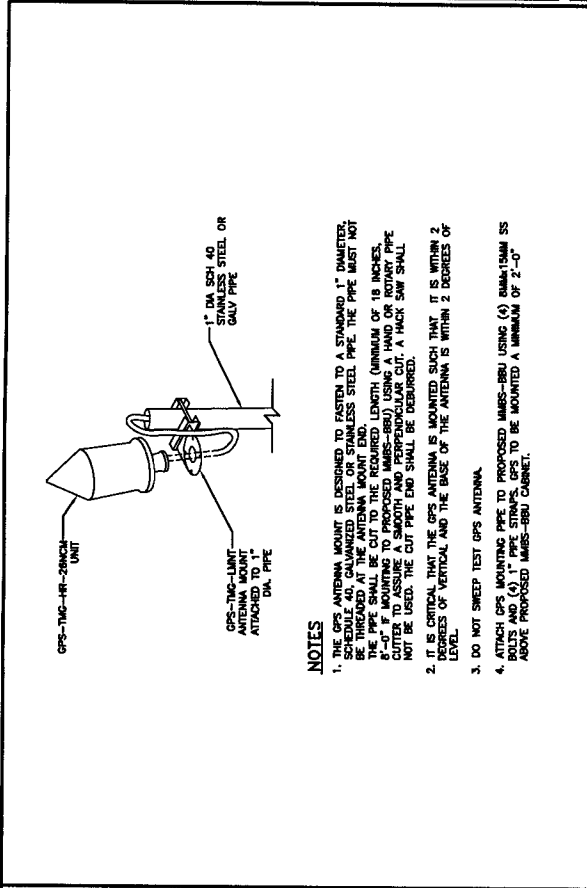
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FORT WAYNE

SITE ADDRESS:
884384 - CH51XC384

SITE ADDRESS:
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FORT WAYNE, IN 46825

SHEET DESCRIPTION:
EQUIPMENT DETAILS

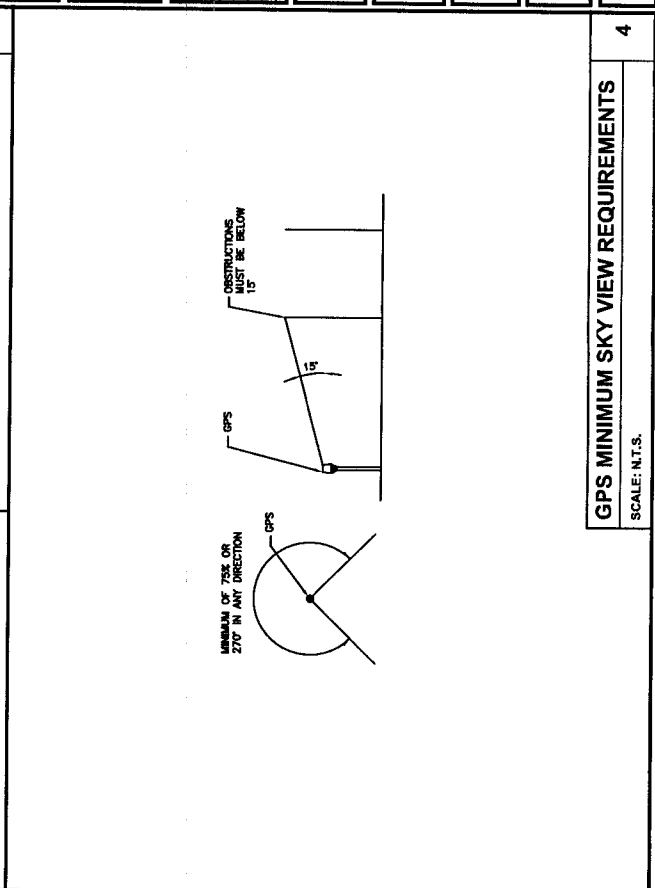
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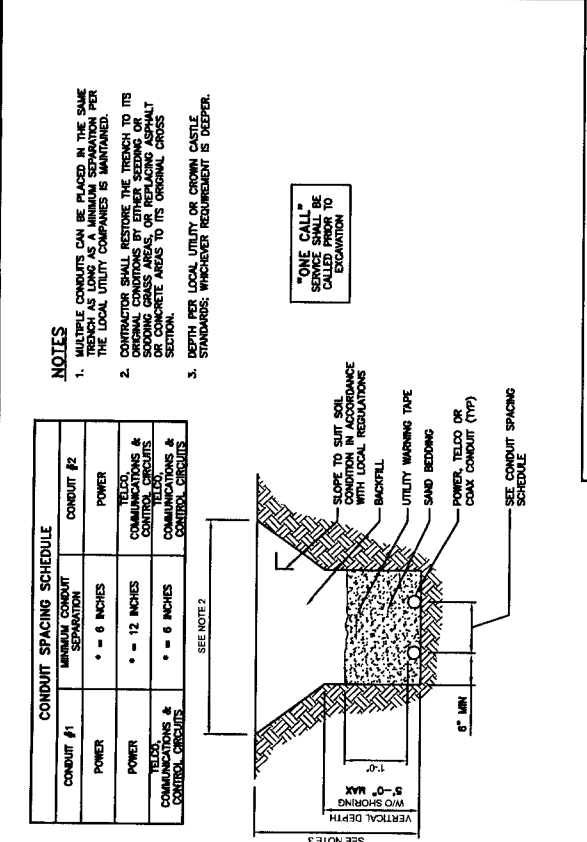
NOTES

1. THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A STANDARD 1" DIAMETER SCHEDULE 40, GALVANIZED STEEL OR STAINLESS STEEL PIPE. THE PIPE MUST NOT BE THREADED AT THE ANTENNA MOUNT END. THE ANTENNA MOUNT SHALL BE ATTACHED TO THE UNTHREADED END. THE UNTHREADED LENGTH (MINIMUM OF 18 INCHES, MAXIMUM OF 24 INCHES) SHALL BE 8'-0" IF MOUNTING TO PROPOSED MARS-88U USING A HACK SAW. THE PIPE CUTTER TO ASSURE A SMOOTH AND PERPENDICULAR CUT. A HACK SAW SHALL NOT BE USED. THE CUT PIPE END SHALL BE DEBURRED.
2. IT IS CRITICAL THAT THE GPS ANTENNA IS MOUNTED SUCH THAT IT IS WITHIN 2 DEGREES OF VERTICAL AND THE BASE OF THE ANTENNA IS WITHIN 2 DEGREES OF LEVEL.
3. DO NOT SWEEP TEST GPS ANTENNA.
4. ATTACH GPS MOUNTING PIPE TO PROPOSED MARS-88U USING (4) 8MMx15MM SS BOLTS AND (4) 1" PIPE STRAPS. GPS TO BE MOUNTED A MINIMUM OF 2'-0" ABOVE PROPOSED MARS-88U CABINET.

GPS UNIT PIPE MOUNT
 SCALE: N.T.S.



GPS MINIMUM SKY VIEW REQUIREMENTS
 SCALE: N.T.S.

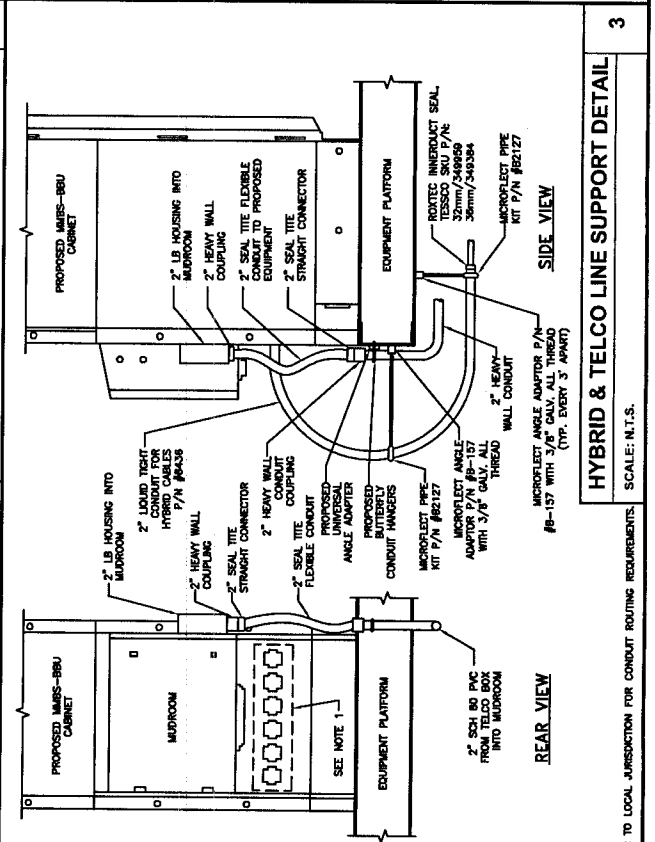


NOTES

1. MULTIPLE CONDUITS CAN BE PLACED IN THE SAME TRENCH AS LONG AS A MINIMUM SEPARATION PER THE LOCAL UTILITY COMPANIES IS MAINTAINED.
2. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITION AND FINISH WITH A MINIMUM OF 2" OF SANDING GRASS AREAS, OR REPAIR WITH ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
3. DEPTH PER LOCAL UTILITY OR CROWN CASTLE STANDARDS; WHICHEVER REQUIREMENT IS DEEPER.

CONDUIT #1	MINIMUM CONDUIT SEPARATION	CONDUIT #2
POWER	• = 6 INCHES	POWER
POWER	• = 12 INCHES	TELCO, COMMUNICATIONS & CONTROL CIRCUITS
TELCO, COMMUNICATIONS & CONTROL CIRCUITS	• = 6 INCHES	POWER, TELCO, COMMUNICATIONS & CONTROL CIRCUITS

TYPICAL UTILITY TRENCH DETAIL
 SCALE: N.T.S.



HYBRID & TELCO LINE SUPPORT DETAIL
 SCALE: N.T.S.

NOTE
 1. REFER TO LOCAL JURISDICTION FOR CONDUIT ROUTING REQUIREMENTS.

PLANS PREPARED FOR:



PLANS PREPARED BY:

FIRST GROUP ENGINEERING
5925 LAKESIDE BLVD.
INDIANAPOLIS, IN 46278

DATE:

SCALE:

ENGINEERING LICENSE:



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REVISIONS:	DESCRIPTION	DATE	BY	REV
ISSUED FOR S&S FINAL		05/29/14	AMN	0
ISSUED FOR S&S FINAL		05/27/14	AMN	1
ISSUED FOR S&S FINAL		07/16/14	AMN	2
ADDED DASH & SHEETS		02/02/15	AMN	3

SITE NAME:

USC 884403
FORT WAYNE

SITE CASCADE:

884384 - CH51XC384

SITE ADDRESS:

1016 EAST DUPONT ROAD
FORT WAYNE, IN 46825

SHEET DESCRIPTION:

ANTENNA & CABLE
COLOR CODING DETAILS

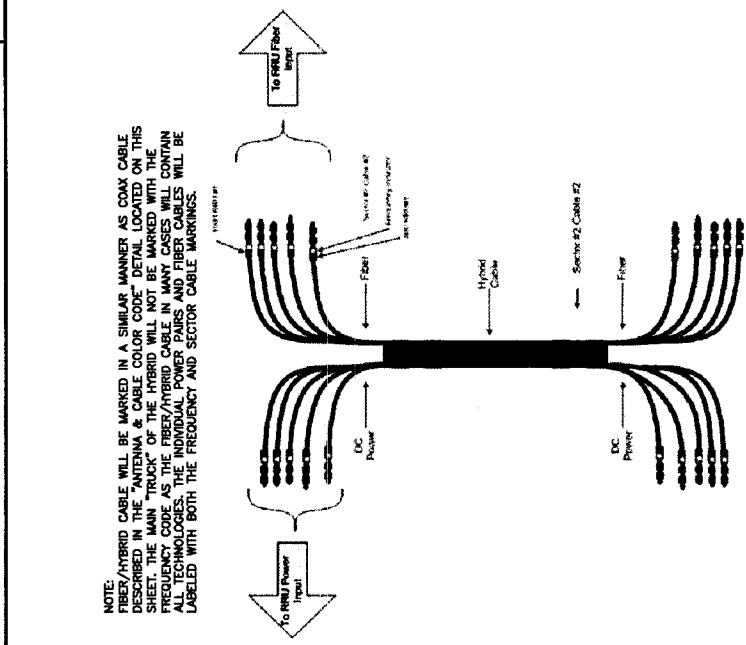
SHEET NUMBER:

RF-1

2500MHz #1 Cbl Cable - Sector	Cable	First Ring	Second Ring	Third Ring	Fourth Ring	Fifth Ring	Sixth Ring
1 Alpha	1	Yellow	Yellow	Yellow	White	White	White
2 Beta	2	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
3 Gamma	3	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow

2500MHz #2 Cbl Cable - Sector	Cable	First Ring	Second Ring	Third Ring	Fourth Ring	Fifth Ring	Sixth Ring
1 Alpha	1	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
2 Beta	2	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
3 Gamma	3	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow

2500MHz RADIO CALIBRATION CABLE COLOR CODE 4



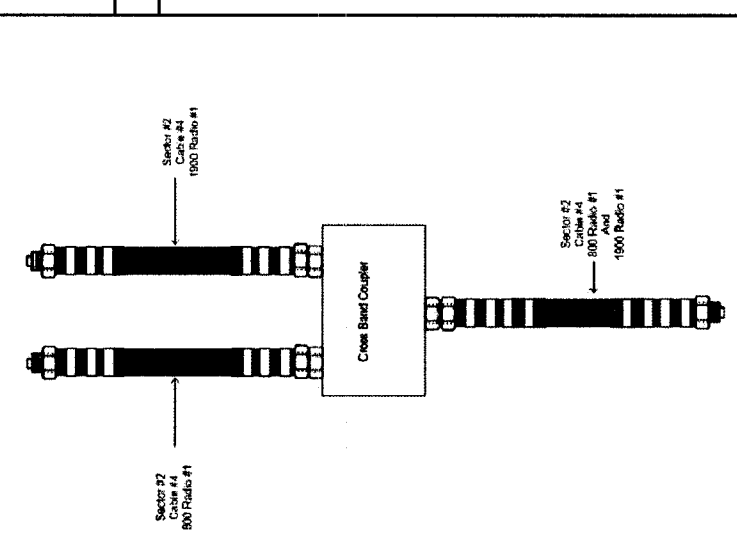
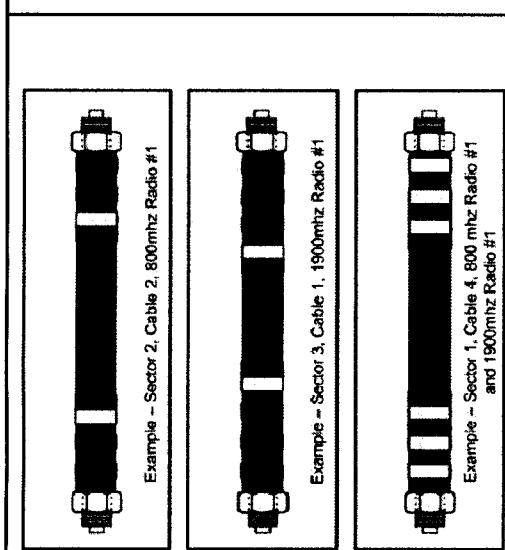
HYBRID CABLE COLOR CODE 5

Sector	Cable	First Ring	Second Ring	Third Ring
1 Alpha	1	No Tape	No Tape	No Tape
1	2	No Tape	No Tape	No Tape
1	3	No Tape	No Tape	No Tape
1	4	White	No Tape	No Tape
1	5	No Tape	No Tape	No Tape
1	6	No Tape	No Tape	No Tape
1	7	No Tape	No Tape	No Tape
1	8	No Tape	No Tape	No Tape
2 Beta	1	No Tape	No Tape	No Tape
2	2	No Tape	No Tape	No Tape
2	3	No Tape	No Tape	No Tape
2	4	White	No Tape	No Tape
2	5	No Tape	No Tape	No Tape
2	6	No Tape	No Tape	No Tape
2	7	No Tape	No Tape	No Tape
2	8	No Tape	No Tape	No Tape
3 Gamma	1	No Tape	No Tape	No Tape
3	2	No Tape	No Tape	No Tape
3	3	No Tape	No Tape	No Tape
3	4	White	No Tape	No Tape
3	5	No Tape	No Tape	No Tape
3	6	No Tape	No Tape	No Tape
3	7	No Tape	No Tape	No Tape
3	8	No Tape	No Tape	No Tape

COAXIAL CABLE COLOR CODE 2

Frequency/Radio	Indicator	ID
800 #1	Yellow	
1900 #1	Yellow	
1900 #2	Yellow	
1900 #3	Yellow	Blue
1900 #4	Yellow	Grey
800 #2	Yellow	
2500 #1	Yellow	White
2500 #2	Yellow	

FREQUENCY COLOR CODE 3



ANTENNA & CABLE COLOR CODE 1

REVISIONS:	DESCRIPTION	DATE	BY	REV
ISSUED FOR S/S FINAL		09/29/14	AME	0
ISSUED FOR S/S FINAL		09/27/14	AME	1
ISSUED FOR S/S FINAL		07/18/14	AME	2
ADDED DOOR & SHEETS		07/06/14	AME	3

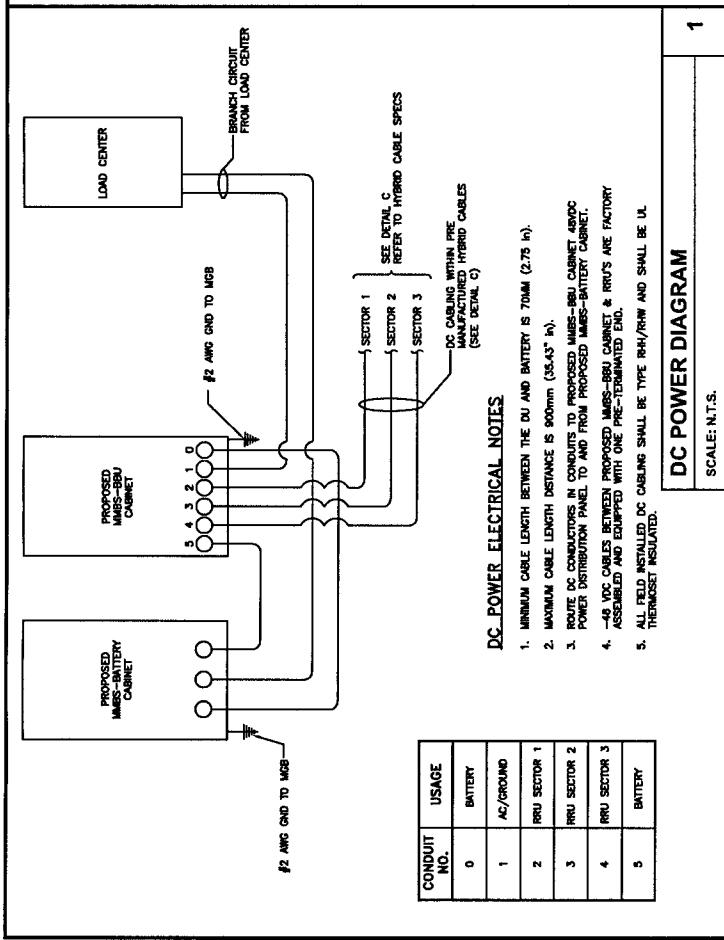
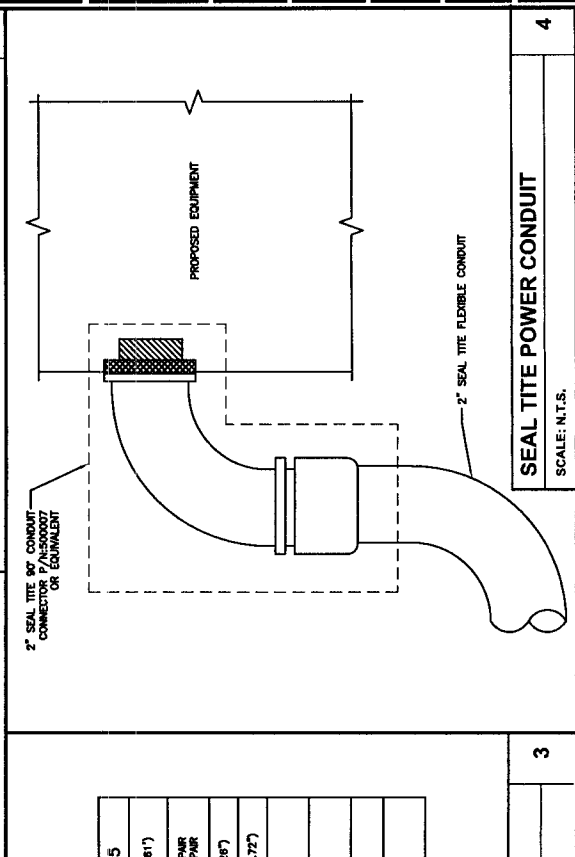
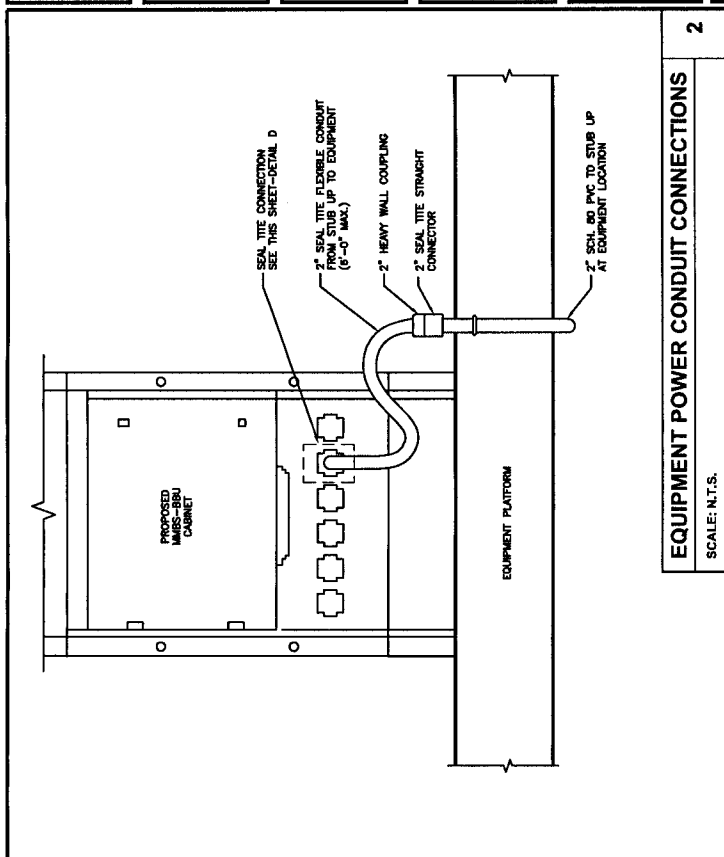
SITE NAME:
**USC 884403
FORT WAYNE**

SITE CASKAGE:
884384 - CH51XC384

SITE ADDRESS:
**1016 EAST DUPONT ROAD
FORT WAYNE, IN 46825**

SHEET DESCRIPTION:
**DC POWER ONE-LINE
& DETAILS**

SHEET NUMBER:
E-3



HYBRID CABLE TYPE	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5
TOTAL LENGTH	~ 40m (~132')	~ 60m (~197')	~ 75m (~246')	~ 90m (~295')	~ 110m (~361')
HYBRID POWER CABLE CONFIGURATION	AWG 10, 1 PAIR AWG 12, 3 PAIR	AWG 8, 1 PAIR AWG 10, 3 PAIR	AWG 6, 1 PAIR AWG 10, 2 PAIR	AWG 6, 1 PAIR AWG 8, 3 PAIR	AWG 4, 1 PAIR AWG 6, 3 PAIR
CABLE DIAMETER	25mm (0.98")	27mm (1.06")	30mm (1.18")	30/50mm (1.20")	32mm (1.26")
BENDING RADIUS	300mm (11.81")	330mm (12.99")	360mm (14.17")	450mm (17.72")	450mm (17.72")
OPTIC CABLE	LC/PC-TD-LC/PC, SINGLE MODE				
MMS-BBU CABINET (POWER CABLE TERMINAL MAX. SIZE AWG 4)	2 PAIR POWER AND OPTIC CABLE WITH PE PIPE				
RRU POWER CABLE SPEC	AWG 8, 15.7mm (0.62") AWG 10, 12.2mm (0.48")				
NON USE POWER AND OPTIC CABLE PROTECTION	2 PAIR POWER AND OPTIC CABLE WITH PE PIPE				
	2 PAIR POWER AND OPTIC CABLE WITH PE PIPE				

PLANS PREPARED FOR:



PLANS PREPARED BY:

FIRST GROUP ENGINEERING
5925 LAKESIDE BLVD.
INDIANAPOLIS, IN 46278

DATE:

SCALE:

ENGINEERING LICENSE:



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ISSUED FOR S/S FINAL		06/27/11	AVL	1
ISSUED FOR S/S FINAL		07/18/11	AVL	2
ADDED DOOR & SHEETS		02/05/11	AVL	3

SITE NAME:

USC 884403
FORT WAYNE

SITE ADDRESS:

884384 - CH51XC384

SHEET DESCRIPTION:

1016 EAST DUPONT ROAD
FORT WAYNE, IN 46825

SHEET NUMBER:

OVERALL FIBER PLAN

SHEET NUMBER:

F-1

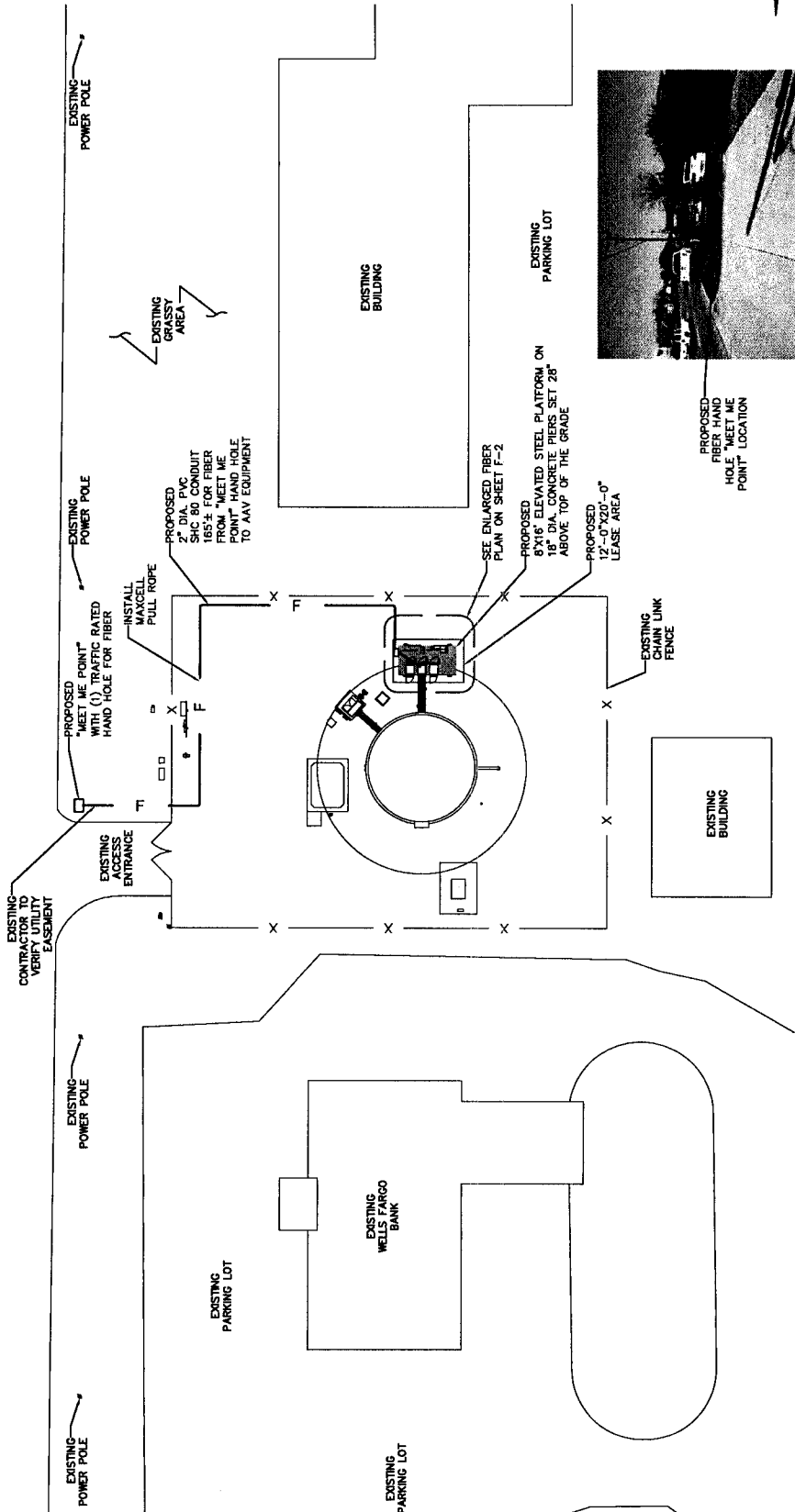
NOTES

- PROPERTY LINES SHOWN ARE APPROXIMATE AND DONE WITHOUT THE BENEFIT OF A SITE SURVEY.
- CONDUIT ROUTING IS DIAGRAMMATICALLY SHOWN ON PLANS AND ARE ONLY APPROXIMATIONS. THE EXACT LOCATION AND ROUTING SHALL BE FIELD VERIFIED.
- UTILITY AND ACCESS EASEMENTS SHOWN ARE APPROXIMATE LOCATION. CONTRACTOR TO VERIFY EXACT LOCATION.
- DIRECTIONAL BORING OR HAND TRENCH ONLY.

LENGTH OF FIBER RUN "MEET-ME POINT" TO AAV	DISTANCE
	165' ±

EAST DUPONT ROAD

EAST DUPONT ROAD



"MEET ME POINT"

NOTE: TO UTILIZE EXISTING US CELLULAR ACCESS AND UTILITY EASEMENTS, SEE ATTACHED SURVEY FOR LOCATIONS AND LEGAL DESCRIPTIONS.

OVERALL FIBER PLAN

SCALE: 1/32" = 1'-0" (1/16" = 1'-0" ON 22"x34" SHEET)

1

PLANS PREPARED FOR:



PLANS PREPARED BY:

FIRST GROUP ENGINEERING
5925 LAKESIDE BLVD.
INDIANAPOLIS, IN 46278

PROJECT:

CLIENT PARTNER:

ENGINEERING LICENSE:



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ISSUED FOR S&S FINAL		05/27/14	AMEL	1
ISSUED FOR S&S FINAL		07/04/14	AMEL	2
ADDED DRAIN & SPOUT		07/09/14	AMEL	3

SITE NAME:
**USC 884403
FORT WAYNE**

SITE CASKAGE:
884384 - CH51XC384

SITE ADDRESS:
**1016 EAST DUPONT ROAD
FORT WAYNE, IN 46825**

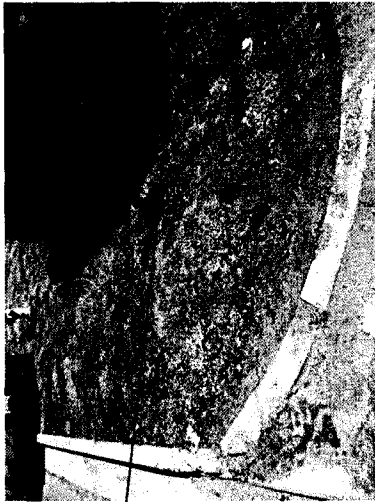
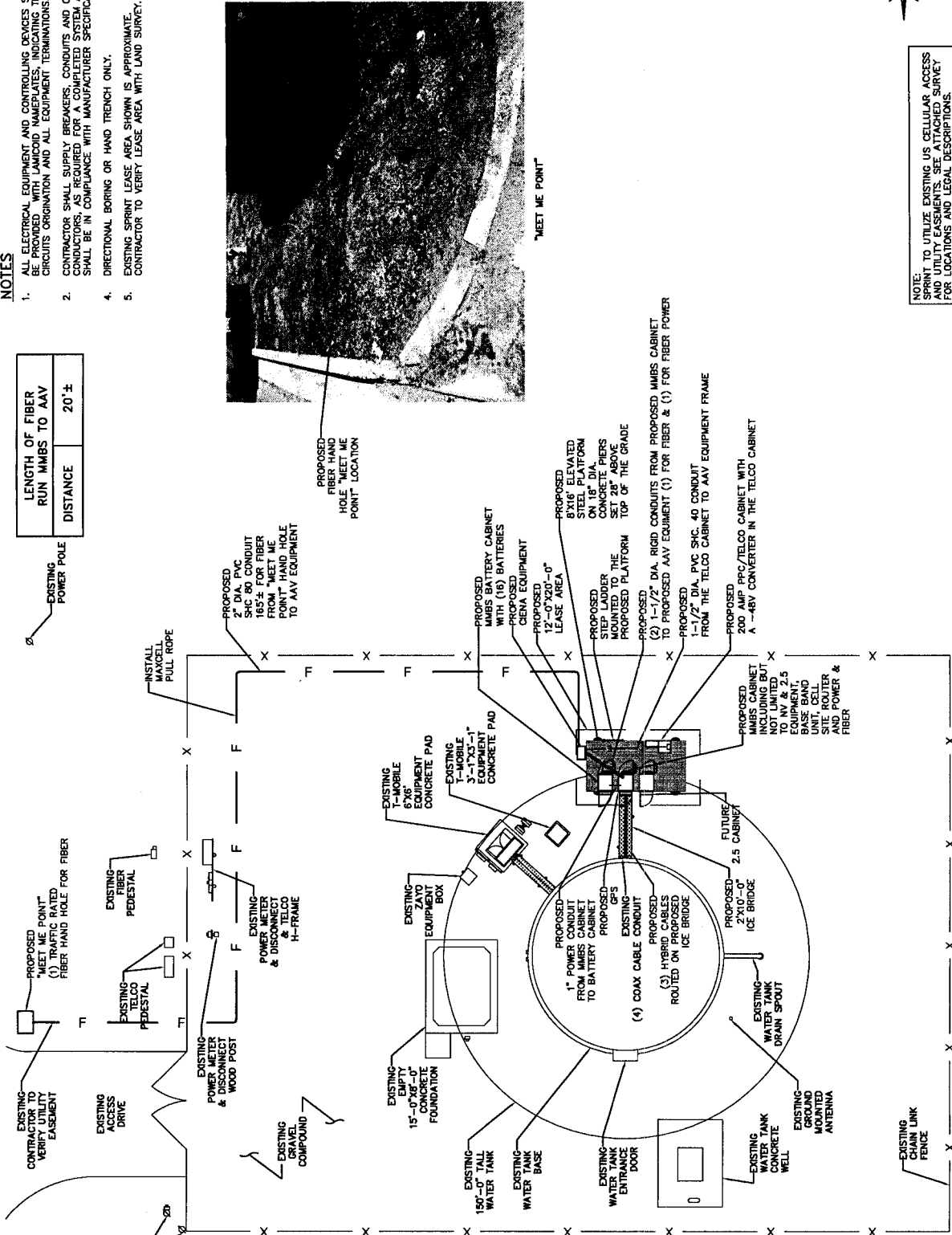
SHEET DESCRIPTION:
**ENLARGED FIBER
PLAN**

SHEET NUMBER:
F-2

NOTES

- ALL ELECTRICAL EQUIPMENT AND CONTROLLING DEVICES SHALL BE PROVIDED WITH LANDSIDE CONNECTIONS INCLUDING THE CIRCUITS ORIGINATION AND ALL EQUIPMENT TERMINATIONS.
- CONTRACTOR SHALL SUPPLY BREAKERS, CONDUITS AND CIRCUIT CONDUCTORS, AS REQUIRED FOR A COMPLETED SYSTEM AND SHALL BE IN COMPLIANCE WITH MANUFACTURER SPECIFICATIONS.
- DIRECTIONAL BORING OR HAND TRENCH ONLY.
- EXISTING SPRINT LEASE AREA SHOWN IS APPROXIMATE. CONTRACTOR TO VERIFY LEASE AREA WITH LAND SURVEY.

LENGTH OF FIBER RUN MMBS TO AAV	DISTANCE	20' ±



NOTE: TO UTILIZE EXISTING US CELLULAR ACCESS AND UTILITY EASEMENTS, SEE ATTACHED SURVEY FOR LOCATIONS AND LEGAL DESCRIPTIONS.

ENLARGED FIBER PLAN

SCALE: 1/16" = 1'-0" (1/8"=1'-0" ON 22"x34" SHEET)

PLANS PREPARED FOR: **Sprint**
 880 Sprint Parkway
 Overland Park, KS 66207

PLANS PREPARED BY: **FIRST GROUP ENGINEERING**
 5975 LAKESIDE BLVD.
 INDIANAPOLIS, IN 46278

ENGINEERING LICENSE: **W. COBE**
 STATE OF INDIANA
 PROFESSIONAL ENGINEER
 No. 12345

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REVISIONS:

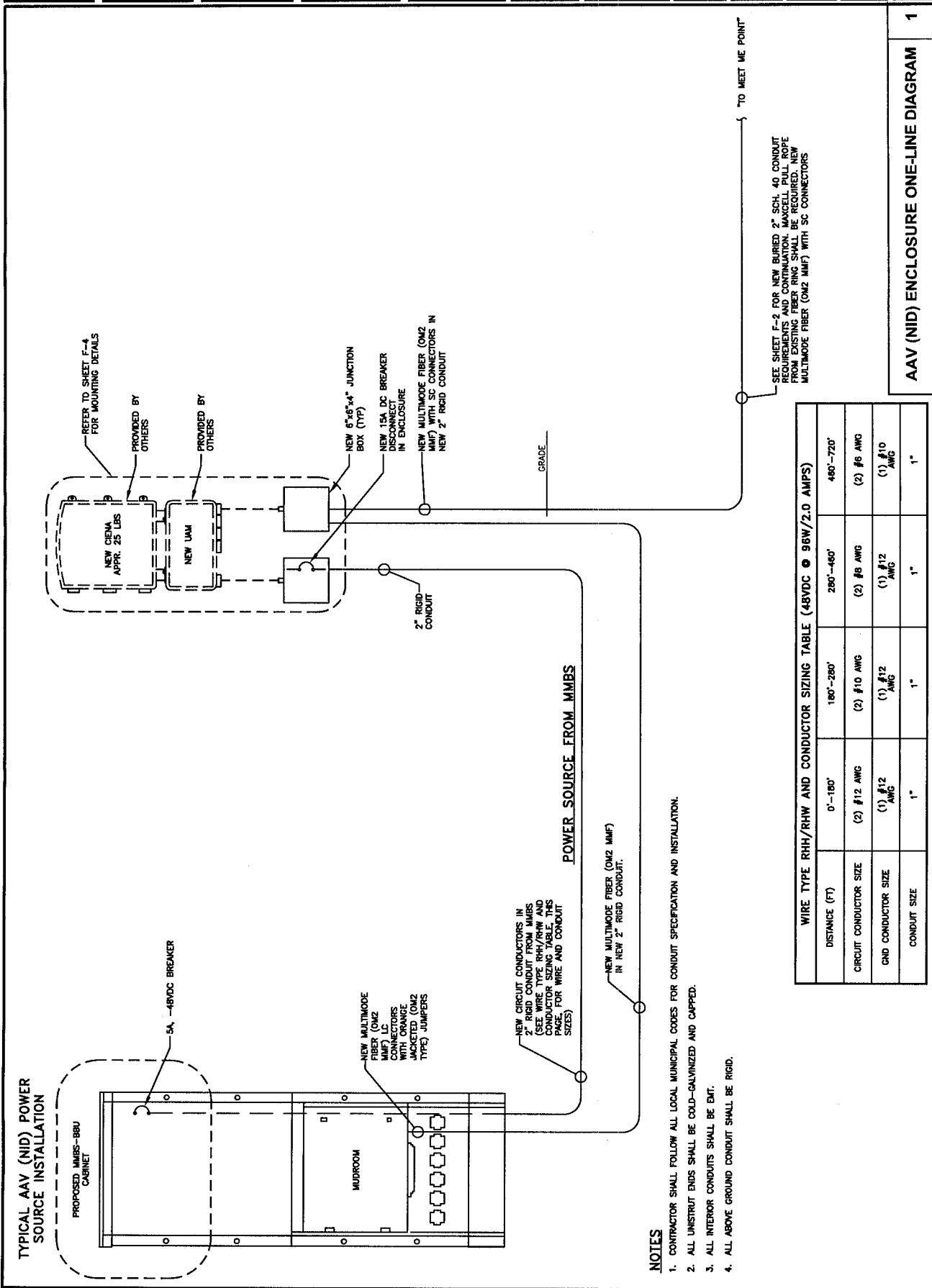
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3	ISSUED FOR S/S FINAL	07/09/14	DL	2
4	ADDED DIMS & SHEETS	02/09/14	DL	3

SITE NAME: **USC 884403 FORT WAYNE**

SITE ADDRESS: **1018 EAST DUPONT ROAD FORT WAYNE, IN 46825**

SHEET DESCRIPTION: **AAV (NID) ENCLOSURE ONE-LINE DIAGRAM**

SHEET NUMBER: **F-3**



WIRE TYPE RHH/RHW AND CONDUCTOR SIZING TABLE (48VDC @ 96W/2.0 AMPS)

DISTANCE (FT)	0' - 180'	180' - 280'	280' - 460'	460' - 720'
CIRCUIT CONDUCTOR SIZE	(2) #12 AWG	(2) #10 AWG	(2) #8 AWG	(2) #6 AWG
GND CONDUCTOR SIZE	(1) #12 AWG	(1) #12 AWG	(1) #12 AWG	(1) #10 AWG
CONDUIT SIZE	1"	1"	1"	1"

AAV (NID) ENCLOSURE ONE-LINE DIAGRAM 1

- NOTES**
- CONTRACTOR SHALL FOLLOW ALL LOCAL MUNICIPAL CODES FOR CONDUIT SPECIFICATION AND INSTALLATION.
 - ALL UNSTRAUT ENDS SHALL BE COLD-GALVANIZED AND CAPPED.
 - ALL INTERIOR CONDUITS SHALL BE ENT.
 - ALL ABOVE GROUND CONDUIT SHALL BE RIGID.



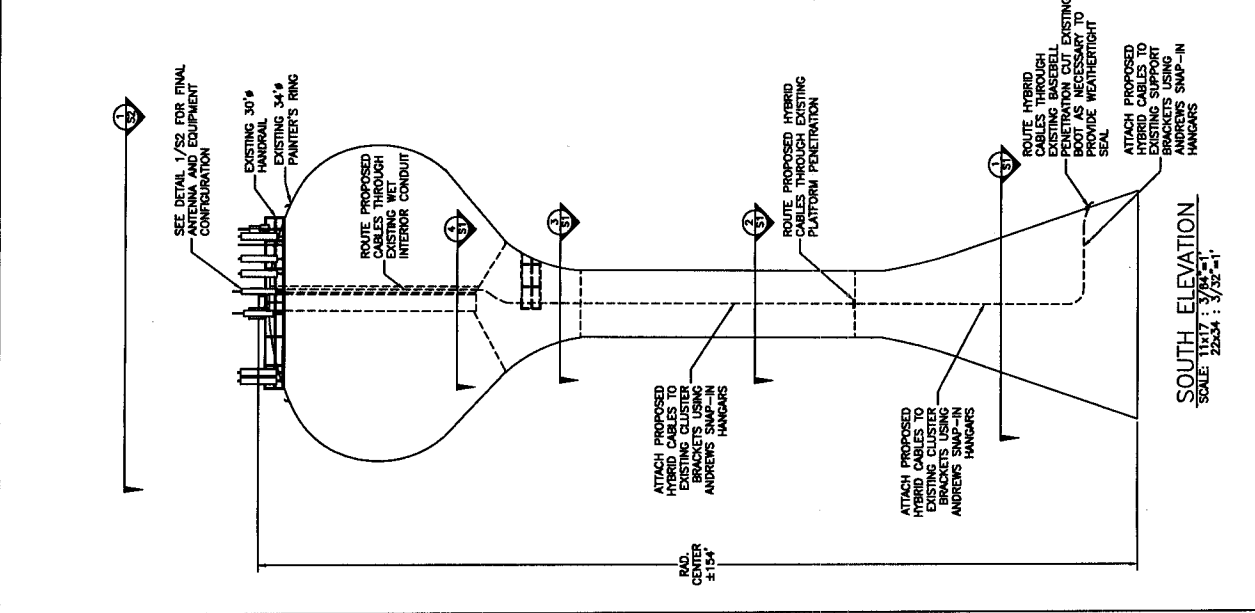
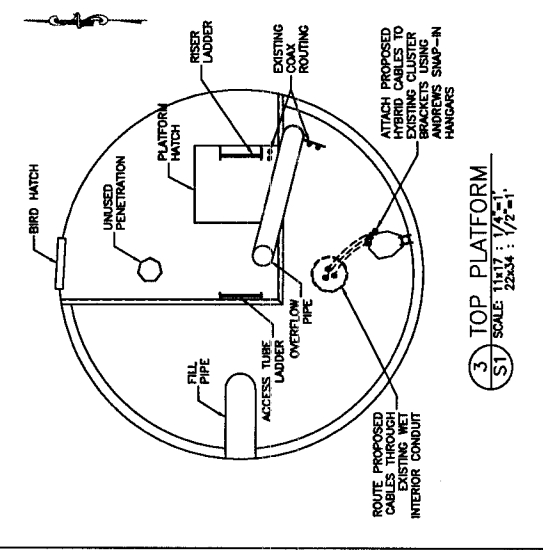
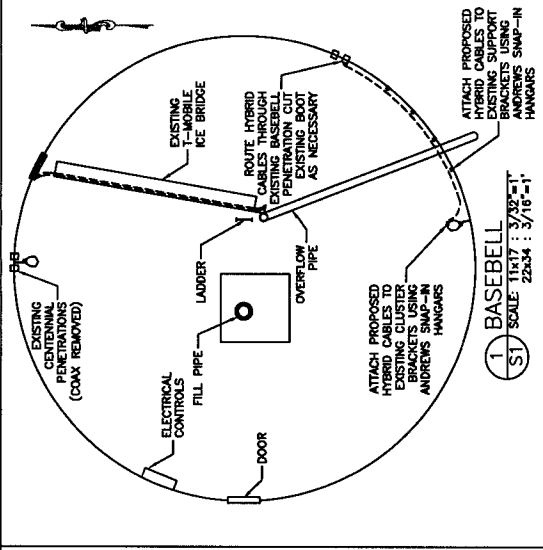
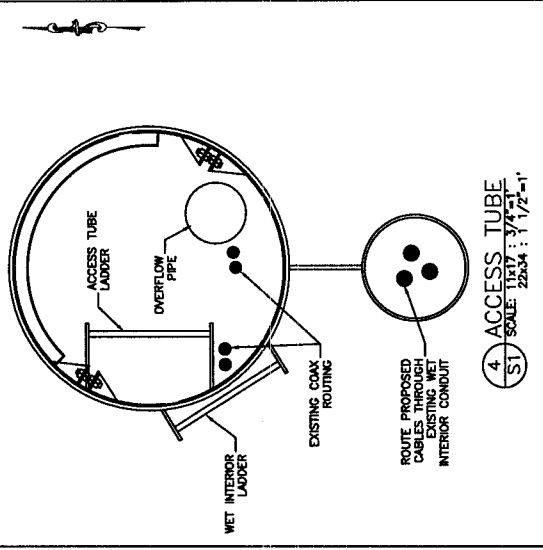
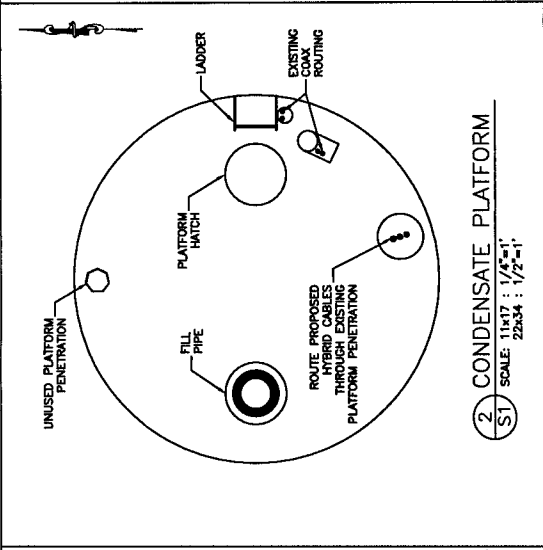
25C 88440 FORT WAYNE
1016 EAST DUPONT RD.
FORT WAYNE, IN

NO.	REVISION/DESCRIPTION	DATE
1	SUBMITTED FOR REVIEW/ISSUE	02/03/2015

PROJECT TITLE: CHSTX03B4
OWNER: PROJECT INC.
PROJECT NO.: 14-44-01-15
DRAWN BY: AS
CHECKED BY: IMG
DATE: 02/03/2015

STRUCTURAL DRAWINGS

S1



STRUCTURAL SHEETS S1, S2

REVISIONS:	DESCRIPTION	DATE	BY	REV
ISSUED FOR S/S FINAL		02/25/14	ML	0
ISSUED FOR S/S FINAL		02/27/14	ML	1
ADDED CROWN & SHEETS		02/29/14	ML	3

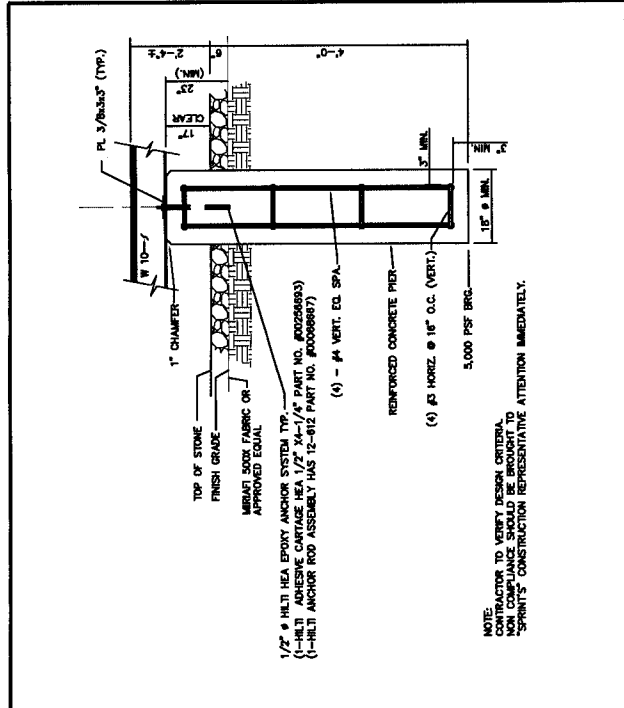
SITE NAME:
**USC 884403
FORT WAYNE**

SITE CAGECODE:
884384 - CH41XC384

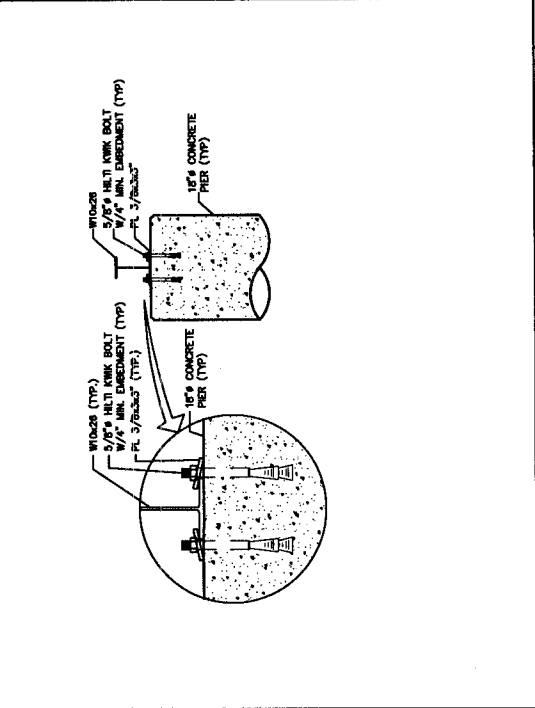
SITE ADDRESS:
**1016 EAST DUPONT ROAD
FORT WAYNE, IN 46825**

SHEET DESCRIPTION:
PLATFORM DETAILS

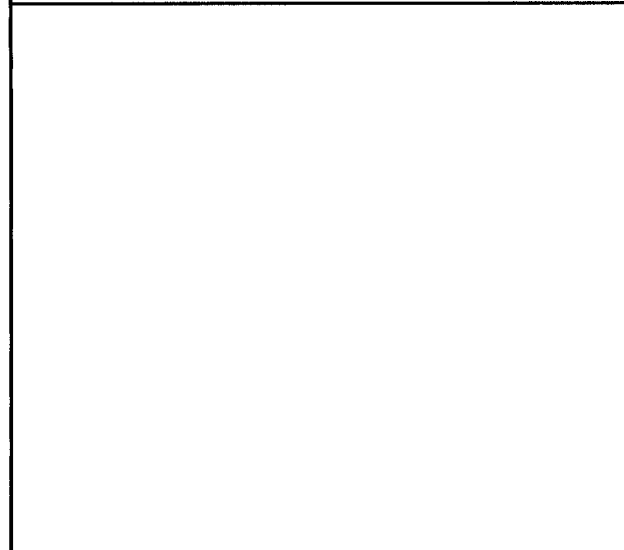
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S-3



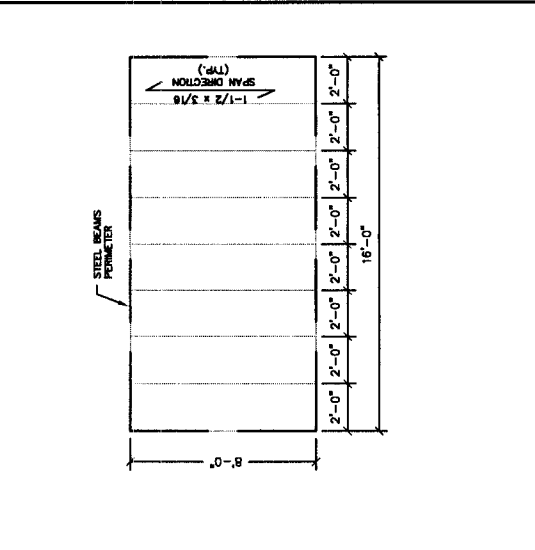
CONCRETE PIER SUPPORT
SCALE: N.T.S.



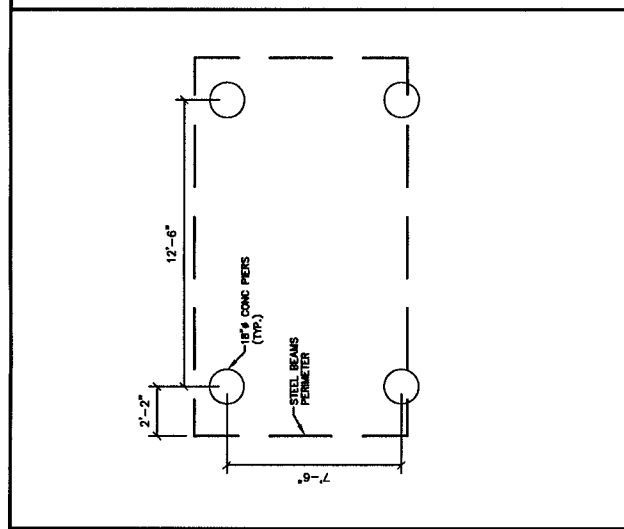
CONCRETE PIER ATTACHMENT DETAIL
SCALE: N.T.S.



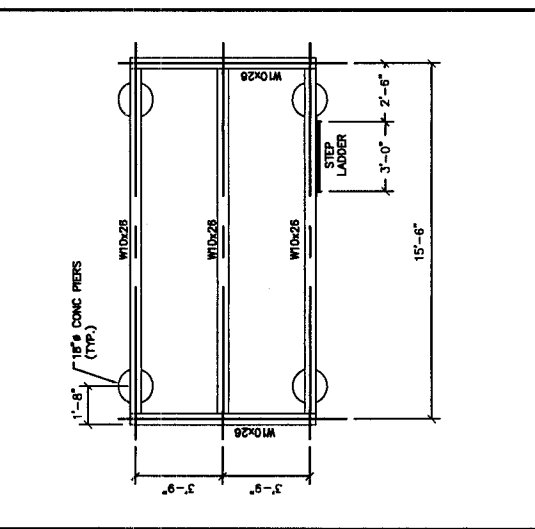
FOUNDATION PLAN
SCALE: 3/16"=1'-0"



GRATING PLAN
SCALE: 3/16"=1'-0"



STEEL LAYOUT PLAN
SCALE: 3/16"=1'-0"



STEEL LAYOUT PLAN
SCALE: 3/16"=1'-0"

PLANS PREPARED FOR:



6890 Sprint Parkway
Overland Park,
Kansas 66251

PLANS PREPARED BY:
FIRST GROUP ENGINEERING
 5925 LAKESIDE BLVD.
 INDIANAPOLIS, IN 46278

ORIG: _____

MAJ PARTNER: _____

ENGINEERING LICENSE



W. COBB
 PROFESSIONAL ENGINEER
 No. 12345
 State of Kansas

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ISSUED FOR S&S FINAL		02/27/14	LM	1
ISSUED FOR S&S FINAL		02/27/14	LM	1
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ISSUED FOR S&S FINAL		02/27/14	LM	1

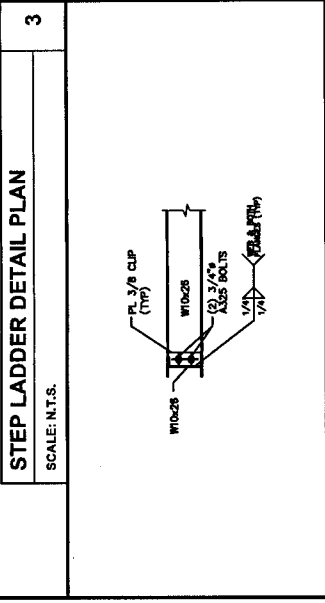
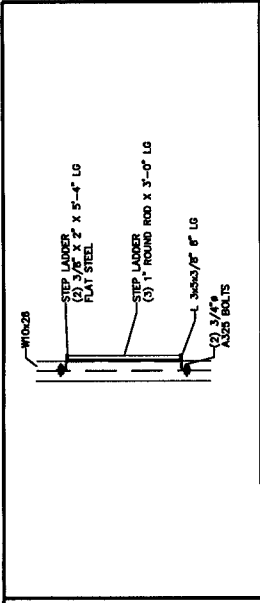
SITE NAME:
USC 884403
FORT WAYNE

SITE ADDRESS:
884384 - CH51XC384

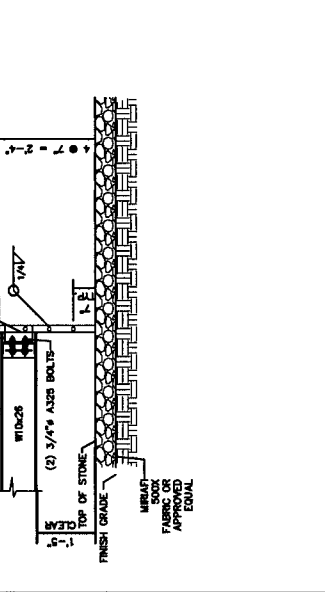
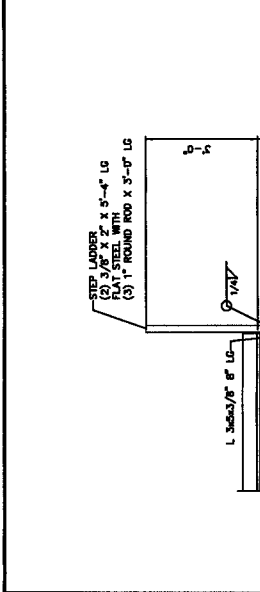
SHEET DESCRIPTION:
1016 EAST DUPONT ROAD
FORT WAYNE, IN 46825

SHEET NUMBER:
PLATFORM DETAILS

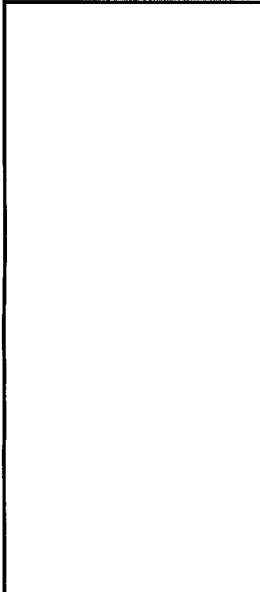
SHEET NUMBER:
S-4



W10X26 CONNECTION DETAIL
 SCALE: N.T.S.



GRATING ATTACHMENT DETAIL
 SCALE: N.T.S.



CABINET ATTACHMENT DETAIL
 SCALE: N.T.S.

- GENERAL NOTES**
- FABRICATION AND ERECTION OF STRUCTURAL STEEL TO BE IN ACCORDANCE WITH AISC "MANUAL OF STEEL CONSTRUCTION" WITH EDITION.
 - STRUCTURAL AND MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 "STRUCTURAL STEEL", UNLESS OTHERWISE INDICATED.
 - STRUCTURAL STEEL TUBING : ASTM A500, GRADE B (F_y = 48 KSI)
 - ALL HOLES TO BE 15/16" DIAMETER UNLESS NOTED OTHERWISE.
 - ALL BOLTS SHALL BE 8" TYPE A325 UNLESS NOTED OTHERWISE.
 - ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D11.1. AT COMPLETION OF WELDING ALL DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED.
 - ALL EXTERIOR EXPOSED STEEL MATERIALS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC (HOT-DIP GALVANIZED) COATING ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
 - ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC (HOT-DIP) OR IRON AND STEEL HARDWARE", UNLESS NOTED OTHERWISE.
 - DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
 - STEEL GRATING TO BE 1-1/2" x 3/16" SPACED 1.375" CENTER-TO-CENTER. CROSS BARS TO BE RESISTANCE WELDED AT RIGHT ANGLES TO THE BEARING BARS. THEY SHALL BE SPACED 4" CENTER-TO-CENTER. NO NOTCHING OR CUTTING OF BEARING BARS BEFORE WELDING IS PERMISSIBLE. BEARING BARS SHALL BE GALVANIZED. PREBALL DIMENSIONS, DETAILS AND DIMENSIONS OF BEARING BARS IN ACCORDANCE WITH PLANS.
 - ALL CLIP ANGLES SHALL BE WELDED TO ONE STRUCTURAL MEMBER WITH THE OUTSTANDING LEG DRILLED FOR A BOLTED CONNECTION (SEE SECTIONS BELOW).

STAIR SECTION
 SCALE: N.T.S.

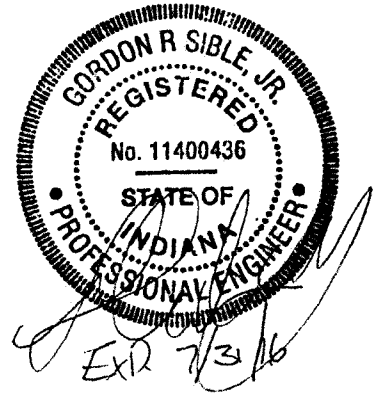
NOT USED
 SCALE: N.T.S.

NOT USED
 SCALE: N.T.S.

Water Tower Antenna Installation Analysis

Prepared For:
Dave Helton Associates

Prepared By:
Dixon Engineering, Inc.
March 5, 2015



Location:
Fort Wayne, IN East Dupont Rd Water Tank
500,000 Gallon Spheroid Elevated Water Storage Tank

Antenna Provider:
Sprint

Site #:
CH15XC384

Dixon Engineering, Inc. has completed overturn calculations for the proposed antenna installation with consideration for any affect the antennas will have on the tank with respect to wind loading.

1. The extra weight of the antennas and cables is insignificant in comparison to the weight of water in the tank.
2. The increase in overturning moment is conservatively calculated and is within AWWA D100 design safety factors. This installation will not have any adverse structural effect on the tank.

Owner:	Fort Wayne, IN	
Location:	East Dupont Rd Water Tank	
For:	Dave Helton Associates	
Date:	March 5, 2015	
Antenna Provider:	Sprint	
Tank Type:	Spheroid	
Tank Volume:	500,000	Gallons
Increase in overturn moment with the existing antennas and the proposed addition of (6) panel-type antennas mounted on the roof.		

Overturn Moment of Structure & Equipment @ 90 MPH		Combined Overturn Moment with Structure		% Increase
5,752,232	Foot-Pounds	5,752,232	Foot-Pounds	0.00%
Proposed Sprint Panels				
83,217	Foot-Pounds	5,835,449	Foot-Pounds	1.45%
Proposed Sprint Panels (2)				
70,718	Foot-Pounds	5,822,950	Foot-Pounds	1.23%
Proposed Sprint Misc Equip				
74,108	Foot-Pounds	5,826,340	Foot-Pounds	1.29%
Exist Panel				
281,865	Foot-Pounds	6,034,097	Foot-Pounds	4.90%
Exist Misc Equip				
50,327	Foot-Pounds	5,802,559	Foot-Pounds	0.87%
Exist Whip				
3,787	Foot-Pounds	5,756,019	Foot-Pounds	0.07%
Handrail				
137,669	Foot-Pounds	5,889,901	Foot-Pounds	2.39%

Total Percent Increase in Overturn Moment	12.20%
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***The increase in weight added to the tank by the antennas and associated equipment is insignificant with respect to the weight of the tank

FOR DIXON ENGINEERING, INC.

Owner:	Fort Wayne, IN	
Location:	East Dupont Rd Water Tank	
For:	Dave Helton Associates	
Date:	March 5, 2015	
Antenna Provider:	Sprint	
Tank Type:	Spheroid	
Tank Volume:	500,000	Gallons
Increase in overturn moment with the proposed addition of (3) ET-X-TS-70-15-62-18 Ir-RD panel-type antennas located on the roof.		

Antenna Overturn Moment Calculations for Spheroid Type Tank Due to Wind Load

Wind Evaluation Speed

90 MPH

Tank Specifications:

Height to the Low Water Level:

111 feet

Height to the High Water Level:

145 feet

Diameter of the Tank:

55.5 feet

Diameter of the Stem:

12 feet

Lower Diameter of the Basecone:

40.5 feet

Height of the Basecone:

44.5 feet

Distance Between High Water Level & the Roof:

4.5 feet

Antenna Specifications:

Number of Antennas:

3 Quantity

Height of Antennas:

72 inches

Width of Antennas:

12 inches

Height Above Roof Projection (Est) to the Center of the Antennas:

4.5 feet

Areas of Tank Sections & Moment Arm Lengths:

Area of Ball:

1678.2 feet²

Moment Arm of Ball:

130.3 feet

Area of Stem:

798.0 feet²

Moment Arm of Stem:

77.8 feet

Area of Basecone:

1168.1 feet²

Moment Arm of Basecone:

18.2 feet

Total Overturn Moment of Tank:

5,752,232 Foot-lbs

Area of Antennas & Moment Arm Lengths:

Area of One Antenna :

6.0 feet²

Antenna Moment Arm:

154.0 feet

Area of One Antenna Post:

1.4

Antenna Post Moment Arm:

149.5

Number of Antennas and Posts Shielded 50%

1.0

Overturn Moment of Antennas:

83,217 Foot-lbs

Combined Overturn Moment (tank & antennas):

5,835,449 Foot-lbs

Total Percent Increase in Overturn Moment:

1.45%

FOR DIXON ENGINEERING, INC.

Owner:	Fort Wayne, IN	
Location:	East Dupont Rd Water Tank	
For:	Dave Helton Associates	
Date:	March 5, 2015	
Antenna Provider:	Sprint	
Tank Type:	Spheroid	
Tank Volume:	500,000	Gallons
Increase in overturn moment with the proposed addition of (3) ET-X-WM-18-65-8P panel-type antennas located on the roof.		

Antenna Overturn Moment Calculations for Spheroid Type Tank Due to Wind Load

Wind Evaluation Speed

90 MPH

Tank Specifications:

Height to the Low Water Level:

111 feet

Height to the High Water Level:

145 feet

Diameter of the Tank:

55.5 feet

Diameter of the Stem:

12 feet

Lower Diameter of the Basecone:

40.5 feet

Height of the Basecone:

44.5 feet

Distance Between High Water Level & the Roof:

4.5 feet

Antenna Specifications:

Number of Antennas:

3 Quantity

Height of Antennas:

61 inches

Width of Antennas:

12 inches

Height Above Roof Projection (Est) to the Center of the Antennas:

4.5 feet

Areas of Tank Sections & Moment Arm Lengths:

Area of Ball:

1678.2 feet²

Moment Arm of Ball:

130.3 feet

Area of Stem:

798.0 feet²

Moment Arm of Stem:

77.8 feet

Area of Basecone:

1168.1 feet²

Moment Arm of Basecone:

18.2 feet

Total Overturn Moment of Tank:

5,752,232 Foot-lbs

Area of Antennas & Moment Arm Lengths:

Area of One Antenna :

5.1 feet²

Antenna Moment Arm:

154.0 feet

Area of One Antenna Post:

1.2

Antenna Post Moment Arm:

149.5

Number of Antennas and Posts Shielded 50%

1.0

Overturn Moment of Antennas:

70,718 Foot-lbs

Combined Overturn Moment (tank & antennas):

5,822,950 Foot-lbs

Total Percent Increase in Overturn Moment:

1.23%

FOR DIXON ENGINEERING, INC.

Owner:	Fort Wayne, IN	
Location:	East Dupont Rd Water Tank	
For:	Dave Helton Associates	
Date:	March 5, 2015	
Antenna Provider:	Sprint	
Tank Type:	Spheroid	
Tank Volume:	500,000	Gallons
Increase in overturn moment with the proposed miscellaneous antenna equipment (3 RRH-C2, 3 RRH-V3) located on the roof.		

Misc. Equipment Overturn Moment Calcs for Spheroid Type Tank Due to Wind Load

Wind Evaluation Speed	90 MPH
Tank Specifications:	
Height to the Low Water Level:	111 feet
Height to the High Water Level:	145 feet
Diameter of the Tank:	55.5 feet
Diameter of the Stem:	12 feet
Lower Diameter of the Basecone:	40.5 feet
Height of the Basecone:	44.5 feet
Distance Between High Water Level & the Roof:	4.5 feet
Equipment Specifications:	
Number of Components:	6 Quantity
Average Height of the Equipment:	26.5 inches
Average Width of the Equipment:	18.3 inches
Average Height Above Roof Projection (Est) to the Center of the Components:	4.5 feet
Areas of Tank Sections & Moment Arm Lengths:	
Area of Ball:	1678.2 feet ²
Moment Arm of Ball:	130.3 feet
Area of Stem:	798.0 feet ²
Moment Arm of Stem:	77.8 feet
Area of Basecone:	1168.1 feet ²
Moment Arm of Basecone:	18.2 feet
Total Overturn Moment of Tank:	5,752,232 Foot-lbs
Area of Miscellaneous Equipment & Moment Arm Lengths:	
Equipment Area:	20.2 feet ²
Miscellaneous Equipment Moment Arm:	154.0 feet
Overturn Moment of the Equipment:	74,108 Foot-lbs
Combined Overturn Moment (tank & misc. equipment):	5,826,340 Foot-lbs
Total Percent Increase in Overturn Moment:	1.29%

FOR DIXON ENGINEERING, INC.

Owner:	Fort Wayne, IN	
Location:	East Dupont Rd Water Tank	
For:	Dave Helton Associates	
Date:	March 5, 2015	
Antenna Provider:	Sprint	
Tank Type:	Spheroid	
Tank Volume:	500,000	Gallons
Increase in overturn moment with the existing (9) panel-type antennas located on the roof.		

Antenna Overturn Moment Calculations for Spheroid Type Tank Due to Wind Load

Wind Evaluation Speed 90 MPH

Tank Specifications:

Height to the Low Water Level:	111	feet
Height to the High Water Level:	145	feet
Diameter of the Tank:	55.5	feet
Diameter of the Stem:	12	feet
Lower Diameter of the Basecone:	40.5	feet
Height of the Basecone:	44.5	feet
Distance Between High Water Level & the Roof:	4.5	feet

Antenna Specifications:

Number of Antennas:	9	Quantity
Height of Antennas:	76	inches
Width of Antennas:	14	inches
Height Above Roof Projection (Est) to the Center of the Antennas:	4.5	feet

Areas of Tank Sections & Moment Arm Lengths:

Area of Ball:	1678.2	feet ²
Moment Arm of Ball:	130.3	feet
Area of Stem:	798.0	feet ²
Moment Arm of Stem:	77.8	feet
Area of Basecone:	1168.1	feet ²
Moment Arm of Basecone:	18.2	feet

Total Overturn Moment of Tank:

5,752,232 Foot-lbs

Area of Antennas & Moment Arm Lengths:

Area of One Antenna :	7.4	feet ²
Antenna Moment Arm:	154.0	feet
Area of One Antenna Post:	1.5	
Antenna Post Moment Arm:	149.5	
Number of Antennas and Posts Shielded 50%:	4.0	

Overturn Moment of Antennas:

281,865 Foot-lbs

Combined Overturn Moment (tank & antennas):

6,034,097 Foot-lbs

Total Percent Increase in Overturn Moment:

4.90%

FOR DIXON ENGINEERING, INC.

Owner:	Fort Wayne, IN	
Location:	East Dupont Rd Water Tank	
For:	Dave Helton Associates	
Date:	March 5, 2015	
Antenna Provider:	Sprint	
Tank Type:	Spheroid	
Tank Volume:	500,000	Gallons
Increase in overturn moment with the existing miscellaneous antenna equipment (6 Nokia RRH) located on the roof.		

Misc. Equipment Overturn Moment Calcs for Spheroid Type Tank Due to Wind Load

Wind Evaluation Speed	90 MPH
Tank Specifications:	
Height to the Low Water Level:	111 feet
Height to the High Water Level:	145 feet
Diameter of the Tank:	55.5 feet
Diameter of the Stem:	12 feet
Lower Diameter of the Basecone:	40.5 feet
Height of the Basecone:	44.5 feet
Distance Between High Water Level & the Roof:	4.5 feet
Equipment Specifications:	
Number of Components:	6 Quantity
Average Height of the Equipment:	19 inches
Average Width of the Equipment:	13 inches
Average Height Above Roof Projection (Est) to the Center of the Components:	4.5 feet
Areas of Tank Sections & Moment Arm Lengths:	
Area of Ball:	1678.2 feet ²
Moment Arm of Ball:	130.3 feet
Area of Stem:	798.0 feet ²
Moment Arm of Stem:	77.8 feet
Area of Basecone:	1168.1 feet ²
Moment Arm of Basecone:	18.2 feet
Total Overturn Moment of Tank:	5,752,232 Foot-lbs
Area of Miscellaneous Equipment & Moment Arm Lengths:	
Equipment Area:	10.3 feet ²
Miscellaneous Equipment Moment Arm:	154.0 feet
Overturn Moment of the Equipment:	50,327 Foot-lbs
Combined Overturn Moment (tank & misc. equipment):	5,802,559 Foot-lbs
Total Percent Increase in Overturn Moment:	0.87%

FOR DIXON ENGINEERING, INC.

Owner:	Fort Wayne, IN	
Location:	East Dupont Rd Water Tank	
For:	Dave Helton Associates	
Date:	March 5, 2015	
Antenna Provider:	Sprint	
Tank Type:	Spheroid	
Tank Volume:	500,000	Gallons
Increase in overturn moment with the existing whip-type antenna located on the roof.		

Antenna Overturn Moment Calculations for Spheroid Type Tank Due to Wind Load

Wind Evaluation Speed 90 MPH

Tank Specifications:

Height to the Low Water Level:	111	feet
Height to the High Water Level:	145	feet
Diameter of the Tank:	55.5	feet
Diameter of the Stem:	12	feet
Lower Diameter of the Basecone:	40.5	feet
Height of the Basecone:	44.5	feet
Distance Between High Water Level & the Roof:	4.5	feet

Antenna Specifications:

Number of Antennas:	1	Quantity
Height of Antennas:	10	feet
Width of Antennas:	1.5	inches
Height Above Roof Projection (Est) to the Center of the Antennas:	9.5	feet

Areas of Tank Sections & Moment Arm Lengths:

Area of Ball:	1678.2	feet ²
Moment Arm of Ball:	130.3	feet
Area of Stem:	798.0	feet ²
Moment Arm of Stem:	77.8	feet
Area of Basecone:	1168.1	feet ²
Moment Arm of Basecone:	18.2	feet

Total Overturn Moment of Tank: 5,752,232 Foot-lbs

Area of Antennas & Moment Arm Lengths:

Area of One Antenna :	1.3	feet ²
Antenna Moment Arm:	159.0	feet
Number of Antennas Shielded 50%	0.0	

Overturn Moment of Antennas: 3,787 Foot-lbs

Combined Overturn Moment (tank & antennas): 5,756,019 Foot-lbs

Total Percent Increase in Overturn Moment: 0.07%

FOR DIXON ENGINEERING, INC.

Owner:	Fort Wayne, IN	
Location:	East Dupont Rd Water Tank	
For:	Dave Helton Associates	
Date:	March 5, 2015	
Antenna Provider:	Sprint	
Tank Type:	Spheroid	
Tank Volume:	500,000	Gallons
Increase in overturn moment with the existing roof handrail.		

Handrail Overturn Moment Calculations for Spheroid Type Tank Due to Wind Load

Wind Evaluation Speed

90 MPH

Tank Specifications:

Height to the Low Water Level:
 Height to the High Water Level:
 Diameter of the Tank:
 Diameter of the Stem:
 Lower Diameter of the Basecone:
 Height of the Basecone:
 Distance Between High Water Level & the Roof:

111	feet
145	feet
55.5	feet
12	feet
40.5	feet
44.5	feet
4.5	feet

Handrail Specifications:

Number of Handrail Divisions:
 Average Height of each Division:
 Diameter of the Handrail:
 Number of Handrail Legs
 Width of Handrail Legs
 Height of Handrail Legs
 Height Above Roof Projection (Est) to the Center of the Handrail:

3	Quantity
3	inches
30	feet
16	
2.5	inches
3.5	feet
0	feet

Areas of Tank Sections & Moment Arm Lengths:

Area of Ball:
 Moment Arm of Ball:
 Area of Stem:
 Moment Arm of Stem:
 Area of Basecone:
 Moment Arm of Basecone:

1678.2	feet ²
130.3	feet
798.0	feet ²
77.8	feet
1168.1	feet ²
18.2	feet

Total Overturn Moment of Tank:

5,752,232 Foot-lbs

Area of Handrail & Moment Arm Length:

Handrail Area:
 Area of One Handrail Leg
 Handrail Moment Arm:
 Number of Handrail Legs Shielded 50%

33.8	feet ²
0.729	feet ²
149.5	feet
8	

Overturn Moment of Handrail:

137,669 Foot-lbs

Combined Overturn Moment (tank & handrail):

5,889,901 Foot-lbs

Total Percent Increase in Overturn Moment:

2.39%

FOR DIXON ENGINEERING, INC.

Public Hearing Date, if applicable _____

Read the first time in full and on motion by Councilman Marty Bender,
Read the second time by title and referred to the City Utilities
Committee. Read the third time in full and on motion by Councilman
Marty Bender, placed on passage by the following vote:

	<u>AYES</u>	<u>NAYS</u>	<u>ABSTAINED</u>	<u>ABSENT</u>
<u>TOTAL VOTES</u>	<u>8</u>	_____	_____	<u>1</u>
BENDER	<u>✓</u>	_____	_____	_____
CRAWFORD	<u>✓</u>	_____	_____	_____
DIDIER	<u>✓</u>	_____	_____	_____
HARPER	<u>✓</u>	_____	_____	_____
HINES	<u>✓</u>	_____	_____	_____
JEHL	<u>✓</u>	_____	_____	_____
PADDOCK	<u>✓</u>	_____	_____	_____
SHOAFF	<u>✓</u>	_____	_____	_____
SMITH	_____	_____	_____	<u>✓</u>

DATED: 4-14-15 Sandra E. Kennedy
SANDRA E. KENNEDY, CITY CLERK

Passed and adopted by the Common Council of the City of Fort Wayne, Indiana, as
(ANNEXATION) (APPROPRIATION) (GENERAL) (SPECIAL) (ZONING) ORDINANCE
(RESOLUTION) NO. R-28-15 on the 14th day of
April, 2015

ATTEST:
Sandra E. Kennedy SANDRA E. KENNEDY, CITY CLERK
John N. Crawford PRESIDENT OFFICER

Presented by me to the Mayor of the City of Fort Wayne, Indiana, on the 15th day
of April, 2015, at the hour of _____ O'clock _____ E.S.T.

Sandra E. Kennedy
SANDRA E. KENNEDY, CITY CLERK

Approved and signed by me this 17th day of April
2015, at the hour of 4:00 O'clock Pm E.S.T.
Thomas C. Henry
THOMAS C. HENRY, MAYOR

BILL NO. R-15-03-22

REPORT OF COMMITTEE ON CITY UTILITIES

APRIL 7, 2015

Martin Bender, Chair
Thomas Smith, Co-Chair
All Council Members

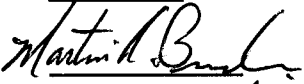





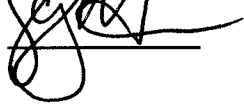
A RESOLUTION approving the License Agreement - Dupont Water Tower between the City of Fort Wayne and Sprintcom, Inc. by and through its Board of Public Works for City Utilities. **COMMITTEE ON CITY UTILITIES HAVE HAD SAID** Ordinance under consideration and beg leave to report back to the Common Council that said Ordinance

DO PASS

DO NOT PASS

ABSTAIN

NO REC

	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

SANDRA E. KENNEDY
CITY CLERK