

Administrative-Finance Committee
January 9, 2012
6:30 P.M. – Conference Room

- 1. Call to Order**
- 2. Establishment of Quorum**
- 3. Public Comment**
- 4. Discussion Items**
 - a. IRMA Deductible**
 - b. General Communications Lease agreement**
 - c. Pumping Station Electric Bid**
 - d. Mechanic Position discussion**
- 5. Other Business**
- 6. Next Meeting – February 13, 2012**
- 7. Adjournment**

AGENDA MEMO
Administrative/Finance Committee
January 9, 2012

ISSUE STATEMENT

Discussion on the insurance deductible level selected by the City of Darien for the Intergovernmental Risk Management Agency.

BACKGROUND/HISTORY

The City of Darien has participated in the Intergovernmental Risk Management Agency, an insurance pool with over 70 members, for several decades. There are optional deductible programs for the City of Darien, allowing for the selection of deductibles at various levels. Historically Darien has selected the most conservative deductible level of \$2,500, which allows for the lowest exposure in years with a large number of claims and therefore the most consistent budgeting.

The City of Darien has seen a reduction in claims over the past five years. When fewer claims are made, selecting a higher deductible for a reduced premium could save money. Below is a chart showing how the City of Darien would have performed under the \$10,000 and \$25,000 programs over the past five years, when compared with the \$2,500 deductible.

Year	\$10,000 Deductible			\$25,000 Deductible		
	Credit	Losses	Difference	Credit	Losses	Difference
2006	32127	28199	3928	67823	73199	(5,376)
2007	46535	25018	21516	93069	35824	57245
2008	50300	33867	16433	100599	93867	6732
2009	51199	32097	19101	102397	78506	23892
2010	49832	29901	19930	94680	45986	48694
Total	229,991	149,083	80,908	458,568	327,382	131,187
Average	45,998.20	29,816.60	16,181.60	97,113.60	65,476.40	26,236.40
Current	37600			79,378		

STAFF/COMMITTEE RECOMMENDATION

Staff recommends budgeting for a \$10,000 deductible for FYE 2013 to balance the desire for savings with a low level of risk.

ALTERNATE CONSIDERATION

Staying at the current \$2,500 deductible or moving to the \$25,000 deductible would be alternate considerations.

AGENDA MEMO
Administrative/Finance Committee
January 9, 2012

ISSUE STATEMENT

A resolution authorizing the City Administrator to enter into an agreement with General Communications to add equipment to the tower located at 1041 S. Frontage Road.

BACKGROUND/HISTORY

The City of Darien received a tower from the University of Chicago approximately two decades ago and has allowed other public entities and private communication companies to lease space on the tower. Staff was recently approached by General Communications, who has agreed to pay a \$25,000 capital contribution and \$4,000 per month to install equipment on the tower. They have agreed to a contract that is similar to other contracts signed in the past with other vendors, except it has three year renewals instead of five year renewals.

STAFF/COMMITTEE RECOMMENDATION

Staff recommends approving this contract.

ALTERNATE CONSIDERATION

Not approving the contract would be an alternate consideration.

STRUCTURE LEASE AGREEMENT

THIS STRUCTURE LEASE AGREEMENT ("Agreement"), dated as of the latter of the signature dates below (the "Effective Date"), is entered into by The City of Darien, an Illinois corporation, having a mailing address of 1702 Plainfield Road, Darien Illinois 60561 (hereinafter referred to as "Landlord") and General Communications, LLC, a Delaware limited liability company, having a mailing address of 6907 University Avenue, #131, Middleton, WI 53562 (telephone number 608-556-1373) (hereinafter referred to as "Tenant").

BACKGROUND

Landlord owns or controls that certain plot, parcel or tract of land, improved with a communications tower (the "Tower"), together with all rights and privileges arising in connection therewith, located at 1041 South Frontage Road, in the City of Darien, in the County of DuPage, State of Illinois 60561 as more fully described on Exhibit 1 (collectively, the "Property"). Tenant desires to use a portion of the Property in connection with its federally licensed communications business. Landlord desires to grant to Tenant the right to use a portion of the Property in accordance with this Agreement.

The parties agree as follows:

1. **PREMISES.**

(a) Landlord hereby leases to Tenant a portion of the Property consisting of: (i) ground area space of approximately 12 square feet for Tenant's equipment shelter ("Equipment Space") and

(ii) vertical space on the Tower ("Antenna Space"), together with such easements as are necessary for installation, operation and maintenance of Tenant's antennas as described on attached Exhibit 2 ; and

(iii) those certain areas where Tenant's conduits, wires, cables, cable trays and other necessary connections are located between the Equipment Space and the Antenna Space, and between the Equipment Space and the electric power, telephone, and fuel sources for the Property (hereinafter collectively referred to as "Connections"). Landlord agrees that Tenant shall have the right to install Connections between Tenant's equipment in the Equipment Space and Antenna Space; and between Tenant's equipment in the Equipment Space and the electric power, telephone, and fuel sources for the Property, and any other improvements. Landlord further agrees that Tenant shall have the non-exclusive right for ingress and egress to the Premises (as hereinafter defined), seven (7) days a week, twenty-four (24) hours a day, on foot or motor vehicle, including trucks, over such portion of the Premises as may be designated by the Landlord extending from the nearest public right-of-way to the Premises, together with the right to install, replace and maintain utility wires, poles, cables, conduits, pipes and other necessary connections over or along any right-of-way extending from the aforementioned public right-of-way to the Premises. Notwithstanding the foregoing, Tenant, to the extent feasible, shall locate all wires, conduits and cables on existing poles extending from the roadway into Landlord's Property. The Equipment Space, Antenna Space, Connections, Access, and Right-of-Way are hereinafter collectively referred to as the "Premises."

(b) During the term of this Agreement, Tenant and its agents, engineers, surveyors and other representatives will have the right to enter upon the Property to inspect, examine, conduct soil borings, drainage testing, material sampling, radio frequency testing and other geological or engineering tests or studies of the Property (collectively, the "Tests"), to apply for and obtain licenses, permits, approvals, or other relief required of or deemed necessary or appropriate at Tenant's sole discretion for its use of the

Premises and include without limitation applications for zoning variances, zoning ordinances, amendments, special use permits, and construction permits (collectively, the "**Government Approvals**"), initiate the ordering and/or scheduling of necessary utilities, and otherwise to do those things on or off the Property that, in the opinion of Tenant, are necessary in Tenant's sole discretion to determine the physical condition of the Property, the environmental history of the Property, Landlord's title to the Property and the feasibility or suitability of the Property for Tenant's Permitted Use, all at Tenant's expense. Tenant will not be liable to Landlord or any third party on account of any pre-existing defect or condition on or with respect to the Property, whether or not such defect or condition is disclosed by Tenant's inspection. Tenant will restore the Property to its condition on the date of this Agreement, reasonable wear and tear and casualty not caused by Tenant excepted. In addition, Tenant shall indemnify, defend and hold Landlord harmless from and against any and all injury, loss, damage or claims arising directly out of Tenant's Tests.

(c) If during the term of this Agreement Landlord decides to subdivide, sell, or change the status of the zoning of the Premises or the Property which includes (without limitation) the remainder of the Tower) or in the event of foreclosure, Landlord shall promptly notify Tenant in writing. Any sale of the Property shall be subject to Tenant's rights under this Agreement. Landlord agrees that during the Term of this Agreement Landlord shall not initiate or consent to any change in the zoning of the Premises, Property or Surrounding Property or impose or consent to any other restriction that would prevent or, materially limit Tenant from using the Premises for the uses intended by Tenant as hereinafter set forth in this Agreement.

2. **PERMITTED USE.** Tenant may use the Premises for the transmission and reception of Tenant's communications signals and the installation, construction, maintenance, operation, repair, replacement and upgrade of its communication fixtures and related equipment, cables, accessories and improvements, which may include associated antennas, equipment shelters or cabinets and fencing and any other items necessary to the successful and secure use of the Premises for the transmission and reception of Tenant's communications signals (collectively, the "**Communication Facility**") as depicted on **Exhibit 2** attached hereto, as well as the right to test, survey and review title on the Property; Tenant further has the right, but not the obligation, to add, modify and/or replace equipment in order to be in compliance with any current or future federal, state or local mandated application, including, but not limited to, emergency 911 communication services, at no additional cost to Tenant or Landlord (collectively, the "**Permitted Use**") provided such additional or replacement equipment substantially conforms in size, shape and location to the facilities depicted on **Exhibit 2**. If **Exhibit 2** includes drawings of the initial installation of the Communication Facility, Landlord's execution of this Agreement will signify Landlord's approval of **Exhibit 2**. For a period of ninety (90) days following the start of construction, Landlord grants Tenant, its subtenants, licensees and sublicensees, the right to use such portions of the Landlord's Surrounding Property, as may reasonably be required during construction and installation of the Communications Facility. Tenant has the right to install and operate transmission cables from the equipment shelter or cabinet to the antennas, electric lines from the main feed to the equipment shelter or cabinet and communication lines from the main entry point to the equipment shelter or cabinet, and to make Property improvements, alterations, upgrades or additions appropriate for Tenant's use ("**Tenant Changes**"). Tenant agrees to comply with all applicable governmental laws, rules, statutes and regulations, relating to its use of the Communication Facility on the Property. Tenant has the right to modify, supplement, replace, upgrade, expand the equipment, increase the number of antennas or relocate the Communication Facility within the Premises at any time during the term of this Agreement, provided such additional or replacement equipment substantially conforms in size, shape and location to the facilities depicted on **Exhibit 2**. Tenant will be allowed to make such alterations to the Property in order to accomplish Tenant's Changes or to insure that Tenant's Communication Facility complies with all applicable federal, state or local laws, rules or regulations. In the event Tenant desires to modify or upgrade the Communication Facility, and Tenant requires an additional portion of the Property (the "**Additional Premises**") for such modification or upgrade, and Landlord does not require such additional portion of the Property for Landlord's own purposes, Landlord agrees to lease to Tenant

the Additional Premises, upon the same terms and conditions set forth herein, except that the Rent shall increase, in conjunction with the lease of the Additional Premises by a reasonable amount consistent with rental rates then charged for comparable portions of real property being in the same area. Landlord agrees to take such actions and enter into and deliver to Tenant such documents as Tenant reasonably requests in order to effect and memorialize the lease of the Additional Premises to Tenant.

3. **TERM.**

(a) This Agreement shall be effective as of the date of execution by both Parties, provided, however, the initial lease term will be three (3) years ("Initial Term"), commencing on January 1, 2012 ("Commencement Date").

(b) This Agreement will automatically renew for four (4) additional three (3) year term(s), (each term shall be defined as the "Extension Term"), upon the same terms and conditions unless the Tenant notifies the Landlord in writing of Tenant's intention not to renew this Agreement at least sixty (60) days prior to the expiration of the existing Term.

(c) The Initial Term and the Extension Term are collectively referred to as the Term ("Term").

(d) If Tenant remains in possession of the Premises after the termination of this Agreement then Tenant will be deemed to be occupying the Premises on a month to month basis (the "Holdover Term"), subject to the terms and conditions of this Agreement with monthly rent equal to One Hundred Fifty percent (150%) of the then current rent amount.

4. **RENT.**

(a) Commencing on the Commencement Date, Tenant will pay the Landlord a monthly rental payment of four thousand and No/100 Dollars (\$4,000.00) ("Rent"), at the address set forth above, on or before the fifth (5th) day of each calendar month in advance. In partial months occurring after the Rent Commencement Date, Rent will be prorated. The initial Rent payment will be forwarded by Tenant to Landlord within thirty (30) days after the Commencement Date.

(b) In year one (1) of each Extension Term, the monthly Rent will increase by Nine (9%) over the Rent paid during the previous Term.

(c) All Rent or other charges payable under this Agreement shall be billed by Landlord within one (1) year from the end of the calendar year in which the charges were incurred; any charges beyond such period shall not be billed by Landlord, and shall not be payable by Tenant. The provisions of the foregoing sentence shall survive the termination or expiration of this Agreement.

(d) Within 30 days after the Commencement Date, Tenant agrees to pay to Landlord, as a one-time capital contribution, the amount of \$25,000.00, which shall compensate Landlord for Tower maintenance related costs.

5. **APPROVALS.**

(a) Landlord agrees that Tenant's ability to use the Premises is contingent upon the suitability of the Premises for Tenant's Permitted Use and Tenant's ability to obtain and maintain all Government Approvals. Landlord authorizes Tenant to prepare, execute and file all required applications to obtain Government Approvals for Tenant's Permitted Use under this Agreement and agrees to reasonably assist Tenant with such applications and with obtaining and maintaining the Government Approvals.

(b) Tenant has the right to obtain a title report or commitment for a leasehold title policy from a title insurance company of its choice and to have the Property surveyed by a surveyor of Tenant's choice. In the event Tenant determines, in its sole discretion, due to the title report results or survey results, that the condition of the Premises is unsatisfactory, Tenant will have the right to terminate this Agreement upon notice to Landlord.

(c) Tenant may also perform and obtain, at Tenant's sole cost and expense, soil borings, percolation tests, engineering procedures, environmental investigation or other tests or reports on, over, and under the Property, necessary to determine if the Tenant's use of the Premises will be compatible with Tenant's engineering specifications, system, design, operations or Government Approvals.

6. **TERMINATION.** This Agreement may be terminated, without penalty or further liability, as follows:

(a) by either party on thirty (30) days prior written notice, if the other party remains in default under Paragraph 15 Default and Right to Cure of this Agreement after the applicable cure periods;

(b) by Tenant upon written notice to Landlord, if Tenant is unable to obtain, or maintain, any required approval(s) or the issuance of a license or permit by any agency, board, court or other governmental authority necessary for the construction or operation of the Communication Facility as now and hereafter intended by Tenant or if Tenant reasonably determines in its sole discretion that the cost of obtaining or retaining the same is commercially unreasonable; or

(c) by Tenant upon written notice to Landlord for any reason at any time prior to commencement of construction by Tenant; or

(d) by Tenant upon sixty (60) days prior written notice to Landlord for any reason, so long as Tenant pays Landlord a termination fee equal to three (3) months' Rent, at the then current rate; provided, however, that no such termination fee will be payable on account of the termination of this Agreement by Tenant under any one or more of Paragraphs 5(b) Approvals, 6(a) Termination, 6(b) Termination, 6(c) Termination, 8 Interference, 11(d) Environmental, 18 Severability, 19 Condemnation or 20 Casualty of this Agreement.

If Tenant terminates this Agreement pursuant to Paragraph 6(b) or 6(c), the entire amount of the capital contribution described in Paragraph 4(d) shall be refunded to Tenant, if Tenant terminates this Agreement pursuant to Paragraph 6(d), the portion of the capital contribution described in Paragraph 4(d) that has not been applied on the date Tenant delivers its termination notice under Paragraph 6(d) shall be refunded to Tenant.

7. **INSURANCE.**

(a) Tenant will carry during the Term, at its own cost and expense, the following insurance: (i) "All Risk" property insurance for its property's replacement cost; (ii) commercial general liability insurance with a minimum limit of liability of \$2,500,000 combined single limit for bodily injury or death/property damage arising out of any one occurrence; and (iii) Workers' Compensation Insurance as required by law. The coverage afforded by Tenant's commercial general liability insurance shall apply to Landlord as an additional insured, but only with respect to Tenant's operations.

(b) Tenant shall have the right to self-insure with respect to any of the above insurance requirements.

(c) Landlord agrees that at its own cost and expense, Landlord will maintain commercial general liability insurance with limits not less than \$1,000,000 for injury to or death of one or more persons in any one occurrence and \$500,000 for damage or destruction to property in any one occurrence, or will maintain adequate self-insurance against such occurrences.

8. **INTERFERENCE.**

(a) Where there are existing radio frequency user(s) on the Property, the Landlord will provide Tenant with a list of all existing radio frequency user(s) on the Property to allow Tenant to evaluate the potential for interference. Tenant warrants that its use of the Premises will not interfere with existing radio frequency user(s) on the Property so disclosed by Landlord, as long as the existing radio frequency user(s) operate and continue to operate within their respective frequencies and in accordance with all applicable laws and regulations. Tenant further warrants that it will operate, keep and maintain

the Communication Facility at all times in compliance with applicable governmental approvals and requirements to prevent material interference with other authorized radio frequency users of the Property. Tenant further agrees to cooperate with other authorized users of the Property to identify and eliminate interference problems, and Tenant agrees to cooperate with Landlord and such other tenant(s) and/or licensee(s) to resolve any disputes over radio frequency interference.

(b) Landlord will not grant, after the date of this Agreement, a lease, license or any other right to any third party for use of the Property, if such use may materially adversely affect or interfere with the Communication Facility, the operations of Tenant or the rights of Tenant under this Agreement. Landlord will notify Tenant in writing prior to granting any third party the right to install and operate communications equipment on the Property.

(c) Landlord will not use, nor will Landlord permit its employees, tenants, licensees, invitees or agents to use, any portion of the Property in any way that materially interferes with the Communication Facility, the operations of Tenant or the rights of Tenant under this Agreement. Landlord will cause such interference to cease within twenty-four (24) hours after receipt of notice of interference from Tenant. In the event any such interference does not cease within the aforementioned cure period then the parties acknowledge that Tenant will suffer irreparable injury, and therefore, Tenant will have the right, in addition to any other rights that it may have at law or in equity, for Landlord's breach of this Agreement, to elect to enjoin such interference or to terminate this Agreement upon notice to Landlord.

9. INDEMNIFICATION.

(a) Tenant agrees to indemnify, defend and hold Landlord harmless from and against any and all injury, loss, damage or liability (or any claims in respect of the foregoing), costs or expenses (including reasonable attorneys' fees and court costs) arising directly from the installation, use, maintenance, repair or removal of the Communication Facility or Tenant's breach of any provision of this Agreement, except to the extent attributable to the negligent or intentional act or omission of Landlord, its employees, agents or independent contractors.

(b) Landlord agrees to indemnify, defend and hold Tenant harmless from and against any and all injury, loss, damage or liability (or any claims in respect of the foregoing), costs or expenses (including reasonable attorneys' fees and court costs) arising directly from the actions or failure to act of Landlord or its employees or agents, or Landlord's breach of any provision of this Agreement, except to the extent attributable to the negligent or intentional act or omission of Tenant, its employees, agents or independent contractors.

(c) Notwithstanding anything to the contrary in this Agreement, Tenant and Landlord each waives any claims that each may have against the other with respect to consequential, incidental or special damages.

(d) The provisions of this Paragraph 9 shall survive the expiration or termination of this Agreement.

10. WARRANTIES.

(a) Tenant and Landlord each acknowledge and represent that it is duly organized, validly existing and in good standing and has the right, power and authority to enter into this Agreement and bind itself hereto through the party set forth as signatory for the party below.

(b) Landlord represents and warrants that: (i) Landlord solely owns the Property as a legal lot in fee simple, or controls the Property by lease or license and solely owns the structure; (ii) the Property is not encumbered by any liens, restrictions, mortgages, covenants, conditions, easements, leases, or any other agreements of record or not of record, which would adversely affect Tenant's Permitted Use and enjoyment of the Premises under this Agreement; (iii) as long as Tenant is not in default then Landlord grants to Tenant actual, quiet and peaceful use, enjoyment and possession of the Premises; (iv) Landlord's execution and performance of this Agreement will not violate any laws, ordinances, covenants or the provisions of any mortgage, lease or other agreement binding on the Landlord; and (v) if the Property is

or becomes encumbered by a deed to secure a debt, mortgage or other security interest, Landlord will provide promptly to Tenant a mutually agreeable Subordination, Non-Disturbance and Attornment Agreement.

11. ENVIRONMENTAL.

(a) Landlord represents and warrants that, to the best of Landlord's knowledge, the Property is free of hazardous substances as of the date of this Agreement, and, to the best of Landlord's knowledge, the Property has never been subject to any contamination or hazardous conditions resulting in any environmental investigation, inquiry or remediation. Landlord and Tenant agree that each will be responsible for compliance with any and all environmental and industrial hygiene laws, including any regulations, guidelines, standards, or policies of any governmental authorities regulating or imposing standards of liability or standards of conduct with regard to any environmental or industrial hygiene condition or other matters as may now or at any time hereafter be in effect, that are now or were related to that party's activity conducted in, or on the Property. Tenant represents and warrants that it will not store, use or release hazardous substances on the Property.

(b) Landlord and Tenant agree to hold harmless and indemnify the other from, and to assume all duties, responsibilities, and liabilities at the sole cost and expense of the indemnifying party for, payment of penalties, sanctions, forfeitures, losses, costs, or damages, and for responding to any action, notice, claim, order, summons, citation, directive, litigation, investigation or proceeding which is related to (i) the indemnifying party's failure to comply with any environmental or industrial hygiene law, including without limitation any regulations, guidelines, standards or policies of any governmental authorities regulating or imposing standards of liability or standards of conduct with regard to any environmental or industrial hygiene conditions or matters as may now or hereafter be in effect, or (ii) any environmental or industrial hygiene conditions that arise out of or are in any way related to the condition of the Property and activities conducted by the party thereon, unless the environmental conditions are caused by the other party. Landlord acknowledges and agrees that Tenant shall have no liability for any hazardous substances located on the Premises or the Property or any environmental or other conditions on or affecting the Property as of the date of this Agreement.

(c) The indemnifications of this Paragraph 11 Environmental specifically include reasonable costs, expenses and fees incurred in connection with any investigation of Property conditions or any clean-up, remediation, removal or restoration work required by any governmental authority. The provisions of this Paragraph 11 Environmental will survive the expiration or termination of this Agreement.

(d) In the event Tenant becomes aware of any hazardous materials on the Property, or any environmental or industrial hygiene condition or matter relating to the Property that, in Tenant's sole determination, renders the condition of the Premises or Property unsuitable for Tenant's use, or if Tenant believes that the leasing or continued leasing of the Premises would expose Tenant to undue risks of government action, intervention or third-party liability, Tenant will have the right, in addition to any other rights it may have at law or in equity, to terminate the Agreement upon notice to Landlord.

12. ACCESS. At all times throughout the Term of this Agreement, and at no additional charge to Tenant, Tenant and its employees, agents, and subcontractors, will have twenty-four (24) hour per day, seven (7) day per week pedestrian and vehicular access to and over the Property, from an open and improved public road to the Premises, for the installation, maintenance and operation of the Communication Facility and any utilities serving the Premises. Landlord grants to Tenant an easement for such access and Landlord agrees to provide to Tenant such codes, keys and other instruments necessary for such access at no additional cost to Tenant. Landlord acknowledges that in the event Tenant cannot access the Premises, Tenant shall incur significant damage. If Landlord fails to provide the access granted by this Paragraph 12, such failure shall be a default under this Lease. In connection with such default, in addition to any other rights or remedies available to Tenant under this Lease or at law or equity, Landlord shall pay Tenant, as liquidated damages and not as a penalty, \$500.00 per day in

consideration of Tenant's damages, including, but not limited to, its lost profits, until Landlord cures such default. Landlord and Tenant agree that Tenant's damages in the event of a denial of access are difficult, if not impossible, to ascertain, and the liquidated damages set forth herein are a reasonable approximation of such damages. Upon Tenant's request, Landlord will execute a separate recordable easement evidencing this right. Upon Tenant's request, Landlord will execute a separate recordable easement evidencing this right. In the event any public utility is unable to use the access or easement provided to Tenant then the Landlord agrees to grant additional access or an easement either to Tenant or to the public utility, for the benefit of Tenant, at no cost to Tenant.

13. **REMOVAL/RESTORATION.** All portions of the Communication Facility brought onto the Property by Tenant will be and remain Tenant's personal property and, at Tenant's option, may be removed by Tenant at any time during the Term. Landlord covenants and agrees that no part of the Communication Facility constructed, erected or placed on the Premises by Tenant will become, or be considered as being affixed to or a part of, the Property, it being the specific intention of the Landlord that all improvements of every kind and nature constructed, erected or placed by Tenant on the Premises will be and remain the property of the Tenant and may be removed by Tenant at any time during the Term. Within one hundred twenty (120) days of the termination of this Agreement, Tenant will remove all of Tenant's above-ground improvements and Tenant will, to the extent reasonable, restore the Premises to its condition at the commencement of the Agreement, reasonable wear and tear and loss by casualty or other causes beyond Tenant's control excepted. Notwithstanding the foregoing, Tenant will not be responsible for the replacement of any trees, shrubs or other vegetation, nor will Tenant be required to remove from the Premises or the Property any foundations or underground utilities.

14. **MAINTENANCE/UTILITIES.**

(a) Tenant will keep and maintain the Premises in good condition, reasonable wear and tear and damage from the elements excepted. Landlord will maintain and repair the Property and access thereto, in good and tenantable condition, subject to reasonable wear and tear and damage from the elements.

(b) Tenant will be responsible for paying on a monthly or quarterly basis all utilities charges for electricity, telephone service or any other utility used or consumed by Tenant on the Premises. In the event Tenant cannot secure its own metered electrical supply, Tenant will have the right, at its own cost and expense, to submeter from the Landlord. When submetering is required under this Agreement, Landlord will read the meter and provide Tenant with an invoice and usage data on a monthly basis. Landlord agrees that it will not include a markup on the utility charges. Landlord further agrees to provide the usage data and invoice on forms provided by Tenant and to send such forms to such address and/or agent designated by Tenant. Tenant will remit payment within thirty days of receipt of the usage data and required forms. Failure by Landlord to perform this function will limit utility fee recovery by Landlord to a 12-month period. If Tenant submeters electricity from Landlord, Landlord agrees to give Tenant at least 24 hours advanced notice of any planned interruptions of said electricity. Landlord acknowledges that Tenant provides a communication service which requires electrical power to operate and must operate twenty-four (24) hour per day, seven (7) day per week. If the interruption is for an extended period of time, in Tenant's reasonable determination, the Landlord agrees to allow Tenant the right to bring in a temporary source of power for the duration of the interruption. Landlord will fully cooperate with any utility company requesting an easement over, under and across the Property in order for the utility company to provide service to the Tenant. Landlord will not be responsible for interference with, interruption of or failure, beyond the reasonable control of Landlord, of such services to be furnished or supplied by Landlord.

(c) The Landlord reserves the right to perform maintenance on the Tower, both structural and cosmetic (paint), at whatever intervals may be required to assure the integrity and longevity of the facility. Landlord shall provide Tenant with one hundred twenty (120) days advance written notice of the intended work and the opportunity to temporarily relocate and continue to operate its antennas, or otherwise to

secure the antennas or the Communication Facility generally, to protect them from damage and allow Tenant to continue to operate, to the extent possible. If necessary, to continue Tenant's operations, Landlord agrees to permit Tenant to place temporary transmission and reception facilities on the Property. Further, any maintenance will be conducted by Landlord as diligently and expeditiously as possible. Tenant's installation, operation and maintenance of the Communication Facility on the Premises shall not damage nor unreasonably interfere with the Landlord's operation, use, repair and maintenance of the Tower for its intended purpose.

(d) Landlord covenants that it will keep the Tower in good repair as required by all applicable laws. Landlord shall also comply with all rules and regulations enforced by the Federal Communications Commission with regard to the lighting, marking and painting of towers. If the Landlord fails to make repairs required for compliance with FCC regulations, the Tenant may make the repairs and the costs thereof shall be payable to the Tenant by the Landlord on demand; provided, however, Tenant has first complied with the default and right to cure provision of Paragraph 15 of this Agreement. If the Landlord does not make payment to the Tenant within ten (10) days after such demand, the Tenant shall have the right to deduct the costs of the repairs from the succeeding monthly rental amounts normally due from the Tenant to the Landlord.

15. DEFAULT AND RIGHT TO CURE.

(a) The following will be deemed a default by Tenant and a breach of this Agreement: (i) non-payment of Rent if such Rent remains unpaid for more than thirty (30) days after receipt of written notice from Landlord of such failure to pay; or (ii) Tenant's failure to perform any other term or condition under this Agreement within forty-five (45) days after receipt of written notice from Landlord specifying the failure. No such failure, however, will be deemed to exist if Tenant has commenced to cure such default within such period and provided that such efforts are prosecuted to completion with reasonable diligence. Delay in curing a default will be excused if due to causes beyond the reasonable control of Tenant. If Tenant remains in default beyond any applicable cure period, Landlord will have the right to exercise any and all rights and remedies available to it under law and equity.

(b) The following will be deemed a default by Landlord and a breach of this Agreement: Landlord's failure to perform any term, condition, or breach of any warranty or covenant under this Agreement within forty-five (45) days after receipt of written notice from Tenant specifying the failure. No such failure, however, will be deemed to exist if Landlord has commenced to cure the default within such period and provided such efforts are prosecuted to completion with reasonable diligence. Delay in curing a default will be excused if due to causes beyond the reasonable control of Landlord. If Landlord remains in default beyond any applicable cure period, Tenant will have the right to exercise any and all rights available to it under law and equity, including the right to cure Landlord's default and to deduct the costs of such cure from any monies due to Landlord by Tenant.

16. ASSIGNMENT/SUBLEASE. Tenant will have the right to assign, sell or transfer this Agreement, without the approval or consent of Landlord, to Tenant's parent, affiliates, subsidiaries of its parent or to any entity which acquires all or substantially all of Tenant's assets in the market defined by the Federal Communications Commission in which the Property is located by reason of a merger, acquisition or other business reorganization. Upon notification to Landlord of such assignment, transfer or sale, Tenant will be relieved of all future performance, liabilities and obligations under this Agreement. Tenant may not otherwise assign this Agreement without Landlord's consent, which consent shall not be unreasonably withheld, conditioned or delayed. Tenant may not sublease the Premises without the approval and consent of Landlord.

17. NOTICES. All notices, requests, demands and communications hereunder will be given by first class certified or registered mail, return receipt requested, or by a nationally recognized overnight courier, postage prepaid, to be effective when properly sent and received, refused or returned undelivered. Notice will be addressed to the parties as follows:

If to Tenant: General Communications, LLC
Attn: S. R. Miller
6907 University Avenue, #131
Middleton, WI 53562

If to Landlord: City of Darien
Attn: City Administrator
1702 Plainfield Road
Darien, Illinois 60561

Either party hereto may change the place for the giving of notice to it by thirty (30) days written notice to the other as provided herein.

- (b) In the event of a change in ownership, transfer or sale of the Property, within ten (10) days of such transfer, Landlord will send the below documents (in section 17(b)(i) to Tenant. In the event Tenant does not receive such appropriate documents, Tenant shall not be responsible for any failure to pay the current landlord
- (i) a. Old deed to Property
 - b. New deed to Property
 - c. Bill of Sale or Transfer
 - d. Copy of current Tax Bill
 - e. New W-9
 - f. New Payment Direction Form
 - g. Full contact information for new Landlord including all phone numbers

18. **SEVERABILITY.** If any term or condition of this Agreement is found unenforceable, the remaining terms and conditions will remain binding upon the parties as though said unenforceable provision were not contained herein. However, if the invalid, illegal or unenforceable provision materially affects this Agreement then the Agreement may be terminated by either party on ten (10) business days prior written notice to the other party hereto.

19. **CONDEMNATION.** In the event Landlord receives notification of any condemnation proceedings affecting the Property, Landlord will provide notice of the proceeding to Tenant within forty-eight (48) hours. If a condemning authority takes all of the Property, or a portion sufficient, in Tenant's sole determination, to render the Premises unsuitable for Tenant, this Agreement will terminate as of the date the title vests in the condemning authority. The parties will each be entitled to pursue their own separate awards in the condemnation proceeds, which for Tenant will include, where applicable, the value of its Communication Facility, moving expenses, prepaid Rent, and business dislocation expenses, provided that any award to Tenant will not diminish Landlord's recovery. Tenant will be entitled to reimbursement for any prepaid Rent on a prorata basis.

20. **CASUALTY.** Landlord will provide notice to Tenant of any casualty affecting the Property within forty-eight (48) hours of the casualty. If any part of the Communication Facility or Tower is damaged by fire or other casualty so as to render the Premises reasonably unsuitable for the permitted use of Tenant's Communication Facility, then either Tenant or Landlord may terminate this Agreement by providing written notice to the other party within sixty (60) days from the date of such damage or destruction, which termination will be effective as of the date of such damage or destruction. Upon such termination, Tenant will be entitled to collect all insurance proceeds payable to Tenant on account thereof and to be reimbursed for any prepaid Rent on a prorata basis. If notice of termination is given, or if Landlord undertakes to rebuild the Tower or if Tenant undertakes to rebuild the Communications Facility,

Landlord agrees to use its reasonable efforts to permit Tenant to place temporary transmission and reception facilities on the Property at no additional Rent for: (i) three (3) months from the date of such damage or destruction, or (ii) until such time as Tenant is able to activate a replacement transmission facility at another location or (iii) until the reconstruction of the Communication Facility is completed, whichever occurs first. If this Agreement has not been terminated and Landlord is undertaking the reconstruction of the Tower, Landlord agrees to use its reasonable efforts to permit Tenant to place temporary transmission and reception facilities on the Property at no additional Rent until the reconstruction of the Tower is completed.

21. **WAIVER OF LANDLORD'S LIENS.** Landlord waives any and all lien rights it may have, statutory or otherwise, concerning the Communication Facility or any portion thereof. The Communication Facility shall be deemed personal property for purposes of this Agreement, regardless of whether any portion is deemed real or personal property under applicable law, and Landlord consents to Tenant's right to remove all or any portion of the Communication Facility from time to time in Tenant's sole discretion and without Landlord's consent.

22. **TAXES.**

(a) Landlord shall be responsible for payment of all ad valorem taxes levied upon the lands, improvements and other property of Landlord. Tenant shall be solely responsible for and shall timely pay all personal property taxes levied and assessed against it or its personal property and all real property taxes levied and assessed against Tenant's leasehold interest in the Premises. Landlord shall provide Tenant with copies of all assessment notices on or including the Premises immediately upon receipt, but in no event later than thirty (30) days after receipt by Landlord. If Landlord fails to provide such notice within such time frame, Landlord shall be responsible for the year covered by the assessment. Tenant shall reimburse the Landlord for Tenant's proportionate share of the real estate taxes, upon timely receipt of a copy of the tax bill and request for reimbursement from the Landlord. For purposes herein, Tenant's proportionate share shall be determined based upon the square footage of the Premises (excluding therefrom any unassessed square footage used by Tenant, e.g., the rooftop) relative to taxable portion of Landlord's entire parcel of real estate (using, in the case of building space, the net usable square footage of the building, and in the case of leased land, the unimproved portion of Landlord's real estate (including parking areas)); provided, however, that if such method results in an inequitable allocation of taxes to Tenant, in Tenant's reasonable opinion, the parties shall mutually agree upon a methodology for equitably allocating Tenant's proportionate share of taxes. At the request of either party, the other shall provide evidence of payment of taxes and Tenant shall have the right to audit Landlord's books and records relating to taxes.

(b) Tenant shall have the right to contest all taxes, assessments, charges and impositions assessed against its personal property or improvements, and Landlord agrees to join in such contest, if required by law, and to permit the Tenant to proceed with the contest in Landlord's name, provided that the expense of the contest is borne by Tenant. This right shall include the ability to institute any legal, regulatory, or informal action in the name of Landlord; Tenant, or both, with respect the valuation of the Premises. This right shall include the ability to institute any legal, regulatory or informal action in the name of Landlord, Tenant, or both, with respect the valuation of the Premises. Landlord shall cooperate in the institution and prosecution of any such proceedings and will execute any documents required therefore. If the Landlord initiates an action to contest taxes or other items, Tenant may join in such action provided that Tenant pays its own expenses of so participating. Landlord shall, within thirty (30) days of receipt of notice of any increase in taxes, assessments or other charges, send a copy of such notice by certified mail, return receipt requested, to Tenant. If Landlord fails to give Tenant such notice as set forth above, Landlord will be responsible for payment of any increases and Tenant shall have the option to pay the same and deduct such payment from Rent or any other sums next due.

23. **SALE OF PROPERTY.**

(a) If Landlord, at any time during the Term of this Agreement, decides to sell, subdivide or rezone any of the Premises, all or any part of the Property or Surrounding Property, to a purchaser other than Tenant, Landlord shall promptly notify Tenant in writing, and such sale shall be subject to this Agreement and Tenant's rights hereunder. Landlord agrees not to sell or lease any areas of the Property or for the installation, operation or maintenance of other specific wireless communications facilities if such installation, operation or maintenance would materially interfere with Tenant's Permitted Use or communications equipment as determined by radio propagation tests performed by Tenant in its sole discretion, any such testing to be at the expenses of Landlord or Landlord's prospective purchaser, and not Tenant. Any such testing shall be performed within thirty (30) days of notice from Landlord of its intent to sell or lease any part of the property for installation of other wireless telecommunications facilities. If the radio frequency propagation tests demonstrate levels of interference unacceptable to Tenant or in violation of FCC technical requirements, Landlord shall be prohibited from selling, leasing or using any areas of the Property for purposes of any installation, operation or maintenance of any other wireless communications facility or equipment. Landlord shall not be prohibited from the selling, leasing or use of any of the Property or the Surrounding Property for non-wireless communication use. In the event the Property is transferred, the new landlord shall have a duty at the time of such transfer to provide Tenant with a completed IRS Form W-9, or its equivalent, and other related paper work to effect a transfer in Rent to the new landlord. The provisions of this Paragraph 23 shall in no way limit or impair the obligations of Landlord under Paragraph 8 above.

24. MISCELLANEOUS.

(a) **Amendment/Waiver.** This Agreement cannot be amended, modified or revised unless done in writing and signed by an authorized agent of the Landlord and an authorized agent of the Tenant. No provision may be waived except in a writing signed by both parties.

(b) **Memorandum/Short Form Lease.** Either party will, at any time upon fifteen (15) business days prior written notice from the other, execute, acknowledge and deliver to the other a recordable Memorandum or Short Form of Lease. Either party may record this Memorandum or Short Form of Lease at any time, in its absolute discretion.

(c) **Bind and Benefit.** The terms and conditions contained in this Agreement will run with the Property and bind and inure to the benefit of the parties, their respective heirs, executors, administrators, successors and assigns.

(d) **Entire Agreement.** This Agreement and the exhibits attached hereto, all being a part hereof, constitute the entire agreement of the parties hereto and will supersede all prior offers, negotiations and agreements with respect to the subject matter of this Agreement.

(e) **Governing Law.** This Agreement will be governed by the laws of the state in which the Premises are located, without regard to conflicts of law.

(f) **Interpretation.** Unless otherwise specified, the following rules of construction and interpretation apply: (i) captions are for convenience and reference only and in no way define or limit the construction of the terms and conditions hereof; (ii) use of the term "including" will be interpreted to mean "including but not limited to"; (iii) whenever a party's consent is required under this Agreement, except as otherwise stated in the Agreement or as same may be duplicative, such consent will not be unreasonably withheld, conditioned or delayed; (iv) exhibits are an integral part of the Agreement and are incorporated by reference into this Agreement; (v) use of the terms "termination" or "expiration" are interchangeable; (vi) reference to a default will take into consideration any applicable notice, grace and cure periods; (vii) to the extent there is any issue with respect to any alleged, perceived or actual ambiguity in this Agreement, the ambiguity shall not be resolved on the basis of who drafted the Agreement.

(g) **Estoppel.** Either party will, at any time upon thirty (30) business days prior written notice from the other, execute, acknowledge and deliver to the other a statement in writing (i) certifying that this Agreement is unmodified and in full force and effect (or, if modified, stating the nature of such

modification and certifying this Agreement, as so modified, is in full force and effect) and the date to which the Rent and other charges are paid in advance, if any, and (ii) acknowledging that there are not, to such party's knowledge, any uncured defaults on the part of the other party hereunder, or specifying such defaults if any are claimed. Any such statement may be conclusively relied upon by any prospective purchaser or encumbrancer of the Premises. The requested party's failure to deliver such a statement within such time will be conclusively relied upon by the requesting party that (i) this Agreement is in full force and effect, without modification except as may be properly represented by the requesting party, (ii) there are no uncured defaults in either party's performance, and (iii) no more than one month's Rent has been paid in advance.

(h) **W-9.** Landlord agrees to provide Tenant with a completed IRS Form W-9, or its equivalent, upon execution of this Agreement and at such other times as may be reasonably requested by Tenant.

(i) **No Electronic Signature/No Option.** The submission of this Agreement to any party for examination or consideration does not constitute an offer, reservation of or option for the Premises based on the terms set forth herein. This Agreement will become effective as an Agreement only upon the handwritten legal execution, acknowledgment and delivery hereof by Landlord and Tenant.

IN WITNESS WHEREOF, the parties have caused this Agreement to effective as of the last date written below.

WITNESSES:

Print Name: _____


"LANDLORD"

The City of Darien, an Illinois corporation

By: _____
Name: _____
Its: _____
Date: _____

"TENANT"

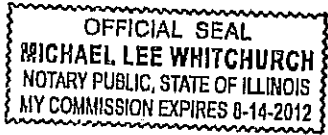
General Communications, LLC

By: 
Name: SR Miller
Title: VP

TENANT ACKNOWLEDGMENT

STATE OF ILLINOIS)
COUNTY OF COOK) ss:

On the 29th day of DECEMBER, 2011, before me personally appeared _____, and acknowledged under oath that he/she is the _____ of General Communications, LLC the Tenant named in the attached instrument, and as such was authorized to execute this instrument on behalf of the Tenant.



[Handwritten Signature]

Notary Public: MICHAEL LEE WHITCHURCH
My Commission Expires: 8/14/2012

LANDLORD ACKNOWLEDGMENT

STATE OF _____)
COUNTY OF _____) ss:

On the ____ day of _____, 20____ before me, personally appeared _____, who acknowledged under oath, that he/she is the person/officer named in the within instrument, and that he/she executed the same in his/her stated capacity as the voluntary act and deed of the Landlord for the purposes therein contained.

Notary Public: _____
My Commission Expires: _____

EXHIBIT 1

DESCRIPTION OF THE PROPERTY

to the Agreement dated _____, 20____, by and between The City of Darien, an Illinois corporation, as Landlord, and General Communications, LLC, as Tenant.

The Property is described and/or depicted as follows:

EXHIBIT 2

DESCRIPTION OF PREMISES

to the Agreement dated _____, 20____, by and between The City of Darien, an Illinois corporation, as Landlord, and General Communications, LLC, as Tenant.

The Premises are described and/or depicted as follows:

Prepared by and Return to:
Jenner & Block LLP
353 N. Clark Street
Chicago, Illinois 60654-3456
Attention: Donald S. Horvath

State: Illinois
County: DuPage

MEMORANDUM
OF
LEASE

This Memorandum of Lease is entered into on this ___ day of _____, 20___, by and between The City of Darien, an Illinois corporation, having a mailing address of 1702 Plainfield Road, Darien, Illinois 60561 (hereinafter referred to as "**Landlord**") and General Communications, LLC, having a mailing address of 6907 University Avenue, #131, Middleton, WI 53562 (hereinafter referred to as "**Tenant**").

1. Landlord and Tenant entered into a certain Structure Lease Agreement ("**Agreement**") on the ___ day of _____, 20___, for the purpose of installing, operating and maintaining a communications facility and other improvements. All of the foregoing are set forth in the Agreement.
2. The initial lease term will be five (5) years ("**Initial Term**") commencing on the Commencement Date, with four (4) successive automatic five (5) year options to renew.
3. The portion of the land being leased to Tenant (the "**Premises**") is described in **Exhibit 1** annexed hereto.
4. This Memorandum of Lease is not intended to amend or modify, and shall not be deemed or construed as amending or modifying, any of the terms, conditions or provisions of the Agreement, all of which are hereby ratified and affirmed. In the event of a conflict between the provisions of this Memorandum of Lease and the provisions of the Agreement, the provisions of the Agreement shall control. The Agreement shall be binding upon and inure to the benefit of the parties and their respective heirs, successors, and assigns, subject to the provisions of the Agreement.

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

WITNESSES:

Print Name: _____

Print Name: _____

Print Name: _____

Print Name: _____

"LANDLORD"

The City of Darien, an Illinois corporation

By: _____

Name: _____

Its: _____

Date: _____

"TENANT"

General Communications, LLC

By:

Name:

Title:

By: [Signature]

Print Name: SE MILLER

Its: VP

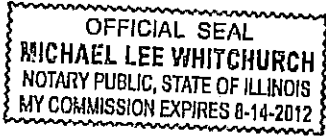
Date: December 24, 2011

SM

TENANT ACKNOWLEDGMENT

STATE OF ILLINOIS)
COUNTY OF COOK) ss:

On the 29TH day of DECEMBER, 2010, before me personally appeared _____, and acknowledged under oath that he/she is the _____ of General Communications, LLC, the Tenant named in the attached instrument, and as such was authorized to execute this instrument on behalf of the Tenant.



Michael Lee Whitchurch
Notary Public: MICHAEL LEE WHITCHURCH
My Commission Expires: 8/14/2012

LANDLORD ACKNOWLEDGMENT

STATE OF _____)
COUNTY OF _____) ss:

On the ____ day of _____, 2010 before me, personally appeared _____, who acknowledged under oath, that he/she is the person/officer named in the within instrument, and that he/she executed the same in his/her stated capacity as the voluntary act and deed of the Landlord for the purposes therein contained.

Notary Public: _____
My Commission Expires: _____

EXHIBIT 1

DESCRIPTION OF PREMISES

to the Memorandum of Lease dated _____, 20____, by and between The City of Darien, an Illinois corporation, as Landlord, and General Communications, LLC, as Tenant.

GENERAL COMMUNICATIONS



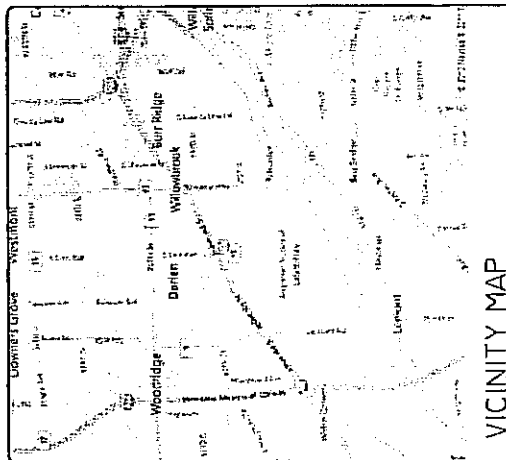
Know what's below.
Call before you dig.

APPLICANT INFO:
COMMUNICATION INFRASTRUCTURE CORPORATION
PO BOX 5816
SANTA BARBARA, CA 93160

PROJECT MANAGER:
COMMUNICATION INFRASTRUCTURE CORPORATION
PO Box 6816
SANTA BARBARA, CA 93160
CONTACT: JIM BRUNO
PHONE: 766.962.2856

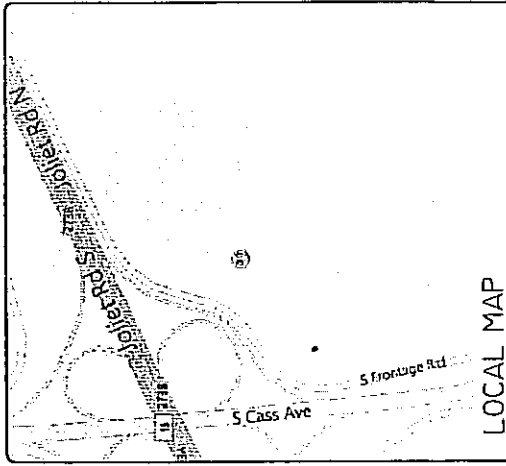
ENGINEER:
POWDER RIVER DEVELOPMENT SERVICES, LLC.
100 E. SHENANGO STREET
SHARPSVILLE, PA 16150
PHONE: 724.962.5999 FAX: 724.962.6009
CONTACT: MARK THOMPSON

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS PRIOR TO THE START OF WORK. ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER IN WRITING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DISCREPANCIES DETECTED PRIOR TO THE START OF WORK.

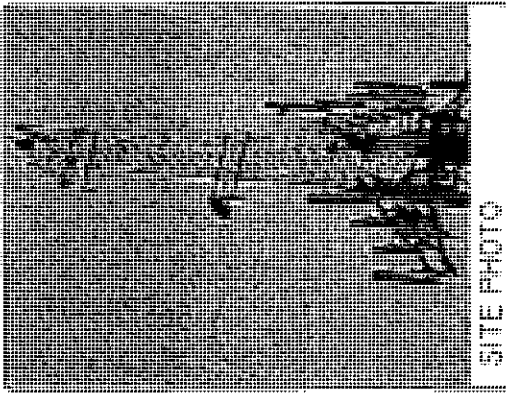


VICINITY MAP

PROPERTY INTEREST STATE: FROM THE SOUTH CORNER TO DEPART THE EAST SIDE IN THE RIGHT HAND CORNER TO THE WEST SIDE IN THE RIGHT HAND CORNER TO THE SOUTH CORNER



LOCAL MAP



SITE PHOTO

GEOGRAPHIC COORDINATES:
LATITUDE: 41.73007
LONGITUDE: -87.56622
ELEVATION: 675'

GENERAL COMMUNICATIONS



POWDER RIVER DEVELOPMENT SERVICES, LLC
100 E. SHENANGO STREET
SHARPSVILLE, PA 16150
724.962.5999
www.powderrivervd.com

REVISIONS	
NO.	DESCRIPTION
1	ISSUED FOR REVIEW
2	ISSUED FOR REVIEW
3	ISSUED FOR REVIEW
4	ISSUED FOR REVIEW
5	ISSUED FOR REVIEW

DATE: 04/15/2014
DRAWN BY: S. CLOVER, P.E.
CHECKED BY: S. CLOVER, P.E.

NOTE: THIS DRAWING IS THE PROPERTY OF POWDER RIVER DEVELOPMENT SERVICES, LLC. IT IS TO BE USED FOR THE PROJECT AND LOCATION SPECIFICALLY IDENTIFIED HEREON. ANY REUSE OR MODIFICATION OF THIS DRAWING WITHOUT THE WRITTEN CONSENT OF POWDER RIVER DEVELOPMENT SERVICES, LLC IS STRICTLY PROHIBITED.

TOWER OWNER:
NAME:
ADDRESS:
CONTACT NAME:
PHONE:

UTILITY COMPANY:
POWER: TBD PH: 160

PROJECT DATA:
ADDITION OF NEW EQUIPMENT AND NEW ANTENNAS TO EXISTING EQUIPMENT ON AN EXISTING SELF SUPPORT TOWER.
CONSTRUCTION TYPE: TWR

APPROVAL

DATE	BY	DATE	BY
	LOCAL ENGINEER		
	RETURN		
	CC		
	CONTRACTOR		
	OWNER		

SITE INFORMATION:
OTH1279535
SE CORNER OF I-55 & CASS AVE
DARIEN, IL 60527

SHEET TITLE:
TOWER SHEET

SHEET NUMBER:
T-1

SHEET INDEX	
SHEET	DESCRIPTION
T-1	TITLE SHEET
A-1	SITE PLAN
A-2	ANTENNA DETAILS
A-3	EQUIPMENT DETAILS
A-4	COAX MOUNTING DETAILS
E-1	UTILITY PLAN & DETAILS
E-2	SINGLE LINE DIAGRAM & DETAILS
E-3	GROUNDING PLAN & NOTES
E-4	GROUNDING DETAILS
GN-1	GENERAL NOTES
GN-2	GENERAL NOTES
GN-3	GENERAL NOTES
GN-4	GENERAL NOTES

GENERAL COMMUNICATIONS



POWDER RIVER

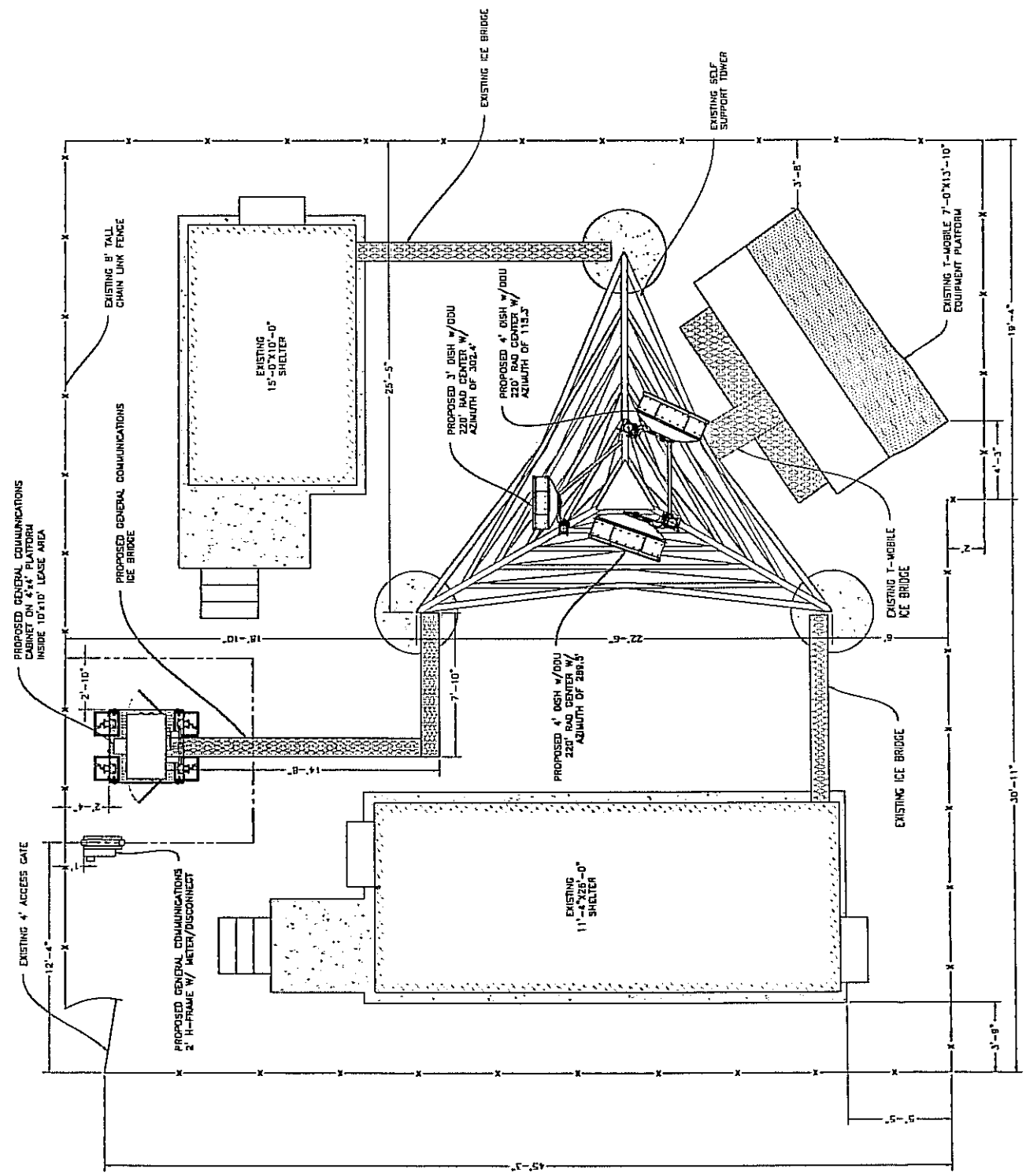
Development Services, LLC
 100 E. SHENANDO STREET
 SHARPSVILLE, PA 16150
 774.962.5999
 www.powderriver.com

DATE:	10/20/2018
PROJECT:	GENERAL COMMUNICATIONS
CLIENT:	POWDER RIVER DEVELOPMENT SERVICES, LLC
DESIGNED BY:	G. CLOVER, P.E.
CHECKED BY:	G. CLOVER, P.E.
SCALE:	AS SHOWN
PROJECT NO.:	18-031
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SITE INFORMATION:
 DTH1279535
 SE CORNER OF I-55 & CASS AVE
 GARRIEN, IL 61627

SHEET TITLE:
 SITE PLAN

SHEET NUMBER:
 A-1



GENERAL COMMUNICATIONS



POWDER RIVER
 Communications, LLC
 100 E. EUGENIUS STREET
 SHARPSVILLE PA 16156
 717.962.5999
 www.powderriver.com

PROJECT NO.	1517-0001
CHECKED BY:	G. DOWNEY, P.E.
DATE:	08/11/2015
PROJECT:	1517-0001
DATE:	08/11/2015
PROJECT:	1517-0001
DATE:	08/11/2015
PROJECT:	1517-0001
DATE:	08/11/2015
PROJECT:	1517-0001
DATE:	08/11/2015
PROJECT:	1517-0001
DATE:	08/11/2015
PROJECT:	1517-0001
DATE:	08/11/2015
PROJECT:	1517-0001
DATE:	08/11/2015

GENERAL INFORMATION:
 OTH1279535
 SE CORNER OF 135 S. CASS AVE
 DARIEN, IL 60527

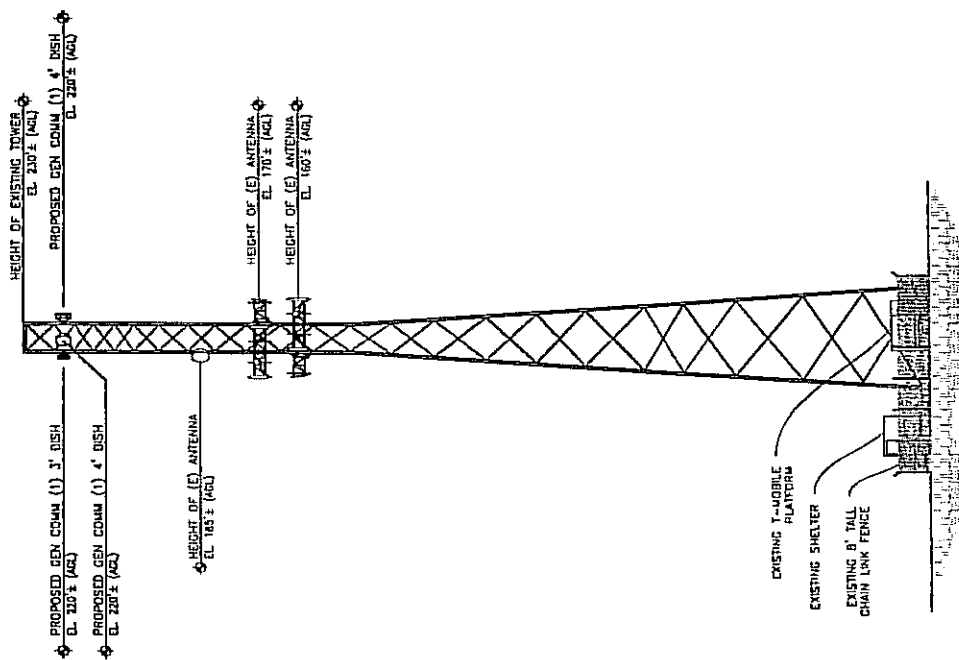
SHEET TITLE:
 ANTENNA DETAILS

SHEET NUMBER:
 A-2

GENERAL SPECIFICATIONS

ANTENNA INPUT	CPR800	PBR220	PBR220
FREQUENCY RANGE	10,700 - 11,700 CHZ	17,700 - 19,700 CHZ	17,700 - 19,700 CHZ
BEAMWIDTH, HORIZONTAL	1.6°	1.1°	1.0°
BEAMWIDTH, VERTICAL	1.6°	1.1°	1.0°
CROSS POLARIZATION DISCRIMINATION	33 dB	30 dB	36 dB
FRONT TO BACK RATIO	70 dB	71 dB	67 dB
GAIN, LOW BAND	40.0 dBi	42.7 dBi	44.0 dBi
GAIN, MID BAND	40.4 dBi	43.5 dBi	44.4 dBi
GAIN, TOP BAND	40.8 dBi	43.7 dBi	44.8 dBi
RETURN LOSS	28.3 dB	17.7 dB	24.0 dB
VSWR	1.08	1.30	1.14

ANTENNA PER SECTOR	DISH 1	DISH 2	DISH 3
ANTENNA MODEL	UHKA-107-PJA/B	VHLPK3-1B	HXA4-1B0
FREQUENCY RANGE	6.425 - 7.125 CHZ	5.925 - 6.425 CHZ	17,700 - 19,700 CHZ
CONFIGURATION	2+0	2+0	2+0
ANTENNA CENTER LINE	220'	220'	220'
SITE AZIMUTH	115.3°	302.4°	289.5°
PATH DISTANCE	115.3	8.85	60.9
RADIO TYPE	CG11_30_167Mb	CG11_30_167Mb	CG11_30_167Mb
RADIO TRAFFIC CODE	167Mbps_30MHz	167Mbps_30MHz	167Mbps_30MHz
MAIN LINE TYPE	LMR600	LMR600	LMR600
MAIN LINE RUNS (PER ANTENNA)	2	2	2
MAIN LINE LENGTH	255'	255'	255'
TOP JUMPER LENGTH (ft)	3	3	3
BOTTOM JUMPER LENGTH (ft)	3	3	3



1 PROPOSED ANTENNA MOUNT DETAIL (AGL)

GENERAL COMMUNICATIONS



POWDER RIVER
Dunwoody Services, LLC
4000 BUCKINGHAM STREET
CHARLOTTE, NC 28217
TEL: 704.552.5200
www.powderriver.com

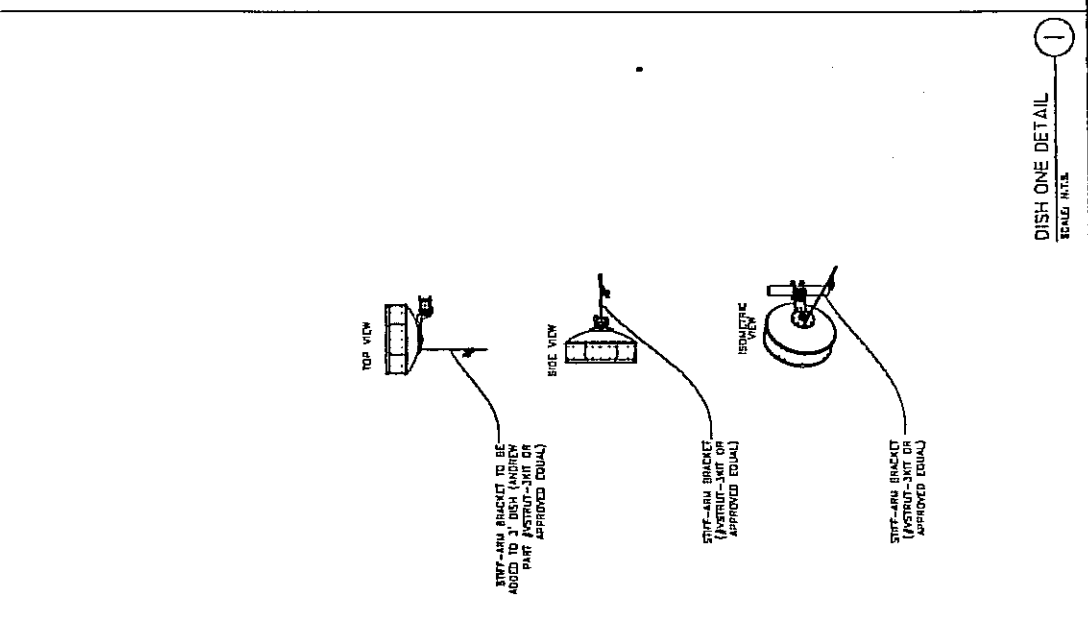
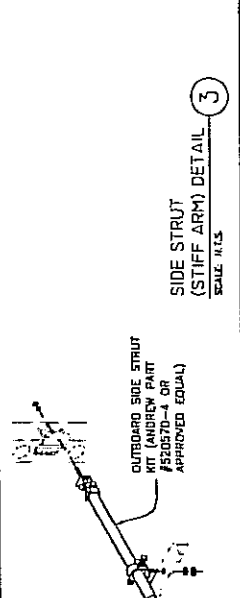
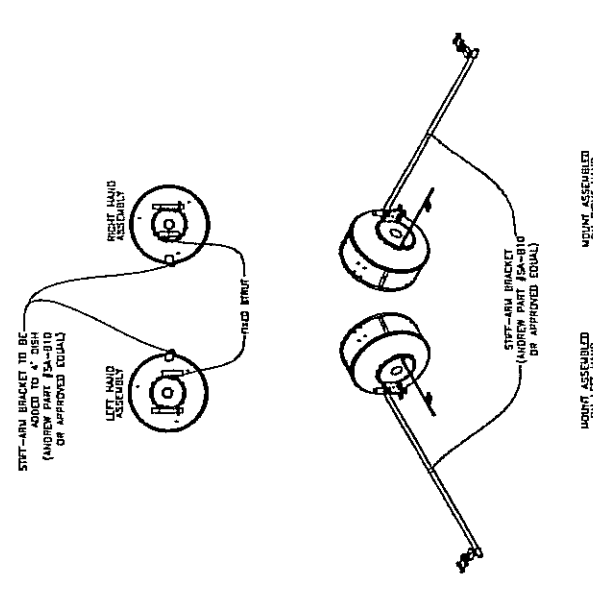
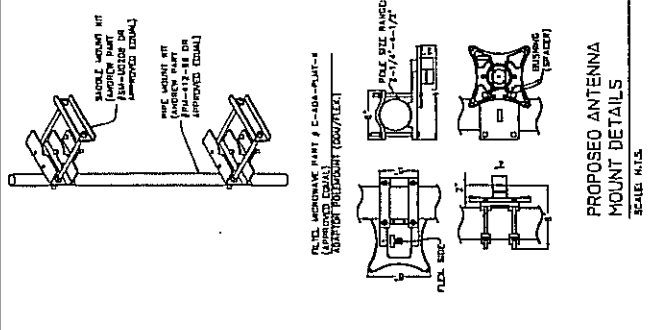
SERIALS	DATE

PREP. I.C. _____ DATE/REV. _____
CHECKED BY: G. OLIVER, P.E.
THIS DRAWING IS THE PROPERTY OF POWDER RIVER COMMUNICATIONS, LLC. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON. IT IS NOT TO BE REPRODUCED OR COPIED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF POWDER RIVER COMMUNICATIONS, LLC.

SITE INFORMATION:
OTH1279535
SE CORNER OF 1-55 & CASS AVE
DARIEN, IL 60827

SHEET TITLE:
MICROWAVE DETAILS

SHEET NUMBER:
A-3



INDEX:

6' MICRO WAVES & BELOW REQUIRE
(1) FINE ADJUST
(1) OUTBOARD STRUT (STIFF ARM)

STIFF ARM TO BE MOUNTED ON OPPOSITE SIDE OF FINE ADJUST ON ALL MICROWAVES 6' & BELOW

6' MICROWAVES & ABOVE REQUIRE
(1) FINE ADJUST
(2) OUTBOARD STRUTS (STIFF ARMS)

GENERAL COMMUNICATIONS



POWDER RIVER
Development Services, LLC
150 E. SHILOH STREET
SHARPSVILLE, PA 17080
717-332-5689
www.kerwin.com

NO.	DESCRIPTION	DATE
1	ISSUED FOR PERMITS	08/11/11
2	REVISED PER COMMENTS	08/11/11
3	REVISED PER COMMENTS	08/11/11
4	REVISED PER COMMENTS	08/11/11
5	REVISED PER COMMENTS	08/11/11
6	REVISED PER COMMENTS	08/11/11
7	REVISED PER COMMENTS	08/11/11
8	REVISED PER COMMENTS	08/11/11
9	REVISED PER COMMENTS	08/11/11
10	REVISED PER COMMENTS	08/11/11

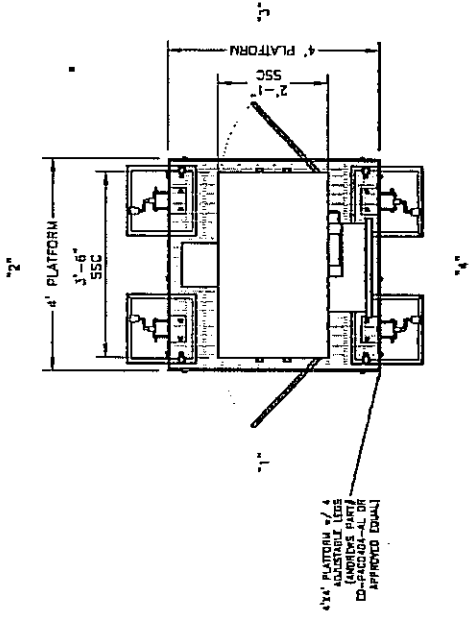
PROJECT NO.: 1000000000
DRAWN BY: G. GUNNER, P.E.
CHECKED BY: G. GUNNER, P.E.

NOTES:
1. THE CONTRACTOR SHALL VERIFY ALL SIZES AND LOCATIONS OF ALL ELECTRICAL OPENINGS AND EQUIPMENT PADS WITH THE ELECTRICAL DRAWINGS AND EQUIPMENT DETAIL AND SHOP DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL OPENINGS AND SLEEVES FOR PROPER DISTRIBUTION FOR ALL UTILITIES.

SITE INFORMATION:
0TH1279535
SE CORNER OF 135 B. CASS AVE
DARIEN, IL 60527

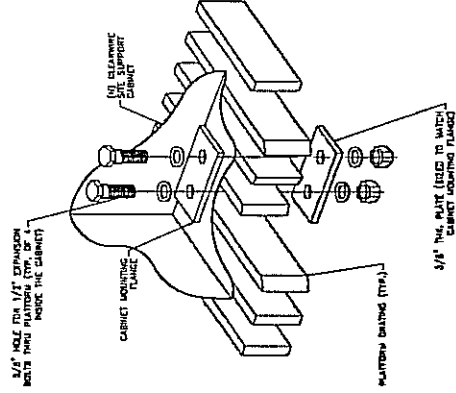
SHEET TITLE:
EQUIPMENT DETAILS

SHEET NUMBER:
A-4



NOTES:

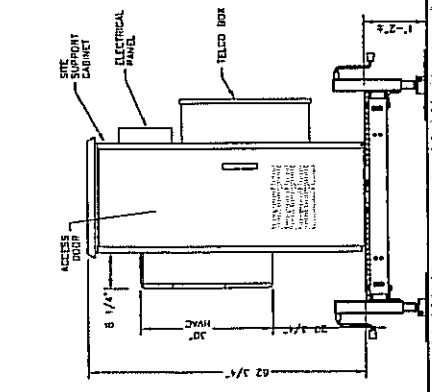
1. CONTRACTOR SHALL VERIFY ALL SIZES AND LOCATIONS OF ALL ELECTRICAL OPENINGS AND EQUIPMENT PADS WITH THE ELECTRICAL DRAWINGS AND EQUIPMENT DETAIL AND SHOP DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL OPENINGS AND SLEEVES FOR PROPER DISTRIBUTION FOR ALL UTILITIES.



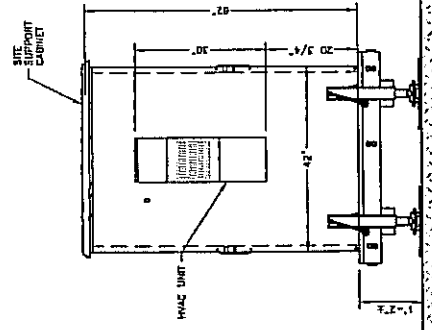
CABINET MOUNTING DETAIL (PLATFORM)
SCALE: N.T.S.

EQUIPMENT PLAN
SCALE: N.T.S.

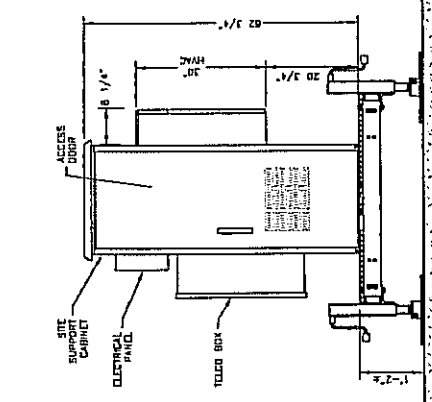
NOT USED
SCALE: N.T.S.



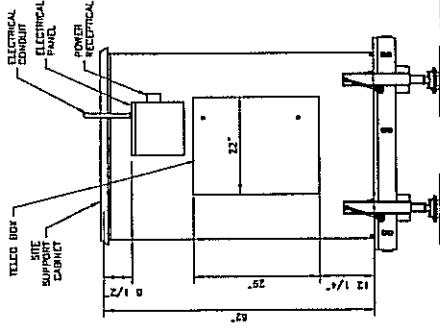
CABINET VIEW "1"
SCALE: N.T.S.



CABINET VIEW "2"
SCALE: N.T.S.



CABINET VIEW "3"
SCALE: N.T.S.



CABINET VIEW "4"
SCALE: N.T.S.

GENERAL COMMUNICATIONS



POWDER RIVER
 Technology Hardware LLC
 102 E. SHELDON STREET
 SHARPSVILLE, PA 16150
 717-921-5299
 www.powderriver.com

SUBMITTALS

NO.	DATE	REVISION / REVIEW	BY

PROJECT NO.: N/A

CHECKED BY: C. ALMEE, P.E.

DATE: 07/20/2010
 DRAWN BY: M. GARDNER
 PROJECT: 071279535
 SHEET: A-5

SITE INFORMATION:
 071279535

SE CORNER OF 1455 S. CASS AVE
 DARIEN, IL 60527

SHEET TITLE:
 COAX MOUNTING DETAILS

SHEET NUMBER:
 A-5

FIGURE 1
 STAR SUPPORT BRACKET

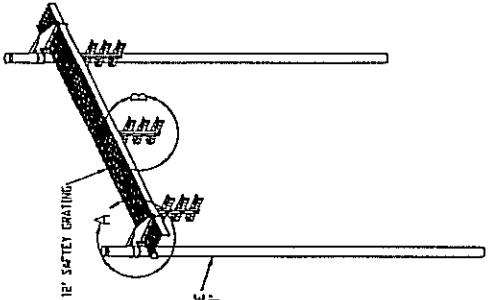


FIGURE 1
 SCALE: N.T.S.

FIGURE 2
 STAR SUPPORT CLAMP

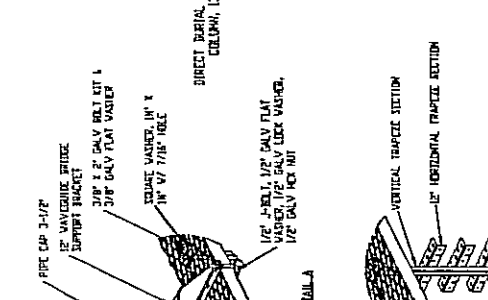


FIGURE 2
 SCALE: N.T.S.

FIGURE 3
 STAR SUPPORT CLAMP

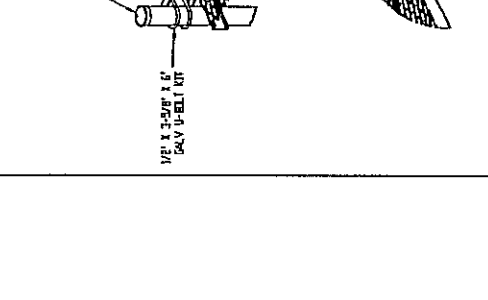


FIGURE 3
 SCALE: N.T.S.

FIGURE 4
 STAR SUPPORT CLAMP

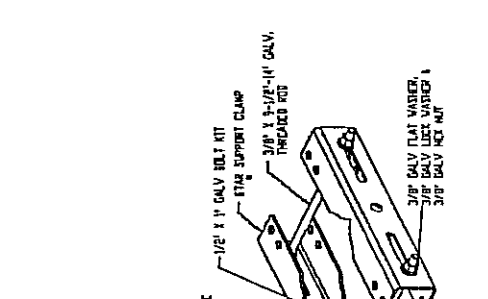


FIGURE 4
 SCALE: N.T.S.

COAX HANGER DETAIL
 SCALE: N.T.S.

ICE BRIDGE DETAIL
 SCALE: N.T.S.

TYPICAL WEATHERPROOFING DETAILS
 SCALE: N.T.S.

FIGURE 1

FIGURE 2

FIGURE 3

FIGURE 4

FIGURE 5

FIGURE 6

FIGURE 7

FIGURE 8

FIGURE 9

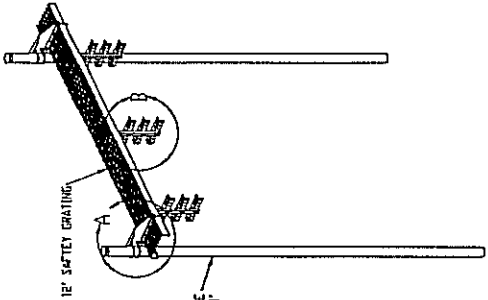


FIGURE 1

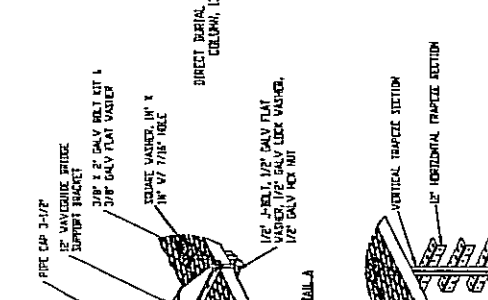


FIGURE 2

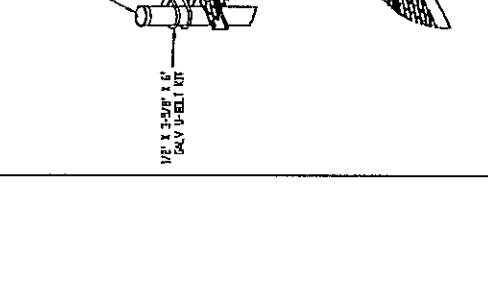


FIGURE 3

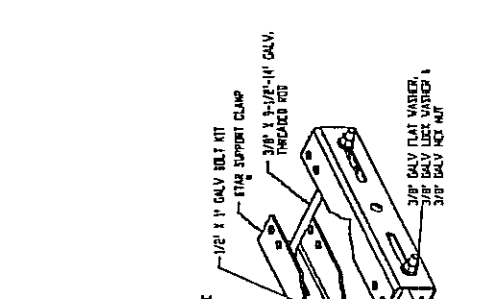


FIGURE 4

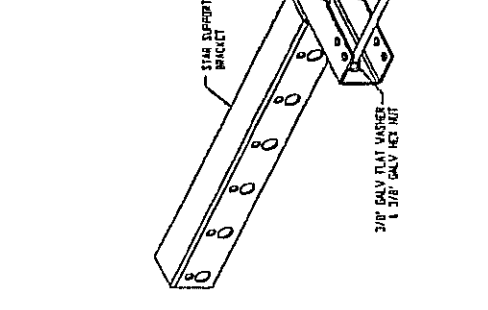


FIGURE 5



FIGURE 6



FIGURE 7

FIGURE 8

FIGURE 9

FIGURE 10

FIGURE 11

FIGURE 12

FIGURE 13

FIGURE 14

FIGURE 15

FIGURE 16

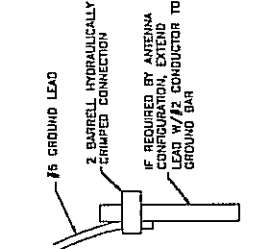


FIGURE 1

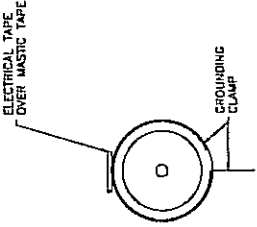


FIGURE 2

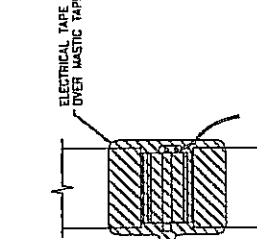


FIGURE 3

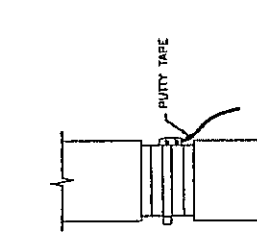


FIGURE 4

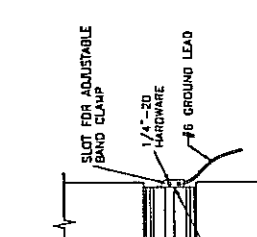


FIGURE 5

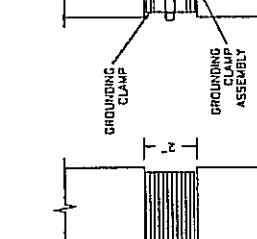


FIGURE 6

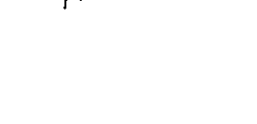


FIGURE 7



FIGURE 8

FIGURE 9

FIGURE 10

FIGURE 11

FIGURE 12

FIGURE 13

FIGURE 14

FIGURE 15

FIGURE 16

FIGURE 17

GENERAL COMMUNICATIONS

POWDER RIVER
 Development Services, LLC
 100 E. SHEPHERD STREET
 SHARPSVILLE, PA 16150
 724.592.5599
 www.powderriverdev.com

NO.	DESCRIPTION	DATE

PROJECT NO.: PJ2017010
 DESIGNED BY: E. MCWELLS/DEKRA, P.E.

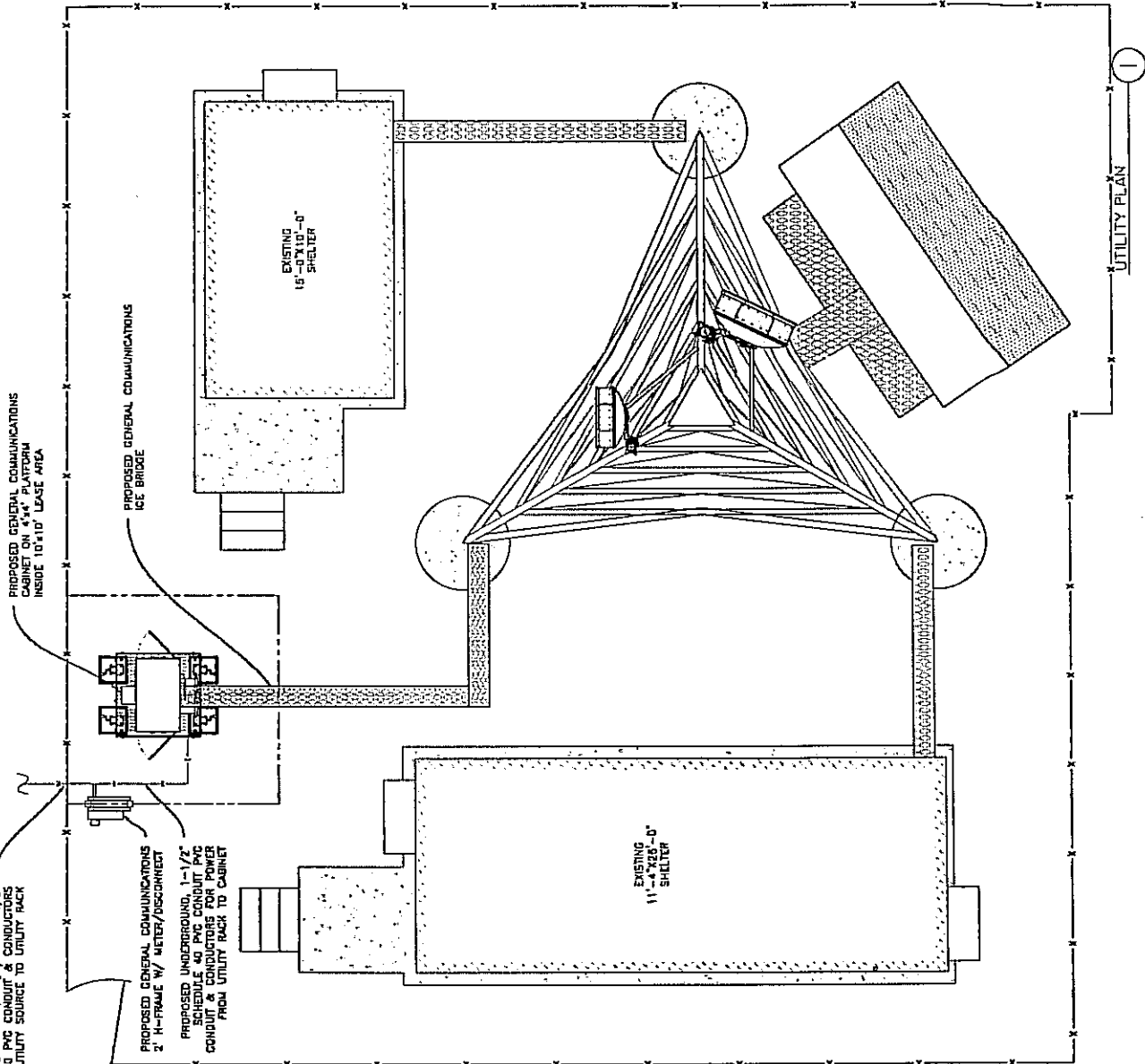
THIS PLAN AND SPECIFICATIONS SHALL BE OPEN TO PUBLIC VIEW AND WILL BE AVAILABLE TO THE PUBLIC FOR EXAMINATION AND COMMENT. ANY CHANGES TO THIS PLAN MUST BE APPROVED BY THE ENGINEER OF RECORD. THE ENGINEER OF RECORD SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND SHALL BE RESPONSIBLE FOR THE ACCURACY OF ALL INFORMATION PROVIDED TO THE ENGINEER OF RECORD. THE ENGINEER OF RECORD SHALL BE RESPONSIBLE FOR THE ACCURACY OF ALL INFORMATION PROVIDED TO THE ENGINEER OF RECORD.

SITE INFORMATION:
 0TH1279535

SE CORNER OF I-55 & CASS AVE
 GARIEN, IL 61527

SHEET TITLE:
 UTILITY PLAN AND DETAILS

SHEET NUMBER:
 E-1



UTILITY PLAN

GENERAL COMMUNICATIONS

POWDER RIVER
 Development Services, LLC
 100 E. SHEMANGO STREET
 SHARPSVILLE, PA 18150
 717.952.5699
 www.powderriverdev.com

NO.	DESCRIPTION	QUANTITY	UNIT	AMOUNT
1	CONTRACTOR SHALL VERIFY THE EXISTING CONDUIT RISE TO SUBMITTING IN ALL QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTORS FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.			
2	LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO RUSH-IN.			
3	THE CONDUIT RISE AS SHOWN ON THE PLANS ARE APPROXIMATE. EXACT LOCATION AND ROUTING SHALL BE PER EXISTING FIELD CONDITIONS.			
4	PROVIDE PULL BOXES AND JUNCTION BOXES WHERE SHOWN OR REQUIRED BY IFC.			
5	ALL CONDUITS SHALL BE MET WITH BONES MADE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION (NECA) STANDARDS AND SHALL BE INSTALLED WITHIN THE RISE FOR ALL CONDUITS 2" OR LARGER.			
6	ALL CONDUIT TERMINATIONS SHALL BE SECURED WITH PLASTIC TRIMMING INSULATING ENDURING BUSHINGS.			
7	ALL WIRE SHALL BE TYPE THHN, THHW, UNWEALED COPPER UP TO 1000V, TYPE THWN-2, UNWEALED COPPER (STRANDED) 75 DEGREE C (167 DEGREE F), 90A CONDUCTIVITY, MINIMUM #12.			
8	ALL WIRES SHALL BE TAGGED AT ALL PULL BOXES, J-BOXES, EQUIPMENT BOXES AND CABINETS WITH APPROVED PLASTIC TAGS, ACTION CRISP, BRADY, OR APPROVED EQUAL.			
9	ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.			
10	EQUIPMENT RUSH-IN SHALL BE COORDINATED WITH THE MECHANICAL CONTRACTOR TO AVOID LOCATION TO CONFLICTS. VERIFY WITH MECHANICAL CONTRACTOR AND COMPLY AS REQUIRED.			
11	ALL PANEL DIRECTORIES SHALL BE TYPEWRITTEN NOT HAND WRITTEN.			
12	INSTALL ALL EQUIPMENT TERMINATING EQUIPMENT IN ALL CONDUITS PER THE SPECIFICATIONS AND IFC. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, EQUIPMENT BOXES AND ALL DISCONNECT SWITCHES, STARTERS, AND EQUIPMENT CABINETS.			
13	THE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS, CHANGES AND FIELD NOTES TO THE OWNER'S REPRESENTATIVE WHILE COMPLETING THIS CONTRACT. SUBMIT AT SUBSTANTIAL COMPLETION.			
14	ALL DISCONNECT SWITCHES AND OTHER CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED LAMINATED HANDPLATES INDICATING EQUIPMENT CONTROLLED. BRANCH CIRCUITS INSTALLED ON AND PANEL FIELD LOCATIONS PER IFC (NO EXCEPTIONS).			
15	ALL ELECTRICAL DEVICES AND INSTALLATIONS OF THE DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE SPECIFICATIONS AND IFC. ALL ELECTRICAL DEVICES SHALL BE DISASSEMBLED ACT AS ADOPTED BY THE APPLICABLE STATE.			
16	CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFICATION OF ALL EQUIPMENT AND MATERIALS. ALL MATERIALS SHALL BE PROVIDED BY THE CONTRACTOR. ALL MATERIALS SHALL BE PROVIDED BY THE CONTRACTOR. ALL MATERIALS SHALL BE PROVIDED BY THE CONTRACTOR. ALL MATERIALS SHALL BE PROVIDED BY THE CONTRACTOR.			
17	ELECTRICAL CHARACTERISTICS OF ALL EQUIPMENT (NEW AND EXISTING) SHALL BE FIELD VERIFIED WITH THE OWNER'S REPRESENTATIVE. ALL EQUIPMENT SHALL BE PROPERLY IDENTIFIED AND ALL EQUIPMENT SHALL BE PROPERLY IDENTIFIED AND ALL EQUIPMENT SHALL BE PROPERLY IDENTIFIED AND ALL EQUIPMENT SHALL BE PROPERLY IDENTIFIED.			
18	THE EQUIPMENT (THE DESIGN OF THESE PLANS ARE BASED UPON BEST AVAILABLE INFORMATION AT THE TIME OF DESIGN AND SOME EQUIPMENT CHARACTERISTICS MAY VARY FROM DESIGN AS SHOWN ON THESE PLANS. THE CONTRACTOR SHALL VERIFY THE ELECTRICAL AND THE TYPE OF CONNECTION (PUSH OR PULL) SHALL BE CONFIRMED WITH THE OWNER'S REPRESENTATIVE PRIOR TO RUSH-IN.			

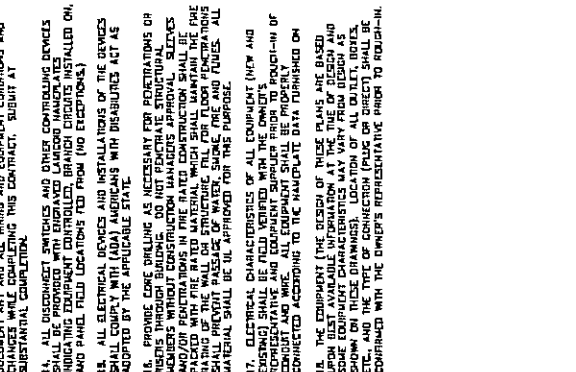
DECIDED BY: S. DUMAS, P.E.

OTHER INFORMATION: OTHI279535

SE CORNER OF 155 & CLASS AVE
DAPEREN, IL 61827

SHEET TITLE: SINGLE LINE DIAGRAM & DETAILS

SHEET NUMBER: E-2



ELECTRICAL NOTES

- CONTRACTOR SHALL VERIFY THE EXISTING CONDUIT RISE TO SUBMITTING IN ALL QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTORS FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
- LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO RUSH-IN.
- THE CONDUIT RISE AS SHOWN ON THE PLANS ARE APPROXIMATE. EXACT LOCATION AND ROUTING SHALL BE PER EXISTING FIELD CONDITIONS.
- PROVIDE PULL BOXES AND JUNCTION BOXES WHERE SHOWN OR REQUIRED BY IFC.
- ALL CONDUITS SHALL BE MET WITH BONES MADE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION (NECA) STANDARDS AND SHALL BE INSTALLED WITHIN THE RISE FOR ALL CONDUITS 2" OR LARGER.
- ALL CONDUIT TERMINATIONS SHALL BE SECURED WITH PLASTIC TRIMMING INSULATING ENDURING BUSHINGS.
- ALL WIRE SHALL BE TYPE THHN, THHW, UNWEALED COPPER UP TO 1000V, TYPE THWN-2, UNWEALED COPPER (STRANDED) 75 DEGREE C (167 DEGREE F), 90A CONDUCTIVITY, MINIMUM #12.
- ALL WIRES SHALL BE TAGGED AT ALL PULL BOXES, J-BOXES, EQUIPMENT BOXES AND CABINETS WITH APPROVED PLASTIC TAGS, ACTION CRISP, BRADY, OR APPROVED EQUAL.
- ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.
- EQUIPMENT RUSH-IN SHALL BE COORDINATED WITH THE MECHANICAL CONTRACTOR TO AVOID LOCATION TO CONFLICTS. VERIFY WITH MECHANICAL CONTRACTOR AND COMPLY AS REQUIRED.
- ALL PANEL DIRECTORIES SHALL BE TYPEWRITTEN NOT HAND WRITTEN.

1

2

3

POWER PANEL SCHEDULE

DESCRIPTION	FEED: TOP		MAIN C/R: 100 AMP		LOCATION: COMPOUND		PANEL: 'LP-1'	
	AMPS	PHASES	AMPS	PHASES	AMPS	PHASES	AMPS	PHASES
GEN COMM CABINET #6	2800	3	60	3	2	3	2	3
#10 THHN IN 3/4" C	1600	3	30	3	5	3	5	3
A/C UNIT	1600	3	2	3	1	3	1	3
TOTAL WATTS:	4400		4400		200		200	
TOTAL WATTS / PHASE:	1466.67		1466.67		66.67		66.67	
TOTAL WATTS / ALL PHASES:	4400	3	4400	3	200	3	200	3
TOTAL AMPS / ALL PHASES:	1466.67	3	1466.67	3	66.67	3	66.67	3
MARK CIRCUIT BREAKERS TO HAVE 22,000 A.I.C. MINIMUM; BRANCH BREAKERS 22,000 A.I.C.								

NOTES:
 1. ALL EQUIPMENT (FUSES, CIRCUIT BREAKERS, BUSSING, ETC.) SHALL HAVE A SHORT CIRCUIT RATING EQUAL TO, OR GREATER THAN, THE AVAILABLE SHORT CIRCUIT CURRENT AT THE LOCATION.
 2. PANEL IS B CIRCUIT. CIRCUITS NOT INDICATED SHALL BE DESIGNATED AS FUTURE SPACES.

POWER PANEL SCHEDULE

3

GENERAL COMMUNICATIONS



POWDER RIVER
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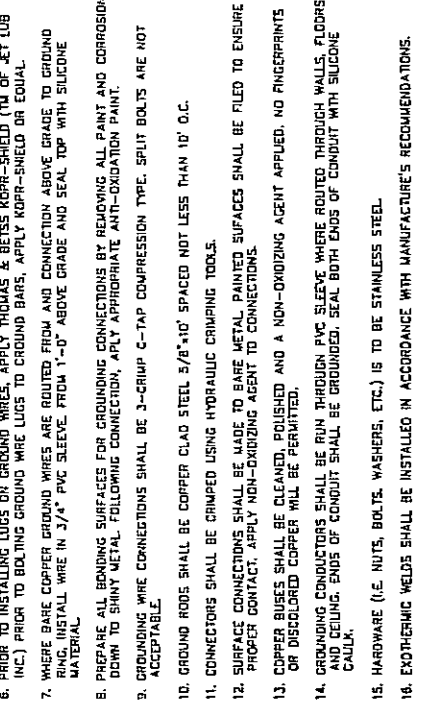
PROJECT NO.	15849001
DATE	02/11/15
ISSUED FOR REVIEW	CON
DESIGNED BY	S. MCELROY, P.E.
<small>This drawing is the property of Powder River Development Services, LLC. It is to be used only for the project and location specified hereon. No part of this drawing may be reproduced or transmitted in any form or by any means electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without the prior written permission of Powder River Development Services, LLC.</small>	

SITE INFORMATION:
OTH1279535
SE CORNER OF 155 & CLASS AVE
DARIEN, IL 60027

SHEET TITLE:
GROUNDING PLAN & NOTES

SHEET NUMBER:
E-3

- GROUNDING SPECIFICATIONS:**
1. GROUNDING SHALL COMPLY WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE.
 2. ALL GROUNDING DEVICES SHALL BE U.L. APPROVED OR LISTED FOR THEIR INTENDED USE.
 3. GROUND WIRES SHALL BE TINNED #2 AWG BARE SOLID CU UNLESS OTHERWISE NOTED.
 4. GROUNDING CONNECTIONS SHALL BE EXOTHERMIC (CARWELD) UNLESS NOTED OTHERWISE. CLEAN SURFACES TO SHINY METAL WHERE GROUND WIRES ARE CARWELDED TO GALVANIZED SURFACES. SPRAY CARWELD WITH GALVANIZING PAINT.
 5. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE. BEND GROUNDING LEADS WITH A MINIMUM 8" RADIUS.
 6. PRIOR TO INSTALLING LUGS ON GROUND WIRES, APPLY THOMAS & BETTS KOPR-SHIELD (TM OF .NET LUG INC.) PRIOR TO BOLTING GROUND WIRE LUGS TO GROUND BARS, APPLY KOPR-SHIELD OR EQUAL.
 7. WHERE BARE COPPER GROUND WIRES ARE ROUTED FROM AND CONNECTION ABOVE GRADE TO GROUND RING, INSTALL WIRE IN 3/4" PVC SLEEVE FROM 1'-0" ABOVE GRADE AND SEAL TOP WITH SILICONE MATERIAL.
 8. PREPARE ALL BENDING SURFACES FOR GROUNDING CONNECTIONS BY REMOVING ALL PAINT AND CORROSION DOWN TO SHINY METAL. FOLLOWING CONNECTION, APPLY APPROPRIATE ANTI-OXIDATION PAINT.
 9. GROUNDING WIRE CONNECTIONS SHALL BE 3-CRIMP C-TAP COMPRESSION TYPE. SPLIT BOLTS ARE NOT ACCEPTABLE.
 10. GROUND RODS SHALL BE COPPER CLAD STEEL 5/8" X 10' SPACED NOT LESS THAN 10' O.C.
 11. CONNECTORS SHALL BE CRIMPED USING HYDRAULIC CRIMPING TOOLS.
 12. SURFACE CONNECTIONS SHALL BE MADE TO BARE METAL. PAINTED SURFACES SHALL BE FILED TO ENSURE PROPER CONTACT. APPLY NON-OXIDIZING AGENT TO CONNECTIONS.
 13. COPPER BUSES SHALL BE CLEANED, POLISHED AND A NON-OXIDIZING AGENT APPLIED. NO FINGERPRINTS OR DISCOLORED COPPER WILL BE PERMITTED.
 14. GROUNDING CONDUCTORS SHALL BE RUN THROUGH PVC SLEEVE WHERE ROUTED THROUGH WALLS, FLOORS, AND CEILING. ENDS OF CONDUIT SHALL BE GROUNDING. SEAL BOTH ENDS OF CONDUIT WITH SILICONE CAULK.
 15. HARDWARE (I.E. NUTS, BOLTS, WASHERS, ETC.) IS TO BE STAINLESS STEEL.
 16. EXOTHERMIC WELDS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURE'S RECOMMENDATIONS.
 17. THE ENTIRE SYSTEM SHALL BE SOLIDLY GROUNDING USING LOCKWITS AND BONING NUTS ON CONDUITS AND PROPERLY BONDED GROUND CONDUCTORS. RECEPTACLES AND EQUIPMENT BRANCH CIRCUIT SHALL BE GROUNDING WITH A FULL SIZED EQUIPMENT GROUNDING CONDUCTOR RUN IN THE CIRCUIT'S CONDUIT.
 18. INSTALL GROUND BUSHINGS ON ALL METALLIC CONDUITS AND BOND TO THE EQUIPMENT GROUND BUS IN THE PANEL BOARD.
 19. GROUND BARS (SECTOR, COLLECTOR, MASTER) SHALL BE BARE 1/4" X 4" OR 1/2" X 6" CORNER AS INDICATED; THE ENTIRE SYSTEM SHALL BE SOLIDLY GROUNDING USING LOCKWITS AND BONING NUTS ON CONDUITS AND PROPERLY BONDED GROUND CONDUCTORS. RECEPTACLES AND EQUIPMENT BRANCH CIRCUIT SHALL BE GROUNDING WITH A FULL SIZED EQUIPMENT GROUNDING CONDUCTOR RUN IN THE CIRCUIT'S CONDUIT. SECURING THE WIRE SHALL ELECTRICALLY INSULATE THE WIRE FROM ANY STRUCTURE TO WHICH IT IS FASTENED.
 20. APPLY T&B KOPR-SHIELD OR APPROVED EQUAL PRIOR TO MAKING MECHANICAL CONNECTIONS. CONNECTIONS SHALL BE MADE WITH STAINLESS STEEL BOLTS, NUTS, AND LOCK WASHERS 3/8" DIAMETER MIN. WHERE GALVANIZING IS REMOVED FROM METAL IT SHALL BE PAINTED OR TOUCHED UP WITH "GALVONOX" OR EQUAL.
 21. ALL TERMINATIONS AT EQUIPMENT ENCLOSURES, PANELS, FRAMES OF EQUIPMENT AND WHERE EXPOSED FOR GROUNDING CONDUCTOR TERMINATION SHALL BE PERFORMED UTILIZING TWO HOLE BOLTED TONGUE COMPRESSION TYPE WITH STAINLESS STEEL SELF-TAPPING SCREWS.
 22. ALL CLAMPS AND SUPPORTS USED TO SUPPORT THE GROUNDING SYSTEM CONDUCTORS AND PVC CONDUITS SHALL BE PVC TYPE (NON-CONDUCTIVE). DO NOT USE METAL BRACKETS OR SUPPORTS WHICH WOULD FORM A COMPLETE RING AROUND ANY GROUNDING CONDUCTOR.
 23. ALL BOLTS, WASHERS AND NUTS USED ON GROUNDING CONNECTIONS SHALL BE STAINLESS STEEL.
 24. THE CONTRACTOR SHALL ENGAGE AN INDEPENDENT ELECTRICAL TESTING FIRM TO TEST AND VERIFY THAT THE SYSTEM IS PROPERLY GROUNDING AND THAT THE TESTING FIRM HAS PROVIDED A COPY OF TESTING REPORT, INCLUDING THE METHOD AND INSTRUMENTS USED TO VERIFY RESISTANCE TO CARRIER REPRESENTATIVE.
 25. BOND CABINET THROUGH THE MAIN GROUND BAR.

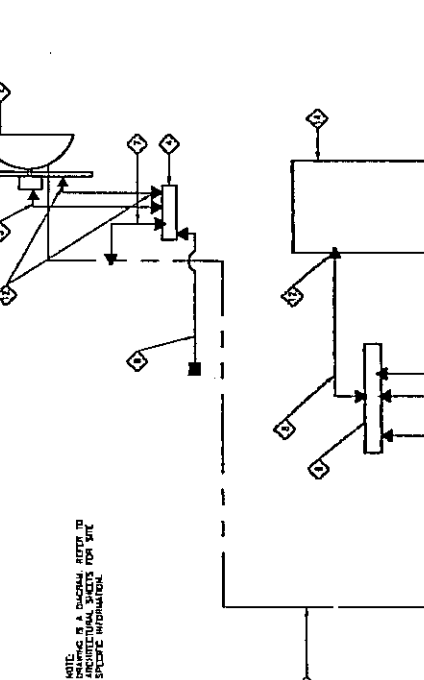


- GROUNDING SCHEMATIC**
- SCALE: N.T.S.
- 1

GROUNDING SPECIFICATIONS
SCALE: N.T.S.

2

NOTE: IS A CHECKED REFER TO ARCHITECTURAL SHEETS FOR WIRE SPECIFICATIONS.



- CONNECT TO EXISTING GROUNDING**
- ① NOT USED
 - ② NEW CHARACTER MICROVIBRANT DISK (TOTAL OF 3)
 - ③ NEW 1/2" X 1/2" SECTION GROUND BUS (250)
 - ④ NEW 2" X 1/2" X 1/2" SECTION GROUND BUS (250)
 - ⑤ NEW 2" X 1/2" X 1/2" SECTION GROUND BUS (250)
 - ⑥ NEW 2" X 1/2" X 1/2" SECTION GROUND BUS (250)
 - ⑦ NEW 2" X 1/2" X 1/2" SECTION GROUND BUS (250)
 - ⑧ NEW 2" X 1/2" X 1/2" SECTION GROUND BUS (250)
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GROUNDING SCHEMATIC
SCALE: N.T.S.

1

LEGEND:

- ① GROUNDING SPECIFICATIONS
- ② MECHANICAL CONNECTION
- ③ CRIMPING WELD CONNECTION



- ① NOT USED
- ② NEW CHARACTER MICROVIBRANT DISK (TOTAL OF 3)
- ③ NEW 1/2" X 1/2" SECTION GROUND BUS (250)
- ④ NEW 2" X 1/2" X 1/2" SECTION GROUND BUS (250)
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GROUNDING SCHEMATIC
SCALE: N.T.S.

1

GENERAL COMMUNICATIONS



POWDER RIVER
Development Services, LLC
100 E. SHEWANIGO STREET
SHARPSVILLE, PA 16150
724.921.5959
www.powderriverdev.com

NO.	DATE	ISSUED FOR REVIEW	BY
1	1/17/21		
2			
3			
4			
5			
6			
7			
8			

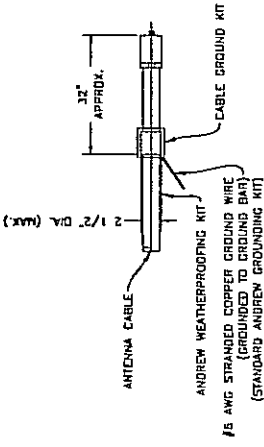
PROJECT NO.:
CHECKED BY: G. MCULLER, P.E.
DATE: 1/17/21

CONTRACTOR TO UTILIZE KOPR-SHIELD (THOMAS & BETTS) ON ALL LUG CONNECTIONS

SITE INFORMATION:
0TH1279535
SE CORNER OF 155 B CLASS AVE
DARIEN, IL 60527

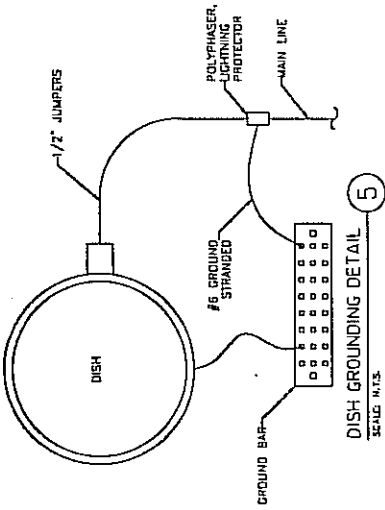
SHEET TITLE:
GROUNDING DETAILS

SHEET NUMBER:
E-4

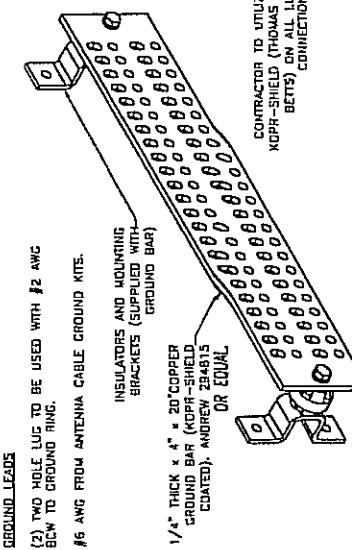


NOTE: DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.

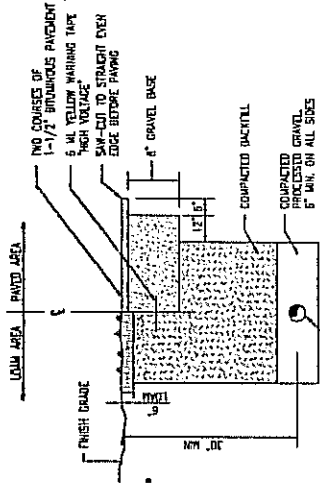
3
COAX CABLE GROUND
SCALE: N.T.S.



5
DISH GROUNDING DETAIL
SCALE: N.T.S.

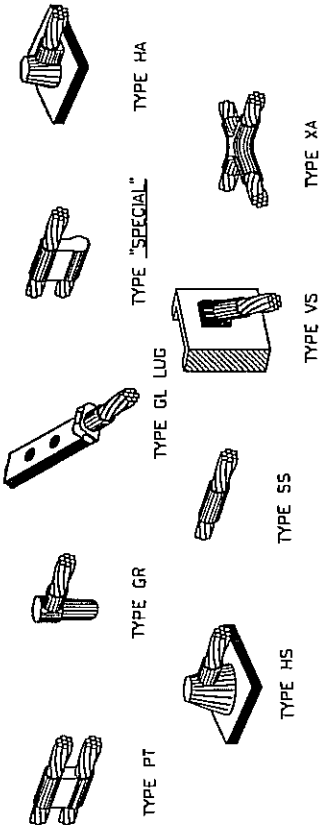


8
MASTER GROUND BAR DETAIL
SCALE: N.T.S.

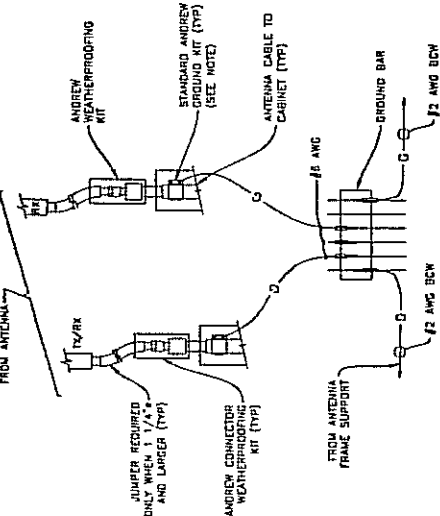


SCHEDULE 40 CONDUITS, UNLESS OTHERWISE NOTED, SIZE AS INDICATED ON SINGLE LINE DIAGRAM FOR NEW ELECTRICAL SERVICES. SEE UTILITY AND SITE PLANS. PROVIDE APPROVED PULL BOXES AS REQUIRED, AND COORDINATE INSTALLATION W/ ALL UTILITY COMPANIES FOR INTERFACING AT TERMINATION POINTS. PROVIDE FULL LENGTH PULL ROPES (TYP.).

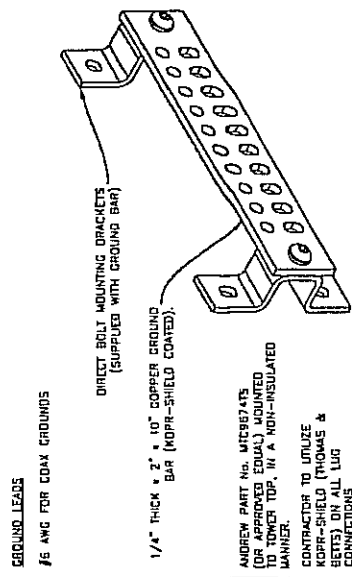
2
TYPICAL TRENCH DETAIL
SCALE: N.T.S.



4
CADWELD DETAIL
SCALE: N.T.S.



1
ANTENNA GROUNDING DETAIL
SCALE: N.T.S.



6
TOP TOWER GROUND BAR DETAIL-SECTOR
SCALE: N.T.S.

NOT USED
SCALE: N.T.S.

7

GROUND LEADS
#6 AWG FOR COAX GROUNDS

ANDREW PART NO. WTC98745 (OR APPROVED EQUAL) MOUNTED TO TOWER TOP. IN A NON-INSULATED MANNER.

CONTRACTOR TO UTILIZE KOPR-SHIELD (THOMAS & BETTS) ON ALL LUG CONNECTIONS

GENERAL COMMUNICATIONS



POWDER RIVER
 Development Services, LLC
 105 E. SHELDON STREET
 SUITE 100
 SHARPSVILLE, PA 15150
 717-862-5599
 www.pdrdevelopment.com

SUBMITTALS	
NO.	DESCRIPTION
1	PERMITS
2	CONTRACT DOCUMENTS
3	PROPOSALS
4	CONSTRUCTION DRAWINGS
5	CONSTRUCTION REPORTS
6	CONSTRUCTION RECORDS
7	CONSTRUCTION PHOTOGRAPHS
8	CONSTRUCTION VIDEO
9	CONSTRUCTION LOGS
10	CONSTRUCTION MEETINGS
11	CONSTRUCTION ACCIDENT INVESTIGATION
12	CONSTRUCTION DEFECT REPORTS
13	CONSTRUCTION CLOSEOUT
14	CONSTRUCTION AS-BUILT
15	CONSTRUCTION FINAL REPORT

PROJECT NO.:
 DRAWING NO.:
 DATE: 5/1/2014

PROJECT NAME:
 PROJECT LOCATION:
 PROJECT OWNER:

PROJECT DESCRIPTION:
 PROJECT SCOPE:
 PROJECT PHASES:

PROJECT INFORMATION:
 AT1014841
 5330 AULTON RD SW (CR10)
 PERRYSVILLE, OH 44615

SHEET TITLE:
 GENERAL NOTES

SHEET NUMBER:
GN-1

15. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.

16. THE CONTRACTOR SHALL NOTIFY THE RF ENGINEER FOR ANTENNA SMOOTH VERIFICATION (DURING ANTENNA INSTALLATION) PRIOR TO COORDINATING SITE SWEEPING.

17. THE CONTRACTOR SHALL SUBMIT, AT THE END OF THE PROJECT, A COMPLETE SET OF AS-BUILT DRAWINGS TO NEWK'S PROJECT MANAGER.

SITE WORK AND DRAINAGE
 EARTHWORK, EXCAVATION, AND GRADING

PART 1 GENERAL

1.01. WORK INCLUDED: REFER TO SURVEY AND SITE PLAN FOR WORK INCLUDED.

1.02. RELATED WORK

A. CONSTRUCTION OF EQUIPMENT FOUNDATIONS

B. INSTALLATION OF ANTENNA SYSTEM

1.03. DESCRIPTIONS

A. ACCESS ROAD, TURNAROUND AREAS, AND SITES ARE CONSTRUCTED TO PROVIDE A WELL DRAINED, EASILY MAINTAINED, EVEN SURFACE FOR MATERIAL AND EQUIPMENT DELIVERIES AND MAINTENANCE PERSONNEL ACCESS.

1.04. DUALITY ASSURANCE

A. APPLY SOIL STERILIZER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION (USE AS NEEDED)

B. VEGETATION LANDSCAPING, IF INCLUDED WITHIN THE CONTRACT WILL BE PLACED AND MAINTAINED AS RECOMMENDED BY NURSERY INDUSTRY STANDARDS.

1.05. SEQUENCING

A. CONTRACTOR IS RESPONSIBLE FOR LAYOUT AND CONSTRUCTION STAKING.

B. GRUB THE COMPLETE ROAD AND SITE AREA PRIOR TO FOUNDATION CONSTRUCTION OR PLACEMENT OF BACKFILL OR SUB-BASE MATERIAL

C. CONSTRUCT TEMPORARY CONSTRUCTION ZONE ALONG ACCESS DRIVE

D. THE SITE AREA WILL BE BROUGHT TO SUB-BASE COURSE ELEVATION AND THE ACCESS ROAD TO BASE COURSE ELEVATION PRIOR TO FORMING FOUNDATIONS.

E. APPLY SILT STERILIZER PRIOR TO PLACING BASE MATERIALS.

F. IF REQUIRED, GRADE, SEED, FERTILIZE AND MULCH DISTURBED AREAS IMMEDIATELY AFTER BRINGING THE SITE AND ACCESS ROAD TO BASE ELEVATION, WATER TO ENSURE GROWTH.

G. REMOVE EXCESS GRAVEL FROM TEMPORARY CONSTRUCTION ZONE

H. AFTER APPLICATIONS OF FINAL SURFACES, APPLY SOIL STERILIZER TO THE STONE SURFACES.

1.06. SUBMITTALS

A. BEFORE CONSTRUCTION

1. IF LANDSCAPING IS APPLICABLE TO THE CONTRACT SUBMIT TWO COPIES OF THE LANDSCAPE PLAN UNDER NURSERY CONTRACT, PROVIDE AN ITEMIZED LISTING OF PROPOSED COSTS UNDER NURSERY LETTERHEAD (REFER TO SITE PLAN FOR LANDSCAPING REQUIREMENT).

2. SUBMIT FOR APPROVAL 1/2 CUBIC FOOT OF THE PROPOSED SURFACE COURSE MATERIAL

3. LANDSCAPING WARRANTY STATEMENT, IF REQUIRED.

PART 2 PRODUCTS

2.01. MATERIALS

A. ROAD AND SITE MATERIALS: FILL MATERIAL SHALL BE ACCEPTABLE. SELECT FILL SHALL BE IN ACCORDANCE WITH LOCAL DEPARTMENT OF HIGHWAY AND PUBLIC TRANSPORTATION STANDARD SPECIFICATIONS.

B. SOIL STERILIZER SHALL BE EPA REGISTERED OF UDUO COMPOSITION AND OF PRE-EMERGENCE DESIGN.

18. THE CONTRACTOR MUST PROVIDE CLOSE-OUT DOCUMENTS AT THE FINAL INSPECTION WALK BEFORE PAYMENTS WILL BE MADE.

ANY SHIRAKE CAUSED BY POOR COMPACTION WILL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

GENERAL REQUIREMENTS

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES PERFORMED ON THE PROJECT. THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.

2. THE ARCHITECT/ENGINEER HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.

3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) NEWK'S REPRESENTATIVE OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK.

4. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED THEREON.

5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT.

6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DETERMINED BY THE CONSTRUCTION DRAWINGS/CONTRACT.

7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.

8. THE CONTRACTOR SHALL MAINTAIN A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.

9. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.

11. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE TO PROPERTY.

12. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARDOUS FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES MUST BE LEFT IN CLEAN CONDITION AND FREE FROM PLAIN SPOTS, DUST OR SMUDGES OF ANY KIND.

13. THE CONTRACTOR SHALL COMPLY WITH ALL PERTINENT SECTIONS OF THE APPLICABLE BUILDING CODES AND ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.

14. THE CONTRACTOR SHALL NOTIFY NEWK'S REPRESENTATIVE WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO OBTAIN MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY NEWK'S REPRESENTATIVE.

19. SOIL STABILIZER FABRIC SHALL BE MIRAF OR EQUAL - 500K AT ACCESS ROAD AND SOAK AT COUPOUND.

20. GRAVEL FILL: WELL GRADED, HARD, DURABLE, NATURAL SAND AND GRAVEL, FREE FROM ICE AND SNOW, ROOTS, 500 RUBBISH, AND OTHER OBSTACLES OR ORGANIC MATTER. MATERIAL SHALL CONFORM TO THE FOLLOWING GRADATION REQUIREMENTS.

U.S. GRADE NO. 5 PASSING BY WEIGHT

1 1/2"	50-85
3/4"	40-75
3/8"	30-60
#10	10-30
#20	5-20
#40	0-6

GRAVEL FILL TO BE PLACED IN LIFTS OF 9" MAXIMUM THICKNESS AND COMPACTED TO 95% DENSITY.

2.02. EQUIPMENT

A. COMPACTION SHALL BE ACCOMPLISHED BY MECHANICAL MEANS. LARGER AREAS SHALL BE COMPACTED BY SHEEP'S FOOT, VIBRATORY ROLLERS OR OTHER EQUIPMENT AS SPECIFIED. SMALLER AREAS SHALL BE COMPACTED BY POWER-DRIVEN, HAND HELD TAMPERS.

B. PRIOR TO OTHER EXCAVATION AND CONSTRUCTION EFFORTS GRUB ORGANIC MATERIAL TO A MINIMUM OF 6" BELOW ORIGINAL GROUND LEVEL.

C. UNLESS OTHERWISE INSTRUCTED BY NEWK COAL, REMOVE TREES, BRUSH AND DEBRIS FROM THE PROPERTY TO AN AUTHORIZED DISPOSAL LOCATION.

D. PRIOR TO PLACEMENT OF FILL OR BASE MATERIALS, ROLL THE SOIL TO REMOVE UNDESIRABLE SOIL CONDITIONS ARE ENCOUNTERED, LINE THE GRUBBED AREAS WITH STABILIZER MAT PRIOR TO PLACEMENT OF FILL OR BASE MATERIAL

3.03. INSTALLATION

A. THE SITE AND TURNAROUND AREAS SHALL BE AT THE SUB-BASE COURSE ELEVATION PRIOR TO FORMING FOUNDATIONS. GRADE OF FILL THE SITE AND ACCESS ROAD AS REQUIRED TO MAINTAIN EXISTING ELEVATIONS. THE RESULTING GRADE SHALL CORRESPOND WITH SAID SUB-BASE COURSE. ELEVATIONS ARE TO BE CALCULATED FROM FINISHED GRADES OR SLOPES INDICATED.

B. CLEAR EXCESS SPOILS, IF ANY, FROM JOB SITE AND DO NOT BROADCAST THEM TO THE ADJACENT LEASE PROPERTY UNLESS AUTHORIZED BY PROJECT MANAGER.

C. THE ACCESS ROAD SHALL BE BROUGHT TO BASE COURSE ELEVATION PRIOR TO FOUNDATION CONSTRUCTION.

D. DO NOT CREATE DEPRESSIONS WHERE WATER MAY POOL.

E. THE CONTRACT INCLUDES ALL NECESSARY GRADING, BANKING, DITCHING AND COMPLETE SURFACE COURSE FOR ACCESS ROAD. ALL ROADS OR ROUTES UTILIZED FOR ACCESS TO PUBLIC THOROUGHFARE IS INCLUDED IN SCOPE OF WORK UNLESS OTHERWISE INDICATED.

F. WHEN IMPROVING AN EXISTING ACCESS ROAD, GRADE THE EXISTING ROAD TO REMOVE ANY ORGANIC MATTER AND SMOOTH THE SURFACE BEFORE PLACING FILL OR STONE

G. PLACE FILL OR STONE IN 3" MAXIMUM LIFTS AND COMPACT BEFORE PLACING NEXT LIFT.

H. THE FINISH GRADE, INCLUDING TOP SURFACE COURSE, SHALL EXTEND A MINIMUM OF 12" BEYOND THE SITE FENCE AND SHALL COVER THE AREA AS INDICATED.

I. RIPRAP SHALL BE APPLIED TO THE SIDE SLOPES OF ALL FENCED AREAS, PARKING AREAS AND TO ALL OTHER SLOPES GREATER THAN 2:1.

J. RIPRAP SHALL BE APPLIED TO THE SIDES OF DITCHES OR DRAINAGE SWALES AS INDICATED ON PLANS.

K. RIPRAP EXPOSED DITCH FOR 6"-0" IN ALL DIRECTIONS AT CULVERT OPENINGS.

L. SEED, FERTILIZER AND STRAW COVER SHALL BE APPLIED TO ALL OTHER DISTURBED AREAS AND DITCHES, DRAINAGE SWALES, NOT OTHERWISE NOTED.

M. UNDER NO CIRCUMSTANCES SHALL DITCHES, SWALES OR CULVERTS BE PLACED SO THEY DIRECT WATER TOWARDS, OR PERMIT STANDING WATER IMMEDIATELY ADJACENT TO SITE. IF DIMMER DESIGNS ARE REQUIRED, THE CONTRACTOR SHALL ADVISE THE OWNER IMMEDIATELY.

GENERAL COMMUNICATIONS



POWDER RIVER
 Development Services, LLC
 100 E. SHELDON STREET
 SHARPSVILLE PA 15150
 724.962.5599
 www.powderriverdev.com

NO.	DESCRIPTION	DATE	BY

CHECKED BY: **D. OLIVER, P.E.**
 DATE: **07/15/14**
 PROJECT NO.: **07H1279535**

THIS DRAWING IS THE PROPERTY OF POWDER RIVER DEVELOPMENT SERVICES, LLC. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON. IT IS NOT TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM. WITHOUT THE WRITTEN PERMISSION OF POWDER RIVER DEVELOPMENT SERVICES, LLC.

SITE INFORMATION:
07H1279535
 SE CORNER OF L55 & CASS AVE
 DARIEN, IL 60527

SHEET TITLE:
 GENERAL NOTES

SHEET NUMBER:
GN-2

- PART 1 - GENERAL**
- 1.01 DESCRIPTION
 WORK INCLUDES CONSTRUCTION OF CAST-IN-PLACE CONCRETE FOUNDATIONS FOR CYLINDERS AND CURING COMPOUNDS FOR CONCRETE, REINFORCING FORMWORK AND ACCESSORY MATERIALS AS SHOWN ON THE DRAWINGS. CAST-IN-PLACE CONCRETE INCLUDES ALL SITE CONCRETE, INCLUDING FOUNDATIONS, SLABS ON GRADE, EQUIPMENT PADS, AND GUARDPOST FOUNDATIONS.
- 1.02 RELATED WORK
 A. COORDINATE UNDER SLAB CONDUITS.
 B. COORDINATE WITH GROUNDING.
 C. APPLICABLE STANDARDS
 A. ACI-301 - SPECIFICATIONS FOR STRUCTURAL CONCRETE BUILDINGS.
 B. ACI 347 - GUIDE TO FORMWORK FOR CONCRETE.
 C. ASTM C33 - CONCRETE AGGREGATES.
 D. ASTM C94 - READY-MIXED CONCRETE.
 E. ASTM C150 - PORTLAND CEMENT.
 F. ASTM C260 - AIR-ENTRAINING AD MIXTURES FOR CONCRETE.
 G. ASTM C509 - LIQUID MEMBRANE FORMING COMPOUNDS FORMING COMPOUNDS FOR CURING CONCRETE.
 H. ASTM C-484 - CHEMICAL AD MIXTURES FOR CONCRETE REINFORCEMENT.
 I. ASTM A615 - STEEL WELDED WIRE FABRIC FOR CONCRETE REINFORCEMENT.
 J. ASTM A195 - STEEL WELDED WIRE FABRIC FOR CONCRETE REINFORCEMENT.
 1.04 QUALITY ASSURANCE
 CONCRETE MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED BY THE ENGINEER.
 1.05 TESTS
 CONCRETE MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED BY THE ENGINEER AS THE WORK PROGRESSES. FAILURE TO DETECT ANY DEFECTIVE WORK OR MATERIAL SHALL NOT IN ANY WAY PREVENT LATER MATERIAL REJECTION WHEN SUCH DEFECT IS DISCOVERED NOR SHALL IT OBLIGATE THE ENGINEER FOR FINAL ACCEPTANCE.
 A. FIVE CONCRETE TEST CYLINDERS SHALL BE TAKEN OF THE TOWER AND PIER FOUNDATION. TWO SHALL BE TESTED 3 THREE DAYS, TWO 20 TWENTY-DAY TESTS. THE FIFTH CYLINDER SHALL BE KEPT SEPARATELY. IF REQUIRED TO BE USED IN THE FUTURE.
 B. ONE ADDITIONAL TEST CYLINDER SHALL BE TAKEN DURING COLD WEATHER AND CURED ON SITE UNDER SAME CONDITIONS AS CONCRETE IT REPRESENTS.
 C. ONE SLUMP TEST SHALL BE TAKEN FOR EACH SET OF TEST CYLINDERS TAKEN.
PART 2 - PRODUCT
 2.01 CONCRETE MATERIALS
 CONCRETE SHALL BE COMPOSED OF PORTLAND CEMENT, WATER, FINE AND COARSE AGGREGATES, AND AD MIXTURES AS SPECIFIED BELOW. ALL WELL MIXED AND BROUGHT TO PROPER CONSISTENCY.
 A. CEMENT: CEMENT SHALL BE TYPE II, GRAY COLOR, LOW-ALKALI PORTLAND CEMENT CONFORMING TO ASTM C150.
 B. FINE AND COARSE AGGREGATES: AGGREGATES FOR USE IN CONCRETE SHALL COMPLY WITH ASTM C33.
 C. WATER: WATER FOR MIXING AND CURING CONCRETE SHALL BE FREE FROM SEWAGE, OIL, ADD, ALKALI, AND SLATS AND SHALL BE FREE FROM OBJECTIONABLE QUANTITIES OF SILT, AND OTHER DELETERIOUS SUBSTANCES.
 2.02 AD MIXTURES
 A. AIR ENTRAINMENT: AIR ENTRAINING AGENT SHALL CONFORM TO ASTM C260. THE AD MIXTURE SHALL BE ADDED AS PART OF THE COMPUTED MIXING WATER REQUIREMENTS. AGENTS PREPARED IN SOLUTION SHALL BE MAINTAINED AT A UNIFORM STRENGTH AND SHALL BE BATCH BY MEANS OF RELIABLE MECHANICAL DISPENSERS.
 B. CHEMICAL AD MIXTURES: ASTM 484, TYPE A-WATER REDUCING AND RETARDING.
7. IF A DITCH USES WITH SLOPES GREATER THAN TEN PERCENT, ROUND DIVERSIONARY HEADWALLS IN THE DITCH FOR 6'-0" ABOVE THE CULVERT ENTRANCE.
 8. SEED AND FERTILIZER SHALL BE APPLIED TO SURFACE CONDITIONS WHICH WILL ENCOURAGE ROOTING. PLANT AREAS TO BE SEED TO EVEN THE SURFACE AND TO LOOSEN THE SOIL.
 9. SOW SEED IN TWO DIRECTIONS IN TWICE THE QUANTITY RECOMMENDED BY THE SEED PRODUCER.
 10. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE GROWTH OF SEEDS AND LANDSCAPED AREAS BY WATERING UP TO THE POINT OF RELEASE FROM THE CONTRACT. CONTINUE TO REMOVED BARE AREAS UNTIL COMPLETE COVERAGE IS OBTAINED.
 3.04 FIELD QUALITY CONTROL
 A. COMPACTION SHALL BE 90% MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-1557 FOR SITE WORK AND 95% MAXIMUM DENSITY UNDER SLAB AREAS. AREAS OF SETTLEMENT WILL BE EXCAVATED AND REPELLED AT CONTRACTOR'S EXPENSE.
 3.05 PROTECTION
 A. PROTECT SEEDS AREAS FORM EROSION BY SPREADING STRAW TO A UNIFORM DEPTH OF 1'-2", STAKE AND TIE DOWN AS REQUIRED. USE OF EROSION CONTROL MESH OR MULCH NET SHALL BE AN ACCEPTABLE ALTERNATIVE.
 B. ALL TREES PLACED IN CONJUNCTION WITH A LANDSCAPE CONTRACT SHALL BE WRAPPED, TIED WITH HOSE PROTECTED WIRE AND SECURED TO STAKES EXTENDING 2'-0" INTO THE GROUND ON FOUR SIDES OF THE TREE.
 C. ALL EXPOSED AREAS SHALL BE PROTECTED AGAINST WASHOUTS AND EROSION. ALL STAKES SHALL BE PLACED AT THE INLET APPROACH TO ALL NEW OR EXISTING CULVERTS.
CHAIN LINK FENCE
PART 1 - GENERAL
 4.01 SEQUENCING
 A. IF THE SITE AREA HAS BEEN BROUGHT UP TO SURFACE COURSE ELEVATION PRIOR TO FENCE CONSTRUCTION, FENCE POSTS, EXCAVATION SHALL BE COMPLETED TO PRECLUDE CONTAMINATION OF SAND SURFACE COURSE.
 4.02 APPLICABLE STANDARDS
 ASTM-A120 SPECIFICATION FOR PIPE, STEEL BLACK AND HOT-DIPPED ZINC COATED (GALVANIZED) WELDED AND SEAMLESS FOR ORDINARY USES.
 ASTM-A123 ZINC (HOT-DIP GALVANIZED) COATING ON IRON AND STEEL PRODUCTS.
 ASTM-A525 STANDARD SPECIFICATION FOR STEEL SHEET ZINC COATED (GALVANIZED) BY THE HOT-DIPPED PROCESS.
 FEDERAL SPECIFICATION RR-F-191-FENCING, WIRE AND POST METAL (AND GATES, CHAIN LINK FENCE FABRIC AND ACCESSORIES).
PART 2 - PRODUCTS
 4.03 FENCE MATERIALS
 A. ALL FABRIC WIRE, RAILS, POLES, HARDWARE AND OTHER STEEL MATERIALS SHALL BE HOT-DIPPED GALVANIZED.
 B. FABRIC SHALL BE 6'-0" HIGH X 2" CHAIN LINK MESH OF NO. 9 GAUGE (10.8) WIRE. THE FABRIC SHALL BE GALVANIZED TO A MINIMUM THICKNESS AT THE BOTTOM EDGES. FABRIC SHALL CONFORM TO THE SPECIFICATIONS OF ASTM A-482 CLASS 1.
 C. BARBED WIRE SHALL BE DOUBLE-STRAND, 1/2 GAUGE, TWISTED WIRE WITH 14 GAUGE 4 POINT ROUND BARBS SPACED AT 5' O.C.
 D. ALL POSTS SHALL BE SCHEDULE 20-GALVANIZED STEEL PIPE AND SHALL BE TYPE 1 ASTM A-123 AND OF THE FOLLOWING DIAMETER (OO PER FENCE INDUSTRY STANDARDS).

LINE CORNER	2 3/8"
GATE	4"
	3"

 E. EXTEND GATE AND CORNER POSTS 12" INCLUDING DOME CAP, TO PROVIDE FOR ATTACHMENT OF BARBED WIRE.
 F. ALL TOP AND BRACED RAIL SHALL BE 1 5/8" DIAMETER SHALL HAVE SCHEDULE - 20 MECHANICAL - SERVICE PIPE. FRAMES SHALL HAVE WELDED CORNERS.
8. GATE FRAMES SHALL HAVE A FULL-HEIGHT VERTICAL BRACE AND A FULL-WIDTH HORIZONTAL BRACE. SECURED IN PLACE BY USE OF GATE BRACE HEADS.
 9. GATE HINGES SHALL BE MERCHANTS METAL HORN BARBE HINGE ADAPTER WITH MODEL 646B, 180 DEGREE ATTACHMENT, OR EQUAL.
 10. THE GUIDE (LATCH ASSEMBLY) SHALL BE TAMPER PROOF.
 11. LATCHES, STOPS, AND KEEPERS SHALL BE PROVIDED FOR ALL GATES.
 12. ALL STOPS SHALL HAVE A FULL-HEIGHT PLUNGER BAR WITH DOME CAP.
 13. DOUBLE GATES SHALL HAVE A FULL-HEIGHT PLUNGER BAR WITH DOME CAP.
 14. A NO. 7 GAUGE ZINC COATED TENSION WIRE SHALL BE USED AT THE BOTTOM OF THE FABRIC, TERMINATED WITH BAND CLIPS AT CORNER AND GATE POSTS.
 15. A 3/8" X 1/2" EYE-BOLT TO HOLD TENSION WIRE WILL BE PLACED AT LINE POSTS.
 16. STRETCHER BARS SHALL BE 3/16" X 3/4" OR HAVE EQUIVALENT CROSS SECTIONAL AREA.
 17. ALL CORNER, GATE AND END PANELS SHALL HAVE A 3/8" TRUSS ROD WITH TURNBUCKLES AND BE BRACED WITH ONE 1-5/8" DIAGONAL COMPRESSION MEMBER, SECURELY ATTACHED WITH IRON FITTINGS.
 18. PROVIDE OTHER HARDWARE INCLUDING BUT NOT LIMITED TO THE RIPS, BAND CLIPS AND TENSION BAND CLIPS.
 19. BARBED WIRE GATE GUARDS SHALL BE FITTED WITH DOME CAPS.
 20. BARBED WIRE SUPPORT ARMS SHALL BE CAST IRON WITH SET DOLT AND LOCK WIRE IN THE ARM.
 21. ALL CAPS SHALL BE CAST STEEL.
 22. INSTALL REDWOOD SLATING IN BETWEEN ALL FABRIC WIRE - FULL HT.
PART 3 - EXECUTION
 4.04 EQUIPMENT: EXCAVATE POST HOLES WITH MECHANICAL AUGER EQUIPMENT
 4.05 INSPECTION: EXCAVATE POST HOLES PER CONSTRUCTION DOCUMENT. CONFIRM PROPER DEPTH AND DIAMETER OF POST HOLE EXCAVATIONS.
 4.06 INSTALLATION
 A. POST FOUNDATIONS SHALL HAVE A MINIMUM 6" CONCRETE COVER UNDER POST.
 B. ALL FENCE POSTS SHALL BE VERTICALLY PLUMB WITHIN 1/4" IN 8'-0".
 C. AT CORNER POSTS, GATE POST AND SOLES OF GATE FRAME, FABRIC SHALL BE ATTACHED WITH STRETCHER AND TENSION BAND-CLIPS AT 1'-3" INTERVALS.
 D. AT LINE POSTS, FABRIC SHALL BE ATTACHED WITH BAND-CLIPS AT 1'-3" INTERVALS.
 E. ATTACH FABRIC TO ORACE RAILS, TENSION WIRE AND TRUSS RODS WITH THE CLIPS AT 2'-0" INTERVALS.
 F. A MAXIMUM GAP OF 1" WILL BE PERMITTED BETWEEN THE CHAIN LINK FABRIC AND THE FINAL GRADE.
 G. GATES SHALL BE INSTALLED SO LOCKS ARE ACCESSIBLE FROM BOTH SIDES.
 H. GATE HINGE BOLTS SHALL HAVE THEIR THREADS PEENED OR WELDED TO PREVENT UNAUTHORIZED REMOVAL.
 4.07 PROTECTION: UPON COMPLETION OF ERECTION, INSPECT FENCE MATERIALS AND CORNER AND GATE HINGE ASSEMBLIES WITH ZINC-BASED PAINTY COLOR TO MATCH THE GALVANIZING PROCESS.
CONCRETE
CAST-IN-PLACE CONCRETE

GENERAL COMMUNICATIONS



POWDER RIVER
 Environmental Services, LLC
 100 E. SHILOH STREET
 SHARPSVILLE, PA 16150
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NO.	DATE	DESCRIPTION
1	01/01/11	ISSUED FOR REVIEW
2	01/01/11	ISSUED FOR REVIEW
3	01/01/11	ISSUED FOR REVIEW
4	01/01/11	ISSUED FOR REVIEW
5	01/01/11	ISSUED FOR REVIEW
6	01/01/11	ISSUED FOR REVIEW
7	01/01/11	ISSUED FOR REVIEW
8	01/01/11	ISSUED FOR REVIEW
9	01/01/11	ISSUED FOR REVIEW
10	01/01/11	ISSUED FOR REVIEW

PROJ. NO.:
 CHECKED BY: S. LOWER, P.E.
 DATE: 01/01/11

SITE INFORMATION:
 0TH1279635
 SE CORNER OF 155 S. CASS AVE
 DARIEN, IL 60527

SHEET TITLE:
 GENERAL NOTES

SHEET NUMBER:
 GN-3

- 2.03 PRODUCTS**
- 2.01 MATERIALS**
- A. STRUCTURAL STEEL: SHALL COMPLY WITH THE REQUIREMENTS OF ASTM A36 AND A572 FOR STRUCTURAL STEEL.
- 2.02 WELDING**
- A. ALL WELDING SHALL BE DONE BY CERTIFIED WELDERS. CERTIFICATION DOCUMENT SHALL BE MADE AVAILABLE FOR ENGINEER'S AND/OR OWNER'S REVIEW IF REQUESTED.
- B. WELDING ELECTRODES FOR MANUAL SHIELDED METAL ARC WELDING SHALL CONFORM TO ASTM 1-233, E70 SERIES. BARE ELECTRODES AND CHANULAR FLUX USED IN THE SUBMERGED ARC PROCESS SHALL CONFORM TO AISC SPECIFICATIONS.
- C. VISUAL INSPECTION IS ACCEPTABLE.
- D. STUD WELDING SHALL BE ACCOMPLISHED BY CAPACITOR CHARGED COIL WELDING PROCESS USING A501 FASTENERS, INC. 6000 CAPACITOR DISCHARGE STUD WELDER OR EQUAL.
- E. PROVIDE STUD FASTENERS OF MATERIALS AND SIZES SHOWN ON DRAWINGS OR AS RECOMMENDED BY THE MANUFACTURER FOR STRUCTURAL LOADINGS REQUIRED.
- F. FOLLOW MANUFACTURERS SPECIFICATIONS AND INSTRUCTIONS TO PROPERLY SELECT AND INSTALL STUD WELDS.
- 2.03 BOLTING**
- A. BOLTS SHALL BE 3/4" (MINIMUM) CONFORMING TO ASTM A325, HOT DIP GALVANIZED OR ASTM A153. NUTS SHALL BE HEAVY HEX TYPE.
- B. ALL BOLTS SHALL BE INSTALLED IN SLIP CRITICAL CONNECTIONS CONFORMING TO AISC METHOD, CONFORMING TO THE 1/4 TURN METHOD.
- 2.04 FABRICATION**
- A. FABRICATION OF STEEL SHALL CONFORM TO THE AISC AND AWS STANDARDS AND CODES.
- 2.05 FINISH**
- A. STRUCTURAL STEEL EXPOSED TO WEATHER SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.
- B. UPON COMPLETION OF ERECTION, INSPECT ALL GALVANIZED STEEL AND PAINT ANY FIELD CUTS, WELDS, OR GALVANIZED BREAKS WITH ZINC BASED PAINT, COLOR TO MATCH THE GALVANIZING PROCESS.
- 3.01 ERECTION OF STEEL**
- A. PROVIDE ALL ERECTION EQUIPMENT BRACING, PLANING, FIELD BOLTS, NUTS, WASHERS, DRIFT PINS, AND SIMILAR MATERIALS WHICH DO NOT FORM A PART OF THE COMPLETED CONSTRUCTION, BUT ARE NECESSARY FOR ITS PROPER ERECTION.
- B. ERECT AND ANCHOR ALL STRUCTURAL STEEL IN ACCORDANCE WITH THE REFERENCE STANDARDS. ALL WORK SHALL BE ACCURATELY SET TO ESTABLISHED ATTACHMENTS TO THE CONSTRUCTION OF THE BUILDING.
- C. TEMPORARY BRACING, GUNNING AND SUPPORT SHALL BE PROVIDED TO KEEP THE STRUCTURE SET AND ALIGNED AT ALL TIMES DURING CONSTRUCTION AND TO PREVENT DANGER TO PERSONS AND PROPERTY. CHECK ALL TEMPORARY LOADS AND STAY WITHIN SAFE CAPACITY OF ALL BUILDING COMPONENTS.
- SPECIAL CONSTRUCTION ANTENNA INSTALLATION**
- PART 1 - GENERAL**
- 1.01 WORK INCLUDED**
- A. ANTENNAS AND COAXIAL CABLES ARE FURNISHED BY NEMA UNDER SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND THE ACCURATE LOCATION. SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPERTY.
- B. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND NEMA COM. SPECIFICATIONS.
- C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.
- D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE AS INDICATED ON DRAWINGS.
- 2.01 SURFACES THAT WILL BE PERMANENTLY EXPOSED SHALL BE A UNIFORM FINISH PROVIDED BY THE REMOVAL OF FINES AND THE FILLING OF HOLES AND OTHER IRREGULARITIES WITH DRY PACK GROUT, OR BY SACKING WITH UNIDRY OR ORDINARY GROUT.**
- 2.02 SURFACES THAT WOULD NORMALLY BE LEVEL AND WHICH WILL BE PERMANENTLY EXPOSE TO THE WEATHER SHALL BE SLOPED FOR DRAINAGE UNLESS ENGINEER'S DESIGN DRAWING SPECIFIES A HORIZONTAL SURFACE OF SURFACES, SUCH AS STAIR TREADS, WALLS, CURBS, AND PARAPETS SHALL BE SLOPED APPROXIMATELY 1/4 IN. PER FOOT.**
- 2.03 SURFACES THAT WILL BE COVERED BY BACKFILL OR CONCRETE SHALL BE SMOOTH SCREENED.**
- 2.04 EXPOSED SLAB SURFACES SHALL BE CONSOLIDATED, SCREENED, FLOATED, AND STEEL TROWELED. HAND OR POWER-DRIVEN EQUIPMENT MAY BE USED FOR FLOORING SHALL BE STARTED AS SOON AS THE SURFACE FINISHING IS COMPLETE. ALL FINISHING OPERATIONS SHALL BE CONTINUED UNTIL THE MINIMUM FINISHING REQUIRED TO PRODUCE A SURFACE UNIFORM IN TEXTURE AND FREE FROM SCALED MARKS OR OTHER IMPERFECTIONS. THE FINAL FINISH SHALL BE PRODUCED BY USE OF STEEL-BLADED FINISHING TROWELS. STEEL TROWLING SHALL COMMENCE ONLY AFTER THE SURFACES TO BE FINISHED ARE FREE OF ALL SURFACE DEFECTS AND SHALL BE CONTINUED ONLY UNTIL THE SURFACE IS SMOOTH AND UNIFORM IN TEXTURE AND APPEARANCE. IF FREE WATER IS BROUGHT TO THE SURFACE DURING THE FINISHING OPERATIONS, IT SHALL BE REMOVED BY SPONGING. FINISHING SHALL BE TINED AND REPERFORMED SO THAT EXTRA WATER NEED NOT BE APPLIED TO THE SURFACE BEING FINISHED.**
- 3.03 PATCHING**
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY UPON DISCOVERY OF DEFECTS OR DEFICIENCIES IN THE CONCRETE. DEFECTS SHALL BE PATCHED ACCORDING TO THE ENGINEER'S DIRECTION.
- 3.06 DEFECTIVE CONCRETE**
- THE CONTRACTOR SHALL NOTIFY OR REPLACE CONCRETE NOT CONFORMING TO REQUIRED LEVELS AND LINES, DETAILS, AND ELEVATIONS AS SPECIFIED IN A01 301.
- 3.07 PROTECTION**
- A. IMMEDIATELY AFTER PLACEMENT, THE CONTRACTOR SHALL PROTECT THE CONCRETE FROM PREMATURE DRYING, EXCESSIVELY HOT OR COLD TEMPERATURES, AND MECHANICAL INJURY. FINISHED WORK SHALL BE PROTECTED.
- B. CONCRETE SHALL BE MAINTAINED WITH MINIMAL MOISTURE LOSS THROUGHOUT THE CURE PERIOD. METHODS NECESSARY FOR AVOIDANCE OF CRACKING AND HARDENING OF CONCRETE.
- C. ALL CONCRETE SHALL BE WATER CURED BY CONTINUOUS (NOT PERIODIC) FINE MIST SPRAYING OR SPRINKLING ALL EXPOSED SURFACES. WATER SHALL BE CLEAN AND FREE FROM OIL, ALKALI, SALTS, OIL, SEEDING, OR OTHER CONTAMINANTS. WATER CURING PRESSURE IN PIPES, WITH ALL NECESSARY APPLIANCES OF HOSE, SPRINKLERS, AND SPRAYING DEVICES.
- 3.08 METALS**
- PART 1 - GENERAL**
- 1.01 WORK INCLUDED**
- A. THE WORK CONSISTS OF THE FABRICATION AND INSTALLATION OF ALL MATERIALS TO BE FURNISHED, AND WITHOUT LIMITING THE REMOVAL THEREOF, INCLUDES ALL EQUIPMENT, LABOR AND SERVICES REQUIRED FOR ALL STRUCTURAL STEEL AND ALL WATER SUPPLY UNDER PRESSURE IN PIPES, WITH ALL NECESSARY APPLIANCES OF HOSE, SPRINKLERS, AND SPRAYING DEVICES.
- 1.02 REFERENCE STANDARDS**
- A. THE WORK SHALL CONFORM TO THE CODES AND STANDARDS OF THE FOLLOWING AGENCIES AS FURTHER NOTED HEREIN.
- ASTM; AMERICAN SOCIETY FOR TESTING AND MATERIALS, 1900 RACE STREET, PHILADELPHIA, PA 19103, USA AS PUBLISHED IN "COMPILATION OF ASTM STANDARDS IN BUILDING CODES".
 - AWI; AMERICAN WELDING SOCIETY INC., 2501 NW 7TH STREET, MIAMI, FL 33135, USA AS PUBLISHED IN "CODE FOR STANDARD SPECIFICATION FOR STEEL BRIDGES AND BRIDGES". "SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
- 2.01 CURING COMPOUND: ASTM C309, TYPE 1, CLASS B; TRANSLUCENT.**
- 2.04 ACCESSORIES**
- A. NONSHRINK GROUT: PREMIXED COMPOUND CONSISTING OF NONMETALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING AGENTS, CAPABLE OF DEVELOPING MINIMUM COMPRESSIVE STRENGTH OF 7,000 PSI IN 28 DAYS.
- B. JOINT FILLERS BITUMINOUS TYPE, ASTM D1781 OR NON-BITUMINOUS TYPE, ASTM D1752.
- C. ANCHOR BOLTS: ASTM A307, UNRIMMED.
- 2.05 CONCRETE MIX**
- A. CONCRETE SHALL BE PROPORTIONED FOR WORKABILITY, MAXIMUM DENSITY, STRENGTH, AND DURABILITY REQUIREMENTS IN ACCORDANCE WITH ACI 301. THE 28-DAY DESIGN COMPRESSIVE STRENGTH OF CONCRETE SHALL BE AS SPECIFIED ON THE DRAWINGS. CONCRETE FURNISHED MUST BE A CONCRETE READY-MIX FURNISHED WITH ESTABLISHED AS OCCURRING NOT LATER THAN 45 MINUTES AFTER ADDITION OF WATER TO THE MIX. SLUMP OF DELIVERED CONCRETE SHALL NOT EXCEED 5".
- B. THE FOLLOWING STRENGTHS SHALL BE USED:
1. FENCE POSTS FOUNDATIONS - DESIGN COMPRESSIVE STRENGTH AT 28 DAYS OF 2,000 PSI.
 2. EQUIPMENT FOUNDATIONS - DESIGN COMPRESSIVE STRENGTH AT 28 DAYS OF 4,000 PSI.
 3. ALL OTHER CONCRETE NOT SPECIFIED - DESIGN COMPRESSIVE STRENGTH AT 28 DAYS OF 3,000 PSI.
 4. CONCRETE SPECIFICATION FOR MONOPOLE OR TOWER FOUNDATION SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS.
 5. USE ACCELERATING ADmixTURES IN COLD WEATHER ONLY WHEN APPROVED BY THE ENGINEER. USE OF ADmixTURES WILL NOT RELAX COLD WEATHER PLACEMENT REQUIREMENTS.
 6. USE SET-RETARDING ADmixTURES DURING HOT WEATHER ONLY WHEN APPROVED BY THE ENGINEER.
 7. ADD AIR ENTRAINING AGENT TO CONCRETE MIX FOR CONCRETE WORK SUBJECT TO OR EXPOSED TO EXTERIOR.
- PART 3 - EXECUTION**
- 3.01 INSPECTION**
- THE CONTRACTOR SHALL VERIFY ANCHORS, SEATS, PENETRATIONS, PLATES, REINFORCEMENT, AND OTHER ITEMS TO BE CAST INTO CONCRETE ARE ACCURATELY PLACED AND SECURELY, AND SMALL NOT CAUSE TRIPPING IN PLACING CONCRETE.
- 3.02 PREPARATION**
- A. THE CONTRACTOR SHALL PREPARE PREVIOUSLY PLACED CONCRETE SURFACES TO BE BONDING WITH REBAR BY BRUSHING BONDING AGENT TO FULLY BONDING AGENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- 3.03 PLACING CONCRETE**
- A. THE ENGINEER SHALL BE NOTIFIED NOT LESS THAN 24 HOURS IN ADVANCE OF CONCRETE PLACEMENT. UNLESS INSPECTION IS WAIVED IN EACH CASE, PLACING OF CONCRETE SHALL BE PERFORMED ONLY IN THE PRESENCE OF THE ENGINEER.
- CONCRETE SHALL NOT BE PLACED UNTIL ALL FORMWORK, EMBEDDED REINFORCEMENT, AND BRACING HAVE BEEN APPROVED AND UNTIL FACILITIES ACCEPTABLE TO THE NEMA REPRESENTATIVE HAVE BEEN PROVIDED AND MADE READY FOR ACCOMPLISHMENT OF THE WORK AS SPECIFIED. CONCRETE MAY NOT BE ORDERED FOR PLACEMENT UNTIL ALL ITEMS HAVE BEEN APPROVED AND READY FOR PLACEMENT. A FIELD INSPECTION AND GIVEN APPROVAL TO START PLACEMENT TESTING.
- B. PLACEMENT OF CONCRETE SHALL BE IN ACCORDANCE WITH ACI 301.
- C. THE CONTRACTOR SHALL FURNISH THAT REINFORCEMENT, INSERTS, EMBEDDED PARTS, FORGED JOINTS, AND VAPOR BARRIERS ARE NOT DISTURBED DURING CONCRETE PLACEMENT.
- 3.04 SURFACE FINISHES**
- A. SURFACES AGAINST WHICH BACKFILL OR CONCRETE SHALL BE PLACED REQUIRE NO TREATMENT EXCEPT REPAIR OF DEFECTIVE AREAS.

E. CONTRACTOR SHALL PROVIDE FOUR (4) SETS OF SWEEP TEST UNDER HEWLETT-PACKARD 8713B RF SCALAR NETWORK ANALYZER. SUBMIT FREQUENCY DOMAIN REFLECTOMETER (FDR) TEST RESULTS TO CLIENT WITHIN 5 BUSINESS DAYS OF TESTING. PROVIDE AN INDEPENDENT TESTING SERVICE AND BE BOUND AND SUBMITTED WITHIN ONE WEEK OF WORK COMPLETION.

F. INSTALL COAXIAL CABLES AND TERMINATIONS BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTORS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL EXCESS COAXIAL CABLES AT THE ENTRY POINT LOCATION UNLESS OTHERWISE STATED.

G. ANTENNA AND COAXIAL CABLE GROUNDING:

1. ALL EXTERIOR #6 GREEN GROUND WIRE DAISY CHAIN CONNECTIONS ARE TO BE WEATHER SEALED WITH ANTI-LEAKS EQUIPMENT WEATHERPROOFING KIT TYPE 32321210 OR EQUIVALENT.
2. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS).

1.02 RELATED WORK

FURNISH THE FOLLOWING WORK AS SPECIFIED UNDER CONSTRUCTION DOCUMENTS, BUT COORDINATE WITH OTHER TRADES PRIOR TO BID:

1. FLASHING OF OPENING INTO OUTSIDE WALLS.
2. SEALING AND CAULKING ALL OPENINGS.
3. PAINTING.
4. CUTTING AND PATCHING.

1.03 REQUIREMENTS OF REGULATOR AGENCIES

A. FURNISH UL LISTED EQUIPMENT WHERE SUCH LABEL IS AVAILABLE. INSTALL IN CONFORMANCE WITH UL STANDARDS WHERE APPROPRIATE.

B. INSTALL ANTENNA, ANTENNA CABLES, GROUNDING SYSTEM IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS IN EFFECT AT PROJECT LOCATION AND RECOMMENDATIONS OF STATE AND LOCAL BUILDING CODES HAVING JURISDICTION OVER SPECIFIC PORTIONS OF WORK. THIS WORK INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:

1. ICA - ELECTRONIC INDUSTRIES ASSOCIATION RS-22, STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.

C. FAA - FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULAR AC 70/7480-1H, CONSTRUCTION MARKING AND LIGHTING REQUIREMENTS FOR ANTENNA STRUCTURES.

D. FCC - FEDERAL COMMUNICATION COMMISSION RULES AND REGULATIONS FORM 713, OBSTRUCTION MARKING AND LIGHTING SPECIFICATION FOR ANTENNA STRUCTURES.

E. AISC - AMERICAN INSTITUTE OF STEEL CONSTRUCTION REGULATIONS FORM 713, OBSTRUCTION MARKING AND LIGHTING SPECIFICATION FOR ANTENNA STRUCTURES.

F. NEC - NATIONAL ELECTRIC CODE - ON TOWER LIGHTING KITS.

G. UL - UNDERWRITER'S LABORATORIES APPROVED ELECTRICAL PRODUCTS.

H. IN ALL CASES, PART 77 OF THE FAA RULES AND PARTS 17 AND 22 OF THE FCC RULES SHALL BE FOLLOWED IN THE EVENT OF CONFLICT, SUPERSEDE ANY OTHER STANDARDS OR SPECIFICATIONS.

I. LIFE SAFETY CODE NFPA, LATEST EDITION.

J. LIFE SAFETY CODE NFPA, LATEST EDITION.

ELECTRICAL SPECIFICATIONS

GENERAL PROPERTIES

A. REQUIREMENTS: FURNISH ALL LABOR, MATERIALS, SERVICE EQUIPMENT, AND APPLIANCES REQUIRED TO COMPLETE THE INSTALLATION OF THE COMPLETE ELECTRICAL SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS AND CONTRACT DRAWINGS.

B. REQUIREMENTS OF REGULATORY AGENCIES AND STANDARDS: INSTALLATION SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) - APPLICABLE PROVISIONS OF THE NATIONAL ELECTRICAL CODE (NEC) - APPLICABLE STATE, ELECTRIC CODES, THE NATIONAL ELECTRICAL SAFETY CODES (NESEC), AND THE TERMS AND THE CONDITIONS OF THE AUTHORITIES HAVING LAWFUL JURISDICTION PERTAINING TO THE WORK REQUIRED. ALL MODIFICATIONS REQUIRED BY THESE CODES, RULES, REGULATIONS, AND STANDARDS SHALL BE UNDERWRITER'S LABORATORIES (UL) AND MATERIALS, APPLIANCES, OR DEVICES SHALL CONFORM TO THE APPLICABLE STANDARDS OF UNDERWRITER'S LABORATORIES, INC. THE LABEL OF OR LISTING BY: U.L. IS REQUIRED.

C. MATERIALS: ALL SIMILAR MATERIALS AND EQUIPMENT SHALL BE THE PRODUCT OF THE SAME MANUFACTURER WHERE NO SPECIFIC MATERIALS ARE LISTED. MATERIALS SHALL BE APPROVED BY THE MANUFACTURER AND EQUIPMENT SHALL MEET THE APPROVAL OF THE OWNER. MATERIALS AND EQUIPMENT SHALL BE THE STANDARD PRODUCTS OF SUCH MANUFACTURER'S REGULARLY ENGAGED IN THE PRODUCTION OF SUCH MATERIAL AND SHALL BE THE MANUFACTURER'S CURRENT IN STANDARD AND DESIGN.

D. EXECUTION: FABRICATION, ERECTION, AND INSTALLATION OF THE COMPLETE ELECTRICAL SYSTEM SHALL BE DONE IN A FIRST CLASS WORKMANLIKE MANNER BY QUALIFIED PERSONNEL EXPERIENCED IN SUCH WORK AND SHALL PROCEED IN AN ORDERLY MANNER SO AS NOT TO HOLD UP PROGRESS OF THE PROJECT.

E. ALL CIRCUITS FOR PROPER OPERATING CONDITION AND FREEDOM FROM GROUNDS AND SHORT CIRCUITS BEFORE ACCEPTANCE IS REQUESTED. ALL EQUIPMENT, APPLIANCES, AND DEVICES SHALL BE OPERATED UNDER LOAD CONDITIONS.

F. AS-BUILT DRAWINGS: DURING PROCESS OF THE WORK, MAINTAIN AN ACCURATE RECORD OF THE INSTALLATION OF THE SYSTEM, LOCATING EACH CIRCUIT PRECISELY BY DIMENSIONS, UPON COMPLETION OF THE INSTALLATION, TRANSFER ALL RECORD DATA TO BLUE LINE PRINTS OF THE ORIGINAL DRAWINGS.

A. CONDUITS, ELECTRICAL METALLIC TUBING (EMT), WILD STEEL, ZINC COATED OR THE OUTSIDE AND OTHER ZINC COATED OR COATED WITH A MAXIMUM SIZE OF ELECTRICAL TRADE SIZE UNLESS NOTED ON THE DRAWINGS OR SPECIFICALLY APPROVED FOR EQUIPMENT CONNECTIONS. EMT SHALL BE USED FOR INTERIOR APPLICATIONS ONLY.

B. RIGID GALVANIZED STEEL (RGS) CONDUIT SHALL BEAR U.L. LABEL AND BE GALVANIZED ZINC COATED WITH ZINC INTERIOR. FITTINGS SHALL BE THREADED AND GALVANIZED. LOCKWATS SHALL BE DIE CAST ZINC. BUSHINGS SHALL BE INSULATED. DIE CAST ZINC. RGS SHALL BE USED FOR ABOVE GROUND, EXTERIOR APPLICATIONS.

C. LIGHTWEIGHT FLEXIBLE METAL CONDUIT SHALL BEAR THE U.L. LABEL AND MAY BE USED WHERE ALLOWED BY CODE AND WHERE CONNECTIONS ARE SUBJECT TO VIBRATION. FITTINGS SHALL BE DIE CAST ZINC WITH CONNECTORS BEING INSULATED TYPE.

D. PVC SHALL BEAR THE U.L. LABEL AND SHALL BE SCHEDULE 40 OR SCHEDULE 80. FITTINGS SHALL BE OF THE SAME MAKE AS THE CONDUIT AND SHALL BE SUBSTITUTED BY THE APPLICATION. CLEAN CONDUIT ENDS PRIOR TO APPLYING BOLT.

E. PARALLEL UNDERGROUND CONDUIT SHALL BE PVC SCHEDULE 40 UNLESS NOTED OTHERWISE. SCHEDULE 80 PVC CONDUIT SHALL BE USED WHERE CONDUIT IS INSTALLED UNDER WALKWAYS, DRIVES, PARKING LOTS, OR ROADS. INSTALL AT A MINIMUM DEPTH OF 30" BELOW GRADE UNLESS OTHERWISE NOTED. ALL RECORDS SHALL BE BACKWILLED.

F. CONDUIT FITTINGS, CONNECTORS AND COUPLINGS: EMT AND IRON COUPLINGS AND CONNECTORS EITHER STEEL OR WALLEABLE IRON ONLY. CONCRETE TIGHT OR RAIN TIGHT AND OTHER THE CLAMP AND RING COMPRESSION TYPE OR THE STAINLESS STEEL MULTIPLE LOCKING TYPE. CONDUIT INSTALLATIONS AS A MEANS OF ATTACHMENT ARE NOT TO BE PERMITTED. BUSHINGS: INSULATED TYPE, DESIGNED TO PREVENT ABRASION OF WIRES WITHOUT IMPAIRING THE CONTINUITY OF THE CONDUIT, IIC AND RIGID ALUMINUM CONDUIT.

G. CONDUIT INSTALLATIONS: CONDUITS, SYSTEMS, EMT, OR RIGID UNDERGROUND CONDUIT UNLESS NOTED. CONDUIT INSTALLATION: INSTALL CONCEALED CONDUIT AND EMT IN AS DIRECT LINES AS POSSIBLE. INSTALL EXPOSED CONDUITS AND EMT PARALLEL TO OR AT RIGHT ANGLES TO THE LINES OF THE BUILDING. RIGHT ANGLE BENDS IN EXPOSED CONDUIT AND EMT SHALL BE MADE USING 90 DEGREE STANDARD RADIUS NO LESS THAN THOSE OF STANDARD ELBOWS.

H. CONDUIT SUPPORTS: PROVIDE SUPPORTS FOR HORIZONTAL CONDUITS AND EMT NOT MORE THAN 6 FEET APART WITH NOT LESS THAN TWO ELBOW OR BEND INCLUDING JUNCTION BOXES, SWITCHES, COUPLERS, AND FITTINGS. INSTALL ONE HOLD PIPE STRAPS ON CONDUITS 1 INCH OR SMALLER. INSTALL INDIVIDUAL PIPE HANGERS FOR CONDUITS LARGER THAN 1 INCH. SPRING STEEL FASTENERS WITH HANGER RODS MAY BE USED IN DRY LOCATIONS IN LIEU OF PIPE STRAPS.

CONDUCTORS

A. WIRES AND CABLES (600 VOLTS); CONFORM TO THE APPLICABLE UL AND IPECA STANDARDS FOR THE USE OF WIRE. COPPER CONDUCTORS WITH 600 VOLTS INSULATION SHALL BE USED UNLESS OTHERWISE SPECIFIED OR NOTED IN THE DRAWINGS. USE FOR #10, #8 OR LARGER WIRES IS PERMITTED. INSULATION SHALL BE TYPE THHN/TMMH CONDUCTORS SHALL NOT BE PERMITTED. OTHERWISE SPECIFIED CONDUCTORS SHALL BE USED FOR ALL CONDUCTORS. CONNECT ALL CONDUCTORS OF THE SAME COLOR-CODED IN ACCORDANCE WITH NEC. CONNECT ALL CONDUCTORS WITH GREEN/GROUND. COLOR CODING SHALL BE A-BLACK, B-RED, C-BLUE, N-WHITE, WITH GREEN FOR ALL GROUND CONDUCTORS.

B. TYPES NM, AC AND MC CABLE ARE NOT PERMITTED

C. CONNECTORS AND LUGS: FOR COPPER CONDUCTORS NO. 6 AND SMALLER, 3M SCOTCH-LOK OF T & B STA-MON COMPRESSION OR IDENT TYPE CONNECTORS WITH GREEN/GROUND. FOR ALL OTHER TYPES AND TYPES OF WIRE, USE COPPER OR ALUMINUM SCREW OR BOLT TYPE PRESSURE CONNECTORS, PROPERLY TAPPED OR INSULATED.

D. SPICES: (480 VOLTS AND UNDER): CONDUIT LENGTHS SHALL BE CONTINUOUS FROM TERMINATION TO TERMINATION WITHOUT SPICES UNLESS APPROVED BY THE BUILDING INSPECTOR.

CIRCUIT BREAKERS

A. PROVIDE MOLDED CASE BOLT-ON, THERMAL MAGNETIC TRIP, SINGLE, TWO, OR THREE POLE BREAKERS, OR DOUBLE MAGNETIC TRIP, A/C RATING TO MATCH EXISTING OR AS REQUIRED FOR AVAILABLE FAULT CURRENTS.

GROUNDING

A. ALL ELECTRICAL AND GROUNDING AT THE CELL SITE SHALL COMPLY WITH THE FOLLOWING LIST OF CODES AND REGULATIONS:

B. AC ELECTRICAL AND GROUNDING AT THE CELL SITE SHALL COMPLY WITH THE FOLLOWING LIST OF CODES AND REGULATIONS:

C. EXOTHERMIC WELDING IS RECOMMENDED FOR GROUNDING CONNECTION WHERE PRACTICAL. OTHERWISE, THE CONNECTION SHALL BE MADE USING COMPRESSION TYPE-2 HOLES. LONG BARREL LUGS OR DOUBLE CRIMP CLAMP "C" CLAMP. THE COPPER CABLES SHALL BE COATED WITH ANTI-OXIDANT (COPPER SHIELD) BEFORE MAKING THE CRIMP CONNECTIONS. THE MANUFACTURER'S TORQUE RECOMMENDATIONS ON THE BOLT ASSEMBLY TO SECURE CONNECTIONS ARE TO BE FOLLOWED.

D. THE ANTENNA CABLES SHALL BE GROUNDED AT THE TOP AND BOTTOM OF THE VERTICAL RUN FOR LIGHTNING PROTECTION. THE ANTENNA CABLE SHIELD SHALL BE BONDED TO A COPPER GROUND BUS AT THE LOWEST POINT OF A VERTICAL RUN JUST BEFORE IT BEGINS TO BEND TOWARD THE HORIZONTAL PLANE. WIRE RUNS TO GROUND SHALL BE RETIRED STRAIGHT AND STUBS SHALL BE SECURED WITH AN ANTENNA CABLES OVER 200 FEET IN LENGTH SHALL ALSO BE EQUIPPED WITH ADDITIONAL GROUNDING AT MID-POINT.

E. ALL GROUNDING CONDUCTORS INSIDE THE BUILDING SHALL BE RUN IN CONDUIT OR BUNDLED TO STRUCTURES. THE MINIMUM BENDING RADIUS OF ANY #2 GROUNDING CONDUCTOR IS 6" PVC RACEWAY MAY BE FLEXIBLE OR RIGID PER THE FIELD CONDITIONS. GROUNDING CONDUCTORS SHALL NOT MAKE CONTACT WITH ANY METALLIC CONDUITS, SURFACES, OR EQUIPMENT.

F. PROVIDE PVC SLEEVES WHERE GROUNDING CONDUCTORS PASS THROUGH THE BUILDING WALLS AND/OR CEILING.

G. INSTALL GROUND BUSHINGS ON ALL METALLIC CONDUITS AND BOND TO THE EQUIPMENT GROUND BUS IN THE PANELBOARD.

H. GROUND ANTENNA BASES, FRAMES, CABLE CLAMPS AND OTHER METALLIC EQUIPMENT WITH INSULATED WIRING CONDUCTORS AND CONNECT TO INSULATED SURFACE EQUIPPED GROUND BARS. CONNECTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNDING.

I. GROUND COAXIAL SHIELD AT BOTH ENDS USING MANUFACTURER'S GUIDELINES.

J. GROUND FIELD TEST PROCEDURE

THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE A "FALL OF POTENTIAL" TEST ON THE NEW SUPPLEMENTAL GROUND FIELD PRIOR TO FINAL CONNECTION OF THE GROUNDING SYSTEM TO EQUIPMENT. THE TEST SHALL BE PERFORMED BY A QUALIFIED AND CERTIFIED TESTING AGENCY. PROVIDE INDEPENDENT TEST RESULTS TO THE PROJECT MANAGER FOR REVIEW. THE GROUND SYSTEM RESISTANCE TO EARTH GROUND SHALL NOT EXCEED TEN (10) OHMS. IF THE GROUND TEST EXCEEDS THE MAXIMUM OF 10 OHMS, THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ADDITIONAL GROUND CONNECTIONS AS REQUIRED TO MEET THE 10 OHMS MAXIMUM.

POWDER RIVER
 Communications, LLC
 1016 SHENANDO ST.
 SHARPSVILLE PA 16150
 717-925-5999
 www.powderrivercomm.com

NO.	REVISIONS	DATE	BY

PROJ. NO. 15-00000000
 SHEET NO. 15-00000000
 DATE: 11/20/15

CHECKER: D. O'NEAL P.E.
 DATE: 11/20/15
 15-00000000 - GENERAL COMMUNICATIONS
 SHEET 15-00000000-1
 SHEET TOTAL: 15-00000000-4

SITE INFORMATION:
 0TH1279535

BE CORNER OF I-55 & CASS AVE
 DARIEN, IL 60527

SHEET TITLE:
 GENERAL NOTES

SHEET NUMBER:
 GN-4

GENERAL COMMUNICATIONS

GENERAL COMMUNICATIONS

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

APPLICANT INFO:
COMMUNICATION INFRASTRUCTURE CORPORATION
PO BOX 6616
SANTA BARBARA, CA 93160

PROJECT MANAGER:
COMMUNICATION INFRASTRUCTURE CORPORATION
PO BOX 6616
SANTA BARBARA, CA 93160
CONTACT: JIM BRUNO
PHONE: 704.962.2856

ENGINEER:
POWDER RIVER DEVELOPMENT SERVICES, LLC.
100 E. SHENANGO STREET
SHARPSVILLE, PA 16150
PHONE: 724.962.5959 FAX: 724.962.6009
CONTACT: MARK THOMPSON

CONTRACTOR SHALL VERIFY ALL UTILITIES AND EXISTING OBSTACLES AND DESCRIBE THEM ON THE DRAWINGS. THE ENGINEER WILL REVIEW ALL UTILITIES AND EXISTING OBSTACLES AND PROVIDE A LETTER OF COMMENTARY WITH THE WORK FOR THE CONTRACTOR'S REFERENCE.



PROJECT INTERSTATE: FROM THE SOUTH SIDE OF I-55 TO THE NORTH SIDE OF I-55. TRAVEL EAST ON I-55 TO FRONTAGE RD. TURN LEFT ONTO S FRONTAGE RD. TRAVEL WEST ON I-55 TO S CASS AVE. TRAVEL SOUTH ON S CASS AVE TO PROJECT SITE. PROJECT SITE IS LOCATED AT THE CORNER OF S CASS AVE AND S FRONTAGE RD.

SITE NUMBER
OCHI279535

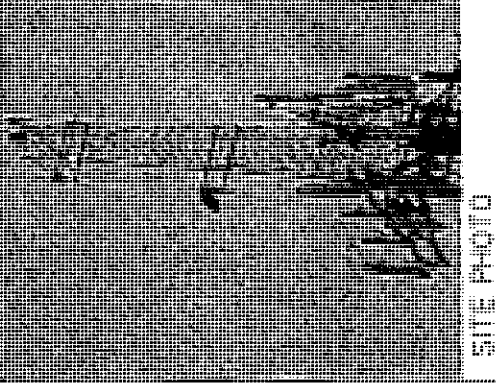
SITE ADDRESS
CORNER OF I-55 AND CASS AVE
DARIEN, IL 60527

SHEET	TITLE SHEET	DESCRIPTION
A-1	TITLE SHEET	
A-2	SITE PLAN	
A-3	ANTENNA DETAILS	
A-4	EQUIPMENT DETAILS	
E-1	COAX MOUNTING DETAILS	
E-2	UTILITY PLAN & DETAILS	
E-3	SINGLE LINE DIAGRAM & DETAILS	
E-4	GROUNDING PLAN & NOTES	
GH-1	GROUNDING DETAILS	
GH-2	GENERAL NOTES	
GH-3	GENERAL NOTES	
GH-4	GENERAL NOTES	

POWDER RIVER
Development Services, LLC
100 E. SHENANGO STREET
SHARPSVILLE, PA 16150
724.962.5959
www.pdrdevelopment.com

PERMITS:

PROJ. NO.: 105-04181
CHECKED BY: G. OLIVER, P.E.
DATE: 02/20/18



GEOGRAPHIC COORDINATES:
LATITUDE: 41.5600°
LONGITUDE: -87.5642°
ELEVATION: 678'

TOWER OWNER:
NAME: GENERAL COMMUNICATIONS
ADDRESS: 1550 S. WASHINGTON ST., SUITE 200, OAK BROOK, IL 60453
CONTACT NAME: JIM BRUNO
PHONE: 708.285.2856

UTILITY COMPANY:
POWER: ILLINOIS POWER CO.
PHONE: 618.399.3300

PROJECT DATA:
ADDITION OF NEW EQUIPMENT AND NEW ANTENNAS TO EXISTING EQUIPMENT ON AN EXISTING SELF SUPPORT TOWER.
CONTRACT NUMBER: 105-04181
ELECTRIC CODE: NEC 2008
TYPE OF CONSTRUCTION: RECONSTRUCTION
CONSTRUCTION TYPE: 11A

APPROVAL		
OWNER	DATE:	
DESIGNER	DATE:	
ENGINEER	DATE:	
INSPECTOR	DATE:	
CONTRACTOR	DATE:	
OPERATOR	DATE:	

SITE INFORMATION:
OCHI279535

SE CORNER OF I-55 & CASS AVE
DARIEN, IL 60527

SHEET TITLE:
TITLE SHEET

SHEET NUMBER:
T-1

GENERAL COMMUNICATIONS



POWDER RIVER
 Development Services, LLC
 100 E. SHEPARD STREET
 SHARPSVILLE, PA 16150
 717-963-5259
 www.powderriverdev.com

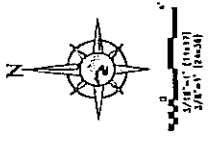
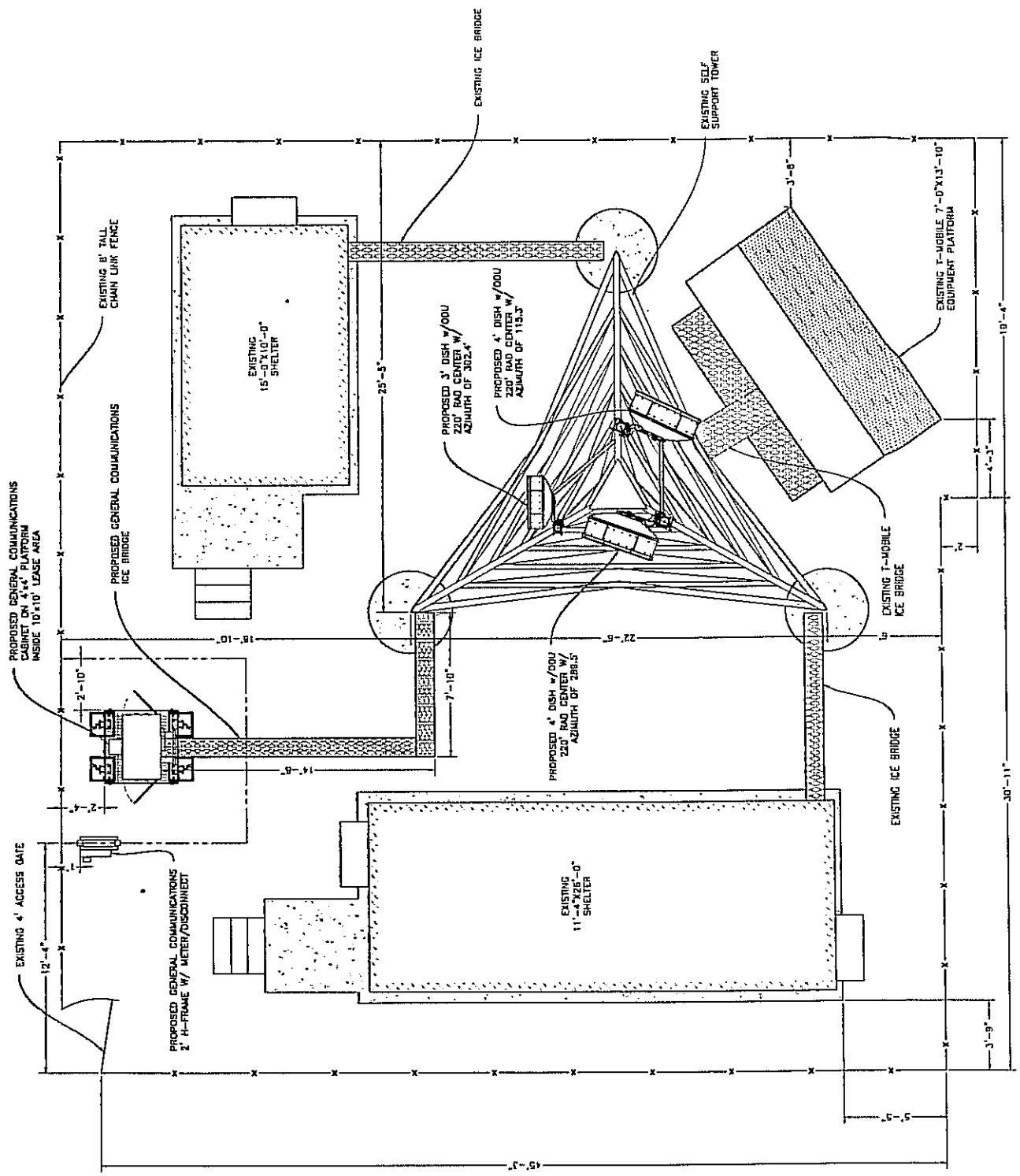
NO.	DATE	DESCRIPTION

PROJ. NO.: 03/10/09
 DRAWN BY: S. CLAWER, P.E.
 CHECKED BY: S. CLAWER, P.E.
 SCALE: AS SHOWN
 DATE: 03/10/09
 SHEET NO. OF 1

SITE INFORMATION:
 0TH1279535
 SE CORNER OF 155 & CASS AVE
 DASHEN, IL 60527

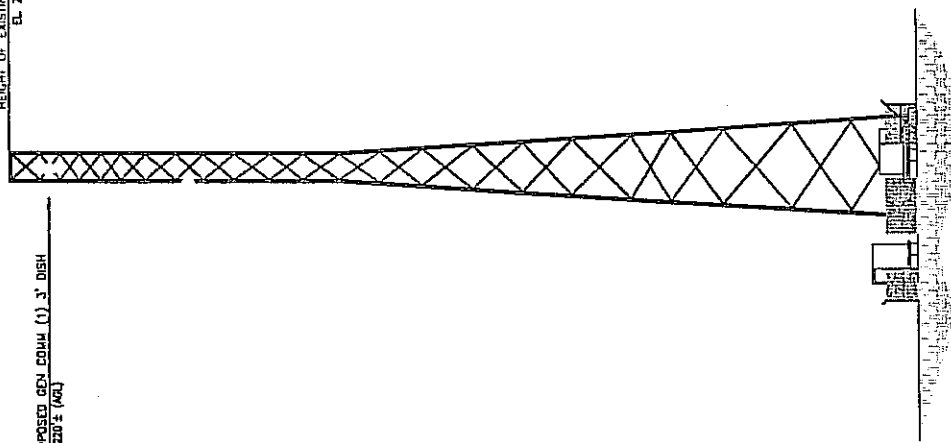
SHEET TITLE:
 SITE PLAN

SHEET NUMBER:
 A-1



HEIGHT OF EXISTING TOWER
EL. 230 ± (AGL)

PROPOSED GEN COHM (1) 3' DISH
EL. 220 ± (AGL)



GENERAL SPECIFICATIONS			
ANTENNA INPUT	CFR90G	PBR220	PBR220
FREQUENCY RANGE	10.700 - 11.700 GHz	17.700 - 18.700 GHz	17.700 - 19.700 GHz
BANDWIDTH, HORIZONTAL	1.6'	1.1'	1.0'
BANDWIDTH, VERTICAL	1.6'	1.1'	1.0'
CROSS POLARIZATION DISCRIMINATION	33 dB	30 dB	35 dB
FRONT TO BACK RATIO	70 dB	71 dB	57 dB
GAIN, LOW BAND	40.0 dBi	42.7 dBi	44.0 dBi
GAIN, MID BAND	40.4 dBi	43.5 dBi	44.4 dBi
GAIN, TOP BAND	40.8 dBi	43.7 dBi	44.8 dBi
RETURN LOSS	28.3 dB	17.7 dB	24.0 dB
VSWR	1.08	1.30	1.14

	DISH 1	DISH 2	DISH 3
ANTENNA PER SECTOR	1	1	1
ANTENNA MODEL	URX4-107-P3A/B	VHLPX3-1B	H5X4-1B0
FREQUENCY RANGE	6.425 - 7.125 GHz	5.925 - 6.425 GHz	17.700 - 19.700 GHz
CONFIGURATION	2+0	2+0	2+0
ANTENNA CENTER LINE	220'	220'	220'
SITE AZIMUTH	115.3'	302.4'	289.5'
PATH DISTANCE	115.3	8.85	60.9
RADIO TYPE	CG11_3D_167Mb	CG11_3D_167Mb	CG11_3D_167Mb
RADIO TRAFFIC CODE	167Mbps_30MHz	167Mbps_30MHz	167Mbps_30MHz
MAIN LINE TYPE	LMR600	LMR600	LMR600
MAIN LINE RUNS (PER ANTENNA)	2	2	2
MAIN LINE LENGTH	253'	255'	255'
TOP JUMPER LENGTH (ft)	3	3	3
BOTTOM JUMPER LENGTH (ft)	3	3	3

4c

AGENDA MEMO
Administrative/Finance Committee
January 9, 2012

ISSUE STATEMENT

A resolution authorizing the City Administrator to enter into an agreement with the winning supplier of a bid conducted by NIMEC between February 1 and March 31, 2012 for water pumping station electric supply over the next three years.

BACKGROUND/HISTORY

In 2008 the City of Darien joined NIMEC, an organization bidding electric usage for 100 communities in Illinois, to enter into contracts to reduce the price of electricity. The agreements signed for water pumping electricity are expiring in June 2012. If the City of Darien does not select a supplier for these accounts before this time, the rate would change to hourly pricing, which can get extremely expensive.

NIMEC will be bidding accounts for communities between February 1 and March 31, 2012. The exact timing of the bid will depend on the market for electricity. Three suppliers, Exelon, Integrys and Constellation, will be bidding on the accounts. Because electricity is a commodity that fluctuates in pricing on a daily basis, the pricing for the bid will be good for only one day. This resolution authorizes the City Administrator to accept the pricing from the winning bid. If the City Administrator finds the pricing to be excessive, he may decide not sign the winning bid.

STAFF/COMMITTEE RECOMMENDATION

Staff recommends approving this resolution.

ALTERNATE CONSIDERATION

Not approving the resolution would be an alternate consideration.

Ashley Prueter

From: Scott Coren
Sent: Wednesday, January 04, 2012 2:20 PM
To: Ashley Prueter; Bryon Vana
Subject: Admin/Finance
Attachments: Pumping Station Electric Bid.doc

Ashley – Memo attached and backup below
Bryon – Please review

Dear Members,

In 2008, you extended your electric contract for your water pumping facilities with Exelon through May of 2012. As hard as it may be to believe, we need to start preparing for our upcoming renewal NIMEC bid. We will conduct our bid sometime between Feb 1 and the end of March. (The exact date of the bid will be dictated by the market conditions.)

We will be holding two bids this year: one for 12 months and one for 36 months. You will be able to choose whichever term is better for you. We will bid out the aggregated volumes with 3 suppliers: Exelon, Integrys and Constellation. (Each of these have had a portion of the NIMEC load at various times.)

We will go to bid as early as February 1. However, if rates are flat or dropping, we will postpone the bid date. Once rates have turned upward, we will declare the bid date and go to bid. We will provide at least 4 days notice.

Over the last few years, prices have dropped 10% - 15% during the first quarter, and our annual bid has taken advantage of those drops. We do not know if this decline will occur again, but we want to position ourselves to take advantage of the decline should it occur again.

To accept the bid pricing, you will need to enter into an agreement with the winning supplier on the day of the bid. Therefore, if you need to receive signing authority from your board to enter into the agreement, please do so during the month of January.

You will need to determine which bid group you would like to participate in: the 1 year or the 3 year bid. To help you, I have shown below your accounts that will be included in the bid. I have listed the current pricing that you are currently paying. I have also shown indicative pricing for a 1 year and 3 years.

Prices have dropped significantly since our last bid, and most of you will enjoy a hefty reduction in your electric costs later this year.

Member	Account #	Current c/kWh	1 yr c/kWh	3 yr c/kWh	Address
City of Darien	6149050015	6.95	4.32	4.95	87th & Ridge Road
City of Darien	0171115094	6.59	4.32	4.95	18W736 Manning
City of Darien	1389036061	6.43	4.32	4.95	0 Lakeview & Oakley
City of Darien	0269155053	6.69	4.32	4.95	2101 W. 75th Street

City of Darien	0185101035	7.07	4.32	4.95	1220 Plainfield
City of Darien	4105091007	7.14	4.32	4.95	9S720 Lemont Road

Should I have omitted any ComEd accounts, please send them to me at your earliest convenience.

Please note: these prices are *indicative*, and will change prior to our bid. These are provided to help you determine which bid group you would prefer. Please let me know at your earliest convenience.

Also attached you will find the historical pricing patterns. The red line shows 1 year pricing, while the blue line shows 3 year pricing trends. (Please note, the pricing is only for power, and does not include transmission fees.)

In general, we see that electric pricing closely follows the economy. When the economy is strong, demand for pricing is strong, which drives up pricing. As such, when the economy weakens, pricing drops. Therefore, future pricing will be driven by the future health of the economy.

For those of you who participate in our street light bid, please note that we will hold a separate street light bid in the summer.

Please let me know at your earliest convenience which bid group you would prefer: 1 year or 3 years. Should you have any questions, please contact me.

Dave

David Hoover
Executive Director
847.392-9300

AGENDA MEMO
Administrative/Finance Committee
January 9, 2012

ISSUE STATEMENT

A resolution authorizing the Mayor to execute an agreement with Downers Grove enter into an intergovernmental agreement to provide vehicle maintenance services for the City of Darien.

BACKGROUND/HISTORY

During the December Administrative/Finance Committee meeting, there was a discussion on the benefits of outsourcing vehicle repair work to Downers Grove against hiring an employee as a full time mechanic. The questions at the meeting included the following:

1. How would outsourcing this program affect the current General Utility II worker that has assisted with mechanical work for many years?
2. What would happen if the Downers Grove shop did not provide quality and timely service?
3. How does the location of the Downers Grove shop affect the costs of the program and the services provided?
4. What would future costs would be for both hiring a mechanic and outsourcing to Downers Grove?

Staff has completed answers to these questions:

1. The General Utility II worker would not be affected. His position would remain with the City of Darien. In a previous year he completed over 1,000 hours of miscellaneous vehicle and equipment repairs. He could complete small tasks of immediate need. He is also available as an employee for any emergency situations. This would be identical to his previous job duties.
2. If the Downers Grove shop did not provide quality or timely service, the City of Darien would stop sending vehicles there.
3. The cost analysis included 500 hours for a temporary worker to drop vehicles at Downers Grove. Additionally, Downers Grove has a service vehicle that could make many repairs to vehicles on site. They would also be given the use of our facilities to coordinate repairs.

4. The cost of hiring a mechanic at an average level would increase 23% over four years. The total cost of repairs at this point would be \$175,346. It is unknown what future costs would be with Downers Grove, as both entities want to evaluate the costs and successes of the program after one year. The amounts paid to Downers Grove help to offset fixed costs Downers Grove may pay anyway, so there is incentive to keep a client the size of Darien to repair vehicles, even at a reasonable cost.

The committee also asked Staff to investigate the feasibility of hiring a part time mechanic that would be ineligible for benefits and would make a reduced hourly wage. The mechanic position for a municipality requires significant knowledge of a variety of complex vehicles, including pursuit squads with police equipment and nine ton snow plows. A mechanic with this knowledge and experience would expect insurance benefits during the hiring process. The least amount of time spent by a mechanic on these items the last few years was 1,180 hours, which would require IMRF pension benefits under existing state laws. Additionally, the hourly wage paid for municipal service positions is set by an approved contract and cannot be reduced without negotiation. With this set of circumstances a part time mechanic without benefits would not be an alternative.

With all these alternatives taken into account, Staff recommends a trial period with Downers Grove. If the program does not work, Darien could hire another mechanic and switch back to the old fleet maintenance methods. Outsourcing to Downers Grove would save significant money over the next few years.

STAFF/COMMITTEE RECOMMENDATION

Staff recommends approving this resolution.

ALTERNATE CONSIDERATION

Not approving the contract would be an alternate consideration.

AGENDA MEMO
Administrative/Finance Committee
December 12, 2011

ISSUE STATEMENT

A resolution authorizing the Mayor to execute an agreement with Downers Grove enter into an intergovernmental agreement to provide vehicle maintenance services for the City of Darien.

BACKGROUND/HISTORY

The long term mechanic in the Municipal Service Department retired this summer. Staff investigated several alternatives to provide fleet maintenance services including hiring an employee to fill the position, using automotive repair shops, and sharing services with local agencies including the nearby consortium of fire departments and schools and the Village of Downers Grove.

There are a variety of issues to consider when selecting a vehicle maintenance option for a fleet of Darien's size and composition. The duties of the vehicles necessitate timely repairs, with snow plowing and police services the primary use of many pieces of equipment. There are also a wide range of vehicles that need repairs, including both nine ton plows and pursuit police cars. It is also important that even though Darien does not have a large fleet compared with other communities, cost saving innovations can be implemented for a fleet with an approximate replacement value of \$3.5 million. The fleet needs eliminate private automotive repair shops and the consortium of fire departments and schools as primary options. Private repair shops may be good supplementary options, but cannot be relied upon for immediate repairs during snow storms with specialized equipment, and the consortium may not have the ability to bring forth innovative ideas for reducing costs, as they do not currently purchase or repair vehicles identical to either large plow trucks or police pursuit vehicles.

The two options remaining are hiring an additional mechanic for the Municipal Services Department or outsourcing the duties performed last year by the mechanic to the Village of Downers Grove. In the interim a General Utility II worker has been given a stipend to perform the mechanic duties. This employee has assisted with vehicle repairs for a number of years and can perform the duties. However, promoting him permanently to a mechanic position requires the hiring of an additional mechanic to fill in during vacations, sick or injury time, or during storms of a long duration. A comparison of the cost of the retired mechanic position is attached, along with a four year comparison of the total costs of personnel if a four year mechanic position was considered. One weakness in this option is implementing innovative ideas. While our current staff is talented in vehicle repair, suggestions on better fleet maintenance ideas and techniques have not been common. Another is evaluating workload. The management staff does not have a background in mechanic work, and the hours worked repairing vehicles has fluctuated. The fiscal year prior to the retirement the mechanic worked 1,541 hours on vehicles; the prior fiscal year he worked 1,180. The final weakness is the small scale of the department. Purchasing in small quantities for a small department does not take advantages of economical quantities of scale that could be used to purchase a large number of items, such as air filters, for a greater discount.

The final option is utilizing the Village of Downers Grove to repair vehicles. The Village of Downers Grove has a large shop that can absorb the City of Darien fleet within their current operations. The positive aspects of their operation include:

- They are well equipped for emergencies, with two mechanics in the shop at all times during snow storms in case of breakdowns
- They have a service vehicle that can drive to the site of a broken vehicle and repair it on the street
- They have a fleet services manager who monitors workload and productivity to ensure proper utilization of human resources
- The fleet services manager is charged with implementing innovative ideas and programs, putting together bid specs to ensure intelligent decisions are made on major vehicle purchases.
- Innovative cost saving ideas include using nitrogen to double the life of tires, using old oil to heat buildings instead of paying to dispose, and investigating natural gas vehicles.

The biggest weakness in this proposal is the location, with their garage approximately 15 minutes away. Downers Grove does have the ability to come to the City of Darien shop in the service vehicle to complete repairs, which can eliminate some of this issue.

The Village of Downers Grove has provided an offer of \$87 for the first 1100 hours of mechanic services, with a rate of \$45 for each hour after. In this scenario, the City of Darien would utilize the current General Utility II worker for small repairs in the same way it has done for a number of years. If the Village of Downers Grove provides the identical number of hours as the retired mechanic, at the 1,541 hours for FYE 2011 it would cost the City of Darien \$115,545; if it was the 1,180 hours of FYE 2010 it would cost the City of Darien \$99,300. Additionally, the City of Darien has purchased a brand new police fleet that should need minimal maintenance. If the 1,180 hours are needed to repair a four year old fleet, an estimated 1,000 are needed for a new fleet, providing additional savings. There are also savings due to economies of scale for purchases and innovative programs that will reduce the costs of tires and oil disposal. The cost of employees, especially when viewed through a four year window, is significantly higher.

As this is a new program, both the City of Darien and the Village of Downers Grove prefer to enter into the agreement as a trial period rather than a permanent arrangement. With a new program of this scale both sides certainly want any arrangement to be beneficial to both sides. If for any reason the agreement does not seem to work out, the City of Darien could easily then hire an employee. The opposite may not be true; Downers Grove has looked at expanding the entities they are serving, and another could fill in this space. This intergovernmental agreement could be a unique opportunity to work with another governmental entity to share services and reduce the long term costs of vehicle maintenance and save money. The agreement is still contingent on review and approval by the Village of Downers Grove.

STAFF/COMMITTEE RECOMMENDATION

Staff recommends approving the intergovernmental agreement.

ALTERNATE CONSIDERATION

Hiring additional staff would be an alternate consideration.

Cost Comparison - Top Scale Mechanic vs. Downers Grove

Mechanic Costs - Final Step

Salary	77,419	
IMRF	9205.12	
Medicare	1122.58	
FICA	4799.98	
Medical Insurance	17190	
Life Insurance	184	Total S&B 109,921
Overtime	8,241.34	
OTIMRF	979.90	
OTFICA	510.96	
OTMedicare	119.50	Total OT 9,851.70
Vacation	2,978	
VacIMRF	354.08	
VacFICA	184.64	
VacMedicare	43.18	Total Vacation 3,560
Uniform	475	
Boots	200	
Tools	1100	
Parts & Equipment Projected	33500	Total Equip 35275
		Total Value 158,607

Downers Grove - 1541 Hours	
Labor Costs	\$115,545
Vehicle Transportation (500 Hours @ \$10/hr)	\$5,000
Projected parts and equipment	\$25,125
TOTAL	\$145,670
Downers Grove - 1180 Hours	
Labor Costs	\$99,300
Vehicle Transportation (500 Hours @ \$10/hr)	\$5,000
Projected parts and equipment	\$25,125
TOTAL	\$129,425
Downers Grove - 1000 Hours	
Labor Costs	\$87,000
Vehicle Transportation (500 Hours @ \$10/hr)	\$5,000
Projected parts and equipment	\$25,125
TOTAL	\$117,125

**** Does not include**

Sick Time Payout - City paid \$19,022.61 last year
 Building Costs - Includes lifts, garage space, office, etc.
 Liability & WC Insurance - Insurance increased last two years due to claims
 Computer & Diagnostic Equipment

Cost Analysis - Total Cost of Hiring Mechanic Step Below Midlevel

Mechanic Costs - Midlevel Start 2012		Mechanic Costs - Fourth Year	
Salary	66,138	Salary	83,800
IMRF	7863.81	IMRF	9963.82
Medicare	959.00	Medicare	1215.10
FICA	4100.56	FICA	5195.60
Medical Insurance	17190	Medical Insurance	25,168
Life Insurance	184	Life Insurance	184
Overtime	7,058.00	Total S&B	125,527
OTIMRF	839.20	Overtime	8,944.00
OTFICA	437.60	OTIMRF	1063.44
OTMedicare	102.34	OTFICA	554.53
Vacation	2,544	OTMedicare	129.69
VacIMRF	302.48	Total OT	10,691.66
VacFICA	157.73	Vacation	3,223
VacMedicare	36.89	VacIMRF	383.21
Uniform	475	VacFICA	199.83
Boots	200	VacMedicare	46.73
Tools	1100	Total Vacation	3,853
Parts & Equipment Projected	33500	Uniform	475
Total Cost	143,189	Boots	200
		Tools	1100
		Parts & Equipment Projected	33500
		Total Equip	35275
		Total Value	175,346

** Assumes 2% increases out to the fourth year and 10% increases in health insurance each year, no increase in boots, tools, or parts and equipment