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INVITATION TO BID

Scott Emergency Communications Center, (SECC) Scott County Iowa

Communications Center Site Monopole Project

December 2009

INVITATION FOR BIDS

This invitation to bid is issued for the purpose of establishing a contract to supply SECC, Davenport Iowa with the equipment and/or services stated herein.

Project Overview

Project Title:	**SECC Emergency Communications Center, PSAP Site Tower Project**
Bids Due Date:	**Friday January 15, 2010 4:00 PM** **Attention: Brian Hitchcock**
Project Completion Date:	**May 15, 2010**
Bid Bond:	**10 percent of Total Bid**
Performance Bond:	**Required 100 percent of Project Cost**
Project Procurement Agency:	**SECC, Davenport Iowa**
Project Administrator:	**Brian Hitchcock** **Scott Emergency Communications Center (SECC)** **400 West 4th Street - 2nd Floor Davenport, IA 52801** **Phone: (563) 328-4149** **Cell: (563) 340-2795** **E-mail: bhitchcock@scottcountyiowa.com**
Project Manager:	**Mike Mazzitello** **GeoComm** **N7427 330th Street** **Spring Valley, WI 54767** **Phone (715) 778-5029** **Fax (775_ 245-6610** **Main Office (888) 436-2666** **E-mail: mmazzitello@geo-comm.com**

SECTION 1.0 - GENERAL INFORMATION

1.01 Project Summary

SECC, Davenport Iowa in the process of implementing a new communications center. To support this project there is a need to provide for a tower, infrastructure at which the microwave radio and other system elements of the new radio network (part of another project) will be installed. As with any project of this magnitude, there will be changes to site specifications, work schedules as they are affected by external sources.

The county is soliciting sealed bids for the following tower and construction work at the following site:

1. **Site Name: SECC PSAP:** Supply and erect a new (approximately) 200 foot self-supporting communications monopole to be installed adjacent to the under-construction SECC Communications Center. Work will require supply and installation of all tower structure, foundations, lighting, climbing ladder, antenna mounts, cable ladder, underground ducts, and supply of grounding grid for the monopole tower. The FAA study result is provided in the back sections of this document along with the site soil boring data. The bidders will supply responses that offer SECC several options:

   BID ITEM #1A (with cell carrier capacity) 200 (approx) Foot Self-Support Tower RATED FOR 90 mph winds with 0"radial ice, 40 MPH with .75" radial ice in accordance with ANSI/TIA-222-G, Structure class III, Exposure Category C, Topographic Category 1

   BID ITEM #1B (with cell carrier capacity) 200 (approx) Foot Self-Support Tower RATED FOR 90 mph winds with 0"radial ice, 40 MPH with .75" radial ice in accordance with ANSI/TIA-222-G, Structure class III, Exposure Category C, Topographic Category 1

   BID ITEM #1C (with cell carrier capacity) 200 (approx) Foot Self-Support Tower RATED FOR 130 mph winds with 0"radial ice, 40 MPH with .75" radial ice in accordance with ANSI/TIA-222-G, Structure class III, Exposure Category C, Topographic Category 1

   BID ITEM #1D (without cell carrier capacity) 200(approx) Foot Self-Support Tower RATED FOR 130 mph winds with 0"radial ice, 40 MPH with .75" radial ice in accordance with ANSI/TIA-222-G, Structure class III, Exposure Category C, Topographic Category 1

2. **Site Name: SECC PSAP – Site preparation Initial and final:** Supply all necessary labor and materials to prepare site for installation of the new monopole. This is to include any necessary leveling of the land parcel to suitable requirements to properly place the tower foundations. Any spoils will be disposed of in such a manner agreeable to the site owner. Final site grading, graveling, grounding, and clean up will be included. Includes any necessary silt and erosion controls as require by local ordinances. Note the site plan graphic in the back of this document. The site plan that is depicted is a critical part of the PSAP site design and it is mostly unchangeable. The pole will have to fit into the space allotted.

3. **Site Name: SECC PSAP – Monopole to PSAP building duct connections:** Supply and install the necessary underground ducts to support the conveyance of up to a minimum of 50 transmission lines. Analysis and consultation with the radio system vendor, RACOM has determined that there will be approximately 50 transmission lines involved in this site. The lines will

vary from microwave wave-guide, 7/8" transmission line (corrugated), and ½" wave guide (corrugated).

The new building that will house the radio equipment is part of the new Communications Center. Between the new monopole and the radio room in the new Communications Center a set of ducts/pipes will be required. The new building is to be built with ten - ten inch sleeves that will allow the insertion of ten eight inch schedule 80 or 120 ducts. The monopole foundation will be constructed with integral ducts that will support the transmission lines, tower light power, and ground connections, and will thus flow from the base of the monopole into the new Communications Center.

Pull ropes will be supplied in to each of the ducts in this project by the monopole supplier/installer. Included in the duct installation will be the "sealing" of the ducts in the sleeves. Recommended methods and products to seal these sleeves will be solicited from the Communications Center's architect/engineering firm, WOLD.

Additional ducts/conduits will be included (2-2 inch) to support the running of the tower light cable, and the tower tie ground to the building ground system. Sleeves will be provided (2-3inch) for these functions and will be provided in the Communications Center building and will be sealed by the monopole contractor in the same way as the transmission line sleeves. Ducts will be free of sharp bends and equipped with sweeping radius turns.

4. **Site Name: SECC PSAP – AC Power-Telephone Lines:**

No power lines to a designated power connection pole or underground lines to the local utility source will be called for in this project. No coordination of any installation of local telephone company cable into the site is required.

5. **Site Name: SECC PSAP – Antenna mounts for microwave radio system antennas/dish:** Supply and install any necessary antenna mounts, microwave dish mount, transmission line supports on pole, antenna platforms, antenna mounting pipes, and climbing ladder. The provision for and the installation of the necessary antenna platforms will be designed by the tower vendor. In this RFP is a set of antenna information that comes directly from RACOM, the radio system supplier. This information will form the monopole base line loading requirement.

6. **Site Name: SECC PSAP – Structure capacity OPTION PRICING:**

    A. Provide for additional capacity the offered structure to support at minimum 2 "typical" cellular carrier co-locations. Each carrier location to be designed for three sectors of four to six foot panels and two microwave dish's. The cellular carrier's platforms would be located at a point below the county locations with appropriate spacing interval from the top platform reserved for county antennas. The county will require structure design to support two six foot radomed microwave dishes at each level for each of the cellular carriers. As a part of this project dish mounts (for the county dishes) will be provide by the bidder with accompanying access holes.

As with any project of this magnitude, there will be adjustments to the site specifics, possible changes to make and models of antennas and lines. It is expected that this document will be accepted by the bidders as the best descriptive document available to put forth to interested bidders to solicit

proposals. Bidders must expect that there will be refinements to the tower site, the materials, and services needed to create the final site "build" documents that will be approved for actual construction.

1.02 Project Schedule and Completion Date(s)

The following schedule is desired:

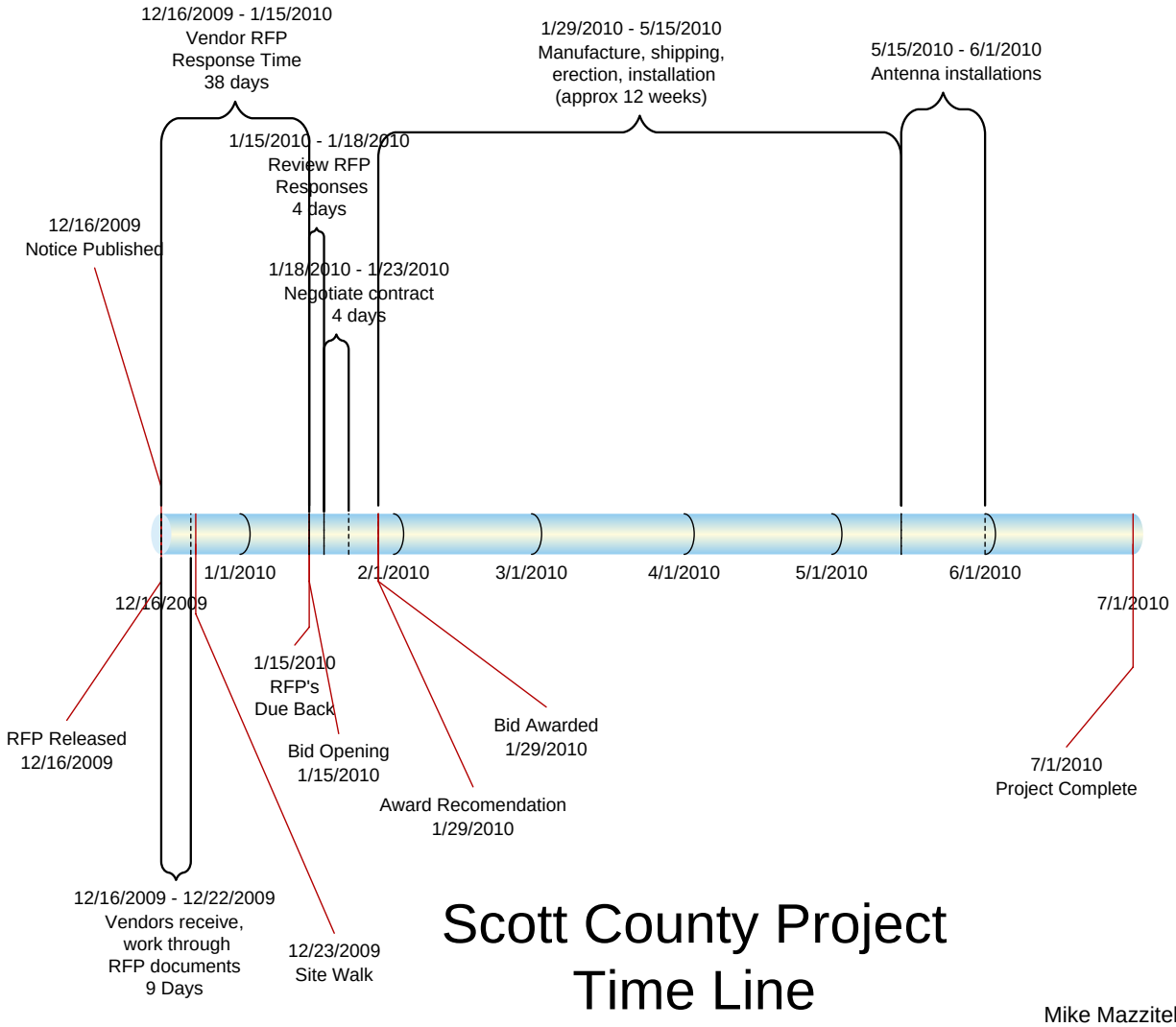
Tower erected and project details fully completed no later than May 15, 2010

1.03 Bid Due Date and Opening

- Sealed bids are due at the SECC offices no later than Friday, January 15, 2010 Bid responses should be addressed to:

Brian Hitchcock
Scott Emergency Communications Center (SECC)
400 West 4th Street - 2nd Floor Davenport, IA 52801
Phone: (563) 328-4149
Cell: (563) 340-2795
E-mail: bhitchcock@scottcountyiowa.com

The RFP response will be opened at the SECC offices on January 15, 2010.



Scott County Project Time Line

Mike Mazzitello
GeoComm
December 16th, 2009

Overall Project time lines

RFP Released	12/16/2009
Project Conference call	12/23/2009 1:00 PM CST See conference bridge information below
RFP due back to County	1/15/2010
RFP response reviews	1/15/2010
Bid Award	1/29/2010
Construction start	1/29/2010
Civil construction completed	5/15/2010
Antenna install start	5/15/2010
Antenna install end	6/1/2010
Pole Ready	6/1/2010

If this time line can be compressed, bidders are encouraged to state this in the responses to the RFP.

Conference bridge information:
Dial the access number, which is: 1 (866) 262-1846
Dial the room number which is: *0696027*

1.04 Questions

All technical questions shall be referred in writing to:

Michael Mazzitello, Project Manager
GeoComm Inc.
N7427 330th Street
Spring Valley, WI 54767
(715) 778-4515
mmazzitello@geo-comm.com

With a copy to:

Brian Hitchcock
Scott Emergency Communications Center (SECC)
400 West 4th Street - 2nd Floor Davenport, IA 52801
Phone: (563) 328-4149
Cell: (563) 340-2795
E-mail: bhitchcock@scottcountyiowa.com

PLEASE NOTE: All technical questions shall be referred no less than five business days prior to bid due date in order to be accepted.

1.05 Final Inspection and Acceptance

Upon completion of all installation work, testing, and verification, a final inspection and acceptance will be conducted by the county and the Project Manager.

The system inspection will be coordinated by:

Brian Hitchcock SECC	-and-	Mike Mazzitello, Project Manager GeoComm

A) Final Acceptance Criteria: In preparation for final inspection, the Bidder/Contractor must supply, included with the bid proposal, system final acceptance criteria list. This is a requirement for a Bidder/Contractor's bid to be accepted.

The final acceptance criteria list is a Bidder/Contractor provided document, which details how each major component provided in this project will be tested and demonstrated, to the county and the Project Manager, to meet all project specifications. The list will contain, at a minimum:

- An outline of each major component in the system that will be demonstrated to the county. Major components include tower structure, installation practices, grounding, lighting and lighting systems, and antenna mounting hardware installations.
- A listing of the specifications of each major component of the system. The Bidder/Contractor will make on site measurements of these specifications for comparison to listed and published specifications, where applicable.

B) System Audits and Inspection: The Bidder/Contractor shall supply, prior to final inspection, a complete inventory of all equipment that has been supplied to the county as a part of the project. This inventory will include, for each major component as described above:

- Model number
- Serial number (if appropriate)
- Installed location

The audit information is subject to verification by the county and the Project Consultant. After completion of this audit, a physical inspection of the equipment supplied and work completed as part of the project will be conducted.

The inspection of the facilities and sites will include:

a. Physical inspection of all equipment.

b. Physical inspection of all structures, lighting and grounding systems, cabling, cable connections, and general installation work.

c. Examination of related engineering documentation supporting all items identified in (A) and (B) above.

C) Final Acceptance: Final system acceptance, and subsequent payment for all system work and equipment, will be completed based on the following criteria:

1. The Bidder/Contractor has supplied the county with a system final acceptance criteria list, jointly approved by the county and the Project Manager.
2. All equipment audit documentation has been supplied by the Bidder/Contractor and accepted by the county and the Project Manager.
3. Final site inspections by the county representative and the Project Manager have been completed and accepted.
4. The tower and related equipment shall be installed and operational for a minimum of 15 days after acceptance testing is successfully completed before final acceptance.

1.06 Bidder/Contractor Responsibilities

Notwithstanding the details presented in these specifications, it is the responsibility of the Bidder/Contractor to verify the completeness of the materials and the suitability of the devices to meet the intent of these specifications. Any additional equipment or service required after execution of a contract (i.e., if a Bidder/Contractor neglects to identify or include a needed piece of equipment with their bid) even if not specifically mentioned herein, shall be provided by the Bidder/Contractor without claim for additional payment; it being understood that a complete and operating system is required. The successful Bidder/Contractor will be obligated to provide a system, which meets all guarantees in his or her bid for the price contained therein.

Submission of a bid shall be conclusive evidence that the bidder has investigated and is satisfied as to the conditions to be encountered in performing the work. Any additional materials, labor, and/or

equipment that the bidder deems necessary to insure a satisfactory installation for the purpose intended, shall be noted in the bid and the cost included in the bid quotation.

1.07 Addendum to Specifications

Any substantive interpretation, correction, or change of the bid documents shall be made by addendum to bidders of record. Interpretation, corrections, or changes of the bid documents made in any other manner shall not be binding, and bidders shall not rely upon such interpretations, corrections, or changes. Any addendum shall be issued within a reasonable time prior to the bid deadline.

1.08 Specifications For Certain Equipment

In certain cases in this RFP, specifications and/or brand names of a certain manufacturer may be quoted.

1.09 Successful Bidder/Contractor Selection

Bids will be evaluated by the county for conformance to the project specifications.

The bid award shall be based upon, but not necessarily limited to the following criteria:

A. Adherence to all specifications and other bid requirements, including contingency plans.

B. Bidder's general reputation and experience in the field.

C. County's evaluation of the bidder's ability to fulfill the requirements of the contract.

D. Cost of the Bidder/Contractor's bid.

The evaluation of bids and the determination as to the quality of the supplies, materials, labor, and equipment offered shall be the responsibility of the county and will be based on information furnished by the bidder, or identified in his/her bid as well as other information reasonably available to the county. The county shall make such investigations as it deems necessary to determine the ability of the bidder to perform the work specified in these documents and the bidder shall furnish to the county all such information and data for this purpose as the county may request. The successful bidder shall supply the names and addresses of major suppliers when required to do so by SECC. The contract will be awarded to the Bidder/Contractor who is, in the exclusive review of SECC, the most qualified bidder.

1.10 Contract Award

The contract for this entire project of furnishing all equipment, and the installation as specified, will be to the lowest and best bidder as determined by SECC. The county specifically reserves the right to reject any and all bids, to consider alternatives, to waive any minor irregularities and technicalities, to purchase equipment and services available on existing state contracts, and to re-solicit bids.

1.11 Terms and Conditions of Award

The terms and conditions for contract award imposed herein shall govern in all cases, and conflicting terms or conditions submitted by the bidder may constitute sufficient grounds for rejection of the bid.

1.12 Delivery

The equipment purchased shall be delivered to its proper location and installed by the Bidder/Contractor without additional cost or expense to the county and at the convenience and direction of the county. The county shall not be deemed to have accepted any component or piece of equipment until such time as said equipment has been installed and operating in accordance with the specifications.

1.13 Risk of Destruction or Damage

Prior to the acceptance of such equipment purchased by the county, the Bidder/Bidder/Contractor shall be responsible for destruction or damage of such equipment while in transit, storage, or partially installed.

In the event destruction or damage occurs to such equipment or to existing county owned land, equipment, or facilities, the Bidder/Contractor shall replace or repair such equipment and/or facilities without additional cost or expense to the county. The county retains the right to determine if repairs are required and that said repairs, when completed, are acceptable.

1.14 Prosecution of Work

The tower and related equipment, and the installation thereof, shall be accomplished with the minimum of interruption to normal county business operation.

All work shall be done in a neat and professional manner and shall comply with the applicable national, state, and local codes and regulations. Any electrical work, if required, shall be done by or under the supervision of an acceptable electrician licensed by the State of Iowa.

1.15 Supervision By Bidder/Contractor

The Bidder/Bidder/Contractor shall have a complete set of plans and specifications available on the project at all times while the work is in progress, shall assume full responsibility for supervision of the work irrespective of the amount of work sublet, and shall give the project the constant attention necessary to facilitate satisfactory progress and to assure completion in accordance with the terms of the Contract.

During the life of the Contract, the Bidder/Contractor shall identify and provide at all times a competent person/individual in charge of the overall project, who will be personally available within 24-hours notice. This person may be either the Bidder/Contractor or a responsible employee. This individual shall be fully authorized to conduct all business with the subcontractors; to negotiate and execute all Supplemental Agreements; to execute the orders and directions of the Engineer without delay; and to promptly supply the materials, equipment, tools, labor, and incidentals necessary for prosecution of the work.

At all times while work is actually being performed, the Bidder/Contractor shall employ a competent individual who is authorized and fully capable of managing, directing, and coordinating the work in progress; who is thoroughly experienced in the type of work being performed; who is capable of reading and thoroughly understanding the Plans and Specifications; and who is authorized to receive instructions from the county's representatives.

1.16 Proprietary Statement

The laws of the State of Iowa require that at the **conclusion** of the selection process, the contents of all bids shall be placed in the public domain and be open to inspection by interested parties. All requests for said inspections shall be directed to SECC.

Trade secrets or proprietary information that is recognized as such and protected by law may be withheld **if clearly identified in the bid proposal**. Proprietary restrictions normally are not accepted. However, when accepted, it is the Bidder/Contractor's responsibility to defend the determination in event of an appeal or litigation.

1.17 Laws To Be Observed

The Bidder/Contractor shall keep fully informed of all Federal and State laws; all regulations pertaining to the Occupational and Safety Hazards Act (OSHA); all local laws, ordinances and regulations; and all orders and decrees of bodies and tribunals having any jurisdiction or authority, which in any manner affect the conduct of work. The Bidder/Contractor shall at all times observe and comply with all applicable laws, ordinances, regulations, orders, and decrees, and shall protect and indemnify the county and its representatives against all claims and liabilities arising from or based on Bidder/Contractor or employee violations.

Upon discovering any provisions in the contract that are contrary to or inconsistent with any law, ordinance, regulation, order, or decree, the Bidder/Contractor shall immediately report it to the county in writing.

1.18 Site Visit

It is assumed that Bidder/Contractors planning to submit a bid for this project will desire to visit the property where the tower is to be built. The site is not ready at this time for a site visit. Instead a project conference call will be conducted to fill this discussion need. Bidders are welcome to visit the site to become familiar with the area on their own. A personal site visit is not required to be an acceptable bidder. Bidder/Contractors will be responsible for their own transportation and all costs, expenses, or damages incurred during site visits.

Conference call participation is required to be eligible for consideration for bid response review and award of this project.

Conference call bridge information:

1.19 Method of Payment

SECC plans to purchase the tower and related equipment outlined for this project via the following payment schedule:

Phased Purchase:

- 25 percent upon contract signing
- 25 percent upon delivery of equipment to sites
- 35 percent upon completion of installation
- 15 percent upon system final acceptance

Invoices shall be sent to:

Brian Hitchcock
Scott Emergency Communications Center (SECC)
400 West 4th Street - 2nd Floor Davenport, IA 52801
Phone: (563) 328-4149
Cell: (563) 340-2795
E-mail: bhitchcock@scottcountyiowa.com

SECTION 2.0 - INSTRUCTIONS TO BIDDER/CONTRACTORS

2.01 Bid Documents

Three copies of the bid proposal and a copy on disc, appropriate bid forms, and any other documents submitted with the bid shall be mailed or submitted to:

Brian Hitchcock
Scott Emergency Communications Center (SECC)
400 West 4th Street - 2nd Floor Davenport, IA 52801
Phone: (563) 328-4149
Cell: (563) 340-2795
E-mail: bhitchcock@scottcountyiowa.com

Note: Receipt of delivery to any other location does not constitute delivery.

2.02 Bid Responses

Your understanding and response to these specifications must address the requirements of each Section. The contents of this bid, by the successful potential Bidder/Contractor, shall become a contractual obligation if accepted by the county. All bid prices must be valid for 90 calendar days from response due date.

All bid responses must be labeled: **RESPONSE TO SECC PSAP SITE TOWER PROJECT.**

Bids may be withdrawn or resubmitted any time up to the deadline for bid closing. Any request to withdraw a bid must be made in writing to:

Brian Hitchcock
Scott Emergency Communications Center (SECC)
400 West 4th Street - 2nd Floor Davenport, IA 52801
Phone: (563) 328-4149
Cell: (563) 340-2795
E-mail: bhitchcock@scottcountyiowa.com

No Bidder/Contractor may withdraw a bid after the actual date of the bid opening.

If no bid is received from a Bidder/Contractor by the bid due date, it will be assumed that they do not intend to bid. Failure to respond will forfeit consideration. Bids received after the scheduled bid opening date shall be returned to the Bidder/Contractor unopened.

2.03 Bid Opening

Bids received prior to the bid due date will be kept secure and unopened. The office whose duty it is to open bids shall determine when the specified opening time has arrived. No bid received after the bid due date and time will be considered and will be returned to the Bidder/Contractor unopened.

No responsibility will attach to the county for unintentional premature opening of a bid not properly addressed and identified.

2.04 Postponement and Rejection of Bids

The county shall have the right to postpone the bid opening for its own convenience, or to reject any or all bids not accompanied by any other required data. The county reserves the right to reject a bid that is in any way incomplete or irregular.

2.05 Bid Bond

A properly executed bid bond or a cashier's check payable to SECC in the amount of not less than ten percent of the Base Bid shall accompany each bid as a guarantee that if the bid is accepted, the bidder will execute and file the proposed contract within ten days after receipt of Notice of Intent to Award a Contract. Surety bond shall be written in the form of AIA Documents A310, Bid Bond, or the documents shall be signed or countersigned by an Iowa resident agent. The Attorney-in-Fact who executes the bond on behalf of the surety shall affix a certified and current copy of his Power of Attorney. No other type of bid surety will be accepted. The county will have the right to retain the bid security of bidders until either (a) the contract has been executed and bonds, as required, have been furnished; or (b) the specified time has elapsed so that bids may be withdrawn; or (c) all bids have been rejected.

2.06 Performance Bond

A Performance Bond in the amount of 100 percent of the project price will be required of the successful bidder upon award of contract. The cost of providing a Performance and Payment Bond shall be added to the contract price. Performance and Payment Bonds (refer to section 2.09) shall be accompanied by a certified copy of Power of Attorney and shall be signed or countersigned by an Iowa resident agent of the bonding company.

Bidders are to include the expected cost of a Performance Bond as a separate line item in their bids.

2.07 Information To Be Submitted With Bids

The bidder shall submit **three copies** of the following information to be included in the bid as evidence of compliance with the county's specifications (see Section 6 for Bid Proposal Format). **A bid may be rejected if the responses to the requested specifications are incomplete of if the proposed equipment deviates from the specifications.**

A. A complete list of all equipment proposed for the installation, which shall specify manufacturer and individual model numbers. All equipment and component parts furnished shall be new, meet the minimum requirements stated herein, and be in operable condition at the time of delivery.

B. The Bidder/Contractor shall furnish free of charge with their bid drawings, technical information, graphs, charts, photographs, diagrams, instruction books, and/or other means to show that the proposed equipment fully complies with this specification.

   In the event the published literature furnished by the Bidder/Contractor is a variance with the requirements of any item of this specification, the Bidder/Contractor shall explain in detail, with full engineering support data, the reason why the proposed equipment will meet specification and not be considered an exception thereto. A Bidder/Contractor must request any such variance no later than 15 calendar days prior to the date of bid opening.

C. A detailed description of any special equipment.

D. A list of owners/users currently utilizing equipment similar to that proposed by the bidder. User list shall contain a minimum of twenty customers, with five located within a **200-mile radius of Davenport, Iowa.**

2.08 Exceptions and Alternate Bids

Exceptions to any part of the requirements stated in this request must be clearly identified as exceptions. Alternate bids for equipment may be submitted by Bidder/Contractors for consideration provided the Bidder/Contractor has first provided a detailed response to the primary proposal and as long as the equipment specified meets the intent of the specifications. Bidder/Contractors are required to submit with the proposal package complete documentation of any alternate equipment to be proposed for analysis of suitability by the county.

All alternate proposals shall be **in addition to a fully compliant proposal,** shall be self-supporting, and shall clearly indicate the differences between the alternate and the fully compliant bid.

All Bidder/Contractors are hereby advised that bids must be submitted on the equipment as specified herein and that any bids submitted with an alternate equipment option will not be considered unless the bid contains prices for the equipment precisely as specified herein, as well as prices for the proposed alternate. **Alternate bids are not acceptable unless they are supplied with a fully compliant bid.**

2.09 Prices

All prices shall include warranty and delivery to the purchaser. Payment will be made only for equipment and services purchased under contract with the Bidder/Contractor. Payment will not be made for submission of bid or any part thereof.

2.10 Breakdown of Costs

The Bidder/Contractor(s) must provide a complete breakdown of cost by **major item** (see Detail Pricing Schedule). A cost for each sub-item shall be included for equipment and installation.
If one or more of these sub-items require no cost to the Bidder/Contractor and, respectively, no cost to the purchaser, the sub-item shall be marked "no cost."

Pricing shall also be submitted in soft copy Microsoft Excel spreadsheet. This spreadsheet will be used to create a project response summary for use in the internal review and comparison of the bidders.

2.11 Quantities

Quantities specified in the specification are the best estimates of needs and are submitted to establish unit prices. The county reserves the right, within reason, to increase or decrease the quantity of equipment purchased.

The Bidder/Contractor agrees to accept orders for items on this list at the prices quoted for a period of one year from the date of contract award, subject to an adjustment tied to the cost of living. Indicate on the bid item schedule whether you will extend your prices for these potential additional purchases. Your response will not be a factor in the award.

2.12 Miscellaneous Items

The Bidder/Contractor shall provide all equipment, materials, and supplies necessary for a complete operational system.

2.13 Detailed Equipment Specifications

Bids will be rejected that do not have the detailed specifications, catalog numbers of items, and any other data specifically requested. Technical data sheets containing detailed specifications shall be provided as part of the Bidder/Contractor's bid.

2.14 Warranty

All equipment including material used therein shall be guaranteed by the Bidder/Contractor against mechanical, electrical, design, and workmanship defects. In the event defects become evident within the warranty period, the Bidder/Contractor shall furnish replacement parts, materials, and procedures, and labor as necessary, at no cost to the county. The Bidder/Contractor shall be liable to the county for supply of information and materials necessary for mandatory revisions and updates determined by the manufacturer at no cost to the purchaser for the duration of the warranty period.

The duration of the warranty period shall be stated by the Bidder/Contractor in their bid and shall be at least one year. **The warranty period shall commence on the date of system acceptance**, not on the date of equipment delivery or completion of installation. If it appears at any time within one year after installation and/or system final acceptance that the equipment does not meet the system performance or individual equipment specifications and the county has notified the Bidder/Contractor promptly in writing of such deficiencies, the Bidder/Contractor shall within 14 days of notification correct the deficiency or make necessary repairs or replace any defective equipment or system to meet these specifications.
In addition to these general warranty requirements, the following specific requirements apply:

A. The Bidder/Contractor warrants that all equipment conforms to its published specifications.

B. The Bidder/Contractor warrants that the equipment delivered under this contract conforms to the contract requirements and is free of any defect of equipment, material, or workmanship.

C. The Bidder/Contractor warrants that all equipment furnished here under is new, current manufacture, and includes the latest hardware and software (if appropriate) designs being delivered by each manufacturer.

D. Under this warranty, the Bidder/Contractor shall remedy at its own expense any failure to conform to the general contract terms, specifications, or any other document included by reference into this contract. Bidder/Contractor also agrees to remedy at its own expense any defect in materials or their workmanship.

E. The Bidder/Contractor shall remedy at its own expense damage to county owned or controlled real or personnel property, when that damage is the result of the Bidder/Contractor's failure to conform to the contract requirements. The Bidder/Contractor shall also restore any work damaged in fulfilling the terms of this contract.

   The Bidder/Contractor's warranty with respect to work repaired or replaced hereunder will run for one year from the date of such repair or replacement.

F. Should the Bidder/Contractor fail to remedy any failure, defect, or damage within a reasonable time after receipt of notice thereof, the county shall have the right to replace, repair, or otherwise remedy such failure, defect, or damage at the Bidder/Contractor's expense. This failure is also a breach of contract. Thus, the county's rights are in addition to and not as an alternative to the county's rights under breach of contract.

G. In addition to the other rights and remedies provided by this contact clause, all subcontractors', manufacturers', and suppliers' warranties expressed or implied, regarding any work and materials shall, at the discretion of the purchaser, be enforced by the Bidder/Contractor for the benefit of the purchaser. The Bidder/Contractor shall obtain any warranties which the subcontractors, manufacturers, or suppliers would give in normal commercial practice.

H. If directed by the county, the Bidder/Contractor shall require any such warranties to be executed in writing to the purchaser.

I. The "acceptance" of equipment by the county shall not limit the county's rights with respect to material defects, workmanship, or fraud.

J. If there is a conflict between a clause in this warranty and a clause in the Bidder/Contractor's warranty, the clause which extends the greatest protection to the county under the circumstances in question shall control.

Refer to the specific warranty requirements in section 5.0 of this document.

2.15 Liquidated Damages For Failure to Complete Work On Time

Time is an essential element of this contract. If the Bidder/Contractor fails to provide a complete and operational system by the specified or otherwise **agreed upon date of completion** for any reason excepting delays caused by Acts of God, or other conditions beyond the control of the Bidder/Contractor, it is hereby agreed that the county shall have the right to deduct as liquidated damages from any money or moneys due or coming due to the Bidder/Contractor an amount equal to $500 per day for each and every calendar day after the contract completion date, during which time the contract remains unfinished and uncompleted. Any moneys deducted are not to be construed as a penalty, but as liquidated damages to compensate for the additional costs incurred by the county.

2.16 Incurring Costs

The county is not liable for any costs incurred with replying to this RFB.

2.17 Patent and Royalty Infringement

The successful Bidder/Contractor shall agree to defend at his/her own expense all suits alleging infringement on any patents or royalties by reason of the use or resale of any apparatus furnished or used and will save the county harmless from any and all expense of defending said suits from all payments which may be assessed against the county on account of such infringement.

2.18 Non Discrimination

All Bidder/Contractors agree that during the life of the contract, the Bidder/Contractor will not discriminate against any employee or applicant for employment because of race, color, creed, national origin or ancestry, religion, sex, sexual orientation, age, marital status, public assistance status, handicap or disability, and will intend a similar provision in all subcontracts entered into for the

performance thereof. All bids will be accompanied by a signed statement of this fact with failure to sign reason for bid rejection.

2.19 Insurance

All Bidder/Contractors and Subcontractors shall purchase and maintain such insurance as will protect the Bidder/Contractor, and SECC (who shall be named as a co-insured) from claims set forth below which may arise out of or result from the Bidder/Contractor's operations under the contract whether the operation be by the Bidder/Contractor, by a Subcontractor, or by anyone employed by them. The successful Bidder/Contractor must submit prior to contract award, evidence of insurability in the amounts as specified below, (A Certificate of Insurance).

The Bidder/Contractor must maintain said insurance until the all project equipment and work is completed and accepted by SECC. Basic insurance and liability requirements are as follows:

Employer's Liability Insurance as provided in the applicable law.

Commercial General Liability:

- Bodily Injury $1,000,000 (per occurrence)/$2,000,000 (aggregate) – Minimum Amount.
- Property Damage $1,000,000 (per occurrence)/$2,000,000 (aggregate) – Minimum Amount.

Commercial Automobile Liability:

- Bodily Injury - $1,000,000 – Minimum Amount.
- Property Damage - $1,000,000 – Minimum Amount.

Umbrella/Excess Liability - $4,000,000 – Minimum Amount.

Builder's Risk Property Insurance (with covering, but not limited to, theft and vandalism) in an amount equal to the full value of the project. Deductible amount shall be $5,000, and Bidder/Contractor will be responsible for losses within the deductible range.

2.19.1 Hold Harmless Protection In addition to insurance coverage(s) provided above, the Bidder/Contractor, any Subcontractor, and all employee(s) thereof shall name, indemnify, and save SECC, its officers, affiliates, Project Consultant, and employees from any and all claims, suits, losses, damages, or expenses on account of injuries or death of any or all persons or property damages sustained and caused by an act, omission, neglect, or misconduct of said Bidder/Contractor, Subcontractor(s), and any agents and employee(s) thereof.

2.20 Requirements for All Insurance

All insurance policies (or riders) required by this specification, unless otherwise accepted under this section, shall be:

A. With a rating of not less than "A-" as listed in the Best Insurance Guide.

B. Taken out by Bidder/Contractor and maintained with responsible insurance companies organized under the laws of one of the states of the United States and qualified to do business in the State of Iowa.

C. Shall contain a provision that the insurer shall not cancel or revise coverage thereunder without written notice to Bidder/Contractor as an insured party and to SECC as an additional insured at least 30 days before cancellation or revision becomes effective.

D. Shall name Bidder/Contractor as an insured party and SECC as an additional insured.

E. Shall be in accordance with specifications approved by the insurance advisory for SECC.

F. Shall be evidenced by a Certificate of Insurance listing SECC as an additional insured, which shall be filed with SECC.

2.21 Worker's Compensation

A. Prior to commencement of Contract term, the successful Bidder/Contractor shall submit a signed statement to SECC evidencing Bidder/Contractors compliance with the Workers' Compensation insurance coverage requirement of the State of Iowa. SECC shall be listed as an Additional Insured on Bidder/Contractor's policy. In any case where subcontracting is approved, the Bidder/Contractor shall require the subcontractor to provide workers' compensation insurance, all in accordance with statutory requirements. Evidence of subcontractor's insurance shall be filed with the Bidder/Contractor.

B. Employer's Liability $2,000,000 – Minimum Amount.

2.22 Independent Contractors

The Bidder/Contractor(s) and all employees of the successful Bidder/Contractor(s) shall *not* be considered employees of SECC while engaged in the performance of any work or services required herein, and shall be Independent Bidder/Contractors. Any and all claims that may arise under the Workers' Compensation Act of Iowa on behalf of said employees, and any and all claims made by any third party as a consequence of any act of omission on the part of the work or service provided to be rendered herein shall in no way be the obligation or responsibility of SECC, Iowa.

2.23 Prevailing Wage Requirements

The successful Bidder/Contractor shall be an "Equal Opportunity Employer" as required by the Fair Employment Practices Act. The successful Bidder/Contractor shall be required to pay prevailing wages as provided by local, state, and federal laws and as is defined by the federal Davis-Bacon Act requirements.

2.24 Coordination of Project Activities

The successful Bidder/Contractor(s) will coordinate all project activities related to the tower equipment installation with the county's assigned representative supported by the county's Project Manager. The county shall have the right to modify installation plans and schedules, if the county sees fit.

The role of the successful Bidder/Contractor(s) project manager and that manager's relationship with the county is covered in Section 1.15.

2.25 Installation Requirements

The cost of installation of all equipment requested shall be included in the bid price as a separate item as indicated on the bid form. Upon completion of the installation, all systems and equipment shall operate in accordance with the specifications.

2.26 Permits

The successful bidder(s) shall, with the assistance of SECC, acquire all licenses and permits necessary to the successful completion of this project. Fees for permits will be included in the

Bidder/Contractor's bid response. The successful bidder shall be responsible for any required modifications to permits and licensing.

2.27 Certification

Each firm submitting a bid shall certify that he/she is actively and primarily engaged in the manufacture and installation of commercial communications tower equipment or regularly provides other equipment or services required by this bid.

2.28 Permission to Proceed

Bidder/Contractor(s) must obtain the county's permission before proceeding with any work necessitating:

1. Cutting into or through any part of a building structure
2. Climbing on any county building or other structure
3. Commencing construction on any city or county property
4. Commencing construction on any property leased by the county

SECTION 3.0 - GENERAL REQUIREMENTS and INFORMATION

3.01 Property (Tower Site) Descriptions

A) Tower Site Locations and Details: The new communications tower being obtained via this project is to be erected at the locations listed in the following paragraphs.

B) Site Location:

Site Address:

PSAP Site:

C) Soil Testing and Conditions: Soil testing results are included in this document.

Bidder/Contractors are to finalize the tower foundation design based on the data contained in these reports.

D) Commercial Power: Local Utility power connections will not be a part of this project.

E) Site Access: To obtain access at the sites, Bidder/Contractors are to contact:

Brian Hitchcock
Scott Emergency Communications Center (SECC)
400 West 4th Street - 2nd Floor Davenport, IA 52801
Phone: (563) 328-4149
Cell: (563) 340-2795
E-mail: bhitchcock@scottcountyiowa.com

Construction access to the sites should be adequate for heavy construction equipment.

3.02 Scope of Work Required and New Equipment To Be Purchased

As described in general in the introduction section of this document, the following is a list of the specific work that will be required by this project. Refer to the next section **4.0 Project Equipment Specifications** of this document for detailed technical information related to each bid item.

BID ITEM #1 PSAP SITE:

Supply and install new (approx) 200 foot tower/monopole, silt, erosion runoff control, grounding grid and site components connections, final graveling and cleanup. Including tower antenna mounts for upcoming antenna installations.

Bidder/Contractor will supply and install one new 200 foot self-supporting monopole communications tower, including all associated footings and/or foundations, LED lighting system, lightning protection, grounding, hardware, and other accessories, meeting the specifications in this document. Tower will be installed at the SECC PSAP location at the address provided in this document.

The ultimate intent here is to acquire a tower that will not exceed the FAA approved height of 200 feet with any and all tower structure steel, lighting and antenna appurtenances. Despite this RFB calling for a 200 foot tower the actual overall height must not exceed the FAA specifications. Bidders must show in response drawings how the structure is planned to be constructed, side arms applied, and overall heights with the inclusion in the drawing of anticipated antennas that will be supplied in the trunked radio system that will follow this tower project.

A full project plan must be presented, most importantly tower structural drawings, foundation plans, and site erosion plans (all to be provided by the Bidder/Contractor for this integrated tower, site preparation project). As a part of this project, the successful bidder must agree to supply drawings that are engineer stamped (Iowa acceptable).

Bidder/Contractor will supply and install all appropriate site grounding connections including but not limited to shelter connections to site ground grid, tower to site ground grid, all fencing and ice bridging components to ground grid. Appropriate ground test wells will be included. The guidance to the grounding at this site will be Motorola's R56 guidelines.

Bidders will respond with description narratives and diagrams showing the design that they will implement at this site. These diagrams to show tower elevations, site plans relationships of tower to the new PSAP building, and fencing to tower.

3.03 FCC and FAA Registrations

All FAA and FCC tower registration and construction notifications will be provided by the county and/or the project managers. FAA filings have been made for the PSAP tower and have been received.

3.04 Federal Communications Commission Approval

All equipment shall be approved (as applicable) by the Federal Communications Commission's (FCC) and shall meet every requirement for the type of service as specified. Design and specification, both mechanical and electrical, shall be on file with the FCC.

3.05 Current Production Equipment

Only new, unused equipment in current production by manufacturers of commercial tower equipment will be considered.

The equipment offered must be of the latest design in the field of communications tower structure equipment that is reliable, durable, and compatible with all communications equipment presently in use. Each proposal shall include a complete description of all types to be furnished, including manufacturer, model number, or other specific descriptive literature stating the guaranteed specifications for each piece of equipment.

3.06 Factory Testing

All equipment supplied as part of this project shall be factory tested and/or inspected prior to shipment as appropriate.

3.07 Technical Documentation and Drawings

As a part of the RFP response a representative drawing must be provided depicting an example of the final tower construction profile.

As part of the proposed tower project, the successful Bidder/Contractor shall furnish the following technical materials upon completion of equipment installation and prior to system final acceptance. Final payments, scheduled per this document, may be withheld until any missing, incomplete, or inaccurate manuals or drawings have been corrected.

1. A complete summary of the tower stress analysis showing loading considerations, tower base reactions, member sizes, allowable stresses, and maximum computed forces in members is required. Analysis shall be certified by a registered professional engineer, licensed in the State of Iowa, **including certification by a structural engineer**.

2. Complete installation drawings are required for the new tower(s). The drawings must show all of the necessary pieces, part numbers (corresponding to the part number stamped on the associated part), and the connecting hardware sizes. The weight of each tower element is also to be provided. The drawings are to show the location of all antenna-mounting side arms.

3. Complete foundation drawings are required to show the anchor bolt placement, size, and placement of all reinforcing bars and pier sizes. Information regarding the size, grade, and bending detail of each piece of reinforcing steel is also required.

4. It shall be the sole responsibility of the Bidder/Contractor to thoroughly check all drawings for accuracy and full compliance with the project plans and specifications for form, fit, and function before submission to the county.

5. Two complete sets of tower assembly drawings (prints) shall be provided and shipped with the tower components. Complete packing slips will be provided for the tower.

All drawings to be provided in this project will be made available in hard copy format as well as soft copy format. PDF/Visio files are acceptable.

SECTION 4.0 - PROJECT EQUIPMENT SPECIFICATIONS

4.01 General

The scope of work encompassed by these specifications includes the furnishing of all material, labor, transportation, and engineering to completely design, fabricate, and erect a self-support communications tower, including all appurtenances and foundations. These specifications set forth the minimum performance required for the equipment as listed in this system design. Equipment supplied shall be new and of a current design presently in production by the manufacturer. A product known by the manufacturer to be discontinued within six months after date of bid opening shall not be acceptable to the county.

4.02 Tower Codes, Standards, and Specifications

The following industry specifications, in effect at the time of solicitation for bids, shall form a part of this project specifications. In the event of a conflict between this project specification and the codes, standards, and specifications listed below, the most stringent requirement shall govern. Bidders/Contractors will provide a narrative as to the recommended tower "Rev Code" to best be applied to the structures requested in this project.

1) American Institute of Steel Construction (AISC)	Manual of Steel Construction Specification for Structural Joints using ASTM A325 or A490 bolts
2) Electronic Industries Association (TIA/EIA-222) Standard Supporting Structures	Structural Standards for Antenna Towers and Antenna
3) American Welding Society (AWS) D1.1	Structural Welding Code
4) FAA Advisory Circular #AC 70/7460	Obstruction Marking and Lighting
5) National Electrical Code (NEC)	Tower Lighting Kits
6) FCC	Federal Communications Commission Rules and Regulations - Part 17
7) American Concrete Institute ACI 318	Building Code Requirements for Reinforced Concrete
8) American Society for Testing and Materials (ASTM) for:	
▶ A-36, A-50, A441, and A572	Structural Steel
▶ A-53	Welded and Seamless Steel Pipe
▶ A-123	Zinc (hot-dipped galvanized coatings ▪ on products fabricated from rolled, ▪ pressed and forged steel shapes, ▪ plates, bars, and strips)
▶ A-153	Zinc coatings (hot-dip) on Iron and Steel ▪ Hardware

▶ B-695	Coatings of Zinc Mechanically ▪ Deposited on Iron and Steel (minimum thickness 0.0026”)
▶ A-385	Zinc Coatings (hot-dip) on Assembled ▪ Steel Products
▶ A-307	Low-Carbon Steel Externally and Internally Threaded Standard Fasteners
▶ A-325	High Strength Steel Bolts
▶ A-615	Reinforcing Bars
▶ A-706	Reinforcing Bars
▶ ASTM C-9	Ready-mixed Concrete

4.03 Tower Specifications

A. General Tower Configuration Information

The county requires the towers for this project to be configured in the following manner:

1. **Tower Face Size:** To be determined by Bidder/Contractor, but shall be sufficient for support of proposed antenna configuration. The lower level(s) of the tower shall be sized based on the recommended engineering design of the Bidder/Contractor.
2. **Antenna Loading:** The sites site will become primary communications site for the county. The following pages contain a site by site listing of antenna systems that are desired to be provided and installed.
3. In addition to the loading of county owned antennas it is desired that this structure support additional antennas devices. The expected devices would be CELLULAR CO-LOCATED antennas arrays below the areas described at just below the top of the tower. Bidder/Contractors are asked to estimate “typical” antenna sector antennas for at least two additional co-located carriers. Each additional carrier level loading calculations must include capacity for a “typical panel” antenna array and two six foot microwave dish.
4. **Tower Lighting:** A complete tower lighting systems shall be supplied. This system shall provide medium-intensity white LED strobe lights for daytime visibility, and red LED strobe lights for nighttime visibility. This system shall be equipped with a controller with day/night automatic photocell operation, and an external alarm system for remote monitoring. This system shall meet all specifications of FAA Advisory Circular 70/7460-1K for communications towers. Flash Technology products are preferred for this project. A remote monitoring station will be provided and installed in the new SECC Communications Center Dispatch area.
5. **Painting**: Not required
6. **Climbing Safety Device**: Required

Tower Analysis and Design

1. The structure shall be designed to support all specified antennas, including future antennas, and to hold all antennas on path within twist, sway, and displacement limits of TIA/EIA-222 Standard, latest version.
2. The tower, when fully loaded with antenna assemblies and other appurtenances, shall be designed for the minimum wind loads required by TIA/EIA-222 Standard, latest version.
3. Tower design shall also be designed to meet minimum wind loading requirements with consideration of radial ice accumulation to all parts of the tower, antennas, and accessories, in accordance with State of Iowa requirements.
4. Under wind pressures up to 35 mph, all horizontal members shall be capable of supporting a 250 pound vertical load at mid-span, in addition to other design loads.
5. Tower deflection limits are to be held both vertically and horizontally. The twist and sway of the tower at all antenna-mounting elevations shall be noted on the formal stress analysis.
6. Tower shall be designed by or under the direct supervision of a registered professional engineer, specifically experienced in the design of communications towers. All design and analysis computations and installation drawings shall be certified and stamped by a licensed Professional Engineer.

B. Tower Products and Materials

1) Fabrication

a) All fabrication, erection, and identification of structural steel shall conform to AISC specifications.

b) Under no circumstances shall “dissimilar metals” be used in contact with one another.

c) Hot-dipped galvanizing of tubular sections (if any) shall be inside and outside per standards and methods listed elsewhere in this specification.

d) Quality welding processes and welding operators shall be in accordance with AWS “Standard Qualification Procedure”.

e) Properly mark and match-mark materials for field assembly. Prepare for a delivery sequence, which will expedite erection and minimize field handling of materials.

2) Connections and Locking Devices

a) No field welding shall be permitted unless specifically approved in writing.

b) All members shall connect with galvanized structural bolts unless otherwise approved.

c) All threaded fasteners shall extend not less than 1-1/2 threads beyond all threaded fasteners nuts and locking devices.

3) Material Finishes

a) All steel members and fasteners shall be galvanized (zinc coated) per standards listed elsewhere in this specification.

b) Under no circumstances shall any coating on any metal member or fastener be cathodic relative to the base material.

c) Painting of tower structure is not required.

C. Foundations and Tower Installation

1) Foundation Design

a) The Bidder/Contractor shall develop foundation designs based on soil conditions as defined in Soil Reports that will be supplied by the county.

b) Foundation recommendations contained within the Soils Report will be general in nature and are made without benefit of tower reaction information. The ultimate responsibility for the foundation design shall be the Bidder/Contractor's.

c) Foundation designs should utilize, as a minimum, 3,000 psi concrete and grade 60 reinforcing steel. When specified, a concrete mix design shall be submitted to the tower engineer to ensure that materials are proportioned by weight to produce concrete with a minimum compressive strength at 28 days of 3,000 psi.

d) Safety factor for uplift for tower footings shall meet minimum requirements as specified in TIA/EIA-222 Standard, latest edition.

e) Where abnormal soil conditions are encountered, to the extent that additional charges may be incurred, the county must be notified and verify said conditions.

2) Foundation Installation

a) All concrete construction methods shall conform to the applicable section of ACI 318, latest revision.

b) All materials shall be stored in such a manner as to prevent deterioration or intrusion of foreign matter. Deteriorated materials shall not be used in the work.

c) Concrete shall be conveyed from the mixer to the place of final deposit by methods that will prevent separation or loss of material.

d) When concreting is started, it shall be carried out as a continuous operation until the section being poured is completed.

e) When the free fall of concrete is greater than ten feet, a placing trunk shall be used to direct the concrete and to avoid hitting the forms, form ties, or reinforcing steel, thus preventing segregation.

f) To ensure uniform production of concrete, representative samples will be taken at the request or/and under the supervision of the engineer for the purpose of making cylinders for strength tests. All tests will conform to ACI methods and the appropriate ASTM specifications.

g) Forms shall be constructed in accordance with the following guidelines:

- Forms shall conform to the shapes, lines and dimensions shown on the drawings, and be of adequate strength and tightness to support the fresh concrete without undue deformation and without loss of mortar.
- Forms shall be properly braced and tied together to maintain their position and shape when concrete is tamped and/or vibrated. Any misshapen concrete resulting from sagging or bulging forms may be rejected.

- One-inch chamfer shall be provided on the edges of exposed footings, equipment pads, beams, and columns.
- Forms for permanently exposed surfaces shall produce a smooth, even finish without fins.
- No splashing of oil on forms will be allowed.
- All piers shall project a minimum of six inches above the finished grade.

h) Removal of forms shall be done in a manner that will assure complete safety of the structure and concrete. Forms may be removed after 24 hours, provided the concrete has sufficiently hardened to prevent its being damaged during subsequent construction.

i) Reinforcing shall be in accordance with the following:

- No splashing or oil coating of any kind will be permitted on any part of the reinforcing steel.
- Reinforcing steel shall be manufactured from new billet steel, intermediate grade, deformed bars, in accordance with the Standard Specifications of the ASTM A615, latest edition.
- Welded wire fabric reinforcement shall be in accordance with the Standard Specification of the ASTM A185, latest edition.
- Metal reinforcement shall be accurately positioned and secured against displacement, and shall be supported in a manner that will keep all metal away from the exposed surface. The minimum distance between any bar and the exposed surface shall be not less than three inches when placed against earth or 1-1/2 inches when concrete is placed against form work.

j) Concrete shall not be placed when temperatures of 32 degrees Fahrenheit or lower are likely to be experienced unless the **Recommended Practice for Cold Weather Concreting** (ACI 306-66) is followed. Accelerators such as calcium chloride shall not be used except by permission of the county's field engineer and the Bidder/Contractor's design engineer, and then shall be limited to a maximum of two percent by weight of cement. Concrete shall not be placed on frozen sub grade or in frozen forms or handled in equipment containing ice or snow. The sub grade and forms shall be thawed out by the use of vented heating methods. Open flame heating methods will not be permitted.

k) Before depositing new concrete on or against concrete that has hardened, the forms shall be retightened, the surface of the hardened concrete shall be roughened as required, thoroughly cleaned of foreign matter, and painted with a bonding agent composed of epoxy resin, in strict accordance with the manufacturer's instructions.

l) No freestanding water will be allowed within the foundation excavation before and during the placement of concrete.

m) All reinforcement bars shall be new and free of loose scale.

n) All requirements for inspections will be followed as required in Scott County and the City of Davenport Iowa. It is the responsibility of the vendor to discover, follow, and close out all inspection requirements with the proper regulatory agencies.

3) Tower Erection

a) The Bidder/Contractor shall furnish all necessary personnel, supervision, tools, equipment, and transportation required to complete the installation and erection of all items specified herein.

b) Any members which sustain damage shall be reported to the county.

c) Correction of damage shall not be done by Bidder/Contractor without approval of the county.

d) After materials have been unloaded, the Bidder/Contractor shall inventory all parts per the bill of materials and report immediately to the owner that:

- Materials received agree with the bill of materials,
- There are shortages and/or damaged materials, listing all such items.

e) The actual location of the tower, building, and other structures will be determined by the county; these are shown on the drawings that accompany this specification. Tower orientation is also shown.

f) All structural members shall be set accurately to the lines and elevations indicated on the erection drawings. Align and adjust the various members forming each tower bay before permanently fastening.

g) The Bidder/Contractor shall maintain a check of tower plumbness during all phases of the erection work. Plumbness shall be measured by means of a transit placed so that the sight elevation angles are less than 45 degrees. At least two sights shall be made for each check, oriented at right angles to each other and taken within the shortest practical time interval. At all times the tower shall be plumb within the tolerance specified in drawings.
After completion of construction, with all joints tight, and all appurtenances installed, the Bidder/Contractor shall make a final check of the tower plumbness in the manner prescribed above.

h) Field modifications including welding or burning of holes in members is not acceptable.

i) Bidder/Contractors will provide a dedicated, full-time field supervisor. This Bidder/Contractor-employee will be assigned and available through all phases of construction. Responsibilities will include, but are not limited to, verification of tower and anchor locations, finished grade and construction of foundations, delivery and erection of the tower, off-load location, and joint inspection of construction.

D. Tower Accessories

1) Tower Lighting

a) A complete LED tower lighting system shall be supplied as follows:

- Medium-intensity white LED strobe lighting for daytime visibility
- Red-strobe LED obstruction lighting system for night time visibility

b) All lighting obstruction equipment shall be FAA approved. System shall meet all specifications of FAA Advisory Circular 70/7460-1K for communications towers, and shall make for compliance with the FAA authorization provided to the SECC from the FAA, and this document is included in this RFP.

c) Lighting shall be activated and deactivated by photoelectric control for unattended operation.

d) Tower lighting system is to be equipped with an automatic lighting failure alarm system. System shall be provide automatic notify the county dispatch office in the event of failure of

any component of the lighting system, to include light bulbs. This device will be located in the new dispatch center. An interim tower lighting monitoring system will be required to monitor the tower lights on the new structure until such a time that the new PSAP is operating. Tower vendor will provide a temporary method of monitoring the tower lighting and this cost will be included in this project offering, to include any monitoring hardware/software, installation, and services.

2) Grounding and lightning Protection

a) Tower shall be supplied with a complete grounding system that conforms to the minimum requirements of TIA/EIA-222, Section 12, and "Protective Grounding." Motorola R56 standards will also apply.

b) Tower shall be attached to three ground rods, 5/8 inch diameter, eight feet long, copper clad, driven not less than eight feet into the ground. If ground rods cannot be driven into ground the full eight foot depth, they may be driven at an angle or buried in a horizontal trench to allow the full eight foot length to be buried. One ground rod shall be provided for each tower leg.

A ground "ring," buried around the base of any new tower installation shall be supplied and installed in conjunction with the ground rods stated above. Tower grounding shall also be connected to the grounding ring supplied as a part of the new PSAP facility.

All grounding wire shall be not less than number two copper, and exothermically welded (via CADWELD or other brand) to ground rods and tower.

c) Any and all equipment mounted on the tower shall be fastened so as to be effectively grounded.

d) Testing of grounding systems are the responsibility of the tower Bidder/Contractor, and will be conducted upon completion of the tower and grounding system installation. Testing shall be conducted with the county's representative present.

3) Climbing Devices

a) Towers shall provide appropriate means for climbing. Approved step bolts or step rungs shall be provided. The maximum allowable vertical spacing of horizontal step members shall be 12 inches. Rungs will be able to support a concentrated load of 250 pounds.

b) An anti-fall climbing safety device, meeting the requirements of ANSI 14.3, shall be provided and installed.

4) Other Hardware

a) Cable ladder: A cable ladder shall be supplied and installed on each of the new towers, sized to provide support for all of the transmission lines described earlier in this document. The cable ladder may be incorporated into the tower structure, or a separate device attached to the tower structure. This does not apply to monopole structures.

b) Cable tray/Ice-bridge: The tower supplied for this project will not require an overhead cable tray/ice-bridge between the tower and the radio equipment building. Instead, details are provided in this document that indicates the concept of the ducts running down inside the pole making a sweeping turn to the new PSAP building.

A compilation of these photographs with associated description on the antenna mount will be presented to SECC after the final inspection and acceptance of the tower/antenna system installation.

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SECTION 5.0 - SYSTEMS MAINTENANCE REQUIREMENTS

5.01 Warranty

The Bidder/Contractor shall furnish all plant, labor, and material to completely maintain the tower systems, or pertinent parts as it may apply, for a period of one year after system acceptance by the county under the Warranty.

5.02 General

The intent of these specifications is to secure prompt and reliable maintenance service for the tower site(s). The equipment Bidder/Contractor will be expected to assume entire responsibility for quality of maintenance work and attention to maintenance contract terms. If actual maintenance is proposed to be subcontracted to another, the name of the proposed subcontractor shall be included in the proposal and be subject to approval by the county. In such case, the subcontractor shall be regularly engaged in the maintenance of communications towers and meet all of the service requirements outlined in this section.

The Bidder shall list names of three other agencies in the service area of the establishment proposed to furnish service to the county for which the bidder now provides maintenance services similar to those specified herein. These references shall be selected to reflect systems of similar size and equipment compared to equipment to be furnished to the county as part of this contract. No reference shall be made where the bidder has provided maintenance service for less than one year, or where the bidder no longer provides maintenance service.

5.03 Service

The Bidder/Contractor shall be prepared to show proof of ability to provide service on the proposed system equipment.

5.04 Service Facility

The Bidder shall identify the location of an established service facility equipped with the equipment necessary to provide service on the system proposed. The Bidder/Contractor's service staff shall include qualified technical personnel, manufacturer-trained for the system proposed. Indicate on the Bid Item Schedule, the location, and personnel involved in installation and service of the proposed system.

5.05 Service Area DOES NOT APPLY TO THIS PROJECT

5.06 Field Technical Support

The bidder shall clearly state his capabilities to provide field service technicians to support the maintenance, installation, and proper operation of the system after installation of purchased equipment.

5.07 Personnel, Training, and Safety

All tower maintenance shall be performed by a technician who has had not less than two years experience as a full-time tower technician, working on equipment similar to the type to be furnished under this contract. Any technicians employed by a subcontractor who have responsibility for work under this contract shall be regular, full-time employees of the subcontractor.

All tower crew technicians shall be certified to have received training on the latest OSHA tower safety and FCC radio frequency radiation and site safety standards and practices. Documentation of this training shall be provided to the county prior to contract award. Bidders will detail the participation in the NATE training program or equivalent training program. An OSHA recordable incident rate and other applicable data to the responder's rate of the company are required to be provided as a part of the review of the RFP response to the county. Companies that have less than ideal OSHA records will not be considered for this project.

The Bidder/Contractor or proposed subcontractor shall not have any personnel climbing, or performing erection or service work on the tower unless a minimum of two workers are on on-site.

5.08 Telephone Service

The Bidder/Contractor shall maintain adequate telephone service to assure answering emergency calls. The county shall be provided with the name and telephone number for service outside normal working hours or the number of answering service to handle such calls. The Bidder/Contractor shall guarantee to have a technician on the job within three hours of the time of the first call for emergency service.

5.09 Subcontractors

If any subcontractors are included in the proposal, the Bidder/Contractor shall comment on their staff assignments and organization and shall include resumes of personnel within the sub-Bidder/Contractor organization(s). SECC reserves the right to approve and or reject all subcontractors in advance based on certifications, qualifications past experience.

5.10 Maintenance Schedule

The Bidder/Contractor shall conduct a preventative maintenance visit to the tower site for the equipment items listed below:

- Security, integrity and tightness of all tower fasteners, anchors and cables
- Proper operation of tower lighting systems, to include light LED's.

This work will be done initially six months after final tower installation and acceptance, and again at the one year period after final acceptance. Equipment shall be inspected, and adjusted or repaired to meet all engineering specifications.

Preventative maintenance checks shall be done on the premises by during regular business hours. The Bidder/Contractor shall provide emergency services for the tower and tower lighting on 24 hours per day, seven days per week basis, at no additional charge to the owner over the contract price. No allowance for parts will be paid regardless of time of day or location where service is performed.

A record shall be kept of each service event performed by the Bidder/Contractor, which shall be available for inspection, by the owner during normal working hours. At termination of the one year warranty period, the Bidder/Contractor shall submit a written record of service to each and every item covered under the maintenance contract during the one year contract period. During such period, each and every item of equipment covered under the maintenance contract will be serviced and brought to original performance specifications.

5.11 Maintenance Limitations

The Bidder/Contractor shall be responsible for all maintenance required due to normal wear and tear on the equipment. The Bidder/Contractor will not be required to repair equipment at the contract price, which becomes defective due to negligence or abuse by the county, lightning, act of God, or other event patently not under control of the county. Maintenance work does not include fixed station antenna or coaxial cable, antenna support structures, building, fence, or emergency generators.

Maintenance performed beyond the contract price shall be invoiced at the labor rate bid for normal or emergency service as appropriate plus parts at manufacturer's recommended retail price.

5.12 Replacement Parts

The equipment manufacturer shall maintain a replacement parts inventory for service of the equipment. The Bidder/Contractor shall certify that he maintains a stock of replacement parts, for each item included in his equipment, and shall be in a position to replace such parts as may be required for a period consistent with the life of the equipment or for seven years, whichever is longer. An ample stock of individual components shall be carried for as long a period as demand warrants.

Replacement parts used in the repair of equipment furnished under this contract shall be exact replacement parts of substitutes recommended by the equipment manufacturer. The Bidder/Contractor shall have parts in stock at all times to prevent unnecessary delay to the owner. No modifications shall be made to new equipment unless it is approved by the manufacturer and the owner.

5.13 Recommended Spare Parts

A complete list, with unit price, of all recommended spare parts and assemblies shall be furnished with the bid (this is primarily for the tower lighting system, though other items may be included at the recommendation of the Bidder/Contractor).

5.14 Insurance

The Bidder/Contractor shall maintain insurance satisfactory to the owner for the life of the maintenance contract in amounts not less than specified in the general conditions for this bid.

5.15 Maintenance Contract

Bidders will provide to the county, as part of their bid, a proposed maintenance contract, which is consistent with the project specifications for the equipment provided as part of the project. This Bid will, if so chosen by the county, provide maintenance services for the project equipment upon expiration of the one year warranty initially provided by the Bidder/Contractor.

The county shall have the option to purchase this maintenance contract at any time prior to the expiration of the one year warranty period.

Maintenance prices quoted which are patently out of balance with other maintenance prices charged for similar work in the area by the bidder may be cause for rejection of the entire bid.

SECTION 6.0 - BID FORMAT

The submitted written bid must follow the following format and content detail. Standard brochures and technical specifications may be submitted as addendum material but not as the primary bid proposal data. It is requested and expected that the following bid sections be specifically prepared and perhaps substantiated by addendum material.

All bids are to be typed double-spaced between paragraphs on 8-1/2 x 11-size paper. Each of the following required bid sections are to begin a new page and be separately tabbed. Each page shall be numbered in sequence and have the bidder's identification. The bidder is to include as much pertinent data and information under each section as necessary to ensure proper evaluation of the proposed systems.

I. **TITLE PAGE**: Identify the equipment being proposed. The name and signature of the bidding company's sales representative and the person's address and telephone number must be provided. The bid proposal must be dated on this page.

II. **TABLE OF CONTENTS**: A listing of all major and minor topics and associated page numbers must be included.

III. **SECTION 1.0 BIDDER PROFILE**: This section serves to identify the history of the bidding company.

IV. **SECTION 2.0 OVERVIEW**: This section is an introduction and synopsis of the bid proposal. The proposed equipment must be identified together with the highlights of each of the following sections. The bidder must include identification of the primary reasons why the proposed equipment and service will best meet the specified requirements. In addition, the bidder's primary strengths with respect to competitive factors should also be presented.

V. **SECTION 3.0 EQUIPMENT**: This section must describe in functional detail the proposed system and related equipment. This section must include the standard and optional features and the equipment descriptions. The capacity of the proposed system with respect to stations and facilities must be identified. In addition, the complexity of expanding the system must be clearly described.

The purpose of this section is to permit the evaluator to totally understand the proposed equipment without the necessity of referring to other documents or brochures.

VI. **SECTION 4.0 SERVICE**: This section must describe the service policies associated with the proposed equipment, as they would apply to this project. The number of service personnel trained in the proposed systems in this geographical area must be specified. The number and size of similar systems in this area should be identified. A sample of the maintenance contract available should be included here.

The address of the bidder's local service centers should also be provided. Please indicate if the current maintenance records at these centers are available for inspection.

Present in as much detail as necessary the proposed service for the tower. Include such items as expected response time, on-site spare parts, possible customer maintenance, etc.

VII. **SECTION 5.0 DELIVERY AND INSTALLATION**: This section should identify the exact tasks that the customer must perform and/or be responsible for in order to accomplish the delivery and installation. In addition, the exact tasks that the bidder will perform and/or be responsible for in order to accomplish the delivery and installation must also be identified in detail and coordinated with the customer.

The bidder must provide the delivery date, installation period by function (i.e., footings, tower structure, etc.) completion date, the beginning date of acceptance testing, for the new radio system.

VIII. **SECTION 6.0 REFERENCE DATA**: This section serves to identify installed and related systems with pertinent data such as date of installation, type of towers installed, etc., and the name of the user contact.

IX. **SECTION 7.0 ADDENDUM MATERIAL**: Any brochures or descriptive functional literature that may assist in the total evaluation may be provided in this section. This section is not to be used to introduce new or initial data. The previous six sections are the sole and primary basis for all evaluations. This section can be used only for substantiating data introduced in the previous sections.

SECTION 7.0

APPENDIX A - BID DOCUMENTS

SECC, Davenport Iowa

Monopole Tower Project

BID FORM

BID TO:

Brian Hitchcock
Scott Emergency Communications Center (SECC)
400 West 4th Street - 2nd Floor Davenport, IA 52801
Phone: (563) 328-4149
Cell: (563) 340-2795
E-mail: bhitchcock@scottcountyiowa.com

BID FOR:

The work described as the **SECC PSAP Tower Project**

The Bidder agrees to perform all of the work as described in the specifications document.

The Bidder hereby declares that he or she has carefully examined all Bidding and Contract Documents, prepared by SECC and the SECC consultant, and that he or she has personally inspected the actual location of the work, and local sources of supply, has satisfied himself/herself as to all the quantities and conditions, and understands that in signing this Bid he/she waives the right to plead any misunderstanding regarding the same.

The Bidder hereby proposes to furnish all labor, materials, tools, equipment, machinery, equipment rental, transportation, superintendents, perform all work, provide all services, and to construct all work in the bid package stated above and for the bid amount as stated below. The bid amount is to cover all costs incurred in performing the Work as required for this bid package category under the Contract Documents, of which this Bid Form is a part.

The Bidder agrees, if awarded the Contract, to substantially complete the Work of the Contract, subject to the provisions of the Contract Documents, in accordance with the Project Construction Schedule agreed to with SECC.

Costs also need to be provided in a soft copy Microsoft Excel spreadsheet. Each site should be represented by item number, with totals.

In submitting this bid, it is understood that the county reserves the right to reject any or all bids, to waive any informality or irregularity in any bid received, and to accept any alternate(s) in any order or combination.

THE UNDERSIGNED operates as a:

_____ Sole Entity

_____ Partnership

_____ Corporation, incorporated in the State of _____

_____ Other (specify) _____

LEGAL NAME OF PERSON, FIRM, OR CORPORATION:

Name _____

Address _____

_____

Phone _____ _____

By_____ _Title _____

By_____ _Title _____

By_____ _Title _____

EXPLANATION OF BID ITEMS AND PROPOSAL FORM

The bidder is instructed to include a complete list in duplicate with his bid organized by item number on the bid proposal, showing manufacturer and model number of each item to be furnished (using attached sample worksheet).

BID ITEMS

Bid Item: Support

Price includes all hardware, accessories, lighting system, grounding, shipping/delivery, installation, and maintenance for one year.

SAMPLE BID WORKSHEET

BID ITEM #1A (with cell carrier capacity) 200 (approx) Foot Self-Support Tower RATED FOR 90 mph winds with 0"radial ice, 40 MPH with .75" radial ice in accordance with ANSI/TIA-222-G Structure class III, Exposure Category C, Topographic Category 1

Itemized Schedule to Meet Requirements (include manufacturer and model number of each item as appropriate):

Site Name: SECC PSAP Site

Tower Structure Materials	$_____
Foundation and Installation	$_____
Tower Erection	$_____
Lighting Equipment	$_____
Delivery/Freight	$_____
Performance Bond	$_____
Site Preparations	$_____
New Antenna Systems Mounts	$_____
Additional Items	$_____
Optional Fence of pole area	$_____
TOTAL COST FOR THIS ITEM	$_____

Bidders are recommended to modify this itemized schedule to fit the response to be supplied.

BID ITEM #1B (with cell carrier capacity) 200 (approx) Foot Self-Support Tower RATED FOR 90 mph winds with 0"radial ice, 40 MPH with .75" radial ice in accordance with ANSI/TIA-222-G Structure class III, Exposure Category C, Topographic Category 1

Itemized Schedule to Meet Requirements (include manufacturer and model number of each item as appropriate):

Site Name: SECC PSAP Site

Tower Structure Materials	$_____
Foundation and Installation	$_____
Tower Erection	$_____
Lighting Equipment	$_____
Delivery/Freight	$_____
Performance Bond	$_____
Site Preparations	$_____
New Antenna Systems Mounts	$_____
Additional Items	$_____
Optional Fence of pole area	$_____
TOTAL COST FOR THIS ITEM	$_____

Bidders are recommended to modify this itemized schedule to fit the response to be supplied.

BID ITEM #1C (with cell carrier capacity) 200 (approx) Foot Self-Support Tower RATED FOR 130 mph winds with 0"radial ice, 40 MPH with .75" radial ice in accordance with ANSI/TIA-222-G Structure class III, Exposure Category C, Topographic Category 1

Itemized Schedule to Meet Requirements (include manufacturer and model number of each item as appropriate):

Site Name: SECC PSAP Site

Tower Structure Materials	$_____
Foundation and Installation	$_____
Tower Erection	$_____
Lighting Equipment	$_____
Delivery/Freight	$_____
Performance Bond	$_____
Site Preparations	$_____
New Antenna Systems Mounts	$_____
Additional Items	$_____
Optional Fence of pole area	$_____
TOTAL COST FOR THIS ITEM	$_____

BID ITEM #1D (without cell carrier capacity) 200(approx) Foot Self-Support Tower RATED FOR 130 mph winds with 0"radial ice, 40 MPH with .75" radial ice in accordance with ANSI/TIA-222-G Structure class III, Exposure Category C, Topographic Category 1

Itemized Schedule to Meet Requirements (include manufacturer and model number of each item as appropriate):

Site Name: SECC PSAP Site

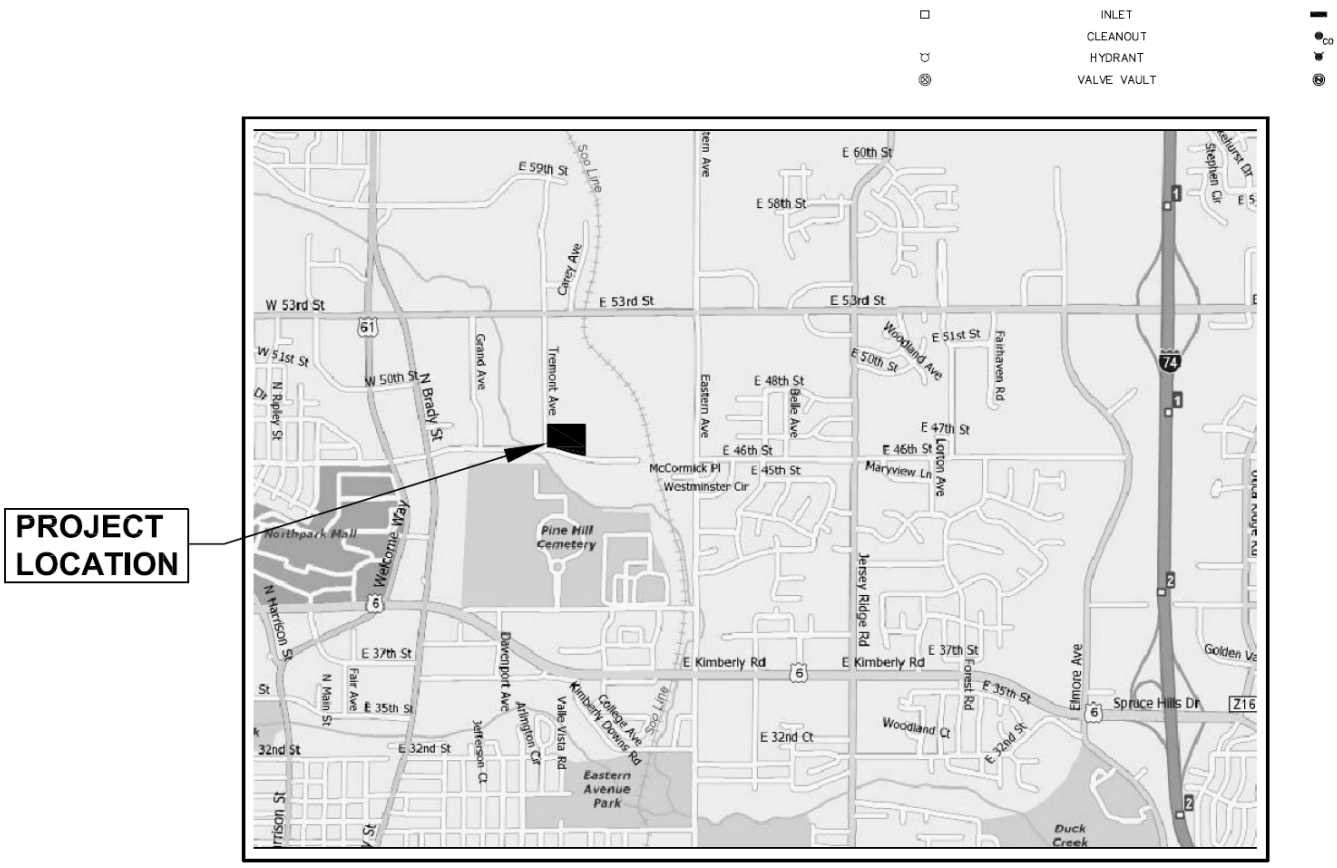
Tower Structure Materials	$_____
Foundation and Installation	$_____
Tower Erection	$_____
Lighting Equipment	$_____
Delivery/Freight	$_____
Performance Bond	$_____
Site Preparations	$_____
New Antenna Systems Mounts	$_____
Additional Items	$_____
Optional Fence of pole area	$_____
TOTAL COST FOR THIS ITEM	$_____

Site Plan

PSAP Site

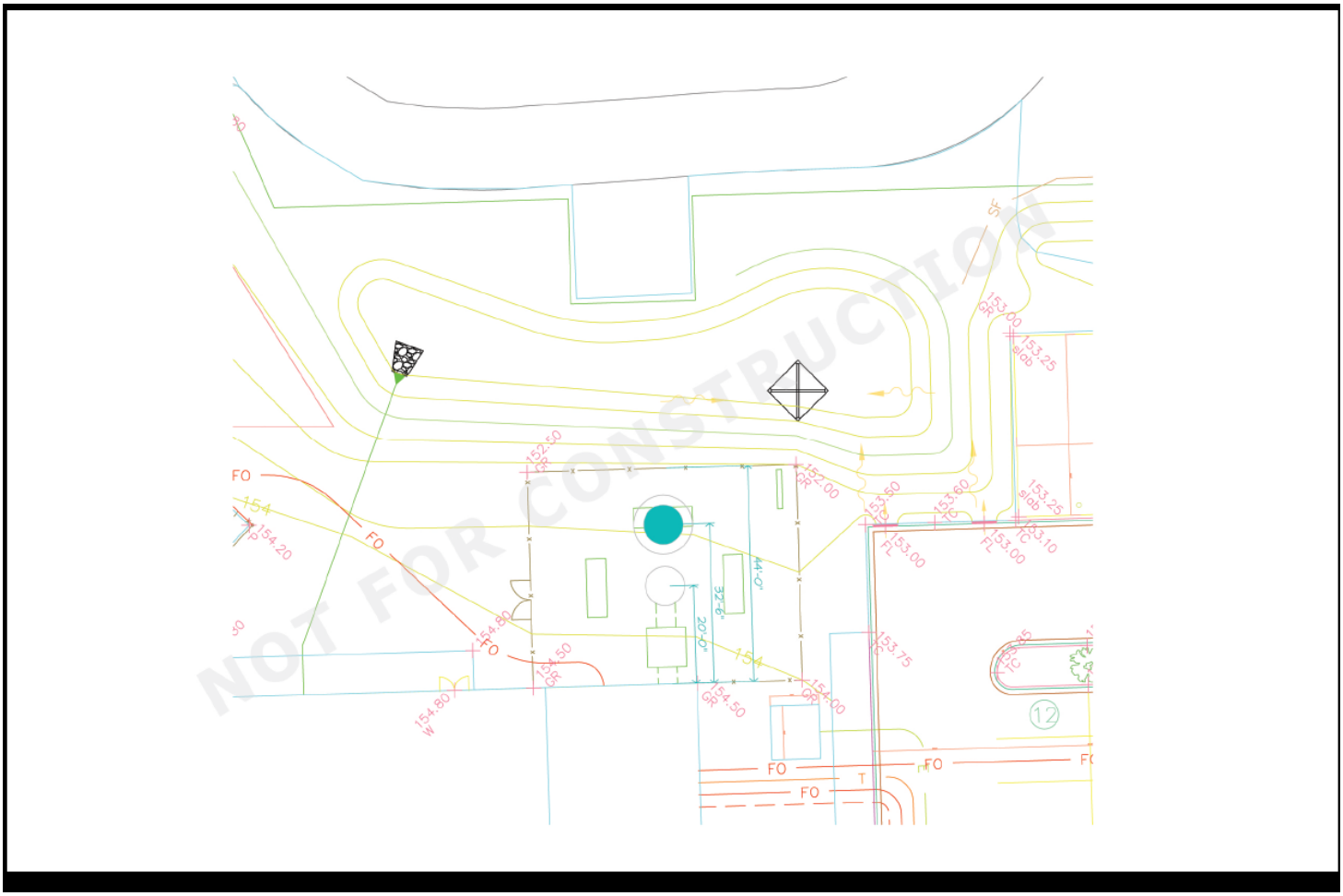
1100 East 46th Street

Davenport Iowa
52806-4359

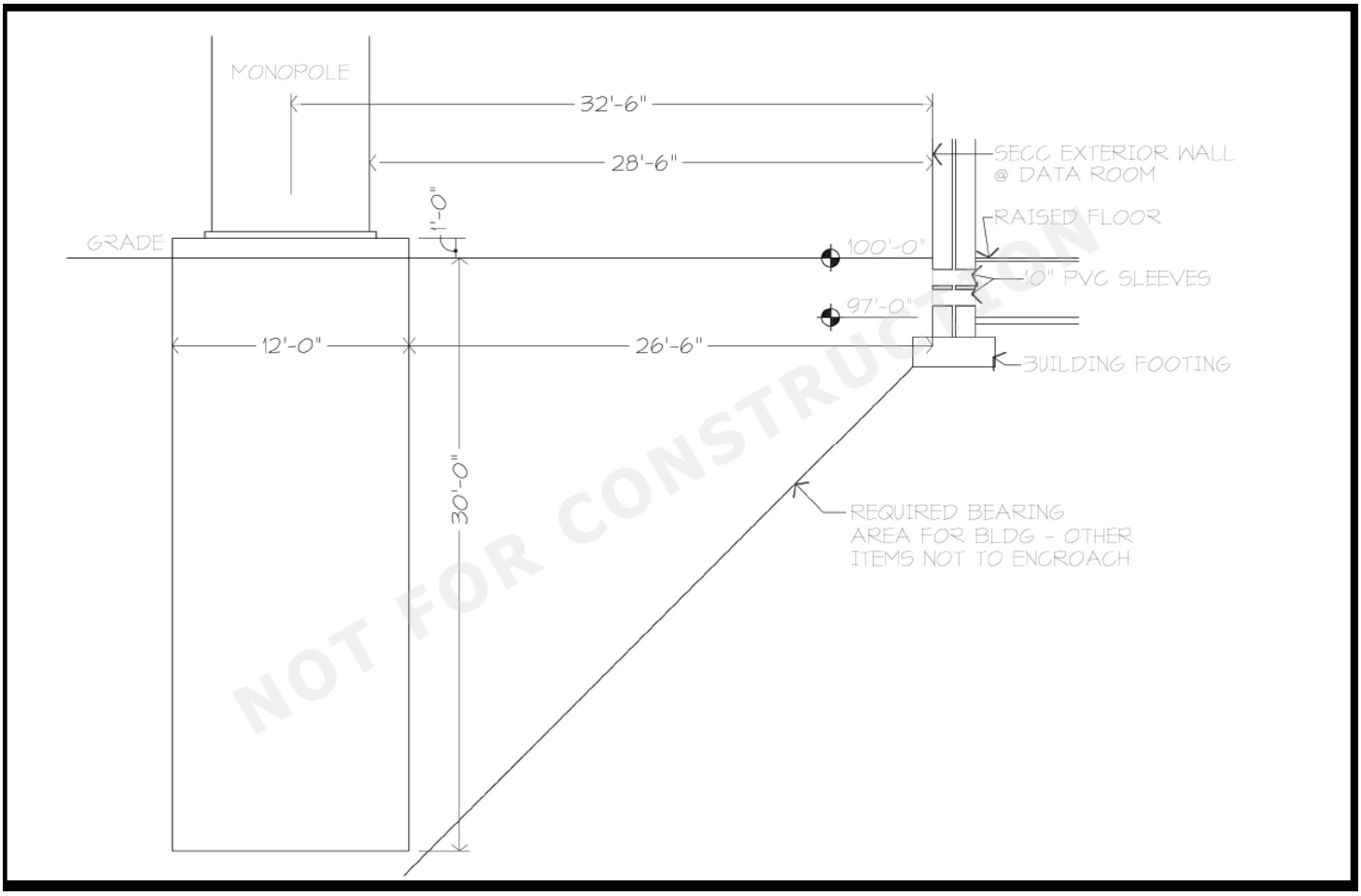


This graphic depicts the overall location of the site in Davenport Iowa.

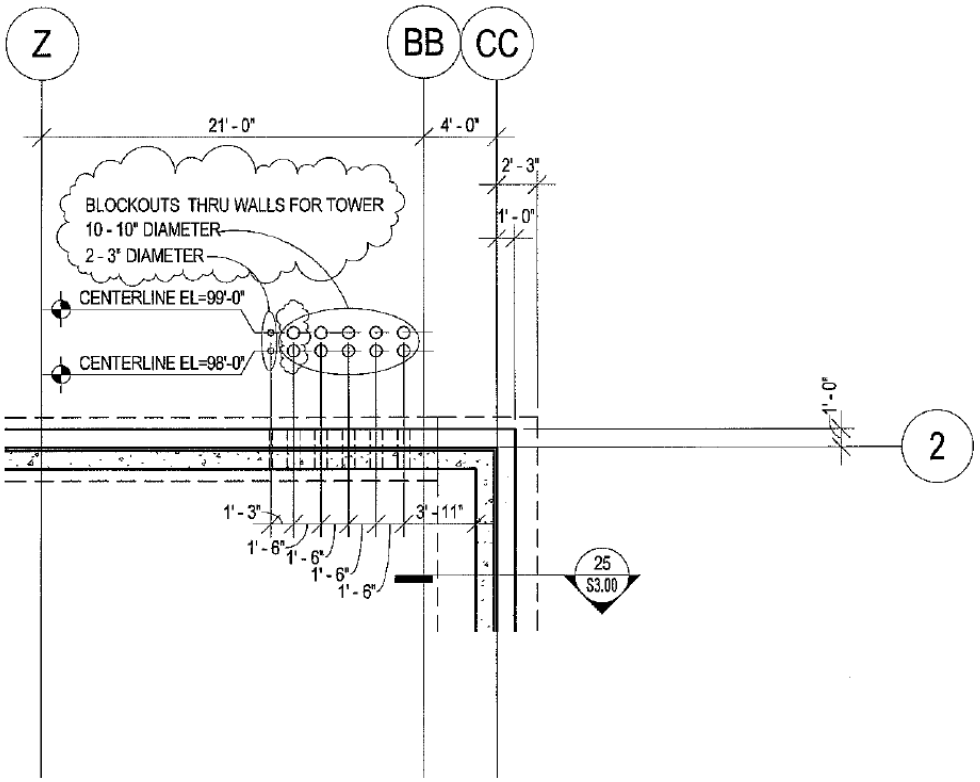
This graphic illustrates the overall site plan of the new PSAP and new tower location.



This graphic depicts the location of the new pole in relation to the new building and the water catch area next to the pole location that cannot be infringed upon.



This graphic depicts the expected distance from the new building that the new foundation spaced.



BKBM ENGINEERS
5930 Brooklyn Boulevard
Minneapolis, MN 55429-2518
Phone: (763) 843-0420
Fax: (763) 843-0421
www.bkbm.com

SCOTT EMERGENCY COMMUNICATIONS CENTER

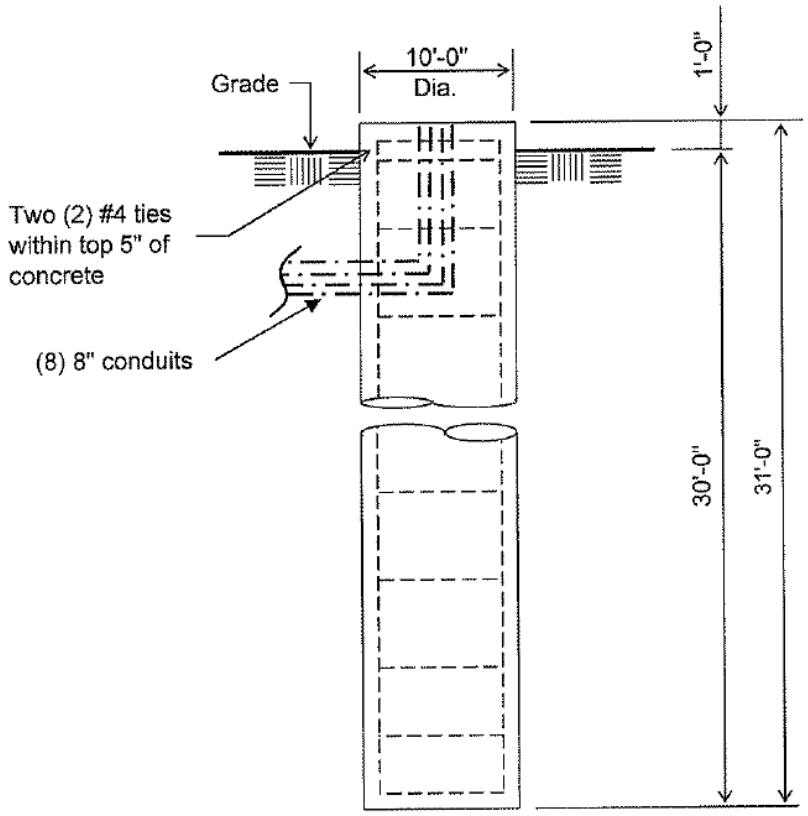
SHEET S1.10 PARTIAL PLAN

DATE	11/05/09
PROJECT #	09221.00
DRAWN BY	TWD
CHECKED BY	QIO
	PR #1

FSK1

This graphic is to indicate that there will be sleeves for ducts in the new building that will be used to support the eight inch ducts from the new pole.

PRELIMINARY -NOT FOR CONSTRUCTION-



ELEVATION VIEW
(90.18 Cu. Yds. each)
(1 REQUIRED; NOT TO SCALE)

Notes:

1). Concrete shall have a minimum 28-day compressive strength of 4000 PSI, in accordance with ACI 318-05.

2). Rebars to conform to ASTM specification A615 Grade 60.

3). All rebar to have a minimum of 3" concrete cover.

4). All exposed concrete corners to be chamfered 3/4".

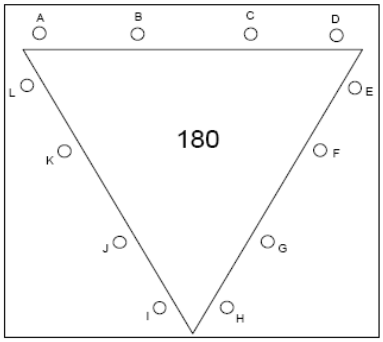
5). The foundation design is based on the geotechnical report by Team Services project no. 1-2412, dated: 7/17/09

6). See the geotechnical report for drilled pier installation requirements, if specified.

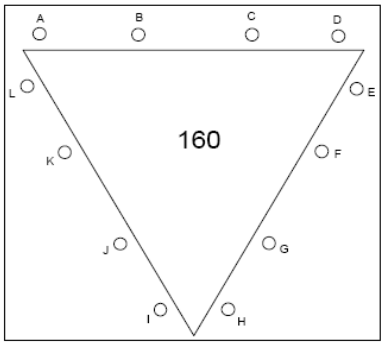
7). The foundation is based on the following factored loads:
Moment (kip-ft) = 3464.17
Axial (kips) = 44.958
Shear (kips) = 31.777

Rebar Schedule per Pier	
Pier	(58) #9 vertical rebar w/#4 ties, two within top 5" of pier then 12" C/C

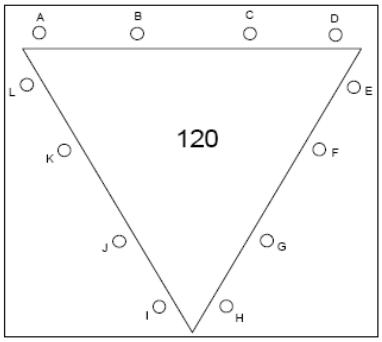
This graphic depicts a typical caisson foundation.



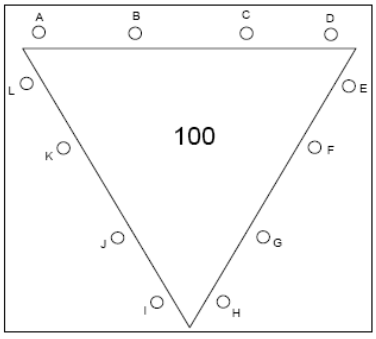
	Position	Identification	Make of Antenna	Model	Azimuth	TX Freq	RX Freq	Line
8O9	A	Backup 800 CX SCP RX	Andrews	DB586XT	omni	Trunk		1/2
VY2	B	LEA Maquoketa Control	Andrews	DB292	350	154.7700	155.7900	1/2
8O12	C	CX Stations Master RX (High Pass)	Andrews	DB810	omni		Trunk	7/8
8Y13	D	Clinton Site RX	RFS Yagi	10108-2	45		Trunk	1/2
8O11	E	Backup 800 CX SCP RX	Andrews	DB586XT	omni	Trunk		1/2
	F							
8Y12	G	SCP Site RX	RFS Yagi	10108-2	11		Trunk	1/2
	H							
8O10	I	Backup 800 CX Walcott RX	Andrews	DB586XT	omni	Trunk		1/2
8O1	J	EDACS Master RX (Voter) Low Pass	Andrews	DB810	omni		Trunk	7/8
8Y14	K	SCP Site RX	RFS Yagi	10108-2	11		Trunk	1/2
UO3	L	Medic UHF Conventional Rptr	Andrews	DB638	omni	462.9500	467.9500	7/8



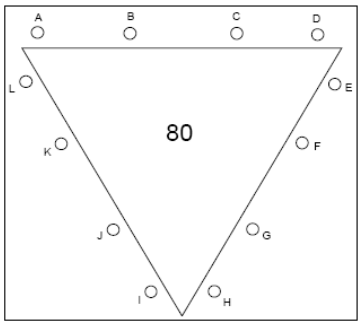
	Position	Identification	Make of Antenna	Model	Azimuth	TX Freq	RX Freq	Line
8O2	A	Backup 800 CX SCP TX	Andrews	DB586XT	omni	Trunk		1/2
8Y5	B	SCP Site TX	RFS Yagi	10108-2	11	Trunk		1/2
VY4	C	SCP SC Fire Repeater CX	Andrews	DB292	11	159.2700		1/2
8Y6	D	Clinton Site TX	RFS Yagi	10108-2	45	Trunk		1/2
8O4	E	Backup 800 CX Dixon TX	Andrews	DB586XT	omni	Trunk		1/2
VO5	F	Backup County Fire Paging (Main)	ANDREWS	DB220	omni	154.2200		1/2
UO2	G	Davenport UHF Fire #1 Sirens	Andrews	DB638	omni	460.6000	465.6000	7/8
	H							
8O3	I	Backup 800 CX Walcott TX	Andrews	DB586XT	omni	Trunk		1/2
VO6	J	Backup County Fire Paging (Secondary)	ANDREWS	DB220	omni	154.2200		1/2
VO2	K	VHF County Fire Repeater	Andrews	DB264	omni	154.2200	159.2700	7/8
8Y7	L	Clinton Site TX	RFS Yagi	10108-2	45	Trunk		1/2



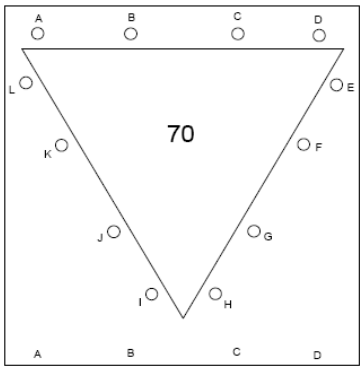
Ant #	Position	Identification	Make of Antenna	Model	Azimuth	TX Freq	RX Freq	Line
	A							
8Y2	B	Dixon Site TX	RFS Yagi	10108-2	309		Trunk	1/2
	C							
8O7	D	NPSPAC Repeater CX 1 - 5 TX	Andrews	DB586XT	omni	806.XXX	851.XXX	1/2
	E							
VO1	F	VHF PTP/Aid Station	Andrews	DB264	omni	155.3700	155.4750	1/2
VY6	G	LeClaire SC Fire Repeater CX	Andrews	DB292	186	159.2700		1/2
8Y3	H	Dixon Site TX	RFS Yagi	10108-2	309		Trunk	1/2
VO3	I	State Fire Base	Andrews	DB264	omni	154.2800	154.2800	7/8
UO1	J	Davenport UHF Fire #1 Alerting	Andrews	DB638	omni	460.5750	465.5750	7/8
VY1	K	LEA Muscatine Control	Andrews	DB292	245	154.7700	155.7900	7/8
VY7	L	Dixon SC Fire Repeater CX	Andrews	DB292	309	159.2700		1/2



	Position	Identification	Make of Antenna	Model	Azimuth	TX Freq	RX Freq	Line
	A							
8Y4	B	Dixon Site TX	RFS Yagi	10108-2	309	Trunk		1/2
CP1	C	FULLTON TECH (Cordova Power)	Laird Techno	YS2203	57	220.0000		1/2
8Y1	D	LeClaire Site TX	RFS Yagi	10108-2	67	Trunk		1/2
	E							
	F							
CP2	G	FULLTON TECH (Bettendorf)	Laird Techno	YS2203	131	220.0000		1/2
8O6	H	Backup 800 CX Moline	Andrews	DB586XT	omni	Trunk		1/2
VY5	I	R I SC Fire Repeater CX	Andrews	DB292	186	159.2700		1/2
	J							
8O8	K	NPSPAC Repeater CX 1 - 5 RX	Andrews	DB586XT	omni	806.XXX	851.XXX	1/2
VY8	L	Walcott SC Fire Repeater Cx	Andrews	DB292	67	159.2700		1/2

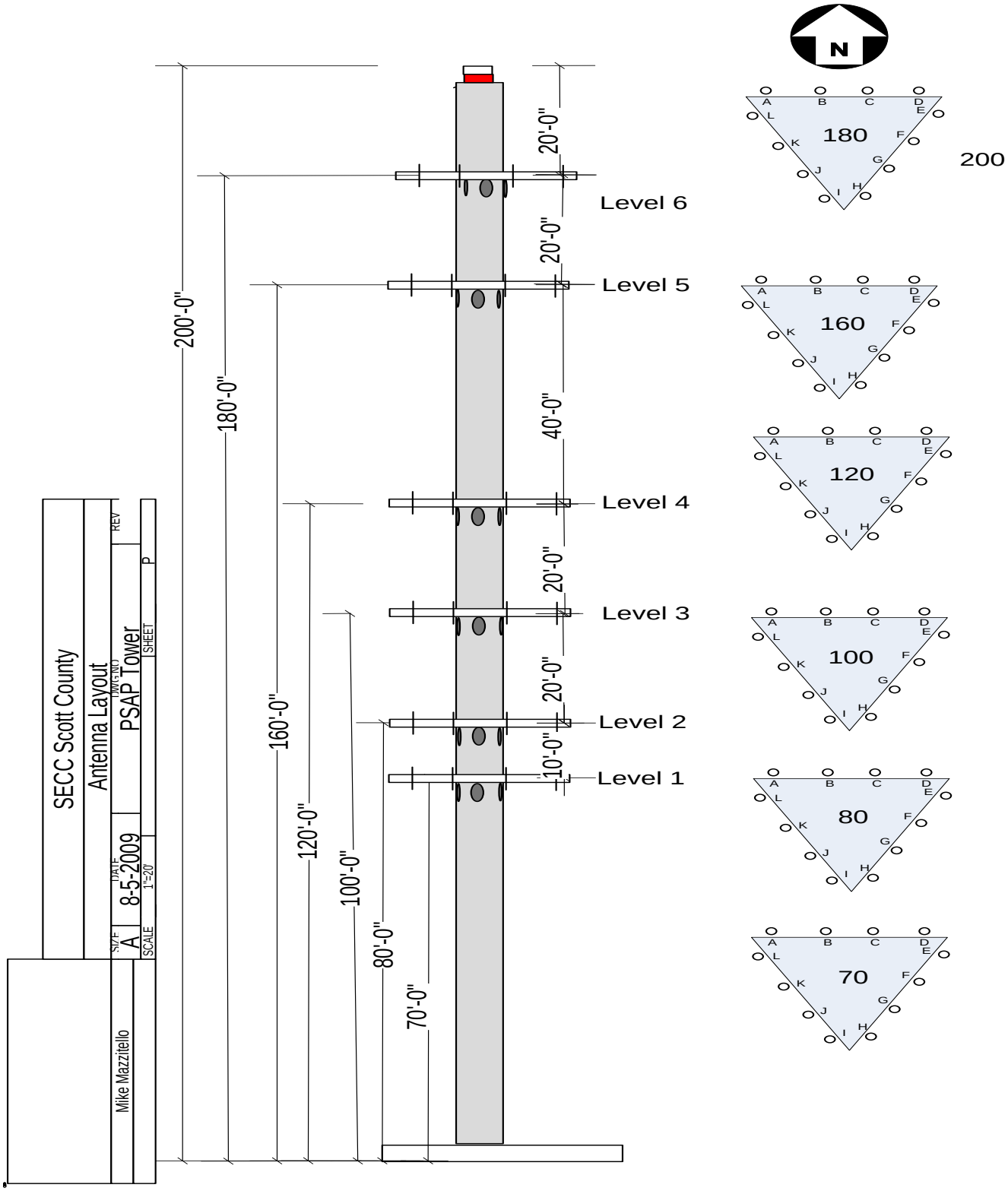


	Position	Identification	Make of Antenna	Model	Azimuth	TX Freq	RX Freq	Line
UY1	A	Bett Storm Siren Control	RFS Yagi	DB436	YAGI	UHF	UHF	1/2
	B							
	C							
8Y9	D	LeClaire Site RX	RFS Yagi	10108-2	67		Trunk	1/2
	E							
	F							
8Y8	G	Moline Site RX	RFS Yagi	10108-2	137		Trunk	1/2
8Y11	H	Bettendorf Site RX	RFS Yagi	10108-2	130		Trunk	1/2
VO4	I	Medic VHF Rec	Andrews	DB220	omni		150.XXX	1/2
UO4	J	MedCom UHF Monitor	Andrews	DB408	omni		450.0000	1/2
8Y10	K	Davenport Site RX	RFS Yagi	10108-2	200		Trunk	1/2
	L							

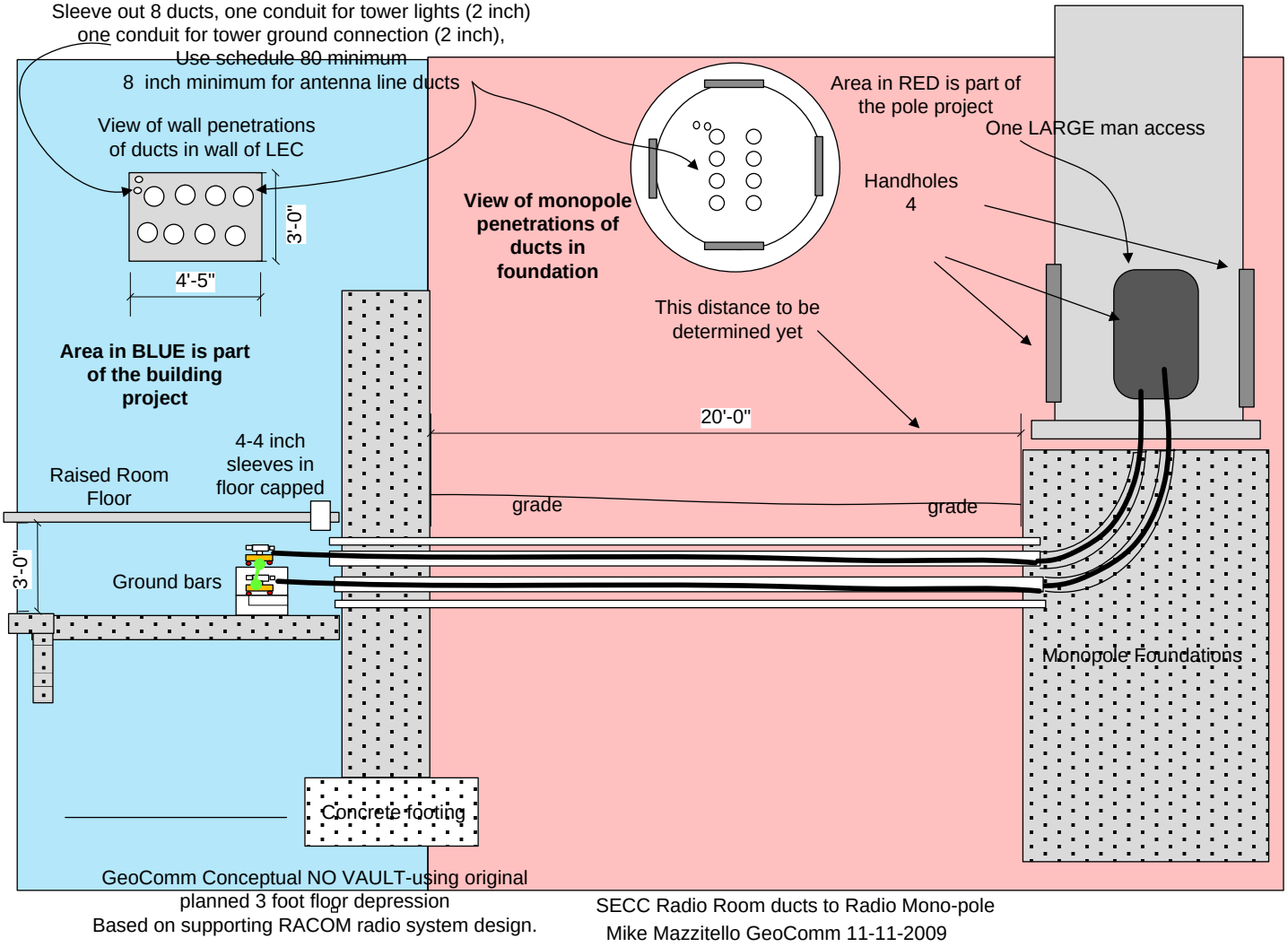


	Position	Identification	Make of Antenna	Model	Azimuth	TX Freq	RX Freq	Line
	A							
VY3	B	Eldridge SC Fire Paging CX	Andrews	DB292	358	159.2700		1/2
	C							
8Y12	D	LeClaire Site TX	RFS Yagi	10108-2	67	Trunk		1/2
8O5	E	Backup 800 CX Bettendorf	Andrews	DB586XT	omni			1/2
	F							
	G							
	H							
	I							
DSH 1	J	4.9 GHz to Dav site	4' Dish	SPX-4.7NS	200			7/8
	K							
	L							

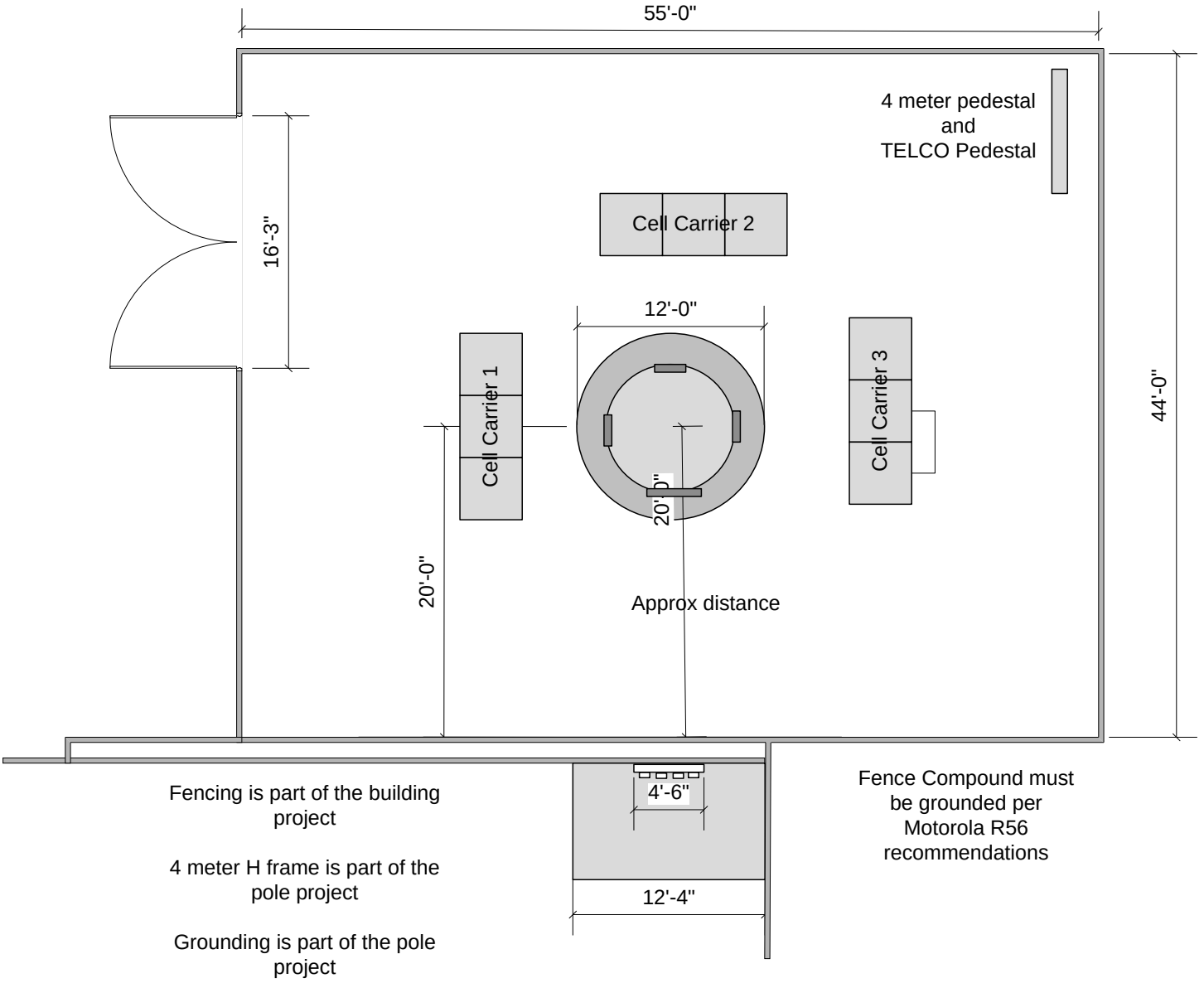
This graphic on the previous page and this page depicts the make and model of the antennas that this pole will support, and the mounting locations. It does not include any specifics as to the possible future locations of any cellular carriers.



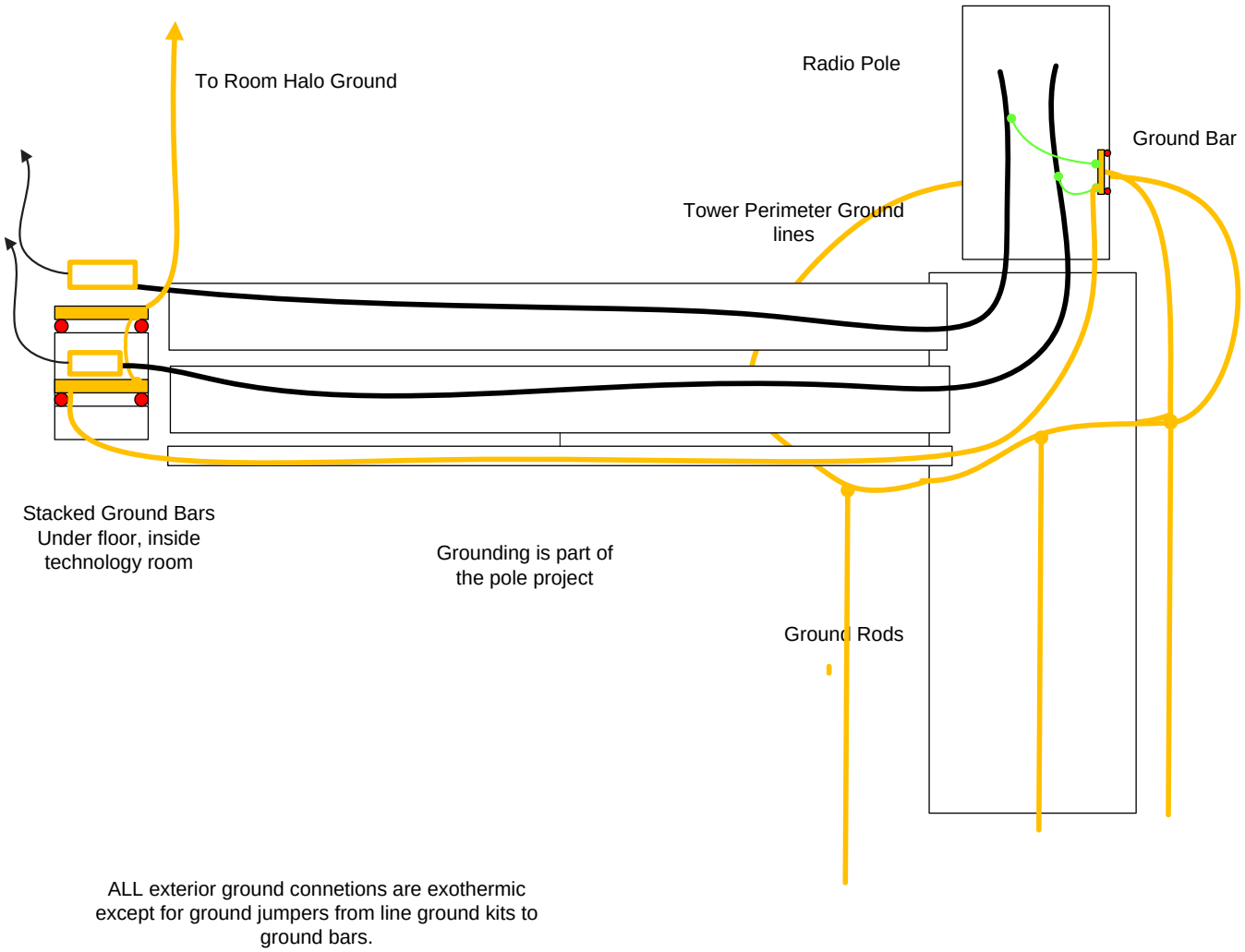
This graphic offers a conceptual view of the new pole with antenna platform locations.



This graphic illustrates the concept of the new pole being located some distance from the building (possible it will change to a longer distance), the duct system, and the location of the termination point for the transmission lines.



This graphic restates the site plan.



This graphic illustrates the concept of the ground rods, ground loop in the ground, and the connection to the building radio system ground.

Federal Aviation Administration
Air Traffic Airspace Branch, ASW-520
2601 Meacham Blvd.
Fort Worth, TX 76137-0520

Aeronautical Study No.
2009-ACE-1032-OE

Issued Date: 09/16/2009

Michael Mazzitello
North 7427 330th St
Spring Valley, WI 54767

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Antenna Tower / SECC 911 Center
Location:	Davenport, IA
Latitude:	41-34-06.60N NAD 83
Longitude:	90-33-30.80W
Heights:	200 feet above ground level (AGL) 888 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, a med-dual system - Chapters 4,8(M-Dual),&12.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

_____ At least 10 days prior to start of construction (7460-2, Part I)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part II)

Any height exceeding 200 feet above ground level (888 feet above mean sea level), will result in a substantial adverse effect and would warrant a Determination of Hazard to Air Navigation.

This determination expires on 03/16/2011 unless:

(a) extended, revised or terminated by the issuing office.
(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

SUBSURFACE EXPLORATION
SECC – COMMUNICATIONS TOWER
DAVENPORT, IOWA
TEAM NO. 1-2412
JULY 17, 2009

TEAM *Services*
Geotechnical and Construction Material Consultants

July 17, 2009

Scott County
Facility & Support Services
600 W 4th Street
Davenport, IA 52801

Attn: Dave Donovan - Director

Re: Subsurface Exploration
SECC – Communications Tower
Davenport, Iowa
TEAM No. 1-2412

Dear Mr. Donovan:

We have completed the subsurface exploration for the proposed Communication Tower project at the Scott County Emergency Communications Center (SECC) site in Davenport, Iowa. The accompanying geotechnical report presents the findings of the subsurface exploration and our geotechnical recommendations concerning design and construction for the proposed tower.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service to you in any way, please do not hesitate to contact us.

Sincerely yours,
TEAM Services

Nicholas Gilles, E.I.
Staff Engineer

Isaac Drew, E.I.
Senior Staff Engineer

CC: Kirsta Ehmke, Wold Architects and Engineers

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed professional engineer under the laws of the State of Iowa.

LICENSED PROFESSIONAL ENGINEER
ROBERT E. DOSS
12543
IOWA

Robert E. Doss, P.E. Iowa License No. 12543 Date: 7/17/09
My license renewal date is December 31, 2010.
Pages covered by this seal: ALL

717 SE 6th Street • Des Moines, IA 50309 • ph.: 515-282-8818 • fx: 515-282-8741 • email: staff@teamsvcs.com

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PROJECT INFORMATION

Project information has been provided by Ms. Kirsta Ehmke through a telephone conversation with our Mr. Isaac Drew, E.I. Additional information was provided by Mr. Brian Hitchcock of SECC in an email to our Mr. Nick Gilles, E.I., on July 8, 2009. The project will include construction of a communications tower at the Scott Emergency Communications Center site in Davenport, Iowa. Structural loads for this tower were not provided to our office. However, similar towers constructed for SECC have consisted of a 25 ton tower placed on a concrete foundation with reportedly a diameter of 8 feet and a depth of 30 to 40 feet.

SITE CONDITIONS

The proposed tower site is located near the intersection of 46th Avenue and Tremont Street in Davenport, Iowa. The site was gently rolling with an overall relief of approximately 6 feet. The surface soils were able to support our truck-mounted auger drill rig without difficulty.

FIELD EXPLORATION

A total of one boring was laid out on the site by TEAM Services personnel. The approximate boring location is indicated on the Boring Plan in the Appendix. The ground surface elevation at the boring location was taken using an existing manhole on the site as a benchmark with an assumed elevation of 100.0 feet. The location of the boring should be considered accurate only to the degree implied by the means and methods used to define them.

Our drilling equipment consisted of a truck-mounted auger drill rig. The boring was made by twisting a continuous flight hollow stem steel auger into the soil. At assigned intervals, the center drive of the auger was removed and soil samples were obtained.

Representative samples were obtained using thin-walled tube and split-barrel sampling procedures in general accordance with ASTM Specifications D-1587 and D-1586, respectively. In the thin-walled tube sampling procedure, a thin-walled, seamless steel tube with a sharp cutting edge is pushed hydraulically into the ground to obtain relatively undisturbed samples of cohesive or moderately cohesive soils. In the split-barrel sampling procedure, a standard 2-inch O.D. split-barrel sampling spoon is driven into the ground with a 140-pound hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the standard penetration resistance value. These values are indicated on the boring log at the depths of occurrence. The samples were tagged for identification, sealed and returned to the laboratory for testing and classification.

An automatic hammer was used to perform the Standard Penetration Tests in the boring at this site. In the automatic hammer system, the cathead and rope used traditionally in the manual test procedure is replaced with an automatic lifting mechanism for the 140 pound driving weight. The reduction in system friction with the automatic hammer system results in a significant increase in the driving energies. This results in significantly greater driving efficiencies and a corresponding decrease in the number of blows in the Standard Penetration Test results. We have taken the driving efficiency of the automatic hammer system into account when analyzing this data.

A field log of the boring was prepared by the drill crew. The log included visual classifications of the materials encountered during drilling, as well as the driller's interpretation of the subsurface conditions between samples. The final boring log included with this report represents an interpretation of the field log and includes modifications based on laboratory observation and tests of the samples.

LABORATORY TESTING

Based on the driller's field records and examination of the samples in the laboratory, a soil testing program was developed to collect more information about the soil conditions at the site. The following is a brief description of the specific tests completed for this project.

Natural Moisture Content -- The natural moisture content of selected samples was determined in accordance with ASTM D 2216. The moisture content of the soil is the ratio, expressed as a percentage, of the weight of water in a given mass of soil to the weight of the soil particles. The results are presented on the boring log at the depths from which the samples were obtained.

Unit Weight -- In the laboratory, selected undisturbed samples of the site soils were measured and weighed to determine gross weight and volume of the samples. Where possible, the samples are placed in a template and trimmed at each end to fit the template. The moisture content of each specimen was then determined, and the dry unit weight was calculated. The results of these tests are also presented on the boring log at the appropriate sample depths.

Unconfined Compressive Strength -- Selected cohesive soil samples obtained with 3-inch diameter Shelby tubes were tested in the laboratory to determine their unconfined compressive strength in general accordance with ASTM D2166. In this procedure, sections of the Shelby tube samples were trimmed to fit into a 2.875 inch diameter by 5.75 inch high template and placed, without any confinement, in a triaxial load frame and tested for compressive strength with a controlled rate of strain. The peak stress on the samples, in psf, is reported on the boring log at the depth from which the samples were obtained. A calibrated hand penetrometer was used to estimate the approximate unconfined compressive strength of the remaining samples. The calibrated hand penetrometer has been correlated with unconfined compression tests and provides a better estimate of soil consistency than visual examination alone.

As part of the testing program, the samples were classified in the laboratory based on visual observation, texture and plasticity. The descriptions of the soils indicated on the boring logs are in accordance with the enclosed *General Notes* and the *Unified Soil Classification System*. Estimated group symbols according to the *Unified Soil Classification System* are given on the boring log. A brief description of this classification system is attached to this report.

SUBSURFACE CONDITIONS

Conditions encountered at the boring locations are indicated on the individual boring logs. Based on the results of the boring, subsurface conditions on the project site can be generalized as follows.

From the ground surface, soils developed from ancient (Pre-Illinoian) glacial activity were encountered. These materials, which are usually called glacial tills, are typically stiff to very stiff. Soils derived from glacial till were deposited during the advance or retreat of continental glacial ice sheets which covered this area many thousands of years ago. The glacial till soils are more or less unsorted soil deposits consisting of a homogeneous mixture of sand, silt and clay, with the engineering properties of the soil being controlled by the clay fraction. Glacial till has usually been heavily preconsolidated by the glacial ice sheet from which it was derived. This preconsolidation compacts the soil and gives it superior properties for foundation support. The glacial till soils at the site consisted of sandy lean to fat clay and sandy lean clay. These soils were medium stiff to hard in consistency, and extended to the maximum depth explored of about 50 feet below existing grades.

Cobbles and boulders were not noted in our boring. However, glacial soils were encountered at the site, and these materials often contain cobbles and boulders. The possibility of their presence should be considered where excavations or grading operations at the site advance into the glacial soils.

The above descriptions provide a general summary of the subsurface conditions encountered. The attached Test Boring Record contains detailed information recorded at each boring location. This Test Boring Record represents our interpretation of the field logs based on engineering examination of the field samples. The lines designating the interfaces between various strata represent approximate boundaries and the transition between strata may be gradual. Where strata changes occur between sample depths, the strata change elevation is typically estimated based on interpolation, and is approximate. Soil conditions will vary between boring locations.

GROUNDWATER CONDITIONS

The boring was monitored while drilling and after completion for the presence and level of groundwater. During and after drilling operations groundwater was not observed in the boring. The water level was rechecked on July 6, 2009, approximately 11 days after drilling. At this time, groundwater was encountered at 4 feet below existing grades. It should be noted that the area received periods of rain in the week prior to rechecking the water levels which may have affected the depth at which groundwater was encountered.

These water level observations provide an approximate indication of the groundwater conditions existing on the site at the time the boring was drilled. Due to the low permeability of the cohesive soils encountered in the boring, a relatively long period of time may be necessary for a groundwater level to develop and stabilize in a borehole. Longer term monitoring in cased holes or piezometers would be required for a more accurate evaluation of the groundwater conditions.

Groundwater levels may fluctuate several feet with industrial, seasonal, rainfall variations, and with changes in the water level in adjacent drainage features. Normally, the highest groundwater levels occur in late winter and spring and the lowest levels occur in late summer and fall.

CONCLUSIONS AND RECOMMENDATIONS

Shallow Foundation Design

The proposed tower may be supported on a shallow mat foundation bearing on the natural very stiff to hard sandy lean clay soils, encountered at about 6 feet below grade in Boring 1, for a maximum net allowable bearing pressure of 5000 psf. The net bearing pressure is the pressure in excess of the minimum adjacent overburden pressure at the foundation level. The bearing pressures may be increased 33 percent for the effects of transient loads such as earthquake or wind loads. We have

estimated that footings for these structures will experience a maximum total settlement of 1 inch with differential settlements on the order of ½ inch.

Shallow Foundation Construction

Foundation construction at these sites should be rapid, with excavations completed and filled with concrete on the same day and in as short a period as possible during the day. This measure is necessary to minimize disturbance to the foundation bearing surfaces. We recommend that the base of all footing excavations be observed and tested by the geotechnical engineer prior to placement of concrete. Where disturbed soil or loose or soft zones are encountered, the foundation excavation should be deepened to reach suitable natural soils. The footing could then bear at the lower level on approved natural soil or at the original design level on properly compacted granular backfill. Refer to Figure 1 for an illustration of the overexcavation and backfill procedure.

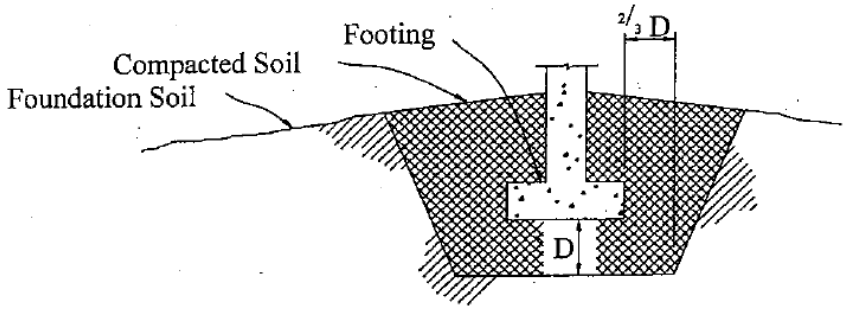


Figure 1

The depth to suitable natural soils (indicated as "D" in Figure 1) should be determined in the field by TEAM Services. Overexcavation for compacted backfill placement below footings should extend beyond all edges of the footings at least 8 inches laterally per foot of overexcavation depth below design footing level. The overexcavation should then be backfilled up to the footing base elevation with suitable granular fill prepared in accordance with the recommendations of this report.

Deep Foundation Design

If significant lateral and uplift forces are anticipated for the structure, a straight-shaft drilled pier or auger cast pile foundation system may be used to resist these forces and provide structural support for the tower. The deep foundation may be sized using the soil parameters presented in Table 1. The skin friction and end bearing capacity values provided include a safety factor of at least 2 for concrete shafts.

TABLE 1 - Engineering Parameters for Concrete Deep Foundation Design

Depth in Feet		Soil Type	Allowable Skin Friction** (psf)	Allowable End Bearing (psf)	Allowable Passive Resistance (psf)
From	To				
0	3.5	Frost Zone	Neglect	Neglect	Neglect
3.5	5.5	Medium Stiff Sandy Lean Clay	250	-	1,500
6	15	Very Stiff to Hard Sandy Lean Clay	550	5,000	4,000*
15	50	Very Stiff to Hard Sandy Lean Clay	700	10,000*	8,000*

* Requires minimum 3 feet penetration into this stratum to obtain this bearing capacity.
** For uplift resistance, 70% of the available skin friction may be considered applicable. The contribution of the upper 3 feet of each soil stratum to uplift resistance should be considered at the same value as the soil immediately above it.

Based on the subsurface conditions and groundwater level readings obtained in our borings, use of temporary steel casing or the slurry displacement method may be necessary at this site. Temporary steel casing should be used for safety whenever personnel enter the drilled shaft excavation for cleaning and testing. When the casing is removed during concrete placement, care should be exercised to maintain concrete inside the casing at a sufficient level to resist earth and hydrostatic pressures present on a casing exterior. Any water or loose materials should be removed from the bottom of the drilled shafts prior to placement of concrete.

Concrete for drilled piers should be placed promptly after completion of drilling, inspection and placement of reinforcing steel. The concrete should have a slump of 5 to 7 inches at the time of placement. Concreting procedures in the American Concrete Institute recommended practice ACI 306, as currently revised, should be carefully adhered to.

Deep foundations can be sized using skin friction and end bearing. When end bearing is utilized, we recommend skin friction be ignored at least 1 shaft diameter above the bottom of the shaft. A buoyant soil unit weight of 60 pcf should be used for sustained loading conditions, while a total unit weight of 120 pcf may be used for transient loads. Piles should be installed no closer than 3 pile diameters on center.

Lateral and Uplift Force Resistance (Shallow Foundations)

The foundation for the proposed tower will likely be subjected to lateral and uplift forces. These elements should be sized to resist the anticipated forces without excessive deflection and displacement.

Lateral forces on the concrete will be resisted by the friction between the base of the foundation and the underlying soils and passive earth pressures. A coefficient of 0.3 could be reasonably assumed for evaluating ultimate frictional resistance to sliding at the foundation-soil contact. This coefficient should be used with minimum dead load as the normal force. The buoyant weight should be considered in calculation of the minimum weight of all below-grade structural elements.

A passive earth pressure coefficient of 3 could be reasonably assumed for evaluating ultimate lateral resistance of the soil against the side of the foundation where this is a permissible condition. This passive earth pressure should be divided by a safety factor of at least 2 to limit the amount of lateral deformation required to mobilize the passive resistance. In order to calculate passive soil resistance, the buoyant unit weight of the soil should be utilized where sustained loading conditions are present. A reasonable value for the buoyant unit weight of the soils at the site is 60 pcf, considering that the groundwater level at the site may rise to near existing grade at some times during the year. For transient load calculations, the total unit weight of the soils of 120 pcf can be

reasonably assumed. The contribution to passive resistance of the frost affected materials in the upper 4 feet at the site should be limited to solely the weight of this soil. This can be accomplished by modeling this depth of soil as a uniform surcharge load equivalent to the weight of the soil in the analysis.

Uplift resistance will be provided by the minimum dead weight of the structure and the foundation elements. The buoyant unit weight of concrete should be considered for the weight of buried concrete foundation. The buoyant unit weight of the soils at the site of 60 pcf is recommended for uplift calculations, considering the maximum water table elevation at the site to be the ground surface elevation. For transient load calculation, the total unit weight of the soils of 120 pcf can be used provided that soils similar to those encountered in our borings are used as fill and compacted in accordance with the recommendations in this report. The maximum upward bearing pressure on horizontal elements of a mat type foundation should be checked against a maximum allowable pressure of 2000 psf on these surfaces.

Temporary Excavation Support

All excavations should comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, "Excavations and Trenches" and other applicable codes. This document states that excavation safety is the responsibility of the contractor. Reference to this OSHA requirement should be included in the job specifications.

Construction Dewatering

During construction activities, care should be taken to maintain positive drainage at the site. Based on the boring information, it appears unlikely that groundwater levels will rise to above the lowest construction grade during foundation construction. However, if groundwater is encountered in excavations, dewatering in cohesive soils can likely be achieved using a series of trenches leading to sumps and pumps.

Structural Fill

Fill placed below footings should consist of crushed limestone meeting the requirements of IDOT Specification Item 4123 or Class A roadstone. The granular material should be approved by TEAM Services prior to backfilling and should be compacted to at least 95 percent of the material's **Modified** Proctor maximum dry density (ASTM D 1557).

Fill placed above footing bearing elevation where soil is relied upon to resist lateral forces or uplift forces should consist of approved cohesive or cohesionless materials which are free of organic matter and debris. Bricks, rocks, or other solid pieces with a maximum dimension of 3 inches or larger should not be placed in the new fill, nor should organic material be used. Low-plasticity cohesive soil or granular material should be used for fill. By our definition, low-plasticity cohesive soil would have a liquid limit less than 45 and a plasticity index less than 20. Most of the sandy lean clay soils encountered at the site appear to meet these criteria and may be used as new fill above the footings. Structural fill in these areas should be compacted to at least 95 percent of the material's standard Proctor maximum dry density (ASTM D 698) at a moisture content between 2 percent below and 4 percent above the material's optimum moisture content (ASTM D 698).

Structural fill should be placed and compacted in lifts of 9 inches or less in loose thickness. Sufficient density tests should be performed on each lift of fills to help verify the adequacy of the compaction levels obtained.

Site Drainage

Positive site drainage should be maintained along the perimeter of the structure. Final grades should be established to direct runoff away from foundations. Site grading should direct surface water away from excavations or completed foundations during construction and after site development is completed.

QUALIFICATION OF REPORT

Our evaluation of foundation support conditions has been based on our understanding of the site and project information and the data obtained in our exploration. The general subsurface conditions utilized in our foundation evaluation have been based on interpolation of subsurface data between the borings. In evaluating the boring data, we have examined previous correlations between soil properties and foundation bearing pressures observed in soil conditions similar to those at your site. The discovery of any site or subsurface conditions during construction which deviate from the data outlined in this exploration should be reported to us for our evaluation. The assessment of site environmental conditions or the presence of pollutants in the soil, rock, and groundwater of the site was beyond the scope of this exploration.

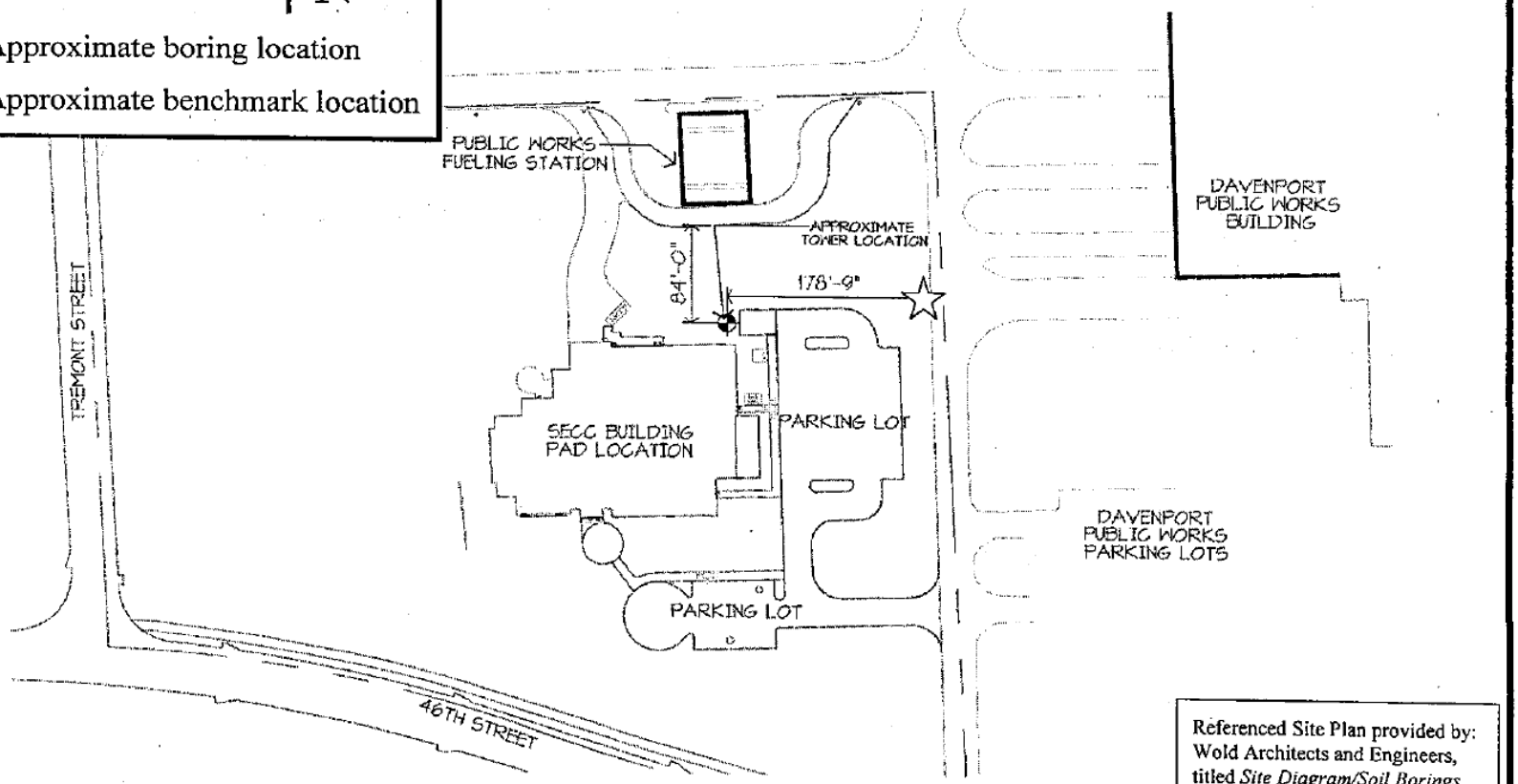
It is recommended that the geotechnical engineer be retained to review the plans and specifications so that comments can be provided regarding the interpretation and implementation of the geotechnical recommendations in the design and specifications. It is further recommended that the geotechnical engineer be retained for testing and observation during the foundation construction phase to help determine that the design requirements are fulfilled.

This report has been prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No other warranty is provided. In the event that any changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report modified or verified in writing by the geotechnical engineer.

Not to Scale ↑ N

Approximate boring location

Approximate benchmark location



Referenced Site Plan provided by: Wold Architects and Engineers, titled *Site Diagram/Soil Borings*, dated June 18, 2009

TEAM *Services*, Inc. **717 SE 6th Street** **Des Moines, IA 50309**	**SCECC – Communications Tower** Davenport, IA BORING PLAN	Project No. 1-2412 July 7, 2009

LOG OF BORING NO. 1

OWNER

ARCHITECT/ENGINEER: Wold Architects and Engineers

SITE: Davenport, Iowa

PROJECT: SECC - Communications Tower

Approx. Surface Elev.: 98.2 ft.

GRAPHIC LOG	DESCRIPTION	DEPTH (ft.)	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY	SAMPLES SPT - N BLOWS / FT.	TESTS MOISTURE, %	TESTS DRY DENSITY PCF	TESTS UNCONFINED STRENGTH PSF
	Sandy lean to fat CLAY, trace ferrous staining and organic matter, yellowish brown and grayish brown, very stiff				HS					
			CL	1	ST	14"		22.3	103	6500*
	3.5 94.7				HS					
	Sandy lean CLAY, trace gravel, yellowish brown, medium stiff ▼		CL	2	SS	18"	5	17.9		
	6.0 92.2	5			HS					
	Sandy lean CLAY, trace gravel, yellowish brown, hard		CL	3	ST	20"		11.9	125	9000*
	-- becomes very stiff @ 8.5'		CL	4	HS SS	18"	19	11.4		9000*
	-- color change to grayish brown @ 11'	10			HS					
			CL	5	SS	18"	20	11.1		9000*
			CL	6	HS SS	18"	17	11.9		9000*
		15			HS					
			CL	7	SS	18"	18	14.1		9000*
		20			HS					
	-- color change to dark gray @ 22'		CL	8	SS	18"	19	13.7		9000*
		25			HS					

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

Calibrated Hand Penetrometer*

WATER LEVEL OBSERVATIONS				
WL ▽	None	WD ▼	4'	7/6/09
WL	None	AD		

TEAM Services, Inc.

BORING STARTED	6-25-09
BORING COMPLETED	6-25-09
RIG: Rig 112	FOREMAN: MG

LOG OF BORING NO. 1

OWNER

ARCHITECT/ENGINEER
Wold Architects and Engineers

SITE
Davenport, Iowa

PROJECT
SECC - Communications Tower

GRAPHIC LOG	DESCRIPTION	DEPTH (ft.)	USCS SYMBOL	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY	SAMPLES SPT - N BLOWS / FT.	TESTS MOISTURE, %	TESTS DRY DENSITY PCF	TESTS UNCONFINED STRENGTH PSF
	-- color change to dark olive gray and becomes hard @ 27'									
			CL	9	SS	18"	27	12.1		
		30			HS					
	-- becomes very stiff @ 32'									
			CL	10	SS	18"	15	15.8		
		35			HS					
			CL	11	SS	18"	14	15.9		
		40			HS					
	-- color change to dark gray @ 42'									
			CL	12	SS	18"	22	14.4		
		45			HS					
			CL	13	SS	17"	21	13.9		
	50.0 48.2 Bottom of Boring	50								

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL AND ROCK TYPES: IN-SITU, THE TRANSITION MAY BE GRADUAL.

Calibrated Hand Penetrometer*

WATER LEVEL OBSERVATIONS

WL	▽ None	WD	▼ 4'	7/6/09
WL	None	AD		

TEAM Services, Inc.

BORING STARTED	6-25-09
BORING COMPLETED	6-25-09
RIG Rig 112	FOREMAN MG

UNIFIED SOIL CLASSIFICATION SYSTEM

TEAM *Services*

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests[A]					Soil Classification	
					Group Symbol	Group Name[B]
Coarse-Grained Soils More than 50% retained on No. 200 sieve	Gravels More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5% fines[C]	$Cu \geq 4$ and $1 \leq Cc \leq 3^E$		GW	Well-graded gravel[F]
			$Cu < 4$ and/or $1 > Cc > 3^E$		GP	Poorly graded gravel[F]
		Gravels with Fines More than 12% fines[C]	Fines classify as ML or MH		GM	Silty gravel[F, G, H]
			Fines classify as CL or MH		GC	Clayey gravel[F, G, H]
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines[E]	$Cu \geq 6$ and $1 \leq Cc \leq 3^E$		SW	Well-graded sand[I]
			$Cu < 6$ and/or $1 > Cc > 3^E$		SP	Poorly graded sand[I]
		Sands with Fines More than 12% fines[D]	Fines classify as ML or MH		SM	Silty sand[G, H, I]
			Fines classify as CL or CH		SC	Clayey sand[G, H, I]
Fine-Grained Soils 50% or more passes the No. 200 sieve	Silts and Clays Liquid limit less than 50	inorganic	PI > 7 and plots on or above "A" line[J]		CL	Lean clay[K, L, M]
			PI < 4 or plots below "A" line[J]		ML	Silt[K, L, M]
		organic	Liquid limit – oven dried	< 0.75	OL	Organic clay[K, L, M, N]
			Liquid limit – not dried			Organic silt[K, L, M, O]
	Silts and Clays Liquid limit 50 or more	inorganic	PI plots on or above "A" line		CH	Fat clay[K, L, M]
			PI plots below "A" line		MH	Elastic silt[K, L, M]
		organic	Liquid limit – oven dried	< 0.75	OH	Organic clay[K, L, M, P]
			Liquid limit – not dried			Organic silt[K, L, M, Q]
Highly Organic Soils	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-in. (75-mm) sieve.
[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
[C] Gravels with 5 to 12% fines require dual symbols:
GW-GM well-graded gravel with silt
GW-GC well-graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay

[D] Sands with 5 to 12% fines require dual symbols:

SW-SM well-graded sand with silt
SW-SC well-graded sand with clay
SP-SM poorly graded sand with silt
SP-SC poorly graded sand with clay

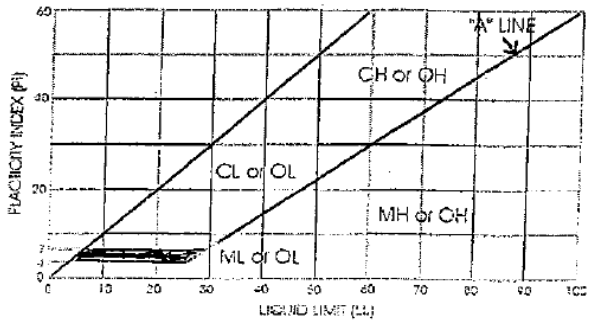
For classification of fine-grained soils and fine grained fraction of coarse-grained soils.

Equation of "A" Line:
Horizontal at PI = 4 to LL = 25.5.
then PI = 0.73 (LL-20)

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

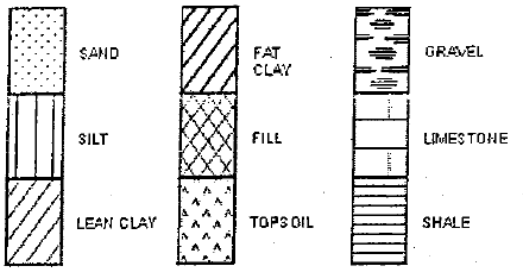
[F] If soil contains $\geq$ 15% sand, add "with sand" to group name.
[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.
[H] If fines are organic, add "with organic fines" to group name.
[I] If soil contains > 15% gravel, add "with gravel" to group name.
[J] If Atterberg limits plots in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel", whichever is predominant.
[L] If soil contains $\geq$ 30% plus No. 200 predominantly sand, add "sandy" to group name.
[M] If soil contains $\geq$ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.
[N] PI $\geq$ 4 and plots on or above "A" line.
[O] PI < 4 or plots below "A" line.
[P] PI plots on or above "A" line.
[Q] PI plots below "A" line.



GENERAL NOTES

SOIL and ROCK TYPES



DRILLING & SAMPLING SYMBOLS

SS Split Spoon - 1 1/2" I.D., 2" O.D., unless otherwise noted
ST Thin-Walled Tube - 3" O.D., unless otherwise noted
PA Power Auger
HA Hand Auger
DB Diamond Bit - 4", N, B
AS Auger Sample
HS Hollow Stem Auger
WS Wash Sample
RB Rock Bit
BS Bulk Sample
DC Dutch Cone
WB Wash Bore
AR Air Rotary

CONSISTENCY OF FINE-GRAINED SOILS
(major portion passing No. 200 sieve)

Consistency	Unconfined Compressive Strength, Qu, psf	N-Blows/ft* (Approx. Correlation)
Very Soft	< 500	0 - 2
Soft	500 - 1,000	3 - 4
Medium	1,001 - 2,000	5 - 8
Stiff	2,001 - 4,000	9 - 15
Very Stiff	4,001 - 8,000	16 - 30
Hard	8,001 - 16,000	31 - 50
Very Hard	> -16,000	50 +

RELATIVE DENSITY OF COARSE-GRAINED SOILS

Relative Density	N-Blows/ft. *
Very Loose	0 - 4
Loose	5 - 10
Medium Dense	10 - 29
Dense	30 - 49
Very Dense	50 - 80
Extremely Dense	80 +

* Standard "N" Penetration Blows per foot of a 140 pound hammer falling 30 inches on a 2-inch OD split spoon, except where noted.

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) (of components also present in sample)	Percent of Dry Weight
Trace	< 15
With	15 - 29
Modifier	> 30

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) (of components also present in sample)	Percent of Dry Weight
Trace	< 5
With	5 - 12
Modifier	> 12

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Size Range
Boulders	Over 12 in. (300 mm)
Cobbles	12 in. to 3 in. (300 mm to 4.75 mm)
Gravel	3 in. to #4 sieve (75 mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75 mm to 0.075 mm)
Silt or Clay	Passing #200 sieve (0.075 mm)

WATER LEVELS: WD = While Drilling AD = After Drilling

▽ Depth groundwater first encountered during drilling

▼ Groundwater level after 24 hours (unless otherwise noted, i.e. "AD" -- after drilling)

TERMS DESCRIBING SOIL STRUCTURE

Parting:	paper thin in size	Fissured:	containing shrinkage cracks, frequently filled with fine sand or silt, usually more or less vertical.
Seam:	1/8" to 3" in thickness		
Layer:	greater than 3" in thickness	Interbedded:	composed of alternate layers of different soil types.
Ferrous:	containing appreciable quantities of iron	Laminated:	composed of thin layers of varying color and texture.
Well-Graded:	having wide range in grain size and substantial amounts of all intermediate sizes.	Slickensided:	having inclined planes of weakness that are slick and glossy in appearance.
Poorly-Graded:	predominately one grain size or having a range of sizes with some intermediate sizes missing.	NOTE:	Clays possessing slickensided or fissured structure may exhibit lower unconfined strength than indicated above. Consistency of such soil is interpreted using the unconfined strength along