RFP-2016-R
Communications Site Development Project

Please be advised that Columbia County desires to accept proposals on the above referenced item. Proposals will be accepted through 11:00 A.M. on October 6, 2016.

Specifications and bid forms may be obtained from the County's web site at http://www.columbiacountyfla.com/PurchasingBids.asp. Sealed proposals will be received in the Columbia County Manager's office until **11:00 A.M.** on **October 6**, **2016** for Columbia County Project No. **2016-R.** This office is located on the second floor of the Courthouse Annex Suite 203, 135 NE Hernando Avenue, Lake City, FL 32055. P. O. Box 1529, Lake City, FL 32056-1529.

There will be a mandatory pre-proposal meeting at the Emergency Operations Center located at 263 NW Lake City Avenue, Lake City, FL 32055 at 9:00 A.M. on September 7, 2016.

Columbia County reserves the right to reject any and/or all proposals and to accept the proposal in the County's best interest.

Columbia County Board of
County Commissioners

_____
Bucky Nash, Chair

Run: 8/26, 9/2
Chg: BCC

Columbia County, Florida
Purchasing Department
General Instructions to Bidders

These instructions will bind bidders and conditions herein set forth, except as specifically qualified in special bid and contract terms issued with any individual bid.

1. The following criteria are used in determining low responsible bidder:

    A. The ability, capacity and skill of bidder to perform required service.
    B. Whether the bidder can perform service promptly or within specified time.
    C. The character, integrity, reputation, judgment, experience and efficiency of bidder.
    D. The performance of previous contracts with Columbia County.
    E. The suitability of equipment or material for county use.
    F. The ability of bidder to provide future maintenance.

2. Payment Terms are net (30) unless otherwise specified. Favorable terms, discounts, may be offered and will be considered in determining low bids if they are deemed by Purchasing Department to be advantageous to the County.

3. All bids should be tabulated, totaled and checked for accuracy. Unit price will prevail in case of errors.

4. All requested information shall be included in the envelope. All desired information must be included for your bid to receive full consideration.

5. If anything on the bid request is not clear, you should contact the Purchasing Director immediately.

6. A bidders list is available at the Purchasing Office.

7. Quote all prices F.O.B. our warehouse or as specified in bid documents.

8. Each proposal shall be clearly marked on the outside of the envelope including Fed Ex, UPS or other delivery service envelopes, as a sealed bid. The name of the item being bid shall be shown on the outside in full.

9. No responsibility shall attach to any County representative or employee for the premature opening of bids not properly addressed or identified.

10. If only one (1) bid is received, the bid may be rejected and re-advertised or excepted if determined to be in the counties best interest.

11. Bids received late will not be accepted, and the County will not be responsible for late mail delivery.

12. Telephone and facsimile bids will not be acceptable in formal bid openings (sealed bids). Should a bid be misplaced by the County and found later, it will be considered. Any bidder may request and shall receive a receipt showing the day and time any bid is delivered to the appropriate office of the County from the personnel thereof.

13. Bids requiring bid bonds will not be accepted if bond is not enclosed. Cash or certified check will be accepted in lieu of bond except on construction projects where cost exceeds $40,000.

14. All bidders must be recognized dealers in the materials or equipment specified and is qualified to advise in their application or use. A bidder at any time requested must satisfy the Purchasing Office and the County Manager that he has the requisite organization, capital, plant, stock ability and experience to satisfactorily execute the contract in accordance with the provisions of the contract in which he is interested.

15. Any alterations, erasures, additions, or admissions of required information or any changes to specifications or bidding schedule are done at the risk of the bidder. Any bid will be rejected that has a substantial variation, that is; a variation that affects price, quantity, and quality or delivery date (when delivery is required by a specific time).

16. When requested, samples will be furnished to the County free of expense, properly marked for identification and accompanied by a list where there is more than one (1) sample. The County reserves the right to mutilate or destroy any sample submitted whenever it may be to the best interest of the County to do so for the purpose of testing.

17. The County will reject any material, supplies or equipment that did not meet the specifications, even though the bidder lists the trade names or names of such material on the bid or price quotation form.

18. The unauthorized use of patented articles is done entirely at the risk of the successful bidder.

19. The ESTIMATED QUANTITY given in the specifications or advertisements is for the purpose of bidding only. The County may purchase more or less than the estimated quantity and the vendor must not assume that such estimated quantity is part of the contract.

20. Only the latest model equipment as evidenced by the manufacture's current published literature will be considered. Obsolete models of equipment not in production will not be acceptable. The equipment shall be composed of new parts and materials. Any unit containing used parts or having seen any service other than the necessary tests will be rejected. In addition to the equipment specifically called for in the specification, all equipment catalogued by the manufacturer as standard or required by the State of Florida shall be furnished with the equipment. Where required by the State of Florida Motor Vehicle Code, vehicles shall be inspected and bear the latest inspection sticker of the Florida Department of Revenue.

21. The successful bidder on motor vehicle equipment shall be required to furnish with delivery of vehicle, certificate of origin and any other appropriate documentation as required by the Florida Motor Vehicle Department.

22. Prospective bidders are required to examine the location of the proposed work or delivery and determine, in their own way, the difficulties, which are likely to be encountered in the prosecution of the same.

23. All materials, equipment and supplies shall be subject to rigid inspection, under the immediate supervision of the Purchasing Department, its designee and /or the department to which they are delivered. If defective material, equipment, or supplies are discovered, the contractor, upon being instructed by the Purchasing Department or designee, shall remove, or make good such material, equipment, or supplies without extra compensation. It is expressly understood and agreed that the inspection of materials by the County will in no way lessen the responsibility of the Contractor release him from his obligation to perform and deliver to the County Sound and satisfactory materials, equipment, or supplies. The Contractor agrees to pay the costs of all tests upon defective material, equipment, or supplies or allow the costs to be deducted from any monies due him from the County.

24. Unless otherwise specified by the Purchasing Department all materials, supplies, or equipment quoted herein must be delivered within thirty (30) days from the day of notification or exceptions noted on bid sheets.

25. A contract will not be awarded to any corporation, firm, or individual who is, from any cause, in arrears to the County or who has failed in former contracts with the County to perform work satisfactorily, either to the character of the work, the fulfillment or guarantee, or the time consumed in completing the work.

26. Reasonable grounds for supposing that any bidder is interested in more than one proposal for the same item will be considered sufficient cause for rejection of all proposals in which he is interested.

27. Submitting a proposal when the bidder intends to sublet the contract may be a cause for rejection of bids or cancellation of the contract by the County Manager.

28. Unless otherwise specified the County reserves the right to award each items separately or on a lump sum basis whichever is in the best interest of the County.

29. The County reserves the right to reject any and/or all quotations, to waive any minor discrepancies in the bids for all bidders equally, quotations, or specifications, when deemed to be in the best interest of the County and also to purchase any part, all or none of the materials, supplies, or equipment specified.

30. Failure of the bidder to sign the bid or have the signature of an authorized representative or agent on the bid proposal in the space provided will be cause for rejection of the bid. Signature must be written in ink. Typewritten or printed signatures will not be acceptable.

31. Any bidder may withdraw his bid at any time before the time set for the opening of the bids. No bid may be withdrawn in the thirty- (30) day period after bids are opened.

32. It is mutually understood and agreed that if at any time the Purchasing Department or designee shall be of the opinion that the contract or any part thereof is unnecessarily delayed or that the rate of progress or delivery is unsatisfactory, or that the contractor is willfully violating any of the conditions or covenants of the agreement, or executing the same in bad faith, the Purchasing Department or his designee shall have the power to notify the aforesaid contractor of the nature of the complaint. Notification shall constitute delivery of notice, or letter to address given in the proposal. If after three (3) working days of notification the conditions are not corrected to the satisfaction of the Purchasing Director, he shall thereupon have the power to take whatever action he may deem necessary to complete the work or delivery herein described, or any part thereof, and the expense thereof, so charged, shall be deducted from any paid by the County out of such monies as may become due to the said contractor, under and by virtue of this agreement. In case such expense shall exceed the last said sum, then and in that event, the bondsman or the contractor, his executors, administrators, successors, or assigns, shall pay the amounts of such excess to the County on notice made by the Purchasing Department or his designee of the excess due.

33. If the bidder proposes to furnish any item of foreign make or product, he shall write “foreign” together with the name of the originating country opposite such item on a proposal.

34. Any complaint from bidders relative to the invitation to bid or attached specifications shall be made prior to the time of opening bids; other wise, the bidder waives any such complaint.

35. Contracts may be cancelled by the County with or without cause on thirty- (30) days advance written notice.

36. All contractors submitting bids for road projects in excess of $150,000 must be pre-qualified with the Florida Department of Transportation and shall provide proof of such qualification upon request.

37. Any bidder affected adversely by an intended decision with respect to the award of any bid, shall file with the Purchasing Department for Columbia County, a written notice of intent to file a protest not later than seventy-two (72) hours (excluding Saturdays, Sundays and legal holidays), after the posting of the bid tabulation. Protest procedures may be obtained in the Purchasing Department.

38. A person or affiliate who has been placed on the convicted vendor's list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to Columbia County, may not submit a bid on a contract with Columbia County for the construction or repair of a public building or public work, may not submit bids on leases of real property to Columbia County, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with Columbia County, and may not transact business with Columbia County for a period of 36 months from the date of being placed on the convicted vendor list.

39. Vendor/Contractor shall utilize the U.S. Department of Homeland Security's E-Verify system, in accordance with the terms governing use of the system, to confirm the employment eligibility of;

A. all persons employed by the Vendor/Contractor during the term of the Contract to perform employment duties within Florida; and

B. all persons, including subcontractors, assigned by the Vendor/Contractor to perform work pursuant to the contract with the County.

Communications Site Development Project

RFP – 2016 - R

August 24, 2016

TABLE OF CONTENTS

1. INTRODUCTION

Columbia County, Florida (hereafter referred to as the "County") is seeking proposals from qualified vendors (hereafter referred to as the "Proposer" and "Awarded Proposer" following contract award) for the "turnkey" replacement/new construction of communication sites that will support the County's new P25 radio communication system.

This Request for Proposals (RFP) defines the site locations, the functional and technical specifications and other aspects for the communication tower site facilities; however, this RFP allows for Proposers to offer best practices solutions that are most advantageous to the County's needs.

The County will conduct a Pre-Proposal meeting to facilitate site inspection access during normal business hours with an escort from the County or their designee. Prior to submission of their proposal, Proposers shall, at their own expense, make such additional investigation of site conditions, as necessary, for the successful and accurate completion of their proposal.

By the submission of a proposal, the Proposer acknowledges that it has carefully reviewed the requirements of this RFP and warrants that the goods and services furnished and installed under the contract resulting from this RFP shall function in accordance to equipment specifications, industry standards related to radio tower structures and is in compliance with Federal, State and Local rules and regulations.

1.1 ACCEPTANCE PLAN

Prior to contract execution, the Awarded Proposer shall commence negotiations with the County to develop a comprehensive project acceptance plan that addresses, minimally, the following:

- Accurate location/placement of the communications site compound and structures in accordance with the final site plan
- Suitability of electrical and grounding system and compliance with contract specifications
- Test results of concrete foundations
- Initial and as-built drawing submittal process
- Break down and disposal of existing tower and building structures.
- Clean up of site area

This plan will become a component part of the contract and a Notice to Proceed will not be issued by the County until the plan's development and inclusion has been successfully accomplished.

1.2 SUBCONTRACTORS

The County requires that a single Awarded Proposer have total turnkey responsibility for the project to assure a single point of contact for all project communications. Therefore, any Proposer that desires to use subcontractors shall include within their proposal response a listing

and a description of the qualified subcontractors, the type of work to be performed, and past experience work with the subcontractor.

The County may require documentation and references to ensure the qualifications of a subcontractor. The subcontractors cannot be changed after submission of the proposal response except with the written permission from the County. A change in subcontractors shall not provide an extension of time to the Awarded Proposer.

1.3 SUMMARY OF TASKS

The Communications Site Development Project tasks consist of, but not limited to, the turnkey construction of one (1) 300-ft self-supporting tower, one (1) 300-ft guyed tower, one (1) 155-ft self-supporting tower, four (4) communications shelters, and four (4) emergency power generators along with new site grounding and bonding systems, fencing and other site development work where specified.

Upon the completion of this Project, the new communication sites shall be available for the installation of communications equipment and antenna systems. The general tasks include:

- Furnish and install a new 300-ft self-supporting tower, 12-ft x 12-ft communications shelter, emergency power generator and communications site compound at the EOC site
- Furnish and install a new 300-ft guyed tower (preferred solution), 12-ft x 12-ft communications shelter, emergency power generator, communications site compound and demolition of existing 300-ft guyed tower at the Deep Creek site
- Furnish and install a new 12-ft x 12-ft communications shelter, emergency power generator and communications site compound at the Lulu site
- Furnish and install a new 155-ft self-supporting tower, 12-ft x 12-ft communications shelter, emergency power generator and communications site compound at the CCSO site

Each portion of the work shall be in accordance with the technical specifications and requirements specified in this RFP as well as appropriate technical standards.

1.4 SITES OF WORK

The sites of work for this Project are as follows:

Site	Location		Tower	Electrical	Shelter Size	Generator	Compound Size
	Latitude	Longitude					
EOC	30:11:1.97 N	82:41:59.6 W	300-ft SS	100Amp Overhead	12'x12'	25kW Diesel	60'x60'
Deep Creek	30:21:30.4 N	82:37:8.1 W	300-ft guyed	100Amp Overhead	12'x12'	25kW Diesel	60'x60'
CCSO	30:11:29.3 N	82:33:27.1 W	155-ft SS	100Amp Overhead	12'x12'	25kW Diesel	60'x60'
Lulu	30:6:35.2 N	82:29:43.5 W	Existing	100Amp Overhead	12'x12'	25kW Diesel	Existing Modified

2. RULES GOVERNING PROPOSAL SUBMISSION

2.1 BONDS AND DEPOSITS REQUIREMENTS

2.1.1 PUBLIC CONSTRUCTION BONDS

Performance and Payment Bonds - These types of bonds are required by the County when entering into formal contracts for new construction, repairs, or renovation on public buildings and/or other public works. These bonds will be provided by the Awarded Proposer in the amount of l00% of the contract amount prior to commencing the work.

2.1.2 BID BOND – GUARANTY OF GOOD FAITH DEPOSIT

Each proposer shall include with their submitted proposal a Bid Bond in the amount equal to 5% of the total proposed "turnkey" price plus any add alternates.

In lieu of a bid bond, the Purchasing Director may, at his discretion, authorize the proposer to submit a certified check, cashier's check, or treasurer's check, on any national or state bank. Such deposits shall be in the same percentage amounts as the required bid bond. The Clerk shall retain such deposits until the County Manager is satisfied that all provisions of the contract have been complied with, cash bid security deposits will not be accepted.

Upon award signing of contract, the Purchasing Director shall be responsible for returning the bid bonds and other bid securities to the unsuccessful proposers within fifteen (15) working days.

2.1.3 SURETY

Surety authorizing the Bid Bonds and Public Construction Bonds must be authorized to do business in the State of Florida.

2.1.4 LETTER OF CREDIT

An irrevocable Letter of Credit may be accepted by the County in lieu of public construction bonds under conditions that the proposers' provide a financial statement prior to authorization to accept the irrevocable Letter of Credit.

2.1.5 PROCESSING BONDS AND DEPOSITS

The Awarded Proposer shall be responsible for securing the necessary bond(s). Bonding cost may be included in the contract price.

The County Attorney will either accept or reject the bonds and forward them onto the Board of County Commissioners for final review and approval. Once approved the surety bonds will be filed with the official Contact documents with the Clerk of Court.

In the event the Awarded Proposer fails to provide acceptable bond(s) when required, within ten (l0) days after notification, the County Attorney will be notified. Upon the recommendation of the County Attorney, the Board of County Commissioners may declare the Contract null and void and retain in the account of the County any good faith deposits or guaranty which was submitted as liquidated damages.

2.2 PROCUREMENT SCHEDULE

Release of RFP:	August 24, 2016
Mandatory Pre-Proposal Conference:	September 7, 2016
Final Questions Due:	September 14, 2016
Proposals Due:	October 6, 2016

2.3 EXAMINATION OF REQUEST FOR PROPOSAL

The Proposer is required to carefully examine this RFP and the attached documentation to inform themselves of all requirements that may affect the products and services to be delivered under this contract. No allowances will be made because of a lack of knowledge of these conditions.

The County reserves the right to disqualify any proposal that does not meet the requirements of the RFP.

2.4 PROPOSAL SUBMISSION

Proposers shall submit four (4) bound copies, one (1) unbound original and one (1) soft copy in a searchable single file Adobe PDF format on a thumb drive of their proposal.

Proposers shall submit their pricing worksheets with their technical proposal but in a separate sealed envelope. The Proposer shall not include any pricing information in their technical proposal.

Proposals will be received by the County until 5:00 PM EDT October 6, 2016. All copies of the proposals shall be sealed and clearly marked as "Communications Site Development Project, RFP-2016-R".

Proposals shall be delivered or mailed to:

Board of County Commissioners
135 N.E. Hernando Avenue
Lake City, FL. 32055

Facsimile or email transmissions of proposals will not be considered.

2.5 QUESTION SUBMITTAL

All questions pertaining to this RFP shall be submitted in writing, via email, or fax to:

Lawrence Wilson
lwilson@columbiacountyfla.com.
or
C. Ray Hill
ray_hill@columbiacountyfla.com

Fax Number: 386-758-1386

2.6 CLARIFICATION OF PROPOSAL DOCUMENTS

Responses to questions received for this RFP will be provided in writing to all proposers that have received the original RFP.

2.7 PROPOSAL ACCEPTANCE AND CONTRACT AWARD

The County reserves the right to accept or reject any or all proposals or sections thereof, negotiate terms, waive technicalities, and award in the best interest of the County. Furthermore, the County reserves the right to award without further discussion.

2.8 PREPARATION COSTS

The County shall not be responsible for any proposal preparation costs, nor for costs, including attorney fees associated with any challenge (administrative, judicial, or otherwise) to the determination of the highest ranked Proposer and/or award of contract and/or rejection of proposal. By submitting a proposal, each Proposer agrees to be bound in this respect and waives all claims to such costs and fees.

2.9 WITHDRAWAL OF PROPOSALS BEFORE OPENING

Proposers may withdraw their proposal prior to the proposal due date. Proposals or withdrawal requests received after the proposal due date will be void, regardless of when they were mailed.

2.10 HOLDING OF PROPOSALS

Proposals may be held by the County for a period not to exceed forty-five (45) days from the proposal due date for the purpose of reviewing the proposals and investigating the qualifications of the proposers prior to awarding of the contract.

2.11 PROPOSER'S RESPONSIBILITY

Proposers shall fully acquaint themselves with conditions relating to the scope and restrictions attending the execution of the work under the conditions of this RFP.

The failure or omission of proposers to acquaint themselves with existing conditions shall in no way relieve them of any obligation with respect to this RFP or to the contract.

2.12 DISQUALIFICATION OF PROPOSALS

The County will disqualify any proposal that does not meet the requirements of the RFP. If the County proposes to disqualify any Proposer because such Proposer is not a responsible Proposer, the County shall give written notice of the proposed disqualification to such Proposer and include in the written notice, all reasons for the proposed disqualification.

The disqualified Proposer will be given the opportunity to be heard at an informal hearing at which such Proposer will be afforded the opportunity to refute the reasons given by the County for disqualification.

2.13 LATE PROPOSALS

It shall be the sole responsibility of the Proposer to see that their proposal is received by the proposal due date. The County does not assume any financial responsibility for late deliveries by the U.S. Postal System or any other delivery service.

Late proposals will not be accepted and once documented, will be returned to the Proposer unopened.

2.14 PROPOSAL FORMAT

Responses to this RFP shall be formatted as described below. The County reserves the right to reject any and all proposals, to waive defects and formalities in proposals, and to award the contract to the selected Proposer that the County considers to have submitted the best and most advantageous proposal.

Cover Letter - Proposers shall submit a cover letter on their letterhead, signed by a person with the corporate authority to enter into contracts in the amount of the proposal. This letter shall certify the accuracy of all information in the proposal.

TABLE OF CONTENTS

SECTION 1 – Executive Summary

Proposers shall submit an executive summary in non-technical terms of the proposed equipment and services covering the main features and benefits. Do not exceed four pages or include any price information in this summary. The executive summary should also include a point of contact with regards information concerning this response. A contact name, address, email address, and telephone numbers shall be supplied.

SECTION 2 – Corporate Information and Experience

Proposers shall include the type of corporation, state of incorporation, corporate headquarter location, date of incorporation, office location that would manage this project and any relevant business license information.

Proposers shall provide a description of their capabilities and experience that would allow it to successfully complete this project. Proposers shall submit at least three project references from similar size and scope projects that have been completed within the last five (5) years. The references at a minimum shall include the following information:

- Client Name
- Description of project and work completed
- Listing on all subcontractors used and work they completed
- Client contact information including, job title, phone number and email address
- Contract information including start and completion dates, original contract dollar value and final dollars received, original scheduled completion date and actual final acceptance date

SECTION 3 – Project Team

Proposers shall clearly identify all proposed team members, their proposed roles and include their professional resumes. Proposers shall include any subcontractors that they propose to use in this Section along with a description of the work proposed to be performed by the subcontractor.

SECTION 4 – Response to Specifications

Proposers shall provide a paragraph-by-paragraph response indicating compliance with every described requirement, specification, and function included in this RFP. To be fully compliant, Proposers shall review all of the requirements in the RFP and respond to each paragraph therein indicating whether:

- Their proposed equipment complies with the requirement (Proposer Response: **Fully Comply**).
- Their proposed equipment partially complies with the requirement (Proposer Response: **Partially Comply**). The Proposer shall clearly identify what portion of the requirement is met and what portion is not met.
- They take exception to the requirement and explain why and how the proposed equipment will provide the specified requirement or capability (Proposer Response: **Exception Taken**).
- In paragraphs that primarily describe existing conditions or contain other topics for which a response of comply, partially comply or exception taken is not appropriate, Proposers will indicate that they have reviewed the paragraph and understood its content (Proposer Response: **Understood**). An Understood response shall mean that the proposed equipment will fully support the listed condition/topic.

SECTION 5 – Project Approach and Schedule

Proposers shall include a logical description of all proposed work tasks necessary to complete the requested project. Proposers shall include their "Construction Site Management and Safety Plan" as specified in section 3.1.1 of this RFP and any other preliminary proposed site designs and layouts. Proposers shall provide in Gantt chart format a detailed proposed project schedule.

SECTION 6 – Price Proposal (<u>Submit in a separate sealed envelope</u>)

Proposers shall submit their pricing using the attached proposal Pricing Worksheets (Section 5 of this RFP). Pricing shall include and separately itemize all major items and hardware, equipment and components and services provided under this RFP. Pricing shall include all freight, taxes and all other applicable fees.

2.15 MANDATORY PRE-BID CONFERENCE

The County will conduct a mandatory pre-bid conference on September 7, 2016. Each Proposer will be limited to four (4) attendees. The meeting will begin at the County's current EOC/Combined Communication Center, which is located at:

263 NW Lake City Avenue
Lake City, FL 32055

The meeting will begin promptly at 9 AM with a short presentation along with a question and answer secession. The County will then escort all attendees to the four (4) sites of work so that each potential Proposer can examine them.

Each Proposer shall send its intention to attend the pre-bid meeting at least 3 days prior to the meeting along with a list of attendees to one of the contacts listed in Section 2.4 of this RFP.

2.16 PROPOSAL SCORING MATRIX

Category	Total Points
Submission of Proposal per Section 2.13 of this RFP	5
Proposer's compliance with written specifications	10
Proposer's presented experience, capabilities and references from similar projects	10
Proposer's presented Project team qualifications	10
Proposer's presented Project Schedule	15
Proposer's Project turnkey pricing	50

3. DETAILED SCOPE OF WORK

3.1 GENERAL OVERVIEW

The County requires that a single Awarded Proposer have total turnkey responsibility for the project to assure a single point of contact for all project communications. Upon completion of this Project, all communication sites shall be "installation ready" so that the County can immediately proceed with the communications equipment and antenna system installation.

The Awarded Proposer shall furnish all design and engineering services, and install the communication sites, towers, foundations, communications shelters, emergency power standby generators, grounding and bonding systems, and other necessary hardware and components in accordance with this RFP.

The Awarded Proposer is responsible for the provisions and cost of staging, warehousing, insurance, storage and the security of supplied equipment prior to and during the construction and disassembly phases of the project.

3.1.1 CONSTRUCTION SITE MANAGEMENT AND SAFETY PLAN

The Proposer shall prepare a preliminary construction site management plan and include it in their proposal. The construction site management plan shall depict the planned areas of construction including the staging areas for storage trailers, heavy equipment, cranes, tower steel and materials, and spoils. The plan shall include the management of traffic for the delivery of tower steel, water, concrete, and other materials.

The County will continuously occupy some of the sites and buildings during the entire construction period. Public access, property, health and safety considerations shall exceed all others and the construction will require that the Awarded Proposer schedule and plan the work accordingly. Construction work shall at all times be subject to alteration and revision if necessary for public health and safety considerations.

The Awarded Proposer shall be responsible for any site modification required to accommodate the equipment proposed for the Project. The Awarded Proposer shall secure the construction site at all times and may utilize temporary security and safety fencing as needed. Restoration of any part of the site impacted, other than what is approved as a permanent improvement to the site, shall be the responsibility of the Awarded Proposer.

3.1.2 CONSTRUCTION DRAWINGS AND PERMITTING DOCUMENTATION

The Awarded Proposer shall be responsible for preparing construction drawings and site development documents for a complete and fully operable installation which is in compliance with this RFP and with the latest version of the National Electrical Code (or local electrical code, if applicable), local building codes, environmental laws, zoning and planning regulations or ordinances, land use restrictions, Federal Aviation Administration and Federal Communications Commission rules and regulations, State or County regulations governing road access and entry,

OSHA guidelines and all other applicable local, State or Federal codes, regulations, laws and/or ordinances.

Modification or relocation of existing site equipment, structures or materials will require prior approval by the County's Project Manager.

The Awarded Proposer shall provide preliminary construction drawings depicting the proposed construction within thirty (30) business days following execution of the contract. The construction drawings shall be approved by the County prior to commencement of work. Drawings shall, at a minimum, but not limited to, illustrate:

- The location of to-be-installed equipment relative to existing adjacent structures and property lines
- Mechanical and structural details and specifications of tower foundations
- Electrical grounding systems
- Soil boring test results
- Site features including fencing, access points, impervious areas, appropriate storm water features, storage facilities and staging areas if any, security features

The Awarded Proposer shall be responsible for all permits, inspections, fees, documentation, filings, etc. associated with permitting and the construction of the communication site work. The County permit fees will be waived by the County; however, fines, re-inspection fees, and penalties will be assessed and paid by the Awarded Proposer based upon the standard fee structure. The Awarded Proposer shall prepare all specifications, plans, documents, and required forms, submittals, and exhibits required to obtain the necessary approval and permits from all regulatory agencies.

3.1.3 FAA AND FCC FILINGS AND AUTHORIZATIONS

The Awarded Proposer shall be responsible for preparing, filing, and obtaining all FAA Studies, Determinations and site surveys prior to construction, and for the notification of the FAA upon the commencement of construction through the filing of appropriate forms and submittals.

The Awarded Proposer shall be responsible for obtaining all FCC environmental studies and any other requirements to obtain an FCC Antenna Structure Registration including the payment to historical organizations such as Indian tribes for towers provided in this project.

3.1.4 AS-BUILT DRAWINGS AND DOCUMENTATION

The Awarded Proposer shall keep up-to-date, marked-up prints of the Project construction drawings. Markings indicating changes to the drawings shall be red or green and clearly visible. Once the County has approved the "marked-up" drawings, four (4) original sets of "As-Built" drawings and one soft copy in Adobe PDF format shall be furnished to County Project Manager at the completion of the project. Project Drawings shall also be supplied on CD/DVD reproducible in AutoCAD in both DXF and DWG formats. (Latest release).

3.1.5 CONSTRUCTION MATERIALS

Materials specified by the Awarded Proposer shall be new and of first quality as defined in industry standards. The Awarded Proposer shall not make substitutes unless prior approval has been obtained from the County Project Manager.

The Awarded Proposer shall be required to assume full responsibility for the specification of materials and equipment employed in construction of the project and agrees to make no claims against the County for damages to such materials and equipment except for that which is caused by the County, their employees or agents. The Awarded Proposer shall be responsible for managing the storage of all materials purchased and turned over to him/her by the County and shall receive all delivered items by suppliers at the job site or at a staging area to be furnished by the Awarded Proposer.

3.1.6 WORKMANSHIP

All workmanship shall conform to normal and accepted standards for the telecommunications industry and will be thoroughly examined by the County and/or their representatives at various stages during project implementation and before final acceptance. All site structures and equipment including electrical wiring, towers structures and foundations, tower and site grounding and bonding systems, tower lighting systems, antenna mounts, and such shall be installed by, or under the direct supervision of the Awarded Proposer.

3.1.7 CONSTRUCTION WORK COORDINATION

The Awarded Proposer shall be responsible for the work performed by any subcontractor(s) and shall coordinate the work to insure that interference between electrical conduits, cable support trays, grounding wire, structural members, and other work shall be avoided so that the project is completed within budget and on schedule. The Awarded Proposer shall coordinate their work schedule for site activities with the County to ensure that there is no interference to concurrent communications operations at the sites of work.

3.1.8 CLEARING OF LAND

The Awarded Proposer shall be responsible for clearing of brush, trees, or any other obstructions and grubbing at the communication sites including asphalt and concrete.

3.1.9 COMMUNICATION SITE CLEANUP AND DEBRIS REMOVAL

The Awarded Proposer shall be responsible for, and shall oversee the cleanup and the daily removal of all rubbish and construction debris from the work site. The Awarded Proposer shall supply a dumpster or similar trash storage/removal device where a substantial amount of construction debris is generated.

Upon completion of all work, the entire construction site area shall be left clean and free of trash, debris, mud, dirt, dust, scrap materials, and excess materials.

3.1.10 SANITARY FACILITIES

The Awarded Proposer shall be responsible for providing sanitary facilities at each work site for the duration of the Project.

3.2 TOWER STRUCTURE GENERAL REQUIREMENTS

The Awarded Proposer shall be responsible for providing the tower structures and foundations, and for furnishing and installing all associated hardware, lighting and safety systems and appurtenances.

All work shall be performed in accordance with good engineering practices and comply with all local, State and Federal codes, rules and ordinances. The Awarded Proposer is required to adhere to local electrical code and building regulations.

The towers shall be self-supporting and/or guyed towers constructed with solid or tubular legs, and solid cross members.

The fabrication and installation of the tower shall include all hardware, brackets, fasteners, climbing and safety systems, ancillary devices such as tower lighting systems, and engineering and installation services required to complete the Project. The Awarded Proposer shall be responsible for ensuring that the tower meets all design criteria, labor services, guarantees and installation requirements contained in the Awarded Proposer's specifications, or in national or industry standards to which such specification refers.

The work to be performed shall include site preparation, grading, foundation installation, tower erection including climbing ladders and safety climb system, tower lighting systems, transmission line ladders and transmission bridges, lightning rods, grounding system and ground bus bars, and the touch-up of any scrapes or damage to the protective galvanizing.

All exothermic welds and any touch up repairs to galvanized components shall be coated using a cold galvanizing compound spray that contains a minimum of 93% zinc such as Rust-Oleum Cold Galvanizing Compound.

3.2.1 REFERENCE STANDARDS

All materials, design, and construction procedures shall be in accordance with the latest versions of the applicable industry standards, specifications,

- American National Standard for Telecommunications:
- T1.334-2002, Electrical Protection of Communications Towers and Associated Structures
- T1.313-2003, Electrical Protection for Telecommunications Central Offices and Similar Type Facilities
- T1.333.2001, Grounding and Bonding of Telecommunications Equipment
- ANSI–J-STD-607-A-2002, Commercial Building Grounding and Bonding Requirements or Telecommunications
- ANSI/NFPA 780-2004, Standard for the Installation of Lightning Protection Systems

- ASTM Standard A123, A153, B695
- Harris AE/LZT 123 4618/1 Rev. D, Oct-04 Installation Manual
- Motorola Standards and Guidelines for Communication Sites commonly known as "R56" version 68P81089E50-B of 9/1/2005
- Federal Aviation Administration Advisory Circular AC 70/7460-1L
- EIA/TIA-222G, Structural Standard for Antenna Supporting Structures and Antennas, Telecommunications Industry Association (TIA)
- The 2014 Florida Building Code, 5th Edition, (2012 International Building Code)
- NFPA 70: National Electric Code (NEC) – 2008
- NEMA – National Electrical Manufacturer's Association
- Florida Fire Prevention Code
- TIA-1019-A: Standard for Installation, Alteration and Maintenance of Antenna Supporting Structures and Antennas, Telecommunications Industry Association (TIA)
- F.S. 489 – Florida Status, Title XXXII, Chapter 489 – Contracting
- Building Codes for County of Boca Raton, Florida
- OSHA – Occupational Safety and Health Standards
    - 29 CFR Part 1010 – Occupational Safety and Health Standards
    - 29 CFR § 1910.27 - Ladders
    - 29 CFR Part 1926 – Safety and Health Regulations for Construction

The Standards listed herein are meant to serve as a guide and shall be superseded by any and all current applicable industry standards and/or local codes at the time of the installation.

3.2.2 GEOTECHNICAL EXPLORATION

The Awarded Proposer shall perform a geotechnical exploration at the locations of each tower foundations. The soil analysis shall include field borings, laboratory testing, and a report containing a summary of the analysis with an evaluation and recommendation for structural foundations.

The geotechnical investigation report shall include all information in accordance with the latest version of TIA-222, Geotechnical Investigations (Normative). The report shall be generated and certified by a registered Professional Engineer, licensed to practice in the State of Florida and qualified in the area of subsurface investigation and engineering evaluation.

The number of field borings to be performed at the site and their depths shall be appropriate for the antenna tower and loads described in this RFP, and in accordance with the latest version of TIA-222.

Boring logs and report shall provide:

- Date, sampling methods, number and type of samples
- Description of the soil strata according to the Unified Soil Classification System
- Depths at which strata changes occur referenced to a site benchmark elevation
- Standard Penetration Test blow counts for each soil layer

- Soil density for each soil layer
- Internal angle of friction for each soil layer
- Cohesion for each soil layer
- Ultimate bearing capacities for each soil layer or at the recommended bearing depth(s)
- For expansive soil conditions, the active zone of influence and recommendations for design
- Elevation of free water encountered and the ground water depth below grade to be considered for design
- Soil electrical resistivity, pH values and corrosive nature of soil
- Other pertinent soil design data and recommendations
- Recommendations for alternate foundation types
- Topographic information for the site
- Note the location within 1,000 feet (300 m) of the structure of underground pipelines, buried concentric neutral power wires, and electrical substations as these may affect electrolytic corrosion

For drilled piers, the following information shall also be provided:

- Ultimate tip bearing capacity
- Ultimate skin friction for each soil layer
- Lateral modulus of soil reaction for each soil layer
- Ultimate soil strain at 50% of ultimate compression for each soil layer.

Four (4) paper copies of the soils report and one soft copy in Adobe PDF format shall be provided to the County.

3.2.3 TOWER FOUNDATION CONSTRUCTION AND DESIGN

Proposers shall base their proposed pricing for the foundation design upon normal soil conditions.

The final foundation designs shall be based upon existing soil conditions at the tower sites as determined by the geotechnical survey completed as part of this RFP.

3.2.4 CONCRETE MATERIALS TESTING

A concrete materials test shall be performed for each of the tower foundations. This test shall include slump testing of the concrete materials and unconfined compressive strength testing of concrete cylinders molded at the time of concrete placement. Cylinders shall be provided for each foundation pier, and shall be tested at 7 and 28 days after concrete placement. A report of test results for slump testing and unconfined compressive strength testing shall be provided to the County immediately following each test.

3.2.5 DESIGN PLANS AND SUBMITTALS

The required design documentation shall be approved, signed, dated, and sealed by a registered Professional Engineer (structural) qualified and licensed to practice in the State of Florida.

At no later than fifteen calendar days prior to foundation excavations for the tower, the Awarded Proposer shall deliver signed and sealed copies of all required tower structure and foundation design documentation. Four (4) paper copies and one soft copy in Adobe PDF format shall be provided to the County. The documentation shall be delivered to the County's Project Manager.

These submittals are in addition to any documentation submittals that may be required for the permitting process.

The Awarded Proposer shall prepare and submit for County approval, all plans, specifications, foundation drawings and scale drawings of the tower depicting its overall height, the number and height of sections, the width of each section and antenna loading and their specified heights.

The Awarded Proposer shall submit for County approval, a profile view of the tower containing structural details, tower loads, and engineering notes. Any documentation for the tower requested by the County for planning approvals shall be supplied in a timely manner.

In accordance with TIA-222, complete plans, assembly drawings, or other documentation shall be supplied showing the necessary marking and details for the proper assembly and installation of the components, including the member sizes, design yield strength of the structural members and the grade of structural bolts required. Foundation reactions, when provided, shall be based upon factored loads.

The tower plans shall detail attachment height, antenna quantity, antenna model or type, mount quantity, mount type and line size that was included in the structural analysis. Alternatively, the total effective projected area representative of all of the antennas and mounts at each elevation may be provided along with the associated line sizes.

The tower plans shall detail the following data for the site specified used in the structural analysis:

- Exposure category C shall be used
- Tower and shelter shall be Risk Category III-IV structures
- Topography category 1
- Foundation reactions for the loading combinations considered
- Soil design parameters or source of data

Upon completion of tower construction, the Awarded Proposer shall deliver to the County, four (4) complete original copies of the tower and foundation as-built documentation, and a soft copy in Adobe PDF format, and in both DWF and DWG file formats.

3.2.6 MANUFACTURERS' CERTIFICATION AND SUPPORT

All tower materials, hardware, and accessories shown on the plans and drawings shall be certified in writing by the tower manufacturer as being suitable for the purposes shown. The manufacturer's certification shall include the following statement: "The tower and foundation designs meet or exceed all requirements of the County's RFP-2016-R Communications Site Development Project and the latest version of TIA-222."

The Awarded Proposer shall provide a letter from OEMs which guarantees manufacturer's support after the warranty period, and in the case of any conditions or problems which cannot be remedied by the Awarded Proposer, or in case the Awarded Proposer defaults on its warranty and/or maintenance agreements and obligations. Subsystems are defined as various tower components including the FAA-approved tower lighting system.

The Awarded Proposer shall provide a written guarantee that all proprietary components and repair parts shall be available for a period of at least ten (10) years from the date of project final completion.

3.2.7 CONSTRUCTION NOTIFICATIONS

The County shall be notified when the inspection of the various construction phases of the tower and foundation are required.

For the foundation, the Awarded Proposer shall notify the County as to construction status at the following times:

- Ten days prior to start of excavation - notify as to the start date of construction and estimated completion date of construction
- The day of the completion of the reinforcement steel
- The day of the concrete pour

For the tower structure, the Awarded Proposer shall notify the County as to construction status at the following times:

- Ten days prior to start of tower installation - notify as to the start date of construction and estimated completion date of construction
- The day the tower reaches the greatest height
- The day tower installation is completed

3.2.8 MATERIALS

All equipment and materials, except with the expressed written permission of the County, shall be new and unused, meet telecommunications industry standards, and, where applicable, be registered with and approved by the Federal Communications Commission and the Federal Aviation Administration.

The County reserves the right to reject and require the return, at the Awarded Proposer's expense, of any and all components that are defective or fail to comply with the specification. Such rejects and/or returns will neither invalidate the remainder of the contract. Rejections of materials for cause shall not provide an extension of time to the Awarded Proposer.

All materials shall conform to the provisions of TIA-222 where applicable, with respect to physical properties, manufacture, workmanship, and factory finishes.

3.2.9 CORROSION PROTECTION

All fabricated tower assemblies and parts shall be hot-dipped galvanized after fabrication in accordance with the requirements of ASTM Standard A123. All hardware and other attachments, including antenna mounts, climbing steps, transmission line support systems, etc. shall be galvanized per ASTM Standard A153 and B695 or constructed of inherently corrosion resistant materials suitable for such applications. Other types of zinc coating or plating is not acceptable.

The Awarded Proposer shall furnish written certification that all installed tower components have been assembled and hot dipped galvanized in accordance with the minimum requirements outlined in the specifications herein.

3.2.10 LOADS AND STRESSES

The design of the tower shall take into account dead and live loads induced by the structure itself and all appurtenances, and all stress applied to the tower and its appurtenances by wind forces. The minimum safety factors listed in TIA-222 shall apply under the most severe combination of dead load plus live loading. The tower design shall allow no tower member to be stressed more than 90%.

3.2.11 APPURTENANCES

Appurtenances shall include, but not be limited to, the following:

- Tower-mounted equipment
- Antennas and antenna mounts
- Antenna platforms
- Microwave antennas and radomes
- Transmission lines and waveguides
- Climbing ladders and safety climb system
- Tower lighting systems
- Transmission line ladders
- Lightning rod

3.2.12 ANTENNA SYSTEM AND TRANSMISSION LINE LOADING

The towers shall be designed to support, at a minimum, the antenna systems, hardware and transmission lines in the following table.

Deep Creek Tower Loading Table						
QTY	**Model**	**Height**	**Mount**	**TX Line**	**Azimuth**	**Use**
1	SRL 410-C18	300’ Base	6’ Side Arm	(1) 7/8”	130	P25 RX
1	Tower-Top-Amp	300’ CL	On Tower	(1) ½”	N/A	P25 TTA
2	SRL 410–C18	280’ Base	6’ Side Arm	(2) 1 5/8”	130	P25 TX
1	DB224	300’ Base	6’ Side Arm	(1) 7/8”	OMNI	VHF Paging
1	PAR6-59	190’ CL	Pipe Mount	Jumper	185	Main to Franklin

Deep Creek Tower Loading Table (Continued)						
QTY	**Model**	**Height**	**Mount**	**TX Line**	**Azimuth**	**Use**
1	MW Radio	190’ CL	On Tower	(2) CAT5	N/A	Backhaul
1	PAR6-59	180’CL	Pipe Mount	Jumper	202	Main to EOC
1	MW Radio	180’ CL	On Tower	(2) CAT5	N/A	Backhaul

EOC Tower Loading Table						
QTY	**Model**	**Height**	**Mount**	**TX Line**	**Azimuth**	**Use**
1	SRL 410-C18	300’ Base	6’ Side Arm	(1) 7/8”	90	P25 RX
1	Tower-Top-Amp	300’ CL	On Tower	(1) ½”	N/A	P25 TTA
2	SC479-HF1LDF	280’ Base	6’ Side Arm	(2) 1 5/8”	90	P25 TX
1	PAR8-59	204’CL	Pipe Mount	Jumper	172	Main to Cumorah
1	MW Radio	204’ CL	On Tower	(2) CAT5	N/A	Backhaul
1	PAR6-59	170’CL	Pipe Mount	Jumper	22	Main to Deep Creek
1	MW Radio	170’ CL	On Tower	(2) CAT5	N/A	Backhaul

CCSO Tower Loading Table						
QTY	**Model**	**Height**	**Mount**	**TX Line**	**Azimuth**	**Use**
1	SC412-HF2LDF	140’ Base	6’ Side Arm	(1) 7/8”	OMNI	P25 RX
1	Tower-Top-Amp	140’ CL	On Tower	(1) ½”	N/A	P25 TTA
2	SC412-HF2LDF	140’ Base	6’ Side Arm	(2) 1 5/8”	OMNI	P25 TX
1	PAR6-59	145’CL	Pipe Mount	EW52	200	Main to Cumorah
1	PAR6-59	115’CL	Pipe Mount	EW52	200	Diversity to Cumorah
1	PAR6-59	150’CL	Pipe Mount	Jumper	147	Main to Lulu
1	MW Radio	150’ CL	On Tower	(2) CAT5	N/A	Backhaul
1	PAR6-59	137’CL	Pipe Mount	Jumper	272	Main to Franklin
1	MW Radio	137’ CL	On Tower	(2) CAT5	N/A	Backhaul

3.2.13 ANTENNA MOUNTING HARDWARE

The towers shall be designed to maximize their efficiency to support antenna loads. The Awarded Proposer shall engineer and supply 6-foot side arm brackets except where noted to support land mobile antennas mounted to the tower. The side arm brackets shall include an integral vertical antenna mounting mast to permit proper installation of antennas.

All microwave antenna and microwave equipment mounting hardware will be provided under a separate contract and the Proposer and will not be responsible for such.

3.2.14 WIND SPEED AND LOADING

The tower structure and foundations shall be designed and constructed to support the specified loads in accordance with the latest versions of EIA/TIA-222G, the 2014 Florida Building Code, 5th Edition, (2012 International Building Code) based upon an ultimate 3-second gust wind speed of 130 mph converted to a nominal 3-second gust wind speed of 101 mph per section 1609.3.1 as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1.

Exposure Category C and Risk Category III shall be used for the design.

3.2.15 TOWER TWIST, SWAY, AND DISPLACEMENT

The towers shall be designed that when fully loaded the twist and sway limits at the microwave antenna mounting positions do not exceed their plus or minus 10dB points under conditions of 60 mph service wind speeds as recommended by TIA-222 for the antennas specified in the site specific antenna loading diagrams.

3.2.16 TRANSMISSION LINE SUPPORT SYSTEM

Cable ladders for transmission lines shall be installed to minimize tower face wind loading and shall not interfere with the climbing ladder or safety system. A cable support system shall be designed to accommodate all proposed transmission lines plus a 10% growth factor. Standard bolt-in hangers shall be used; snap-in hangers are not acceptable.

The cable support systems shall be of galvanized steel construction, and shall have mounting hardware of stainless steel or galvanized steel construction. No drilling of the tower legs or cross bracing shall be required to install the cable support device.

The ladder structures shall be spaced at maximum 3-foot intervals to enable hangers to be installed at 3-foot intervals.

Holes shall be provided in the tower support members, tower hanger adapter plates, or separate ladder structures to allow installation of bolt-in cable hangers. The 3/8-inch and 3/4-inch mounting holes shall be precision punched or drilled and sufficiently separated to accommodate the bolt-in hangers.

3.2.17 WAVEGUIDE BRIDGE SYSTEM

The Awarded Proposer shall design, furnish and install an efficient waveguide bridge system between the new/existing towers and the new equipment shelters to support all proposed transmission lines and to protect them from any debris that may fall from the tower or antennas.

A grating type of waveguide bridge is required. Microflect waveguide cushions, hangers, and crosses are the preferred method of attachment to the waveguide bridge. The waveguide bridge shall be designed to support devices to properly attach the transmission lines at the intervals specified.

The waveguide bridge facility shall be installed so that it is self-supporting with its own foundations and not rigidly attached to the tower or equipment shelters. Galvanized steel construction shall be used for the waveguide bridge and its ancillary components.

3.2.18 CLIMBING LADDER

The towers shall be provided with a climbing ladder, safety cable, hard hat and climbing belt. The climbing ladder shall be attached to tower legs in a manner that would not interfere with the installation or maintenance of antennas, or installation of additional transmission lines on the cable ladder. Similarly, the placement of cable ladder structures shall not interfere with the climbing facility. It shall be possible to lockout the climbing facility to preclude unauthorized use. The climbing facilities shall meet all OSHA requirements.

3.2.19 TOWER LIGHTING AND CONTROLS

3.2.19.1 LIGHTING

The Awarded Proposer shall provide a dual lighting system with the towers or an alternate system if specified by the FAA. The lighting system shall consist of medium intensity white beacon for daytime lighting and red obstruction lighting for nighttime operation. The lighting system shall conform to all FAA, NEC, local, and FCC Regulations, and shall further conform to the latest version of the FAA publication AC 70/7460. The lighting system shall be a "No EMI or RF" interference, LED model.

Placement of the lighting systems on the towers shall be in a manner that allows unobstructed view by aircraft through 360º.

3.2.19.2 CONTROLS

Activation of the lighting systems shall be via a light sensitive, photoelectric type switch and controller that will activate the lights at dusk (or other cloud-darkened condition) and extinguish the lights at sunrise. The controller shall automatically switch from red lights at sunrise to strobe lights and back to red lights when the sky darkens. The Controller shall be housed in a weatherproof enclosure to allow for outdoor mounting.

3.2.19.3 WIRING

Wiring for the tower lighting shall be provided and installed in conformance with the lighting manufacturer's specifications and in accordance with local electrical codes. All cable ties used on the tower shall be stainless steel or weather resistant black acetal. Standard white or black cable ties made of nylon or polypropylene shall not be used.

3.2.19.4 TOWER LIGHTING SYSTEM FAILURE ALARM

The lighting control system shall be equipped to provide a single, form "C" dry contact closure alarm indication of lighting failure. Upon failure of the lighting system, the alarm condition shall be reported to the County's existing site alarm system.

The Awarded Proposer shall coordinate the configuration and connection points of the alarm inputs/outputs with the County Project manager.

3.3 COMMUNICATIONS SHELTER REQUIREMENTS

3.3.1 GENERAL DESCRIPTION

Prefabricated, precast concrete, telecommunications equipment shelters, foundations, and ancillary equipment shall be furnished as specified herein to house all County owned equipment.

The communication shelters shall be designed for the express purpose of housing electronic radio equipment and related components within a controlled environment necessary for the proper operating conditions of the equipment to be installed.

3.3.2 REFERENCE STANDARDS

Unless otherwise required herein, materials, design, and constructions procedures shall be in accordance with ANSI/NFPA-70, the National Electrical Code and all Federal, State, and local building codes.

3.3.3 SHELTER SIZE

Equipment shelter dimensions shall be in accordance with the requirements of this RFP. The interior height shall be a minimum of 9 feet from finished floor to finished ceiling. The equipment shelters shall be sized according to the following table.

Site Name	Shelter Exterior Dimensions	Shelter Interior Dimensions
EOC	12’ x 12’	11’ x 11’ Minimum
Deep Creek	12’ x 12’	11’ x 11’ Minimum
CCSO	12’ x 12’	11’ x 11’ Minimum
Lulu	12’ x 12’	11’ x 11’ Minimum

3.3.4 DESIGN LOADING

General construction shall be steel reinforced high strength precast concrete with a horizontal wind loading of 150 mph. The communications equipment shelter shall be provided with a concrete aggregate finish and the roof color shall be white.

3.3.5 FOUNDATION

The shelter foundation shall be a concrete slab that is installed in compliance with local building codes and in accordance with shelter manufacture’s requirements. The slab shall be elevated at least 1 foot above the finish grade of the site to ensure that water run off does not enter the shelter. The entrance to the equipment shelter shall be graded or concrete steps installed such that the distance from the grade or final step to the shelter floor does not exceed 8 inches.

3.3.6 FLOORING

The floor section shall be constructed of steel reinforced concrete and be rated to support all communications equipment, battery plants, etc. Wood floors are not acceptable. All surfaces shall be smooth. Floors shall be bolted to adjoining walls and all structures shall be shipped with floor systems fully assembled to walls. The interior floor surface shall be commercial grade 1/8-inch x 12-inch x 12-inch vinyl floor tile over concrete. Base molding shall be installed around all perimeter walls.

3.3.7 ROOF SECTION

Roof sections shall be bolted to the adjoining walls and constructed with properly reinforced 5000-PSI lightweight concrete. The roof shall be constructed with at least a 1/8-inch per foot drainage slope to prevent accumulation of water. The roof section shall utilize a membrane system and provide a 2-inch overhang on all sides. The roof shall be insulated to a minimum of R-16 and shall be covered with sheetrock and ½-in sheetrock laminated with FRP.

3.3.8 WALLS

The wall sections shall be steel reinforced solid concrete with concrete aggregate rock exterior. Interior surfaces shall have a fire resistant white textured finish wall covering with molding on all corners. All floor/wall intersections shall have 4-inch vinyl baseboards installed. Molding shall also be provided at wall/ceiling intersections and all wall panel intersections. Interior walls shall be designed to allow mounting of electrical and electronic equipment using standard fasteners available from local hardware stores. The walls shall be insulated to a minimum of R-11 and shall be covered with ½-inch sheetrock laminated with FRP.

3.3.9 DOORS

Exterior doors shall be in a cast-in galvanized steel frame, and be a minimum size of 3-ft, 6-in x 7-ft, 0-in. The door frames shall be 16 gauge galvanized steel, primed painted, cast into the wall panel, and installed flush with the exterior wall.

The doors and frames shall be painted to match the exterior trim. Hinges shall be steel ball bearing type and tamper resistant to prevent removal of the pins from outside the shelter. The doors shall be insulated, primed, and painted, and include a door closer, doorstop, pull handle, and magnetic weather stripping. Doors shall be installed with a threshold and a door sweep.

The lockset shall be a Best cylinder entrance lock with lever handle and strikeplate and protected on the exterior by anti-prying plate. All locks and keys shall be approved by the County.

A drip awning shall be installed over each door to prevent water dripping into the shelter.

3.3.10 LIGHTING

There shall be sufficient interior lighting to provide a level of 150 foot-candles at 4-ft above the floor in the equipment room. Fluorescent fixtures using two standard 4-ft tubes per fixture shall provide interior light. The switch for the light fixtures shall be located inside and on the latch side of the entry door. Light fixtures shall be installed to the front and rear of electronic

equipment racks to provide sufficient lighting for service personnel to perform equipment maintenance.

The Proposer shall furnish and install one LED vandal resistant floodlight with photocell mounted on the outside near each entrance door and an interior light switch shall be furnished and installed to control the lights.

3.3.11 HVAC

For all equipment shelters, the Proposer shall provide one wall-mounted vertical wall air conditioner unit and a controller, sized to meet the BTU load requirements of the proposed system equipment plus 50% growth (2-ton minimum), for the equipment room.

The controller shall provide for unattended heating and cooling of the communications equipment shelter's equipment room without personnel intervention. The controller shall have a time delay to prevent the HVAC system from sustaining compressor damage if energized prematurely following a power failure.

The HVAC unit shall be capable of safely operating when the outside temperature falls below 60º F, allowing continuous interior equipment cooling and dehumidification in cold weather. The HVAC unit shall be furnished with reheat mode and a heat strip to meet the Proposer's requirements.

3.3.12 EXHAUST FAN

The Proposer shall provide an exhaust system for the equipment room consisting of an exhaust fan with back draft louver, motorized air intake louver, remote thermostat, screened exhaust weather hood, and filtered air intake weather hood. The exhaust system shall be sized to the shelter volume, but in no case shall the exhaust fan be less than 12-in in diameter.

3.3.13 FIRE DETECTION AND SUPPRESSION

The communications equipment room smoke and fire detection shall include a combination of ionization/photoelectric smoke detectors in conformance with UL 268 standards and shall be installed in a cross-zoned detector configuration.

The communications equipment room shall include a high and low temperature alarm. Separate wall-mounted portable fire extinguishers; one five-pound all-purpose dry chemical Class ABC, and one seven-pound minimum Class BC CO2 extinguisher, shall be located adjacent to the door of the equipment room.

3.3.14 SITE ALARMS

All alarm conductors shall be in conduit. The conduits necessary for installing the alarm conductors shall be 3/4-in EMT conduit. Conduit and wires necessary for power connection shall be routed to and terminated in the alarm junction box. The alarm system layout will be standardized for all shelters

The following alarms shall be provided and wired to the Awarded Proposer-provided type 66 block. Each termination shall be labeled and interfaced with the communications system alarm system.

- Power Fail relay alarm dry contact
- Door intrusion alarm, magnetic reed type switch
- HVAC failure alarm dry contact type
- Fire/Smoke detector alarms dry contact type
- TVSS failure dry contact
- High and low temperature alarms dry contact type
- All generator system alarms as detailed in the Generator Section
- DC Rectifier alarms
- Tower lighting alarms

3.3.15 WAVEGUIDE ENTRY

A Harger Entrance Panel Kit (Harger EPK16 or equivalent) shall be provided and installed with through-wall mounting bolts to bond the interior shelter master ground bus bar to the shelter exterior ground bus bar. The ground bar may not be integrated with the cable entry panel. The exterior ground bar shall be wall-mounted and shall utilize a minimum of three 3-in by 1/32-in thick flat copper ground straps on the exterior ground bar which are exothermically welded to a copper 1/4-in x 4-in copper bar for connection to the site grounding electrode system.

The copper straps shall be secured to the shelter wall using the Harger EPKPPCST channel support kit to eliminate wind vibration or flapping. Both the interior and the exterior ground bar shall be predrilled to provide ground connections for equipment.

The entrance panel shall have a minimum of 16 ports and shall accommodate 3/8-in to 1-5/8-in coaxial transmission lines. The bulkhead panel shall be equipped with pre-punched/pre-drilled surge protector mounting plates. The bulkhead panel shall be equipped to accommodate 16 surge suppressors such as the PolyPhaser Model IS-B50LN-C2 protectors. All unused entry ports shall be sealed.

3.3.16 CABLE TRAYS

All cable trays shall be 24-in in width and fabricated in an open ladder-type arrangement to permit easy cable routing anchored to the walls where practical and suspended from the ceiling as necessary.

Cable trays shall be shall be painted steel or anodized aluminum and installed over all equipment rack spaces, and to the telephone equipment panel, and to any future equipment expansion space in the shelter.

The cable trays shall be installed in a suspended fashion, 12 to 18 inches below the ceiling and shall be bonded to one another and to the shelter interior ground bar and perimeter ground (split

halo) using green insulated #2 AWG stranded copper wire and two-hole long barrel compression lugs.

3.3.17 TELEPHONE BACKBOARD

A telephone backboard (TBB) of dimensions 8-ft high by 4-ft wide and consisting of 3/4-in plywood BC grade shall be installed on the interior wall of the shelter. The TBB shall be painted white with fire-retardant paint.

Two (2) 4-in diameter ports with threaded caps for telephone/fiber cable/alarm cable entry shall be installed beneath the telephone backboard.

A ground bus bar of 12-in in length shall be installed above the telephone backboard and bonded to the interior perimeter ground.

3.3.18 SHELTER ELECTRICAL

The main power shall feed a primary disconnect switch to allow for the manual disconnection of commercial power. The main power shall then be routed to an automatic transfer switch that will switch to emergency generator power in the event commercial power is lost. The load side of the automatic transfer switch shall then feed a manual transfer switch that is connected to an external generator receptacle. The load side of the manual transfer switch shall feed the shelter load center.

All power feeders and branch circuits shall contain an equipment grounding conductor which shall have green colored THWN/THHN insulation or green identifying tape at both ends and which shall be suitably terminated to an equipment ground bus or device screw terminal at both ends.

3.3.19 SHELTER SERVICE SIZE

The Awarded Proposer shall provide a 100-amp, single phase, 120/240V, 32-circuit load center. The load center shall not be rated for less than 100 amp service. The load center shall contain separate, appropriately sized circuit breakers for the HVAC units, DC rectifiers, Surge Protection Device, and as necessary, each major communications equipment component.

3.3.20 SHELTER ELECTRICAL WIRING

All electrical conduits shall be installed in a neat and orderly fashion to provide an aesthetically appealing layout. Symmetry shall be employed throughout. The following is a list of the minimum required outlets:

- A four-plex grounded receptacle group shall be installed on the ceiling at typical 20.5-in intervals corresponding to equipment rack locations. Each of the four-plex groups shall be protected by a separate 20-amp circuit.
- Four (4) 20 amp, 240 VAC circuit drops (6-ft pigtail coil) shall be installed on the ceiling above the cable tray at a location corresponding to the location of the DC power system.

- Four-plex receptacles shall be installed every 4-ft on each wall of the equipment shelters at a level of 4-ft above the floor. The wall receptacle loads shall be protected by a sufficient quantity of 20 amp circuit breakers to meet the requirements of NEC and local electrical codes.
- One (1) 20 amp, exterior GFCI type duplex receptacle shall be provided near the HVAC unit.

3.3.21 ISOLATION TRANSFORMERS

In the event that the electrical service meter or sub-feed panel shall be located more than 50-ft from the communications equipment shelter's main disconnect, then an isolation transformer will be required. The isolation transformer shall be a Square D EE25S3H or equivalent, properly sized to support the equipment shelter electrical service, and shall be located outside the communications shelter as close to the shelters main disconnect as possible.

3.4 STANDBY GENERATOR REQUIREMENTS

Plans and specifications for standby power generators shall be furnished by the Awarded Proposer at all sites to be constructed pursuant to this RFP. Generators shall be mounted on a concrete foundation in accordance with the manufacturers' specifications for weather proofing, shock and vibration mounting, ventilation, cooling, fuel supply, and electrical connections.

It shall be the responsibility of the Awarded Proposer to provide plans and specifications to install and test a complete and operational standby power generator and automatic transfer switch to be supplied pursuant to this RFP.

3.4.1 INSTALLATION

The Awarded Proposer shall provide and install all the electrical wiring necessary to connect the standby emergency power generator, automatic transfer panel, dry contact closure type alarm monitoring points, and equipment shelter electrical loads.

All wiring shall meet or exceed manufacturer specifications for designated load requirements of the equipment to be supported. All wiring shall be run in conduit and meet applicable NEC and local codes. All electrical materials and work shall be inspected and approved by the building inspector with jurisdiction at the site of installation.

3.4.2 DOCUMENTATION

The following documentation shall be supplied to the County for each generator set and transfer switch supplied:

- Specification and data sheets for the exact type and model generator and transfer switch supplied pursuant to this procurement, including all options and accessories
- Manufacturer's certification of prototype testing
- Manufacturer's warranty documents
- Shop drawings showing plan and elevation views of the equipment

- Interconnection wiring diagrams showing all external connections required; with field wiring terminals marked in a consistent point-to-point manner
- Manufacturer's installation instructions
- Operator and maintenance manuals that outline routine maintenance and troubleshooting procedures
- Transfer switches manual and wiring diagram
- The above documentation shall be included in each copy of the as-built documentation delivered to the County's Project Manager

3.4.3 WARRANTY

A no deductible warranty that provides for onsite service by a factory authorized service contractor shall be provided.

3.4.4 STARTUP SERVICE

A factory authorized service representative shall provide initial startup service and shall conduct acceptance testing at each site at which the equipment is installed. Test records shall be furnished to County in both printed and electronic format.

3.4.5 TYPE OF GENERATOR

The generator set equipment, including the engine, alternator, exciter and voltage regulator shall be designed and manufactured by a single source manufacturer who has been regularly engaged in the production of engine-generator sets for a minimum of ten years. Preferred manufactures are Kohler, Cummins and Caterpillar.

This manufacturer shall have a local representative who can provide factory-trained servicemen, required stock of replacement parts, and technical assistance.

The generators shall be driven by an engine that is liquid-cooled and capable of operating on diesel fuel. The engine shall operate at 1800 RPM and be equipped with shutdown devices for overspeed, high coolant temperature, and low oil pressure.

The generator shall be configured for outdoor installation and shall be furnished complete with all accessories and equipment needed for the proper operation of the unit. These shall include, but not be limited to, cabinet housing, starting batteries, battery racks, battery chargers, battery cables, cooling systems, residential grade exhaust silencers with exhaust pipes and rain caps, automatic load transfer controls, electrical surge protection, automatic frequency regulators, vibration isolators, fuel lines, fuel regulators, fuel filter/water separators, fuel storage tanks, conduits, junction boxes, wiring, instrument panels, remote alarm panels mounted inside equipment shelters, mounting bases, and fuel leakage detectors. The generator shall be provided with an engine oil heater.

3.4.6 GENERATOR RATINGS

Output power rating of the generator shall be capable of delivering electrical power output to support the electrical equipment and shelter loads. No generators shall be rated for less than 25kW Standby output power.

3.4.7 ALTERNATOR

The alternator shall be capable of providing the specified power capacity at no less than a 0.8 power factor. The output shall be 60 Hz and commensurate with site requirements.

The alternator shall be directly connected to the engine flywheel housing and driven through a flexible coupling to ensure permanent alignment; gear driven alternators are not acceptable.

The alternator shall be a 105ºC rise model, single-bearing, self-aligning, four-pole, synchronous type and direct drive centrifugal blower for proper cooling and minimum noise, with a temperature compensated voltage regulator and a brushless rotating rectifier exciter system. No brushes will be allowed.

The voltage regulator shall provide no load to full load regulation of rated voltage within ± 2% during steady-state conditions.

Frequency regulation shall be by an electronic isochronous governor (± 0.5%) from steady-state no load to steady-state rated load.

3.4.8 GENERATOR INSTRUMENTATION, CONTROL AND ALARMS

At a minimum, the generator set shall include the following instrumentation:

- Voltmeter
- Frequency Meter
- Running Time Meter
- Fuel Gauge
- Ammeter with Phase Selector Switch
- Oil Pressure Gauge
- Coolant Temperature Gauge

A control box local to the generator set shall be provided containing the start, run, and stop switches for manual operation, and remote control terminals for connection to the automatic load transfer control panel. AC line circuit breakers, commensurate to the electrical interface required at each site, shall be provided.

The generators shall shut down and lock out upon:

- Failure to start (overcrank)
- Over speed
- Low lubricating oil pressure
- High engine temperature

Alarm contacts shall be provided to allow transmission of status on fault alarms for any of the above conditions, plus:

- Control switch not in auto position
- Generator set is running, and when the generator is on-line under load conditions
- Low oil pressure pre-warning
- High coolant temperature pre-warning
- Low engine temperature
- Low battery voltage
- High battery voltage
- Low coolant
- Low fuel, when the tank is less than ¼ full

These alarm contacts shall be wired into and shall be reported by the alarm system being supplied pursuant to this procurement. Form C alarm contacts shall be provided and connected to the alarm system to report loss of AC power, low battery voltage, high battery voltage, and power on.

Meters shall be provided on the generator to indicate output voltage, output current, running time, frequency/RPM.

3.4.9 FUEL SUPPLY

The generator set shall utilize diesel as a fuel source. The Awarded Proposer shall provide an above ground fuel tank and all fuel system piping and regulation equipment sized as required for proper fuel flow to the engine. Proposed fuel systems shall meet all applicable codes, standards, and requirements for such systems.

The tank shall be sized to provide a minimum of 72 hours of continuous operation at 50% rated generator output and shall not be less than 130-gallon water capacity.

The tank shall be installed and anchored in a manner that will prevent it from moving in a flood or storm surge condition. Tank installation and all connections and plumbing to connect the fuel system to the engine shall comply with applicable codes and regulations, and shall comply with NFPA-37 standards. The fuel tank shall be easily accessible for refueling.

A fuel level sensing device shall provide a dry contact closure-type alarm monitoring point for the fuel tanks to issue an alarm when the tank is less than ¼ full.

The Awarded Proposer shall fill the fuel tank prior to and after conducting the acceptance tests.

3.4.10 WEATHER PROOF ENCLOSURE

The generator shall be provided with the manufactures recommended outdoor weatherproof enclosure.

3.4.11 EXHAUST SYSTEM

An exhaust system with a "critical silencer" residential type muffler shall be provided and sized as recommended by the manufacturer. The Awarded Proposer shall mount the muffler so that its weight is not supported by the engine.

A flexible exhaust connection shall be provided as required for connection between the engine's exhaust manifold and the exhaust line, in compliance with applicable codes and regulations.

The Awarded Proposer shall mount and install all exhaust components as recommended by the manufacturer and as required to comply with all applicable codes and regulations. All components shall be properly sized to ensure proper operation without excessive backpressure when installed. The installation shall allow for pipe expansion and contraction.

3.4.12 BATTERY AND CHARGER

A lead acid starting battery rated for the engine type to be supplied shall be furnished and installed with the generator set. This battery shall be float charged by an appropriate sized voltage regulated charger, which is powered by 120 VAC. Float, taper, and equalize charge settings shall be provided.

3.4.13 COOLING SYSTEM

A radiator-cooled engine is required. The radiator shall be filled with a water and coolant mixture in accordance with the engine manufacturer's recommendations. A thermostatically controlled water jacket coolant heater shall be provided and installed in accordance with the manufacturer's recommendations.

3.5 AUTOMATIC TRANSFER SWITCH

An automatic load transfer switch shall be provided to transfer AC load between commercial power and the standby emergency power generator specified herein. The automatic transfer switch shall be sized for proper operation in accordance with the transferred loads.

The transfer switch shall be completely factory assembled and shall contain electronic controls designed for surge voltage isolation, with voltage sensors on all phases of both input power sources. Permanently attached manual control handles shall also be installed on the transfer switch. The switch shall provide positive mechanical and electrical interlocking and mechanically held contacts. Quick-make and quick-break contact mechanisms shall be provided for manual transfer under load.

The transfer switch shall be installed in a key locking, UL listed, NEMA cabinet to be mounted on an outside wall of the equipment shelter. The switch shall be fully wired and integrated with the engine generator set in accordance with local electrical and fire codes.

All transfer switches and accessories shall be U.L. listed and labeled, tested per U.L. Standard 1008 and CSA Approved.

3.5.1 TRANSFER SWITCH SPECIFICATIONS

Transfer switches shall be double-throw, electrically and mechanically interlocked and mechanically held in both positions.

Main switch contacts shall be high-pressure silver alloy. Each contact pole of the main transfer device shall be capable of handling both inductive and non-inductive loads and allow for inrush currents of 20 times the continuous rating. Contact assemblies shall have arc chutes for positive arc extinguishment. Arc chutes shall have insulating covers to prevent interphase flashover. Form C contacts shall be provided in each position for alarm reporting purposes. These contacts shall be connected to the alarm system for reporting transfer status.

The transfer switch shall be rated for continuous operation in ambient temperature ranges of -40 to +50 degrees Celsius. Transfer switches shall be rated to carry 100% of the rated current in the enclosure.

3.5.2 AUTOMATIC CONTROLS

Transfer switch control shall be designed for a high level of immunity to power line surges and transients. The device shall be tested in accordance with IEEE Standard 587-1980 (or latest revision). Controls shall have optically isolated logic inputs, and isolation transformers for AC inputs. Relays shall be installed on all outputs.

Under-voltage sensors shall simultaneously monitor all phases of the standby power source and the commercial power source. Pick up and drop out voltage settings shall be adjustable. Voltage sensors shall allow for adjustment to sense partial loss of voltage on any phase.

Time delayed automatic start up, and transfer to, the emergency power generator system for any of the following conditions:

- Commercial power failure
- Under-voltage condition for any and all phases
- Overvoltage condition for any and all phases
- Over/under frequency condition for any and all phases

Controls shall be provided with over-voltage sensors, adjustable from 100-130% of nominal input voltage to monitor the source. An adjustable time delay shall be provided.

Automatic controls shall signal the engine-generator to start upon signal from normal source sensors. A time delay start, variable from at least zero to 5 seconds, shall be provided to avoid nuisance start-ups. Battery voltage starting contacts shall be gold, dry type contacts, that have been factory-wired to a field wiring terminal block.

The switch shall transfer when the emergency source reaches the set point voltage and frequency. A time delay shall be provided for transfer, which is variable from zero to 120 seconds.

Protection shall be provided for low and high generator voltage and over/under generator frequency. Appropriate sensors shall be provided to ensure that load is not transferred, or that load is disconnected, when these parameters are out of (adjustable) limits.

The switch shall re-transfer the load to commercial power after a time delay. This time delay shall be variable (adjustable) from zero to 30 minutes to avoid short engine run times. The re-transfer time delay shall be immediately bypassed if the emergency generator fails.

The generator shall continue to run after re-transfer in an unloaded condition (engine cool-down) for an adjustable period of approximately five minutes after transfer to commercial power, and then automatically shut down.

Power for transfer operation shall be from the source to which the load is being transferred.

Diagnostic indicators shall be provided to allow the last successful step in the sequence of control functions to be pinpointed. The present status of the control functions shall also be indicated. These functions, at a minimum, shall include:

- Source 1 OK
- Start generator set
- Source 2 OK
- Transfer timing
- Transfer complete
- Retransfer timing
- Retransfer complete
- Timing for stop

3.5.3 FRONT PANEL CONTROL DEVICES

A key operated selector switch shall be provided which will provide the following functions:

- **Test** - to simulate commercial power loss to allow testing of the generator set with or without transfer of the load.
- **Normal** - leaves the switch in its normal operating position
- **Retransfer** - a momentary position, which will provide an override of the retransfer time delay and cause immediate return to the commercial power source (if available).

3.5.4 EXERCISER CLOCK

An exerciser timer shall be provided to periodically operate the generator without user presence or intervention to maintain the reliability of the unit. The timer shall be a user-programmable 168-hour (seven days) clock timer adjustable to day of week, time of day, and duration of exercise period. The timer shall incorporate a selector switch to choose whether the engine-generator exercises with load or without load.

3.6 COMMUNICATION SITE GROUNDING AND BONDING SYSTEMS

3.6.1 GROUND SYSTEM GENERAL REQUIREMENTS

All communications towers, equipment shelters, and communication sites shall be provided with a protective grounding and bonding system for the protection of equipment and personnel. All sites shall have a single point external and internal ground system installed to provide the greatest possible protection against lightning strikes and power faults.

For sites with existing structures and buildings, the Awarded Proposer shall make their best effort to locate a suitable low impedance ground for the interconnection of the protective grounding and bonding system. The connection point shall be approved by the County and should be the main building electrical service ground and/or building structural steel. Site planning shall require that the main electrical service be brought into the shelter at a location as close to the transmission line entry port as practical.

At any site where building structural members are used for grounds, connections to those main structural steel members shall be made with exothermic "Cadweld", Burndy press, or equivalent type connectors. Any paint or fire retardant material shall be scraped away down to bare metal before applying the connector. Surface preparation recommendations of the manufacturer of the exothermic welding process to be used shall be followed.

All connections to equipment room or shelter internal perimeter grounds shall be made as straight as possible with a minimum number of bends. The minimum bending radius of any ground wire shall be 1-ft.

All grounding and bonding conductors shall be as straight as possible with a minimum number of bends. All exterior and underground connections shall utilize the exothermic welding process such as Cadweld. All ground connections that are not exothermically welded shall use two-hole long barrel compression lugs. Connections between dissimilar metals shall not be made unless a material specifically approved for use with the dissimilar metals separates the conductors.

All ground rods shall have a minimum length of 20-ft and a minimum diameter of 5/8-inches. The ground rods shall be located no closer than 20-ft and no farther apart than 40-ft. All ground rods shall be interconnected including the AC electrical service and telephone ground rods, to form a common ground grid system with a resistance of 5 ohms or less. The Awarded Proposer shall be required to modify the grounding system to achieve a ground resistance of 5 ohms or less without chemicals.

The minimum requirements for the quantity of ground rods installed shall be based upon the following:

- At least one ground rod at each corner of all equipment shelters shall be installed
- Self-supporting 3-legged towers shall have a minimum of 3 equally spaced ground rods connected to the tower ground ring
- The top of ground rods shall be 30-in below grade

- Inspection wells with removable lids shall be installed at the following junction points:
- New shelter to tower ground ring bond
- New shelter electrical utility ground location bond
- All ground rods and conductors shall be bonded using an exothermic welding process such as Cadweld

3.6.2 COMMUNICATIONS SHELTER GROUND RING

A ground ring consisting of a #2/0 AWG bare stranded tinned copper wire shall be installed in a trench at a minimum depth of 30-in below final grade at a maximum distance of 3-ft from the foundation of the equipment shelter where the equipment is installed. All exterior and underground connections shall utilize the exothermic welding process such as Cadweld. The ground ring shall be supplemented with copper clad steel ground rods.

3.6.3 COMMUNICATIONS SHELTER INTERNAL GROUND SYSTEM

An internal perimeter ground bus (split halo) shall be installed in all shelters which consists of #2 AWG tinned bare solid copper conductor, running along the perimeter of the room on each interior wall, at a maximum of 6-inches below the ceiling. The perimeter bus shall not form a continuous loop around the room. It shall have an opening of 4-inches on the opposite side of the room from the Harger EPK16 interior master ground bus bar. Insulated mounting standoffs shall be installed to provide a maximum separation of 2-feet to accommodate bends and avoid sag. Standoffs shall provide 1-2-inches of clearance from the wall. Any splices of the interior perimeter ground shall be made with irreversible crimp connections.

All exposed noncurrent carrying metal parts of fixed equipment which could become energized shall be bonded to the internal perimeter ground bus. At a minimum, the following bonding connections shall be made directly to the internal perimeter ground (split halo) using green insulated #2 AWG stranded copper wire.

- Electrical conduits, ventilation louvers and metal ductwork, transmission line pressurization equipment.
- Metal doors shall be grounded to the door frames (using 1-in wide braided copper flexible straps, and door frames shall be bonded to the internal perimeter ground (split halo) with green insulated #2 AWG stranded copper conductor.
- All metal racks and cabinets, including tower lighting cabinets, generator transfer switch cabinet, power panel cabinets, metal conduits, Telco/alarm panel demarcation block cabinet, metal HVAC lead-lag controller cabinets, cable trays, file cabinets, metal desks and other exposed metal surfaces.

The cable trays shall be bonded to one another by #2 AWG copper wire jumpers using two-hole long barrel compression lugs.

All ground connections that are not exothermically welded shall use two-hole long barrel compression lugs. Connections between dissimilar metals shall not be made unless the conductors are separated by a material specifically approved for use with the dissimilar metals.

Star or split lock washers shall be placed under the head of the screws, bolts, or nuts and not between the conductive surfaces of the lug and the metal surface to be bonded. Self-tapping sheet metal screws shall not be used for attaching grounding conductors to any surface. Paint shall be removed from any painted surface before ground connections are made and the appropriate antioxidant compound shall be applied to the connection.

3.6.4 TOWER GROUND RING AND RADIAL GROUND SYSTEM

The new communication towers shall be installed with a tower ground ring consisting of #2/0 AWG tinned bare copper wire installed in a trench at a minimum depth of 30-in below final grade at a maximum distance of 3-ft from the tower foundations. The ground rings shall be supplemented with copper clad steel ground rods and all ground rods shall be interconnected and bonded together to form a common ground grid system.

The tower ground ring shall be supplemented by the addition of three (3) ground radials that extend out in three directions, spaced at approximately 120 degrees apart, from each tower leg ground rod to a minimum distance of 80-feet. Each ground radial shall be supplemented with copper clad steel ground rods.

The minimum requirements for the tower ground ring shall be based upon the following:

- The tower shall have a minimum of three (3) equally spaced ground rods connected to the tower ground ring
- The top of ground rods shall be 30-in below grade
- Inspection wells with removable lids shall be installed at the following junction points:
- New tower ground ring to new shelter ground ring
- Each tower leg grounding tab shall be bonded to the tower ground ring by a #2/0 AWG tinned bare copper conductor be enclosed in non-metallic flex conduit
- The tower top mounted ground rod shall have a #2/0 AWG tinned bare copper conductor "home run" from the lighting rod to the tower ground ring

All grounding connections shall be made as straight as possible with a minimum number of bends. The minimum bending radius of any ground wire shall be 1-ft.

3.6.5 TOWER LEG GROUNDING TAB

Each leg of the tower shall be equipped with a grounding tab for exothermically welding the tower leg grounding conductor to the tower leg. The grounding tabs shall be installed during the manufacture of the tower and prior to the galvanization process, and measure approximately 4-in x 4-in x ½-in thick. The tabs shall be attached to the tower leg at a height of approximately 3-feet above the foundation.

3.6.6 TRANSMISSION LINE GROUND BUS BARS

The Awarded Proposer shall furnish and install a transmission line ground bus bar at the base of each transmission line ladder of the tower where the transmission lines sweep to the transmission line bridge. The ground bars shall be a minimum size of 1/4-in x 4-in x 24-in and shall be of

tinned copper. The ground bus bars shall be insulated from the tower steel and be equipped with an exothermically bonded #2/0 AWG tinned solid copper pigtail which shall be exothermally bonded to the tower ring ground system.

The Awarded Proposer shall install the ground bus bars at a height just below each horizontal transmission line bridge to unable the termination of transmission line ground kits.

3.6.7 TRANSMISSION LINE BRIDGE SECTIONS AND SUPPORT POSTS

The Awarded Proposer shall exothermically bond all transmission line bridge system support posts to the tower ground ring with #2/0 AWG tinned copper wire.

Transmission bridge sections shall be exothermically bonded together and to the support posts.

3.6.8 METALLIC OBJECTS WITHIN THE COMPOUND

All exterior bonding/grounding conductors above grade shall be enclosed in non-metallic flex conduit wherever possible to protect the conductors from damage.

Any metallic object within the fenced compound or within 5-ft of the fenced compound shall be bonded to the ground system. If any object outside the compound is bonded to the ground system, any object within 5-feet of that object shall also be bonded. All bonds shall be made with #2/0 AWG tinned bare copper wire, exothermically bonded to the ground system, and exothermically bonded to the object where practical. At a minimum, the bond to the object shall be a two-hole lug connection. The following items, if applicable, shall be bonded to the exterior ground system:

- Fence posts and gate posts
- Concrete foundations rebar
- Transmission bridge support posts, metallic piping, fence posts, and fencing
- All railings, hand rails, and other metallic structures
- Light posts or external light fixtures
- Any other grounding systems present at the site
- Skid or metal frame of the equipment shelter
- Electrical and Telco service equipment and/or any other metallic shields, conduits, etc.
- HVAC unit cabinets
- Storage tanks within the compound whether above or below ground

3.6.9 FENCE GROUNDING

The security fence shall be bonded to the fence ground ring. A fence ground ring consisting of a #2/0 AWG tinned bare copper wire shall be installed in a trench at a minimum depth of 30-in below final grade at a maximum distance of 1 foot from the fence line to the inside of the compound. Ground attachments to the fence posts shall be exothermic and at each corner and gatepost, at a minimum. At each corner post, a #2/0 AWG tinned bare copper wire shall be bonded to the razor wire and the fence mesh at three locations using split bolts. The mesh shall

be bonded to the copper wire at the top, center, and bottom of the fence and the copper conductor bonded to the exterior ground system.

For all walk through and vehicle gates, a #2/0 AWG tinned bare copper wire shall be installed between the gate posts at a minimum depth of 30-in below grade level.

For all walk through and swinging vehicle gates, a #2/0 AWG stranded welding cable with black insulation shall be exothermically welded and installed between the gates and the gateposts.

The fence ground ring shall be bonded to the tower ground ring radials at the point at which they cross.

3.7 LIGHTNING AND SURGE SUPPRESSION

It is the County's goal to reduce system damage and failure due to strikes or induced currents. At a minimum, the Awarded Proposer shall comply with the surge protection practices depicted in this Section.

All metallic conductors entering the equipment shelter shall be protected with the appropriate surge protection devices. Surge suppressors shall be installed and bonded to the interior ground system as near as possible to the point of entry to the equipment shelter. Surge suppression shall be installed for the following:

- Commercial electrical service
- Tower lighting system – photo cell and lighting conductors
- Telephone, control, data conductors, fuel gauge conductors, etc. shall be protected with suitable surge protection devices
- Any and all metallic conduits entering the equipment shelter shall be bonded to the interior grounding system

3.7.1 TYPE 1 PRIMARY IEEE CATEGORY C AC POWER SPD

The primary AC power surge protection shall be an ANSI C62.41, Category C rated, UL1449 3rd Edition, Type 1, AC power Surge Protection Device (SPD) as required by this RFP. The SPD shall be Advanced Protection Technologies (APT), Model TE01XAS15E1XD-W2, or approved equivalent. The SPDs shall include large, 50kA Metal Oxide Varistors (MOVs), exceeding 32 mm in diameter. The MOVs shall be configured to provide 100kA minimum protection for L-N and 50kA protection for L-G. Each MOV shall include a thermal safety disconnector(s). The SPD Short Circuit Current Rating (SCCR) shall equal or exceed 100 kA or the available short circuit current, whichever is higher. The Awarded Proposer shall ground the SPD using a #2 AWG green-jacketed jumper bonded to the SPD and connected to the exterior shelter ground ring. The Awarded Proposer shall install the devices in such a manner as to ensure that no connector wire lengths exceed 10-in and to permit the replacement of protectors in a safe, convenient, and quick manner. The Type 1 SPD shall be installed on the line side of the Main AC Disconnect.

For substitute product approval, the Awarded Proposer shall submit a certified, signed and sealed statement from a Florida Registered Professional Engineer that the device meets or exceeds all requirements of this section.

The SPD shall use field replaceable, modular technology. Every MOV's operational status shall be monitored via visual indicator. SPD shall include one set of Normally Open/Normally Closed Form C dry contacts for remote monitoring.

The Awarded Proposer shall provide a spare MOV module with each Primary AC Power SPD.

3.7.2 TYPE 1 SECONDARY IEEE CATEGORY C AC POWER SPD

The secondary AC power surge protection shall be an ANSI C62.41, Category C rated, UL1449 3rd Edition, Type 1, AC power SPD as required by this RFP. The SPD shall be Advanced Protection Technologies (APT), Model TE01XDS104XA-W2, or approved equivalent.

The SPDs shall include directly connected MOVs exceeding 32 mm in diameter from L-N and L-G. Each MOV shall include a thermal safety disconnector(s). The SPD SCCR shall equal or exceed 100 kA or the available short circuit current, whichever is higher. The Awarded Proposer shall ground the SPD using a #2 AWG green-jacketed jumper bonded to the SPD and connected to the interior perimeter halo ground. The Awarded Proposer shall install the devices in such a manner as to ensure that no connector wire lengths exceed 10-in and to permit replacement of protectors in a safe, convenient, and quick manner. The Type 1 SPD shall be installed on a 40-amp breaker on an open space in the load distribution center.

For substitute product approval, the Awarded Proposer shall submit a certified, signed and sealed statement from a Florida Registered Professional Engineer that the device meets or exceeds all requirements of this section.

The SPD shall use field replaceable, modular technology. Every MOV's operational status shall be monitored via visual indicator. The SPD shall include one set of Normally Open/Normally Closed Form C contacts for remote monitoring.

The Awarded Proposer shall provide a spare MOV module with each Primary AC Power SPD.

3.7.3 TOWER LIGHTING CONTROLLER SPD

The tower lighting Surge Protection Device system shall be based on ANSI/IEEE C62.41 and UL 1449 3rd Edition. The SPD system shall provide a single common reference to ground to protected tower light circuits. Low voltage and photocell SPDs shall be UL 497B Listed. The SPDs shall be Advanced Protection Technologies (APT) TWL Series appropriate for the tower lighting system specified.

The tower light controller SPD shall be the APT TWL series model appropriate for the protection of the tower light controller as specified in this RFP. The tower lighting system SPDs shall be ANSI C62.41 and UL 1449 3rd Edition. If the SPD unit is modular, then either the entire unit or each module may satisfy these criteria. All 120-500V (AC or DC) surge protection shall be Type 1 SPDs. All 12-24V (AC or DC) surge protection shall be Type 2 SPDs, at a minimum.

The Awarded Proposer shall mechanically connect the tower light controller SPD to the equipment shelter halo copper ground. The SPD shall be configured to protect all tower light lines (all markers, strobes, beacons, and photoelectric control device) entering the tower light controller.

The SPDs shall be installed in such a manner as to ensure that the ground connector wire length does not exceed 10-in, and permits replacement of these protectors in a safe, convenient manner.

3.8 FENCING

The Awarded Proposer shall furnish and install an 8-ft high, commercial grade chain-link fence with concertina razor wire above the 8-ft level. The fence shall be constructed with a two-section, 12-ft wide gate for vehicular access near the base of the tower to facilitate the installation of new antenna systems.

Line posts, rails and braces shall be galvanized steel and shall conform to the requirements of ASTM F1083 and ASTM F1043. The fence posts shall be spaced no more than 10-ft apart and shall be set in concrete which shall be of a commercial grade with a minimum 28-day compressive strength of 2500 psi and bonded to the site grounding system using an exothermic welding process.

For guyed tower installations, the same fencing shall be provided around all guy anchor points.

3.9 SITE LANDSCAPING

The Awarded Proposer shall be responsible for landscape grading, seeding, and mulching of the disturbed soil. If planning authorities require foliage screening or other plantings at the tower sites, the Awarded Proposer shall arrange for professional planting of the required species and quantities of trees or shrubs.

The Awarded Proposer shall restore the site to its original condition following construction and installation activities.

3.10 WEED BARRIER

The Awarded Proposer shall furnish and install weed prevention material covering the newly fenced area around the base of the new tower. The weed prevention material shall be 6 mm plastic sheet.

For guyed tower installations, the same weed barrier shall be provided around all guy anchor points.

3.11 COMPOUND GRAVEL

The Awarded Proposer shall furnish and install number 57 limestone 4 to 6 inches deep throughout the newly fenced area.

For guyed tower installations, the same compound gravel shall be provided around all guy anchor points.

3.12 TOWER AND FACILITIES INSPECTION AND TESTING

All equipment and installation services provided under the requirements of this RFP shall be inspected for compliance to the standards of good engineering practice, all Federal, State, County, and County regulations and codes, and all building codes and ordinances in effect at the sites delineated in this RFP. Particular attention shall be paid to:

- All installation work performed in a neat and professional manner in compliance with manufacturer's recommendations
- All fasteners and hardware tightened and properly torqued
- Site free of debris and excavations backfilled, compacted, and restored
- Interior and exterior ground systems properly installed and bonded
- All SPD devices are appropriate and properly installed and bonded
- All alarms, circuits, and outlets properly labeled

3.12.1 SITE TESTS

In addition to the foregoing detailed inspection, the following tests shall be performed on the appropriate equipment or structure. Any equipment not meeting the requirements of this RFP included anywhere in this document, shall be immediately repaired or replaced by the Awarded Proposer.

These tests shall include, but not be limited to:

- Ground resistance testing using triangulation method and approved test equipment
- Generator testing under full load
- Transfer switch operation to demonstrate loss of commercial power, operation of generator unit, and restoration of commercial power
- Proper operation of site alarms
- Power distribution panel circuit verifications
- Proper installation of all lighting (building and tower) and associate switches and controls
- Proper installation and operation of all timers, thermostats and HVAC systems including cycling of unit
- Proper installation of fire detectors and fire extinguishers

3.12.2 EARTH GROUND SYSTEM RESISTANCE TEST

The Proposer shall develop and furnish to the County their electrical grounding system with plan drawings that depict their proposed grounding system including test wells.

The new communication site ground system shall be measured by a ground resistance test instrument **prior to connection to any existing site grounds, the tower structure, fencing and utility service**, and a detailed written report of the results shall be provided to the County that also depicts the measurement at the specific location. The report shall include details of the instrumentation (model, serial and date of last calibration) and local conditions (wet, dry, temp. etc.)

If local soil conditions do not allow a ground resistance of 5 ohms or less to be achieved by the grounding system requirements of this RFP, the Awarded Proposer shall notify the County in writing and discuss possible enhancements to achieve a ground resistance of 5 ohms or less.

3.12.3 GENERATOR SYSTEM TESTING

The complete installation shall be initially started and checked out for operational compliance by factory-trained representative(s) of the engine-generator set manufacturer. The engine lubrication oil, as recommended by the manufacturer for operation under environmental conditions specified, shall be provided by the Awarded Proposer.

Upon completion of initial start-up and system checkout, the Awarded Proposer shall perform a field test of at least one (1)-hour to demonstrate full load carrying capability, and voltage and frequency stability, with the County notified in advance. Written certification shall be provided attesting to proper installation and operation. Three (3) hard copies and one (1) soft copy of the test results shall be delivered to the County.

3.12.4 THIRD PARTY TOWER INSPECTION

The County has contracted with a third party Professional Engineering firm (separately from this RFP) that will do an "as-built" inspection of each tower upon the Awarded Proposer's notice of completion. This third party inspection must be completed with satisfactory results before the County will convey final acceptance of the towers to the Awarded Proposer.

3.13 SITE SPECIFIC TASKS

The following tasks are unique to each of the sites mentioned in the following sections of this RFP.

3.13.1 EOC

The Awarded Proposer shall provide and install two (2) 4-in conduits from the new communications shelter to the existing communication room at the EOC building.

3.13.2 CCSO

The Awarded Proposer shall provide and install two (2) 4-in conduits stubbed from the new communications shelter to in ground hand-hole outside the fence line of the new communications compound.

3.13.3 DEEP CREEK

At the completion of the construction of the new tower and the complete transition of the County to the new P25 communication systems, the Awarded Proposer shall be responsible for the demolition and removal of the tower structure, the associated foundations, transmission bridges and all other ancillary systems that are no longer needed at the Deep Creek communications site. Foundations including guy point anchors shall be removed to a depth of 1-ft below finished grade.

3.13.4 LULU

The existing fenced compound will be reused and shall be expanded at the Lulu site. The Awarded Proposer shall remove and reuse the existing fence and double gate on the south side of the existing tower to the extent that makes economic sense. This portion of the fence shall be used to extend the existing fence line furthest from the building in a straight line approximately 20-ft. The proposer shall then install new fencing material to match the existing fence back to the building. The Proposer shall remove the existing three rows of barbwire from the top of the fence and replace with concertina wire as specified in Section 3.8.

3.14 OPTIONAL GREENFIELD SITE

The Proposer shall provide turnkey pricing for an optional new greenfield communications site. The Proposer shall assume that a "construction ready" site would be provided by the County.

The greenfield site would consist of a 60-ft x 60-ft fenced communications compound, a 300-ft guyed tower, a 12-ft x 12-ft communications shelter, a 25kW diesel generator, and a grounding and bonding system, all as specified in the previous sections of this RFP. The Proposer shall use the tower loading table for EOC tower as a basis for the design of the greenfield site tower structure.

4. WARRANTY

The Awarded Proposer shall be the single point of contact for all warranty related claims.

The following requirements apply to equipment, manufacturing, structural and hardware, foundations, workmanship, and other services that are provided by the Awarded Proposer or fall within this RFP. Proposers shall provide a copy of the provisions and terms of the proposed warranty in compliance with applicable state and local codes.

The Awarded Proposer shall warrant that all equipment including tower lighting systems, hardware, manufacturing, workmanship, and other services performed and provided by the Awarded Proposer as part of this project conform to the specifications provided within this RFP or the manufacturer's published specifications, whichever is most stringent, and that it shall be free from defects in corrosion protection, materials, functionality, and workmanship for a minimum period of two (2) years from the date of County final acceptance of the project.

All OEM warranties, such as extended tower structure and corrosion protection warranties from the manufacturer, shall pass through to the County and the warranty period for any given piece of OEM equipment will not begin until the County’s final acceptance of the project.

Warranty repairs for all Awarded Proposer-furnished equipment and services performed shall be made at no cost for parts or labor during the warranty period.

5. PRICING CONSIDERATIONS

5.1 PRICING FORMAT

All pricing worksheets shall be submitted by the Proposer in a separate sealed envelope along with the technical proposal. The Proposer **shall not** include any pricing information in their technical proposal (Sections 1 – 5 as detailed in Section 2.13 of this RFP).

The pricing worksheets are included to provide an overall approach to pricing. The following guidelines shall be followed when developing the price proposal:

- Pricing shall be to the equipment level depicted in the Pricing Worksheets.
- Proposers shall complete all Pricing Worksheets
- Proposers may add additional lines to the Pricing Worksheets to include additional detail if desired.

5.1.1 PRICING WORKSHEETS

Communications Site Development Project Pricing Worksheet Summary	
Site of Work	**Total Costs**
EOC	
Deep Creek	
CCSO	
Lulu	
BONDING	
SUBTOTAL	
Discounts or Trade-Ins	
PROJECT TOTAL	

Pricing Worksheet EOC			
Equipment and Services	**Quantity**	**Unit Cost**	**Extended Cost**
Pay for and obtain all construction permits as required by federal, state, county and local governments	1		
Furnish and install a new 12-ft x 12-ft communications shelter	1		
Furnish and install a new 300-ft self-supporting tower	1		
Furnish and install tower foundations	1		
Furnish and install antenna mounting hardware and waveguide bridge	1		
Furnish and install a new electrical service	1		
Furnish and install (2) 4-in conduits as specified	1		
Furnish and install new emergency power generator	1		
Civil site work as required	1		
Furnish and install a new fenced compound with weed barrier and gravel base	1		
Furnish and install tower, compound and shelter grounding systems	1		
Perform and complete all system testing as required by this RFP	1		
Project Management and Construction Oversight	1		
		SUBTOTAL	
		Discounts or Trade-Ins	
		SITE TOTAL	

Pricing Worksheet Deep Creek			
Equipment and Services	**Quantity**	**Unit Cost**	**Extended Cost**
Pay for and obtain all construction permits as required by federal, state, county and local governments	1		
Furnish and install a new 12-ft x 12-ft communications shelter	1		
Furnish and install a new 300-ft guyed tower	1		
Furnish and install tower foundations	1		
Furnish and install antenna mounting hardware and waveguide bridge	1		
Furnish and install a new electrical service	1		
Furnish and install a new emergency power generator	1		
Civil site work as required	1		
Furnish and install a new fenced compound with weed barrier and gravel base	1		
Furnish and install tower, compound and shelter grounding systems	1		
Perform and complete all system testing as required by this RFP	1		
Remove and dispose of existing 300-ft guyed tower	1		
Project Management and Construction Oversight	1		
		SUBTOTAL	
		Discounts or Trade-Ins	
		TOTAL BASE PRICE	

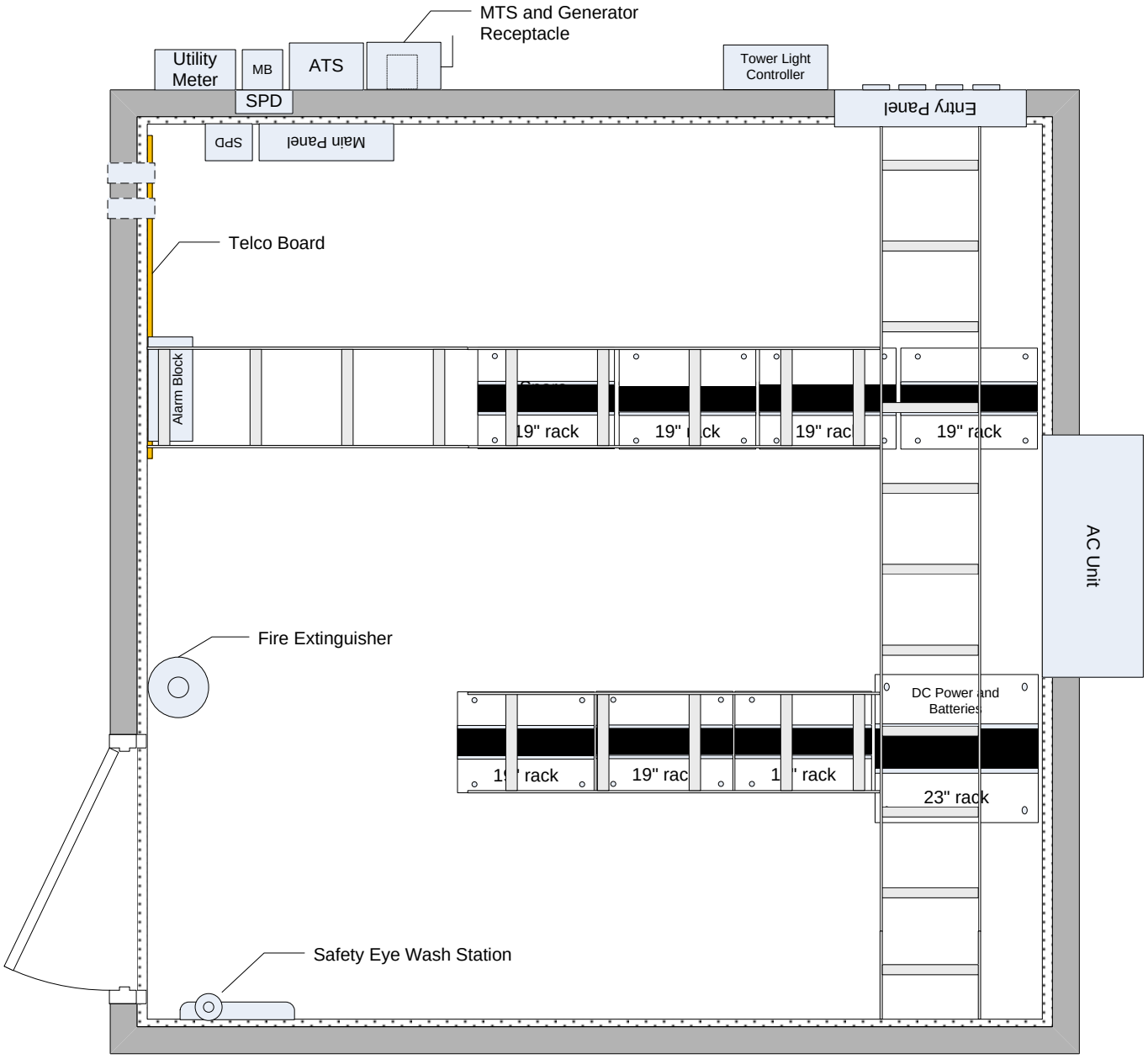
Pricing Worksheet Deep Creek Alternate Self-Supporting Tower			
Equipment and Services	**Quantity**	**Unit Cost**	**Extended Cost**
Furnish and install a new 300-ft self-supporting tower	1		
Furnish and install tower foundations	1		
		SUBTOTAL	
		Discounts or Trade-Ins	
		TOTAL ALTERNATE TOWER PRICE	

Pricing Worksheet CCSO			
Equipment and Services	**Quantity**	**Unit Cost**	**Extended Cost**
Pay for and obtain all construction permits as required by federal, state, county and local governments	1		
Furnish and install a new 12-ft x 12-ft communications shelter	1		
Furnish and install a new 155-ft self-supporting tower	1		
Furnish and install tower foundations	1		
Furnish and install antenna mounting hardware and waveguide bridge	1		
Furnish and install a new electrical service	1		
Furnish and install (2) 4-in conduits as specified	1		
Furnish and install a new emergency power generator	1		
Civil site work as required	1		
Furnish and install a new fenced compound with weed barrier and gravel base	1		
Furnish and install tower, compound and shelter grounding systems	1		
Perform and complete all system testing as required by this RFP	1		
Project Management and Construction Oversight	1		
		SUBTOTAL	
		Discounts or Trade-Ins	
		TOTAL BASE PRICE	

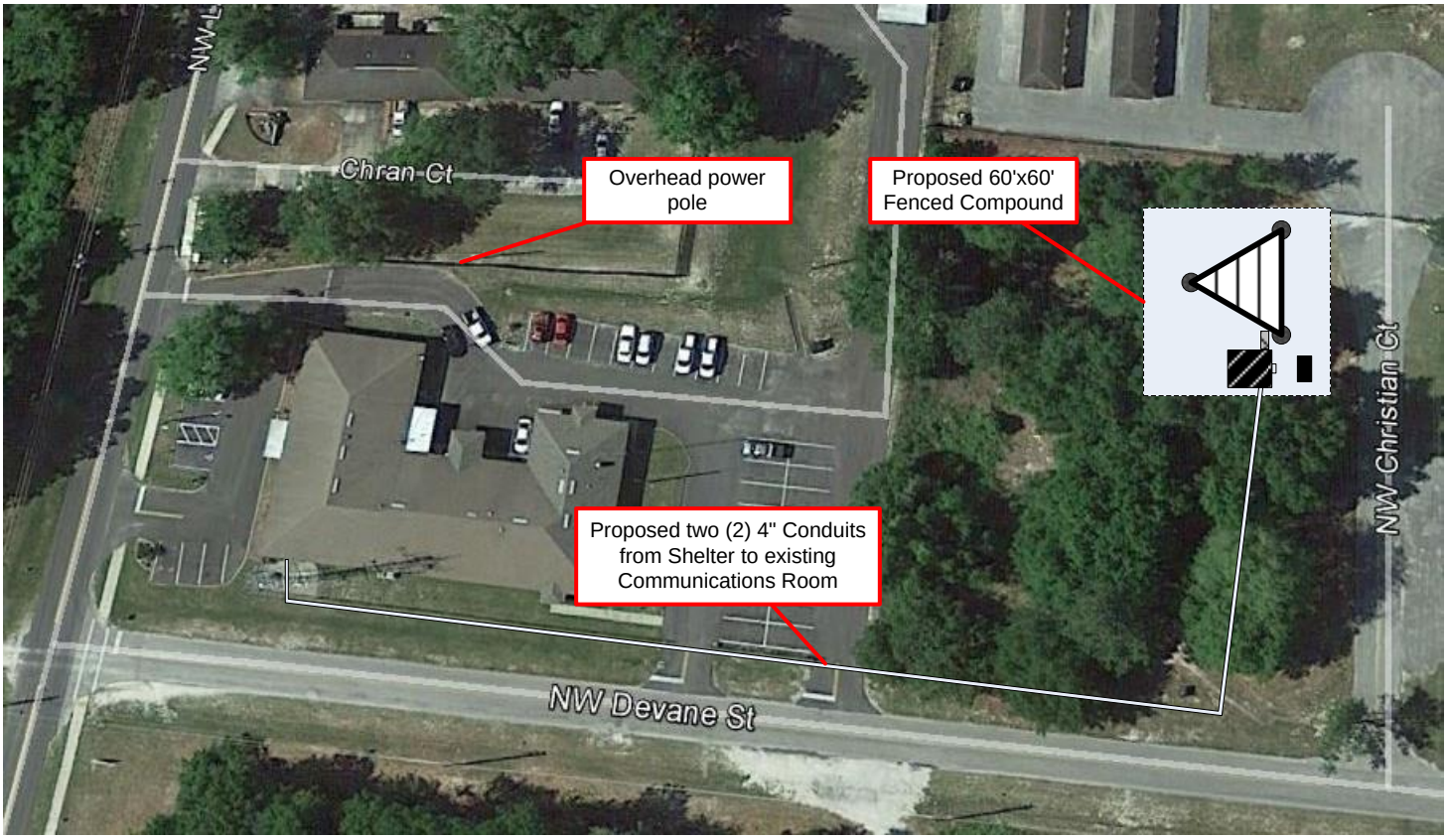
Pricing Worksheet Lulu			
Equipment and Services	**Quantity**	**Unit Cost**	**Extended Cost**
Pay for and obtain all construction permits as required by federal, state, county and local governments	1		
Furnish and install a new 12-ft x 12-ft communications shelter	1		
Furnish and install a new waveguide bridge to existing tower	1		
Furnish and install a new electrical service	1		
Furnish and install a new emergency power generator	1		
Civil site work as required	1		
Furnish and install a new fenced compound with weed barrier and gravel base	1		
Furnish and install compound and shelter grounding systems	1		
Perform and complete all system testing as required by this RFP	1		
Project Management and Construction Oversight	1		
		SUBTOTAL	
		Discounts or Trade-Ins	
		SITE TOTAL	

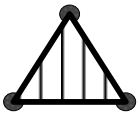
Pricing Worksheet Optional Greenfield Site			
Equipment and Services	**Quantity**	**Unit Cost**	**Extended Cost**
Pay for and obtain all construction permits as required by federal, state, county and local governments	1		
Furnish and install a new 12-ft x 12-ft communications shelter	1		
Furnish and install a new 300-ft guyed tower	1		
Furnish and install tower foundations	1		
Furnish and install antenna mounting hardware and waveguide bridge	1		
Furnish and install a new electrical service	1		
Furnish and install a new emergency power generator	1		
Civil site work as required	1		
Furnish and install a new fenced compound with weed barrier and gravel base	1		
Furnish and install tower, compound and shelter grounding systems	1		
Perform and complete all system testing as required by this RFP	1		
Project Management and Construction Oversight	1		
		SUBTOTAL	
		Discounts or Trade-Ins	
		SITE TOTAL	

6. APPENDIX A – CONCEPTUAL DRAWINGS

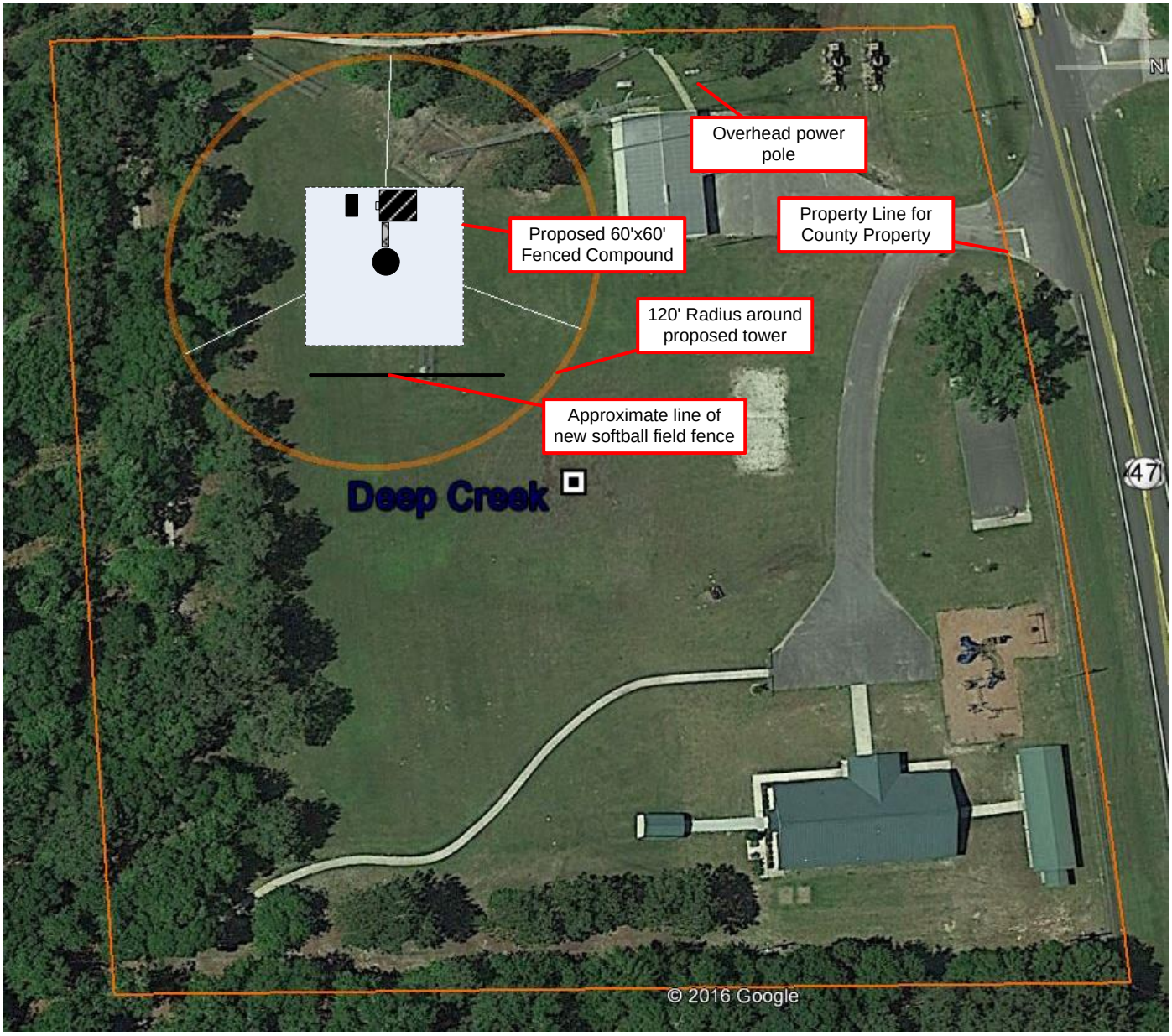


SIZE: 1	Last Date Edited: 8/1/2016	Drawing Title: Conceptual 12'x12' Shelter Floor Plan Layout	REV: 0
SCALE: 1/2"	DWG #: Shelter Floor Plan	PAGE: 1	C:\Users\chris monzingo\Google Drive\Clients\ Columbia County\P25 System Upgrade\Phase 1 Site Development\Drawings\Shelter Floor Plan Columbia.vsd



	New 300' self-supporting tower per specifications		New 12' x 12' communications shelter per specifications
	New waveguide ice bridge as required per specifications		New diesel generator per specifications

SIZE	Last Date Edited	Drawing Title	REV	
1	8/2/2016	Conceptual Site Layout EOC	0	C:\Users\chris monzingo\Google Drive\Clients\ Columbia County\P25 System Upgrade\Phase 1 Site Development\Drawings\EOC Site Layout.vsd
SCALE	N/A	DWG # Site Layout	PAGE 2	



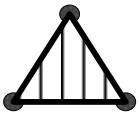
●	New 300' guyed tower per specifications	▨	New 12' x 12' communications shelter per specifications
▬	New waveguide ice bridge as required per specifications	■	New diesel generator per specifications

OCG omnicom consulting group

SIZE	Last Date Edited	Drawing Title	REV
1	8/2/2016	Conceptual Site Layout Deep Creek	0

SCALE	DWG #	PAGE
N/A	Site Layout	3

C:\Users\chris monzingo\Google Drive\Clients\Columbia County\P25 System Upgrade\Phase 1 Site Development\Drawings\Deep Creek Site Layout.vsd

	New 155 self-supporting tower per specifications		New 12' x 12' communications shelter per specifications
	New waveguide ice bridge as required per specifications		New diesel generator per specifications

SIZE 1	Last Date Edited 8/2/2016	Drawing Title Conceptual Site Layout CCSO	REV 0	C:\Users\chris monzingo\Google Drive\Clients\ Columbia County\P25 System Upgrade\Phase 1 Site Development\Drawings\CCSO Site Layout.vsd
SCALE N/A	DWG # Site Layout	PAGE 4		

●	Existing 150' monopole tower to remain	▨	New 12' x 12' communications shelter per specifications
▬	New waveguide ice bridge as required per specifications	■	New diesel generator per specifications

SIZE 1	Last Date Edited 8/2/2016	Drawing Title Conceptual Site Layout Lulu		REV 0
SCALE N/A	DWG # Site Layout		PAGE 5	C:\Users\chris monzingo\Google Drive\Clients\ Columbia County\P25 System Upgrade\Phase 1 Site Development\Drawings\Lulu Site Layout.vsd

7. CCSO FAA DETERMINANTAION

Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
2601 Meacham Boulevard
Fort Worth, TX 76193

Aeronautical Study No.
2013-ASO-9848-OE

Issued Date: 09/12/2014

Billy Hall
Columbia County Sheriff's Office
4917 E US HWY 90
Lake City, FL 32055

**** 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 TBD
Location:	Lake City, FL
Latitude:	30-11-28.80N NAD 83
Longitude:	82-33-24.10W
Heights:	188 feet site elevation (SE)
	163 feet above ground level (AGL)
	351 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is marked/lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, paint/red lights - Chapters 3(Marked),4,5(Red),&12.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

__X__ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

Any height exceeding 163 feet above ground level (351 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 03/12/2016 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.

(b) extended, revised, or terminated by the issuing office.

(c) 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.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before October 12, 2014. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager, Airspace Regulations & ATC Procedures Group, Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591.

This determination becomes final on October 22, 2014 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Regulations & ATC Procedures Group via telephone -- 202-267-8783 - or facsimile 202-267-9328.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

A copy of this determination will be forwarded to the Federal Communications Commission (FCC) because the structure is subject to their licensing authority.

If we can be of further assistance, please contact Michael Blaich, at (404) 305-7081. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2013-ASO-9848-OE.

Signature Control No: 200177841-229144278 (DNH)
John Page
Manager, Obstruction Evaluation Group

Attachment(s)
Additional Information
Frequency Data
Map(s)

cc: FCC

Proposal: To construct an Antenna Tower to a height of 163 feet above ground level (AGL), 351 feet above mean sea level (AMSL).

Location: The structure will be located approximately 1.19 nautical miles (NM) northeast of the Lake City Gateway Airport (LCQ) reference point.

Federal Aviation Regulations, FAR Part 77 Obstruction Standard(s) Exceeded:

Section 77.19(d) LCQ - RWY 23: Approach Surface --- > Exceeds by 14 feet.

Section 77.17(a)(3) - a height that increases minimum instrument flight altitudes within a terminal area (TERPS criteria). A structure that causes less than the required obstacle clearance within a terminal obstacle clearance area, including an initial approach segment, a departure area, and a circling approach area resulting in increases to an IFR terminal minimum altitude.

Obstacle penetrates RWY 5 Initial Climb Area (ICA) by 31 feet requiring TAKE-OFF MINIMUM AND (OBSTACLE) DEPARTURE PROCEDURES, RWY 5, 300-1 (Ceiling-Visibility) or Standard with a minimum climb gradient of 343 feet per NM until reaching 500.

This increase is not considered substantial. However, the proponent is required to give at least 10 days prior notice of construction so that the appropriate action may be taken to revise aeronautical charts.

An aeronautical study for Visual Flight Rules (VFR) disclosed that the proposed structure would not affect VFR navigation. The proposed structure would have to exceed 500 feet Above Ground Level (AGL) to penetrate the vertical confines of any VFR route.

The proposed structure was found to have no substantial adverse effect on the VFR traffic patterns in the vicinity of the site.

Details of the proposed structure were circularized to the aeronautical public for comment. One letter of objection was received during the comment period. The objection can be summarized as objecting to the structure because it would exceed obstruction standards at Lake City Gateway Airport (LCQ), located in Lake City, FL, affect arrival and departure procedures, and be in violation of the Grant Assurances with the state of Florida Department of Aviation.

Aeronautical Study Number 2013-ASO-9848-OE was originally put out for circularization (further study) at a height of 190 feet (site elevation=SE), 220 feet (above ground level=AGL), 410 feet (above mean sea level=AMSL). After the comment period, the proponent provided the FAA with a certified "1A" survey (which lowered the SE from 190 feet to 188 feet) and agreed to lower the proposed AGL from 220 feet to 163. This now made the AMSL as 351 feet.

Part 77 Obstruction Standards are used to screen the many proposals submitted in order to identify those which warrant further aeronautical study in order to determine if they would have significant adverse effect on protected aeronautical operations. While the obstruction standards trigger formal aeronautical study, including circularization, they do not constitute absolute or arbitrary criteria for identification of hazards to air

navigation. Accordingly, the fact that a proposed structure exceeds an obstruction standard of Part 77 does not provide a basis for a determination that the structure would constitute a hazard to air navigation.

By providing the certified "1A" survey and lowering the height of the proposed antenna tower, no arrival procedures at LCQ are affected, the departure procedure penetration to LCQ RWY 5 ICA was reduced from 90 feet to 31 feet and the minimum climb gradient reduced from 445 feet per NM to 343 feet per NM, removed any penetration to the LCQ airport horizontal surface area and VFR Traffic Pattern, does not exceed "A2" and penetration to the LCQ approach surface was reduced from 74 feet to 14 feet.

Violations of Grant Assurances are not within the scope of this study and are not considered in aeronautical studies.

The impact on arrival, departure, and en route procedures for aircraft operating under VFR/IFR conditions at existing and planned public use and military airports, as well as aeronautical facilities, was considered during the analysis of the structure. The aeronautical study disclosed that the proposed structure would have no substantial adverse effect upon any terminal or en route instrument procedure or altitude.

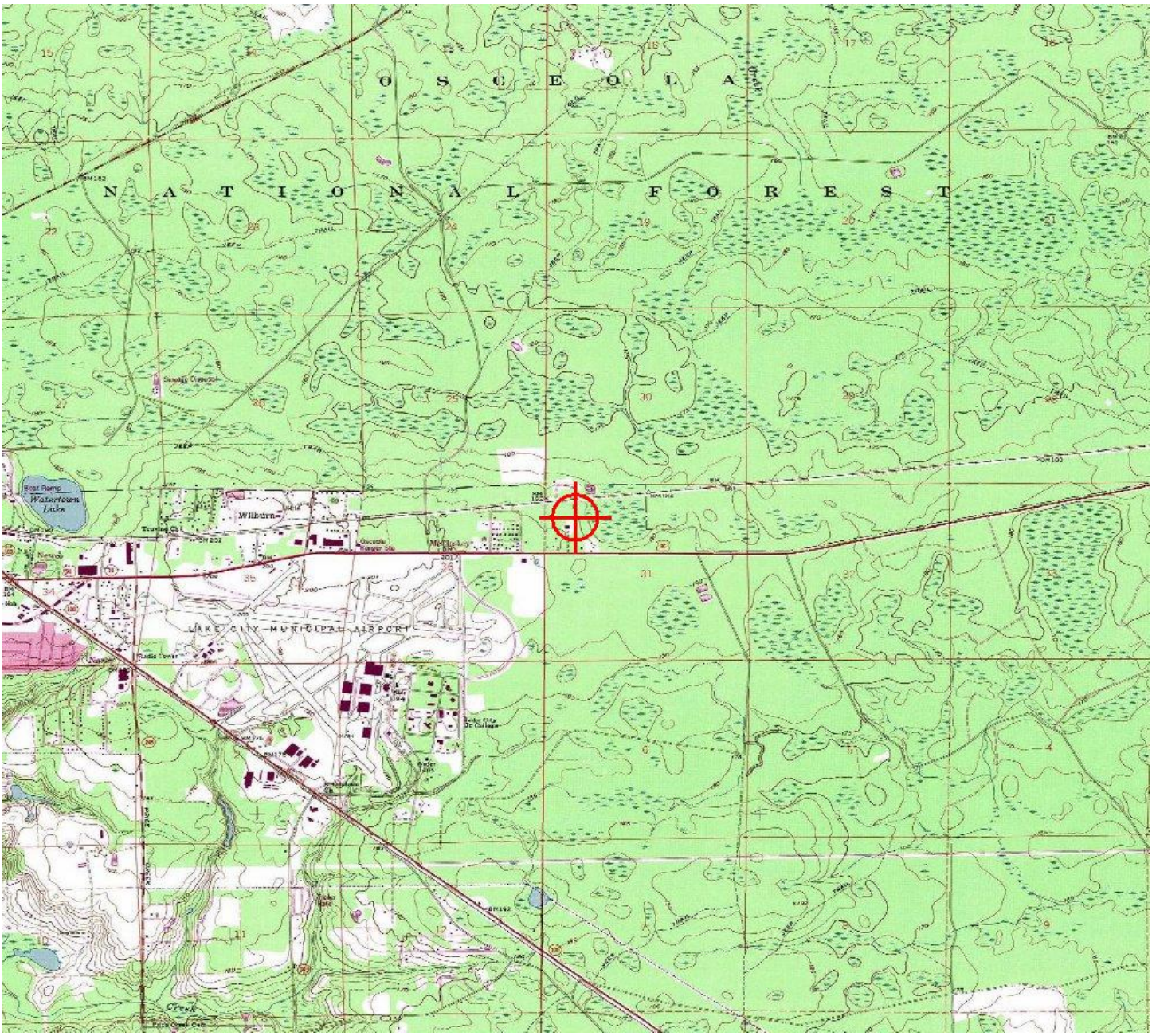
The cumulative impact (IFR/VFR) resulting for the structure, when combined with the impact of other existing or proposed structures was considered and found to be acceptable.

Therefore, it is determined that the proposed structure would not have a substantial adverse effect upon the safe and efficient utilization of the navigable airspace by aircraft or on any navigation facility and would not be a hazard to air navigation.

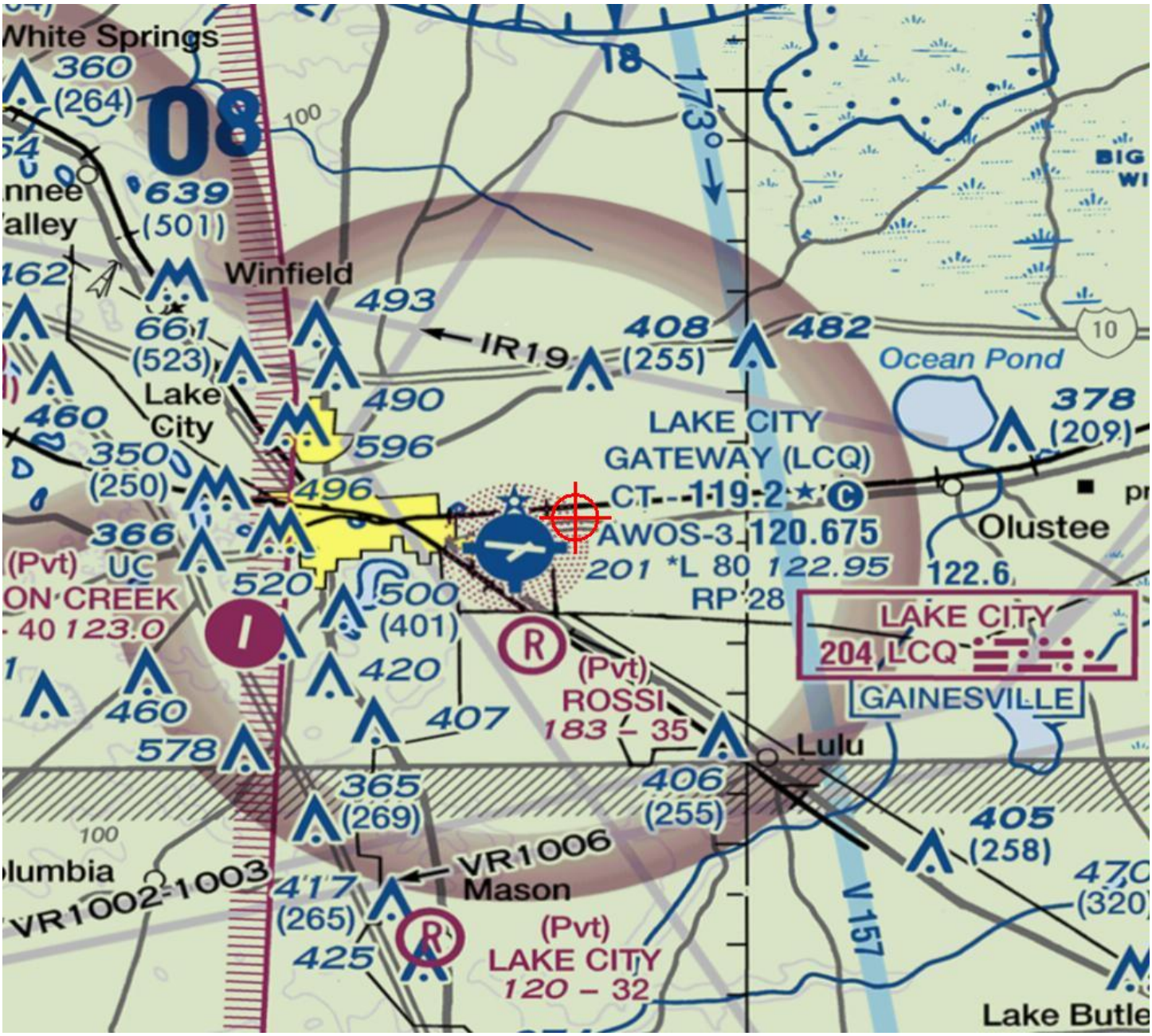
Frequency Data for ASN 2013-ASO-9848-OE

LOW FREQUENCY	HIGH FREQUENCY	FREQUENCY UNIT	ERP	ERP UNIT
851	853	kHz	100	W

TOPO Map for ASN 2013-ASO-9848-OE



Sectional Map for ASN 2013-ASO-9848-OE



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2013-ASO-9848-OE

Issued Date: 03/07/2016

Anthony Craig
Columbia County Sheriff's Office
4917 E US HWY 90
Lake City, FL 32055

**** Extension ****

A Determination was issued by the Federal Aviation Administration (FAA) concerning:

Structure:	Antenna Tower TBD
Location:	Lake City, FL
Latitude:	30-11-28.80N NAD 83
Longitude:	82-33-24.10W
Heights:	188 feet site elevation (SE)
	163 feet above ground level (AGL)
	351 feet above mean sea level (AMSL)

In response to your request for an extension of the effective period of the determination, the FAA has reviewed the aeronautical study in light of current aeronautical operations in the area of the structure and finds that no significant aeronautical changes have occurred which would alter the determination issued for this structure.

This extension is subject to review if an interested party files a petition that is received by the FAA on or before April 06, 2016. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager, Airspace Policy & Regulation, Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591.

This extension becomes final on April 16, 2016 unless a petition is timely filed. If so, this extension will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review.

Accordingly, pursuant to the authority delegated to me, the effective period of the determination issued under the above cited aeronautical study number is hereby extended and will expire on 09/07/2017 unless otherwise extended, revised, or terminated by this office. You must adhere to all conditions identified in the original determination.

This extension issued in accordance with 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerns the effect of the structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this extension will be forwarded to the Federal Communications Commission (FCC) because the structure is subject to their licensing authority.

If we can be of further assistance, please contact our office at (404) 305-6462. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2013-ASO-9848-OE.

Signature Control No: 200177841-284048916 (EXT)
Michael Blaich
Specialist

cc: FCC

From: noreply@faa.gov
To: Anthony Craig; Anthony Craig
Subject: Status of FAA Filing
Date: Monday, March 07, 2016 11:27:52 AM

Your filing is assigned Aeronautical Study Number 2013-ASO-9848-OE.

The FAA has considered your request for an extension and it has been granted. Please review the letter and adhere to all conditions. If you require additional assistance, please contact Michael Blaich via phone: (404) 305-6462 or email: mike.blaich@faa.gov. Please refer to the assigned ASN on all future inquiries regarding this filing.

To review your electronic record, go to our website oeaaa.faa.gov and select the Search Archives link to locate your case using the Aeronautical Study Number (ASN). Copies of your letter are available on the website for your convenience.

To ensure e-mail notifications are delivered to your inbox please add noreply@faa.gov to your address book. Notifications sent from this address are system generated FAA e-mails and replies to this address will NOT be read or forwarded for review. Each system generated e-mail will contain specific FAA contact information in the text of the message.