

ATTACHMENT A

Statement of Work

ATTACHMENT A – STATEMENT OF WORK

Bid Number:		Site Name:	Signal Tree	Site Number:	F70612
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SECTION 1: PURPOSE

This project is to upgrade the existing Signal Tree Communication site and improve the microwave connection. Work will include installing microwave related equipment, ice bridge, HVAC, exterior generator, propane tank with foundation, upgrade fence, ATS, underground conduits, backup batteries, rectifier, and grounding.

SECTION 2: STATEMENT OF WORK

1. Submittals

- A. Upon completion, signing and approval of the Contract, the Contractor must submit a detailed project schedule, all product data sheets, work plans, and any mix or shop drawings for the Owner's approval before the Owner will issue the Notice to Proceed.
- B. Contractors shall develop and maintain a submittal log demonstrating the submittal and review status of all products, shop drawings, and mix designs.
- C. Product data sheets shall be submitted for each pre-manufactured product used on the project. Product data sheets can be submitted with other products that are a part of the related Specification Section. Each product must be listed as a separate line item and must receive approval from the Owner.
- D. Shop drawings shall be submitted for each custom manufactured work element. Shop drawings can be submitted with other shop drawings that are a part of the related Specification Section but each shop drawing must be listed as a separate line item and must receive approval from the Owner.
- E. Mix designs shall be submitted for each specialty designed product used on the project. Mix designs can be submitted with other mix design products that are a part of the related Specification Section. Each mix design product must be listed as a separate line item and must receive approval from the Owner.
- F. Each submittal shall include a cover sheet that indicates the product, the specification section, the date submitted, and area for the Owner to indicate approval.
- G. Each submittal shall include a statement from the Contractor that indicates that each product has been reviewed by the Contractor and that the Contractor deems that product to be in compliance with the intent and design concept expressed in the Contract Documents. Contractors review and submittal of this information also indicates that the Contractor has complied with all requirements, of Section B.18 SUBMITTALS, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES of the State of Oregon General Conditions for Public Improvement Contracts.

2. Site Preparation

- A. Contractor is responsible for paying for any outstanding fees and picking up the building permit. The building permit will be ready to pick up at the Coos County Building Department prior to the issuance of the Contract. The Contractor must make all appropriate efforts to commence construction as soon as possible following the issuance of the Notice to Proceed. Permit will be available at: Coos County Building Department 250 N Baxter, Coquille, OR 97423 541-396-3121 ext. 210. Contractor will be reimbursed the direct cost of the permit only. No additional mark-up or compensation will be allowed for this requirement.
- B. Contractor is responsible for obtaining all required trade permits. The cost for these permits shall be a part of the Contractors bid.

- C. Contractor shall work with the local Oregon Department of Forestry to determine and establish additional Work requirements and controls that are a result of the fire restrictions in place at the time of construction. The local ODF for this project is the Oregon Department of Forestry 63612 Fifth Road -- Coos Bay, Oregon 97420 Phone: (541) 267-4136.

3. Tower and Antennas

- A. Contractor shall cut the existing coax at 20' above grade and splice new coax to the existing coax and run new coax into the building (four runs total), re-terminate, and run jumpers to radios.
- B. Contractor shall be responsible for sweep testing of extended feed lines and must provide a written report of the test results.

4. Shelter and Equipment Room

- A. Contractor shall provide and install a new Mitsubishi Mr. Slim 30k BTU Model # MSYD30NA Ductless HVAC system as show in the Plans and the required electrical and mechanical support systems.
- B. Contractor shall connect the radios to the DC power plant provided and installed by ODOT's vendor.
- C. Contractor shall provide and install a new ladder rack inside the radio room per the Plans.
- D. Contractor shall install and secure all existing radio racks containing the Constellation radios and related microwave and network gear inside the radio room, per the Plans.
- E. Contractor shall provide and install all materials and interior ground halo per the Plans and Harris Grounding guidelines.
- F. Contractor shall provide and install an Andrew Solutions Model #362332 dehydrator inside radio room. Contractor shall run and connect all lines per the Plans and industry standards.
- G. Contractor shall provide and install a new trapeze at the entry port for cable management and support.
- H. Contractor shall provide and install new jumpers from main feed lines to the radio cabinets.
- I. Contractor shall provide and install any necessary cabling or interconnect cables necessary to provide full functionality to the radios.
- J. Contractor shall provide, install and connect all DC -48vDC cabling necessary to power up the equipment.

5. Exterior Compound

- A. Contractor shall provide and install a new ice bridge, including trapeze, from the existing ice bridge to the entry port of the radio room, per the Plans.
- B. Contractor shall dress out and secure the four new feed lines to the new ice bridge, and run un-terminated ends through the entry port into the radio room

6. Generator

- A. Contractor shall install the ODOT provided a generator provided by OWNER on an existing 5' x 9' concrete pad.
- B. Contractor shall install the ODOT provided outdoor ATS provided by OWNER as shown on the Plans.

- C. Contractor shall connect the new shelter to the existing control system and provide the necessary programming and controls so that the new generator operates with the same features and same sequence of the existing generator.
- D. Contractor shall be responsible for loading and transport of generator and ATS from Salem, Oregon to the site.
- E. Contractor shall provide generator startup and ATS testing.

7. Grounding

- A. Work performed shall be in accordance with current revision of the Harris Corporation Installation Manual AE/LZT 123 4618/1 "Site Grounding and Lightning Protection Guidelines" (Harris Grounding) in addition to all applicable local, state, and national codes.
- B. Harris Grounding is the governing grounding requirements and shall supersede any ground/bonding note(s) or details on the Plans. Contractor shall deliver all grounding related installations in full and complete accordance with the Harris Grounding guidelines, at a minimum.
- C. Contractor can access Harris Grounding guidelines at www.harris.com or utilize OWNER provided CD.
- D. The Plans may not give a full representation of all required grounding bonds. Contractor shall bond all exterior metal and structures per Harris Grounding guidelines.
- E. "High" Compression Irreversible Crimps are an allowable connection alternative for underground connections only as identified in the Plans.
- F. Contractor shall provide all grounding material for install.
- G. Contractor shall provide and install three (one Tower Ground Bar (TGB), one Exterior Ground Bar (EGB), and one Master Ground Bar (MGB)) 1/4"x4"x24" copper buss bars to support at least (50) two-hole 3/8" lugs per ground bar. The hole pattern must accommodate 3/4" and 1" bolt spacing.

8. Trenching and Underground Conduits

- A. Contractor shall ensure locates have been performed in all areas where trenching and excavation will occur prior to work commencing.
- B. Contractor shall be responsible for all trenching, conduit, and vaults for electrical service preparation per local utility requirements and the Plans.
- C. Alarm conduits shall have a pull line installed and shall be stubbed up and capped

9. Fencing

- A. Contractor shall provide all materials and install a new gate as shown on the plans.
- B. [Reserved]

10. Propane

- A. Contractor shall install the foundation for propane tanks as depicted on Plans and per ODOT OWNER Specification Manual, Division 2, Section 02465 and Division 3, Section 03300.
- B. Contractor shall provide and install the propane supply line, the required regulators, the required permits, connection of the line to the generator or regulator, pressure testing of the line and all required permits. Contractor shall coordinate with the Owners propane provider for delivery of the propane tanks and connection of the supply line to the tanks.
- C. The Owners propane provider will be responsible for setting and fill of the propane tanks. The Contractor will be responsible to coordinate the delivery of these tanks with the Owners supplier and anchoring of all propane tanks to the slab in accordance with the plans and specifications or the requirements of the local jurisdiction.
- D. Contractor must not set propane tanks on the foundation until a break test demonstrates that the concrete strength has reached 100% of design strength. or the foundation has had a full 7 days to cure.

11. Electrical

- A. Contractor shall install electrical per engineered drawings.
- B. Contractor shall provide all new electrical components not provided by OWNER.
- C. Contractor shall provide any electrical permits required by Coos County.

12. Directions

- A. Directions
 - i. From Roseburg take I-5 South to Highway 42/Coos Bay Exit
 - ii. Go about 26.5 Miles to Signal Tree Rd/BLM Rd 30-9-18.2
 - iii. Turn Right and proceed about 5.5 Miles to Fork in the road
 - iv. Go right about 0.5 Miles to fork in the road
 - v. Take sharp left about 0.7 Miles
 - vi. Take a slight right and go about 0.4 miles to site
- B. [Reserved]

13. Coordinates

- A. 43.001861 N, -123.779056 W
- B. [Reserved]

14. Bid Walk Meeting location

- A. Intersection of HWY 42 and Signal Tree Road.
- B. [Reserved]

15. Contacts

- A. OWNER Principal Project Manager – Mike Mullen – Contact information to be provided at time of contract award
- B. OWNER Construction Quality Manager – Bryce Foster – Contact information to be provided at time of contract award.
- C. OWNER Site Project Manger – Mike Walden- Contact information to be provided at time of contract award

SECTION 3: CONSTRUCTION CONDITIONS**1. Purpose**

- A. The following conditions apply to all communication site work for the State of Oregon as part of the Oregon State Radio Project (OWNER). Some individual conditions may not apply to the specific project.
- B. Each project has a Statement of work that discusses site specific tasks and requirements that are in addition to these conditions.
- C. Each project has a Project Specification Manual that provides detail on construction standards.

2. Submittals

- A. Contractor shall provide submittals for review and approval prior to the release of the notice to proceed for all items to be procured by the Contractor.
- B. Typical items requiring submittals include but are not limited to:
 - i. Shelter
 - ii. Towers
 - iii. Grounding components
 - iv. Mounts
 - v. Fencing
 - vi. Antennas
 - vii. Microwave Dishes
 - viii. Feed Lines
 - ix. Entry Ports
 - x. Ice Bridge Components
 - xi. Concrete Mix design
 - xii. Concrete Reinforcing Bar

3. Hazardous Materials

- A. Contractor shall NOT leave hazardous materials, including fuels, oils, and lubricants unattended at the site at any time. Hazardous materials shall be removed from the site at the end of each workday or temporarily stored inside a locked and posted building until the following workday. Construction materials and supplies other than hazardous materials may be left unattended at the construction site at the end of each workday at the Contractor's risk.
- B. Reserved

4. Clearing and Grubbing, Excavation

- A. Contractor shall provide and install and maintain all necessary sedimentation control and erosion prevention per the Plans.
- B. High water levels may be encountered. Contractor shall include a cost to install dewatering system(s) for all excavations, as a separate line item cost.
- C. Based upon compaction test results, if native soils are deemed unsuitable for structural compaction requirements, Contractor shall provide all required structural fill in order to meet the project requirements.
- D. All tree stumps in the affected construction area shall be remove and disposed of at an authorized dump site.
- E. All fill or spoils not used at the site will need to be removed from the site and disposed of at an authorized dump site. Contractor shall be responsible for all required permits and proper permissions relating to spoils removal and disposal.

5. General Site Work

- A. Contractor shall ensure that all local and national fire protection requirements are complied with. This may include work permits, fire protection equipment, and work coordination with the property owner and local fire districts.
- B. Contractor shall ensure site is free of vegetation upon site completion.
- C. All exterior hardware shall be galvanized or stainless steel, as per Spec. Manual requirements.
- D. All Contractor supplied steel parts shall be hot dipped galvanized.
- E. All required field modifications to steel shall be properly treated with cold galvanizing compound.
- F. All exterior zip ties shall be stainless steel. All interior nylon zip ties shall be flush cut.
- G. All exposed unistrut and all thread ends shall be covered with appropriately sized rubber caps.
- H. Contractor shall maintain a clean and organized work site at all times including staging of materials and general construction debris & activities.
- I. On all new fence gates installed the Contractor shall provide four combination padlocks - Master Lock 175LH
- J. In all new shelters installed Contractor shall supply one 6' ladder Type 1AA, one three drawer desk, one metal folding chair, one bound log book

6. Testing & Closeout Package

- A. All test results will need to be submitted as part of the close out package. Results may be requested in advance of closeout to approve the next phase of site work.
- B. Contractor shall notify OWNER's Site Project Manager at least 48 hours prior to any concrete pours or required 3rd party inspections. The Oregon State Radio Project will be responsible for procuring all 3rd party inspections. Inspections requiring notification are located in the Plans and include all reinforced concrete over 2500 PSI, backfill in vehicle areas, and backfill under foundations.
- C. Contractor shall coordinate with the special inspection firm and the OWNER Construction Oversight Manger
- D. The tower anchor bolts will be tested by an ODOT inspector for torque. This inspection shall be requested 48 hours in advance.
- E. The special inspection firm is contracted to collect up to 8 cylinders per foundation, five of these compression cylinders will be used for 7, 14, 28 (qty 2), and reserve test. The remaining cylinders can be tested at the intervals requested by the Contractor.
- F. Contractor shall notify OWNER's Site Project Manager at least 48 hours prior to the backfill or concealment of any covered/buried external ground ring connections or conductors.
- G. Contractor shall notify the local jurisdiction and OWNER's Site Project Manager of all jurisdictional inspections.
- H. Contractor shall provide testing of ground system. Contractor shall complete testing following Harris guidelines. Contractor to report results in the Daily Report and submit to the OWNER Construction Manager within 48 hours of the completed test.
- I. There is a detailed photo package requirement for construction. All photographs shall be digital, high resolution, and have the date stamp turned on. All required photos shall be taken and reviewed prior to backfilling and concrete pouring. Items that call for depth and width information shall include a tape measure/ measure stick in each photo. Photo requirements are for "every item" not "Sample item" (IE – photo of fence post depth and width is for every fence post depth and width).
- J. Contractor shall maintain a project binder on site at all times containing daily updated as-built The Plans and all relative engineering documents that apply to the site.
- K. Contractor shall be responsible for preparing three hard copies and three soft copies of a detailed closeout package.
- L. Contractor shall provide sweep test for all installed Coax and Waveguide

7. Documentation of Work

- A. Contractor will not be eligible for payment for an item of Work and OWNER will not make payment for an item of Work until Contractor has submitted the documentation associated with that item of Work
- B. Contractor shall provide a daily report within 24 hours of the day worked that documents the activities of the day including typical photos. OWNER Site Project Manager will provide the Project daily report template for use at the start of construction.
- C. Contractor shall deliver to OWNER the following documentation of his Work:
 - i. As-Built drawings submitted to and approved by OWNER Engineer
 - ii. Photographic evidence that all construction of buried grounding Work meets all contractual requirements.
 - iii. A report giving the results of testing of all components of the constructed grounding system (resistance testing and testing of exothermic welds).
 - iv. A report giving the results of testing of all battery cells
 - v. Photographic evidence of reinforcement of all concrete construction, included, but not limited to any building foundation, tower foundation, generator foundation/support slab, propane tank foundation/support slab, and any concrete buildings or other concrete structures.
 - vi. Report giving the results of compaction testing of trench backfill and backfill of other excavations, including backfill.
 - vii. Photographic evidence that all buried conduits are installed per design
 - viii. Photographic evidence that all buried work not listed above is installed per design.
 - ix. Test report giving the results of the fuel supply line pressure test.
 - x. A report, signed by Contractor, documenting inspection and acceptance by Contractor of the pre-manufactured shelter provided by OWNER.
 - xi. A report giving the results of testing and commissioning of the HVAC system installed.
 - xii. A report giving the results of the testing and commissioning of the generator.
 - xiii. Three copies of Manufacturer's Operations and Maintenance manuals for all equipment installed, including but not limited to Generators, Power System, HVAC, and HVAC Controls,
 - xiv. Manufacturers' warranties on all applicable structures and equipment installed, including but not limited to Shelters, Electrical Components, Generators, Power System, HVAC, and HVAC Controls. Contractor is responsible for converting general warranties to include the Owner's name and in-service or warranty start date reflecting the date the system was placed in service and accepted by the Owner.
 - xv. All photographic evidence required shall be of sufficient quality and quantity to clearly demonstrate that all aspects of the documented Work is installed per plan. Photographs shall include within the photograph a scaling device that clearly illustrates that the physical dimensions of the work meet the dimension requirements of the contract documents. This documentation shall be presented to the Owner on a routine basis as directed by the Owner as well as a part of the closeout documentation of the work. This requirement does not relieve the Contractor from complying with the requirement of Section B.7 INSPECTION of the State of Oregon General Conditions for Public Improvement.

8. Safety

- A. Contractor shall maintain full compliance with all rules and regulations and all safety and Job Hazard Analysis (JHA) Policies throughout all construction activities.
 - i. Only personnel that are properly trained and CURRENTLY certified in tower climbing and tower rescue will be allowed working at heights above 6’ on the tower or Ice Bridge.
 - ii. Certifications are only considered “Current” and valid by OWNER if the training has been performed within the last 24 months.
 - iii. Contractor SHALL have a suitable tower rescue kit for the type of tower on site. This kit shall be clearly identifiable at all times to ALL personnel on site.
 - iv. Contractor shall provide at least one ground support personnel that is properly trained and CURRENTLY certified in tower climbing and tower rescue.
 - v. All personnel requiring certification shall have proof on site at all times.
 - vi. In the event of ANY accident, your OWNER Site Project Manager shall be notified within one (1) hour. If the SPM is not available, notification shall be made to the OWNER Principal Project Manager