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ARTICLE 1 - PROJECT DESCRIPTION

General Background

The Metropolitan Sewerage District of Buncombe County, North Carolina (District) is soliciting Request for Quotations (RFQ) for the rehabilitation of the fluidized bed incinerator (FBI) at the District's Water Reclamation Facility (WRF). The FBI serves as the District's primary means of sanitary sewer solids disposal at the WRF. The existing FBI was originally placed into service in 1992 and underwent a major rebuild in 2004.

Scope of Work

- 1.1 **The following work shall be performed within one hundred and twenty (120) days starting on November 3rd, 2025. The work shall be completed no later than March 3rd, 2026.** This schedule is crucial to the WRF to meet effluent discharge limits and for solids handling and disposal means.
- 1.2 The work to be performed shall consist of the removal, disposal, and replacement of the FBI's internal masonry dome floor, corbel, walls, ceiling, castable refractory, and all associated materials. Additional components to be removed, and replaced include the dome tuyeres, deteriorated sections of the exterior shell, various ports, and related accessories. The work also includes removal, disposal, and replacement of a 52-inch expansion joint located in the FBI's waste gas duct.
- 1.3 The work shall generally consist of furnishing of all labor, services, equipment, materials, and supplies for the demolition and disposal of the existing FBI components and the installation of the new components. The CONTRACTOR shall be responsible for loading, hauling (< ½ mile), and unloading the brick, castable refractory, and tuyeres that are located at the WRF.
- 1.4 The work shall be performed under lump sum price contract, and shall consist of furnishing all materials, supplies, and equipment; performing all labor and services incidental to or necessary for the completion of the project in accordance with the Plans and Specifications; and maintenance of each completed portion of the work until final acceptance of the entire project by the DISTRICT, unless otherwise approved by the ENGINEER.
- 1.5 To limit the duration the FBI is required to be shut down and to expedite the project, MSD has provided the following materials:
 - Dome floor "special shaped" fireclay bricks
 - Dome floor extra strength castable refractory
 - Adjustable length Hastelloy alloy tuyeres
 - Corbel and wall fireclay bricks
 - Corbel and wall castable refractory
 - Ceiling castable refractory

Section V: Special Conditions

- (11) Thermal couplings
- High temperature camera (Mirion M535)
- (2) Sludge inlet thimbles, 8-inch stainless steel (CONTRACTOR shall cut to size and weld)
- * 52-inch expansion joint for waste gas duct (Do not include in bid amount. The expansion joint may be delivered outside of the shutdown period)

1.6 The CONTRACTOR shall be responsible for furnishing the following materials:

- All remaining internal components to complete the rehab not listed above (i.e., expansion joints, insulations, masonry ties)
- * 24-inch x 24-inch manway and hatch
- * Gas baffle plate
- (8 existing, 3 new) Thermal coupling ports; 2-inch CS SCH 40 150# FLxPL
- (4) Quench ports; 2 ½-inch CS SCH 40 150# FLxPL
- (4) Quench sprayers; match existing
- (8) Gas lance ports; 2-inch CS SCH 40 150# FLxTHRD
- * (8) Gas lances; match existing
- (4) Differential pressure indicator ports; 2-inch CS SCH 40 150# FLxPL
- * (4) Differential pressure indicators; match existing
- (2) Sludge inlet ports; 8-inch CS SCH 40 150# FLxPL
- (2) Sludge nozzles; SCH 80 316 SS match existing
- * (6) Air ports; 4-inch CS SCH 40 150# FLxPL
- Sight glass port; 3-inch CS SCH 40 150# FLxPL
- * Sight glass; match existing
- Roof camera port, contact manufacture for recommended viewing port
- Sand inlet port, 4-inch CS SCH 40 150# FLxPL. Sand port shall be realigned to connect to new sand line
- Sand level markers
- High temperature 150# gaskets for each port
- * Roof, walls, and corbel shell replacement; 1/8-inch carbon steel sheet

CONTRACTOR shall be responsible for field-verifying dimensions of individual components prior to ordering materials. Materials marked with * shall **NOT** be included in the bid, they will be paid as time and materials if replacement is required, this includes the installation of the 52-inch expansion joint) Replacement of materials shall be determined by MSD.

CONTRACTOR shall be responsible for identifying areas of deterioration in the FBI's shell roof, walls, and corbel. The original shell thickness for the roof was 3/8-inch and for the walls and corbel was 5/16-inch. The deteriorated areas shall be patched with 1/8-inch-thick carbon steel sheet welded to existing shell. This work

shall be paid for as materials and time for labor.

ARTICLE 2 - PHYSICAL CONDITIONS/CONTRACT PLANS

2.1 Site Conditions.

MSD staff shall be responsible for the FBI shutdown and sand removal to prepare for the Contractor's work to begin November 3rd, 2025. The Contractor's work shall be completed in one hundred and twenty days (120). At the completion of the work, MSD staff shall be responsible for painting the FBI's shell.

2.2 Coordination with MSD Staff

The CONTRACTOR shall coordinate with MSD staff regarding the progress of work to allow MSD to plan accordingly and to order materials that MSD is responsible for providing to the CONTRACTOR.

2.3 Contract Plans. The work shall be performed in accordance with these specifications and contract plans, which are incorporated herein as part of the contract, and which are identified by the following:

1. 2004 Hankin "Modification to Fluidized Bed Incinerator"
2. Refractory Dry Out Instructions (example)
3. MSD FBI Component Images
4. 52-inch Expansion Joint Shop Drawings

ARTICLE 3 - PROJECT COORDINATION

3.1 Intent of Plans and Specifications

The intent of the Plans and Specifications is to prescribe a complete work that the CONTRACTOR undertakes to do in full compliance with the Contract. The CONTRACTOR shall do all work as provided in the Plans and Specifications and other parts of the Contract and shall do such additional, extra, and incidental work as may be considered necessary to complete the work in a satisfactory and acceptable manner. Any work or material not shown on the Plans or described in the Specifications, but which may be fairly implied as included in any item of the Contract, shall be performed and/or furnished by the CONTRACTOR without additional charge, therefore. The CONTRACTOR shall furnish all labor, materials, tools, equipment, and incidentals necessary for the prosecution of the work.

3.2 Interpretation of Estimate

The quantities of the work and materials shown on the Proposal form or on the Plans are believed to approximately represent the work to be performed and materials to be furnished and are to be used for comparison of bids. Payment to the

Section V: Special Conditions

CONTRACTOR will be made only for the actual quantities of work performed or materials furnished in accordance with the Plans and Specifications, and it is understood that the quantities may be increased or decreased as hereinafter provided without in any way invalidating the bid prices.

3.3 **Time of Completion**

The CONTRACTOR shall commence ordering of materials on a date to be specified in a written Notice to Proceed from the DISTRICT. Some materials/equipment such as the gas lances, quench sprayers, pressure indicators may need to be ordered after verifying the existing equipment.

All work to be performed on the project under this agreement shall be duly completed within **one hundred and twenty (120) consecutive calendar days** from Notice to Proceed.

For each day in excess of the completion time limits specified above, the CONTRACTOR shall pay the DISTRICT the sum of Five Thousand Dollars (\$5,000.00) as liquidated damages reasonably estimated in advance to cover the losses incurred by the DISTRICT by reason of failure of said CONTRACTOR to complete the work within the time specified, such time being in the essence of this Contract and a material consideration thereof. MSD will award the CONTRACTOR an early completion bonus of One Thousand (\$1,000) per day should the work be completed prior to the contract end date.

3.4 **Pre-Construction Conference**

Prior to starting any construction work on this project, a conference will be held in the Operations Office of the DISTRICT for the purpose of verifying general construction procedures, expediting the handling of shop drawings and schedules, and to establish a working understanding between the parties concerned on the project. Present at the conference shall be a responsible representative of the CONTRACTOR and the CONTRACTOR's job superintendent. The time of the conference shall be as agreed upon by the CONTRACTOR and DISTRICT.

3.5 **Progress Meetings**

The CONTRACTOR and any subcontractors, material suppliers or vendors whose presence is necessary or requested shall attend meetings, referred to as Progress Meetings, when requested by the DISTRICT for the purpose of discussing the execution of the work. Each meeting will be held at the time and place designated by the DISTRICT. A schedule for monthly meetings will be agreed upon at the pre-construction conference. The ENGINEER will call for and schedule additional meetings if necessary. All decisions, instructions and interpretations made at these meetings shall be binding and conclusive of the CONTRACTOR and such decisions, instructions and interpretations shall be confirmed in writing by the

DISTRICT.

The proceedings of these meetings will be recorded, and the CONTRACTOR will be furnished with a reasonable number of copies for his use and for his distribution to the subcontractors' material suppliers and vendors involved.

3.6 **Startup Testing**

CONTRACTOR shall provide at least one qualified representative to assist MSD with startup and dry out of FBI. The refractory dry out procedure shall be followed as recommended by MANUFACTURES instructions. The CONTRACTOR's representative shall be qualified to repair or replace any component of the FBI if issues arise.

ARTICLE 4 – MATERIAL SUBMITTALS

4.1 **Quality Assurance**

The materials specified under this Section shall be furnished by a manufacturer who is fully experienced, reputable, and qualified in the manufacture of the materials furnished.

4.2 **Submittals**

The materials supplier shall furnish to the DISTRICT for review an electronic PDF version of the materials submittal to demonstrate compliance with these specifications. The term “submittal” as used herein shall be understood to include installation drawings, catalog sheets and data sheets. Submittals shall be made within the time limits identified in the Bid Form.

Submittals shall include at least the following:

- Descriptive literature, bulletins, and/or catalogs of the materials, materials and details of construction, indicating full compliance with this Section.
- Provide design data, test reports, and warranty data.
- A complete total bill of materials for all equipment.
- Manufacturer's instructions for delivery, unloading, storage, handling and installation of the materials.