4.1 - General Notes

Addendum #1

4.1.1 Sequencing of Construction

The CONTRACTOR shall prepare and submit to the OWNER within 30 days of the preconstruction conference an in-depth schedule of construction sequencing. CONTRACTOR shall maintain and provide to the OWNER an updated schedule at each progress meeting. Conditions at time of Notice to Proceed and during construction may dictate changes to the schedule.

Sequencing and completion dates, if applicable, for the project shall be as follows:

- 1. Replacement of clarifier drain valves shall be conducted such that only one plant is down for construction activity at any given time. The sequence and duration that each plant is down shall be approved by the OWNER.
- 2. Gravity filter underdrains, media and drain valve replacement shall be conducted such that no more than two filter basins are down for construction activity at any given time.
- 3. Repair of South Filter Gallery Effluent Piping shall be conducted such that the North Filter Gallery is operational throughout construction activities.
- 4. Pipe Gallery painting shall be coordinated to cause minimal disruption to daily plant operations.

CONTRACTOR shall coordinate start-up of various plant equipment and systems a minimum of five working days prior to putting system into operation. CONTRACTOR shall not vacate higher priority location until work is complete at that location.

4.1.2 Underdrain System

Replacement of underdrain caps shall include full removal of existing I.M.S. ® Porous Plate Caps and field installation of new molded thermoplastic I.M.S. ® 200 Media Retainer Caps on the existing Leopold Universal® Type S Underdrain system. Required 3M sealant, screws, grout, etc for mounting shall be included. All exposed rubber air hoses and clamps shall be replaced with new equipment that shall be provided by the underdrains manufacturer.

The following filters and sizes are included in this project:

- Filters 1 thru 4, 6, 13 and 15 (7 filter cells) Each filter cell is 19' x 18'.
- Filters 7 thru 12 (6 dual cell filters (12) total cells) Each cell is 27' x 13'-3".
- Filter 14 (1 filter cell) 27' x 19'.
- The total filter underdrain area to be replaced is 7,200 square feet.

Note – The I.M.S. Cap in Filter #5 has already been removed and replaced with I.M.S. 200 Cap and is not included in this project. **The total filter area including Filter #5 is 7,713 square feet.**

Identification and repair of leaking underdrain bell and spigot joints may be necessary as part of the replacement process. Such identification and repair shall be performed using procedures acceptable to the manufacturer and the OWNER. The unit bid cost for Underdrain Replacement shall include repair of up to 50% of joints per filter at no additional cost to the City.

Removal of backwash troughs to access filters may be required and shall be performed so as to prevent damage to existing equipment. Bolts, fittings, etc. shall be replaced with new.

The CONTRACTOR shall have at a minimum three (3) **ONE** (1) similar installation of Leopold Filter Underdrain Systems within the last five (5) years.

The CONTRACTOR shall have an authorized representative of Leopold present at the site to inspect, check and approve equipment or system installation prior to start-up and to supervise placing the system into operation.

4.1.3 Filter Media

Replacement of filter media shall include full removal of existing media and placement of new media in each filter following the placement of new underdrain caps (as appropriate). Approximate filter media quantities are as follows:

Fifteen (15) filters TOTAL FILTER AREA: 7713 square feet

SILICA SAND – 12" Depth plus 1/2" skimming allowance Effective size: 0.45 mm to 0.55 mm Uniformity coefficient: 1.40 **1.45** 8,030 cubic feet 401 Tons

FILTER ANTHRACITE – 30" Depth plus 1" skimming allowance Effective Size: 0.95 mm to 1.05 mm Uniformity coefficient: 1.40 19,925 cubic feet 498 518 Tons

Materials shall meet and/or exceed American Water Works Association Standard B-100 (latest revision) for Filtering Material. Samples and/or test reports detailing the physical and chemical characteristics of the filtering material shall be provided for review and approval prior to release for shipment.

Material shall be packaged in semi-bulk containers, "Super Bags," with lifting sleeves and bottom discharge spout, containing approximately 3,000 pounds per sack. Any loss of material due to storage or handling shall be replaced by the CONTRACTOR. See Specification section **4.14 for additional requirements.**

4.1.4(a) Clarifier Drain Valve Actuator Controls

Control panel enclosures for clarifier drain valve actuators shall be 3-point latch, single lever NEMA 4X constructed of 304 stainless steel, minimum 16 gauge material, on new mounting bracket and stand adjacent to existing concrete slab. Enclosure shall have 90 degree opening door with zero clearance and 180 degree opening with full clearance. Enclosure door shall include data pocket. Enclosure shall have sun shield. Enclosure shall have 110 volt duplex receptacle with weather proof cover flush mounted on the side powered by 30 20 amp receptacle breaker.

Control panel enclosure shall provide a polished aluminum dead front mounted on continuous aircraft type hinge, containing cutouts for mounting equipment and providing projection of personnel from live internal wiring. Provide cutouts for breaker handles to allow operation of breakers without entering the compartment. **Provide Open /stop /close switch; open / close indication; and % Open indication for each actuator**. Mount control switches, position indicator panels, and other operational devices on the external surface of the dead front. Form a 3/4" break around the perimeter of the dead front to provide integrity.

Include all necessary components for the panel power distribution with stranded copper conductors rated for 90 degrees C. All conductor terminations shall be as recommended by the device manufacturer. Provide indicating type circuit breakers with "on-off-trip" positions of the operating handle. **Provide single 30 amp main breaker and individual 20 amp breakers for each actuator, control panel and receptacle.** Permanently mark and identify all component parts in the control panel.

Clarifier drain valve actuator control panels shall incorporate existing 480V/3/60 power.

4.1.4(b) Filter Drain Actuators Controls

Shall be integrated and controlled from existing Filter Control panels.

4.1.5 General Notes

The CONTRACTOR shall develop a method for testing pipe and fittings installed as part of the Work that is will demonstrate leak-free installation and is acceptable to the OWNER. Temporary plugs, flanges, etc. required to perform the Work and testing shall be provided and maintained by the CONTRACTOR.

Structural anchoring systems shall be designed by a licensed engineer in the State of Texas and such systems shall not negatively affect or damage existing components of the Water Treatment Plant.

Implementation and maintenance of trench protection according to OSHA regulations is the CONTRACTOR's responsibility.

The CONTRACTOR shall minimize any dust problems by sprinkling and/or sweeping as directed by the OWNER. Pay is subsidiary to the various bid items. After completing installation and pavement repair of each portion of the project, CONTRACTOR shall thoroughly sweep and clean up all dirt, material and debris from the project area.

The CONTRACTOR will restore all disturbed areas, fences, drives, yards, etc. to original or better condition as approved by the OWNER.

On-Site Storage of Materials: The CONTRACTOR must have the OWNER's approval for onsite storage of materials. Stored materials shall not obstruct the flow of stormwater, vision of vehicle operations, or cause damage to personal or public property. Storage areas shall be kept neat and clean.

City of San Angelo Owned Materials: The CONTRACTOR shall provide all materials to complete the project. The OWNER will not provide materials to the CONTRACTOR unless otherwise specified.

All Concrete shall be 3,000 psi minimum at twenty-eight (28) days unless otherwise specified.

All electrical components of this project shall meet current electrical codes.

The CONTRACTOR shall thoroughly test and identify all areas with lead-based paint in the pipe gallery and handle preparation, removal, or replacement in accordance with TCEQ requirements, as approved by the OWNER.

OWNER will provide water quality related testing services for this project at no additional cost to the CONTRACTOR.