

HUNGERFORD & TERRY, INC.



PREPARED FOR: PAUL LUTZKANIN, P.E.- SESI

PROJECT: FREDERICKSBURG WATER AUTHORITY WTP UPGRADE

PREPARED BY: CHRISTOPHER RALPH
TECHNICAL SALES REPRESENTATIVE



November 8, 2023

Attention: Paul Lutzkanin, P.E.- SESI

Reference: Fredericksburg Water Authority Upgrade

Mr. Lutzkanin,

Hungerford & Terry, Inc. is pleased to submit the attached budget 23-BDJ0503-R3 for your consideration.

This proposal is based on similar design/equipment that was furnished for The Penn National contract in Grantville, PA. Included in this price is an escalation price of \$25,000. This should cover any increase in tank steel. The volatility in steel pricing has subsided somewhat in the past year or so. We will hold this price through the end of 2024.

A sandvalve underdrain and additional HMI have been included in this proposal.

We very much appreciate the opportunity to submit this proposal and look forward to working with you on this project. Should you have any questions or need for additional information, please feel free to contact our local representative at the address and telephone number listed below, or this writer at our home office in Clayton, New Jersey.

Very truly yours,

HUNGERFORD & TERRY, INC.

Christopher Ralph
Technical Sales Representative

DAVE FACKLER-
SALES REPRESENTATIVE
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1. SCOPE OF SUPPLY

Vertical GreensandPlus Filtration System:

Filter Tanks:

Four (4) 96 inch OD x 63 inch straight shell filter tanks designed in accordance with the following:

- 100 PSI design pressure.
- ASME code section VIII construction with stamp.
- Constructed with SA-516 70 grade steel.
- One (1) 14 inch x 18 inch manhole with spare gasket.
- Necessary flanged pad type connections.
- Four (4) lifting lugs.
- Four (4) structural steel I-beam type support legs.
- Tank interiors will not be lined.
- Tank exteriors will be commercial sandblasted (SSPC-SP6) and painted with one (1) coat (3.0 – 5.0 mils DFT) of Tnemec Hi-Build Epoxoline II N69 primer.

Notes:

1. Finish painting of the filter tank exteriors and all provided piping is to be field applied by the contractor.
2. All anchor bolts are part of the foundation equipment and shall be furnished and installed by the equipment installer or contractor.



Tank Internal Distributors:

- Four (4) H-pattern inlet distributor/waste collector with Schedule 80 PVC pipe and fittings.
- Four (4) Gravel retaining screens with stainless steel support angles and flats, 8-mesh #304 stainless steel screen, and stainless steel nelson studs as required to fasten the screen to the tank and supports.
- Four (4) Header-lateral air wash distributors of Schedule 80 PVC construction complete with 2 inch manifolds and 1/2 inch laterals.
- Four (4) Header-lateral underdrain distributors with schedule 80 PVC manifolds and laterals and 5 inch square stainless steel and monel expansive port sandvalves. The sandvalves shall be installed on 15 inch maximum centers.

Notes:

1. The tank inlet and underdrain distributors will be shop installed prior to shipment. The airwash distributors and gravel retaining screens will be installed by the general contractor as the media is placed into the units.
2. The proposed underdrain system requires a concrete sub-fill of the bottom head up to the sand valves. Concrete shall be furnished and installed by the contractor.



Filter Media:

- Four (4) 12 inch graded gravel support bed plus head fill (129 cubic feet each).
- Four (4) 18 inch bed (75 cubic feet each) of GreensandPlus.
- Four (4) 18 inch bed (79 cubic feet each) of Anthracite.

Notes:

1. The Greensand Plus will meet the following criteria:
 - a) Specific gravity:approx. 2.4
 - b) Effective size:0.30 – 0.35 mm
 - c) Uniformity coefficient: ...less than 1.6
 - d) Screen grading: 18 x 60 mesh
2. The Anthracite will meet the following criteria:
 - a) Specific gravity:approx. 1.6
 - b) Effective size:0.6 – 0.8 mm
 - c) Uniformity coefficient: ...less than 1.6
3. All filter media is to be field installed by the contractor.
4. H&T will provide approximately 1,032 one-half cubic foot bags of gravel, 600 one-half cubic foot bags of GreensandPlus and 316 one cubic foot bags of Anthracite.
5. For every 100 cubic feet of GreensandPlus, 20 gallons of 15% bleach, or 50 gallons of 6% bleach is required for conditioning of the media and disinfecting of the tanks.
6. All start-up chemicals are to be supplied by the purchaser or contractor.



Filter Exteriors:

Four (4) Valve nest exteriors consisting of:

Bray series 30 butterfly valves with wafer style epoxy coated cast iron bodies, nylon 11 coated ductile iron discs, bonded EPDM seats, with Bray series 70 electric actuators for:

- Inlet (4 inch).
- Outlet (4 inch).
- Backwash inlet (6 inch), modulating.
- Backwash outlet (4 inch).
- Rinse outlet (2.5 inch).
- Tank draindown (3 inch).
- Air wash inlet (2 inch).
- Air pressurizing (2 inch).

Bray series 30 butterfly valves with wafer style epoxy coated cast iron bodies, nylon 11 coated ductile iron discs, bonded EPDM seats, with manual operators for:

- Inlet isolating (4 inch).
- Outlet isolating (4 inch).

Flowtek stainless steel threaded ball valve with manual lever operator for:

- Backwash tell-tale (1/2 inch).
- Tank air vent (1 inch).

Simtech PVC socket weld ball valve with manual operator for:

- Tank drain (2 inch).

Apco model 200A air release valve with cast iron body and stainless steel float for:

- Air release (1 inch).



System Face Piping:

All piping material and fittings will be Schedule 80 PVC:

- Filter face piping.

Schedule 40 Steel Air Piping:

- Air line from blower.

Notes:

1. All system face and interconnecting piping will be furnished with the required bolts, studs, nuts, and gaskets as follows:

Bolts: ASTM A307 Grade B plated carbon steel.
Studs: ASTM A307 Grade B plated carbon steel.
Nuts: ASTM A563 plated steel heavy duty hex.
Gaskets: Shore A70 or equal, 1/8 inch thick.

Filter Pressure Equipment:

- One (1) Ashcroft or equal series 400 snap acting differential pressure switch.
- Eight (8) Ashcroft model 1279SS pressure gauges for the tank inlet and outlets with 4.5 inch diameter dials and stainless steel bourdon tubes.
- Nine (9) Sets of polypropylene supply tubing.
- Nine (9) Sets of isolating valves.
- Nine (9) Sets of sampling valves.

Filter Unit Inlet Flow Equipment:

- Four (4) Rosemount 8750WD magnetic bi-directional flowmeter with 4-20mA output for:
 - Inlets (6 inch).



Air Blowers:

- Two (2) Roots model 22 RAI air blower rated 40 cfm at 6 PSI complete with flexible connections, v-belt drive with guard, inlet filter/silencer, weight type pressure relief valve, motor slide rails, pressure gauges, common steel base plate, sound enclosure and a 460 volt, 3-phase, 60 hertz, TEFC motor.
- Two (2) Allen Bradley 512 series combination motor starter with NEMA 4 steel enclosure, fusible disconnect, 480/120V control power transformer, H-O-A switch electronic overload, etc.
- One (1) Check rite or equal check valve of stainless steel construction for:
- Blower discharge (2 inch).
- One (1) Asco solenoid valve for:
- Air header drain (.5 inch).

Filter System Control Panel:

- One (1) NEMA 4 electrical control panel of painted (ANSI 61 light gray) steel construction complete with an Allen Bradley CompactLogix L33ER Ethernet programmable controller, Two (2) Automation Direct #EA9-T10CL 10" diag. color touch screen Operator Interface Terminals and all required nameplates, Phoenix Contact #UT-6 terminal blocks, internal type "THHN" wire, Phoenix Contact AC surge suppressor, 24VDC power supply, C3 Controls door mounted disconnect switch, Allen Bradley #700-HK series interposing relays, Panduit Type "G" gray wire duct, Phoenix Contact heat-shrink white wire sleeves, Red Lion/Ntron #104TX unmanaged switch, GFCI duplex, UL-508 label, and etc.

Skid Mounted Junction Boxes:

- Four (4) Hoffman NEMA 4, wall-mount type electrical panel of ANSI 61 painted steel construction complete with all required nameplates, Phoenix Contact #UT series terminal blocks, internal type "THHN" wire, ground bus bars, UL-508A label, and etc.



Notes:

1. The control panel will be completely shop wired and tested prior to shipment.
2. All interconnecting wiring, conduit, and wire terminations between the Filter System Control Panel and remote located electrical equipment is to be furnished and installed by the contractor. A 120VAC-1PH-60Hz, 25A power feed is required for control panel.
3. H&T will supply one (1) spare Ethernet port for communication to future SCADA RTU (by others) via Ethernet/IP protocol. Any required interconnecting Ethernet cables and connectors shall be by others.
4. The filter system control panel shall provide I/O to control all items listed in this proposal only. All other balance of plant controls shall be by others.
5. All instrumentation not specifically listed in this proposal shall be by others.
6. H&T will submit our standard electrical drawing package, which includes ladder logic drawings, external and internal panel view drawings, electrical equipment lists, PLC system architecture drawing and electrical wiring diagrams showing both internal/external wiring.
7. All engineering and drafting required for field interconnecting conduit, cable list and sizing, conduit supports and maps of interconnecting electrical installation, conduit and trays shall be supplied by others. All engineering and drafting required for customer's ground grid system shall be by others.
8. Any required short-circuit fault analysis, protective device coordination and arc-flash hazard study shall be furnished by others.

System Software/Programming equipment:

Programming integral to the operation of the equipment supplied by Hungerford & Terry, Inc. will be performed by Hungerford & Terry, Inc. Should the customer choose to modify the original factory program, a laptop computer and a registered copy of Allen Bradley RSLOGIXS 500 PLC & Automation Direct C-More OIT software will be required. Hungerford & Terry will provide a quotation to furnish the programming software and accessory hardware defined above upon request.



**Hungerford and Terry, Inc. Standard Surface
Preparation & System Painting:**

Unlined Tanks:

The interiors of all unlined tanks will be hand cleaned removing all dirt, grease, etc. The tank interiors will not be sandblasted.

Misc. Equipment:

The exterior surface's of all misc. valves, pumps, etc. will be furnished with the manufacturer's standard prime coat painting or standard prime and finish painting.

Finish Painting:

Finish painting of all equipment furnished by Hungerford & Terry, Inc. is to be field applied by the installation contractor.

Assembly:

Skid numbers 1 thru 4 each will include one (1) filter tank complete with internal distributors, exterior face piping and valves, and a NEMA 4 junction box with THHN wiring and RGS conduit to each electrical item.



2. PRICE SUMMARY

Price:

F.O.B. Shipping Points: With full motor freight allowed to the jobsite:
Payable in US currency, plus any applicable Municipal, State or Federal Taxes.

Payment Terms:

Unless otherwise specified, 16% of the contract amount will be invoiced upon the approval of our engineering submittals. 25% will be invoiced upon start of assembly. The contract will be invoiced upon shipment of materials to the jobsite up to the 95% point (including partial shipments). 5% of the contract amount will be invoiced upon commissioning of the plant—not to exceed 180 days following shipment.

Net thirty (30) days. All invoices are due within 30 days. A service or interest charge of 1 ½% per month (18% per annum) will be assessed on all amounts which become past due.

A copy of the payment bond (if applicable) will be required as part of the credit approval process. Purchaser agrees to make pro rata payments for partial shipments and further agrees that if shipment of material is delayed by any act or omission on part of purchaser, payment shall become due within thirty (30) days after the material is ready for shipment

Shipment:

Applicable freight to location is included in the price of the contract. Logistics of shipment will be advised as project proceeds.

Acceptance by Purchaser

This proposal is hereby accepted by:

Date _____
By _____

HUNGERFORD & TERRY, INC.

Christopher Ralph
- Technical Sales Representative



3. CONDITIONS

Prices are based on present day labor and material costs and subject to revision after thirty days from date of quotation. They do not include any Federal, State, Municipal or other tax or Government charge applicable to the sale, shipment or use of equipment quoted on.

Deliveries are contingent upon strikes, accidents, delays in manufacture and other causes beyond our control.

Any typographical or clerical errors in the prices or specifications are subject to correction.

Order shall be made out to Hungerford & Terry, Inc., Clayton, NJ, and shall be subject to acceptance by us at Clayton, NJ. After acceptance, orders may be cancelled only with our written consent and on terms that will indemnify us against loss. Equipment on material cannot be returned except by special permission and when so returned will be subject to discount.

The Company will, free of charge, replace or repair, after receipt f.o.b. its factory promptly and within one year from shipment by it, any part of equipment which, under normal or proper use proves to be defective in workmanship or material. In no event shall the Company be liable for consequential damages.

The Company shall not be liable for failure to perform or delay in performing any obligation if such failure or delay shall be caused directly or indirectly by invasion, insurrection, riot, war, military authority, or by fire, flood, strike, or labor difficulty or by any other cause, whether of the same or different nature from those enumerated, beyond our reasonable control.

From the time said machinery of apparatus or any part thereof arrives on the premises, and until Hungerford & Terry, Inc., for an amount equal to the unpaid portion of the purchase price of the same; such loss or damage to be payable to Hungerford & Terry, Inc., as its interests may appear. All losses by fire or other casualties for which Hungerford & Terry, Inc., is not indemnified and paid under such policies of insurance, shall be borne by the Purchaser on and after the arrival of said machinery or apparatus, or any part thereof on Purchaser's premises.

The title and right of possession of above described articles shall remain vested in Hungerford & Terry, Inc. until Purchaser shall have made full payment thereof in cash and this right shall not be waived by attachment of said articles to the real estate. Upon Purchaser's failure to make above agreed payments or any part thereof, Hungerford & Terry, Inc. is to retain any and all partial payments which may have been made as liquidated damages, and shall be entitled to take immediate possession of said materials.

This proposal, of which the Conditions of Sale are an integral part, shall not become a contract or become binding until it has been approved and signed by a representative of Hungerford & Terry, Inc. at its home office, Clayton, NJ. Persons signing on behalf of purchaser hereby represent that they are legally authorized to enter into this contract.



4. FIELD SERVICE CHARGES

Hungerford and Terry will provide a service tech to provide the assistance required in the project for 10 days in 10 trips. If more service is necessary, Hungerford & Terry, Inc., will furnish a Field Supervisor at USD-\$1,200.00 per weekday of 8 consecutive hours or USD-\$150.00 per hour, coinciding with the Purchaser's regular business hours during the normal work week of Monday through Friday including traveling time, plus living and traveling expenses from date of departure from Clayton, NJ, to destination and return. All time in excess of 8 hours shall be charged at 1-1/2 times the daily rate and all traveling and living expenses will be charged at cost. Meal charge is USD-\$50.00 per day. All overtime will be charged at 1-1/2 times the daily rate.

PLEASE NOTE: The Purchaser will be charged for the services of the Field Supervisor at the jobsite when service cannot be rendered because of delay or conditions beyond Hungerford & Terry's control. In cases of undue delay, Hungerford & Terry reserves the right to recall the supervisor.

HUNGERFORD & TERRY, INC.

PER: _____
Christopher Ralph- Technical Sales Representative

DATE: _____

ACCEPTED: _____
PER: _____
TITLE: _____
DATE: _____