



Project:	2022-RFT-026 821131 – Solid Waste WTS Construction		
Addendum No.	03 04	No. of Pages:	17
Date:	2022-07-28	Doc. No.:	P7201-1591092266-180(1.0)

The following change(s) in the Request for Proposal Documents are effective immediately. This Addendum forms part of the Contract Documents.

The purpose of this Addendum is to clarify and answer for bidder’s question on tender 2022-RFT-026 issued for bid on July 12, 2022.

Note: Another Tender Addenda to follow that will capture the outstanding queries.

Question 1:

DRAWING WTS-E01

Some equipment are shown on this drawing, please confirm if they are part of our scope of work as they are not listed on section 11 40 00.

Grid B-4	Chain roller
Grid F-6	Modular push rob bin and incline screw auger shedder and RI 36/26 schredder infeed conveyor
Near Grid 9 (B-E)	Horizontal screw auger (to feed boiler stoker feeder)
Near Grid F (10-12)	KKF drag chain conveyor, screw auger KKF discharge conveyor and rotary drum magnet
Between Grid 11-12	Vecoplan VHZ 10100XL shredder and RI 36/26 shredder infeed conveyor

Response 1:

These items are part of the scope of work. Further Information on these items is presented under “2.1 Biomass Boiler (B-1) and feeding system”. Additional clarifying information to follow in the next addendum.

Question 2:

COST SUBMISSION FORM – PART 1 BREAKDOWN

The numbering for section 22 is wrong. Please provide an amended breakdown form with numbering for WTS Waste Processing Equipment corrected from 21.1-21.8 to 22.1-22.8.

Response 2:

The attached cost submission form supersedes the previous cost submission form.

Question 3:

SECTION 00 60 00

For each listed equipment (1. to 6.) on item 21 as well as section 11 40 00, please provide a list of the required spare parts.

Response 3:

Spare parts would be as suggested by the Manufacturer.

Question 4:

SECTION 02 56 13

Item 2.4.1 has a typo in the sentence that states “Brand new shipping containers, three (6) required”. Please confirm.

Response 4:

Replace “three (6)” with “six (6)”.

Question 8:

SECTION 11 40 00

For item 2.1.21, what would you consider pressure lines? We will plan to use steel piping along the sides of the baler where needed but we will still utilize a lot of hosing. This hosing has a safety rating of 4:1 and should pose no safety concerns. If no hosing and all piping is required, we cannot build the baler. There are moving parts that require hosing. Please advise.

Response 8:

Hosing with a safety rating of 4:1 is acceptable.

Question 10:

FIELD QUALITY CONTROL

For the following items, the tender requests manufacturer visits. Can the required visits be carried out by a certified installer at the time of calibration/Commissioning?

- SECTION 00 60 00 SUPPLEMENTARY SPECIFICATIONS - item 6 Weight Scale
- SECTION 00 60 00 SUPPLEMENTARY SPECIFICATIONS - item 21 Waste Process Equipment
- SECTION 21 30 00 FIRE PUMPS - 3.5 Field Quality Control
- SECTION 22 05 00 COMMON WORK RESULTS FOR PLUMBING - 3.4 Field Quality Control.
- SECTION 23 11 13 FACILITY FUEL OIL PIPING - 3.9 Field Quality Control.
- SECTION 23 52 00 HEATING BOILERS - 3.5 Field Quality control

Response 10:

- Acceptable visits may be performed by a contractor authorized by the Manufacturer.
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Question 12:

ADDENDUM #02

Please note that there is a typo in in Addendum 2. There are 2 topics titled “question 11”.

Response 12:

The 2nd question/response 11 shall be considered to be question/response 12. The question/response 12 shall be considered to be question/response 13.

Question 14:

ADDENDUM #02 ITEM 12

Will you provide a new breakdown (Part 1 - Schedule A) to incorporate these new elements into the project?

Response 14:

This work is to be included under Item 2 Site Preparation. Please refer to the photographs in Appendix A of addendum 1 for additional information. All surficial debris, including buildings/structures, seacans, vehicles, wood and rubble are to be removed as part of Site Preparation.

APPENDIX B – COST SUBMISSION FORM (ADDENDUM 3 UPDATED)**Date:**

Project Name: Iqaluit Solid Waste Transfer Station

I/We,

(Company Name)

Of

(Business Address)

have fully inspected the Site and examined all the conditions affecting the Work. I/we have also carefully examined all documents prepared for this Contract including Addenda thereto; and hereby offer to furnish all labour, materials, plant, equipment and services for the proper execution and completion of the items listed below, in accordance with the Contract Documents, including all Addenda thereto which are acknowledged hereinafter for the above project for the sums separately indicated as follows:

Schedule A – Waste Transfer Station					
Item No.	Description	Unit	Quantity	Unit Price	Price
1	Mobilization and Demobilization	lump sum	1	\$	\$
2	Site Preparation	lump sum	1	\$	\$
3	Fencing and Gates	lump sum	1	\$	\$
4	Culverts	lump sum	1	\$	\$
5	Access Road to Qappamiut Road	lump sum	1	\$	\$
6	Site Grading	lump sum	1	\$	\$
7	Weigh Scale	lump sum	1	\$	\$
7.1	Weigh Scale Radiation Detection Equipment – Provisional Item	lump sum	1	\$	
8	Pre-Engineered Steel Building	lump sum	1	\$	\$
9	Pre-Fabricated Office and Pre-Fabricated Scale House and Attendants Trailer	lump sum	1	\$	\$
10	Thermosiphon System	lump sum	1	\$	\$
11	Mezzanine Structural Steel and Composite Deck	lump sum	1	\$	\$

12	Miscellaneous Steel	lump sum	1	\$	\$
13	Structurally Reinforced Concrete	lump sum	1	\$	\$
14	Concrete Mat Foundation Floor Topping	lump sum	1	\$	\$
15	Electrical Site Servicing	lump sum	1	\$	\$
16	Electrical Distribution and Motor Controls	lump sum	1	\$	\$
17	Electrical Lighting	lump sum	1	\$	\$
18	Electrical Security Systems	lump sum	1	\$	\$
19	Electrical Fire Alarm	lump sum	1	\$	\$
20	Electrical Miscellaneous	lump sum	1	\$	\$
21	Mechanical Equipment				
21.1	Mechanical Site Servicing	lump sum	1	\$	\$
21.2	Heating, Ventilation, and Air-Conditioning	lump sum	1	\$	\$
21.3	Fire Suppression System	lump sum	1	\$	\$
21.4	Biomass Fuel Preparation and Boiler System	lump sum	1	\$	\$
21.5	Oil-Fired Boiler	lump sum	1	\$	\$
21.6	Emergency Generator	lump sum	1	\$	\$
21.7	Hydronic Systems	lump sum	1	\$	\$
21.8	Unit Heaters – Hydronic	lump sum	1	\$	\$
21.9	Unit Heaters – Electrical	lump sum	1	\$	\$
21.10	Air-to-Air Heat Recovery Equipment	lump sum	1	\$	\$
21.11	Air Curtain	lump sum	1	\$	\$
21.12	Mechanical Miscellaneous	lump sum	1	\$	\$
22	WTS Waste Processing Equipment				
22.1	Municipal Solid Waste Baling Unit	lump sum	1	\$	\$
22.2	Steel Belted Conveyor	lump sum	1	\$	\$
22.3	Bale Wrapper	lump sum	1	\$	\$
22.4	End-of-Life Lift	lump sum	1	\$	\$
22.5	Tire Shear and De-Rimmer	lump sum	1	\$	\$

22.6	Portable Metal Baler/Logger	lump sum	1	\$	\$
22.7	300 Spools of Film – Provisional Item	lump sum	1	\$	
22.8	50 Spools of Bale Wire – Provisional Item	lump sum	1	\$	
23	Used Oil Tank	lump sum	1	\$	\$
24	Pre-Fabricated Household Hazardous Waste Containment Unit	lump sum	1	\$	\$
25	New Shipping Containers	lump sum	1	\$	\$
26	Erosion Control	lump sum	1	\$	\$
27	Security	week	52	\$	\$
28	Site Project Sign	lump sum	1	\$	\$
29	Miscellaneous Items	lump sum	1	\$	\$
Schedule A – Total					\$

Schedule A – Total	\$
Contingency (10% of Total)	\$
Sub-Total 1	\$
GST (5% of Sub-Total 1)	\$
Total Tendered Price	\$

END OF SECTION

DRAWINGS**Drawing WTS-FP01 – FIRE PROTECTION FLOOR PLAN**

1. Detail 1 – Floor Plan
 - a. Add label 'T-1' to water tank near column B-11
2. Detail 2 – Below Mezzanine Plan
 - a. Add label 'T-1' to water tank near column B-11
3. Detail 3 – Fire Pump Room Plan
 - a. Add label 'T-1' to water tank near column B-11

Drawing WTS-FP02 – FIRE PROTECTION SYSTEM

1. Detail 1 – Fire Pump Flow Schematic
 - a. Add label 'T-1' to water storage tank at left of detail
2. Detail 2 – Fire Pump Room Section
3. Equipment Schedule
4. Add Description for T-1
Above Ground Glass-fused-to-steel Water Storage Tank, 170,550 liter capacity c/w 150 mm 150# flanged connection with centerline 711 mm above bottom of tank, 150 mm, sch 10 internal piping terminating with a 300 mm sq anti vortex plate 152 mm above bottom of tank, 750 mm dia manway, glass-fused-to-steel knuckle roof, and a gravity vent.

Drawing WTS M10 – HYDRONIC HEATING FLOW DIAGRAM

1. Note associated with Boiler B.1 to read, "Biomass Boiler, B.1 c/w Conveyors, Augers, Push Rod Bin, Shredder, Drum Magnet, Conveyors, Ash Auger, and all other components required to complete Biomass System by General Contractor".

Drawing WTS-M15**Boiler Schedule**

1. Delete comment that Boiler B.1 is to be Supplied & Installed by General Contractor.

Tank Schedule

1. Change description from, 'Water Storage Tank by General Contractor, Minimum Capacity 170,334 L' to "See Fire Protection drawing WTS-FP02".

SPECIFICATIONS

Specification Section 21 13 14 – Dry Pipe Sprinkler

1. Add Sentence 2.16 Water Storage Tank

2.16 Water Storage Tank

.1 General

- .1 Provide atmospheric glass-fused-to-steel bolt together water storage tank of size and capacity shown on the drawings. Edges of the steel sheets to be covered with glass as well to protect the edges from corrosion. Confirm maximum permitted height and diameter with the architectural and structural drawings.
- .2 Tank and tank material to meet:
 - .1 AWWA D103-97, Standard for Factory Bolted Steel Tanks for Water Storage.
 - .2 ASTM A36 or ASTM a992.
 - .3 NFPA 13, Standard for the Installation of Sprinkler Systems
 - .4 NFPA 20, Standard for the Installation of Stationary Pumps for Fire Protection
 - .5 NFPA 22, Water Tanks
- .3 Provide shop drawing for tank showing all weights, dimensions, connections, guarantee, and materials. Submit shop drawings in metric.
- .4 Provide a complete set of structural calculations for the tank structure and foundation. All such submissions shall be stamped by a Registered Professional Engineer licensed in Nunavut.

.2 Product

- .1 Provide all anchorages and supports.
- .2 All joints shall be bolted. All wetted joints shall also be sealed.
- .3 All bolts to conform to AWWA D103.
- .4 Minimum thickness of steel as per NFPA 22.
- .5 Supply tank c/w 750 mm dia manway, knuckle roof, gravity vent
- .6 Sheets to be shipped to site on protected skids c/w with all necessary accessories, hardware, and specialized tools.
- .7 Owner reserves the right to inspect material before shipping from the factory.
- .8 Individual tank sections to be isolated from each other during shipping with heavy paper or foam sheets placed between them.
- .9 Panels to be bolted, not welded together.
- .10 Provide tappings (threaded or flanged) for instrumentation. Coordinate size, connection type, and location with Sprinkler contractor.
- .11 Provide flanged connections in roof for return water and make-up water piping. Coordinate size, connection type, and location with Sprinkler contractor.
- .12 Provide a 300 mm diameter screened vent in the roof of the tank.
- .13 Provide an anti-vortex plate at the inlet for the pump suction line.
- .14 Provide a nameplate, readable by someone standing on the ground, listing manufacturer, date of manufacture, volume, height, diameter, and intended use.
- .15 Warrantee
 - .1 Glass Coating - If within a period of five (5) years from date of completion of the coating on the tank chips, cracks, spalls, or under-cuts during normal service, the manufacturer shall (after examination by the manufacturer) supply an identical or substantially similar replacement part f.o.b. the manufacturer's

- factory, or, at the manufacturer's option, repair or allow credit for such part.
- .2 Structure and Accessories - If within a period of two (2) year from date of completion, shall prove to be defective in material or workmanship upon examination by the manufacturer, the manufacturer will supply an identical or substantially similar replacement part f.o.b. the manufacturer's factory, or the manufacturer, at its option, will repair or allow credit for such part
 - .16 Provide shop drawings, installation instructions, guarantee, and operation and maintenance data in Maintenance manuals.
 - .17 Acceptable Manufacturers : Greatario
2. Add sentence 3.7 Water Storage Tank
- 3.7 Water Storage Tank**
- .1 Tank and accessories to be assembled on site according to the manufacturer's written instructions by contractors authorized by the manufacturer.
 - .2 Damage to the factory applied coating to be repaired as per the manufacturer's instructions or replaced.
 - .3 Damaged accessories shall be replaced.
 - .4 Starter ring to be installed level. The maximum differential elevation within the ring to be 3 mm and the maximum differential in elevation within any 3 m length of ring is to be 1.5 mm.
 - .5 Coordinate installation of Starter ring with installation of housekeeping pad. A leveling plate assembly and a slotted plate shall be used to secure the starter ring, prior to encasement in concrete. Installation of the starter ring on concrete blocks or bricks, using shims for adjustment, is not permitted.
 - .6 Clean and disinfect the tank before filling for testing.
 - .7 Testing
 - .1 Test the tank for tightness by filling the tank to the overflow level with water. Water level to remain without falling for four (4) hours.
 - .2 Provide water for water level test.
 - .3 Any leaks disclosed by this test shall be corrected by the erector in accordance with the manufacturer's recommendations.
 - .4 Obtain approval from Nunavut Water Board for Hydrostatic Testing and Disposal for all testing activities.
 - .8 Leave tank full with water at time of turn-over to the Owner.
 - .9 Post Occupancy Inspection - The manufacturer's authorized dealer shall make a visual inspection of the tank's interior coating and appurtenances at or near 16 months of operations; tank's exterior coating and appurtenances; and the immediate area surrounding the tank. A written summary of this inspection will be filed with the tank owner and the tank manufacturer.
 - .10 Acceptable Manufacturers: Greatario Engineered Storage Systems

Specification Section 21 30 00 – Fire Pumps

- .1 Add sentence 3.5.4
- .4 Manufacturer's Field Services may be performed by a contractor authorized by the Manufacturer.

Specification Section 23 09 33 – Electric and Electronic Control System for HVAC

- .1 Add sentence 2.5.2
- .2 AHU control panel to include a minimum of two (2) dry contacts for signals from the gas sensors.

.2 Add sentence 2.6 Carbon Monoxide Sensor

2.6 Carbon Monoxide Sensor

- .1 Provide a room or duct mounted CO gas detection sensor as indicated within the field termination schedules and/or control diagrams. CO detection sensors shall meet the following requirements:
 - .1 Setup to be fully microprocessor based via plug and play LCD.
 - .2 8 character, backlit LCD display. Measurement displayed in 1 ppm resolution.
 - .3 Polycarbonate enclosure.
 - .4 4-20 mA or 0-10 Vdc, output compatible with EMCS.
 - .5 Provide status LEDs on front panel.
 - .6 Provide test switch on front panel and remote test capability.
 - .7 Range : 0 – 250 ppm
 - .8 Accuracy : ± 5 ppm
 - .9 Power supply to be 20-30 V AC/DC @ 80 mA maximum for 24 V AC and 36 mA average @ 24 V DC.
 - .10 Programmable alarm trip point
 - .11 Operating temperature of -20°C to 50°C.
 - .12 Local alarm (horn and strobe when programmed high level is reached.
 - .13 Provide relays to connect to AHU control. Operation of relay not to impair the strobe or horn.
 - .14 Vandal resistant features include tamperproof screws in the cabinet.
 - .15 Multiple gas device (combined with NO₂) is permitted.
 - .16 Provide one (1) calibration kit to project.
- .2 Acceptable Manufacturers: Honeywell E3Point MSA TG5000

.3 Add Sentence 2.7 Nitrogen Dioxide Sensor

2.7 Nitrogen Dioxide Sensor

- .1 Provide a space NO₂ gas detection sensor as indicated within the field termination schedules and/or control diagrams. NO₂ detection sensors shall meet, at minimum, the following requirements:
 - .1 Setup to be fully microprocessor based via plug and play LCD.
 - .2 8 character, backlit LCD display. Measurement displayed in 1 ppm resolution.
 - .3 Polycarbonate enclosure.
 - .4 4-20 mA, output compatible with EMCS.
 - .5 Range : 0 – 10 ppm
 - .6 Accuracy : ± 0.2 ppm
 - .7 Power supply to be 20-30 V AC/DC @ 80 mA maximum for 24 V AC and 36 mA average @ 24 V DC.
 - .8 Adjustable trip point (1 ppm, 3 ppm, 5 ppm)
 - .9 Operating temperature of -20°C to 50°C.
 - .11 Local relay closes when trip point is reached.
 - .12 Provide relays to connect to AHU control. Operation of relay not to impair the strobe or horn.
 - .12 Vandal resistant features include tamperproof screws in the cabinet.
 - .13 Multiple gas device (combined with CO) is permitted.
 - .14 Provide one (1) calibration kit to project.
- .2 Acceptable Manufacturers: Honeywell E3Point MSA TG5000

Specification Section 23 11 13 – Facility Fuel Oil Piping

- .1 Add sentence 2.12.3

.3 Day tank to be c/w duplex pump, sensors, and overflow.

Specification Section 23 32 48 – Acoustic Air Plenums

.1 Add section 23 32 48 – Acoustic Air Plenums (shown at end of this section).

Specification Section 23 52 00 – Heating Boilers

1. Replace 2.1 Biomass Boiler (B-1) and feeding system

~~2.1 Biomass Boiler (B-1) and feeding system~~

- ~~.1 Supplied and installed by the Bio-mass Boiler Contractor:~~
 - ~~.1 Hot water biomass ASME boiler, 1000 kW (3.1 MMBTU).~~
 - ~~.2 Design Pressure 400 kPa (58 psi), maximum operating pressure 390 kPa (56.5 psi), test pressure 570 kPa (82.6 psi).~~
 - ~~.3 Design temperature 110°C (230°F).~~
 - ~~.4 Maximum flow temperature (supply/return) 105/85°C (221/185°F).~~
 - ~~.5 Flue gas temperature 170°C (338°F).~~
 - ~~.6 Fuel: wood chips, straw, wood pellet, and other biomass types of fuel.~~
 - ~~.7 Fully welded and gas tight construction.~~
 - ~~.8 Safety valves, shunt pump arrangement and other necessary equipment is part of the package.~~
 - ~~.9 Automatic compressed air cleaning system for flue pipes: 5.5 L pressurized air tanks with soot valves (Chokblastors) with silencers. Compressor for the system shall be supplied and installed by the Contractor.~~
 - ~~.10 Electrical Control and Surveillance System: PLC control, type Siemens S7.~~
 - ~~Power Supply: 480 V, 3 phase, 60 Hz.~~
 - ~~.11 Accepted product: type Linka H (ASME), supplied by Vecoplan.~~
- ~~.2 Dust Control supplied and installed by the Bio-mass Boiler Contractor~~
 - ~~.1 Dust Collector 3302 mm tall x 2667 mm long x 1270 mm wide.~~
 - ~~.2 1- 10.0 HP blower motor.~~
 - ~~.3 Capacity 2594 L/s.~~
 - ~~.4 Dumpster bin 870 L.~~
 - ~~.5 Size 838 mm wide x 1790 mm long x 927 mm tall.~~
 - ~~.6 Accepted product: Nederman S-1000.~~

with

2.1 Biomass Boiler (B-1) and feeding system

- .1 Package Boiler:
 - .1 Hot water biomass ASME boiler, 1000 kW (3.1 MMBTU).
 - .2 Design Pressure 400 kPa (58 psi), maximum operating pressure 390 kPa (56.5 psi), test pressure 570 kPa (82.6 psi).
 - .3 Design temperature 110°C (230°F).
 - .4 Maximum flow temperature (supply/return) 105/85°C (221/185°F).
 - .5 Flue gas temperature 170°C (338°F).
 - .6 Three-pass heat exchanger.
 - .7 Fuel: wood chips, straw, wood pellet, and other biomass types of fuel.
 - .8 Insulated with 100 mm mineral wool.
 - .9 Fully welded and gas tight construction.
 - .10 Pre-installed connection branches, flanges, and counter flanges, cleaning and access hatches.
 - .11 Safety valves, shunt pump arrangement and other necessary equipment is part of the package.
 - .12 Automatic ash removal auger system 1.2 m³ ash container.

- .13 Automatic compressed air cleaning system for flue pipes: 5.5 L pressurized air tanks with soot valves (Chokblasters) with silencers. Compressor for the system shall be supplied and installed by the Contractor.
- .14 Electrical Control and Surveillance System: PLC control, type Siemens S7. The controller secures a controlled and logical feed of fuel to the boiler, combustion, movement on grate. The self-regulated load control based on heat consumption between 30-100% load (300 – 1000 kW). Under 300 kW heat consumption it will go into ON/OFF mode and only run when needed, where it can self-ignite with the oil igniter.
- .15 System design parameters:
 - Fuel: Biomass, max. moisture content 30%, heating value min. 3.5 MW/ton, Density 300 kg/m³, ash content 1.5%, ash density 65 kg/m³.
 - Water quality: To recommendations of 1999 established by Danish Confederation of District Heating.
 - Power Supply: 480 V, 3 phase, 60 Hz.
- .16 Accepted product: type Linka H (ASME), supplied by Vecoplan.
- .2 Infeed Conveyor:
 - .1 Rubber belt 0.9 m (36 in.) wide.
 - .2 Length (pulley to pulley) 7.3 m (24 ft).
 - .3 Rubber cleats 76 mm (3 in.) tall on 1220 mm (48 in) centers.
 - .4 Discharge height 2286 mm (90 in.).
 - .5 Incline angle 20°.
 - .6 Flared receiving hopper 1168 mm (46 in.) wide x 610 mm (24 in.) deep.
 - .7 Drive 2.0 HP.
 - .8 Pull cord emergency stop.
 - .9 Accepted product: Vecoplan RI 36/24 Infeed Conveyor.
- .3 Shredder:
 - .1 Cutting rotor 380 mm (15 in.) diameter x 1067 mm (42 in.) wide.
 - .2 Cutting chamber 1067 mm (42 in.) x 1194 mm (47 in.).
 - .3 54 cutters (40 mm x 40 mm).
 - .4 Electronic Slip Control (ESC) Belt drive transmission.
 - .5 No gearbox in the powertrain.
 - .6 Motor 60 HP.
 - .7 VFD speed control (0 – 265 rpm).
 - .8 Built in hydraulic unit with 3 HP VFD to power the process ram.
 - .9 Allen Bradley touchscreen control panel.
 - .10 Accepted product: Vecoplan VHZ 1100 XL Shredder.
- .4 Screw Auger Chain Combo Discharge Conveyor:
 - .1 Screw auger 305 mm (12 in.) diameter.
 - .2 Horizontal mount.
 - .3 Length 1524 mm (60 in.).
 - .4 Feeds into 483 mm (19 in.) wide paddle chain conveyor.
 - .5 Centrally mounted single 100 mm chain.
 - .6 Common drive unit for screw auger and chain conveyor.
 - .7 Incline angle 45° on chain conveyor.
 - .8 Discharge height 2362 mm (7'-9").
 - .9 SEW Eurodrive 5.0 HP gear motor.
 - .10 Accepted product: Vecoplan TS-315/KKF-500-1K-U Screw Auger Chain Discharge Conveyor.
- .5 Rotary Drum Magnet:
 - .1 Drum 457 mm (18 in.) diameter, 610 mm (24 in.) wide.
 - .2 1.0 HP Drive.
 - .3 Externally adjustable magnet position.

- .4 Ferrous metal discharge chute.
- .5 Clean material discharge chute.
- .6 Complete unit constructed of 304 stainless steel.
- .7 Container by Contractor (approx. 1 yard tip hopper type).
- .8 Accepted product: Vecoplan DRU-18-24-AP-IH Rotary Drum Magnet.
- .6 Drag Chain Discharge Conveyor:
 - .1 Paddles 483 mm (19 in.) wide x 100 mm (4 in.) tall.
 - .2 UHMW Paddles with built-in cleaning brushes.
 - .3 Horizontal section 2997 mm (9'-10") long, with 45° elbow, 9525 mm (31'-3") incline length.
 - .4 Centrally mounted single 100 mm chain.
 - .5 45° incline angle on chain conveyor.
 - .6 Discharge height 5867 mm (19'-3").
 - .7 SEW Eurodrive 5.0 HP gear motor.
 - .8 Accepted product: Vecoplan KKF-500-1K-U Drag Chain Discharge Conveyor.
- .7 Push Rod Bin:
 - .1 Size 9 m (30 ft.) long x 2.4 m (8 ft.) wide x 4 m (13 ft.) tall.
 - .2 Stand 1346 mm (4'-5") tall.
 - .3 (2) Hydraulic drive cylinders with 457 mm (18 in.) stroke.
 - .4 Hydraulic drive unit 15.0 HP, with cooling fan and tank heater.
 - .5 Choke fed 5.0 HP, 229 mm (9") incline discharge screw.
 - .6 2.0 HP, 229 mm (9 in.) self leveling screw, located in top of bin.
 - .7 Manually activated deluge sprinkler system, 38 mm (1.5 in.) pipe connection, 3 sprinkler heads, 3.8 L/s at 413 kPa (60 GPM at 60 PSI).
 - .8 (2) Sets Telco level sensors.
 - .9 (6) Viewing windows per each side of bin.
 - .10 (1) 915 mm (3 ft.) x 915 mm (3 ft.) bolt on entry service door, located at discharge end of bin.
 - .11 Accepted product: Vecoplan 100 yard Modular Push Rod Bin.
- .8 Incline Screw Auger (from pushrod bin discharge to screw feeding stoker):
 - .1 Incline tube screw 305 mm (12 in.) diameter x 10.7 m (35'-2") long.
 - .2 Meter fed from discharge screw.
 - .3 (2) Internal wood bearings.
 - .4 (2) External mounted bearing 1 each at feed end and drive end.
 - .5 45° incline angle.
 - .6 Discharge height 6.8 m (22'-4").
 - .7 5.0 HP motor drive.
 - .8 Accepted product: Vecoplan Incline Screw Auger.
- .9 Horizontal Screw Auger (to feed boiler stoker feeder):
 - .1 U-trough screw auger 305 mm (12 in.) diameter x 16.8 m (55 ft.) long.
 - .2 Discharge height 6655 mm (21'-10").
 - .3 (1) Air actuated slide gate, located 8230 mm (27 ft.) from infeed end of conveyor.
 - .4 Meter fed from incline tube screw.
 - .5 (4) Internal wood bearings.
 - .6 (2) External mounted bearings 1 each at feed end and drive end.
 - .7 Horizontally mounted.
 - .8 5.0 HP gear motor drive.
 - .9 Accepted product: Vecoplan Horizontal Screw Auger
- .10 Dust Control:
 - .1 Dust Collector 3302 mm (10'-10") tall x 2667 mm (8'-9") long x 1270 mm (4'-2") wide.
 - .2 (1) 10.0 HP blower motor.
 - .3 Capacity 2594 L/s (5,500 CFM).

- .4 Filter Media 33.4 m² (360 sq. ft.).
- .5 24 filter bags.
- .6 Dumpster bin 870 L (230 gallon).
- .7 Size 838 mm (33 in.) wide x 1790 mm (70.5 in.) long x 927 mm (36.5 in.) tall.
- .8 Accepted product: Nederman S-1000.

Specification Section 23 72 00 – Air to Air Energy Recovery Equipment

1. Add sentence 2.3.11
.11 Provide inverter duty rated motors.
2. Replace sentence 5 '~~Non Fused Disconnect switch by Div 26~~' with 'Provide Non Fused Disconnect Switch'.
3. Sentence 2.6.7 - List of items to control from control panel to include :
 1. Engraved laminoid faceplate.
 2. System ON/OFF switch c/w Green / Red lights indicating status.
 3. Pressure differential switch across filters with a warning light to illuminate when the filters are dirty.
 4. Glycol coil modulating valve and Heat Pipe to be controlled based on S/A temperature set at the panel.
 5. Outdoor air and exhaust air damper control to close the dampers when the unit is not running.
 6. Variable Frequency Drives
 7. Contacts for wiring from the gas sensors (specified in section 23 09 33). Unit to run at full speed when the gas sensors indicate high level of CO or NO₂. A Red warning light to illuminate on panel when this condition exists.
 8. Seven (7) day programmable time clock.
4. Add sentence 2.6.9
.9 It is the intent that the AHU run continuously.

Project Name:

2022-RFT-026 – Solid Waste WTS Construction

Addendum No.:

3

NEW SPECIFICATION SECTION

Part 1**1.1 RELATED SECTIONS**

- .1 Section 23 05 00 – Common, Work Results - HVAC
- .2 Section 21 33 13.1 – Metal Ducts - Low Pressure to 500 Pa.
- .3 Section 23 07 13 – Thermal Insulation for Ductwork.

1.2 REFERENCES

- .1 American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE).
- .2 American Society for Testing and Materials International (ASTM)
 - .1 ASTM A653/A653M-20, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .2 ASTM C423-17, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
 - .3 ASTM E90-09(r2016), Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
 - .4 ASTM E477-20, Test Method for Measuring Acoustical and Airflow Performance of Duct Liner Materials and Prefabricated Silencers.
- .3 National Building Code (NBC).
- .4 Sheet Metal and Air Conditioning Contractors' National Association (SMACNA).

1.3 SUBMITTALS

- .1 Provide Shop Drawing and Maintenance Manual submittals in accordance with Section 01 33 00 – Submittal Procedures and Section 21 05 00 – Common Work Results - HVAC.
- .2 In addition to requirements of Section 21 05 00 – Common Work Results - HVAC Shop drawing submittal for duct silencers shall include location, dimensions, independent laboratory certified dynamic insertion loss, transmission loss, acoustical absorption, self-noise, and pressure drop for each silencer.
- .3 Acoustical performance measurements in accordance with ASTM E477, ASTM E90 and ASTM C423

Part 2 **Products****2.1 ABSORPTION AND INSULATING MEDIA**

- .1 Filler material shall be inorganic mineral or glass fibre of a density sufficient to obtain the specified acoustic performance and be packed under not less than 5% compression. Material shall be inert, vermin and moisture proof. The material shall be enclosed with a tight woven fabric beneath the perforated liner.
- .2 Combustion rating of the filler and sealant material shall meet or exceed the following when tested in accordance with ASTM E84, NFPA Standard 255 or U.L. No. 723:

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1. Flame Spread = 25.
2. Smoke Development Rating = 50.
3. Fuel Combustion = 20.

2.2 **SILENCERS**

- .1 Factory manufactured of prime coated or galvanized steel, compatible with ductwork specified elsewhere and to ASHRAE and SMACNA standards.
- .2 Casings for rectangular units shall be not lighter than 22 gauge and those for round units shall be not lighter than shown in the following:
 - .1 Up to 600 mm: 22 gauge.
 - .2 650 mm to 1,000 mm: 20 gauge.
 - .3 1,050 mm to 1,250 mm: 18 gauge.
 - .4 1,300 mm to 1,500 mm: 16 gauge.
- .3 Interior casings for rectangular silencers shall be made of not less than 26 gauge, galvanized, perforated steel.
- .4 Additional air tightness, when required, shall be provided by use of duct sealing compound applied at the job site.
- .5 Silencers shall not fail structurally when subjected to a differential air pressure of 2,000 Pa inside to outside of casing.
- .6 Acoustic rating of silencers shall be determined in duct to reverberant room test facility which provides for air flow in both directions through the test silencer during rating. The test set-up and procedure shall be such that all effects due to end reflection, directivity, flanking transmission, standing waves and test chamber sound absorption are eliminated. Acoustic ratings shall include Dynamic Insertion Loss (DIL) and Self-Noise (SN) power levels with air flow of at least 10 m/s entering face velocity.
- .7 Construction of units, including those consisting of assemblies of modular units shall be inherently airtight. Leak test pressure shall be not less than 1,500 Pa.
- .8 Sound attenuators shall be constructed and installed that they will not pant, vibrate, rattle, or otherwise react to system pressure variations. Mechanical fastenings which may

loosen, such as nuts and bolts and sheet metal screws, shall not be used in unit assemblies.

- .9 Performance: units to reduce sound transmission by 25 db in the 250 Hz band.
- .10 Acceptable Materials: E.H Price, Kinetics, VAW Systems, Vibro-Acoustics, Vibron.

Part 3 **Execution**

3.1 **MANUFACTURER'S INSTRUCTIONS**

- .1 Comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheet.

3.2 **INSTALLATION**

- .1 Noise flanking: where indicated, install in wall sleeve with uniform clearance around to ensure no contact of silencer with wall sleeve. Pack with flexible, non-hardening caulking on both sides of sleeves.
- .2 Support silencers from structure independently of ductwork and work of other trades.

END OF SECTION