

December 11, 2023

ADDENDUM #2
NWIT-23-19
SA-28 Pump Station Upgrades
New Westminister, BC

This addendum modifies the Invitation to Tender only as noted:

Please review the following information before submitting your tender on this project. This Addendum forms part of the contract documents and is to be incorporated into these documents. The **Tender Form** shall be amended to include the following:

The contract requirements shall be amended as follows:

- 1) The following drawings are updated:
 - a. Drawing C-101 Rev-2 (attached)
- 2) Specification Section 11205 – Sewage Pump is replaced with Revision 3 (attached).
- 3) Coatings:
 - a. Air Vent
 - i. The air vent for the pump station shall be coated per Sections 09900 and 09920.



- b. Interior of Kiosk
 - i. Interior Surface Preparation
 1. The interior surfaces of the kiosk shall be prepared where practicable and safe to do so.
 2. The interior surfaces of the kiosk shall be prepared where practicable and safe to do so.
 3. Surface preparation shall be per the requirements of Section 09920 (SSPC-SP 2 ; Hand Tool Cleaning)
 4. The contractor shall pay particular attention to the base areas of the kiosk where rust is present.

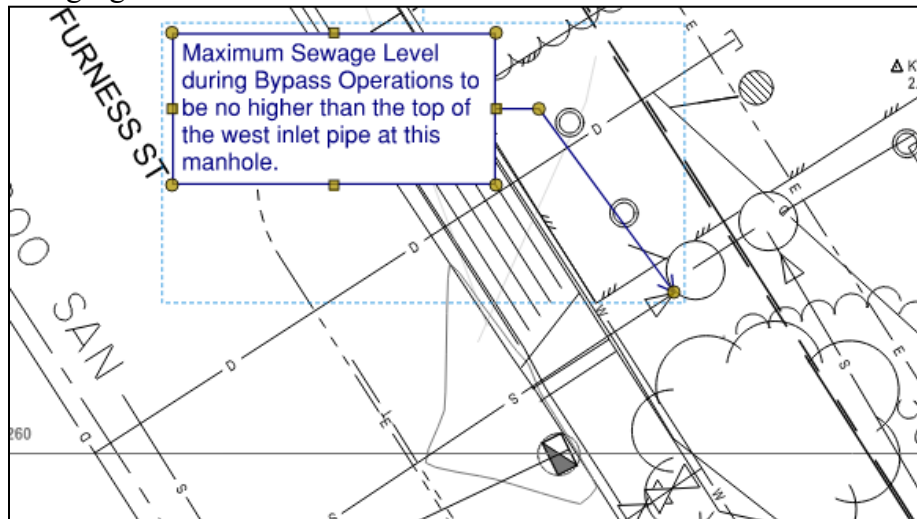
- ii. Interior coatings
 - 1. Interior surfaces shall be re-painted where practicable and safe to do so.

- 4) Sewage Flows
 - a. The ‘typical’ daily flows through the pump station have been estimated to range from about 400 m³/day to about 1,000 m³/day.
 - b. This is based on records of the sewage-pump run-times and the theoretical flow rate from the pump.
 - c. During high rainfall periods and particularly periods when high rainfall coincides with high river levels, flows through the pump station are expected to be significantly higher than the above values.
 - d. Instantaneous flow rates are expected to follow a daily diurnal cycle, with higher flows in the morning and evening, and lower flows through the middle of the night.

- 5) Preparation of Workplace
 - a. Contractor shall be responsible for isolating, draining and cleaning the pipes and wet well as needed to allow the work to proceed. This includes, but not limited to, the inlet pipe, the wet well and the discharge forcemain.

- 6) VFD’s
 - a. Schneider VFD’s are added to the list of approved VFD suppliers.
 - b. It should be noted that space is very limited in the electrical cabinet.
 - c. Not all approved VFD suppliers may have suitable VFD’s that fit into the available space.
 - d. The contractor is responsible for selecting VFD’s that they can fit into the available space.

- 7) Section 01500 / Management and Disposal of Sewage During Upgrades / Bypass Operations is modified as follows:
 - a. An alternate maximum sewage level upstream of pump station is illustrated on the following figure:



- 8) Section 01510 – Bypass pumping is modified as follows:
- a. Contractor to submit bypass plan to Owner for approval, not the Engineer.
 - b. Paragraph 1.3 to be revised to read:

1.3 Responsibility for Supply, Installation Operation and Removal of Temporary Pumping Facilities (some items noted herein remain as permanent appurtenances for future bypasses as shown on the drawings)

.1 The Contractor shall be responsible for all aspects of the temporary pumping facilities including, but not limited to the following:

- a. Supply and installation of the permanent isolation valve on the pump station inlet sewer, supply and installation of the permanent bypass chamber and associated bypass piping and modifications to the forcemain, temporary pumps, sewers, forcemains, and forcemain connections.
- b. Equipment rentals, including at least two connected pumps (one prime and one standby pumping unit – one pump rated for the maximum specified flow and head).
- c. Power supply and controls including a standby control panel (electrical power will not be made available from the facility by the Owner).

.2 The Owner reserves the right to install their own personnel to operate and/or service the temporary pumping facility at any time and without notice.

- a. This step will be taken in the event that the Owner perceives a threat to the reliability of the temporary facility that is not being rectified immediately by the Contractor to the satisfaction of the Owner.

- 9) Specification Section 15115 is modified as follows:
- a. Add to 15115 Sewage Piping Systems:
 - i. Steel sewage pipes to be coated on interior and exterior surfaces to AWWA standard C-210: Prepare surfaces of pipe and coat with liquid epoxy in accordance with the requirements of AWWA C210. Two coats of ICI Devoe Bar Rust 233H New Technology Epoxy (available from ICI Paints, 604-940-3998) in accordance with the manufacturer's instructions or approved equal.

Please acknowledge this addendum as directed in the Form of Tender.

END OF ADDENDUM #2

Yours truly,



Heather Rossi
Procurement Specialist

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Part 1 General

1.1 Work Included

- .1 The work in this section shall include the supply, installation and placing into operation one submersible sewage pump complete with submersible motor, guide rails, discharge elbow connection, and cable, as specified herein and as indicated on the drawings. The complete pump assembly shall be submersible up to 65 feet (20 m) above the inlet pipe level.
- .2 Furnish all labour, material, equipment and services for the design, fabrication, testing, supply, delivery, and installation of the pumps specified herein.
- .3 Supply complete and operable units with all necessary auxiliaries, unless specifically excluded.
- .4 Identify all equipment by the Equipment Number.
- .5 Note: A discharge elbow and discharge pipe was installed for Pump 3 at the time of the original pump station. Note the requirements for the pump-to-discharge elbow connection outlined below.

1.2 Related Work

- .1 Section 01110 – Summary of Work
- .2 Section 01330 – Submittals
- .3 All mechanical sections (Division 15)
- .4 All electrical sections (Division 16)

1.3 References

- .1 American Society for testing and material (ASTM) International
 - a. A 48: Standard Specification for Gray Iron Castings; and
 - b. A743: Standard Specification Iron-Chromium Nickel, Corrosion Resistant.
- .2 American National Standards Institute (ANSI):
 - a. B16.1: Standard for Cast Iron Pipe Flanges and Flanged Fittings, 125 lb.
- .3 Hydraulic Institute: Current Standards.
 - a. HI 14.6: Hydrodynamic Pumps for Hydraulic Performance Acceptance Tests; and
 - b. HI 11.6: Submersible Pump Tests.

1.4 Environment Conditions

- .1 The pumps shall be suitable for pumping sewage.
- .2 The pumps will be installed in a wet well.

1.5 Pump Performance Requirements

- .1 The pump station **has two existing pumps and** shall be equipped with one (1) additional submersible wastewater pumps with a semi-open multi vane impeller designed to transport wastewater with fibrous materials like wet wipes.
- .2 Due to the presence of sand and grit the impeller shall be made of high chromium cast iron with at least 24% chrome. Impellers that have surface hardening (by thermal, coating, etc.) will not be allowed.

- .3 **Each The new** pump shall be capable to lift **32 L/s** at a total dynamic head of **14.8 m**.
- .4 The hydraulic efficiency in this duty point shall be not less than **68%** and approved according to HI 11.6:2012 Grade 2B.
- .5 The pump shall run smoothly over the entire operating speed range of the pump, from shut-off to full run-out condition as defined by the manufacturer's pump curves, and such that:
 - a. the motor does not overload or use the service factor at any point; and
 - b. there is no vibration in excess of that allowed by the Hydraulic Institute Standards.

1.6 Pump Warranty

- .1 The pumps ~~and service carts~~ shall be provided with prorated 60 months (5 years) warranty against defects in materials and or workmanship. Unless otherwise specified, all other equipment shall be warranted for 12 months (1 year). The warranty shall be in printed form and previously published as the manufacturer's standard warranty for all similar units manufactured, latest revision. Upon warranty occurrence, the manufacturer's authorized service center shall remove the pump, repair, reinstall and provide start up on the repaired pump. A detailed failure analysis shall be submitted to the Owner for their records summarizing corrective action taken.
- .2 ~~The manufacturer shall guarantee clog-free operation for a period of 12 months from the date of start-up of the pumps by the local authorized factory representative. A certificate shall be provided to the Owner on the day of start up with the local contact information and effective date. If the impeller clogs with typical solids or modern trash debris normally found in domestic wastewater during this period, an authorized representative shall travel to the jobsite, remove the pump, clear the obstruction, and reinstall the pump at no cost for the Owner. A written report shall be provided to the Owner detailing the service call with pictures for verification purposes.~~

1.7 Quality Assurance

- .1 The pump shall be designed and operate to Hydraulic Institute Standards for materials, tolerances, vibration, and nozzle loads.
- .2 Work shall be carried out only by qualified tradesmen.
- .3 Coupled pumps shall be aligned by a qualified millwright and alignment certified.
- .4 Ensure pumps operate at specified system fluid temperatures without vapour binding and cavitation, are non-overloading in parallel or individual operation, and operate within 25% of the flow midpoint of published maximum efficiency curve.
- .5 Motors shall be high efficiency and inverter duty rated.
- .6 Each pump shall be tested in accordance with **the latest revision of the** Hydraulic Institute (HI) standards for Rotodynamic Pumps for Hydraulic Performance Acceptance Tests **(2011)** for measurement of flow, head, power input to the pump, and Net Positive Suction Head Required. The substitution of a model pump for the test will not be acceptable.
- .7 The pumps shall be tested at the pump manufacturer's testing facility and testing shall be 'non-witnessed'. The test results shall be summarized in a report and one electronic pdf copy of the certified results of all tests shall be submitted to and approved by the Engineer prior to shipping the pumping units.

1.8 Submittals

- .1 Submittal data shall be provided to show compliance with these specifications, plans or other specifications that will influence the proper operation of the pump(s).
- .2 Standard submittal data for approval must consist of:
 - a. Pump Performance Curves;
 - b. Pump Outline Drawing;
 - c. Station Drawing for Accessories;.
 - d. Electrical Motor Data;
 - e. Typical Installation Guides;
 - f. Technical Manuals and Parts List;
 - g. Printed Warranty;
 - h. Management system certificate ISO 9001;
 - i. Manufacturer's Equipment Storage Recommendations;
 - j. Manufacturer's Standard Recommended Start-Up Report Form; and
 - k. Show pump operating weights, dimensions, clearance for operation and maintenance, motor and pump operating efficiencies and electrical power characteristics.

1.9 Delivery, Storage, and Handling

- .1 Equipment shall be shipped on suitable pallets and covered at all times with weatherproof tarps.
- .2 Equipment shall be stored indoors in a heated space.
- .3 Openings shall be blanked off to prevent moisture ingress.

Part 2 Products

2.1 General

- .1 All products shall be new, undamaged, and free from rust and defects.
- .2 All products of a similar nature shall be the product of a single manufacturer.
- .3 Statically and dynamically balance rotating parts.
- .4 Construction shall permit complete servicing without breaking piping or motor connections.
- .5 Provide lifting hooks on all equipment.
- .6 Provide non-witnessed factory tests of the pumping equipment, with digital performance certificate for the following test parameters:
 - a. Hydraulic Test Curve;
 - b. Current and Power consumed during the test;
 - c. Megger Test – verification of the electrical resistance to ground;
 - d. Water infiltration and oil check; and
 - e. Monitoring device checks of motor temperature and leakage detectors.
- .7 Provide a stainless-steel nameplate clearly inscribed with the following:
 - a. manufacturer's name;
 - b. year of manufacture;
 - c. model number;
 - d. serial number;
 - e. rated capacity (litres per ~~minute~~ **second**);
 - f. rated TDH (metres);
 - g. speed at rated capacity; and
 - h. bearing numbers.

2.2 Acceptable Manufacturers

- .1 Standard of acceptance:
 - a. Xylem FLYGT Submersible Sewage Pumps, Model NP 3127 HT 3~ Adaptive 488, 600 V, 10 HP; or
 - b. approved equal.

2.3 Pump Accessories

- .1 Power Cable:
 - a. Provide Type SOW Cabtire cable; and
 - b. Provide 20 meters minimum with pump.
- .2 Leakage and temperature detectors:
 - a. Thermal sensors shall be used to monitor stator temperatures. The stator shall be equipped with thermal sensors, embedded in the end coils of the stator winding (one sensor in each stator phase). These shall be used in conjunction with and supplemental to external motor over-current protection and wired to the control panel;
 - b. Provide moisture sensors in the oil chamber between the motor and the pump volute to detect any leakage past the lower seal;

- c. The lower bearing housing shall include an independent thermal sensor to monitor lower bearing temperature;
 - d. Provide signal cables from pump to control panel; and
 - e. Provide remote relay or diagnostic controller/pump condition monitoring unit for mounting in the pump control panel.
- .3 Connection Assembly to Connect Pump to Existing Discharge Elbow
- a. Contractor to confirm the condition and size of the existing discharge elbow at base of pump station (100 mm/4" or 150 mm/6");
 - b. If the existing discharge elbow is a 100 mm/4" connection, and there is a 4" x 6" expansion in the pipe riser downstream of the discharge elbow, then the pump shall be supplied with a 4" discharge connection Part Number P/N 540 13 05 for connection to the existing 4" discharge elbow; and
 - c. If the existing discharge elbow is a 150 mm/6" connection, and the riser pipe downstream of the discharge elbow has no 4" x 6" expansion, then the pump shall be supplied with a 6" connection assembly Part Number P/N 444 70 06, and a 'spacer', Part Number P/N 13 – 52 06 90 for connection to the existing 6" discharge elbow.

Part 3 Execution

3.1 Pump Installation

- .1 The pumping units shall be installed in accordance with the instructions of the manufacturer.
- .2 Contractor shall allow for wiring from panel to pumps.
- .3 All work shall be in accordance with the Hydraulic Institute Standards and accepted millwright practice.

3.2 Start-up and Commissioning

- .1 A local authorized factory representative of the pump supplier shall be retained to assist the installation contractor with the start-up of the pump.
- .2 The representative shall check pump installation, pump rotation and document power draw on each phase of the pump power cables.
- .3 The representative shall provide a start-up and commissioning report to the owner.

Revision History

Rev. No.	Date	By	Checked By	Issued For	Comment
0	July 2022	AMAC	DCL	Tender	
1	November 2023	DCL	DCL	Issued for Re-Tender	
2	December 2023	DCL	AEB	Tendering – Addendum 2	

End of Section