

SECTION 11215 PUMP RECONDITIONING AND UPGRADE

PART 1 - GENERAL

1.01 SUMMARY:

- A. CONTRACTOR shall provide all labor, materials and equipment necessary to recondition and upgrade the vertical axial flow propeller pumps as specified herein. The WORK shall include, but not be limited to, the following tasks:
 - 1. Remove and replace the following pump components with new components:
 - a. Suction bell, fasteners, gaskets and associated connection hardware.

1.02 SYSTEM DESCRIPTION:

- A. There are three 500 HP vertical axial flow pumps manufactured by Morrison Pump Company (MANUFACTURER) at G420 Pump Station. Pump flow capacity is 223 cubic feet per second per pump at a design static head of 11.5 feet. Nominal pump rotational speed is 270 rpm.
- B. The bearing data listed below are estimates only, pending acquisition of manufacturer's shop drawings or, if necessary, measurements of actual components after pump disassembly. All dimensions and data shall be field verified by CONTRACTOR.

Service	Shaft Dia. (in)	Bearing Thk. (in)	Bearing Length (in)
Top Bearing	N/A	N/A	N/A
Lineshaft Bearing No. 1	N/A	N/A	N/A
Lineshaft Bearing No. 2	N/A	N/A	N/A
Lineshaft Bearing No. 3	N/A	N/A	N/A
Bowl Bearing	N/A	N/A	N/A
Bell Bearing	N/A	N/A	N/A

1.03 QUALIFICATIONS: This WORK shall be undertaken only by an experienced pump repair contractor for this size and type of pump. CONTRACTOR shall submit a certification from the MANUFACTURER, attesting that CONTRACTOR is qualified to install the equipment.

1.04 WARRANTY:

- A. The MANUFACTURER shall warrant the EQUIPMENT, MATERIALS, and PRODUCTS specified in this section against defective materials and workmanship with the MANUFACTURER's standard warranty, but for no less than five years from the date of Substantial Completion, and as described in Article 13 of SECTION 00700 - General Terms and Conditions. If the MANUFACTURER's standard warranty is less than the stipulated period, the MANUFACTURER shall provide a special MANUFACTURER's extended warranty for the stipulated period, or a Maintenance Bond in the form attached herein, to extend the MANUFACTURER's warranty period for the stipulated period.
- B. The CONTRACTOR shall warrant the WORK against defects for one year from the date of Substantial Completion and as described in Article 13 of SECTION 00700 - General Terms and Conditions.

1.05 SUBMITTALS:

- A. Submit as specified in SECTION 01300.

- B. Subcontractor's Qualifications, in accordance with Paragraph 1.04
 - 1. ISO 9001 Certification
 - 2. References
 - 3. Manufacturer certifications
- C. Mechanical details including:
 - 1. Suction bell and hardware
 - 2. Coating system data
 - a. Description
 - b. Manufacturer
 - c. Applicator
 - d. Experience
 - e. Bond strength
 - f. Surface preparation requirements
 - g. Application procedure
 - h. Test procedure
- D. Pump teardown inspection report
- E. Test Reports and Procedures:
 - 1. Factory Test:
 - a. Factory test setup and test procedure
 - b. Component balance procedures and acceptance criteria
 - c. Factory test report
 - 2. Field Operating Test:
 - a. Field test procedure including vibration test and operation test
 - b. Field test report
- F. Warranty

PART 2 - PRODUCTS

- A. PUMP HOUSINGS: New suction bell shall be minimum 3/8-inch thick A36 steel and painted with epoxy. Surface preparation (SSPC) of steel and dry film thicknesses (DFT) of paint shall be per manufacturer specification. Following surface preparation, suction bell shall be shop painted with two coats of inorganic zinc primer. After priming, the pump interior surfaces shall be coated with a urethane Tnemec Series 69 or Amercoat 385. Exterior surfaces shall be coated with Tnemec Series 69, or Amerlock 400. Provide new hardware, including bolts, washers, and neoprene gaskets. All metal hardware shall be T316 stainless steel. Suction bell and hardware shall be provided by Morrison Pump Company (954-922-5880).
- B. SACRIFICIAL ANODES: Three (3) 5-pounds each sacrificial zinc anodes shall be fastened to the bell with T316 stainless steel studs to allow future replacement. Anode conductivity shall be confirmed.

PART 3 - EXECUTION

- 3.01 GENERAL: Remove, as a minimum, the existing suction bell

- A. Replace existing hydrocone suction bell and connection hardware with new painted open bell and connection hardware.

3.02 OPERATIONAL TESTING:

- A. General: All field operating and equipment tests shall be performed by the CONTRACTOR and in the presence of the DISTRICT. The manufacturer's field representative shall be present during all operating tests. The CONTRACTOR's monitoring and control subcontractor and/or electrical subcontractor shall also be present during all operating tests. The CONTRACTOR shall be responsible for the coordination of the various trades and responsible parties for the successful performance of all field tests. Should the tests reveal a design deficiency or a manufacturing error, the problem shall be promptly corrected by and at the expense of the CONTRACTOR.
- B. Wet Operating Tests: Conduct wet operational tests as necessary to determine that the performance of equipment and controls is as specified. Tests shall consist of placing all pump equipment in operation under the pumps' preferred operating region for a period of 4 hours. If the water conditions are not suitable at the time of the test, the test shall be postponed until conditions are acceptable.
 - 1. Pump Vibration Measurements:
 - a. Vibration testing shall be in accordance with SECTION 01665 – Equipment Vibration Testing.
 - b. Allowable field vibration level of vibration of the assembled pumping units shall be in accordance with SECTION 01665 – Equipment Vibration Testing.
 - 2. Monitoring and Control Systems Check: CONTRACTOR shall verify satisfactory operation of pump system monitoring and control systems.
- C. CONTRACTOR shall make all necessary equipment adjustments and corrective work indicated by tests.
- D. CONTRACTOR shall submit a written test report of all tests performed and their results to the DISTRICT.

END OF SECTION

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