DIVISION 14

CONVEYING EQUIPMENT

Part 1 General

1.1 SCOPE OF WORK

.1 Supply and install one (1) complete overhead (push trolley electric chain hoist) under running monorail crane systems as mentioned below. Any other requirements not set forth in these specifications, but necessary for the safe and reliable operation of the equipment, shall be included.

.1 CRN1: one (1) 2000Kg capacity over Dry Well in the proposed superstructure to lift the pumps including motors.

.2 Contractor shall furnish on this order:

.1 All material necessary for complete installation of the above-mentioned cranes including runway beams, hangers and clamps.

.2 Complete controls.

.3 Equipment operating instructions

.4 Drawings and parts lists as specified

.5 The complete system, including the installation, must conform to the applicable requirements of the latest edition of the following:

.1 Occupational Safety and Health Act (OSHA)

.2 American Gear Manufacturers Standards (AGMA)

.3 American National Standards Institute (ANSI)

.4 B30.10 . Hooks

.5 B30.16 . Overhead Hoists (underhung)

.6 B30.17 . Overhead and Gantry Cranes (top running bridge, single girder, underhung hoist)

.6 Contractor shall furnish the materials and labour for the following:

.1 Complete erection.

.2 Steel runway beams.

.3 Steel runway beam support systems as per contract drawings.

.4 Electric power service as required.

1.2 RELATED SECTIONS

.1 Section 05 50 00 – Metal Fabrications

1.3 REFERENCES

.1 The following is a list of standards which may be referenced in this Section:

.1 American National Standards Institute (ANSI):

.1 B30.10, Hooks.

.2 B30.11, Monorails and Underhung Cranes.

.3 HST 1M, Performance Standard for Electric Chain Hoists

.4 HST 2M, Performance Standard for Hand Chain Manually Operated Chain Hoists.

.5 MH27.1, Underhung Cranes and Monorail Systems.

.2 Canadian Standards Association:

.1 CSA C22.1, Canadian Electrical Code, Part I (20th Edition).

.2 CSA C22.2 No. 33-M1984 (R2004), Construction and Test of Electric Cranes and Hoists.

.3 National Electrical Manufacturer's Association (NEMA):
- .1 MG 1, Motors and Generators.
- .2 250, Enclosures for Electrical Equipment (1,000 volts maximum).

.4 Electrical Equipment Manufacturers Advisory Council (EEMAC):
- .1 M1-7, Motors and Generators.

.5 National Fire Protection Association (NFPA): 2005 National Electrical Code (NEC) (NFPA 70):
- .1 Article 610, Cranes and Hoists.

1.4 DESIGN REQUIREMENTS

.1 Monorail System: Specifications for Underhung Cranes and Monorail Systems,

ANSI MH27.1 and ANSI B30.11.

.2 Hoist: ANSI B30.11, Hoist Manufacturers' Institute.

.3 Trolley: ANSI MH27.1.

.4 Chain Hoist Service Class: ANSI HST 1M.

.5 Hook: ANSI 30.10.

Stress and Safety Factors: ANSI MH27.1 and ANSI B30.11. Properly select materials of construction for stresses to which subjected.

.6 Safety of Operation, Accessibility, Interchangeability, and Durability of Parts: ANSI B30.11 and OSHA requirements.

1.5 SUBMITTALS

.1 Submit certified Shop Drawings in accordance with Section 01 33 00 – Submittal Procedures.

.2 Submit the following:
- .1 Manufacturer's name and catalogue number of any equipment to be furnished not manufactured by vendor.
- .2 Any exception or difference of any equipment to be furnished from that specified and reason for the substitution.
- .3 Name and address of manufacturer's representative nearest the St. Boniface Industrial Park Phase 2 Pumping Station site maintaining 24-hour service facilities and complete stock of spare parts.
- .4 Supply spare parts as required for one year's maintenance.
- .5 Installation, operation, maintenance and lubrication manuals.
- .6 Shop drawing for the crane beam support systems sealed and signed by a professional Engineer registered in the Province of Manitoba.

Part 2 Products

2.1 DESIGN CONDITIONS

.1 The equipment will be operated in ambient temperatures ranging from 5°C to 40°C.

.2 All bearings in trolley and hoist shall be lifetime lubricated.

.3 Each hoist and chain shall be load tested to 125% capacity and test certificates shall be submitted to Contract Administrator.

.4 Size of crane beams and connection to roof framing shall be as per the contract drawings.

.5 Other design conditions:

Parameter	Value
Crane #	CRN#1
Crane Type	Underhung monorail cranes
Capacity rating (kg)	2000
Type of Trolley	Push Trolley
Monorail length(m)	As shown on structural drawings
Beam Size	S381x64
Beam Flange	140 mm
Total lift (m)	15
Hoist	Motorized
Design Standard	Columbus McKinnon Co. AM Army type
Chain	Stainless Steel
Acceptable Manufacturers	Columbus McKinnon Co., Kito, Harrington or approved equal in accordance with B7.

2.2 ELECTRICAL REQUIREMENTS

.1 All power supply shall be 120 V single phase or 208 V, 3 Phase, 60 Hz alternating current.

.2 Supply and install all necessary wiring to connect all parts to the equipment to the junction boxes installed by the electrical trade. All wiring shall be installed in accordance with the Canadian Electrical Code.

.3 All controls from hoists, trolleys etc., where electrified shall be of the pendent push-button type and shall operate on 110V, single phase, 60 Hz power alternating current.

Part 3 Execution

3.1 EQUIPMENT DESIGN SAFETY

.1 All equipment furnished to vendor's standard design, which incorporates weld elements, is to be welded in accordance with the appropriate codes and standards of the Canadian Welding Bureau and Canadian Standards Association.

.2 All equipment non-standard design to fulfill special requirements shall, in addition, meet the following:

.1 All critical welds, the failure of which would cause potential accidents or injuries to personnel, are to be executed with special attention as outlined in this section.

.2 An audit is to be made by the vendor to determine those welds to be in the critical category. Such welds are to be given special attention by the vendor to insure adequate quality control.

3.2 INSTALLATION

.1 Before leaving the factory the crane and hoist shall be tested under all motions.

.2 Install the equipment described above in accordance with the drawings and with strict adherence to the manufacturer's instructions.

.3 Ensure that the crane rails are perfectly horizontal, correctly aligned, and properly fastened to the supporting structures. Install the travel limits stops on each end of rails.

.4 Lubricate all necessary points on the as per manufacturer's recommended lubricates.

3.3 PAINTING AND FINISHING

.1 The crane assembly shall receive one shop coat of high visibility yellow epoxy paint.

.2 All exposed surfaces of crane to be painted after installation.

.3 The capacity of crane systems shall be clearly painted on the side of the crane beam.

3.4 INSPECTION AND TESTS

.1 Do performances test on each hoist and monorail systems.

.2 Load tests in compliances with OSHA, ANSI B30.11, and ANSI MH27.1.

.3 Final acceptance will be made after the entire installation and testing has been completed. All tests required to prove the ability of the crane shall be made by the Contractor. A vendor's representative is invited to attend.

3.5 GUARANTEE

.1 Vendor shall guarantee all materials and workmanship of equipment installed under these specifications for a period of one (1) years after installation.

END OF SECTION