1. GENERAL

1.01 SUBMITTALS

.1 Submit shop drawings/product data sheets for all equipment and associated hardware specified in this Section.

.2 Include pump motor product data sheets and pump performance curves with shop drawing/product data sheet submission.

1.02 CLOSEOUT SUBMITTALS

.1 Submit manufacturer/supplier installation certification letters as specified in Part 3 of this Section.

.2 Submit, prior to Substantial Performance of the Work, start-up or test data specified in Part 3 of this Section.

1.03 MAINTENANCE MATERIAL SUBMITTALS

.1 Submit sufficient granular salt for 12 complete regenerations.

2. PRODUCTS

2.01 SUBMERSIBLE PUMP SET

.1 Hydromatic Pumps submersible duplex sump pump set as per drawing schedule, each pump complete with:

.1 cast iron pump casing and motor cover;

.2 oil-filled, overload protected, submersible, ball bearing type, 3-phase motor with a minimum of 3 m (20') of PVC jacketed power cord pre-wired to motor;

.3 open, 2-vane type, non-clog impeller secured to a stainless steel pump and motor shaft;

.4 MTM guide rail package complete with cast iron discharge elbow, discharge flanges for connection to pumps, steel spacer, stainless steel upper guide rail bracket, and lift chain.

.2 Pump set control components, supplied by pump manufacturer, are to consist of:

.1 4 switches, each sealed in a polyurethane float and complete with a minimum of 3 m (20') of control cord; 3 for pump set control and 1 for sump high water level alarm;

.2 bracket to support float switch cables in the sump pit;

.3 duplex factory pre-wired and tested power and control panel complete with a NEMA 3R enclosure with hinged and gasketed padlockable door, galvanized steel back panel with power and control wiring terminal blocks, bundled and identified wiring, and following:

.1 circuit breaker, a H-O-A switch, an overload protected magnetic motor starter with test and reset pushbuttons, an identified "RUN" pilot light for each pump, and a relay alternating circuit to automatically alternate lead pump after each successive pumping cycle;

.2 fused control transformer;

.3 solid state pump controller with LED indicator lights;

.4 high level alarm horn with push to silence switch and automatic reset flashing red light;

.5 dry contacts for high water level alarm condition connection to a building automation system.

.3 Pump power cords and float switch cords must be of sufficient length to extend unbroken through sump pit conduit to wall on which starter and control panel is to be located.

.4 Manufacturers:

.1 Hydromatic Pumps;

.2 Liberty Pumps;

.3 F.E. Myers (Canada) Ltd.;

.4 ITT Flygt Canada;

.5 Barnes Pumps (GSW Pump Company).

.6 Zoeller

.7 Grundfos

2.02 SUMP FRAMES AND COVER PLATES

.1 Heavy-gauge hot-dipped galvanized steel sump curb frame with concrete anchors and 2-leaf minimum 8 mm (5/16") thick continuously hinged blank cover plate, complete with recessed lifting ring, gaskets, reinforced as required to suit the application and loading, and secured to frame by means of countersunk non-corrosive screws.

.2 Minimum 6.3 mm (1/4") thick, single or double leaf, steel or aluminium cover plate and reinforced as required to suit the application and loading, and complete with lift assistance, automatic hold-open arm(s) with grip handle release, type 316 stainless steel slam lock(s) with fixed interior handle and removable exterior turn/lift handle, type 316 stainless steel fasteners, and following:

.3 cover plate and curb frame designed/reinforced to withstand a live load of 732 kg/m2 (150 lb/ft2);

.1 steel angle frame with strap anchors welded around perimeter or extruded aluminium angle frame with strap anchors bolted around perimeter;

.2 concealed cast steel, cam-action hinges;

.3 zinc plated/chromate sealed [for both] hardware or Type 316 stainless steel [for both] hardware;

.4 cylinder lock with a keyway protected by a threaded cover plug;

.1 factory finish, mill finish aluminium with bituminous coating applied to exterior of frame [for aluminium construction] or alkyd base red oxide primer for steel construction;

.2 corrosion resistant, independently operated fibreglass fall protection grating in high visibility safety orange colour and complete with lift assistance, an automatic hold-open arm with a release mechanism, and a padlock locking panel to prevent unauthorized access when grate is closed but cover is open;

.3 submersible pump guide rails;

.4 vent pipe opening and discharge pipe opening with sealing flange, sealed opening(s) for pump power cord(s), and mounting plate with sealed opening(s) for control cables.

.5 Manufacturers:

.1 Bilco Corp.;

.2 Acudor Products Ltd.;

.3 Nystrom.

3. EXECUTION

3.01 DRAINAGE COORDINATION

.1 Coordinate drain requirements of plumbing equipment provided by Mechanical Division and or Owner with location of drains specified in Section 22 13 00.

3.02 INSTALLATION OF SUBMERSIBLE DRAINAGE PUMPS

.1 Provide submersible drainage pumps in sump. Refer to drawing detail.

.2 Provide required sump piping, including a shut-off valve and a check valve for each pump. Ensure valves are readily accessible from floor level and piping is easily removable for removal of pump(s) from sump.

.3 Install pump removal guide rail system with accessories in accordance with manufacturer's instructions.

.4 Install float switches at proper height in sump and secure cable to a sump wall mounted bracket such that cables cannot twist around each other.

.5 Leave pump power and control cables outside sump, neatly coiled, taped and identified for extension and connection to starting and control equipment.

.6 Hand pump starter and control panel(s) and high water level alarm panel(s) to electrical trade at site for installation.

.7 Provide sump and pump accessories.

.8 Clean sump(s) prior to Substantial Performance of the Work.

.9 For equipment/system start-up requirements, refer to Section 20 05 00 – Common Work Results for Mechanical.

.10 For equipment/system manufacturer certification requirements, refer to Section 20 05 00 – Common Work Results for Mechanical. Submit a copy of the letter prior to Substantial Performance of the Work.

.11 Include for 4 hours of on-site training for 2 groups of 6 people. Training is to be a full review of all components including but not limited to a full operation and maintenance demonstration, with abnormal events.

3.03 INSTALLATION OF SUMP FRAMES AND COVER PLATES

.1 Supply a frame and cover for each drainage sump. Covers and frames are to be delivered to site pre-assembled and installed as such. Carefully coordinate supply of frames and covers with concrete trade forming and

pouring sumps. Hand frames to concrete trade for incorporation into formwork.

.2 Follow manufacturer's installation instructions.

END OF SECTION