Part 1 General

1.1 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer's printed product literature, specifications and data sheet for fixtures and equipment.

.3 Shop Drawings.

.1 Submit shop drawings to indicate:

.1 Equipment, including connections, fittings, control assemblies and ancillaries. Identify whether factory or field assembled.

.2 Wiring and schematic diagrams.

.3 Dimensions and recommended installation.

.4 Pump performance and efficiency curves.

.4 Instructions: submit manufacturer's installation instructions.

.5 Closeout submittals: submit maintenance and engineering data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals, include:

.1 Manufacturers name, type, model year, capacity and serial number.

.2 Details of operation, servicing and maintenance.

.3 Recommended spare parts list with names and addresses.

Part 2 Products

2.1 SUMP PUMP SUBMERSIBLE

.1 Capacity: as indicated on the drawings.

.2 Motor: as indicated, hermetically sealed.

.3 Specific Requirements:

.1 SP-L10, SP-L11, SP-L12

.1 Motor:

.1 Internal overload protection.

.2 120VAC, 1Ø

.2 Power Cable:

.1 Heavy duty rated, oil and water resistant.

.2 Epoxy seal on motor end

.3 Length: 3m (10').

.3 Control: integral diaphragm type level control.

.4 Manufacturer and Model

.1 Goulds SP035V,

.2 Or approved equal in accordance with B6.

.2 SP-L14

.1 Solids handling capability: 19mm (3/4”)
.2 Discharge size: 50mm (2") NPT.
.3 Capacity and head: As shown on the drawings.
.4 Temperature: 40°C continuous
.5 Impeller: Silicone bronze
.6 Casing: Cast iron volute type
.7 Mechanical Seal: Silicon Carbide vs. Silicon Carbide sealing faces. Stainless steel metal parts, BUNA-N elastomers.
.8 Shaft: stainless steel.
.9 Fasteners: stainless steel.
.10 Capable of running dry without damage to components.
.11 Motor
  .1 575V, 3Ø
  .2 Fully submerged in highgrade turbine oil for lubrication and efficient heat transfer.
  .3 Suitable for a Class I, Zone 2 hazardous location.
.12 Bearings: Heavy duty ball bearing construction.
.13 Power Cable:
  .1 Severe duty rated, oil and water resistant.
  .2 Epoxy seal on motor end
  .3 Length: 6m (20').
.14 Control: separate float switches, as shown on the drawings.
.15 Manufacturer and Model
  .1 Goulds WE0537H with silicone bronze impellor,
  .2 Or approved equal in accordance with B6.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and data sheet.

3.2 INSTALLATION

.1 Make piping and electrical connections to pump and motor assembly and controls as indicated on the drawings, and as per manufacturer instructions.

.2 Ensure pump and motor assembly do not support piping.

.3 Align vertical pit mounted pump assembly after mounting and securing cover plate.

3.3 START-UP

.1 General:

  .1 Procedures:

    .1 Check power supply.

.2 Check starter O/L settings.

.3 Start pumps, check impeller rotation.

.4 Check for safe and proper operation.

.5 Check settings, operation of operating, limit, safety controls, over-temperature, audible/visual alarms, other protective devices.

.6 Test operation of hands-on-auto switch (if applicable).

.7 Test operation of alternator (if applicable).

.8 Adjust alignment of piping and conduit to ensure full flexibility.

.9 Eliminate causes of cavitation, flashing, air entrainment.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 American National Standards Institute (ANSI)/American Society of Mechanical Engineers International (ASME).

.1 ANSI/ASME B16.18-2001(R2005), Cast Copper Alloy Solder Joint Pressure Fittings.

.2 ANSI/ASME B16.22-2001(R2005), Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.

.2 American Society for Testing and Materials International, (ASTM).

.1 ASTM A307-10, Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.

.2 ASTM B88M-05(R2011), Standard Specification for Seamless Copper Water Tube (Metric).

.3 Health Canada/Workplace Hazardous Materials Information System (WHMIS).

.1 Material Safety Data Sheets (MSDS).

.4 Manufacturer's Standardization Society of the Valve and Fittings Industry (MSS).

.1 MSS-SP-80-2008, Bronze Gate, Globe, Angle and Check Valves.

.5 National Research Council (NRC)/Institute for Research in Construction.

.1 National Plumbing Code of Canada (NPC) - 2010.

1.2 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer's printed product literature, specifications and datasheet for equipment.

.2 Indicate dimensions, construction details and materials for specified items.

.3 Instructions: submit manufacturer's installation instructions.

.4 Closeout submittals: submit maintenance and engineering data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.3 DELIVERY, STORAGE AND HANDLING

.1 Packing, shipping, handling and unloading:

.1 Deliver, store and handle in accordance with Section 01 61 00 - Common Product Requirements.

.2 Deliver, store and handle materials in accordance with manufacturer's written instructions.

Part 2 Products

2.1 PIPING

.1 Domestic hot, cold and recirculation systems, within building.

.1 Above ground: copper tube, hard drawn, type L: to ASTM B88M.

.2 Buried or embedded: copper tube, soft annealed, type K: to ASTM B88M, in long lengths and with no buried joints.

2.2 FITTINGS

.1 Cast copper, solder type: to ANSI/ASME B16.18.

.2 Wrought copper and copper alloy, solder type: to ANSI/ASME B16.22.

2.3 JOINTS

.1 Solder: 95/5.

.2 Dielectric connections between dissimilar metals: dielectric fitting to ASTM F492, complete with thermoplastic liner.

2.4 BALL VALVES

.1 NPS 2 and under, soldered:

.1 To ANSI/ASME B16.18, Class 150.

.2 Bronze body, chrome plated brass ball, PTFE adjustable packing, brass gland and PTFE seat, steel lever handle, with NPT to copper adaptors.

Part 3 Execution

3.1 INSTALLATION

.1 Install in accordance with Manitoba Plumbing Code and local authority having jurisdiction.

.2 Assemble piping using fittings manufactured to ANSI standards.

.3 Connect to fixtures and equipment in accordance with manufacturer's written instructions unless otherwise indicated.

.4 Buried tubing:

.1 Lay in well compacted washed sand in accordance with AWWA Class B bedding.

.2 Bend tubing without crimping or constriction. Minimize use of fittings.

3.2 VALVES

.1 Isolate equipment, fixtures and branches with ball valves.

3.3 PRESSURE TESTS

.1 Conform to requirements of Section 23 05 00 - Common Work Results - Mechanical.

.2 Test pressure: greater of 1 times maximum system operating pressure or 860 kPa.

3.4 PRE-START-UP INSPECTIONS

.1 Systems to be complete, prior to flushing, testing and start-up.

.2 Verify that system can be completely drained.

.3 Ensure that air chambers, expansion compensators are installed properly.

3.5 START-UP

.1 Timing: Start up after:

.1 Pressure tests have been completed.

.2 Disinfection procedures have been completed.

.3 Certificate of static completion has been issued.

.2 Provide continuous supervision during start-up.

.3 Start-up procedures:

.1 Establish circulation and ensure that air is eliminated.

.2 Check pressurization to ensure proper operation and to prevent water hammer, flashing and/or cavitation.

.3 Check control, limit, safety devices for normal and safe operation.

.4 Rectify start-up deficiencies.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 ASTM International Inc.

.1 ASTM D2564-04(2009)e1, Standard Specification for Solvent Cements for Poly(Vinyl-Chloride) (PVC) Plastic Piping Systems.

.2 Canadian Standards Association (CSA International)

.1 CAN/CSA-Series B1800-06, Thermoplastic Nonpressure Pipe Compendium - B1800 Series.

.3 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

1.2 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Instructions: submit manufacturer's installation instructions.

.3 Closeout submittals: submit maintenance and engineering data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.3 DELIVERY, STORAGE AND HANDLING

.1 Packing, shipping, handling and unloading:

.1 Deliver, store and handle in accordance with Section 01 61 00 - Common Product Requirements.

.2 Deliver, store and handle materials in accordance with manufacturer's written instructions.

Part 2 Products

2.1 PIPING AND FITTINGS

.1 For above ground DWV piping to:

.1 CAN/CSA B1800.

2.2 JOINTS

.1 Solvent weld for PVC: to ASTM D2564.

Part 3 Execution

3.1 APPLICATION

.1 Manufacturer's Instructions: comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 INSTALLATION

.1 Install in accordance with Provincial Plumbing Code and local authority having jurisdiction.

3.3 TESTING

.1 Hydraulically test to verify grades and freedom from obstructions.

3.4 PERFORMANCE VERIFICATION

.1 Cleanouts:

.1 Ensure accessible and that access doors are correctly located.

.2 Open, cover with linseed oil and re-seal.

.3 Verify cleanout rods can probe as far as the next cleanout, at least.

.2 Test to ensure traps are fully and permanently primed.

.3 Ensure fixtures are properly anchored, connected to system and effectively vented.

.4 Affix applicable label (storm, sanitary, vent, pump discharge) c/w directional arrows every floor or 4.5 m (whichever is less).

3.5 CLEANING

.1 Clean in accordance with Section 01 74 11 - Cleaning.

.1 Remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 American Water Works Association (AWWA).

.1 AWWA C511-07, Reduced-Pressure Principle Backflow Prevention Assembly.

.2 Canadian Standards Association (CSA International).

.1 CSA-B64 Series, Backflow Preventers and Vacuum Breakers.

1.2 SUBMITTALS

.1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer's printed product literature, specifications and datasheet for fixtures and equipment.

.2 Indicate dimensions, construction details and materials for specified items.

.3 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

.4 Instructions: submit manufacturer's installation instructions.

.5 Closeout submittals: submit maintenance and engineering data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals, include:

.1 Description of plumbing specialties and accessories, giving manufacturers name, type, model, year and capacity.

.2 Details of operation, servicing and maintenance.

.3 Recommended spare parts list.

Part 2 Products

2.1 REDUCED-PRESSURE BACK FLOW PREVENTERS

.1 Preventers: to CSA-B64 Series, reduced pressure principle type.

.2 Valve body: bronze.

.3 End connections: threaded, NPT.

.4 Maximum working pressure: 1207 kPA (2413 kPa test).

.5 Temperature range: 0 to 60°C.

.6 Shutoff valve: full port, resilient seated, bronze ball valve with bronze ball valve test cock.

.7 Accessories: drain line air gap fitting.

.8 Acceptable material: Watts or approved equal in accordance with B6.

2.2 HOSE BIBBS AND SEDIMENT FAUCETS

.1 Bronze construction complete with integral back flow preventer, hose thread spout, replaceable composition disc, and chrome plated in finished areas.

2.3 STRAINERS

.1 860 kPa, Y type with 20 mesh, monel, stainless steel removable screen.

.2 NPS2 and under, bronze body, screwed ends, with brass cap.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and data sheet.

3.2 INSTALLATION

.1 Install in accordance with the National Plumbing Code of Canada and local authority having jurisdiction.

.2 Install in accordance with manufacturer's instructions and as specified.

3.3 BACK FLOW PREVENTORS

.1 Install in accordance with CSA-B64 Series, where indicated and elsewhere as required by code.

.2 Pipe discharge to terminate over nearest drain.

3.4 HOSE BIBBS AND SEDIMENT FAUCETS

.1 Install at bottom of risers, at low points to drain systems, and as indicated.

3.5 STRAINERS

.1 Install with sufficient room to remove basket.

3.6 START-UP

.1 Timing: start-up only after:

.1 Pressure tests have been completed.

.2 Disinfection procedures have been completed.

.3 Certificate of static completion has been issued.

.2 Provide continuous supervision during start-up.

3.7 TESTING AND ADJUSTING

.1 Backflow preventers:

.1 Test tightness, accessibility for O&M of cover and of valve.

.2 Simulate reverse flow and back-pressure conditions to test operation of vacuum breakers, backflow preventers.

.3 Verify visibility of discharge from open ports.

.2 Strainers:

.1 Clean out repeatedly until clear.

.2 Verify accessibility of cleanout plug and basket.

.3 Verify that cleanout plug does not leak.

END OF SECTION