PART E

SPECIFICATIONS

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS, STANDARD DETAILS AND DRAWINGS

E1.1 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.

E1.1.1 *The City of Winnipeg Standard Construction Specifications* is available in Adobe Acrobat (.pdf) format on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division internet site at http://www.winnipeg.ca/matmgt.

E1.1.2 Further to GC:2.4(d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.

E1.2 The following Drawings are applicable to the Work:

Drawing No.	Drawing
05363	Sewer Service Installations at 2776 and 2782 Assiniboine Ave.

E2. LOW PRESSURE SEWER SERVICE AT 2782 ASSINIBOINE AVENUE

E2.1 The Low Pressure Sewer Service (LPSS) shall be constructed and paid for as specified in The City of Winnipeg Standard Construction Specification CW 2130-R7 for “Sewer Services” along with the following requirements:

(a) All LPSS pipe shall be DR11 high-density polyethylene (HDPE).

(b) Only 45^0 bends or less will be allowed to be used on the LPSS, if 90^0 is required the contractor shall install 2-45^0 bends or long radius bends if available.

(c) All pipe and fittings shall be joined by butt fusion.

E3. PACKAGED DUPLEX SEWAGE PUMPING SYSTEM

E3.1 General

E3.1.1 The Contractor shall supply and install a Packaged Duplex Sewage Pumping System (PDSPS) in accordance to the manufacturers specifications and the Manitoba Plumbing and Electrical Code.

E3.1.2 The PDSPS will consist of a basin(s) and cover, two (2) ½ HP submersible pumps, check valves and shut-off valves, float switches and control panel complete with alarm.

E3.1.3 After receipt of the Purchase Order, the Contractor shall furnish the Contract Administrator a minimum of six (6) sets of shop drawings detailing the equipment to be furnished including dimensional data and materials of construction. The Contract Administrator shall promptly review this data, and return two (2) copies to the Contractor as approved, or approved as noted. Upon receipt of accepted shop drawings, the Contractor shall proceed with order entry and fabrication of the equipment. Prior to completion of equipment Installation, the Contractor shall supply three (3) copies of Operation and Maintenance Manuals to the owner**,** and two (2) copies of the same to the Contract Administrator**.**

E3.2 Materials

E3.2.1 The Contractor shall supply all materials required to complete the installation of the PDSPS.

E3.2.2 Materials shall conform to the Manitoba Plumbing and Electrical Codes.

E3.2.3 All electrical and mechanical components shall be CSA approved for their intended purpose.

E3.2.4 The Contractor is responsible for making all required field measurements prior to ordering material and should not rely on any dimensional information given or inferred on the attached drawing or in the specifications.

E3.2.5 Pumps

(a) Pump motor shall be single phase, ½ HP, hermetically sealed, submersible type, operating in high quality dielectric oil for cooling the windings and lubrication of the motor bearings and shaft seal. Motor shall have an internal automatically resetting, thermal overload protection. Construction shall be of cast iron with baked-on powder coated epoxy or air-dry enamel finish for corrosion resistance. All fasteners and external metal parts shall be stainless steel. Impeller shall be a vortex non-clog design capable of passing 50mm diameter solids. Pump discharge shall be 50mm in diameter. Each pump shall be capable of pumping 50 USGPM at 12 feet of head and 25 USGPM at 15 feet of head.

E3.2.6 Basin, Valves, Piping and Float Switches

(a) The basin(s) shall be supplied in a wet well configuration. Wet well must be a minimum of 1525mm (60”) high and have a minimum storage volume above alarm level of 60 USG. The inlet and discharge hubs shall be field measured and fitted by the Contractor.

(b) The basin(s) shall be constructed of heavy-duty fibreglass or cast-in-place concrete. Fibreglass shall have a 5mm minimum wall thickness and shall be fitted with a bottom anti-floatation collar. If possible any basin over 600mm (24”) in diameter should come from the factory in two pieces so that it may easily fit through a doorway width of 750mm (29”) within the residence, otherwise the basin may be cut in half and reassembled at the installation location or two basins may be connected together or a poured-in-place concrete sump may also be used all to the satisfaction of the Contract Administrator.

(c) All pipe shall be schedule 40 PVC.

(d) The discharge pipe from each pump shall be equipped with a 50mm true union, manual ball valve and a 50mm full flow PVC check valve rated to 25 PSI. Ball valves shall be full ported, constructed of PVC, with a minimum rated pressure of 150 PSI. All valves shall be operable from ground level.

(e) The main discharge pipe from the tee shall be equipped with a 50mm true union, manual ball valve.

(f) Shut off valves, check valves and tee must be located within the basin(s) interior.

(g) Level detection for controlling pump and alarm operation shall be accomplished by use of a detection mechanism specifically designed for use in a sewage pump basin and shall be removable without the need to remove the pump. Switches utilized in the system shall be *hermetically sealed* in a submersible, watertight protective casing. Level detection mechanism shall be designed to provide switch protection from solids, greases, oils, and fats. Level detection mechanism shall not require any regular, preventive maintenance. The level detection mechanism may consist of three single action switches configured as follows:

(i)	SW1	Bottom	Pumps Off
(ii)	SW2	Middle	1st Pump On
(iii)	SW3	Top	2nd Pump and Alarm On

(h) All piping and wiring shall exit the basin(s) below the basement floor and shall travel under the floor to the nearest wall. Wiring shall be encased in an appropriately sized PVC conduit. All pipe shall have a water-tight connection to the basin.

(i) Basin cover(s) shall be of heavy-duty steel construction, capable of being walked on, and painted with a corrosion resistant epoxy or enamel coating. The cover shall have an access hatch, complete with a recessed lifting handle, large enough to access and remove all electrical and mechanical parts. The cover(s) shall be securely fastened in place and have suitable gaskets so as to make the basin airtight when the hatch is closed.

E3.2.7 Control Panel

(a) The control panel shall include: circuit breakers, fuses, terminal strip, ground lug, capacitors when required, IEC rated motor starters, relays, alarm silence button mounted on enclosure, electric pump alternator, and internal push to run button for each pump. Controls for both pumps must be located in the same enclosure.

(b) The control panel shall include a visual and audible, with silence, alarm device. The alarm shall sound when the 1st pump cannot keep up with the incoming flow and the second pump is activated. The visual alarm shall be a red lens mounted to the top of the enclosure. The minimum 90db audible device shall be capable of being de-activated by means of a NEMA 4X silence button mounted on the exterior of the enclosure. Both visual and audio alarms will automatically reset when the high water condition subsides.

E3.3 Construction Methods

E3.3.1 The Contractor will be required to obtain all necessary permits and inspections required by the City of Winnipeg Planning and Property Development Branch.

E3.3.2 The residence shall have a properly working sewer service during non-working hours and weekends. At no time shall the service be disconnected before 8:30 AM and after 5:30 PM. The Contractor shall achieve this by installing a by-pass piping if required.

E3.3.3 The Contractor shall determine an appropriate location, with the approval of the Contract Administrator and the Homeowner, to install the PDSPS.

E3.3.4 The Contractor shall install the PDSPS in accordance with the manufacturers specifications.

E3.3.5 The Bidder/Contractor shall note that the existing doorways in the residence are 750mm (29 1/2 “) wide, this may require cutting the basin in half and reassembling at the installation location in a structurally sound manor to the satisfaction of the Contract Administrator. The Bidder/Contractor may also use 2 separate smaller diameter basins with an interconnection or may cast-in-place a concrete basin all to the approval of the Homeowner and the Contract Administrator.

E3.3.6 All piping and wiring shall exit the basin(s) below the basement floor and shall travel under the floor to the nearest wall. Wiring shall be encased in an appropriately sized PVC conduit. All pipe and wiring shall have a watertight connection to the basin.

E3.3.7 The Contractor shall install a 50mm vent to the PDSPS in accordance with the Manitoba Plumbing Code and in a location determined by the Homeowner. Where possible the vent pipe shall be installed inside an interior wall.

E3.3.8 The Contractor shall install the Control Panel at any reasonable location within the residence to the satisfaction of the Homeowner and the Contract Administrator.

E3.3.9 The 50mm LPSS shall connect as close as possible to the PDSPS.

E3.3.10 All concrete and pipe to be removed shall be neatly saw-cut.

E3.3.11 Any required modifications to the existing plumbing or electrical plant will be considered incidental to the installation.

E3.4 Method of Measurement and Basis of Payment

E3.4.1 Supply and Installation of the PDSPS shall be measured on a unit basis and shall be paid for at the Contract Unit Price for “Supply and Installation of Packaged Duplex Sewage Pumping System”, which price shall be payment in full for performing all operations and supplying all materials and all other items incidental to the Work included in this specification.

E4. PROVISIONAL ITEMS

E4.1 The Provisional Items listed on Form B: Prices are a part of the Contract.

E4.2 The Contractor will perform no Work listed in the Provisional Items without prior notification from the Contract Administrator. All Work carried out will be within the construction area.

E4.3 The City reserves the right to diminish all or any portion of the Work listed in the Provisional Items and no claim shall be made for damages on ground of loss of anticipated profit or any other ground.

E5. SOD RESTORATION

E5.1 All sodded or unpaved surfaces damaged due to construction, shaft excavations or caused by Contractor negligence at and adjacent to the Site shall be restored by the Contractor. Restoration shall be in accordance with Specification CW 3510-R7.

E5.2 Sod restoration will not be measured for payment and shall be considered incidental to the Work.