



R.M. OF ST. CLEMENTS

STANDARDS FOR SEWER

CONNECTIONS

January, 2022

TABLE OF CONTENTS

Page No.

1.0	GENERAL	1
1.1	<i>Applicable Specifications.....</i>	<i>1</i>
1.2	<i>Applicable Standards.....</i>	<i>1</i>
1.3	<i>Responsibilities.....</i>	<i>1</i>
3.0	WASTEWATER SEWERS	2
3.1	<i>Approved Materials for Wastewater Sewers</i>	<i>2</i>
4.0	LOW PRESSURE SEWERS.....	2
4.1	<i>Materials</i>	<i>2-5</i>
4.2	<i>Design and Construction</i>	<i>5-6</i>
	Drawing G02 – Typical Low Pressure Sewer / Septic Tank Installation – Submersible Pump	8
5.0	QUALITY ASSURANCE	6
5.1	<i>Installation</i>	<i>6</i>
5.2	<i>Restoration and Clean-up.....</i>	<i>7</i>
5.3	<i>Warranty Period.....</i>	<i>7</i>

1.0 GENERAL

1.1 Applicable Specifications

- (a) Manitoba Water Services Board (MWSB) Standard Construction specifications, latest edition. The current Specifications are available at: www.mbwaterservicesboard.ca/standard-construction-specs.html

Note that the MWSB does not provide financial or technical assistance for projects that are not directly under their jurisdiction.

- (b) Manitoba Infrastructure (Highways), latest edition. These specifications are available on line at: www.gov.mb.ca/mit/contracts/manual.html
- (c) The City of Winnipeg Standard Construction Specifications, latest edition. These specifications are available on line at www.winnipeg.ca/matmgt/spec/default.stm. These specifications shall only apply to 100mm and 150mm sub-base material.

1.2 Applicable Standards

AWWA – American Water Works Association
6666 West Quincy Avenue, Denver, Colorado

CSA International
178 Rexdale Boulevard
Toronto, Ontario M9W 1R3

ASTM – American Society for Testing Materials
100 Barr Harbor Drive
West Conshohocken PA 19428-2959 USA

CGSB – Canadian Government Specifications Board
Ottawa, Ontario K1A 0S5

WCU – Western Canadian Underwriters

The Standards referred to shall be the most recent edition.

1.3 Responsibilities

It is the responsibility of the Contractor to review each site prior to submitting a quotation for the work to the property owner. Please ensure that the Contractor has any/all underground utilities clearly marked, prior to start of work. Contractor needs to follow all safe practices and take precautions, as recommended by the Utilities and by Manitoba Labour.

3.0 WASTEWATER SEWERS

3.1 Approved Materials for Wastewater Sewers

(a) General

All materials shall conform to the relevant standard Approval Listings of the MWSB Standard Construction Specifications, most recent edition, with any exceptions being specifically outlined herein.

All materials and specifications indicated in this section shall apply to all subdivisions, condominium developments, apartments, and mobile home parks that connect to the R.M.'s infrastructure.

4.0 LOW PRESSURE SEWERS

4.1 Materials

(a) General

All materials and construction methods for low pressure sewers shall conform to the relevant sections of the Manitoba Water Services Board (MWSB) Standard Construction Specification, latest edition.

All materials and specifications indicated in this section shall apply to all subdivisions, condominium developments, apartments, and mobile home parks that connect to the R.M.'s infrastructure.

(b) Sewermain Pipe

Low Pressure Sewer (LPS) mains shall be either PVC SDR 32.5 Series 125 (CSA B.137.3) or high density Polyethylene (HDPE) DR 17.

(c) Fittings

LPS fittings shall be made of the same material and to the same specifications as the sewermain pipe.

(d) Valves and Boxes

75 mm and larger - (See 2.1(d) and (e)). Iron hinged box covers shall be cast with the mark "S".

(e) Service Pipe

LPS service pipe shall be 38 mm, either low density PE Series 75 (CSA B.137.1), or HDPE DR 17.

(f) Curb Stops and Boxes (and 50 mm valves)

The letter "S" shall be cast into the iron box lid.

(h) Service Saddles

Service connection saddle/clamp assemblies shall be compression type with a rubber gasket that fully contacts the pipe surface. Saddles shall be wide band stainless steel. Electrofusion tapping sleeves will be acceptable on P.E. mains. Acceptable models shall be Robar "Series 1616", Ford Stainless Steel FS303. Ford Brass S70 and S90, or approved equal.

(i) In tank Hose

All rubber pipes for submersible pumps inside the septic tank shall be 38 mm diameter, non-kinking type, minimum bending radius of 82 mm and minimum 340 kPa (50 psi) working pressure and 1,500 kPa (220 psi) burst pressure. Construction of hose to be EDPM compound for tube and cover. Outer surface to be smooth or corrugated, and to be free of external shipping protective coverings.

(j) Check Valves

Cast construction "Y" style rated for sewage effluent. Exposed bolts to be stainless steel or brass. Female iron pipe threads suitable for use in vertical or horizontal position. Teflon stem packing and washers. Ball to be non-corrosive plastic or rubber surface with a rubber seat. Acceptable type for 38 mm is HDL Type 5087, and for 13mm is Chemtrol with natural polypropylene floater ball with valve installed upside down for fluid to lift ball into seat.

(k) Submersible Sewage Pump

Submersible pumps shall be ½ or ¾ horsepower, maximum 15 amps at open discharge and shall provide a maximum of 179 kPa (60 feet) shut-off head; at 149 kPa (50 foot) head minimum total capacity shall be 70 L/min (19 USgpm).

The cast iron pump casing is to have all internal surfaces primed and epoxy coated after casing is machined. All outer surfaces of pump casing are to be primed and either painted or epoxy coated.

The casing shall have a minimum of 3 integral cast feet and provide a minimum of 100mm clearance between the pump suction and septic tank floor. The discharge port is to be 32mm. All exposed bolts are to be stainless steel. A stainless steel lifting ring complete with and attached to a minimum 4 metre length of corrosion resistant 6mm lifting chain or approved equivalent shall be supplied with each unit. The chain or approved equivalent shall be fastened to the lifting ring and the other end shall be complete with a hook.

The impeller is to be semi-open complete with back ejector vanes, non-clogging type capable of passing minimum 13mm solids and be constructed of bronze or plastic. Mechanical seal to be carbon and ceramic.

The pump motor shall be CSA approved, be hermetically sealed and oil filled, have an automatic reset thermal overload, to be of 120V single phase standard frame designed and shall be removable from the body for servicing without specialized tools. All wetted motor parts shall be stainless steel. Electrical cable shall be SJOW type and be minimum 8 meters long.

Clearance between the impeller and the casing shall be sufficient to prevent any seizing due to long periods of no use. The manufacturer shall provide a documentation of impellor clearance and pump capacity curves.

(l) Clamps

All clamps shall be stainless steel with stainless steel nuts and bolts.

(m) Liquid level controls with high level alarms

Rated to start 1 horsepower 220 V motor with maximum 15 running amps. Controls shall be CSA approved complete with a 15 metre electrical cable and in series tap (male/ female plug). Electrical cable shall not be constructed with any materials or fibres which conduct or absorb water. Switches to activate pump at high level and to de-activate the pump at low level. Be omnidirectional in operation (i.e. no 'd up" side). Acceptable type "Pil", "GSW", "Tulsar" controls. Contractor must install high level alarm system to activate warning light in the house.

(n) Electrical

All electrical materials to bear CSA approved labels. All work must meet or exceed electrical code requirements (local, provincial and federal). Contractor is responsible for obtaining appropriate permits for work. For submersible pump system, all junction and junction boxes shall be weatherproof PVC according to electrical code. All screws to fasten plates and boxes shall be stainless steel or plastic.

(o) Septic Tanks

Tanks must have 2 chambers. One sedimentation chamber and one pump out chamber where the submersible pump is located to pump liquids only. Tanks may be either concrete or fibreglass construction with tie down straps and weights as required. Tanks shall be for suitable for a minimum 2.0 metre burial, with soil cover over the top of the tank. Tanks shall be equipped with an access manhole extending to the ground surface (minimum 600 mm diameter) with a child-proof cover. Access must be provided to both chambers. Pack and grout all tank openings water tight with PC-4 or equivalent. Tank sizes shall meet provincial requirements.

(p) Sump Pumps

Sump pumps that are connected to the septic tanks **MUST** be disconnected and the water directed to the land outside by means a sump pump.

4.2 Design and Construction

(a) Location of Low Pressure Sewers

Low pressure sewer mains shall be installed (generally), 4.0 metres off the property line, on the opposite side of the street to the watermain.

(b) LPS Main Design criteria

While sophisticated pressure analysis models may be employed to determine precisely the anticipated flows/pressure losses for line sizing, the minimum size, in relation to the maximum potential number of service connections, is as follows:

<u>Main size</u>	<u>Max. No. of Services</u>
50 mm	40
75 mm	70
100 mm	120

These numbers assume no weeping tiles are connected. For pressure loss/flow calculations, the performance characteristics of the Little Giant model WS50M (submersible) shall be used. End suction centrifugal pumps shall not be used. "Wastewater production" rates shall be as per Section 3.2(f).

(c) Service Connections

A typical low pressure sewer and septic tank installation is shown at the end of this section, as drawing G02.

The R.M. shall review the installation of the entire system installed on private property, prior to backfill.

(d) Bury Depth

The minimum depth of sewer mains shall be 2.4 metres measured from finished ground level to pipe invert.

5.0 QUALITY ASSURANCE

5.1 Installation

All public works shall be installed to recognized engineering standards (Manitoba Water Services Board, Manitoba Infrastructure and Transportation, AWWA, ASTM, etc.) and to the recommendations of the respective manufacturer or supplier of materials. All piping works shall be bedded, laid, joined, and back- filled to such standards and recommendations. All workmanship shall be first class and all materials shall be new and of best quality. Excavation permits shall be obtained, and all utilities shall be notified.

5.2 Restoration and Clean-up

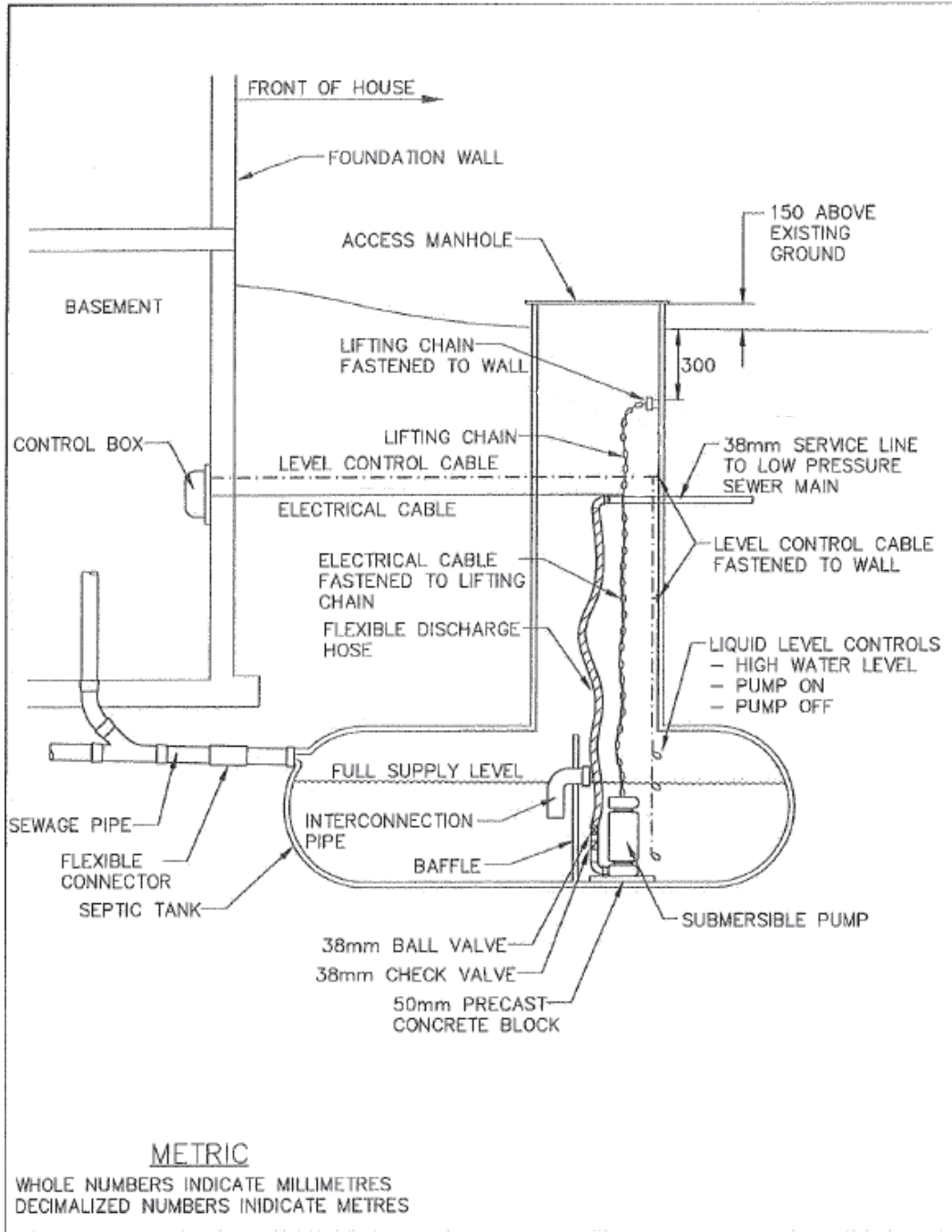
All existing works and properties affected by construction shall be restored to the condition in which they existed prior to commencement of construction. All areas affected by construction shall be cleaned up and all excess or unused material shall be hauled away.


5.3 Warranty Period

All Works, both above and below ground shall be warranted by the Contractor against defects in products incorporated in the Works and against defects in execution for a period of **one year**, extending from the completion date.

Prior to the expiration of the warranty period, a final site review will be conducted. The warranty period will only be terminated on public property if the R.M., or their designated representative, is satisfied that all deficiencies have been rectified. Site reviews shall only be conducted when climatic conditions are satisfactory to perform a thorough review of all constructed works.

Drawing G02 – Typical Low Pressure Sewer / Septic Tank Installation – Submersible Pump



 <p>1600 BUFFALO PLACE WINDY HARBOR DUNSMUIR BC V6E (604) 291-477-6550 FAX: 1-204-474-2864 WWW.WSPCANADA.COM</p>	PROJECT:	R.M. OF ST. CLEMENTS SERVICING STANDARDS	SUPPLEMENTAL:	
	TITLE:	TYPICAL LOW PRESSURE SEWER/SEPTIC TANK INSTALLATION – SUBMERSIBLE PUMP	ADDENDUM:	ADD.# <input checked="" type="checkbox"/>
	DRAWN BY:	M.P.M.	DIRECTIVE:	DIR.# <input checked="" type="checkbox"/>
	CHECKED BY:	M.P.M.	CHANGE ORDER:	CHG.# <input checked="" type="checkbox"/>
	SCALE:	N.T.S.	REVISION:	0
PROJECT NO:	151-08023-00	DATE:	2015/07/28	
		SUPPLEMENTAL NO:	G02	