

## THE RURAL MUNICIPALITY OF WOODLANDS

### BY-LAW NO. 2663/15

A by-law to provide for the operation and management of the water and wastewater systems within LIP No. 1-2009, the appointment of a utilities Manager and the administration and enforcement of the permit system.

The Council of the Rural Municipality of Woodlands in meeting duly assembled at Woodlands, Manitoba enacts as a by-law the following:

#### Purpose

1. The purpose of this By-law is to establish the terms and conditions for the operation and management of the water system and wastewater system within LIP 1-2009 ("Warren") including
  - a. standards for the construction of owners' water and wastewater systems,
  - b. standards for the operation and maintenance of owners' water and wastewater systems,
  - c. procedures for changing and upgrading of existing owners' water and wastewater systems,
  - d. the issuance of permits for carrying out work to owners' water and wastewater systems, and
2. The Council wishes to appoint a utilities Manager and provide for a system of permits for the administration and enforcement of this By-law.
3. This By-law may be known as the Warren Water and Wastewater By-law.

#### Interpretation

4. In this By-law,

"cross connection" means any temporary or permanent water connection that may allow backflow of contaminants, pollutants, infectious agents, or other material or substance that has the potential to change the water quality in the water system;

"Municipality" means the Rural Municipality of Woodlands;

"owner" means a registered owner of land;

"premises" means a parcel of land, and includes any house or building on the parcel of land;

"standards" means the standards and specifications set out in **Schedule B** to this By-law;

"user" means, as the context requires, the applicant for water or sewer service, the occupant of a premises to which water is or must be supplied or to which sewer services is or must be supplied, or the person to whom invoices are sent for water or sewer services supplied to a premises;

"owner's wastewater system" means that part of the wastewater system located on an owner's land including service lines, septic tanks, pumps, and all associated connections and equipment, and including any part of the wastewater system located in the municipal right of way up to the sewer main line;

"owner's water system" means that part of the water system located on an owner's land including service lines, and all associated connections and equipment, and including any part of the water system located in the municipal right of way up to the water main line;

"wastewater system" means the system of infrastructure and works necessarily incidental to the collection of sewage by Warren and any part of the system within Warren;

"water system" means the system of infrastructure and works necessarily incidental to the distribution and supply of water by the Municipality and any part of the system within Warren;

#### **Permit required**

5. No person shall construct, alter, relocate, remove, repair or change an owner's water or wastewater system ('work') without first obtaining a water or wastewater permit as the case may be.
6. Section 5 does not apply to work that
  - a. is minor in nature,
  - b. does not change the operation of the owner's water or wastewater system, and
  - c. has a value of no more than \$350.00.

Despite not requiring a permit, the work must comply with this By-law.

7. Where a permit is required, no preparatory work, including excavation, may take place before the permit is obtained.

#### **Application for permit**

8. An application to the Municipality for a permit may be made by the owner or a person authorized in writing by the owner. The application must include:
  - a. a completed and signed application form;
  - b. information as to the location and intended purpose of the work;
  - c. a plan or plans showing the work;
  - d. plans and specifications of the proposed work in sufficient detail to show that the proposed work complies with the standards and this By-law;
  - e. the fee set out in **Schedule A**;
  - f. where the work relates to a new connection to the water system or the wastewater system, the water or wastewater connection fee set out in Schedule A.
9. Plans and specifications submitted with a permit application must bear the name of the person who prepared the plans.
10. Permit applications and the documents submitted with them become the property of the Municipality.
11. If the utilities Manager considers that the complexity of the work warrants it, the utilities Manager may require an applicant to submit such further information or reports as are necessary to consider the application. In this case the application is not complete until the requested documents have been submitted.

12. The utilities Manager may issue a permit to the applicant if based on the application and the information supplied it appears to the utilities Manager that the proposed work will not contravene the standards, this By-law, other by-laws of the Municipality, or provincial laws and regulations.
13. A permit is issued in the name of the owner, and where the applicant is not the owner, to the owner and the applicant jointly.
14. A permit may be issued subject to conditions. The holder of a permit and the owner must comply with this By-law and the conditions of the permit.
15. A holder of a permit may request the utilities Manager to approve alterations to plans. If in the opinion of the utilities Manager the nature and complexity of the alterations warrant it, the utilities Manager may suspend the issued permit and require an additional fee for review and consideration of the alterations.

#### **Utilities Manager**

16. The position of utilities Manager is established. Council may by resolution appoint one or more persons as utilities Manager.
17. The utilities Manager shall have all powers, duties, discretion and functions of a designated officer set out in the Municipal Act. The utilities Manager is authorized to carry out the powers, duties and functions of a designated officer under this By-law.
18. The utilities Manager must:
  - a. keep records of applications and plans received, inspections and tests made, permits and orders issued, and all other reports and documents connected with the utilities Manager's functions; and
  - b. examine and process applications and plans received.
19. The utilities Manager shall have the power to:
  - a. administer, inspect and enforce this By-law;
  - b. order work to stop if a permit has not been obtained;
  - c. order work to stop until a condition is rectified, if in the utilities Manager's opinion,
    - i. work is not being carried out in compliance with the permit, plans submitted, a condition under which a permit was issued, the standards this By-law or any other by-law, or provincial laws or regulations, or
    - ii. there is an unsafe condition;
  - d. order work to be done to make the owner's water system or owner's wastewater system comply with the standards and this By-law;
  - e. revoke a permit if
    - i. it was issued in error,
    - ii. the applicant submitted false or misleading information,
    - iii. the work has not started within 6 months of the issuance of the permit,
    - iv. work is discontinued for a year,

- v. a condition under which the permit was issued has not been met,
  - vi. there is unauthorized deviation from the approved plans, or
  - vii. the work does not comply with the standards and this By-law;
- f. enter, inspect and be provided free and clear access to any premises to
- i. administer and enforce this By-law,
  - ii. examine an owner's water or wastewater system,
  - iii. inspect, test, repair, remove or replace any water meter,
  - iv. determine whether the requirements of this By-law are being complied with;
- g. disconnect an owner's water or wastewater system from the water system or wastewater system if in the utility Manager's opinion
- i. any of the reasons for stopping work or revoking a permit exist as set out in this section,
  - ii. the owner's water or wastewater system does not comply with the standards or this By-law,
  - iii. the owner's water or wastewater system is not in a good repair or working order,
  - iv. there is any unsafe condition, or
  - v. a person has not complied with the utilities Manager's order;
- h. the power to discontinue the water supply to or the wastewater collection from the premises until such time as the requested access is provided and/or obtain a court order allowing the access where the owner, user or occupier does not provide the requested access;
- i. to take such action as is required to achieve compliance with this By-law.

#### **Owner's responsibilities**

- 20. The owner must ensure that the work complies with the standards and this By-law, and any condition under which a permit was issued. The issuance of a permit and inspection by the Municipality do not relieve the owner of this responsibility.
- 21. The owner is liable for the cost of repairing damage to municipal property including roads, drains, and the water system and wastewater system occurring in the course of or as a result of the work. If the holder of a permit is not the owner, the holder and the owner have this liability jointly and severally.
- 22. The owner must operate and maintain the owner's water and wastewater system in compliance with the standards and this By-law, including keeping it in good repair and working order.
- 23. The owner shall be responsible to ensure that the seal on the water meter is not broken or tampered with.
- 24. A septic tank that is not in active use and is not structurally sound and watertight must either be abandoned in place or physically removed. If the tank is abandoned in place the owner must pump out the tank, and clean and fill it with sand. If any contamination has occurred the Owner must contact the local area Provincial Health

Inspector for direction and approval of the clean up procedures. The Owner must carry out and complete the clean up work directed by and within the time set by the Provincial Health Inspector.

25. The owner must use Municipal approved contractors when working on Municipal infrastructure.

#### **Cross connection and backflow prevention**

26. All residential owners whose owner's water system is connected to the water system must have a dual check valve device installed as per the National/Manitoba Building Code. The installation of the dual check valve device must include an expansion tank for thermal expansion.
27. All Commercial, Institutional (i.e.: schools, etc), Industrial owners whose owner's water system is connected to the water system must install a backflow prevention device with test ports that must be tested every year and include an expansion tank for thermal expansion.
28. No person may connect, cause to be connected or permit any piping, fixture, fitting, container or appliance to remain connected to the owner's water system, or any part of the water system so that non-potable water, wastewater or any other liquid, chemical or substance could enter the water system.
29. No person may connect the owner's water system or cause or permit it to be connected, to any well or other supply of water other than the water system.
30. Piping, fixtures, fittings, containers or appliances connected to any well or other supply of water can only be used for outdoor use, and cannot be connected to the owner's water system. They must also have such additional cross connection control and backflow prevention devices installed, operating and being maintained as the utilities Manager may direct and approve.
31. Owners must, at their expense, have all cross connection control and backflow prevention devices inspected and tested by persons qualified to carry out such tests, to demonstrate the devices are in good working condition upon installation. They must then be tested annually or more often if required by the Municipality. Owners must submit testing reports to the Municipality as and in such form as the utilities Manager officer may require.
32. If the results of a test indicate a cross connection control or backflow prevention device is not in good working condition, the owner must make repairs or replace the device within 24 hours of the user receiving the test results.

#### **Municipality's responsibility**

33. The Municipality shall provide for the pump out of an owner's divided septic holding tank solid section, once each year.
34. The Municipality may upon reasonable notice discontinue water supply from the water system at any time for construction, operation or maintenance.
35. The Municipality may upon reasonable notice discontinue wastewater collection from the wastewater system at any time for construction, operation or maintenance.

#### **Emergencies**

36. The Municipality may, without notice, temporarily discontinue the water supply to or wastewater collection from any premises where in its opinion its continuation may be dangerous, cause damage to persons or property, or construction, operation or maintenance works must be carried out on an urgent basis.

37. Where work must be done on an urgent basis to an owner's water or wastewater system and it is not practical to first apply for and obtain a permit, an owner may carry out such work as is necessary to address the urgent circumstances without a permit. The owner must apply for a permit for the work as soon as is practicable, and in any case by no later than 3-days from the carrying out of the work. If the work is not in compliance with this By-law, the utilities Manager may take the steps set out in Section 19.

#### **Compensation**

38. Should the Municipality deem that the repair to the owner's water or wastewater system within the municipal right of way to the water or sewer main line was not necessitated by any actions under the control of the owner of the property or any party occupying the property, the Municipality, at their discretion, may relieve the owner of the responsibility for said repairs.
39. An owner may apply to the Municipality requesting such compensation, providing the details of any damage, and a copy of the invoice showing the repairs completed.
40. The utilities Manager will be responsible for reviewing the application and related documents and providing a report to the Municipality.
41. Council will decide, in its sole discretion, if compensation may be paid, and the amount of compensation based on the owner's application and the utilities Manager's report.

#### **Remedies**

42. The Municipality may repair any and all blockages at any point in the water and wastewater service lines. An owner who is responsible for the blockage is responsible for the Municipality's costs of repair. The Municipality shall invoice the owner for the costs. If the owner fails to pay the Municipality within the time provided, the costs are a debt owing to the Municipality and may be collected in the same manner as a tax may be collected or enforced under the Municipal Act.
43. In the event that the Municipality completes work or carries out maintenance that is the responsibility of an owner under this By-law, the owner is responsible for the Municipality's costs of carrying out the work. The Municipality shall invoice the owner for the costs. If the owner fails to pay the Municipality within the time provided, the costs are a debt owing to the Municipality and may be collected in the same manner as a tax may be collected or enforced under the Municipal Act.

#### **Review**

44. An owner, applicant or holder of a permit may request Council to review a decision or order of the utilities Manager by giving written notice to the Chief Administrative Officer within 14 days of receiving the decision or order.
45. Upon receiving a request for review, the Chief Administrative Officer must set a date and time for the review by Council, and notify the person of the date of the review.
46. Council will convene the review at the time and place set out in the notice. The person who made the request may appear in person or by counsel. After reviewing the decision or order, Council may confirm, vary, substitute or cancel the decision or order.

#### **Offence and costs**

47. A person who contravenes this By-law or a condition of a permit, including an owner on whose land a contravention takes place, is guilty of an offence and is liable to:

- a. a fine of not more than \$1000;
  - b. a penalty equal to the Municipality's cost of enforcement; and
  - c. in the case of a contravention of Section 5, a penalty equal to double the permit fee.
48. The following amounts may be collected and enforced by the Municipality in the same manner as a tax may be collected or enforced under the Municipal Act:
- a. a fine or penalty imposed on conviction;
  - b. the cost of repairing damage to municipal property that occurs in the course of work;
  - c. the cost of an action taken by the utilities Manager or the Municipality to administer or enforce this By-law under the Municipal Act.

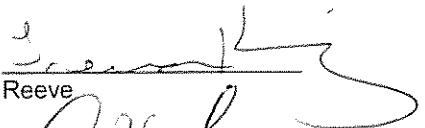
#### **User's obligations**

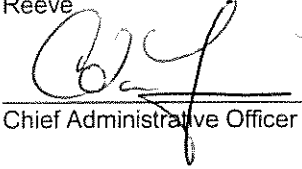
49. A user of the water or wastewater system must comply with the terms of this By-law in the same manner as an owner. The user and the owner are jointly responsible for complying with the terms of this By-law.

#### **Repeal and transitional**

50. By-law No. 2641/14 be repealed.
51. Permits, orders and decisions made under the repealed by-laws remain in effect, unless revoked or changed under this By-law.
52. An application for a permit made under the repealed by-laws but not granted continue under this By-law and shall be treated as being made under this By-law.
53. An owner of an existing owner's wastewater system who does not, on the date of the coming into force of this By-law, comply with the standards and this By-law as a result of
- a. weeping tiles discharging into the owner's wastewater system on the premises or
  - b. the condition or type of septic tank on the premises
- must ensure the owner's wastewater system meets the standards outlined this By-law by no later than **December 31, 2015 or within 90 days of the transfer of the owner's land.**
54. An owner of an existing owner's water system whose system does not, on the date of the coming into force of this By-law, comply with the standards and this By-law, must ensure the owner's water system meets the standards of this By-law.
55. Within the area serviced by the wastewater system, if an existing owner's wastewater system is not connected to the wastewater system, the owner must:
- a. connect the owner's wastewater system to the wastewater system, and
  - b. take the owner's wastewater system out of service and decommission it

**DONE AND PASSED**, in Manitoba this 1<sup>st</sup> day of December, 2015.

  
\_\_\_\_\_  
Reeve

  
\_\_\_\_\_  
Chief Administrative Officer

READ A FIRST TIME this 10<sup>th</sup> day of November, 2015.

READ A SECOND TIME this 10<sup>th</sup> day of November, 2015.

READ A THIRD TIME this 1<sup>st</sup> day of December, 2015.



**SCHEDULE A**

A minimum of 24 hours notice shall be given to the Municipality prior to inspection of any work.

**A1. Permit Fee:**

New Connection	\$150.00
Repair or Maintenance	\$ 60.00

Permit fee shall include administration costs and initial inspection costs only. It does not cover the cost of the water meter or its installation. Call-backs resulting from delays caused by the property owner or his/her contractor shall be charged at an hourly rate.

<b>Water Meter</b>	<b>Current Municipality Cost</b>
Hourly Call Back Rate (call backs & water meter inspections)	\$ 125.00

**A2. Hook-up fees**

Hook-up fee for connection to main lines service where lines are laid to the property line

..... \$400.00

Hook-up fee for Collegiate Drive, where the municipality funded the original construction of service lines on public right-of-way

..... \$1,200.00

Foot frontage fee for new connections on Collegiate Drive

..... \$6.89/foot

**A3. New Subdivisions – Per Lot Infrastructure Fee**

Developers of new subdivisions within LIP 1-2009 are subject to a per lot infrastructure fee.....\$2,000.00/per lot

All sewer or water hook-ups that have to cross roads which are gravel, concrete, or asphalt or anything other than dirt must be pushed in from below street at water and waste water line elevation, at the homeowners or developers expense.

**A4. Installation of Water and Sewer for New Connection from the Main Line to the Property Line (includes hook-up fee):**

- a) \$10,500.00 for each new connection payable to the Municipality at the time permit is issued. Upon receipt of actual costs, the Municipality will refund or invoice the property owner the difference.

## SCHEDULE B

Being a Schedule of the Municipality, respecting engineering specifications governing the Warren Wastewater (pressure sewer) and Water Utility.

### INTERPRETATION

#### B1. In this Schedule,

"septic tank" means wastewater collection tank or tank assembly consisting of solids holding chamber and a liquids only holding chamber. The liquids only holding chamber is used for pumping clarified sewage effluent to the pressure sewer main;

"engineer" means an engineer of record as approved by the Municipality to interrupt, inspect and advise the Municipality in all matters in respect to this schedule;

"excavated bedding material" means clay, silt, sand or gravelly sand excavated from the trench which is free from stones and hard lumps of earth larger than 10 mm in diameter. If the material excavated from the trench does not conform to this clause use bedding sand;

"common backfill material" means material selected from trench excavation or other source, unfrozen and free from cinders, ashes, sods, refuse, stones or lumps exceeding 150 mm in diameter or other deleterious materials;

"bedding sand" means sand used for bedding shall be dry, unfrozen, fine granular material all of which passes through a 9.5 mm sieve, and not more than 8% of which passes through a 75 um sieve.

### **Equipment and Work Covered By Schedule B**

B2.1 Provides engineering specifications for the supply and installation of service lines, curb stops, septic tanks, pumps, water meters, appurtenances and associated equipment as required to complete a pressure sewer connection and water service connection from either:

- a. the building to an existing curb stop near property line, or
- b. from a building to a mainline.

B2.2 All new buildings connecting to the pressure sewer system must utilize a submersible pump system as outlined herein.

### **Standards and Regulations**

B3.1 Septic tanks, electrical motors and equipment and piping: to meet the current standards of the Canadian Standards Association (CSA). All CSA certified items shall be marked in accordance with the applicable CSA standard stamped on item including the CSA identification logo:

- a. Low density polyethylene pipe: CSAB 137.0;
- b. Septic tanks: Shall conform to the Clean Environment Act, Chapter C130 and any associated regulations, and to CSA Standard B66;
- c. Electrical motors and equipment: CSA. Motors to be CSA C22.2.

B3.2 Curb stops to meet the current standards of AWWA C800.

B3.3 Water meters: AWWA C700.

B3.4 All septic tanks and installation of septic tanks must meet Regulation 83/2003, On-Site Wastewater Management Systems of the Environmental Act.

- B3.5 All other items not specifically listed to meet the standards specified herein.
- B3.6 Complete all works in accordance with applicable Workplace, Health and Safety Standards. All Contractors completing underground works must be registered with Workplace, Health and Safety and obtain required permits prior to excavations.
- B3.7 Complete work in accordance with safety precautions and programs required for the Work or the Contractor's compliance with the applicable Construction Safety Legislation, other regulations or good construction practice or for the acts or omissions of the Contractor, his Subcontractors, any manufacturer, fabricator, supplier or distributor, or their agents, employees, or other persons performing any of the Work. All of these matters will be the responsibility of the Contractor.
- B3.8 Construction methods and techniques to be completed in accordance with the latest revision of the Manitoba Water Services Board (MWSB) Standard Construction Specification.

#### **Service Lines**

- B4.1 Each premises obtaining a water and pressure sewer service must have a curb stop and service box on each service line located on Public Property within 0.3m of the property line. The ownership of all such curb stops shall vest in the Municipality.
- B4.2 Each service line must service only one single dwelling. The Municipality may consider an exception for multiple use buildings or properties on the same title, dependent on the review and circumstances of each individual case.
- B4.3 Each service line must be continuous without couplings. Fittings to join pipe are only to be made at mains, curb stops and building connections. Ensure pipe is a minimum of 100 mm from trench sidewall.
- B4.4 Use bedding sand around all saddle clamps, curb stops, pipes and septic tanks. Use bedding sand around all pipes for a minimum thickness of 200 mm above the pipe and 100 mm below the pipe.
- B4.4 Curb stops are to be operated solely by the Municipality authorized personnel.
- B4.5 Each user obtaining a service connection must provide record drawings after construction is completed showing the location of all buried works and the location of the curb stops, measured to permanent references such as buildings, Hydro poles, property pins, etc.

#### **Water Metering**

- B5.1 The Municipality shall supply one water meter with one outside meter recorder for each water service pipe installed and/or in the case of a multi occupancy property or building a meter and recorder for each unit to be occupied; such meter shall be suitable in size and in all other respects for such service pipe. Obtaining the meter from the Municipality and installation shall be the sole responsibility of the owner. The ownership of all such meters shall be vested in the Municipality.
- B5.2 Any premises that are connected to the water system must have a water meter duly connected on the incoming line from the clean water line. All water which comes from the main water line and used on said premises must pass through the said water meter and this water meter shall not be by-passed in any form whatsoever.
- B5.3 Locate the meter as close as possible to the outside foundation wall and ensure there are no other connections between the incoming shut off valve and the meter. Install meter level, 300 to 750 mm from floor and minimum 300 mm from a wall.
- B5.4 The Municipality will repair or replace any water meter at no cost, if such repairs or replacement are necessitated by normal deterioration of the meter.
- B5.5 All water meters shall be duly sealed at the time of installation, such seal being

placed thereon by the Utilities Manager.

- B5.6 Once all water and sewer service connection works are complete the user shall request the Municipality to open the curb stops. Curb stops will not be opened until installation is complete and inspected, including the installation of an outside meter recorder.

#### **Abandoned and/or defective Septic Tanks**

- B6.1 If a septic tank is not structurally sound and watertight it shall be deemed defective. All defective septic tanks must be either replaced or repaired in accordance with environmental regulations and in accordance with regulation RM 83/2003 – Onsite Wastewater Management Systems as approved by the Municipality.

#### **Septic Tank Hydraulic Loading**

- B7.1 All grey water and sewage generated by each building connected to the pressure sewer system shall be discharged directly into a septic tank. The clarified sewage effluent from the second chamber of the septic tank shall be directed to either the pressure sewer system or septic field if existing at the time of passage of this by-law. At no time shall grey water or sewage effluent be discharged on or into the ground.
- B7.2 Natural run-off, including but not limited to, drain water, snow melt and weeping tile water shall not be discharged into the wastewater collection system.
- B7.3 The septic tank manhole and immediate area around the septic tank manhole shall be higher than the ground in the general area of the septic tank such that run off is directed away from the septic tank manhole.
- B7.4 Each premises that is connected to the pressure sewer system and has a weeping tile system to collect run off water around the building foundation shall discharge such weeping tile water directly to the subject property and not to the septic tank.

#### **Pressure Sewer Products and Procedures**

- B8.1 Underground mainline sewer pipe HDPE SDR17 – minimum 100 mm of sand below the pipe and 200 mm above the pipe in accordance with AWWA C906.
- B8.2 Pipe: Underground sewer service line pipe shall be polyethylene with a minimum diameter 32 mm (1 1/4") tubing, nothing lighter than series 100 low density CSA certified. If there are two or more pipes in one trench the pipes shall not cross. There shall be a minimum of 100 mm of sand below the pipe and 200 mm above the pipe. Hand place bedding and backfill material in uniform layers not exceeding 150 mm thick to minimum 200 mm over top of pipe. Dumping of material directly on top of pipe is not permitted. All water service lines are to be South or East of the sewer service lines.
- B8.3 Valves: In accordance with AWWA C-509. Flanged ends gasket for connection to HDPE using 316 stainless steel nuts and bolts. Valve box to be marked "S". Acceptable type: Mueller 2360 Series Resilient Wedge Gate Valve.
- B8.4 Pipe for submersible pumps inside septic tanks: shall be 32 mm, non-kinking type, min. bending radius of 82 mm, minimum 340 kPa (50 psi) working pressure, and 1,500 kPa (220 psi) burst pressure (@21°C). Construction of the hose for tube and cover shall be EPDM compound. Outer surface shall be smooth or corrugated and shall be free of external shipping protective coverings. Acceptable type: Kanaflex - K300.
- B8.5 Fittings: Fittings to be waterworks brass as manufactured by Mueller. Outlets compression use stainless steel inserts for poly tubing.
- B8.6 Use Teflon tape or appropriate pipe joint compound on all threaded connections.

B8.7 Check Valve: Locate between shut off valve on pump discharge and pump suction line (either on suction or discharge line). The check valve shall be brass "ball type", 32mm in size with female national pipe threads (FPT). Valves must be suitable for use in a vertical or horizontal position and have a plastic or rubber seat.

B8.8 Ball valve: Locate as the first connection to the service line piping in the building. Ball valve shall have 32mm female iron pipe threads, shall be of brass construction and be rated for minimum 1,000 kPa (150 psi) working pressure, shall have a stainless steel operating lever, handle stop, and Teflon stem packing and washers. Ball to be stainless steel or brass with Teflon seats and provide a minimum 29mm opening (full port). Acceptable type: Emco 340.

B8.9 Curb stops: Use a brass ball valve full port curb stop. The valve shall be 32mm in size with NPT female threads, brass, ball type be non-draining. Approved curb stop: Mueller B-20283N.

.1 Plug open end of curb stop if complete connection to a building is not being completed.

.2 Tap main at 2:00 o'clock or 10:00 o'clock position only; not closer to a joint nor closer to adjacent service connections than recommended by manufacturer, or 1 m, whichever is greater.

Provide a minimum of 150mm of sand below the curb stop and 300mm above the curb stop. Drill round type hole with sharp clean edges the maximum diameter allowed by the saddle and corporation stop or main stop in use. Do not exceed pipe manufacturer's maximum recommended tap size for pipe diameter.

B8.10 Service boxes: Polyethylene boot, adjustable for 2.2 m to 2.75 m cover. Ribbed cast iron lid, tapped to receive a 25 mm brass plug. The plug is to have an Acme thread and a pentagon top 22 mm flat to point. 16 mm diameter x 1.8 to 2.1 m in length all stainless steel stem or stationary rod. Yoke drilled to accept a 5 mm diameter stainless steel cotter pin located centrally on the yoke and no more than 10 mm from the centre line of the hole to the extremity of the yoke. For anchoring: Base of the service box with holes to secure the base to the blocking or use "U-rods" to secure curb stop valves to wood base. Acceptable type Mueller A-714. Top to be marked "S".

B8.11 Wood:

.1 Wood base supporting the curb stop - use pressure treated wood. Locate curb stop on wood block to facilitate pipe connections.

.2 Wood marker (if service line is not extended into building).- 38 mm x 89 mm extending from pipe level to 600 mm above grade, with the upper half painted red.

B8.12 Mainstops are not required for service line connections at the main if connections are completed prior to the mainlines being pressure tested and placed into service. However full port brass mainstops are required for all service line connections where connections are being completed to pressurized water and sewer mains that are in service. If a mainstop is required use Mueller B-20045N.

B8.13 Saddle clamps on main: Provide full support around the circumference of the pipe, suitable for iron pipe sized pipe, does not distort the pipe, has a gasket that fully contacts the pipe surface and conforms to any minor pipe irregularities. Tapping to be 32 mm FPT if the main is not pressurized or 32 mm CC (to accept a mainstop) if the main is pressurized. Sewer (high density polyethylene) Mains - in accordance to manufacturer's (pipe and saddle) recommendations. Verify with manufactures prior to ordering. Use either:

.1 All stainless steel construction (T304) provides an extra wide body (min 175 mm). Provide two 304 stainless steel spring washers for each bolt c/w manufacturer's written certification of material of construction. Acceptable

type is Romac 306-H complete with AWWA threads or approved equal.

- .2 Double Strap Cast Bronze – Saddle Body: Cast Bronze, Straps and fasteners: T304 stainless steel. Acceptable type is Romac 202N-H.

Ensure cuttings and plug (core) from drilling the hole does not fall into the pipe. Provide a minimum of 150mm of sand below the saddle clamp and 300mm above the saddle clamp.

#### B8.14 Septic Tanks:

The minimum capacity of the sedimentation and control chamber shall be 4,500 litres (1,000 gallons).

Based on the application and the information supplied by the owner/applicant the Utility Manager may request that a larger sedimentation and control chamber be installed.

Pump out style with a factory-installed 32-mm (1 1/4") female thread connection in the second (control) chamber. Control chamber sizing (where applicable) to be suitable for installation of submersible pump.

Tanks shall be either concrete or fiberglass as requested by the property Owner and shall be complete with an access manhole (minimum 750mm in diameter and 750 mm long for shallow burial tanks and minimum 2,150 mm long for deep burial tanks). Manhole is to provide access to both chambers. Manhole connection to tank and any joints shall be watertight.

- a) Concrete: shall meet ASTM Standard C478M-85, minimum compressive strength of 27 MPa, with Type 50, sulphate-resistant cement.
- b) For conduit connections through manholes, use a bulkhead or other type of fitting to provide a waterproof seal
- c) For fiberglass tanks the first manhole riser section shall be bonded to the tank and all other riser sections made watertight by a gasket material.
- d) For concrete tanks all riser sections shall be made watertight by a bell and spigot type rubber gasket type fitting.
- e) For fiberglass tanks use 100% fiberglass without fillers.
- f) For fiberglass tanks use one piece assemblies without joints.
- g) Include 100-mm (4") ABS DWV pipe complete with flexible coupling for connection to building main drain piping, 1- 32 mm x 150 mm long brass nipple and 1-32-mm brass 90° elbow.
- h) Provide a childproof cover for manhole cover.
- i) Submersible pump systems - Tanks shall have a flat bottom surface and sufficient space for pump installation. Size of control chamber shall be suitable for pump operation.
- j) Provide a manhole joint sealing method and materials that makes all joints and connections watertight.

Install tanks in accordance with manufacturer's recommendations and in accordance with the current Manitoba Department of Conservation regulation. Install with a minimum of 600 mm of soil cover over the top of the tank for shallow burial tanks and a depth sufficient to drain piping below house foundation for deep burial tanks (max. 2 m). Install 32-mm diameter electrical conduit line

between building and tank for electrical control cable(s) and pump suction line (if applicable). Seal connection to manhole watertight.

Backfill connections to the tank with sand and in accordance to manufacturer's recommendations; provide minimum of 2.2 m of soil cover for all connections and piping. Install the top of septic tank manhole 150 mm to 200 mm above existing ground surface and slope soil away from the septic tank manhole cover. Install tanks completely level in the horizontal direction ensuring all joints are watertight. Where applicable complete required anchoring to prevent floatation when the tank is empty and the water table is equal to the top of the ground.

Place tanks on a minimum 150-mm sand bedding and extend sand backfill to 300 mm above the top of tank. Remaining backfill shall be compacted common unless otherwise recommended by the Manufacturer. Haul away extra dirt from installation.

.1 Some manufacturer's of fiberglass tanks recommend pea gravel to be used as backfill around tanks. Follow manufacturer's instructions or these specifications, whichever is more stringent.

Use sand around manhole risers. Install manhole in a plumb vertical or horizontal manner ensuring all joints are watertight. Seal manhole joints externally and internally. Hand backfill with sand around manhole risers.

Provide a guide or support mechanism to secure all liquid level controls in one area of the tank. Ensure guide assembly allows removal of the control servicing. Ensure second chamber is completely clean i.e. no pebbles, stones, debris, etc.

Fill tank with water and ensure it remains level during backfilling.

B8.15 Above Ground Pumps used as a replacement of an existing above ground pump system: Centrifugal, semi-open impeller- type with a built-in check valve. 120-V, single-phase, 1/2 horsepower pump motor with a minimum 3-m long electrical cord with a male electrical plug. Provide a minimum of 182 kPa (61 feet) and a maximum of 203 kPa (68 ft) total dynamic shut-off head and minimum 56 L/min @ 149 kPa (15 US gpm @ 50') head. Provide a support stand to mount the pump 200 mm above the floor. Acceptable support stands examples are painted steel brackets or standard, masonry building blocks (200 x 200 x 400 mm). Place neoprene gaskets between pump and support. Secure pump to support stand.

Acceptable type Myers MDPC, Berkley ECC5 or approved equal.

B8.16 Submersible Pumps: All internal surfaces of cast iron pump casings shall be primed and Epoxy-coated after casing is machined. All outer surfaces of pump casing are to be primed and either painted, powder coated or epoxy-coated. Epoxy manufacturer's recommendations on applying and curing epoxy are to be followed. Casing shall have minimum of 3 integral-cast feet. Discharge port shall be 32 mm or bushed to 32 mm (1 1/4"). All exposed bolts are to be stainless steel.

Submersible pumps shall be 1/2 horsepower, maximum 15 amps at open discharge. Provide a minimum of 182 kPa (61 feet) and a maximum of 203 kPa (68 ft) total dynamic shut-off head and minimum 56 L/min @ 149 kPa (15 US gpm @ 50') head. The pump motor shall be CSA approved, oil filled and hermetically sealed, have an automatic reset thermal overload, be of standard frame design with 120 V, single phase, and shall be removable from the body for servicing without using special tools. All wetted motor parts shall be stainless steel. Electrical cable shall be SJOW type and be minimum 8 m long.

Provide a stainless steel lifting chain, a minimum of 4 metres in length, with a stainless steel lifting ring attached at one end and a stainless steel hook suitable for attaching to manhole wall at the other end. Hook and chain to be suitable for supporting entire weight of pump plus 50 kg without deflection.

Acceptable pump model is Berkley EC750, Goulds WE0511HH, Barnes STEP,

Hydromatic SHEF50, Monarch WS 50H, Zoeller 163 or Liberty FL 61A.

B7.14 Liquid level control – Liquid level control is to be a Floating Mechanical Switch type rated to direct start a 1/2 horsepower 120V motor with maximum 15 running amps and shall be omni-directional in operation (ie. no "up" side). The unit shall be CSA approved complete with 15m of electrical cable and in series tap (male/female plug).

- B8.17 Electrical material – submersible pump systems - For submersible pump systems all junction and switch boxes shall be weatherproof PVC according to electrical code. All screws to fasten cover plates and boxes shall be stainless steel. Acceptable make of junction box: Ipex OB-20 c/w strain relief connectors, grommets, gaskets and cover; Ipex F.S. series single gang complete with toggle switch rated for minimum 20 amps, matching V.S.C. 15/10 weatherproof toggle switch cover, Gask 15/10 gasket and T.S.C. 15/10 toggle switch and waterproof grommets.

### **Water Service Products and Procedures**

- B9.1 Mainline Pipe: To be PVC SDR 26 Series 160 CSA certified B-173-3.
- B9.2 Water Service Pipe: Underground water service line pipe shall be polyethylene with a minimum diameter of 20 mm (3/4") or 25 mm (1") tubing sized, series 160 high density (Type 3) CSA certified.
- B9.3 Valves: Valve box to be marked "W". Bell end and gasket to accept series rated PVC in accordance with AWWA C-509. Acceptable type: Mueller 2360 Series Resilient.
- B9.4 Fire Hydrants: In accordance with AWWA C-502. Designed for working pressure of 1,000 kPa with two 65 mm threaded hose outlets and one 112 mm pumper nozzle. Hydrants to open counter clockwise. Provide key operated gate valve 1 m from hydrant. Internally plug hydrant drain hole(s). Acceptable type: CANADA VALVE B50B.
- B9.5 Mainstops are not required for service line connections at the main if connections are completed prior to the mainlines being pressure tested and placed into service. However full port brass mainstops are required for all service line connections where connections are being completed to pressurized water and sewer mains that are in service. If a mainstop is required use Mueller B-20045N.
- B9.6 Curb stops: Use a brass full port curb stop c/w compression fittings. The valve shall be 20 or 25 mm in size with NPT female threads and be non-draining. Approved curb stop: Mueller B-25209N.
- .1 Plug open end of curb stop if complete connection to a building is not being completed.
  - .2 Tap main at 2:00 o'clock or 10:00 o'clock position only; not closer to a joint nor closer to adjacent service connections than recommended by manufacturer, or 1 m, whichever is greater.
- Provide a minimum of 150mm of sand below the curb stop and 300mm above the curb stop.
- B9.7 Service boxes: PVC base, overall unit adjustable for 2.2 m to 2.75 m cover. Ribbed cast iron lid, tapped to receive a 25 mm brass plug. The plug is to have an Acme thread and a pentagon top 22 mm flat to point.
- 16 mm diameter x 1.8 to 2.1 m in length all stainless steel stem or stationary rod. Yoke drilled to accept a 5 mm diameter stainless steel cotter pin located centrally on the yoke and no more than 10 mm from the center line of the hole to the extremity of the yoke.

For anchoring: Base of the service box with holes to secure the base to the blocking



or use "U-rods" to secure curb stop valves to wood base.

Acceptable type Mueller A714. Top to be marked "W".

**B9.8 Wood:**

- .1 Wood base supporting the curb stop - use pressure treated wood. Locate curb stop on wood block to facilitate pipe connections.
- .2 Wood marker (if service line is not extended into building).- 38 mm x 89 mm extending from pipe level to 600 mm above grade, with the upper half painted red.

**B9.9 Saddle clamps on main:** Provide full support around the circumference of the pipe, suitable for iron pipe sized pipe, does not distort the pipe, has a gasket that fully contacts the pipe surface and conforms to any minor pipe irregularities. Tapping to be 32 mm FPT if the main is not pressurized or 32 mm CC (to accept a mainstop) if the main is pressurized. Water (PVC) Mains - In accordance to manufacturer's (pipe and saddle) recommendations. Use either:

- .1 Use double strapped saddle. Acceptable type: Romac 202BS, Romac 306.

Ensure cuttings and plug (core) from drilling the hole does not fall into the pipe. Provide a minimum of 150mm of sand below the saddle clamp and 300mm above the saddle clamp. Drill round type hole with sharp clean edges the maximum diameter allowed by the saddle and corporation stop or main stop in use. Do not exceed maximum recommended tap size for pipe diameter.

**B9.10 Fittings:** Fittings to be waterworks brass as manufactured by Mueller Outlets compression. Use stainless steel inserts for poly tubing.

**B9.11** Use appropriate pipe joint compound on all threaded connections.

**B9.12 Ball valve:** Locate as the first connection to the service line piping in the building. Ball valve shall have 20 mm female iron pipe threads, shall be of full port brass construction and be rated for minimum 875 kPa (125 psi) working pressure. Acceptable type: Emco, Crane, Jenkins or Red & White.

**Works on Public Property**

**B10.1** Complete works utilizing methods that minimize damage to roads and other public property. Tunnel all services through roads. Provide minimum 100mm HDPE or PVC encasement pipe for water and sewer service lines under municipal roads, size to be minimum 40 mm larger than the sum of the service piping nominal diameters. Encasement to extend 3 m passed the finished road edge. Ensure pipes do not cross inside encasement pipe during installation.

**B10.2** Minimum pipe depth 2.9 m under roadways. Pipes must be insulated.

**B10.3** Minimum pipe depth 2.4 m in non roadway. Pipes must be insulated.

**B10.4** Minimum pipe depth 2.7 m in driveway areas. Pipes must be insulated.

**B10.5** Tunnel (push or bore) all service lines under all roads. If pushing or boring cannot be completed due to site specific circumstances obtain approval from Municipality for open cut excavation. As a minimum neatly cut road surface, minimize trench width, salvage and replace existing gravel, compact backfill using pit run material in 300 mm lifts and provide an additional 300 mm granular top thickness above that which was existing.

**B10.6** Provide and maintain all necessary watchmen, barriers, fences, warning lights and signs and take all necessary precautions for the protection and safety of workmen

and the public. Clearly mark all excavations or obstructions between sunset and sunrise with warning flares or lights.

B10.7 Pressure test mainline and service lines up to curb stops. Pressure testing requirements to meet or exceed MWSB Standard Construction Specification.

B10.8 Restore public property to condition existing prior to excavation.

#### **Granular Base Material**

B11.1 Salvage existing gravel on roads and driveways by stripping, stockpiling and replacing after construction. Replace existing gravel to existing thickness prior to construction plus 300 mm.

B11.2 Use the gravel described below when granular base material for driveways and roads. The granular base material shall consist of sound, hard crushed rock or crushed gravel and shall be free from organic or soft material which would disintegrate through decay or weathering. The granular base material to be supplied by the contractor shall be well graded throughout and shall conform to the following Class B grading requirements: NOTE: department of Highways Class A may be used in place of Class B below.

Passing 1 ½" square opening	100%
Passing No. 4 sieve	35-75%
Passing No. 10 sieve	25-65%
Passing No. 40 sieve	15-35%
Passing No. 200 sieve	6-18%
Crushed particles	35% minimum

B11.3 Refrain from hauling aggregate and any other materials to and from the project when ground or atmospheric conditions will cause the roads or highway to be damaged by loaded trucks.

#### **Insulation**

B12.1 Use rigid insulation where the contractor deviates from the specified depth and approval has been obtained by the Municipality. Rigid insulation installed in the trench and over waste water tanks shall conform to CGSB41-GP-14A type 4 extruded polystyrene foam as manufactured by Dow Chemical (blue in color) or approved equal with a compressive strength of 240 kPa. Municipality to advise on insulation thickness and width upon site specific circumstances.