POLICY DIRECTIVE NO. F-14

SUBJECT: SANITARY SEWER FORCEMAIN CONNECTIONS

APPROVAL DATE: February 5, 2001 LAST REVIEW DATE: _____

REFERENCE: _____

CITY OF CHILLIWACK
SUBDIVISION AND DEVELOPMENT CONTROL BYLAW
Sanitary Sewer Pressure Connection

GENERAL

- This section administers the installation, on private property, a sanitary sewage disposal service, which is to be pumped into a City of Chilliwack sanitary forcemain.
- The service is for one single-family residential dwelling unit, unless otherwise approved by Municipal Engineer for larger connections.
- This section must be referenced to and interpreted simultaneously with all other sections pertinent to sewage works in the City's Sanitary Sewer Bylaw.
- All details of piping, fittings and appurtenances not specifically covered in this section are to comply with respective AWWA Standards.
- The connection to City's forcemain is only available when the forcemain operating pressure is less than 40 psi at connection point and within 100 meters of property boundary.
- Access to pump station must be maintained at all times by the owner to provide for maintenance.

MATERIAL CERTIFICATION

- Products having CSA certification to be used where readily available. Certification by Standards Council of Canada is also acceptable.
- At least two weeks prior to commencing work, submit manufacturer's recent test data and certification that materials to be incorporated into works are representative and meet requirements of the Section.
- All work and equipment to be designed in accordance with BC Plumbing Code, Canadian Electrical Code, and local bylaws.

SHOP DRAWINGS AND TECHNICAL DATA

- Director of Engineering and Operations may require shop drawings and technical data.

IF APPROVED BY MUNICIPAL ENGINEER, THE SEWER PRESSURE CONNECTION SHALL HAVE THE FOLLOWING CHARACTERISTICS.

BASICS

- Sanitary sewage should gravity drain from the house into a small residential-type pump station, located outside residence, for pumped discharge to the City's forcemain.
- No overflow provisions shall be incorporated into the design.

SKETCH

- A sketch of the City's standard detail drawing No. SAN-FM, is a guideline only.

OWNERSHIP

- The City shall own and maintain the pressure connection and ball valve within the road allowance. All other appurtenances, including pump station and forcemain arrangement on private property, shall be owned and maintained by the property owner.

SEPTIC TANK

- Existing septic tank is to be abandoned, in accordance with Ministry of Health policy.

RESIDENTIAL SEWAGE PUMP SPECIFICATION

General

- The installation shall include a complete factory built, automatic, underground sewage pump station. Each pumping station shall be furnished in one (1) main section with factory installed piping, valves, electrical coupling, inlet, vent and tank cover, Pumping system shall be high lift type model EPS30.60.AF **(or equal)** for pressure sewage collection systems as manufactured by Engineered Pump Systems Ltd.

Pump – One Required - Simplex

- Pump shall be Myers CSA approved centrifugal type submersible sewage grinder pump model WGL20 **(or equal)** with the following features:

- All cast iron construction, no sheet metal or plastic parts shall be allowed.
- Recessed type impellers capable of handling ground slurry minimum capacity 1.89 LPS.
- Oil filled electrical motors with overload-heat sensor minimum 1.5kw (2HP).
- Double shaft seals with seal leak probe and panel mounted alarm light.
- Stainless steel cutters, 440 SST hardened to 56-60 rockwell.
- Stainless steel fasteners.
- 6.1m (20ft) power cord (longer cords available if required).
- 1.8m (6') galvanized steel lifting chain and mounting hook.

Piping and Valves

- Each pump station shall be furnished with the pump discharge piping, valves and fittings, factory installed.

    - Piping shall be minimum 50mm (2") diameter schedule 40 galvanized steel.
    - Check valve shall be a full port, ball type with C.I. body suitable for mounting in the vertical position.
    - Mechanical union for easy removal and service for stations up to 1.5m (5') depth, over 1.5m (5') depth use a lift-out coupling and guide rail system.
    - Isolation valves shall be bronze body gate valves with non-rising stem.
    - Stainless steel discharge coupling with mounting flange shaped to the curvature of the fiberglass tank shall be mounted on the tank sidewall, fiberglassed over and gel-coated to provide a sealed installation.

Level Controls

- Furnish (3) three float switches to provide automatic pump control of the wet well liquid levels.

    - CSA approved non-mercury type.
    - Externally weighted type.
    - Factory installed galvanized support bracket with non-corrosive strain relief connectors.

- Level Switches to provide the following functions:

    - FS #3 – High level alarm
    - FS #2 – Pump on
    - FS #1 – Off (fail-safe)

Control Panel

- The pump control panel shall be CSA approved fully automatic type supplied in an Eemac I indoor enclosure. The panel shall provide "Operator friendly," LED type display indication of the following functions.

    - Power on light
    - Float switch indication lights
    - Pump on light
    - Seal fail alarm light
    - High level alarm light and buzzer

  Each control panel power circuit shall include

    - Pump disconnect circuit
    - Motor contactor (start relay) with overload
    - Motor start and run capacitors
    - H.O.A. selector switch
    - Remote alarm output 12 volt
    - Control transformer
    - Control fuse
    - Terminal strip
    - Optional EEMAC 3 outdoor enclosures, where required

Junction Box (External)

- When the pump and chamber is 3m (10ft) or less from the outside wall, provide an outdoor type PVC junction box with 2" PVC conduit connection. No junction box shall be installed within sump chamber.

- Install and EYS seal between the junction box and control panel or sub-power feed circuit.

Fiberglass Sump and Cover

- The sump chamber shall be of fiberglass construction manufactured in accordance with ASTM D883-69 standards for the hand lay-up, chopped spray technique and filament wound methods for manufacturing of vertical underground fiberglass tanks. All tanks over 3' in depth shall be furnished with an anti-flotation flange.

- The interior and exterior surfaces shall be smooth and free of cracks and shall have a gel-coat or reinforced with glass surfacing veil. Interior finish to be a sanitary white and the exterior to be a dark green, U.V. Stabilized.

- All necessary discharge, vent and electrical couplings shall be factory installed on the tank sidewall. A 4" adapt-a-flex inlet shall be furnished for connection to the gravity sewer pipe from each connection. After installation, all discharge, vent and electrical couplings shall be fiber glassed over and gel-coated to provide a watertight seal.

- For single-family installations the minimum tank size shall be 762mm diameter x 1524mm deep and shall have a minimum working volume of 300 liters below the gravity sewer inlet. Larger tank sizes and duplex pump equipment will be required for multi-family or commercial installations.

Sump Cover

- A hinged sump cover shall be manufactured from 3mm checker plate aluminum reinforced to 150 PSF live load. Cover supplied with flush drop handle, hold open arm, stainless steel hinges and lock hasp. Cover and frame shall provide support for upper guide rail bracket and lifting chain hook. Cover supplied with gasket and stainless steel bolts.

Installation

- All installation work must be completed in accordance with the BC Plumbing Code and the Canadian Electrical Code.

- The residential sewage pump station must be installed in accordance with the manufacture's specifications and in general conformance with the standard drawing attached to and forming part of this bylaw. The wet well shall be vented away from any building vents or openings in accordance to local code.

- The residential sewage pump station power and control wiring must be terminated at an exterior junction box within 3-6 meters of the residential pump station. The conduit entry to the junction box from the pump control shall be sealed with EYS seals.

SERVICE PIPE

- The pressure service pipe shall be solid, jointless pipe, fusion welded polyethylene, on solvent-welded PVC. The minimum diameter shall be 50mm, but should be sized by the design engineer.

DEPTH OF BURY

- The minimum amount of cover over the pipes shall be 1.0 meter.

- In situations where the service pipe is required to traverse a drainage ditch the minimum amount of cover shall be maintained by the installation of a culvert within the ditch. The size of the culvert pipe required must be specified by a Professional Engineer.

TERMINAL & MID BLOCK CLEANOUTS

- At the property line and at strategic locations on the pipe in the road allowance, isolation valves and clean-outs shall be incorporated to allow the City to flush the line if required. All valves shall be metal ball or plug valves. Clean-outs shall be 50mm diameter closed, with an isolation valve and a Camlock fitting.

DESIGN PROFESSIONAL

- As part of the permit application, the owner shall supply three copies of the design/sealed by a professional engineer registered with the Association of Professional Engineers and Geoscientist of British Columbia. The professional engineer shall also provide a Letter of Assurance, Schedule B1 and B2. Schedule C shall be submitted to the City upon completion of the installation.

RESTRICTIVE COVENANT

1. Prior to installation, a restrictive covenant shall be placed on the property, which would inform future prospective owners of the "non-conventional" sewer connection and further allow City Public Works personnel access to the valve chamber and equipment for maintenance purposes. The covenant shall be registered in accordance with Section 219 of the Land Title Act.

ADDITIONAL CONDITIONS

1. Homeowners will be required to provide an annual maintenance certificate from a registered plumbing company attesting to the functionality and operating condition of the entire system located on private property.

2. All connections would be subject to the approval of the Director of Engineering and Operations, on an individual basis and onsite pumping facility being designed and certified by a professional engineer with specialized knowledge in the field of grinder pump connection, and substantially in conformity with the City's schematic design recommendations.

3. All grinder pump connections to the City's force main be limited to systems pressures not exceeding 40 psi.