State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
Natural Resources Conservation Council

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
WATER SUPPLY DIVISION
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Procedure for Sewer Construction in WHPA
Department of Environmental Protection

Sewer Line Standards for Wellhead Protection Areas (WHPA)

These standards apply to sewer lines located within a WHPA when there is a 2 year or less time-of-travel to a public water supply source. Sewer lines located outside the 2 year time-of-travel zone are not required to meet these standards.

1. Acceptable Pipe Materials

   a. For gravity flow

      PVC-SDR 35 (ASTM D3034) mains and house sewers
      Ductile Iron Class 52

   b. For Force Mains

      PVC-SDR 26, Class 160 (push on joint) minimum
      Ductile Iron Class 52
      Polyethylene pipe may be used on a case by case basis.

   c. Joints

      mechanical, ball and socket, restrained, or push-on

   d. Corrosive Soil

      Soil must be tested for corrosive potential when ductile iron pipe is to be used. If the soil is determined to be corrosive, ductile iron pipe shall be securely double wrapped in 6 mil (minimum) polyethylene sheets. Wrapping of PVC pipe is not required.

2. Pump Stations, including effluent pump chambers and wet wells

   All pump station inlet and outlet piping connections must be:

   a. Neoprene boot with stainless steel band and stainless steel adjustment screw; or
   b. Linkseal with cement grout placed on inside but not the outside of the pump station.

c. Outlets and inlets must be made through a smoothly drilled or formed hole.
d. One vertical foot of compacted gravel or crushed stone shall be placed under the pump station.

3. Manholes and Septic Tanks

a. Pipe inlet and outlet connection must be flexible neoprene boots cast in the manhole section with a stainless steel band and stainless steel adjustment screw.
b. Taps made on existing manholes shall be smooth bored using a flexible pipe to manhole connector as provided by Kor-n-Seal or equivalent.
c. Joints between manhole sections (precast manholes) shall include a double bead (3/4" x 3/4") of mastic to provide a watertight seal.
d. The base section floor slab shall be fabricated monolithically with manhole walls to form a "bathtub" effect.
e. One vertical foot of compacted gravel or crushed stone shall be placed under manholes and septic tanks.
f. All construction and hydrostatic relief holes and knock-out panel holes for pipe connections shall be plugged, filled, and sealed with a non-shrinking concrete patch material such as Conpro-set, or equivalent.

4. Force Main

a. Stream crossings - ductile iron with mechanical joints.
b. Above frost line - ductile iron with mechanical joints.
c. Below frost line - PVC-SDR 26 (minimum) pressure pipe (Bell and Spigot) joint or ductile iron with bell and spigot or mechanical joints.

5. Testing

a. All gravity sewer pipe shall be tested for exfiltration with 4.5 psi pressure air test after backfilling between manholes. If a water table has been noted, the pressure shall be increased to compensate for the static water level over the invert elevation of the pipe. Test duration shall be 5 minutes with no pressure loss.
b. All force mains shall be hydrostatic pressure tested to hold for 2 (two) hours at a minimum of twice the expected operating pressure of the main or the maximum output pressure of the pumps, whichever is higher.
c. All manholes, pump chambers and septic tanks shall be tested with a water test method (24 hours with no exfiltration) after backfilling or vacuum tested prior to backfilling. Vacuum testing is required when the water table is above the lowest seam. Vacuum testing will be performed at 10 inches of mercury on an approved gage and held with no drop for 2 minutes.

6. 200 foot isolation zone

Where sewer lines must pass closer than 200 feet to a public community water system source (well) they shall be reviewed and approved by the Water Supply Division.

a. A concerted effort shall be made to avoid the 200 foot isolation zone surrounding the well.
b. There shall not be any sewer lines closer than 75 feet to the well casing.
c. There shall not be any house or branch connections to the sewer line within 200 feet of the well.
d. There shall not be any manholes within 200 feet of the well.
e. Only ductile iron pipe (class 56) shall be used within this 200 foot isolation zone.
f. All mains (gravity or force main DIP) shall undergo a 15 minute pressure test on the pipe with zero pressure loss at the maximum pressure rating of the pipe.

7. Inspections

Pump stations must be inspected for leakage by a Vermont registered P.E. yearly and a report submitted on the condition of the system to the approving authority, usually the Division of Public Facilities of the Department of Environmental Conservation at 103 South Main Street, Waterbury, Vermont 05671-0406.

8. Maintenance

All septic tanks must be cleaned (pumped) when: 1) the bottom of the scum layer is within 3 inches of the bottom of the outlet device; or 2) the bottom sludge level is within 8 inches of the bottom of the outlet device. If an inspection program is not carried out, a pump out frequency of at least once every 3 years shall be carried out. Associated pump chambers and siphon chambers shall be pumped out and inspected at the same time as the septic tank.

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