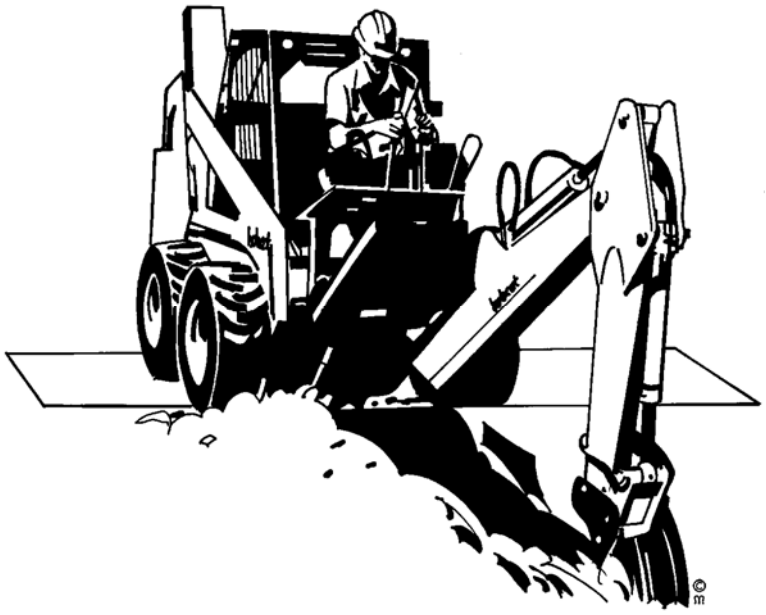
Mason County Public Health

On-Site Standards



Revised December 28, 2010

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SECTION ONE: PROCEDURAL REQUIREMENTS

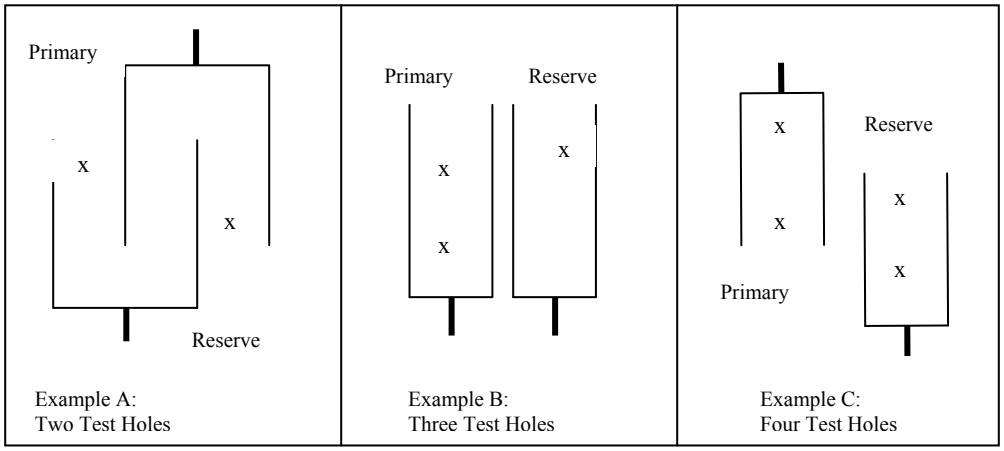
A. Criteria for Test Hole Number and Location

A minimum of 2 to 4 test holes is required per site, depending on the location of the reserve repair area.

If the reserve area is located interior to the primary system (Example A, below), a minimum of 2 test holes is required.

If the reserve area is located contiguous to the primary system (Example B, below), a minimum of 3 test holes is required.

If the reserved area is located in an area separated from the primary system (Example C, below), a minimum of 4 test holes is required.



B. Criteria for Test Hole Dimensions

The holes are generally excavated by a backhoe, but hand dug holes are acceptable when dug to proper dimensions and with adequate spoils pile setback. Test holes only need to be dug into the restrictive layer. When a restrictive layer is not identified during test hole excavation, test holes must be dug a minimum of 5 feet deep. The reason for this depth is to verify that the site can accommodate a 2-foot deep drainfield with an additional 3 feet of vertical separation.

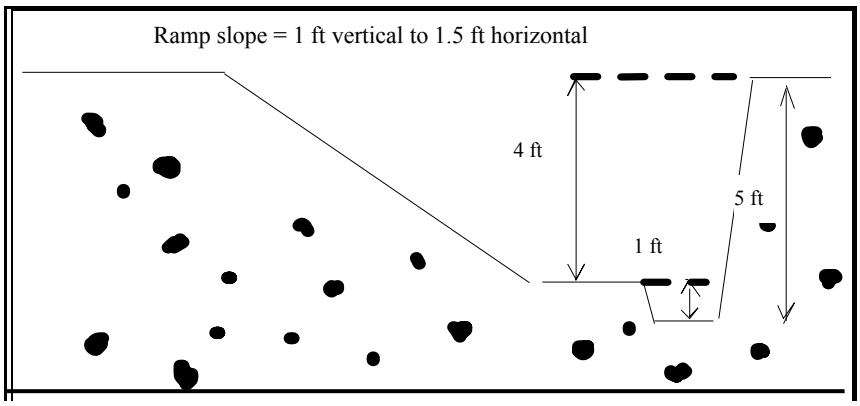
Excavator requests for test holes shallower than 5 feet (without encountering a restrictive layer) due to site-specific concerns such as soil sloughing characteristics and access to the site by children or animals will be considered by Public Health on a case-by-case basis. Public Health will work to identify ways to meet the excavator's concerns other than digging shallow test holes, such as arranging to meet the excavator on site so the holes can be immediately covered.

In some cases hand dug test holes may be preferred by the applicant or designer. Hand dug test holes might be preferable for sites that have a shallow restrictive layer or sites where construction equipment could damage the usable soil. In such cases, the test holes need to be dug a minimum of 5-feet deep or into the restrictive layer, whichever is shallower.

Test holes must be 2 feet wide, and long enough for an entrance ramp. The ramp must be no steeper than 1 foot vertical to 1.5 foot horizontal. If the hole is deeper than 4 feet, a platform must be constructed at the 4-foot depth to allow the inspector to complete the test hole inspection while standing no deeper than 4 feet deep.

If test holes cannot meet the above criteria, prior approval is required from Public Health.

The toe of the spoils pile must be 2 foot from the test hole.



Note: Safety is a legitimate concern of both backhoe operator and Public Health staff. Holes should be excavated with a 5-foot deep end and a 4-foot deep shelf. The end of the shelf should then be ramped up to the ground surface. This allows staff to enter and exit the hole via the ramp, and to examine the 5-foot sidewall without going deeper than 4 feet by standing on the shelf.

C. Final Approval

The system installation will be verified as complete and within current code when a record drawing (as-built) is signed by both the installer and Public Health and Public Health signs off in the permit database.

SECTION TWO: DESIGN AND INSTALLATION REQUIREMENTS

A. Use of Recommended Standards and Guidance for Performance, Application, Design and Operation & Maintenance.

Washington State Department of Health (www/doh.wa.gov) has established guidelines for various on-site technologies. Although these guideline documents have not been formally adopted as regulation in Mason County, they are considered by Mason County Public Health to be valuable technical guidance. Therefore, on-site system designs shall adhere to the guidelines.

B. Septic and Pump Tanks

Install only approved two-compartment septic tank with a minimum volume based on the number of bedrooms in the home, as follows:

Number of Bedrooms	Volume of Tank (in Gallons)
1-2	1,000
3-4	1,200
5+	Add 250 Gallons per Bedroom

Must have an appropriately sized two-compartment septic tank followed by an appropriately sized pump tank.

Pump vault systems in a single compartment septic tanks are not allowed.

24" risers (minimum) required over each compartment of a septic tank. Single compartment tanks greater than 1000 gallons shall require 24" risers at each end of the tank. Risers shall be a minimum of 24" with an effective opening no smaller than 18". Pump tanks shall be 2.5 times the design flow with a minimum of 1000 gallons.

Grease traps shall be 2.5 times flow of the kitchen wastewater and not counted toward septic tank size.

C. Drainfield Requirements

Pipe

- Tightline three (3) feet into and out of septic tank using ASTM 3034 pipe and fittings.
- For gravity systems, 4-inch ASTM 2729 rigid pipe or better is required for drainfield piping.
- For pressure distribution systems, use Class 200 or better.

Valve and Distribution Boxes

- Valve and distribution boxes must have a barrier material placed under component.

Cleanouts and Observation Ports

- Ports must be anchored properly.
- End of lateral pipe must be accessible in the observation port and have threaded caps.
- Observation ports must be installed in a valve box or equivalent at finished grade.

Time Dosing, Elapse Meter, Event Counter

- Time dosing, elapse meter and event counter shall be required for all systems using a pump. Systems consisting of a septic tank and gravity drainfield shall require metered water.

Electrical Box

- The installer will be responsible for assuring that an electrical schematic is left in the electrical box of the residence. If the electrical box has not been installed at the time of installation, the installer will leave the schematic at the site along with the record drawing (as-built).

Reduction

- No drainfield reduction will be allowed.

Onsite Systems with Greater than 2,000 GPD and Less than 3,500 GPD Shall Require:

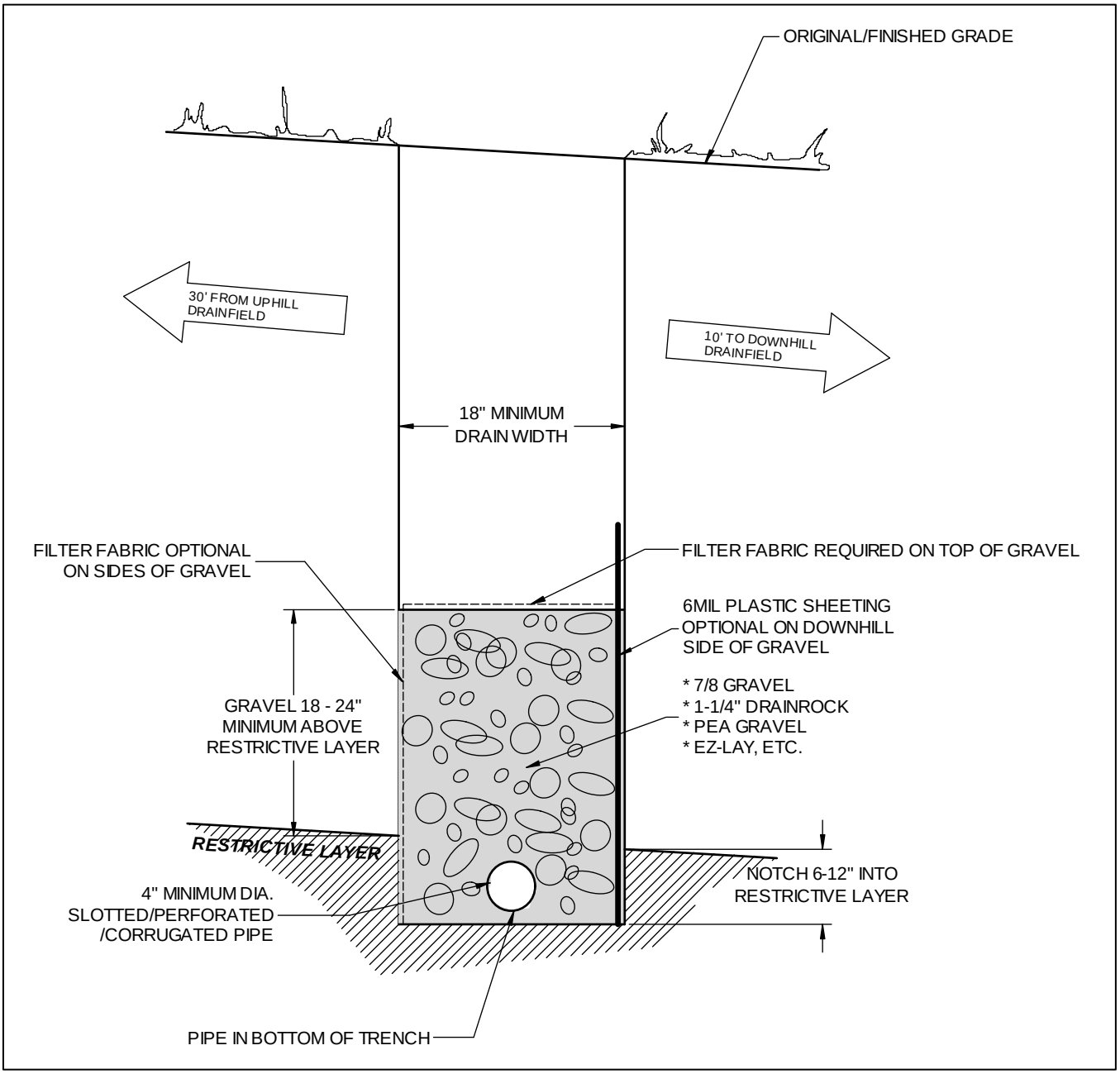
- Pressure distribution.
- Annual operation and maintenance.
- All of the Recommended Standards and Guidance for pressure distribution must be followed. The required drainfield area shall be split into two 50 percent drainfields. A third 50 percent drainfield shall be constructed initially in order to provide for alternation (long term resting). A reserve area equal to an additional 50 percent is required. Where facilities have an automatic resting cycle like a campground, the requirement for three 50 percent drainfields may not be necessary. A 100 percent reserve is required when a third 50 percent drainfield is not required.

Barrier Material

- Geotextile (filter fabric) is required as a barrier material for all systems except systems using gravelless technology.

D. Curtain Drain

The following illustration represents a typical curtain drain.



E. Winter Observations

A winter monitoring program will be conducted after completion of the appropriate application form and payment of fees. Monitoring will be performed by a Licensed Designer (with 3 quality assurance inspections by Public Health).

A minimum of 2 observation ports will be installed in locations representative of a cross section of the proposed drainfield area. Recommended monitoring port design will consist of a vertically oriented section of 4-inch diameter perforated pipe, wrapped in filter fabric and bedded in clean, washed drain rock or pea-gravel that has been back filled into a 12 to 24 inch test hole. The drainpipe should be capped and flagged so as to be easily visible to Public Health staff.

Winter observations will take place during the months of January to March. The frequency and timing of observations will be dependent on site characteristics, and on rainfall characteristics that occurred during the monitoring period. The designer will submit a minimum of 6 observations along with USDC rainfall data for the area during the period of January to March. The observations will record the date and time of observation, and the depth to water.

Monitoring results will not be considered valid when the rainfall for the period of observation did not exceed 80% of the ten-year average rainfall for the area during the six-month period of October to March.

SECTION THREE: RECREATIONAL VEHICLE HOLDING TANKS

Holding tanks for Recreational Use Vehicles are permitted through a state and local waiver process.

A. Application Requirements

- An Onsite Sewage Application form and Plot Plan
- Completed State and Mason County Waiver forms

B. Waiver Requirements

- A 1200-gallon tank from the Washington State Department of Health List of Registered On-Site Treatment and Distribution Products , risers to the surface and an audio-visual alarm.
- A letter from the property owner stating that the owner agrees to have the tank inspected annually and pumped as needed.
- A copy of a recorded *Notice to Future Property Owners of Recreational Use Holding Tank* on the property deed. This form must be completed, notarized, and recorded with the Mason County Auditor. A copy of the recorded document must be submitted to Mason County Public Health prior to permit approval.
- A Mason County Certified installer must install the tank, request a final inspection, and provide a completed a Mason County Record Drawing (as-built) form.

SECTION FOUR: OPERATION AND MAINTENANCE

A. O&M Frequency

All on-site sewage systems require operation and maintenance care in order to function satisfactorily over an extended period of time. The following table summarizes minimum O&M frequency needed for each type of system, and the homeowner's options for who can perform the work:

System Type				
• Conventional Gravity	• Conventional Pressure * • Open-bottom Sandfilter *	• Mounds * • Sandfilter *	• Aerobic Treatment Units • Glendon • Recirculating Gravel Filters • Sub-surface Drip • Community Drainfields	• Non-residential Commercial
Inspection Frequency				
Every 3 years	Annually	Annually	Annually	Annually (Waste–strength testing may be required)
Approved Service Providers				
• Homeowner • Pumper	• Homeowner • Pumper • Operation & Maintenance Specialist	• Homeowner • Operation & Maintenance Specialist	• Operation & Maintenance Specialist • Proprietary Device Licensee	• Operation & Maintenance Specialist
* Mason County Public Health recommends a Certified Operation and Maintenance Specialist inspect these systems.				
Tanks should be pumped as needed. Frequency depends on age of system, number of people using system, size of tank, what you put into the system, and other factors.				

B. Terrilift

Terrilift is not allowed for maintenance or repair of an on-site sewage system.

C. Transfer of Ownership

As per Mason County On-Site Regulations, transfer of resident ownership shall require a current inspection service report on the status of the on-site sewage system prior to closing, using the form prescribed by the Director. Current shall mean within three years with a system consisting solely of a septic tank and drainfield and annually for all other on-site sewage systems.

Service for an on-site sewage system consisting solely of a septic tank and gravity drainfield shall be performed by a Mason County Certified Pumper or a Mason County Certified Operation and Maintenance Specialist. All other on-site sewage systems will require a report from a Mason County Certified Operation and Maintenance Specialist.

SECTION FIVE: GRAVITY SYSTEMS

Pipe

- 4-inch ASTM 2729 rigid pipe or better is required for drainfield piping.

Trenches

- Divide flow equally between trenches by using a distribution box (D-box) located at or above the uppermost trench.
- Stepdowns are not allowed.

Bed Pipe Layout

- Interconnect laterals at the ends to form a closed loop; level entire closed loop. Use minimum of 2 laterals. Lateral separation must not exceed 3 feet. Separation of outer lateral from edge of bed excavation must not exceed 24 inches.
- Design layout so the outer lateral is separated from edge of bed excavation by a distance equal to 1/2 the separation between laterals.

Distribution Box

- Distribution boxes (D-boxes) are required in order to achieve equal distribution of effluent on sloping sites and on flat sites where more than two drainfield laterals are utilized.
- Install D-boxes on undisturbed or compacted soil. Effluent must be tightlined a minimum of 3 feet from each outlet of a D-box, except where the D-box is located on the interior portion of a bed design.
- The outlets of the D-box must be water leveled by the installer prior to the final inspection by Public Health.
- Distribution box construction must allow unobstructed view of all outlets, in order for Public Health to verify proper installation.
- Public Health recommends use of Dial-a-Flow or equivalent for easy, precise equalization of D-box outlet flow.