

**Summary of January 1, 2015 Revisions to the**  
**Technical Standards for Subsurface Sewage Disposal Systems**

○ **Section I Definitions:**

- Minor revisions to the following definitions: Accessory Structure, Bedroom, Building Served, Building Sewer, Foundation Drain, Free Draining Material, Leaching Gallery, Leaching Pit, Leaching Trench, Watertight Tank Seal.
- Definition for “two (2) inch nominal tire chip aggregate” deleted.
- Definition for “approved aggregate” revised to remove reference to two (2) inch nominal tire chip aggregate.
- Definition for “outbuilding” added: Outbuilding means an ancillary structure served by a water supply and sewage system that is located on a lot with an associated primary residential building, which cannot be split off and sold separately from the primary building. Outbuildings include, but are not limited to plumbed (water & sewage system plumbing) detached garages, workshops, barns, pool house cabanas, game rooms, guest houses, and in-law apartments.
- Definition for “receiving soil” added: Receiving soil means the soil in the leaching system area and surrounding soil that is available to disperse effluent. Receiving soil characteristics (e.g., depth, percolation rate) determine the configuration and sizing of a leaching system.
- Definition for “proprietary pressure-dosed dispersal system” added: Proprietary pressure-dosed dispersal system means a manufactured dosing and dispersal system that uniformly applies effluent into receiving soil via small diameter holes in small diameter distribution piping, and has been approved by the Commissioner of Public Health.
- Revise definition for “effective leaching area (ELA)” so the square feet rating measure based on infiltrative area and type of infiltrative interface does not apply to proprietary pressure-dosed dispersal systems.
- Definition for “leaching system” revised to include the dispersal components of proprietary pressure-dosed dispersal systems.
- Definition for “proprietary leaching system” revised to note these systems do not include the dispersal component of a proprietary pressure-dosed dispersal system.
- Definition of “tight pipe” revised to reference new table designation: Table 3.

○ **Section II Location of SSDSs:**

- Section heading changed to “Location of Sewage Systems”.
- Subsection A revisions: Maintain minimum separating distances to sewage systems (subsurface sewage disposal systems (SSDSS), cesspools, holding tanks, and privies). Reference to sewage tanks in Table 1 includes septic tanks, pump chambers, grease interceptor tanks, and holding tanks. Language added about cesspools (antiquated sewage systems that do not have the benefit of a septic tank) and their abandonment. Federal Underground Injection Control program cited that required abandonment of large capacity cesspools by 4/5/05. New language added concerning storm water infiltration systems, and B100a (e) review of these systems.
- Subsection B revisions: This subsection now covers benchmarks and plan adherence, and includes new language about non-engineered SSDS plans about placement of the SSDS relative to restrictive layers and fixed reference points.

### **Table 1 Modifications:**

- Human Habitation on Adjacent Property is no longer an item.
- Water supply suction pipes removed from Item A (Water Supply Wells), and added to Item K (Water Piping).
- Building Served cites a 10 foot separating distance, and references Item G if building has drains.
- Item C (Open Watercourse) includes a provision that in coastal areas, the Coastal Jurisdiction Line (Public Act 12-101) shall be used as the limit of the open watercourse, unless site specific information is available.
- Item E covers solid surface water and groundwater piping and references the new tight pipe designation (Table 3).
- Item F is a new item covering storm water structures (catch basins & manholes), and cites a 25 foot separating distance with a provision for a reduced distance to 10 feet to sewage tanks.
- Item G now only covers groundwater drains. Storm water infiltration systems moved to separate item.
- Item H covers storm water systems, and 2 sub-categories (single-family residential building lots & other lots) are listed. Single-family residential building lots cite a 50 foot minimum separation distance, and other lots cite a 75 foot minimum separation distances. The distances for both sub-categories are reduced to 25 feet to sewage tanks, and provisions are provided for further reductions when MLSS is not applicable or when the storm water system is not up-gradient or down-gradient of a leaching system. Single-family residential building lots have provisions for reductions down to 10 feet to minor systems (rain gardens). Language added about storm water system assessments to confirm localized groundwater mounding will not affect the operation of a SSDS.
- Item P is a new item covering buried fuel tanks.
- Item Q covers Water Treatment Wastewater Dispersal Structures, and has 3 sub-categories (small, medium, large) with distances of 25, 50, and 75 feet respectively. Provision included for reduced distance to 10 feet to sewage tanks, and reduction for small discharges (<150 GPD) to 10 feet when MLSS is not applicable or when the storm water system is not up-gradient or down-gradient of a leaching system.
- Item R concerns Closed Loop Geothermal Systems and has provision for a reduced distance of 25 feet to sewage tank, and a reduced distance of 25 feet as long as geothermal thermal system is not down-gradient of leaching system.
- Item S is a new item covering grade cuts or soil disturbance down-gradient of leaching system.
- **Section III Piping:**
  - Created new subsections (B Effluent Distribution Pipe) and (C Force Main Pipe), and modified subsection on water pipe trenches (D Drainage & Water Supply Piping).
  - Consolidated all SSDS piping (building sewer, effluent distribution piping, force mains) into Tables 2, 2-A, and 2-B. Tables designate approved piping for use within 25' from an open watercourse, groundwater or surface water drainage system, and within sanitary radius of a water supply well.
  - Eliminated tables that apply to public sewer piping near water supply wells, and modified Figure 2 to reference SSDS pipes rather than sanitary sewer.
  - Created new Table 3 (Approved Tight Pipe for Groundwater and Surface Water Piping within 25' of a Sewage System).
  - Eliminated old subsection C (Procedure for Air Pressure Testing of Sewer Pipe).

- **Section IV Design Flows:**
  - Pet grooming design flow added to the miscellaneous section of Table 4.
  - Water usage monitoring and Permits to Discharge combined into subsection C, and minor revision of language.
- **Section V Septic Tanks & Grease Interceptor Tanks:**
  - Non-concrete septic tanks must meet IAPMO septic tank standard in 2015. Submissions from companies due July 1, 2015. New tank marking requirements (dangerous gas warning, tank size) noted.
  - Recommended septic tank covers be kept on the tank when riser assemblies are utilized, and noted that in no case shall a cover be left off a tank when the riser cover weighs less than 59 pounds unless a secondary safety lid or device is provided below the riser cover. Similar language added for grease interceptor tanks, pump chambers, and holding tanks.
  - Created new Table 5 for minimum septic tank capacities for residential buildings.
  - Stipulate effluent filters must be rated for the design flow.
- **Section VI Effluent Distribution, Pump Systems & Air Injection Processes:**
  - Added reference to new approved dosing methods (Geomatrix HydroAir & Premier Plastics Flout© Dosing Tanks).
  - Stipulated pump chambers shall provide 24-inch minimum inside diameter risers over access manholes, and existing pump chambers shall be retrofitted with risers to grade if not currently provided.
  - Revised language concerning gas transfer in serial systems, and noted holes in distribution pipe above liquid level can aid gas transfer.
  - Added language about the check valve and weep hole locations in the diagram for the Pump Chamber (Figure 11) and noted the SSDS designer must specify location.
  - Added language about pump chamber tank covers (see language in Section V).
  - Modified requirements for low-pressure distribution systems requiring a PE design. Added a provision for non-PE designed low-pressure distribution systems for leaching system manufacturers that submit to DPH supporting documentation for their low-pressure distribution system arrangements for use with their leaching system products, and receive DPH concurrence that the dosing system is sufficiently detailed so that a PE design is not warranted.
  - Modified wording about pumping large volumes of effluent into proprietary leaching systems with limited storage to note doses shall not exceed 20% of the system's internal storage volume unless approved by the proprietary leaching system company.
  - Added new requirements for exterior raw sewage pumps for buildings other than outbuildings. Require 1-day emergency storage or dual pumps unless the building occupants have access to a bathroom in the building that does not rely on raw sewage pump.
  - Mentioned placement of plastic membrane over proprietary leaching systems in conjunction with use w/ Soil Air system shall be authorized by the proprietary leaching system company.
- **Section VII Percolation Tests:**
  - Modified wording in this section to remove unnecessary verbiage.
  - Added language about not reading last 2-3 inches of percolation test, and not conducting percolation tests in frost layers.
  - Added language about use of percolation test results in leaching system sizing (required ELA) and configuration (MLSS).

- Added language about conducting percolation tests in select fill after placement, and noted that leaching systems located entirely in select fill can be sized based on percolation rate of select fill. Cautioned about sizing systems in select fill on percolation rates faster than 10 minutes per inch.
- **Section VIII Leaching Systems:**
  - Noted reserve areas are not required for outbuildings on single-family residential building lots.
  - Removed language concerning two (2) inch nominal tire chip aggregate.
  - Added language concerning coastal areas that have a groundwater table that is tidally impacted: Minimum separation distance of the bottom of the leaching system above maximum groundwater shall be 24 inches, and maximum groundwater determinations shall take into account water level rise associated with high tides.
  - Stipulated large (>2,000 GPD) leaching systems must be elevated at least 24 inches above maximum groundwater.
  - Stipulate that in addition to covering leaching systems within 2 working days following the final inspection, they shall also be covered prior to heavy precipitation events.
  - Revised language concerning manufactured fill so that it is broad enough to apply to recycled glass product.
  - Moved the distribution piping paragraph and table to Section III Piping.
  - Reserve areas not required for outbuildings w/ design flows of 150 GPD or less on single-family residential building lots.
  - Added language about MLSS compliance. Although reserve areas are required to meet MLSS, it is recommended they comply w/ MLSS to provide margin of safety.
  - Added language about naturally occurring soil and PE hydraulic assessments.
  - Modified Table 6 (Residential Buildings) to include provision for 1-bedroom leaching system sizing for residential outbuildings on single-family residential building lots, and stipulate required minimum ELA is 50% of the required 2-bedroom ELA. Also noted the required ELA for a multi-family residential building is based on a minimum of 4-bedrooms.
  - Added proprietary leaching systems approved after the last Technical Standards' revision.
  - Created new Subsection F for proprietary pressure-dosed dispersal systems, and note that sizing of these systems shall be correlated to an equivalent area needed for a conventional 3 foot wide leaching trench. Require new construction utilizing these systems identify on the design plan an area that can accommodate a conventional leaching trench system including any necessary fill including fill extensions. Sizing requirements and tubing/piping spacing for proprietary pressure-dosed dispersal systems must be approved by the Commissioner of Public Health based on a review of supporting documentation from the proprietary company.
  - Added the Perc Rite Drip Dispersal System to Subsection F, and stipulate the minimum linear footage of the drip tubing is four (4) times the required linear footage of a 3 foot wide leaching trench system for the particular building served. Minimum tubing spacing is 1.5 feet center to center (minor deviations allowed).
  - Changed the language in the subsection on Leaching System Product Approvals & ELA Ratings to indicate the ELA rating criterion that takes into account the interface factors, and the center to center minimum spacing based on ELA ratings do not apply to proprietary pressure-dosed dispersal systems.

- Stipulated proprietary leaching system products approved after January 1, 2015 will get ELA rating limitations for competing bio-mats (no credit for < ½ inch, 50% credit for ½ to 2 inches), and internal interfaces < 4 inches shall not be credited unless the proprietary company demonstrates there is sufficient bottom sand area available to transit the partly treated effluent while maintaining low soil moisture content in the sand column. Discount sand area within 1" of internal interface in flow assessments. Stipulate the Commissioner of Public Health can require currently approved leaching systems that receive ELA credit for competing bio-mats or internal interfaces to be re-evaluated once criterion is adopted.
- Provided leaching trenches an alternate higher pipe invert configurations to increase ELA credit by 0.6 SF/LF.
- Provided leaching galleries an alternate higher pipe invert configurations to increase ELA credit of 0.6 SF/LF for 12" galleries and 0.8 SF/LF for other galleries.
- Center to center (C to C) spacing consideration language modified for possible future reductions.
- Removed 0.4 SF/LF ELA credit reduction provision for fabric lined proprietary leaching system products that are backfilled with non-select fill.
- Allow non-marked filter fabric to cover leaching systems if product information and specifications for a specific fabric are included on the engineered design plan, and documentation is submitted by the design engineer to the local health department confirming fabric meets the minimum specifications (unit weight, permittivity, trapezoid tear strength) cited in the Technical Standards, and the design engineer submits an as-built drawing to the local health department along with a certification the designated fabric was utilized.
- **Section IX Groundwater, Roof, Cellar and Yard Drainage:**
  - Noted porous pavers/concrete are not considered storm water infiltration systems for the purposes of minimum separation distances in Table 1, and are allowed within 25 feet of a SSDS.
  - Included additional language about storm water infiltration & LID practices, and approvals from local health departments. Referenced new requirements in II.
- **Section X Other Wastewater:**
  - Revised language about DPH authorization of minor quantities (<30 GPD) of Point of Use (i.e., kitchen tap treatment system) water treatment wastewater, other than softener wastewater, to discharge to SSDSs if it is deemed incidental and unlikely to cause problems w/ the SSDS operation.
  - Modified language to stipulate Point of Entry (i.e., whole house treatment systems) water treatment wastewater shall be discharged in accordance with DEEP's General Permit (GP) for the Discharge of Low Flow Water Treatment Wastewater issued January 30, 2014, which authorizes on-site discharges to dedicated disposal systems. Referenced the item designation in Table 1 for water treatment wastewater dispersal structures minimum separation from sewage systems.
- **Section XI Non-Discharging Systems:**
  - Stipulate holding tank covers shall be kept on the tank when a riser assembly is utilized, unless a secondary safety lid or device is provided below the riser cover or the riser cover to grade weighs more than 59 pounds.
- **Forms #1, 2, 3 & 4:** None

- **Appendix A, MLSS Revisions:**
  - Removed language concerning naturally occurring soil and PE hydraulic assessments, and put the expanded language into Section VIII Leaching Systems.
  - Revised definitions, including the language for receiving soil. Surrounding soil for a leaching system is cited in the receiving soil verbiage. Surrounding soil for radial flow lots with flat groundwater table includes soil within 25 feet around perimeter of leaching system. Surrounding soil for sloped gradient lots includes the down-gradient soil: 50 feet for large systems, 25 feet for small systems.
  - Created 3 categories (1. New SSDSs, B100a Code-Complying Areas, Conceptual Areas for New Lots, 2. Leaching System Repairs & B100a Potential Repair Areas, 3. Non-compliant MLSS Repairs) under the Use of MLSS Formula subsection.
  - For category 1, the depth to the restrictive layer shall be measured from the top of the leaching system if the system is more than 12" below natural grade. Leaching systems that are being installed above natural grade and that have all the receiving soil (minimum 18" of naturally occurring soil) on the property may include select fill (maximum 24") measured to the top of the leaching system in the leaching system area.
  - For category 2, leaching systems that are being installed above natural grade and that have all the receiving soil (minimum 18" of naturally occurring soil) on the property may include select fill (maximum 24") measured to the top of the leaching system in the leaching system area.
  - For category 3 (NCR MLSS) several modifications were made: Receiving soil in leaching system area measured from top of leaching system to the restrictive layer, PE plan required if <25% NCR MLSS compliance achieved, and use of actual select fill percolation rate for PF. Also, the leaching system spread shall be maximum percent possible of the NCR MLSS based on a RS Depth of 18 – 22 inches, or based on the depth of existing receiving soil if greater.
  - Added Flow Factor (0.5) for 1-bedroom residential buildings on single-family residential building lots. Note: The minimum leaching system size for residential buildings is still 2-bedrooms even if the building only has 1-bedroom, except for 1-bedroom residential outbuildings on single-family residential building lots per Section VIII Leaching Systems.
- **Appendix B, Approved Septic Tank Effluent Filters:**
  - Updated Appendix to include new filters and company names, and deleted filters no longer approved.
- **Appendix C, Approved Filter Fabric for Covering Stone Aggregate:**
  - Reference to approved fabric for covering 2" tire chip eliminated.
- **Appendix D, Approved Non-Concrete Septic Tanks:**
  - Appendix updated.