



STATE OF CONNECTICUT

DEPARTMENT OF PUBLIC HEALTH

Environmental Engineering Program

Technical Standards January 1, 2007 Revisions

Section I. Definitions

- Accessory Structures: Small (< 200 square feet) movable accessory structures that do not have permanent foundations (slab) or footings/piers are exempt. Decks are permanent structures.
- Approved Aggregate: Include 2-inch Nominal Tire Chips as approved aggregate.
- Effective Leaching Area: Add definition: ELA is a measure, in square feet, of the relative size of a leaching system or product, which takes into account the amount of infiltrative area and type of interface. ELA rating criterion, product ratings, and sizing requirements are included in Section VIII.
- Stone Aggregate: Updated DOT Specification (Now Form 816): Maximum passing $\frac{3}{4}$ -inch sieve is now 15%. Soundness standards consistent with DOT specification added. Gradation specification now includes small particle/fines criteria based on wet sieve: #200: 0-1.5%, #40: 0-3%.
- 2-inch Nominal Tire Chips: Added definition. Includes sizing criteria, maximum wire protrusion. DEP General Permit referenced. Additional requirements included in Section VIII.

Section II. Location of SSDS

- Item A Wells: Added special provision 3. Allows DPH to reduce separation distance to geothermal wells. Tied to DPH legislative report on geothermal wells.
- Items G & H Drains: Added Storm Water Infiltration Systems and Retention/Detention Systems. Clarified drains on the side of systems require 25 feet minimum separation distance.
- Item J. Property Line: Increase distance to 25' for primary leaching system to down gradient property line if MLSS is applicable. Doesn't apply to reserve area.
- Item P Water Treatment Wastewater Disposal System: Add new item with a minimum separation distance of 10 feet, which is the distance in DEP's draft General Permit.
- Record Plans: Require that as-builts also note building sewer location at building exit location. Record plans must be submitted in a "timely manner" to avoid delays in permit issuance by local DOH per PHC Section 19-13-B103 e (k).



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- Plan Adherence: Add statement that the licensed installer is responsible to install the subsurface sewage disposal system in accordance with the approved plan.
- System Abandonment: Include statement about abandonment of hollow SSDS components & cesspools. Previously in Section V, A- 7 (Tank abandonment).
- Benchmarks: PE plans must have benchmarks that have vertical and horizontal controls, or field staking must be required.

Section III. Piping

- Table #2: Either PVC ASTM D 2665, Sch. 40 or ASTM D 1785, Sch. 40 is an acceptable building sewer. Dual marking not required.
- Tables #2A & 2B: Pump vaults/pump systems are sources of pollution and therefore do not qualify for reduced distances for acceptable sewer pipe. 75 ft. min. separation required. Force mains must use approved pressure pipe. New PVC pipes (Contech) added to tables.
- Table #2C: Change title to: Accepted tight pipe for building sewers & distribution piping within 25 feet of open watercourse and drains, or groundwater or surface water piping within 25 feet of SSDS. New PVC pipe (Contech) added to table.

Section IV. Design Flows

- Residential buildings: Design Flow of 150 GPD/bedroom except bedrooms beyond 4 in single family homes which have a 75 GPD/bedroom design flow.
- Nonresidential buildings: Design flows based on metered water usage data must include minimum of 1 year of readings, and if based on comparison to similar facility it must be supported by supporting documentation (building size, fixture info, hours of operation, etc.). Reference made to application rates included in Table No. 7 (Restaurants, Residential Institutions, High Strength/Problematic Sewage), and in Table No. 8 (Other nonresidential buildings). BOD5 concentrations (mg/l) referenced for weak, medium and strong wastewaters.
- Table No. 4: School shower flow per student is 3 GPD reduced from 3-5 GPD.
- Table No. 4: Grocery stores: Design flow must account for deli & food service areas.
- Table No. 4: Included “Community Living Arrangement” reference in the Group Home category. Design flow shall be based on maximum occupancy per DMR Regulations, unless state license restricts clients and stipulates no increase without local DOH B100a approval.
- Table No. 4: Restaurants & Class 3 & 4 food service establishments: Design flows for buildings with/without toilets, per seat: 30 GPD/20 GPD. Increase by 50% if breakfast, lunch and dinner provided. Bars: 15 GPD per seat.
- Water usage monitoring: Large systems (2000GPD or greater) must have the ability to monitor potable water supply usage (meters for the on-site water supply wells or PWS service connection).
- Permits to discharge: Must be approved forms. Form #4 or approved equal. Permits shall reference design flow and recommend the average flow not exceed 2/3 of the design flow.
- Management programs: Proposed ordinances for sewer avoidance programs or wastewater management districts must be sent to DPH for review. Management

programs must include re-issuance of permits to discharge, and septic tank pump-out permitting. Monthly exception reporting to DPH.

Section V. Septic Tanks

- Title modified to include grease interceptor tanks.
- Septic tanks and grease interceptor tanks, including riser and cover assemblies, under vehicular travel areas must be H-20 minimum ratings.
- Non-concrete septic tanks: Manufacturers must file updated specifications with DPH by July 1, 2007 including whether or not tanks meet IAPMO PS 1-2004 standard for prefabricated tanks.
- Baffles: Connecting polyethylene (PE) baffles (i.e., Polylok) to poly-vinyl chloride (PVC) pipe requires use of appropriate 2-step cement (ASTM D 3138) for dissimilar plastic piping materials.
- Septic Tank Cleaning: Backflow conditions at time of tank pump-out under normal use conditions (not result of large volume flood test) represent a “malfunctioning” condition. Other malfunctioning system signs cited. Recommend further system assessment by PE or installer. “Failed” systems discharge effluent to ground surface or otherwise cause health hazards or nuisance conditions.
- Garbage Grinders: Language added stating they are not recommended for use with SSDS.
- Grease interceptor tanks: Internal grease recovery units (GRU) are now referenced as automatic grease interceptor unit (AGRU) to be consistent with DEP’s fall of 2005 General Permit.

Section VI. Distribution of Septic Tank Effluent

- Change title to reference pump systems and air injection processes.
- Serial systems: High-level overflows must be set in the upper 3 inches (0.25 feet) of the leaching structure. This will assist in leaching system venting. Leaching galleries no longer are required to flood to top of structure.
- Leaching system venting: It is recommend that leaching systems be designed to allow for air/gas transfer. Avoid fully flooded d-boxes. Effluent distribution piping and d-boxes should be designed so that an air space is provided in all pipes during normal leaching system operation.
- Large (> 2000 GPD) pump systems: Require alternating pumps. Dosing frequencies: 3-6 times/day, unless timed dosing used.
- DEP has banned the sale of mercury float switches in CT. Mechanical float switches are acceptable.
- Low pressure distribution systems: PE design required. Design must include access & flushing provisions, ability to check pressure in lines, pressure filters, orifice shields, manifold access, and pipe info: size, specs, holes etc. PE must stipulate O & M requirements (i.e., flushing of lines, checking pressure heads).
- Raw sewage pumps/vaults below basement slab elevation are considered part of the SSDS unless it is in a sealed pit or otherwise designed to contain leakage in the basement. Exterior raw sewage pump systems must be approved by DPH.
- Pump systems under vehicular travel areas: Riser and cover assemblies must be rated for H-20 loads.

- Geomatrix LLC's Soil Air System: Allows use without effluent filter.

Section VII. Percolation Tests

- Leaching system sizing (ELA) for systems totally in fill can be based on 10-20 minutes per inch, rather than 20-30, for sites with natural soil percolation rate slower than 20 minutes per inch. MLSS is based on natural soil percolation rate.

Section VIII. Leaching Systems

- Select fill: Select fill not in compliance with the noted gradation standards can only be approved by the design engineer if the material passing the #200 sieve doesn't exceed 6.0% based on wet sieve. PE accepting select fill that doesn't meet the gradation criteria must be design engineer.
- Large Systems: Increased separation to maximum groundwater to 24 inches unless PE conducts mounding analysis to confirm 18" separation above mounded maximum groundwater table.
- Manufactured Fill: Annual submittals for all active quarries are due July 1st of each year. Soundness standards consistent with DOT stone specifications added.
- Require reserve area preparation for paved asphalt or poured concrete vehicular travel areas only.
- Recommend leaching systems not be located under parking areas.
- Select fill placement in reserve area no longer required in the event fill is placed in the reserve area as part of primary system construction.
- Add reserve area wording ("all aspects of the code...") that was inadvertently removed last revision.
- Recommendations added about test pit safety and use of shelves. Warn against entering pits above the waist. Refer to OSHA standards for pit safety measures and restrictions.
- Local health departments should advise against the creation of new lots with unsuitable soil conditions (i.e., < 4 feet to ledge) in the primary or reserve area. Existing single family residential building lots created prior to January 1, 2007 shall not be required to fill reserve areas with between 2 and 4 feet of natural soil above ledge rock. Previous Tech Stds (1/1/04) also exempted existing single-family home residential building lots from filling reserve areas but no date was cited.
- For suitability purposes, the leaching system area includes the soil 10 feet in all directions of the leaching system.
- Entire subsurface sewage disposal system must be protected from erosion not just leaching system.
- Center to center requirement applies also to reserve system location relative to the primary system.
- Sieve testing of on-site select fill used for large (2000 GPD or greater) systems is required. Sieve testing for small systems (< 2000 GPD) is discretionary by local health department.
- Dry sieve tests can be used for screening purposes. If dry is bad, but wet is good, then ok.
- It is the installer's responsibility to properly compact select fill material to facilitate construction and to avoid settling.

- 2 inch nominal tire chip aggregate: Heavy-duty filter fabric must be used. Specifications for heavy-duty fabric included. Proprietary leaching systems must authorize use of tire chips with their products. Annual testing of tire chips for compliance with specified sizing criteria required. Results must be submitted to DEP and DPH. Reference requirements included in Appendix A of DEP's General Permit for the beneficial use of tire chips in leaching system construction. Bill of lading must be provided to installer and a copy must be provided to local DOH prior to issuance of the permit to discharge. On-site abandonment of failed leaching systems constructed of tire chips can only be approved by local DOH if at least 18 inches above maximum groundwater.
- Maximum width of leaching products, except pits, is 6.5 feet.
- New Subsection VIII G Leaching System Product Approvals, ELA Ratings, Center to Center Spacing: Minimum center to center spacing reduced to 7 feet however a minimum of 4 feet product edge to product edge must be provided. DPH to adopt criteria for leaching system storage, internal bio-mats and competing bio-mats. Interface factors noted. Interface factor for 2 inch nominal tire chips is the same as stone aggregate. Gallery and pit pre-casters shall submit product specifications to DPH by July 1, 2007. Proprietary leaching system product manufacturers shall submit product documentation and a product review application/measurement worksheet to DPH by July 1, 2007.
- Proprietary systems: Several companies require use of a washed sand/C 33 sand. Standards for ASTM C 33 sand and DOT Form 816 fine aggregate (washed sand) referenced. Proprietary leaching systems filled or bedded on sand must utilize sand meeting select fill requirements and additional specification per the manufacturer. New products listed.
- Residential building ELA sizing Table No. 6: Eliminate 1-5 percolation rate grandfather provision for pre 1994 residential building lots. The sizing increments for bedrooms beyond 4 in single-family homes have been adjusted such that they are ½ of the multi-family increment for bedrooms above 4. This is in line with the design flow for bedrooms beyond 4 in single-family homes (75 GPD) vs multi-family (150 GPD).

Section IX. Groundwater, Roof, Cellar and Yard Drainage

- Infiltration systems must be located in compliance with separation distances in Table No. 1.
- Figure No. 14: Leaching system shown 18" above hardpan instead of 12" -18".

Section X. Other Wastewater

- On-site disposal of water treatment device wastewater via a separate dedicated disposal system shall be in accordance with DEP guidance or General Permit. Such disposal systems shall be located in compliance with the separation distances in Table No. 1.

Section XI. Non-Discharging Sewage Disposal Systems

- No changes.

Form #1

- Title changed to: “Application for Approval to Construct Subsurface Sewage Disposal System” in order to be consistent with terminology in PHC Section 19-13-B103e (f).
- Signature line (RS or Local DOH) included for issuance of Approval to Construct.
- Form reformatted.

Form #2

- Form #2 Alternate included. This is the form used at the soil training workshops.

Form #3

- Title changed to: Final Inspection Form.
- Plan review checklist info removed and inspection portion expanded to include other inspections.

Form #4

- New form (Permit to Discharge) included. The previously circulated permit to discharge has been updated and revised.

Appendix A MLSS

- Naturally occurring soil is noted to be soil on a property that resulted from natural processes. It does not include fill deposited on a property by man or otherwise ended up on a property as a result of man’s actions.
- Single rows shall contain leaching products of a uniform product rating.
- Restrictive layer definition: Change the # of consecutive weekly readings to 5 from 4.
- MLSS Flow factor: Single Family Homes: 0.25 Flow Factor increment beyond 4 bedrooms. Correlates to a 75 GPD design flow for bedrooms beyond 4.
- Leaching systems located within 50 feet of one another and utilizing the same hydraulic window must be evaluated collectively as a common system.
- New construction sites with zero inches of unsaturated naturally occurring soil are not candidates for hydraulic analysis.

Appendix B Outlet Filters

- Change title to reference effluent filters rather than outlet filters to be consistent with the language in the Technical Standards.
- Approved list updated.

Appendix C Filter Fabrics

- Approved list updated. Cultec 410 noted to be acceptable to cover 2 inch nominal tire chip aggregate.

Appendix D Plastic Tanks

- Approve list updated.