

Technical Standards for Subsurface Sewage Disposal Systems

Revised January 1, 2009

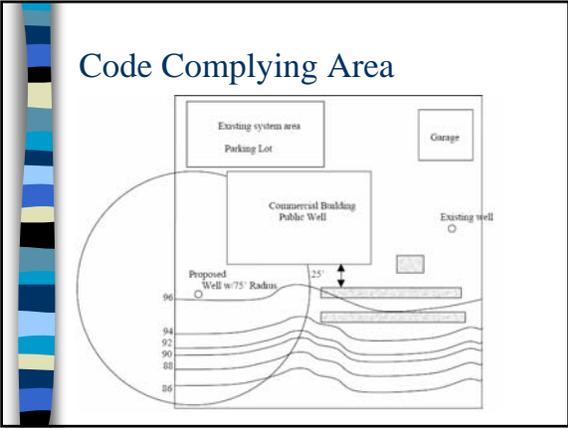
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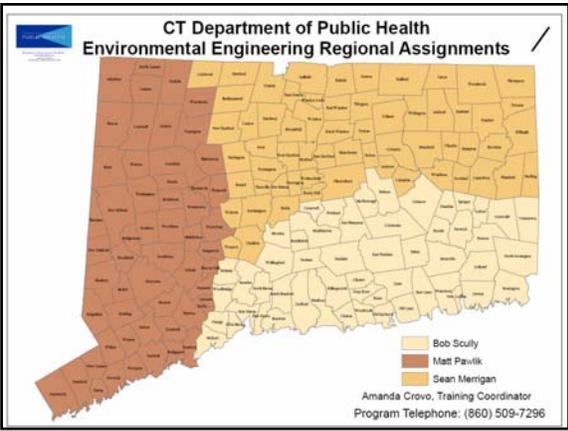
Legislative Updates

- PA # 08-137 (HB #5730) Section 1 Effective 10/1/08
- DPH DWS contacts are Steve Messer or Pat Bisacky 860-509-7333
 - Control of Water Company Off-Site Well Arcs
 - Control: ownership, easement or other approved agreement
 - B100a Issues



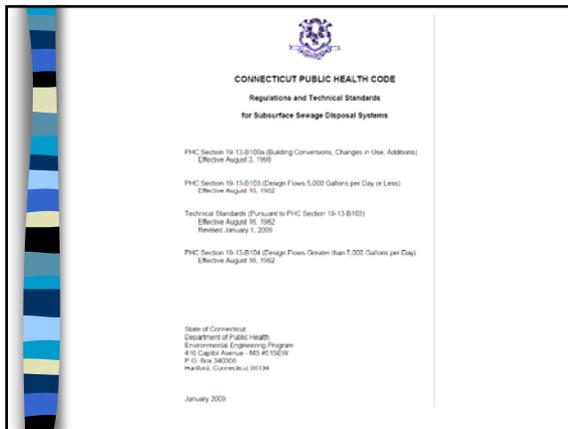
Legislative Updates

- PA # 08-137 (HB #5730) Section 3 Effective 10/1/08
 - Property Owner Restitution
 - Allows restitution to injured property owner (not lessee) on finding of good cause. Doesn't cover payment disputes (Civil matters).



Website Information

- www.ct.gov/dph
 - Environmental Health
 - Subsurface Sewage (septic systems)
 - Regulations and Technical Standards



Technical Standards Revision 2009

- No changes to:
 - 19-13-B100a
 - 19-13-B103
 - 19-13-B104
- PHC Section 19-13-B103d(b)
 - Technical Standards shall be established by the Commissioner of Public Health and reviewed annually.



Code Advisory Committee

- **CADH**- Neal Lustig, Rob Miller and Rick Matheny
- **CEHA**- Carol Lord and Don Mitchell
- **COWRA**- Bill Hall and Frank Talarico
- **DEP**- Warren Herzig
- **DPH**-Amanda Clark, Matt Pawlik, Sean Merrigan, Robert Scully and Jeff Curran
- **HBA**- (CT Home Builders)- George Smilas, Larry Fiano and John Carr
- **Professional Engineers**- Larry Marcik, Roger Nemergut, Jay Keilor and Hank Torcellini
- **Soil Scientist**- John Ianni



Disclaimer pg. 13

- The listing of any proprietary product, technology or system in the Technical Standards should not be considered an endorsement of the product, technology or system, nor does it convey intellectual property rights.



Section I: Definitions pg. 13

- Revised definition of stone aggregate
 - No 4 (1 & ¼" Stone) and No. 6 (¾") stone.
 - The Leaching System Section (Section VIII) will allow use of smaller stone (¾") with leaching trenches and proprietary systems.
 - Leaching pits and galleries will require use of the larger stone.

Section I: Definitions

SIEVE SIZE	No. 4 Stone Aggregate (A.C.A., 1/4" to 1/2" Stone)	No. 6 Stone Aggregate (A.C.A., 3/8" Stone)
	PERCENT PASSING (by weight)	PERCENT PASSING (by weight)
2-inch	100	N/A
1.5-inch	90 - 100	N/A
1-inch	20 - 55	100
3/4-inch	0 - 15	90 - 100
1/2-inch	N/A	20 - 55
3/8-inch	0 - 5	0 - 15
#4	N/A	0 - 5
#40	0 - 3	0 - 3
#200	0 - 1.5	0 - 1.5



- Table will be located in the Leaching System Section (Section VIII A) pg. 38

Section II: Location pg. 15

- Reference piping Tables 2, 2-C, and 2-D only for applications where specified piping qualifies for reduced separating distances
- No reference made to Tables 2-A & 2-B applying to public sewer mains/laterals. N/A to Table NO. 1

Table No. 1 pg. 15

- Item A (Well)
 - Language modified to reference water supply wells (potable, open loop geothermal, irrigation).
 - See Item Q for closed loop geothermal well.
 - Special provision language modified doubled separating distances only applies to leaching system not to septic tanks.

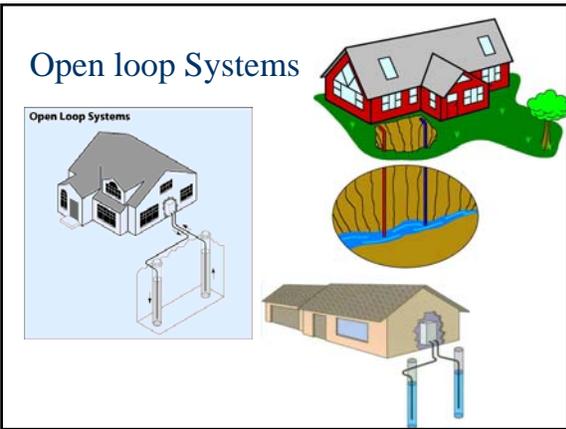
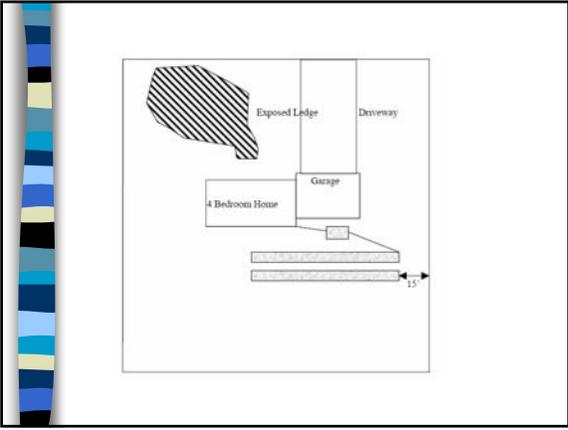


Table No. 1 pg. 15

- Item C (Building Served)
 - clarified to indicate that the cited distances (15' and 10' for tanks) only apply to buildings without drains.
 - Reference made to items G & H for buildings with drains (25' or 50' depending upon drain location).

Table No. 1 pg. 15

- Item J (Property Line)
- Special provisions added for elevated leaching systems (top of leaching system above natural grade)
 - Distance to leaching system shall be increased to 15 feet unless grading rights from affected property owner are secured, or unless retaining walls are utilized.
 - Additional language added to Leaching System Section (Section VIII A for further requirements on retaining walls.



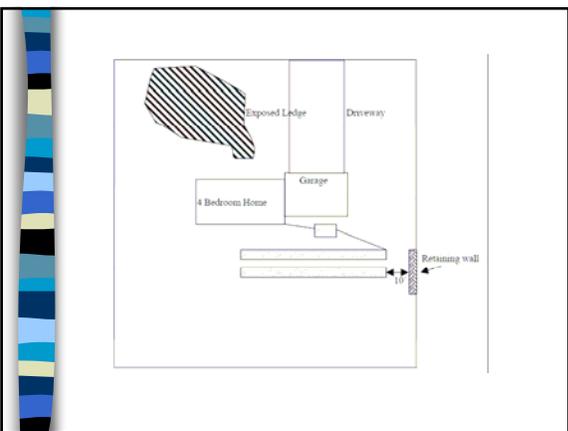


Table No. 1 pg. 15

- **Item K (Water Line)**
 - trench excavation backfill within 10- 25 ft from leaching system shall be non-free draining material.

Table No. 1 pg. 15

- Item Q (New Item: Closed loop Geothermal Systems)
- vertical borehole shall be 75 feet from sewage systems
 - special provision language to allow reduced separating distances if certain construction standards are followed and installation by licensed well driller per DPH EHS Circular Letter #2007-12, dated 4/27/07.
 - Reduced distances to 50' to leaching system & 25' to watertight tanks.
- Stipulate borehole shall be kept 10' minimum to sewer piping listed in Tables 2, 2-C, and 2-D (Notes added to Tables).
- Specify 10 feet minimum separation between sewage disposal systems and horizontal loop lines & geothermal piping.

Vertical Closed Loop Systems



Horizontal Closed Loop Systems



Section III Piping pg. 16-22

- In verbiage subsection A and in Tables 2, 2-A, 2-B & 2-D wording clarified about approved sewer piping within sanitary radius of water supply wells.
- Minimum separating distances (25', 75', 100') between approved sewer piping and water supply wells with various withdrawal rates (<10 gpm, 10 – 50 gpm, >50 gpm) cited.
- New PE pipe (ASTM 3035, SDR 11) added to Tables 2-A, 2-B and 2-D.

Section IV Design Flows pg. 24-25
Subsection B, Table 4

- Commercial building category
 - Design flows may be reduced if documentation (building/floor plans, statement of use, etc.) supports reduction.
 - Industrial building design flow (0.1 GPD/SF of gross floor area) added
 - Factory design flow stipulates that the # of person is based on 1 person per 200 square feet of floor area.

Section IV Design Flows pg. 25-26
Subsection B, Table 4

- Restaurants: Remove reference to Class 3 & 4
- Residential institutions
 - Include a 150 GPD/room flow for residential hotels/motels
- Miscellaneous category
 - Make note that the cited motel flows are for transient motels
 - Expand salon flows to include design flows for pedicures & manicures.

Section IV Design Flows pg. 26
Subsection D, Permits to Discharge

- Clarify design flow and permitted flow language. Both shall be cited.
- The permitted flow equals the design flow except for non-compliant repairs with limited leaching systems.
- The permitted flow for non-compliant repairs shall be determined using the most limited percentage of the required ELA and/or MLSS provided. Whichever is less will be the limiting factor.

Section IV Design Flows pg. 26
Subsection E: Management Programs

- Note that management ordinances and regulations shall be submitted to DPH for review prior to adoption.
- Eliminate reference to permit to discharge re-issuance and monthly exception notifications to DPH.

Section V Septic Tanks pg. 26-29
Subsection A

- Concrete septic tanks shipped prior to 14 days from date of manufacture shall include supporting documentation that tank reached minimum strength prior to shipping.
- Concrete tank pre-casters shall file tank specifications & drawings with DPH
- CT licensed PE to submit to DPH certifications that tanks meet cited ASTM tank standard and requirements of section.
- DPH to maintain list of approved CT septic tank pre-casters.

Section V Septic Tanks pg. 26-29
Subsection A

- Non-concrete tanks: approved tank manufacturers must keep updated specifications and dated installation instructions on file with DPH.
- Clarify riser retrofits only required over cleanout manhole(s), not over inlet & outlet baffles, unless effluent filter is provided in which case riser over outlet baffle required

Section V Septic Tanks pg. 26-29
Subsection A

- Tanks in paved areas shall have risers extended to grade
- Riser and manhole extensions to grade shall be designed and constructed to prevent storm water infiltration.
- Inlet pipe extensions > 15 inches to cleanout manhole: Support pipe or use PVC Schedule 40 approved piping.
- Add gas-warning language to marking Subsection V A 5.

Section V Septic Tanks pg. 30
Subsection B

- Revised the single-family home septic tank capacity requirements.

	Single-family	Multi-family
1-3 bedrooms	1,000 gallons	1,000 gallons
4 bedrooms	1,250 gallons	1,250 gallons
For each bedroom beyond 4	Add 125 gallons per bedroom	Add 250 gallons per bedroom



Section VI Effluent Distribution, Pump Systems etc.

- Subsection A pg. 31-32
 - Eliminate requirement that capped sanitary tee access points be extended to grade.
 - Require access points on large (2000 GPD and greater) and non-residential leaching systems be extended to grade in paved areas.



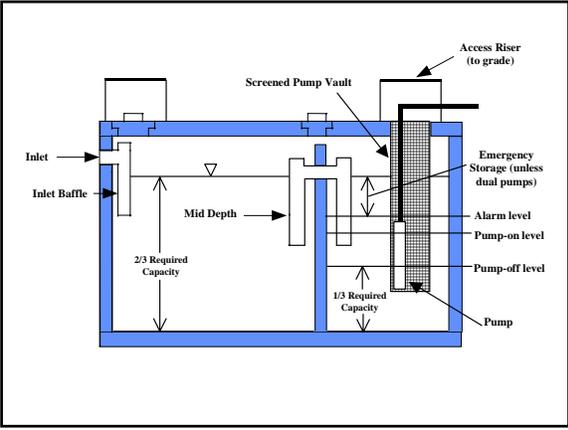
Section VI Effluent Distribution, Pump Systems etc.

- Subsection C pg. 33-35
 - Pump systems can utilize timed-dosed systems or volume-dosed pump systems.
 - Caution that pump systems shall avoid dosing large volumes of effluent into leaching systems with limited internal storage capacities.
 - Recommend that dosed volumes not exceed 20% of the leaching system internal storage capacity.
 - Proprietary leaching system companies shall provide DPH information on internal storage capacities of their products as part of their submittals pursuant to Section VIII G.



Section VI Effluent Distribution, Pump Systems etc.

- Subsection C pg. 33-35
 - Combination septic tank/pump chambers must use tee baffle piping so that drawdown occurs in second compartment only.
 - Diagram added of 2-compartment tank with mid-depth connection via tee-baffles for use in combination septic tank/pump chamber to allow drawdown in second compartment only.



Section VI Effluent Distribution, Pump Systems etc.

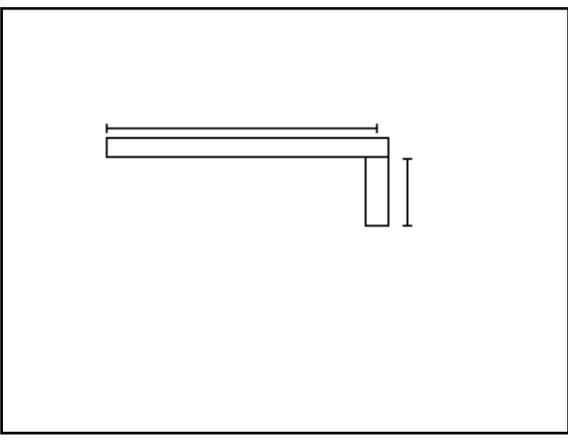
- Subsection C pg. 33-35
 - Note that pump systems can utilize pressure transducers, mechanical float switches etc.
 - Require pump chamber risers have a minimum inside diameter of 24 inches for chambers more than 24 inches below finished grade. This is consistent with Septic Tank requirements, and encourages shallow pump chambers.

Section VIII Leaching Systems

- Subsection A General pg. 36-39
 - Clarify reserve areas do not have to meet MLSS
 - Leaching systems under vehicular travel areas require 1 foot minimum cover over stone trenches, stipulate precast concrete structures shall be H-20 load rated, and stipulate proprietary systems shall only be installed in vehicular travel areas if authorized by the manufacturer, and require proprietary companies to provide DPH dated supporting documentation.

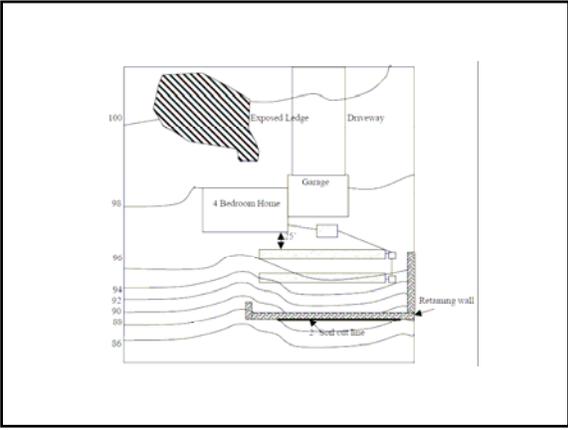
Section VIII Leaching Systems

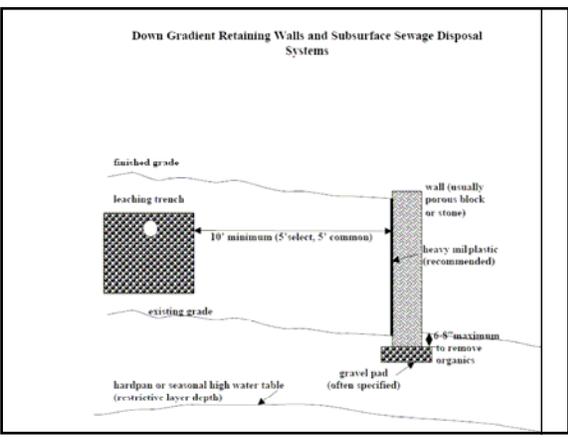
- Subsection A General pg. 37
 - Clarify the crediting of leaching system end connections, and U-shaped and L-shaped leaching systems. Stipulate that the length of the main row(s) shall only be measured to the center of the interconnecting segment or extension. Only allow crediting of on the crediting of L-shaped, U-shaped or box-shaped leaching systems for systems using products credited at 7.4 SF/LF or higher if MLSS is non-applicable or the water table is level (essentially 0% slope).



Section VIII Leaching Systems

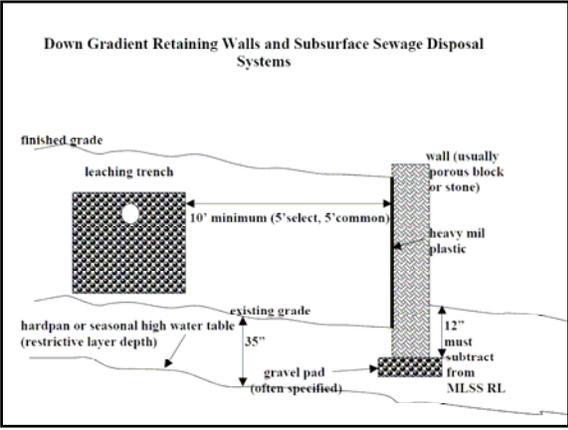
- Subsection A General pg. 38
 - Stipulate that subsurface sewage disposal system design plans that include retaining walls shall provide retaining wall information and specifications including type of structure, groundwater control mechanisms (drains, weep holes), footings, and a cross section showing existing and proposed grades.





Section VIII Leaching Systems

- Subsection A General pg. 38
 - Retaining walls cannot have groundwater drains that violate separating distance provisions in Table #1. Retaining walls within 50 feet down gradient of a leaching system shall not act as a hydraulic barrier to groundwater and wastewater movement in the naturally occurring soil. Retaining walls off the ends of leaching systems shall not be subject to possible seepage through the wall, and the inner edge of the retaining wall shall be at least 10 feet from the leaching system.



Section VIII Leaching Systems

- Subsection A General pg. 38
 - Eliminate requirement that filter fabric used in proprietary leaching systems be labeled with the fabric manufacturer's name & ID #.
 - Proprietary leaching system companies shall be required to provide DPH product marking information as part of their submittals to DPH by July 1, 2009. (See Section VIII, Subsection G).
 - Add stone aggregate gradation table

Section VIII Leaching Systems

- Subsection B Leaching Trenches pg. 40
 - Stipulate stone aggregate must meet No. 4 or No. 6 stone aggregate gradation. This allows use of smaller (3/4") stone in trenches.



Section VIII Leaching Systems

- Subsection C Leaching Pits pg. 41
 - Stipulate stone aggregate must meet No. 4 stone aggregate gradation



Section VIII Leaching Systems

- Subsection D Leaching Galleries pg. 43
 - Stipulate stone aggregate must meet No. 4 stone aggregate gradation.
 - Stipulate gallery invert pipe **should** be raised and placed in stone whenever stone is placed on top of galleries for additional ELA credit.
 - Eliminate language about “L-shaped, U-shaped or box gallery row extensions”



Section VIII Leaching Systems

- Subsection E Proprietary Leaching Systems pg. 44-48
 - ASTM C 33 Sand: Eliminate 3% passing maximum reference. Make note that sand back fill must minimally meet select fill gradation specifications for #100 & #200 sieve.
 - Stipulate that stone utilized in proprietary leaching systems must meet stone aggregate requirements, and No. 4 or No. 6 stone aggregate gradation.
 - Up-date approved proprietary lists. Add new product manufacturers Cur-Tech and S-Box systems.



Section VIII Leaching Systems

- Subsection G Leaching System Product Approvals, ELA Ratings, Center to Center Spacing pg. 50
 - Add cardboard interfaces to interface factor list. Bottom cardboard interfaces will not be credited. Sidewall filter fabric/cardboard interface is same as sidewall cardboard interface.
 - Filter fabric interfaces reduced by % obstructed.
 - Add definition of product footprint, which is the horizontal area within a rectangular boundary around the outermost perimeter of the leaching system interface.



Section XI Non-Discharging Toilet & Sewage Disposal Systems

- Subsection G Holding Tanks pg. 52
 - Re-wording to indicate that holding tank proposals shall be submitted through the local director of health to DPH.



Form #4 Permit to Discharge pg. 60

- Form modified to list both the permitted flow and the design flow.
- It is noted that the design flow equals the permitted flow except on non-compliant repairs.

Form #4 Permit to Discharge pg. 60

- Reference to Section IV D for info on permitted flows for non-compliant repairs.
Note: For repairs with leaching systems that are undersized or non-compliant for MLSS, the permitted flow must be pro-rated.
 - Example: An existing 3000 GPD non-residential building has a repair completed that provides only 50% of ELA & 60% MLSS. The design flow for the building is listed as 3,000 GPD, however the permitted flow is listed as 1500 GPD based on the more restrictive 50% system size.

Appendixes

- Appendix A MLSS pg. 61
 - Leaching system spread to take into account level, essentially 0% hydraulic gradient.
 - The spread shall be deemed to be the length in feet of the perimeter of the leaching system to make allowances for radial flow (360 degrees).

Appendixes

- Update Appendixes C (Fabrics) & D (Plastic Tanks). pg. 63-64

Many thanks to our Local Health
Department host.