Chautauqua County Septic System Program

Municipal Sewer Service Areas

Mark Stow, Director
Chautauqua County Department of Health
Division of Environmental Health Services

Homeowner Education Workshop on Improved Wastewater Management for Lakeshore Communities Session I March 6, 2013 Hewes BOCES Center
Chautauqua County Sanitary Codes

• Authorized by NYS Public Health Law Section 347 and 348
• Gives County Board of Health authority to establish and enforce rules and regulations for “the security of life and health” in the health district.

• Codes enforced by Chautauqua County Health Department:
  – Communicable Diseases (TB, STDs, Rabies)
  – Property Transfers
  – Private Sewage
  – Drinking Water
  – Swimming Pools & Bathing Beaches
  – Temporary Residences (Children’s camps, campgrounds, MHPs, etc)
  – General Sanitation (PH nuisances)
  – Offensive material (waste tires, sewage, etc)
  – Public Sewage
  – Tattoo and Body Piercing
  – Food Service Establishments
  – Migrant Labor Camps
  – Smoking
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    – Public Sewage
    – Tattoo and Body Piercing
    – Food Service Establishments
    – Migrant Labor Camps
    – Smoking
Article IV of Chautauqua County Sanitary Codes
CCHD Permit and Inspection Process for Individual Household Systems

HD Staff working under supervision of P.E.:
1. Conduct site assessment
2. Work with contractor to design system
3. Contractor submits design drawing with permit app.
4. Permit issued
5. Inspect installation of system
Recent Changes to Article IV:
Effective 1/1/09

1. Increase minimum residential lot size from 20,000 to 40,000 square feet
   a. Why the change?
   b. Examples
   d. Variances

2. Require evaluation of existing septic systems when dwellings are expanded
   a. Need
   b. Examples
Why increase minimum residential lot size from 20,000 to 40,000 square feet?

- Protect drinking water wells from contamination
- Appendix 5-B of NYS Sanitary Codes required offsets.
- Allow for adequate space to replace system in future.
Variances considered for hardship cases only

1. Engage a consulting PE to design system and certify that drinking water quality will not be jeopardized.

2. Petition the Board of Health
Why Require evaluation of existing septic systems when dwellings are expanded?

• Ensure there is adequate capacity to handle additional waste stream.
• Ensure access to existing components.
• Allow for adequate space to upgrade/replace system as needed.
Summary:

1. A septic permit must be issued by the Health Department BEFORE issuing a building permit for new home construction.

2. For all dwelling expansions where bedroom(s) are added or room(s) added that could be converted into future bedrooms, HD must evaluate the existing septic system BEFORE a building permit is issued.

3. For all new wells drilled that cannot meet separation distances outlined in Appendix 5-B, submit waiver request form to the Health Department for consideration.
Private Septic System Design

Paul Snyder, P.E.
Chautauqua County
Department of Health
Division of Environmental Health Services
On-Site Wastewater Treatment Systems Design Handbooks
Septic System Sewage Flows

- **Acceptable Sanitary Sewage Flows**
  - Sinks, toilets and bathtubs
    - plumbing from each must be connected to the home’s main sewer and the septic system.

- **Unacceptable Sewage Flows**
  - Roof gutters, footer drains, sump pumps, *water softeners.*
    - *Water softeners should discharge to a separate subsurface discharge ~ 250ft from well or watercourse.*
    - **If distance cannot be met, connect water softener discharge to the septic system.**
# Septic System Design Flows

<table>
<thead>
<tr>
<th>Plumbing Fixtures</th>
<th>Minimum Design Flow (gallons per day per bedroom)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-1994 Fixtures</td>
<td></td>
</tr>
<tr>
<td>1.6 gallons/flush toilets</td>
<td>110</td>
</tr>
<tr>
<td>2.5 gallons/minute faucets &amp; showerheads</td>
<td></td>
</tr>
<tr>
<td>Pre-1994 Fixtures</td>
<td></td>
</tr>
<tr>
<td>3.5 gallons/flush toilets</td>
<td>130</td>
</tr>
<tr>
<td>3.0 gallons/minute faucets &amp; showerheads</td>
<td></td>
</tr>
<tr>
<td>Pre-1980 Fixtures</td>
<td></td>
</tr>
<tr>
<td>3.5+ gallons/flush toilets</td>
<td>150</td>
</tr>
<tr>
<td>3.0+ gallons/minute faucets &amp; showerheads</td>
<td></td>
</tr>
<tr>
<td>Waterless Toilets (e.g., composter)</td>
<td></td>
</tr>
<tr>
<td>(graywater discharge only)</td>
<td>75</td>
</tr>
</tbody>
</table>
Soil and Site Investigation

- Chautauqua County Sanitary Code, Article IV – minimum lot size:
  - 40,000 square feet (with an onsite septic / well), and
  - 15,000 square feet (with onsite septic / public water)

- Soil and site appraisal is conducted by the Chautauqua County HD to evaluate septic system construction site location, soils and type of system to be designed.
  - Example: absorption field or bed must be located:
    - Above 10 year flood elev, on slopes less than 15%, a minimum of 4ft above rock, unsuitable soil or seasonally high groundwater level
    - 50% reserve area maintained for future expansion / replacement
Soil and Site Investigation

- Minimum separation distances must be maintained from:
  - drinking water wells (both onsite and neighboring)
  - Buildings
  - Property lines,
  - Waterbodies
  - Other utilities
Soil and Site Appraisal

<table>
<thead>
<tr>
<th>System Components</th>
<th>Well or Suction Line (a)(g)</th>
<th>To Stream, Lake, watercourse (b), or Wetland</th>
<th>Dwelling</th>
<th>Property Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>House sewer (watertight joints)</td>
<td>25 if cast iron sewer pipe, 50 otherwise</td>
<td>25</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Septic tank or watertight ETU</td>
<td>50</td>
<td>50</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Effluent line to distribution box</td>
<td>50</td>
<td>100</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Distribution box</td>
<td>100</td>
<td>100</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Absorption field (c)(d)</td>
<td>100 (a)</td>
<td>100</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Seepage pit(d)</td>
<td>150 (a)</td>
<td>100</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Raised or Mound system (c)(d)</td>
<td>100 (a)</td>
<td>100</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Intermittent Sand Filter (d)</td>
<td>100 (a)(f)</td>
<td>100 (f)</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Non-Waterborne Systems with offsite residual disposal</td>
<td>50</td>
<td>50</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Non-Waterborne Systems with onsite discharge</td>
<td>100</td>
<td>100</td>
<td>20</td>
<td>10</td>
</tr>
</tbody>
</table>
Separation distances are maintained to “minimize risks” to public health and the environment.
Site and Soil Investigation

Purpose of investigation is to determine:

1) Depth to highest groundwater level and impervious soil strata (clay or bedrock)

2) Soil’s percolation rate (i.e. speed at which water flows through the soil’s structure)

3) Percolation rate (perc rate), underlying soil conditions and separation distances are all used to design type and location of septic system.
Septic Tanks

- Purpose of the septic tank is to serve as the primary (1st stage) of treatment:
  - Solids settle out and forms sludge in bottom of tank where they partially decompose
  - Allows grease and oils to float on top to form scum layer
  - Filters (via septic tank filter) smaller solids from carrying through to absorption system or sand filter

- Types of septic tank include: concrete, fiberglass and polyethylene.
# Septic Tank Sizing

## TABLE 3
MINIMUM SEPTIC TANK CAPACITIES

<table>
<thead>
<tr>
<th>Number of Bedrooms</th>
<th>Minimum Tank Capacity (gallons)</th>
<th>Minimum Liquid Surface Area (sq. ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 2, 3</td>
<td>1,000</td>
<td>27</td>
</tr>
<tr>
<td>4</td>
<td>1,250</td>
<td>34</td>
</tr>
<tr>
<td>5</td>
<td>1,500</td>
<td>40</td>
</tr>
<tr>
<td>6</td>
<td>1,750</td>
<td>47</td>
</tr>
</tbody>
</table>

**NOTE:**
Tank size requirements for more than six bedrooms shall be calculated by adding 250 gallons and seven square feet of surface area for each additional bedroom. A garbage grinder shall be considered equivalent to an additional bedroom for determining tank size.
Distribution Devices

- Distribution devices distribute septic tank effluent to subsurface treatment system.

Gravity vs. pressure vs. siphon dosing

- Gravity via distribution box – used for smaller systems and where the site and design allow.
- Pressure (pumps) is used for larger systems and where elevation dictates (i.e. pump up gradient).
- Siphon or flout dosing is used for larger systems, but can only be utilized when distributing down gradient.
Subsurface Treatment Systems

- Conventional Absorption Trench and Beds
  - Used in soils that have a good percolation rate (not too fast or too slow)

### TABLE 4A
REQUIRED LENGTH OF ABSORPTION TRENCH (IN FEET)
(BASED UPON 2 FOOT WIDE TRENCH)

<table>
<thead>
<tr>
<th>Percolation Rate min/inch</th>
<th>Daily Flow Rate (gallons per day)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 bedrooms</td>
</tr>
<tr>
<td></td>
<td>2 bedrooms</td>
</tr>
<tr>
<td>1 - 5</td>
<td>220</td>
</tr>
<tr>
<td>6 - 7</td>
<td>92</td>
</tr>
<tr>
<td>8 - 10</td>
<td>110</td>
</tr>
<tr>
<td>11 - 15</td>
<td>123</td>
</tr>
<tr>
<td>16 - 20</td>
<td>138</td>
</tr>
<tr>
<td>21 - 30</td>
<td>158</td>
</tr>
<tr>
<td>31 - 45</td>
<td>184</td>
</tr>
<tr>
<td>46 - 60</td>
<td>220</td>
</tr>
</tbody>
</table>

Dosing required if there is 500-feet or more of total trench length
* Alternate Dosing required if there is 1000-feet or more of total trench length
Subsurface Treatment Systems

Absorption Trench Example #1:

- 3 bedroom house, perc rate = 5 min/in
- Per Table 4A, need the following total length of 2 ft wide trench:
  - 138 ft (110 gpd/bedroom)
  - 162 ft (130 gpd/bedroom)
  - 187 ft (150 gpd/bedroom)
Absorption Trench Example #2:

- 3 bedroom house, perc rate = 20 min/in
- Per Table 4A, need the following total length of 2 ft wide trench:
  - 236 ft (110 gpd/bedroom)
  - 279 ft (130 gpd/bedroom)
  - 321 ft (150 gpd/bedroom)
Subsurface Treatment Systems

- **Absorption Beds**
  - Function similar to trenches, but all distributors are on one gravel level.
  - Must be sized larger because lack the sidewall absorption area that trenches have

- **Absorption Bed Example:**
  - Per Table 5: 3 bedroom house, perc rate = 5 min/in, minimum absorption bed area = 347 square feet versus 275 square feet for absorption trenches.

- **Seepage Pits** – not allowed for new construction
Gravelless Absorption Systems and Enhanced Treatment Units (ETU’s)

- Updated 75-A includes standards for gravelless systems and ETU’s.
  - Must be certified by the National Sanitation Foundation (NSF)

- Gravelless Examples:
  - Infiltrator, ADS, Presby, Eljen, etc.
  - Qualify for a 25% reduction in total absorption area if constructed per standards in 75-A.

- ETU Examples:
  - Peat Moss, fixed film media, aeration units
  - The subsurface treatment system that follows an ETU, qualifies for a 33% reduction in total absorption area.
Intermittent Sand Filters

- Sand filters are used on sites where the perc rate is either too fast (perc < 1 min/in) or too slow (perc > 60 min/in)
- Very fastperc rate includes very coarse sandy and gravelly soils.
- Very slow perc rate includes silty or clayey soils with little sand or gravel.
- Gravity dosing allowed via a distribution box for smaller sand filters (area < 900 square feet)
- Preferred to be dosed by either pressure or siphon/flout.
Installation of Private Septic Systems in Chautauqua County

Bryan Mentley
Chautauqua County
Department of Health
Division of Environmental Health Services
Presentation Overview

- New Construction Vs. Correction
- Site Evaluation
- Design Options
- Application Process
- Final Inspection
New Construction vs. Replacement

• New Construction requires strict adherence to all applicable laws regarding, offsets, lot size, septic component sizes, a variance can only be obtained through the Chautauqua County Board of Health.

• Corrections to existing systems are designed to meet all applicable laws but in some instances cannot.
SITE EVALUATION CONSIDERATIONS

• NUMBER OF BEDROOMS IN THE HOME
• GARBAGE DISPOSAL
• SOIL TYPE
• OFFSETS TO WATER WELLS
• WETLANDS
• TOPOGRAPHY
• VARIANCES
• LEGAL EASEMENTS NEEDED?
• PUMP TANKS AND ALARMS
• AERATION SYSTEMS
• SEPTIC TANK REPLACEMENT
## SEPARATION DISTANCES

### TABLE 2

**REQUIRED SEPARATION DISTANCES FROM WASTEWATER SYSTEM COMPONENTS**

<table>
<thead>
<tr>
<th>System Components</th>
<th>Well (f) or Section Line</th>
<th>To Stream, Lake Watercourse (h), or Wetland</th>
<th>Dwelling</th>
<th>Property Line</th>
<th>Drainage Ditch(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>House Sewer (watertight joints)</td>
<td>25' if cast iron or PVC with O-ring joints, 50' otherwise</td>
<td>25'</td>
<td>3'</td>
<td>10'</td>
<td>—</td>
</tr>
<tr>
<td>Septic tank</td>
<td>50'</td>
<td>50'</td>
<td>10'</td>
<td>10'</td>
<td>10'</td>
</tr>
<tr>
<td>Effluent line to distribution box</td>
<td>50'</td>
<td>50'</td>
<td>10'</td>
<td>10'</td>
<td>10'</td>
</tr>
<tr>
<td>Distribution box</td>
<td>100'</td>
<td>100'</td>
<td>20'</td>
<td>10'</td>
<td>20'</td>
</tr>
<tr>
<td>Absorption field</td>
<td>100' (a)</td>
<td>100'</td>
<td>20'</td>
<td>10'</td>
<td>20'</td>
</tr>
<tr>
<td>Seepage pit</td>
<td>150' (a)</td>
<td>100'</td>
<td>20'</td>
<td>10'</td>
<td>20'</td>
</tr>
<tr>
<td>Dry well (roof and footing)</td>
<td>50'</td>
<td>25'</td>
<td>20'</td>
<td>10'</td>
<td>10'</td>
</tr>
<tr>
<td>Raised or Mound System (c)</td>
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<td>100'</td>
<td>20'</td>
<td>10'</td>
<td>20'</td>
</tr>
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<td>100' (a)</td>
<td>100'</td>
<td>20'</td>
<td>10'</td>
<td>20'</td>
</tr>
<tr>
<td>Evapotranspiration-absorption system (c)</td>
<td>100' (a)</td>
<td>50'</td>
<td>20'</td>
<td>10'</td>
<td>20'</td>
</tr>
<tr>
<td>Composter</td>
<td>50'</td>
<td>50'</td>
<td>20'</td>
<td>10'</td>
<td>10'</td>
</tr>
<tr>
<td>Sanitary Privy Pit</td>
<td>100'</td>
<td>50'</td>
<td>20'</td>
<td>10'</td>
<td>20'</td>
</tr>
<tr>
<td>Privy, Watertight Vault</td>
<td>50'</td>
<td>50'</td>
<td>20'</td>
<td>10'</td>
<td>10'</td>
</tr>
</tbody>
</table>

**NOTES:**

(a) When sewage treatment systems are located in coarse gravel or upgrade and in the general path of drainage to a well, the closest part of the treatment system shall be at least 200 feet away from the well.

(b) Mean high water mark.

(c) For all systems involving the placement of fill material, separation distances are measured from the toe of slope of the fill.

(d) Any water service line under pressure (i.e., public water supply main, household service line, well to household service line) located within ten feet of any absorption field, seepage pit or sanitary privy shall be installed inside a larger diameter water main to protect the potable water supply.

(e) Any water service line under pressure (i.e., public water supply main, household service line, well to household service line) crossing a sewer shall be installed with one full length of water main centered above the sewer so both water connecting points are as far as possible from the sewer. Section 8.6 of the GLUMRB Recommended Standards for Water Works, shall be followed for separation of water mains, sanitary sewers and storm sewers.

(f) The minimum separation distance between a septic tank and a community type public water supply well should be 100 feet. Distribution boxes and absorption facilities (e.g., absorption trenches/beds, seepage pits, raised systems, mound systems, etc.) should be located at least 200 feet from community type public water supply wells.

(g) Recommended separation distances.
Number of Bedrooms

HALF PLAN 2nd FL.

HALF PLAN 1st FL.
DEPTH OF GROUNDWATER AND SOIL PROFILE
Soil Permeability
Digital Site Evaluation
CURRENT DESIGN OPTIONS

• SAND FILTERS
• LEACH LINES
• LEACHING STONE BED
• SEEPAGE PIT
• AERATION
Sand Filter
TILE FIELD
AERATION SYSTEM
Application Process

Must use New SBL

We now link all information to a parcel.

Contractors need to give us reliable contact information

APPLICATION FOR SEWAGE DISPOSAL INSTALLATION AND OPERATION PERMIT

In applying for this permit, I understand that the design of a sewer system is dependent on a number of factors including:
1. The size of my dwelling,
2. The topography, slope and drainage patterns of my property,
3. The soil characteristics of the top soils and subsurface soils and the water table elevation,
4. The size and shape of my lot, as well as its proximity to other developed property and water sources.

GPS points will be taken during the site investigation which will indicate the location of my well, surrounding wells, and septic locations. This information may be used by the Health Department for future developments on surrounding properties.

I understand that there are limitations on any private home sewage system and that the life expectancy of the system depends on how much it is used. The life of my system may be extended by water conservation measures such as no use of garbage disposal units or dishwashers and the efficient use of full loads of laundry. No groundwater, storm water, cooling water or surface water from streets, foundations, roofs shall be admitted to the proposed sewage system. All septic tanks should be inspected for pumping every two years.

Should my system fail, it is understood that I will promptly notify the Chautauqua County Health Department for a permit to make repairs to prevent the creation of any public health nuisance or hazard. It is also understood, that when I sell my property, I will fully explain all the limitations of my property with respect to the sewage system to the subsequent owner.

I have read, understood and agree to the above conditions under which my permit is to be issued.

Under the provisions of Article IV, Section 4 of the Sanitary Code of the Chautauqua County Health District, Application is made by:

Section: _______ Block: _______ Lot: _______

OWNER: ___________________________________________ CONTRACTOR: _________________
NEW CORRECTION SYSTEM (Circle one) NUMBER OF BEDROOMS: ________________
PROPERTY LOCATION: ___________________________________________________________
DIRECTIONS: ___________________________________________________________________
TOWN ( Village) OF: ____________________________

I agree to install and operate the sewage disposal system in accordance with regulations set forth in the Sanitary Code of the Chautauqua County Health Department. I understand that no construction may take place prior to the issuance of a PERMIT and that after installation the system shall not be put into service prior to inspection by the Chautauqua County Health Department.

_____________________________________________________________________________
Signature of homeowner

Address of homeowner

Phone number

Dated: ____________________________

Permit number ____________________

_________________________ ______________________
Signature of contractor

Address of contractor

Phone number

Fee: __________

Receipt #: __________

Date: __________

3
Good Plan Drawings
Final Inspection
Inspection Data
As Built Dimensions
Questions?