WASTEWATER
FLUSH IT AND FORGET IT

EXPLORING THE HIDDEN FACTS OF WASTEWATER DISPOSAL SYSTEMS

STATE GOVERNMENT MUNICIPAL DAY

NOVEMBER 1, 2018
DID YOU KNOW?

• OVER 60% OF VERMONT’S CURRENT POPULATION IS SERVED BY ONSITE WATER SUPPLY AND WASTEWATER DISPOSAL SYSTEMS.

• THE STATE OF VERMONT ISSUES OVER 2,000 WASTEWATER AND POTABLE WATER SUPPLY PERMITS ANNUALLY.

• THE RUTLAND REGIONAL OFFICE ISSUED 440 PERMITS LAST YEAR.

• APPROXIMATELY 25% OF THE APPLICATIONS WE RECEIVE IN RUTLAND ARE FOR MUNICIPAL WATER AND/OR SEWER CONNECTIONS.
All wastewater systems that are permitted under this Subchapter shall be designed so that they meet the following isolation distances:

<table>
<thead>
<tr>
<th>Item</th>
<th>Minimum Isolation Distances</th>
<th>Horizontal Distance (feet)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Leachfield</td>
<td>Septic Tank</td>
</tr>
<tr>
<td>Drilled well</td>
<td>(b)</td>
<td>50</td>
</tr>
<tr>
<td>Gravel pack well, shallow well or spring</td>
<td>(b)</td>
<td>75</td>
</tr>
<tr>
<td>Lakes, ponds, and impoundments</td>
<td>50¹</td>
<td>25</td>
</tr>
<tr>
<td>River, streams</td>
<td>50</td>
<td>25</td>
</tr>
<tr>
<td>Drainage swales, roadway ditches</td>
<td>25</td>
<td>--</td>
</tr>
<tr>
<td>Main or municipal water lines</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Atmospheric Water Storage Tanks</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Service water lines</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Roadways, driveways, parking lots</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Top of embankment, or slope greater than 30%</td>
<td>25</td>
<td>10</td>
</tr>
<tr>
<td>Property line (a)</td>
<td>25²</td>
<td>10</td>
</tr>
<tr>
<td>Trees</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Other disposal field or replacement area</td>
<td>10³</td>
<td>--</td>
</tr>
<tr>
<td>Foundation, footing, or curtain drains</td>
<td>35⁴</td>
<td>10</td>
</tr>
<tr>
<td>Public Community Water Supply (c)</td>
<td>(f)</td>
<td>(f)</td>
</tr>
<tr>
<td>Suction water line</td>
<td>100</td>
<td>50</td>
</tr>
</tbody>
</table>
ISOLATION ZONES

- Uniform Slope
- Concave Slope
- Convex Slope

Mound Wastewater Disposal Field (basal area hatched)

Draw Line Perpendicular to Contours
PROTECTING OUR NATURAL RESOURCES

VERTICAL SEPARATION

NO SITE MAY BE IMPROVED WITH A WASTEWATER SYSTEM UNLESS THE SITE MEETS MINIMUM SOIL CONDITIONS.

VERTICAL SEPARATION FROM GROUNDWATER = 36” (3’)

VERTICAL SEPARATION FROM IMPERVIOUS SOIL/LEDGE = 48” (4’)

THE SITE AND SOIL CONDITIONS DEFINE WHICH TYPE OF SYSTEM MAY BE REQUIRED.

AS AN EXAMPLE, A SITE WITH ONLY 24” OF NATURALLY OCCURRING SOIL OVER BEDROCK, WOULD REQUIRE 24” OF FILL MATERIAL BENEATH THE DISPOSAL FIELD TO MAINTAIN 48” OF VERTICAL SEPARATION
TYPES OF SOIL BASED WASTEWATER DISPOSAL SYSTEMS

• ABSORPTION TRENCHES/BEDS
• SHALLOW PLACED ABSORPTION TRENCHES/BEDS
• AT GRADE
• MOUND
• BOTTOMLESS SAND FILTERS
• SPRAY DISPOSAL (SURFACE APPLICATION)
• MUNICIPAL CONNECTIONS
ABSORPTION TRENCHES

Cross-Section View

Bottom of Stone:
Min. 3' to Seasonal High Water Table,
Impervious Soils
Min. 4' to Bedrock
SHALLOW PLACED ABSORPTION

Cross-Section View

Bottom of Stone:
Min. 3' to Seasonal High Water Table,
Impervious Soils
Min. 4' to Bedrock
AT-GRADE TYPE
MOUND-TYPE

- Property Line
- Flushing Cleanouts
- Force Main from Pump Station
- Fill Material 1' from Edge of Trench or Bed

Plan View

- Basal Area
- Toe of Mound Must Extend 1' Beyond Basal Area
- Max. 2' Contour Interval

Extent of Naturally Occurring Soils that Meet the Minimum Site Conditions
Mound Fill Material
Native Soil Cover with 2-4" Topsoil to be Seeded and Mulched

Pressure Distribution Lateral with Flushing Cleanouts
Filter Fabric over Stone
12" Min. Native Soil Cover, 2-4" Topsoil Crown Entire Mound, Seed & Mulch

Plow Existing Ground Surface
BOTTOMLESS SAND FILTERS
MUNICIPAL CONNECTION

Typical Riser for Service Connection
Using Inserta Tee

Riser Connection Required for Depth Greater Than 7'-0" to Top of Pipe

N.T.S.
PERMITTING TRIGGERS

(a) Except as provided in this section and in section 1-304 of this Subchapter, no person shall take or cause to be taken any of the following actions without first obtaining a permit or permit amendment from the Secretary:

(1) the subdivision of a lot or lots;

(2) the construction of a new potable water supply or wastewater system;

(3) the modification or replacement of an existing potable water supply or wastewater system;

(4) the construction of a new building or structure;

(5) the modification of an existing building or structure in a manner that increases the design flow or modifies other operational requirements of a potable water supply or wastewater system;

(6) the connection of an existing potable water supply or wastewater system to a new or modified structure;

(7) the change of use of a building or structure in a manner that increases the design flow or modifies other operational requirements of a potable water supply or wastewater system including the conversion of a single family residence from seasonal to year-round use;

(8) the creation of a campground;

(9) the modification of a campground, including the creation, modification or relocation of one or more individual campsites, in a manner that affects a potable water supply or wastewater system or the requirements for providing potable water and wastewater disposal;

(10) the use or operation of a failed potable water supply or failed wastewater system; or
FROM PERMITTING TO CONSTRUCTION

THE CAST OF CHARACTERS:

- LANDOWNER(S)
- TOWN ZONING ADMINISTRATORS
- DEVELOPMENT REVIEW BOARD MEMBERS
- TOWN HEALTH OFFICERS
- LICENSED WW/WS DESIGNERS
- SURVEYORS
- PROFESSIONAL ENGINEERS
- CONTRACTORS
- PRODUCT VENDORS AND SERVICE PROVIDERS
- REGIONAL ENGINEERS
- OTHER STATE AGENCIES (I.E. WETLANDS, STORMWATER, SHORELAND)
FROM PERMITTING TO CONSTRUCTION

1. Landowner
2. Consultant
3. Preliminary Town Approval
4. Permitting (State/Town)
5. Construction
REQUIRED INPUT FROM MUNICIPALITIES
ZONING OR NO ZONING?

• COMPLIANCE WITH TOWN ZONING, TOWN BYLAWS AND TOWN ORDINANCES.
  • NOTE: TOWN REGULATIONS CANNOT BE MORE RESTRICTIVE THAN STATE REGULATIONS.

• INPUT FORM HEALTH AND SAFETY OFFICERS.

• CAPACITY LETTERS
  • INDICATING WATER AND SEWER SYSTEMS HAVE THE CAPACITY TO ACCOMMODATE THE PROPOSED INCREASE IN FLOW (I.E. FIRE FLOW, EMERGENCY STORAGE, AVERAGE DAILY DEMAND, MIN. PRESSURE, ETC.)

• ANYTHING ELSE THAT YOU CAN THINK OF?
CLOSING DISCUSSION

• WHAT ARE YOUR THOUGHTS ON THE CURRENT PERMITTING PROCESS?

• WHAT IS YOUR EXPERIENCE IN DEALING WITH OUR PROGRAM?

• ARE YOU GETTING THE SUPPORT YOU REQUIRE?

• WHAT CAN WE DO TO HELP SERVE YOU AND YOUR COMMUNITY?
RESOURCES AND REFERENCES

- VT EPR CHAPTER 1 RULES – SEPTEMBER 29, 2007
- ENVIRONMENTAL PROTECTION AGENCY (EPA).
- UNITED STATES DEPARTMENT OF AGRICULTURE (USDA).
- WWW.SEPTIC.VT.GOV