Alternative Septic Systems

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Common Lake Front Challenges

- Small lots
- Poor soils for biological treatment
- High Groundwater Table
- High Bedrock
Lakes In Common

- Attraction – Natural beauty/recreation
- Common challenges
- Receiving point for groundwater
Steep Slope & Shallow Depth To Bedrock
Small Lot
Steep Slope
Steep Slope
Small Lot
Attached Growth

- Aerobic microbes attach and grow on media
- Wastewater flows across microbes
- Microbes extract and digest soluble organic matter from the wastewater
Enhanced Treatment Unit

- Create environment suitable of biological activity
- Treatment in a tank
- Disperse “clean” water
- Clean color and no odor
- Eliminate clogging of dispersal field
Looking to Technology

- Pre-engineered
- Commercially available
- Small footprint
- In-tank treatment
- Proven history of performance
- Transferable to other sites
- Easy maintenance
- Annual O&M $300/yr.
- Target cost $20,000 (equipment & installation)
Sampling and Analyses

- BOD & TSS
- Ammonia (NO$_3$-N)
- Nitrite-Nitrate (NO$_2$-NO$_3$)
- TKN
- Total Phosphorus (as P)
- Total Coliform
- Fecal Coliform
- Turbidity
Small Size
Diaphragm Air Compressor
Blower and Alarm Panel
Recirculation
Dispersal Technologies

• Bottomless Sand Filter
• Shallow Low-Pressure Trenches
• Drip Irrigation
• Trenches Under Driveway
Bottomless Sand Filter
Shallow Narrow Trenches
Shallow Narrow Trenches
Education

- Regulators
- Engineers
- Homeowner
- Contractors
Questions?
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