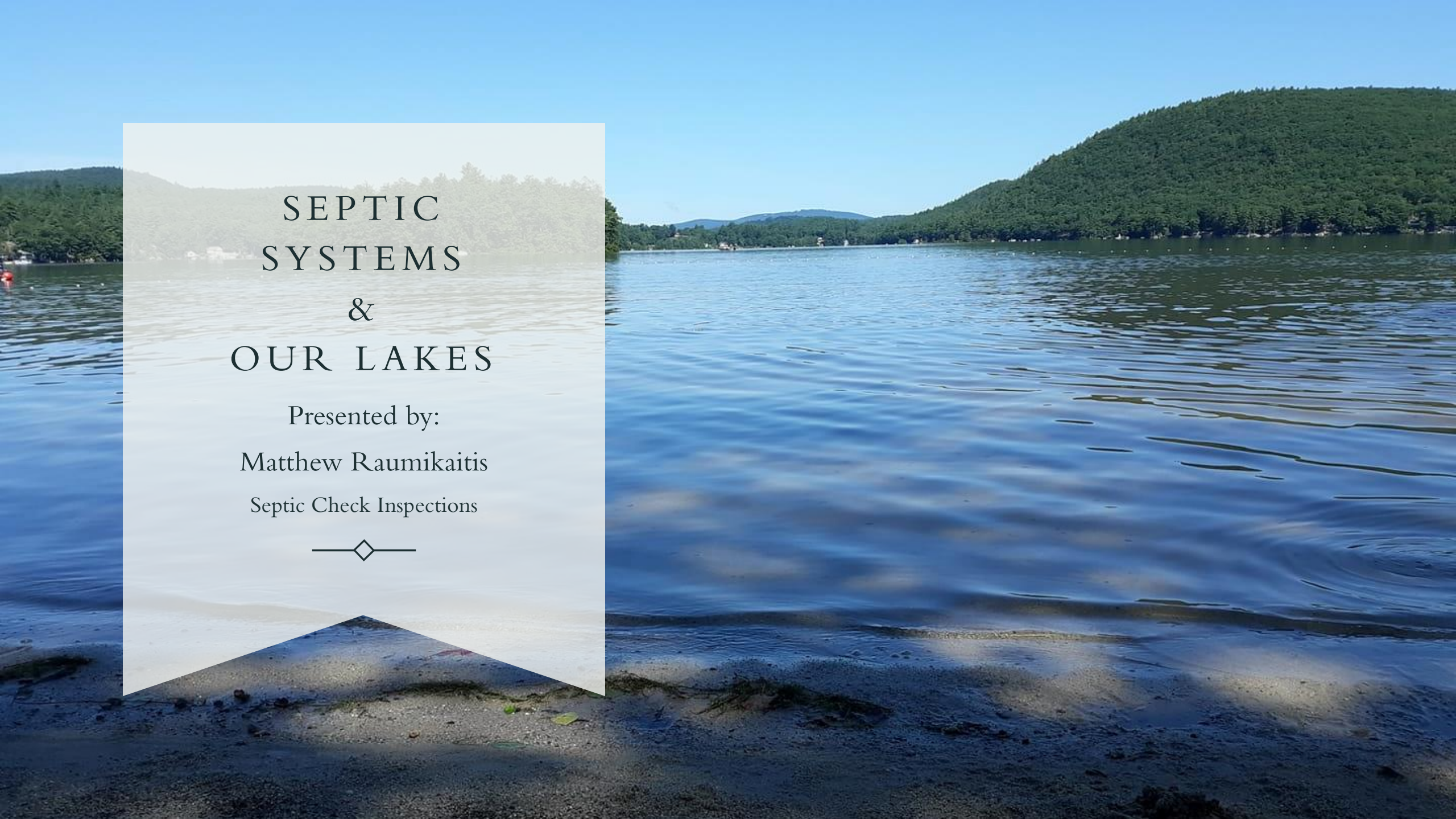


SEPTIC SYSTEMS & OUR LAKES

Presented by:

Matthew Raumikaitis

Septic Check Inspections

Overview

- System Components
- Common Concerns
- Risk of Concerns to Waterbodies and Groundwater
- Causes of Failure
- Site Challenges
- Preventative Measures

What is a Septic System?

Stores & treats sewage from an individual or a cluster of buildings.

Typical System Consists of:

- Tank
- Pump Chamber (common on waterfront systems)
- EDA (leach field, drywell, trench)

Tank – Settles out, breaks down & stores solids for later pumping

Scum – layer of floating material on the surface.

Sludge – Solid material that settles at the bottom of your septic tank

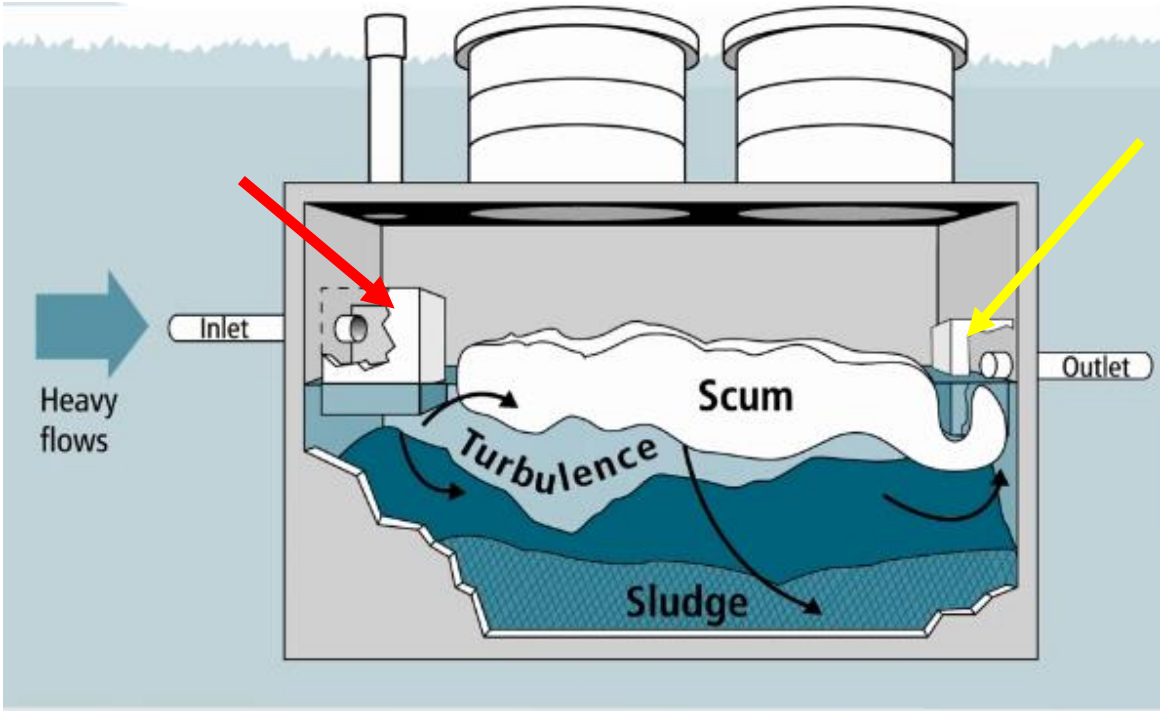
Effluent – The clarified wastewater that remains after the scum has risen and the sludge has sunk.

Inlet Baffle – Slows down turbulence

Outlet Baffle – Reduces solid flow out of tank

Effluent Filter – Filters suspended solids out of effluent at outflow

- Optional per design
- Clean at least once EVERY year
- Should have access riser



Common Tank Concerns

Missing baffles

Obsolete Baffles

- Does not allow airflow through system

Damaged/ Unsafe Covers

- Concrete breaks down in corrosive environment
- Plywood and steel deteriorate and become unstable

Cracked Tanks

- Allows seepage of untreated wastewater
- Risk of top caving in
- Groundwater infiltration

Non-maintained tanks

- Can force solids to EDA or cause backups

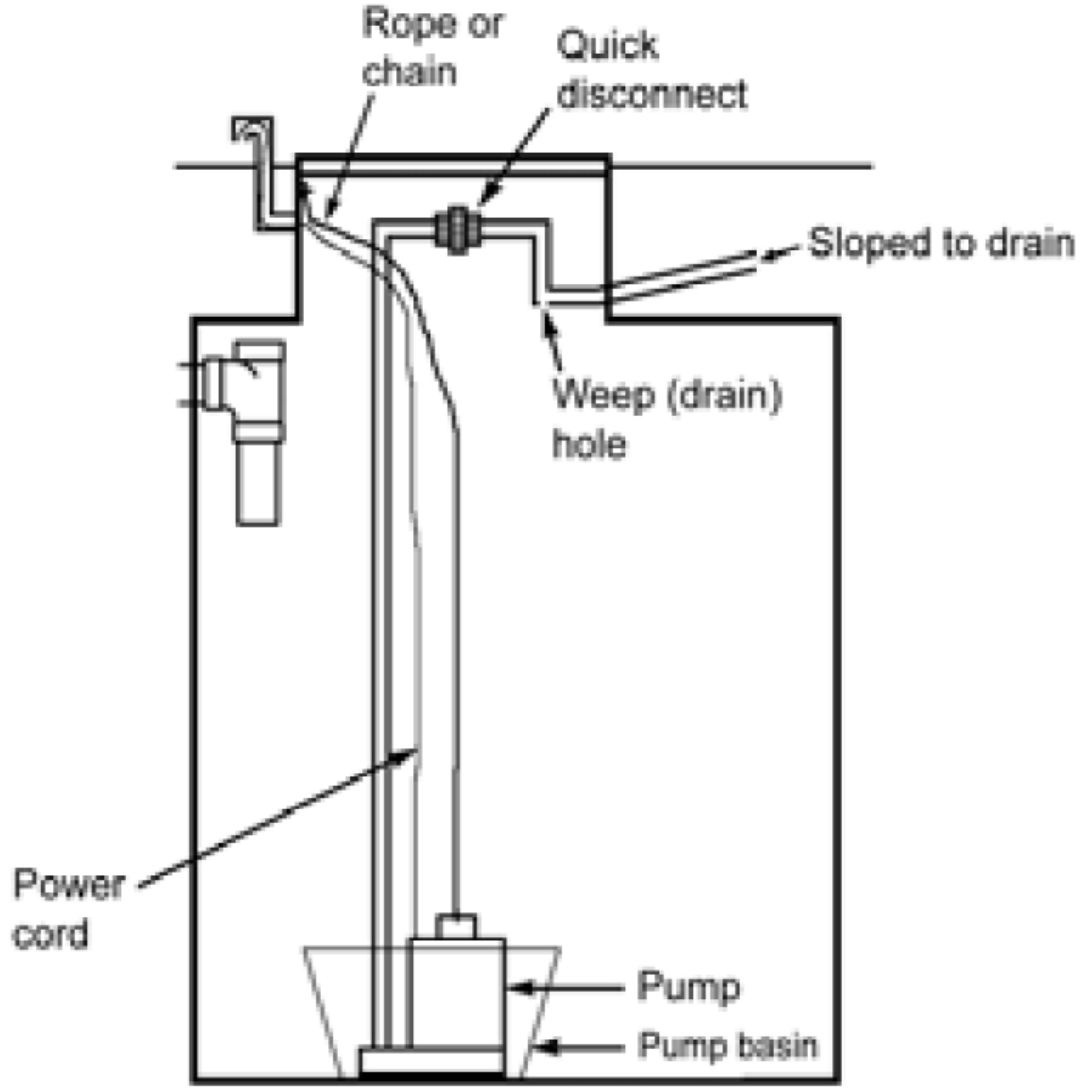
Clogged Effluent Filters

- Can cause backups

Pump Chamber – Pumps effluent to a higher elevation or remote location

Consists of:

- Pump
  - Sometimes multiple pumps
- High-level Alarm
  - Float Switch in Chamber
  - Alarm located inside/ outside home
- Control Floats
  - On/Off
  - Timer enable
  - Sets dose amount
- Access Riser
  - Installed to grade



Common Pump Concerns

Damaged/ Unsafe Covers

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Cracked Tanks

- Allows seepage of untreated wastewater
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No Pump Alarm

- Risk of backup or surfacing

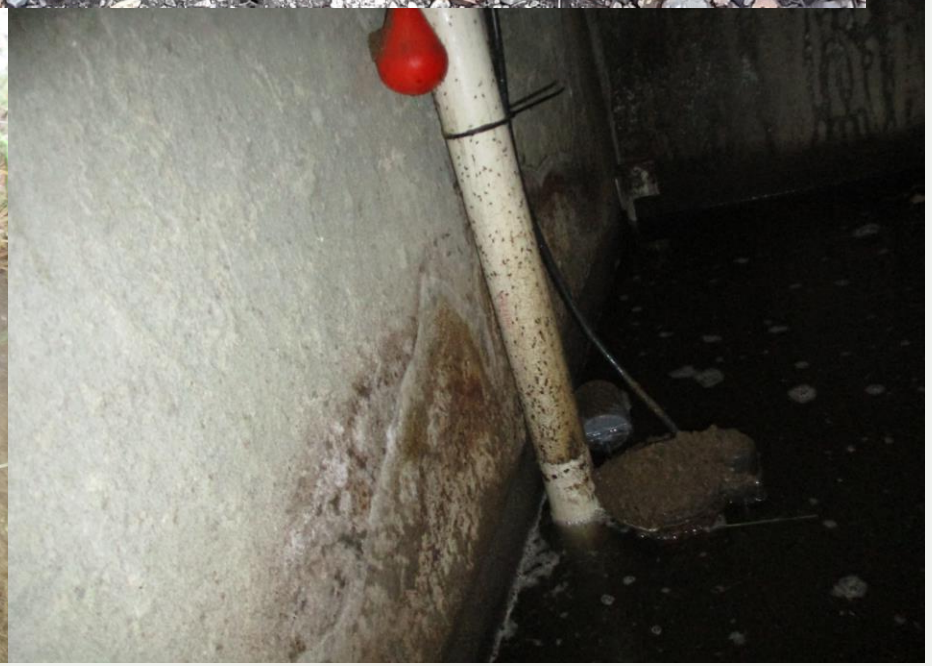
Poor electrical connections

Poor Access – No Riser

- Difficult access for repair

Pump Line not discharging to EDA

- Surfacing
- Discharge to Unknown Location



EDA– Effluent Disposal Area

D-box / Distribution Box – Distributes flow evenly to EDA

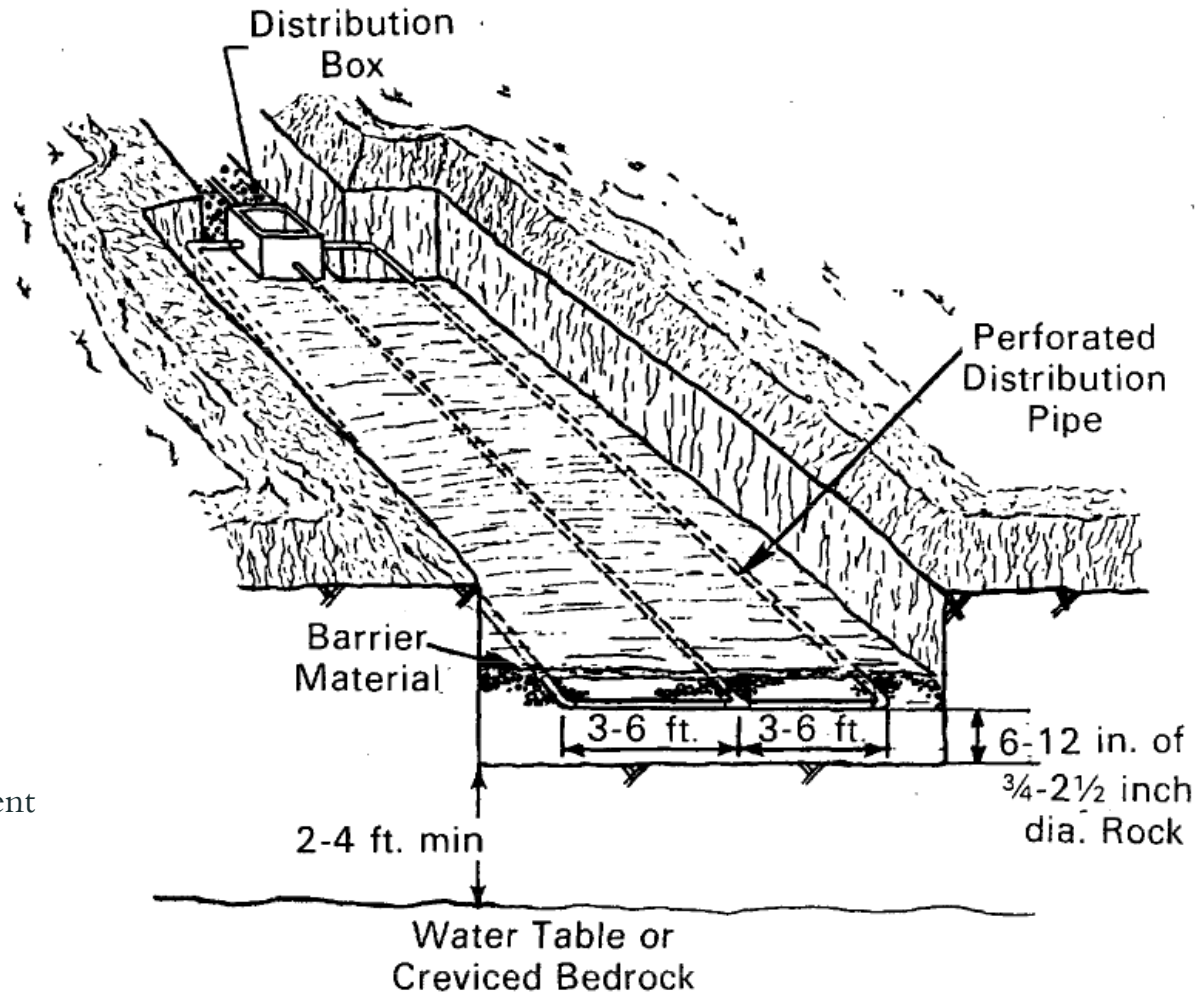
- Not all systems have D-boxes
- Varies by EDA style and layout

Leaching Lines – Carries effluent through EDA to drain

- Varies by EDA style

Vents – Allows oxygen into EDA to allow for aerobic treatment of effluent

- Not all system have vents
- Based on depth and EDA Style



Types of EDAs

- Leach Field – Current day/Conventional systems
  - Stone & Pipe, Concrete Chamber, Plastic Chamber, Eljen, Enviro-Septic
- Drywell –
  - Overflow Trenches
  - Includes Seepage Pits
- Trench Lines – Often old school or Homeowner install
  - Stone & Pipe
  - Sand
- Cesspool – Have not been recognized as acceptable since 1967

Common EDA Concerns

Distribution Box – D-box

- Collapsed
- Deteriorated
- Root growth/ Solids
- Not Level

Collapsed, Crushed, or settled

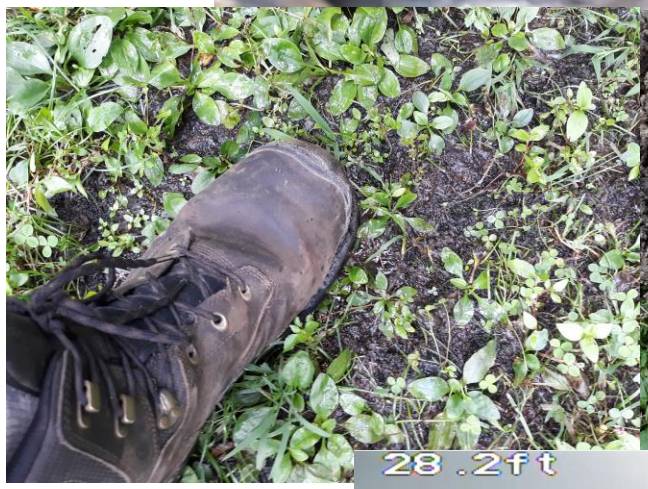
- Distribution pipe
- Presby Tubes
- Chambers

Tree Growth

Saturated EDA's/ Failures

No Venting

- Under driveways
- Deep systems
- Certain Styles



Biomat

The biomat is a black slime layer that forms under the EDA that filters out viruses and pathogens.

- Over time and use, the biomat thickens and drainage into the soil slows.
- Eventually biomat will become so thick, it will not drain
  - Causes backups and failure
- Solids in effluent will clog up the boimat quicker
  - Suspended solids
- Help reduce Solids from entering EDA
  - Pump tank
  - No garbage disposals or sewage ejector pumps
  - Effluent filters at outlet

Challenges of Lakefront Properties

- Often restrictive or small lots
  - Setbacks to property lines, wells, surface water, ledge
  - Groundwater
- Many times, part time or seasonal
  - Maintenance is often overlooked or forgotten
- A gathering place or rental properties
  - Receives periods of high use or overuse
  - Many times, visitors will abuse the system (typically unknowingly)
- Water, Water, Water!

Help Reduce Negative Impacts

- Lot restrictions
  - Aeration tanks or pre-treatment (Advance Onsite Solutions)
  - Proprietary systems
  - Pump up systems (pump away from water or setbacks)
  - 'Ledge Tanks'
- Install risers
  - Now required on pump chambers and where effluent filter installed
  - Recommend at inlet and/or center tank covers
    - Serves as a reminder to maintain system
    - Reduces disturbed soil which can lead to erosion
- Post septic safe rules at toilets & sinks
- Install a pump/ high level alarm
  - Systems can send email/ text alerts
- Have periodic inspections performed
  - More than just a tank pumping
  - Catch problems before you have a problem

Questions?

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