

Nuisance Ponding

Causes and Solutions



Causes

- Water runoff
 - Impervious surfaces
 - Rooftops
 - Driveways
- Non-porous soils
 - Infamous red clays
- Low Areas
 - Ground water
 - Wetlands



Steps for solving problem

- What problem is it causing?
- Can you live with it?
- Where's the water coming from?
 - Detailed site grading, measure slopes with level
 - Can rent laser levels, use water level, or purchase equipment
 - Develop detailed topo map
- Determine what soils you have
 - Limited options with clay
- Volume of Water to deal with





Water management for maximum water quality

- Keep as much water on site as tolerable
 - Rain Barrels, cisterns
 - Rain gardens
 - Vegetated swales
 - Drainage pits (soakaway pits)
 - Every site is unique



Determine volume of water

- Calculate for various rainfalls
 - A 1" rainfall over 1,000 ft² of roof or driveway produces 623 gallons of water.
 - A 2" rainfall yields 1,247 gallons of water
 - Calculation:

Rainfall (in.) x impervious surface area (ft²) / (12 in./ft * 7.48 gal./ft³)

Soakaway Pits

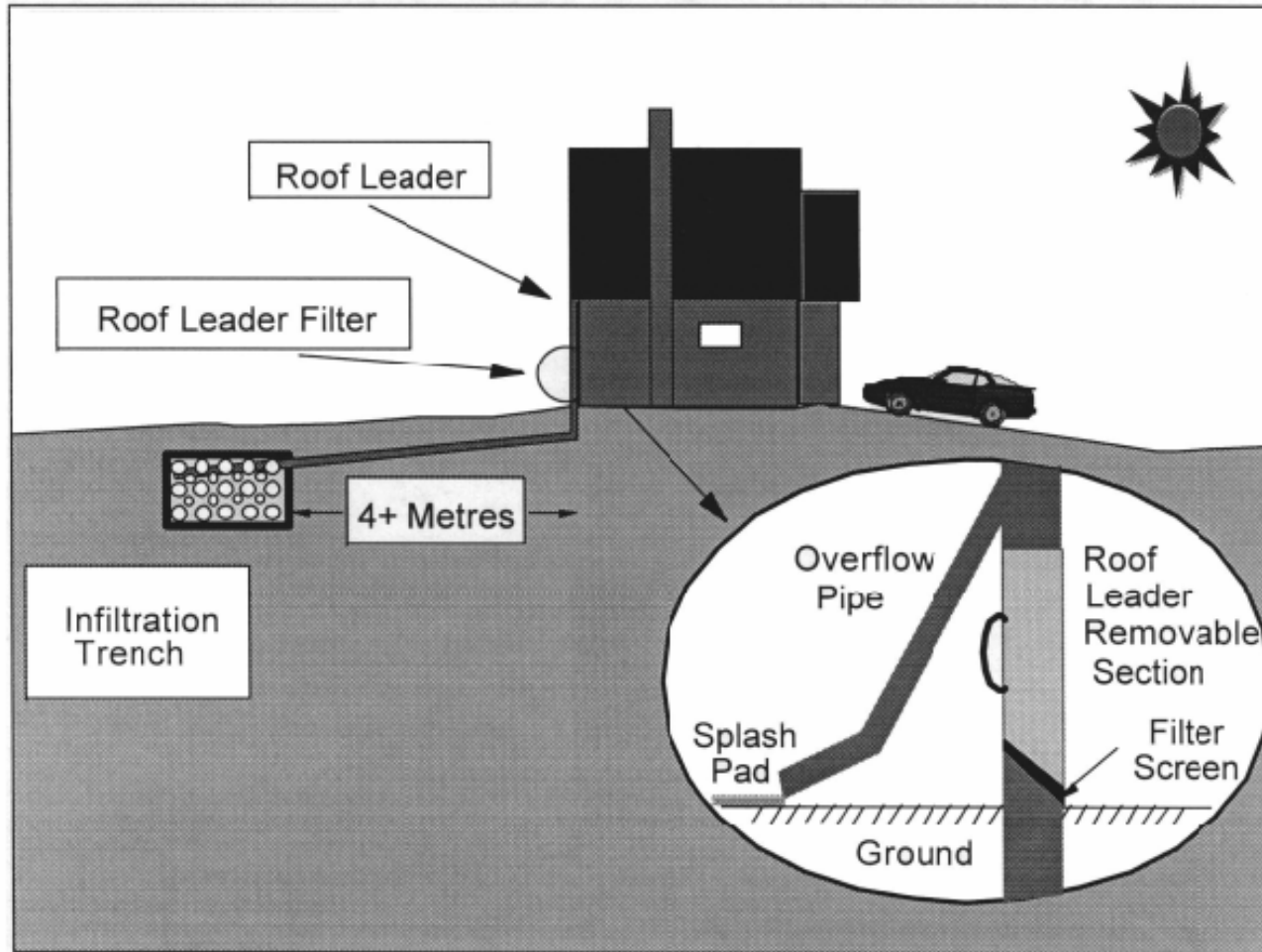


Figure 2: Roof Leader Discharge to Soakaway Pit

Source: Ontario Ministry of the Environment, 1999



Soakaway Pits

- Best for:
 - Non-cay soils
 - Used for roof runoff or very clean runoff
 - Locate above water table
 - May need to be designed
 - May use in combination with cistern/rain barrels
 - Locate away from structures

Soakaway Pits

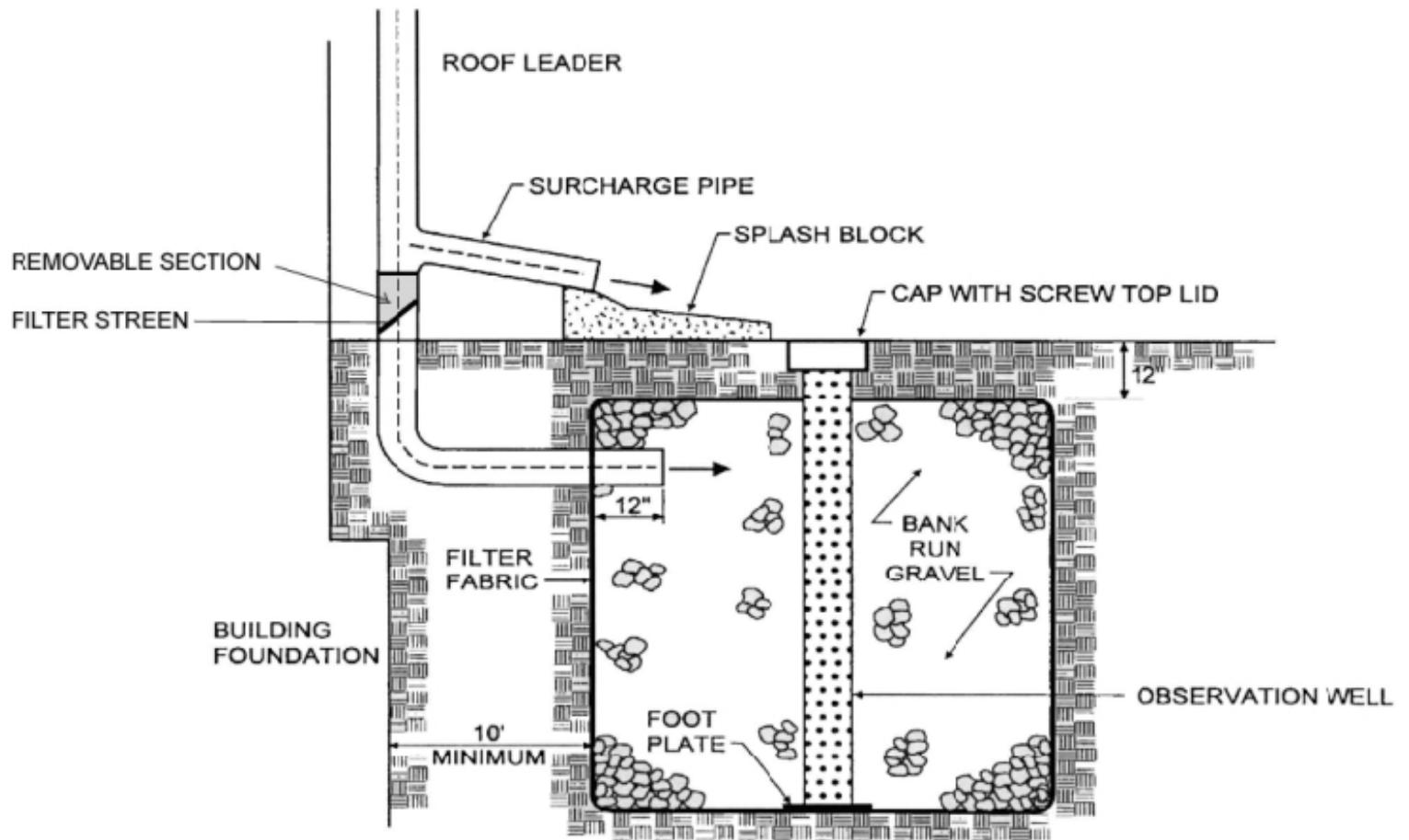


Figure 4: Soakaway Pit Profile

Source: Adapted from Maryland Department of the Environment, 1998.



Soakaway Pits

- Cost

- Equipment (mini-excavator): \$300
- Washed clean rock: \$400
- Piping: \$100
- Fabric: \$100
- Rainwater pre-filter: \$200
- Total for 500 gallons: \$1,100

Rain barrels

- Best for:
 - Small lots
 - Clay soils
 - Gardeners



Sump Pump Hose

Rain barrels



Rain Barrels and More

○ Cost:

- 60+ gal. assembled Rain Barrel: \$140

<http://www.midwestinternetsales.com/rainbarrels.htm>

- Sump Pump Hose: \$15
- Additional Hardware Parts: \$10
- Total: \$165

(Optional):

Watering Hoses: \$10

Concrete pad or cinder blocks: \$10

Linking Hose (2 rain barrels): \$5

Cisterns

- Large Rain barrels
- Can be buried or above ground
- Used for landscape watering
- Cost: approx. \$1,000 for a 1,000 gallon tank (above ground)



Cisterns

- Engineered systems or professional service may be required



Vegetated area/rain garden

- Best for:
 - Committed homeowners

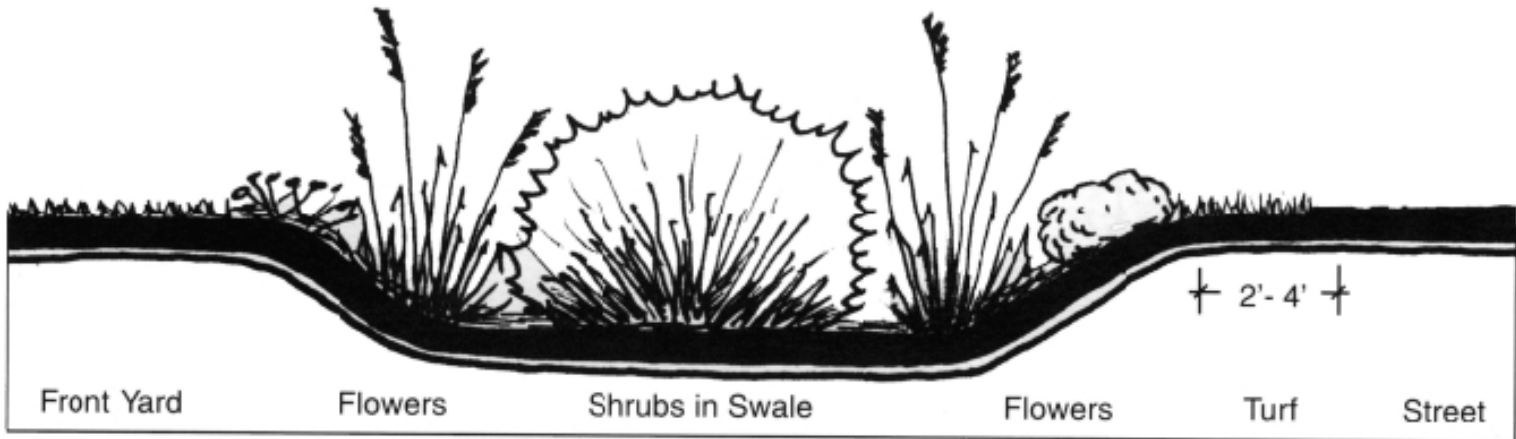


Figure 10: High-Volume, Symmetrical Rainwater Garden

Source: Adapted from Nassauer et al., 1997.



Vegetated area/rain garden

- Cost:
 - Plants: \$300
 - Labor: \$800
 - Compost/sand to amend soil: \$1,200
 - Total estimated for 200 sq. ft. garden (approx. 15x15 ft): \$2,300
 - Best gardens result from engineered systems.

Who to call for more info:



www.lakesuperiorstreams.org

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