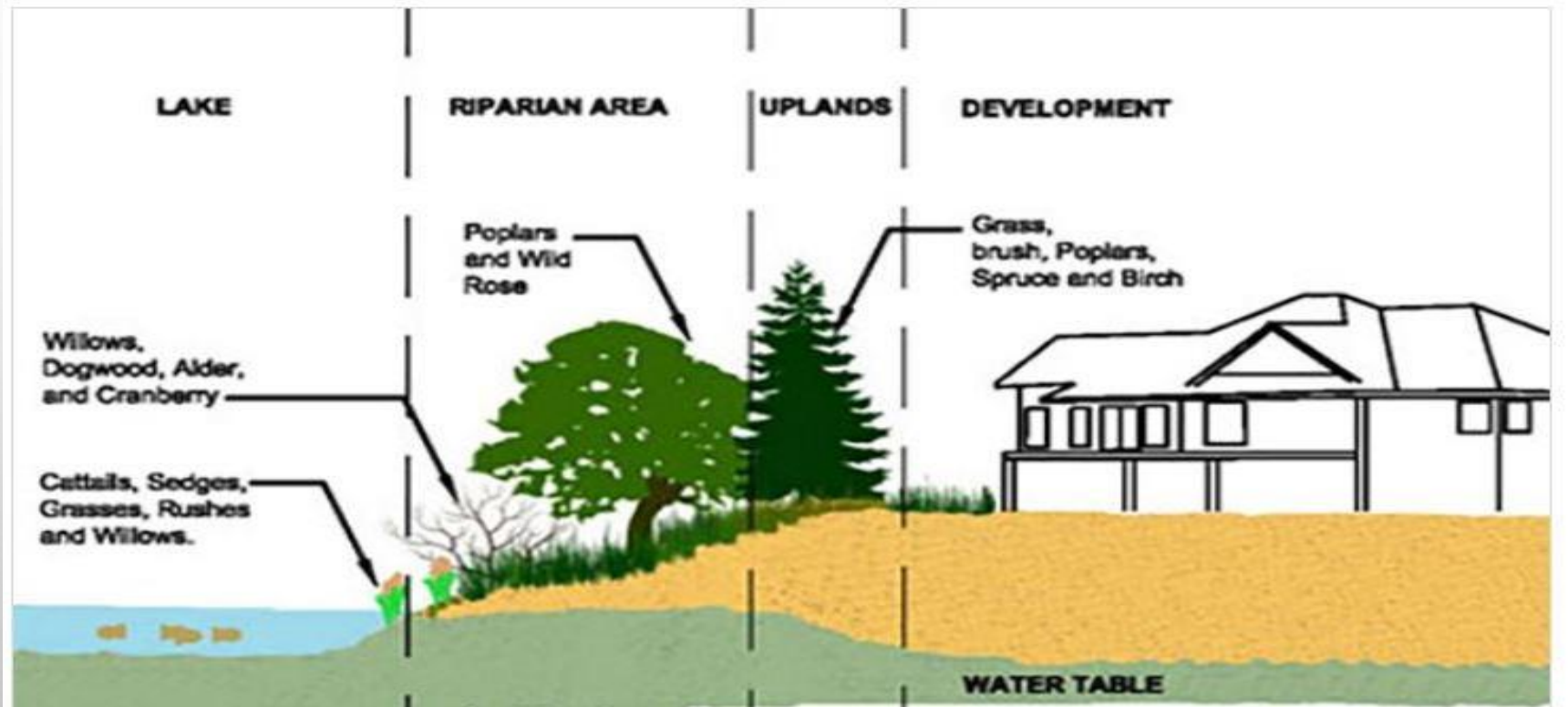


WATERBODY SETBACK ADVISORY BOARD



Agenda

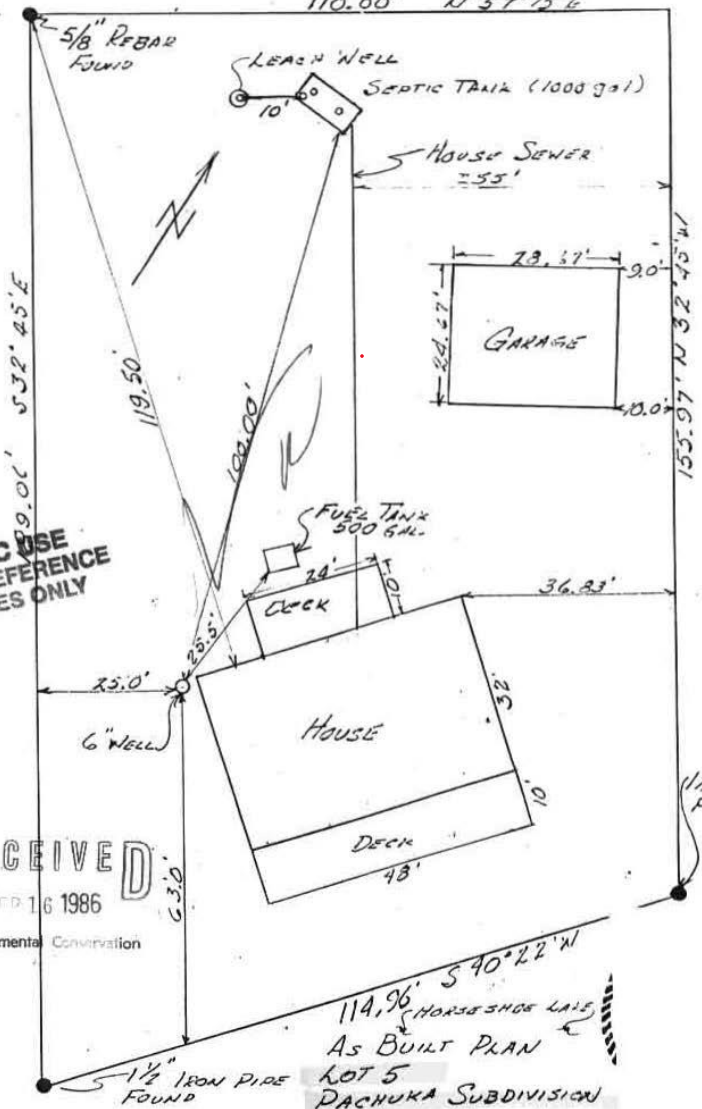
- ◆ Overview
- ◆ Impact of Development
- ◆ Potential Pollutants
- ◆ Mitigation of Impacts
- ◆ Discussion

Overview

- ◆ Any development near waterbodies puts the waterbody at risk of degradation.
- ◆ Bringing development closer increases that risk.



ROAD EASEMENT
110.00' N 57° 15' E



FOR DEC USE
AND FOR REFERENCE
PURPOSES ONLY

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Environmental Conservation

9/5/86

Impact of Development

- ◆ Lake Users
- ◆ Loss of Habitat
- ◆ Increased Runoff
- ◆ Introduction of Pollutants

Impact of Development

- ◆ Lake Users
 - ◆ Viewshed from lake/other owners.
 - ◆ Noise impact.
 - ◆ Decreased harvest potential.

Impact of Development

- ◆ Lake Users



Impact of Development

- ◆ Loss of Habitat
 - ◆ Spawning areas.
 - ◆ Juvenile habitat.
 - ◆ Migratory bird nesting/rearing.

Impact of Development

- ◆ Loss of Habitat



Impact of Development

- ◆ Increased Runoff
 - ◆ More impermeable area.
 - ◆ More concentrated infiltration.
 - ◆ More erosion potential.

Impact of Development

◆ Increased Runoff



Potential Pollutants

- ◆ Sediment
- ◆ Nutrients
- ◆ Petroleum Oil Lubricants (POL)
- ◆ Heavy Metals
- ◆ Septic

Potential Pollutants

- ◆ Sediment
 - ◆ Soil disturbance during construction
 - ◆ Runoff from pavements

Potential Pollutants

- ◆ Sediment



Bad



Good

Potential Pollutants

- ◆ Sediment



Potential Pollutants

- ◆ Nutrients
 - ◆ Application of fertilizers
 - ◆ Septic discharges

Potential Pollutants

◆ Nutrients



Potential Pollutants

- ◆ Petroleum Oil Lubricants
 - ◆ Heating oil tanks
 - ◆ Fuel storage/filling for outdoor equipment
 - ◆ Vehicle maintenance/drips
 - ◆ Paint overspray

Potential Pollutants

- ◆ POL
- ◆ HHO Tanks



Potential Pollutants

- ◆ POL
- ◆ HHO Tanks



Potential Pollutants

- ◆ Heavy Metals
 - ◆ Drainage from roofing materials
 - ◆ Pesticides/herbicides
 - ◆ Vehicle/equipment maintenance

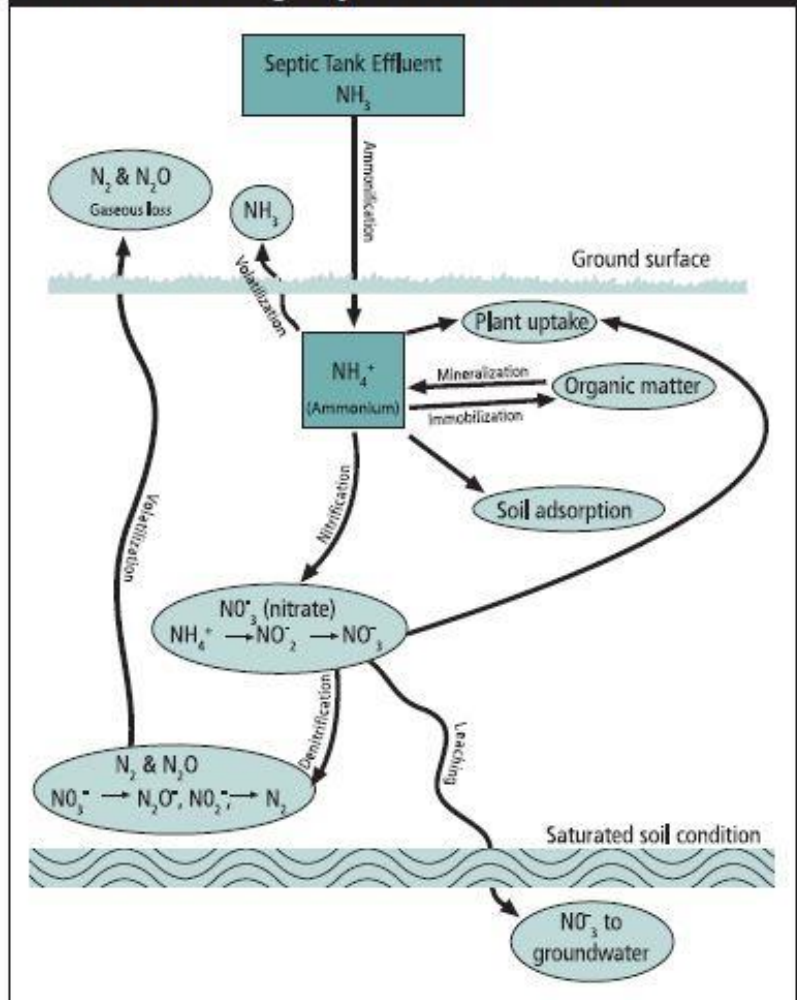
Potential Pollutants

- ◆ Septic System
 - ◆ Viruses
 - ◆ Pathogens
 - ◆ Nitrates
 - ◆ Phosphates
 - ◆ BOD/COD
 - ◆ Pharmaceuticals
 - ◆ Cleaning Products

Potential Pollutants

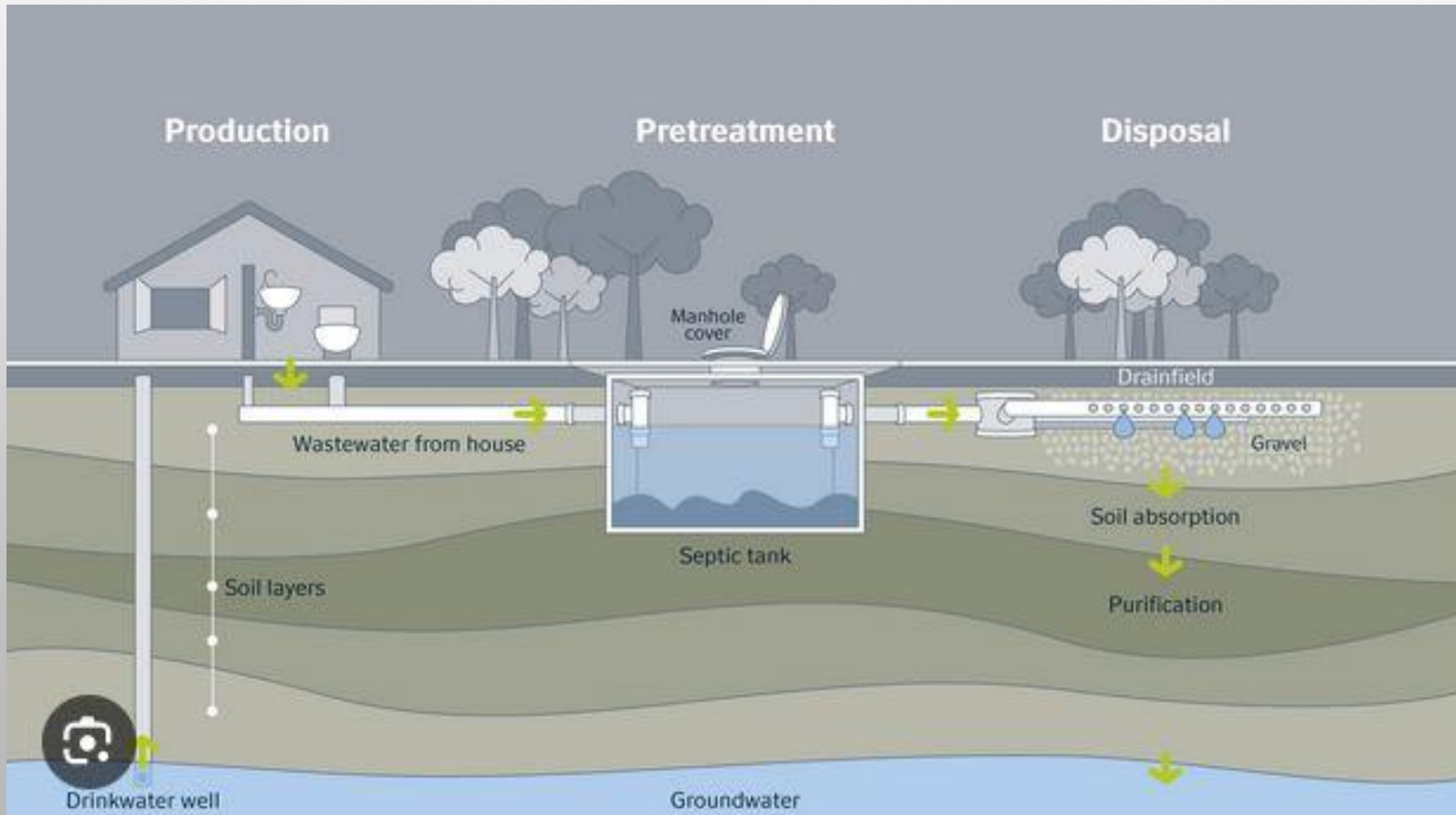
◆ Septic System

FIGURE 3.4 The Nitrogen Cycle and Soil Treatment



Potential Pollutants

◆ Septic System



Potential Pollutants

◆ Septic System

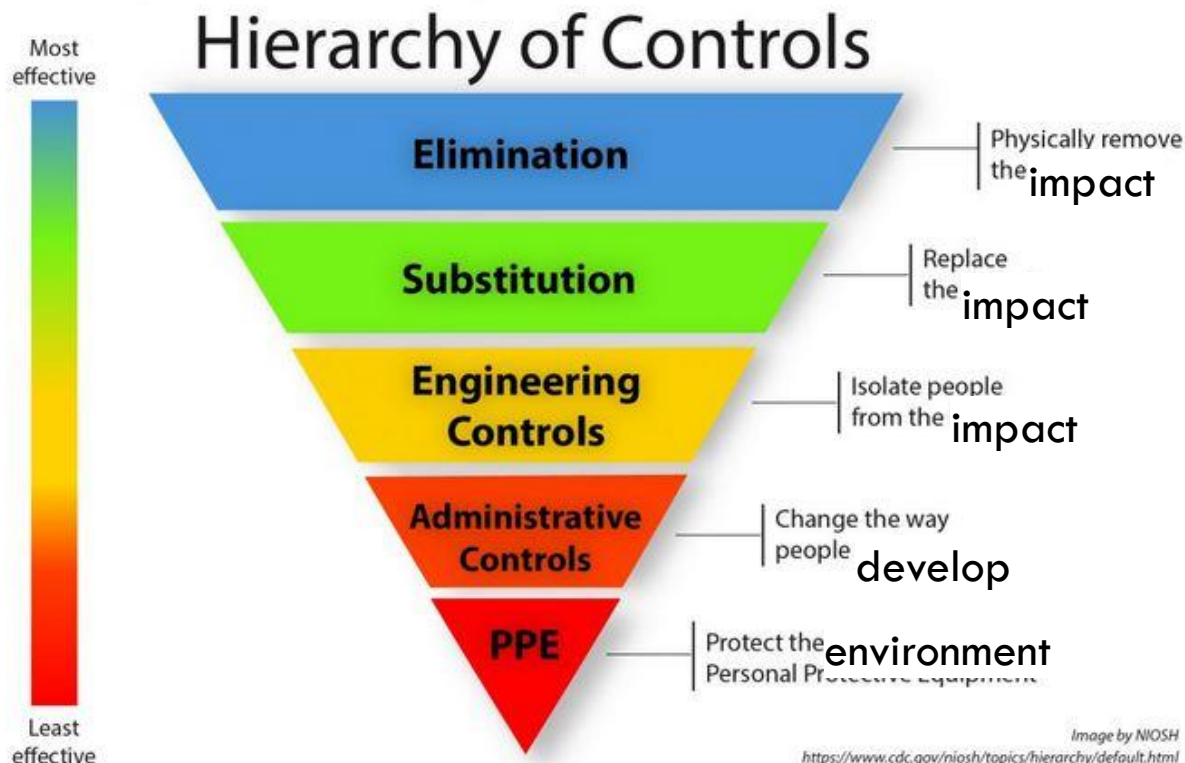
TABLE 12.3 Septic Tank Capacity for Dwellings (gallons)

Number of bedrooms	Septic tank capacity (gallons)	*Septic tank with garbage disposal and/or pump in basement capacity (gallons)
3 or less	1,000	1,500
4 or 5	1,500	2,250
6 or 7	2,000	3,000
8 or 9	2,500	3,750

* must include either multiple compartments or multiple tanks. An effluent screen with an alarm is recommended.

Mitigation of Impact

- ◆ Can we develop to avoid these impacts?



Mitigation of Impact

- ◆ Sediment
 - ◆ Require SWPPP/BMPs during construction
 - ◆ Set timeline for stabilization of disturbed soil
 - ◆ Limit impermeable area (or limit change to SCS runoff coefficient)
 - ◆ Require onsite retention of precipitation
 - ◆ Maintain vegetated buffers

Mitigation of Impact

- ◆ Nutrients
 - ◆ Use natural fertilizers (mulch, compost, etc.)
 - ◆ Don't over-apply
 - ◆ Water-in without generating runoff
 - ◆ Pick up pet/animal waste

Mitigation of Impact

- ◆ Petroleum Oil Lubricants
 - ◆ Provide containment
 - ◆ Protect HHO piping
 - ◆ Development standards for tanks
 - ◆ Develop setback requirements

Mitigation of Impact

- ◆ Heavy Metals
 - ◆ Infiltrate drainage from roof drains
 - ◆ Restrict use of herbicides/pesticides or develop setbacks
 - ◆ Restrict storage/maintenance to areas not exposed to precipitation

Mitigation of Impact

- ◆ Septic Systems
 - ◆ Enforce design/installation requirements and inspect
 - ◆ Require seasonal groundwater level monitoring before installing conventional systems
 - ◆ Require maintenance (annual for advanced and every 2 years for conventional)
 - ◆ Require additional size if garbage disposal or water softener is used

Other Impact

- ◆ Setbacks often 'push' well closer to the lake.
 - ◆ Increases potential for GWUDI
 - ◆ Increases potential for waterborne illness

Ideas

- ◆ Set standards for LID.
- ◆ Require 'oversized' septic tanks.
- ◆ Separate setbacks for heating oil tanks and POL storage.
- ◆ Set disturbance limits for riparian area.
- ◆ Set clearing limits for lot.
- ◆ Require construction SWPPP.
- ◆ Bond/inspection.