Considering Water and Sewerage Servicing in Rural Residential Development

Healthy Community Development Team
Population Health - Interior Health
June 2, 2023

Land Acknowledgement

Interior Health would like to recognize and acknowledge the traditional, ancestral, and unceded territories of the Dãkelh Dené, Ktunaxa, Nlaka’pamux, Secwépemc, St’át’imc, Syilx, and Tŝilhqot’in Nations where we live, learn, collaborate and work together.

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Why we are here today

Our presentation today will include:

- Health Impacts of Wastewater
- Septic System Crash-course
- What the Sewerage System Regulation does and does not do
- Examples of policies and practices that support health
- Suggestions for how we can continue to work together
- Time for questions

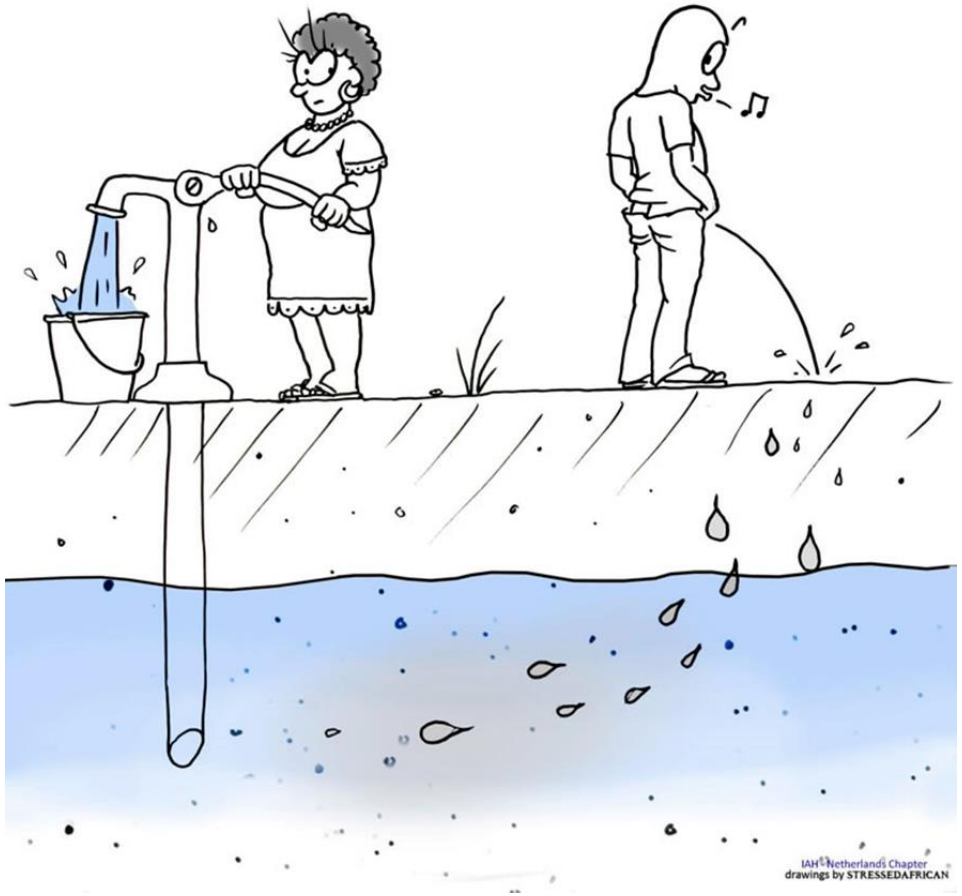
Direct Health Impacts

Gastro-intestinal Disease:

- Track pathogens into home from malfunctioning sewerage system
- Pathogens travel through environment to reach surface and ground water
  - Contaminate drinking water
  - Contaminate recreational water

Illness from consuming nitrates:

- High concentration of nitrates in drinking water



Indirect Health Impacts

Algae Blooms:

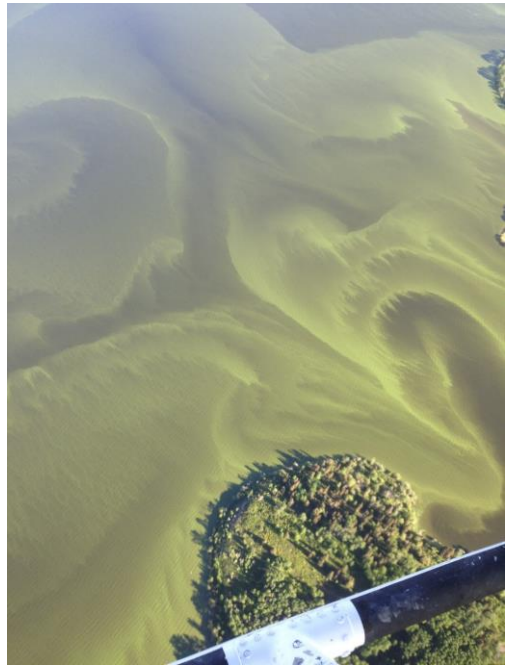
- Decreased drinking water treatment
- Possible cyanobacteria toxins
- Poor recreational water
  - Decreased physical activity
  - Impact tourism economy

Individual/family level costs:

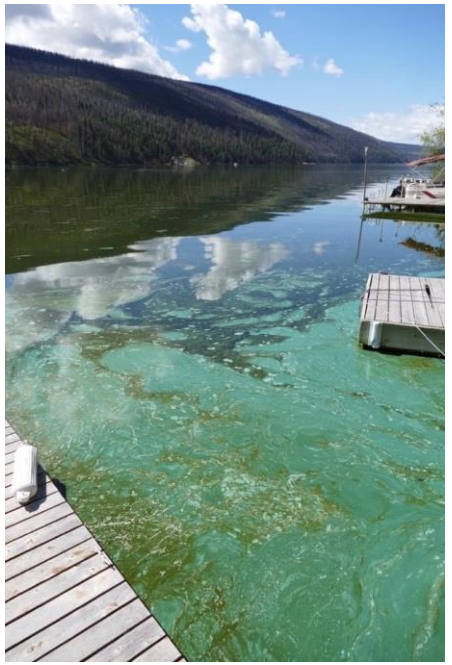
- Costly systems to install & maintain
- Costly repairs

Community level costs:

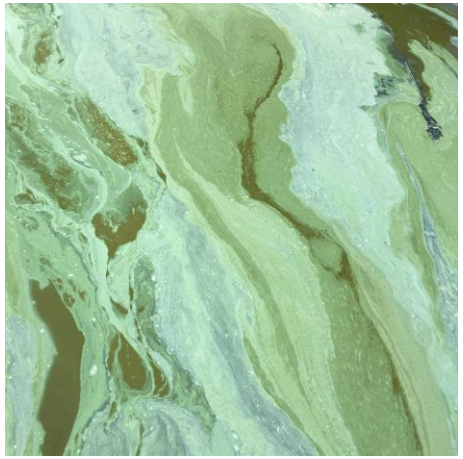
- Costly community infrastructure
  (ie community drinking water and sewer systems)



Helicopter view of Nulki Lake (near Vanderhoof), July 2019



Loon Lake, 2020



Cyanobloom on Chimney Lake, 2020

Shuswap Lake (Salmon Arm), 2020

[Prov. of BC: What causes an algae bloom?]
[Prov. of BC: Algal blooms photo gallery]

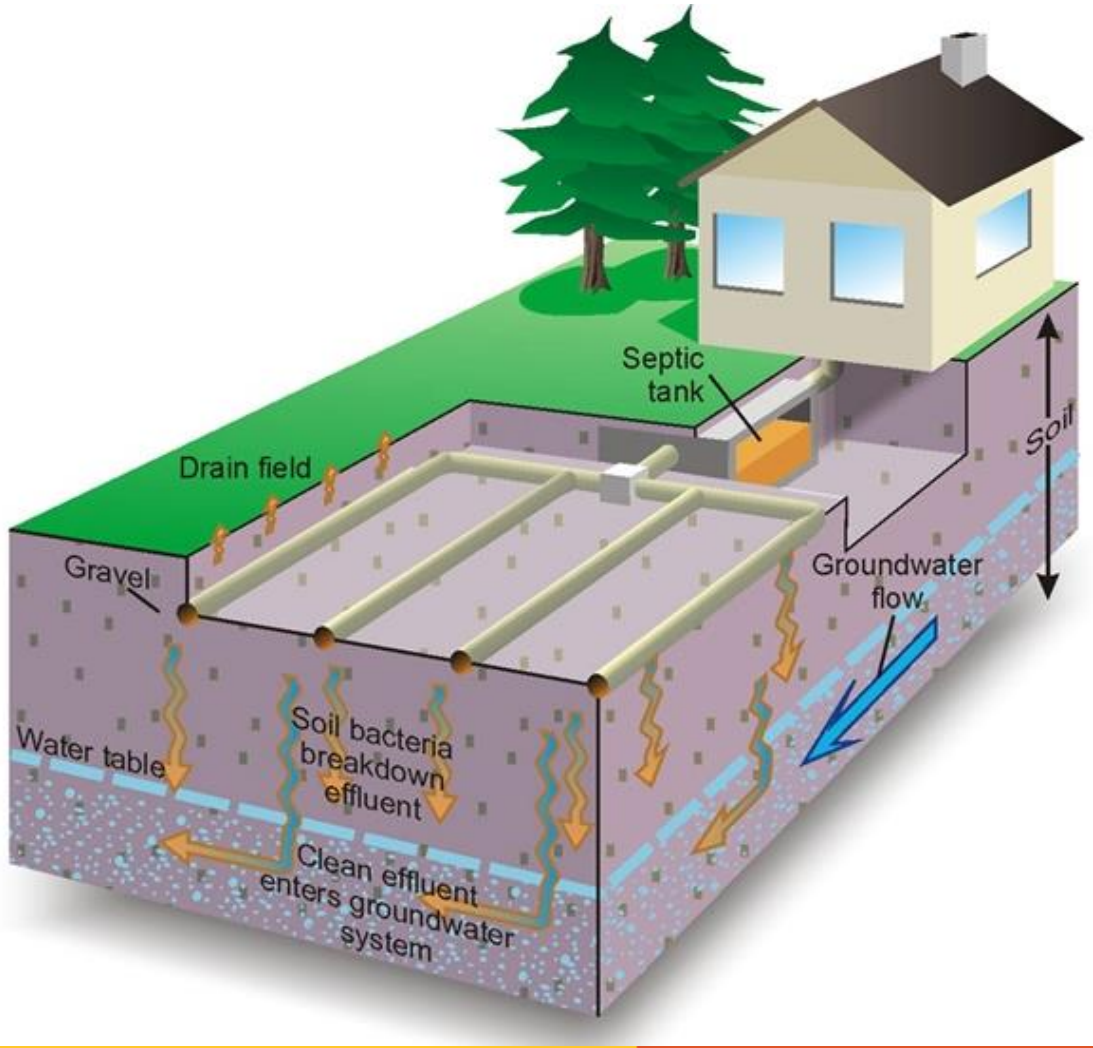
Onsite Sewage Servicing Crash Course

Basic Parts of Onsite Sewerage System:

1. Pre-treatment tank
2. Distribution pipes
3. Absorption field
   (aka drain, dispersal and disposal field)

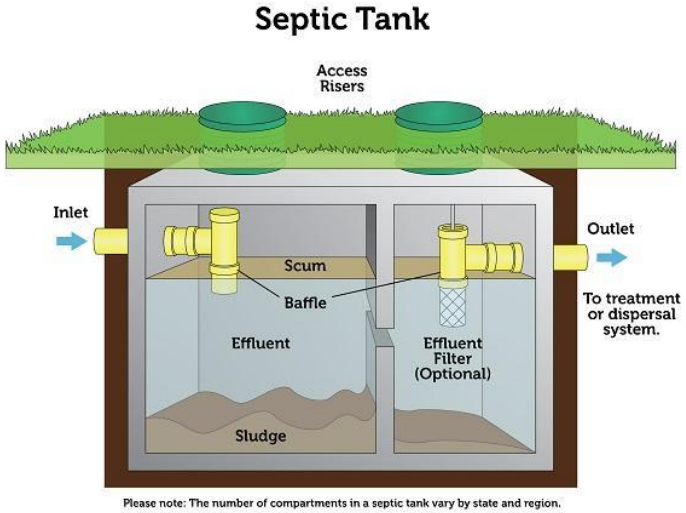
Treatment:

- Designed to treat pathogens
- Mostly done by oxygen loving bacteria in top 4’ of natural soil

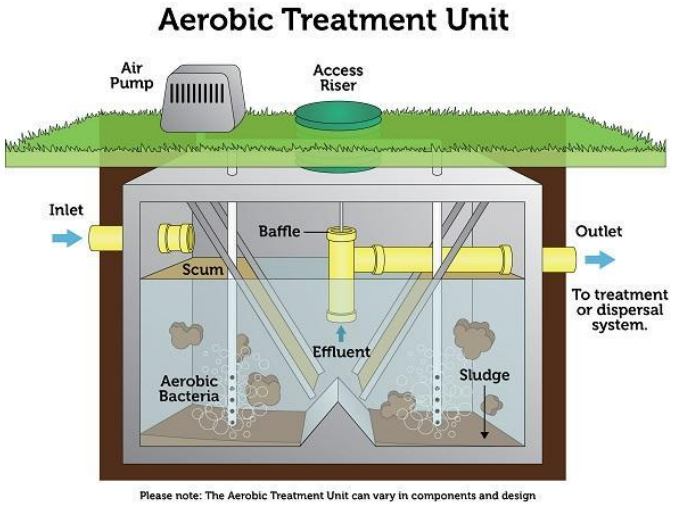


septic-showing-ground-water-flow.jpg (592×548) (bannonengineering.com)

Pre-Treatment



Type 1

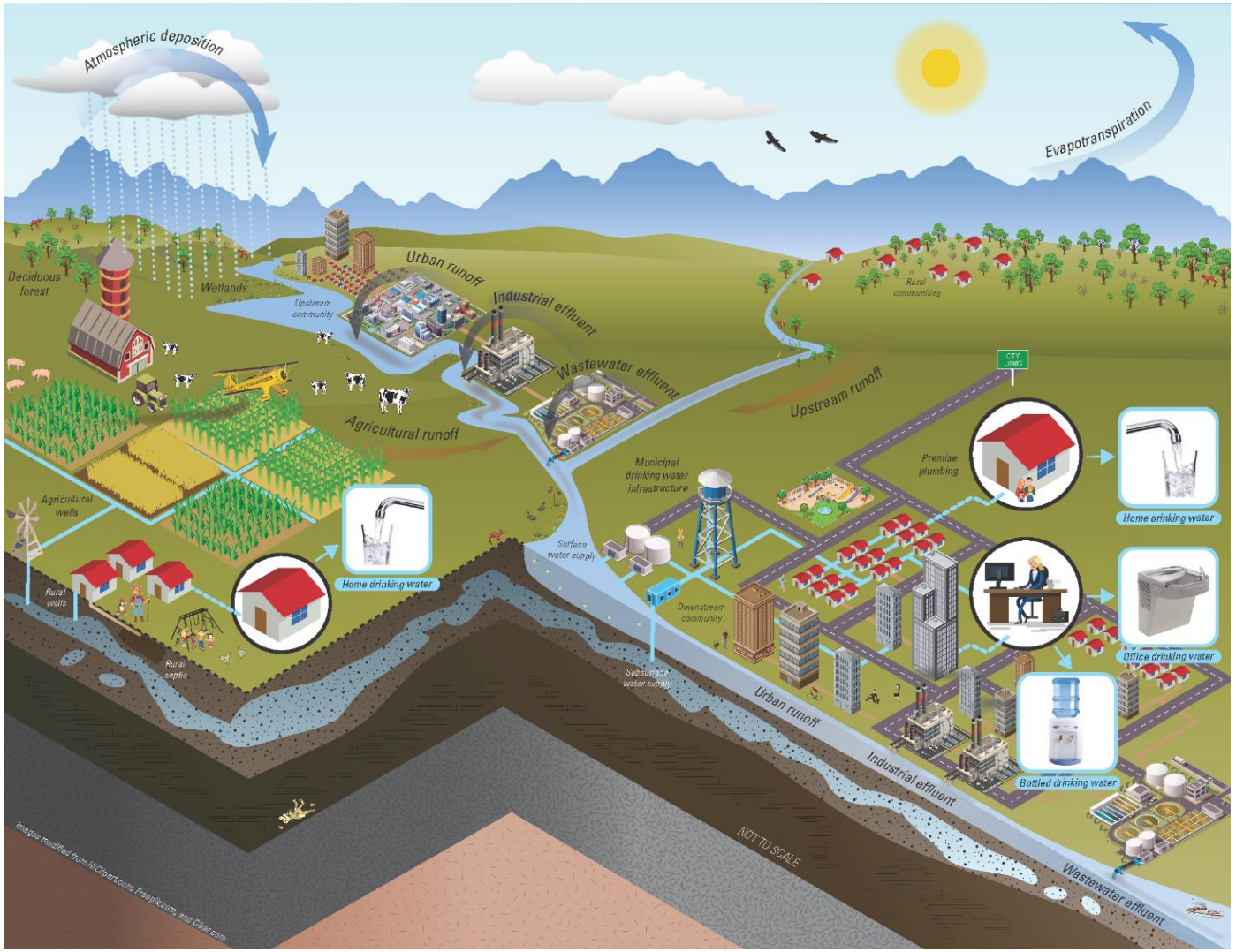


Type 2 = Add Oxygen

Type 3 = Add Oxygen + Disinfection

https://www.epa.gov/septic/types-septic-systems

Exposure Pathways and Routes



Pathways through Environment:

- Air
- **Water**
- Soil

Routes into Body:

- Inhalation
- **Ingestion**
- Dermal

water_diagram_v3.6.png (2200×1700) (amazonaws.com)

Managing Exposure Pathways & Routes to Protect

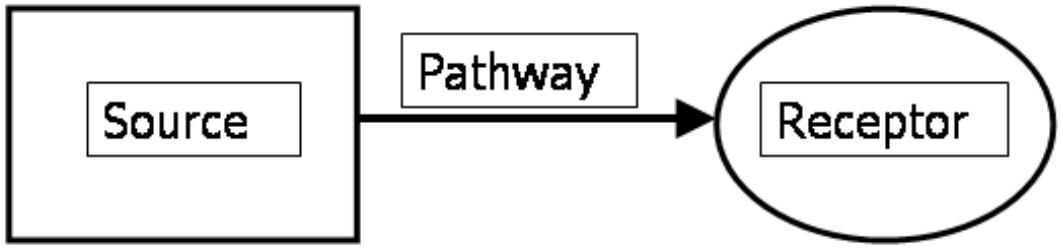


IMAGE001.GIF (543×229) (eugris.info)

3 main 'places' to take action:

1. **Control sources of contaminants**
   Example: number of sewage systems in one area

2. **Manage where and how quickly move through environment**
   Example: keep sewage and drinking water far apart

3. **Apply controls just prior to entering body**
   Example: treat drinking water prior to consuming

What is the Sewerage System Regulation designed to do?

- Manage and protect against <u>immediate</u> health hazards
  (i.e. YES – pathogens; NO – nutrients)
- Consider constraints of subject parcel, and present day use
- Uses a professional reliance model
  - 'Filing' submitted rather than permit
  - Env. Health Officers:
    - Investigate & address health hazard complaints
    - Issue holding tank permits
  - Professional Associations:
    - Investigate & address design & construction practices


This Act is current to March 29, 2023

See the Tables of Legislative Changes for this Act's legislative history, including any changes not in force.

PUBLIC HEALTH ACT

[SBC 2008] CHAPTER 28

This consolidation is current to March 22, 2022.

Link to consolidated regulation (PDF)

Link to Point in Time

Public Health Act

SEWERAGE SYSTEM REGULATION

[Last amended June 30, 2021 by B.C. Reg. 160/2021]

SEWERAGE SYSTEM
STANDARD PRACTICE MANUAL
VERSION 3
SEPTEMBER 2014
HEALTH PROTECTION BRANCH
MINISTRY OF HEALTH

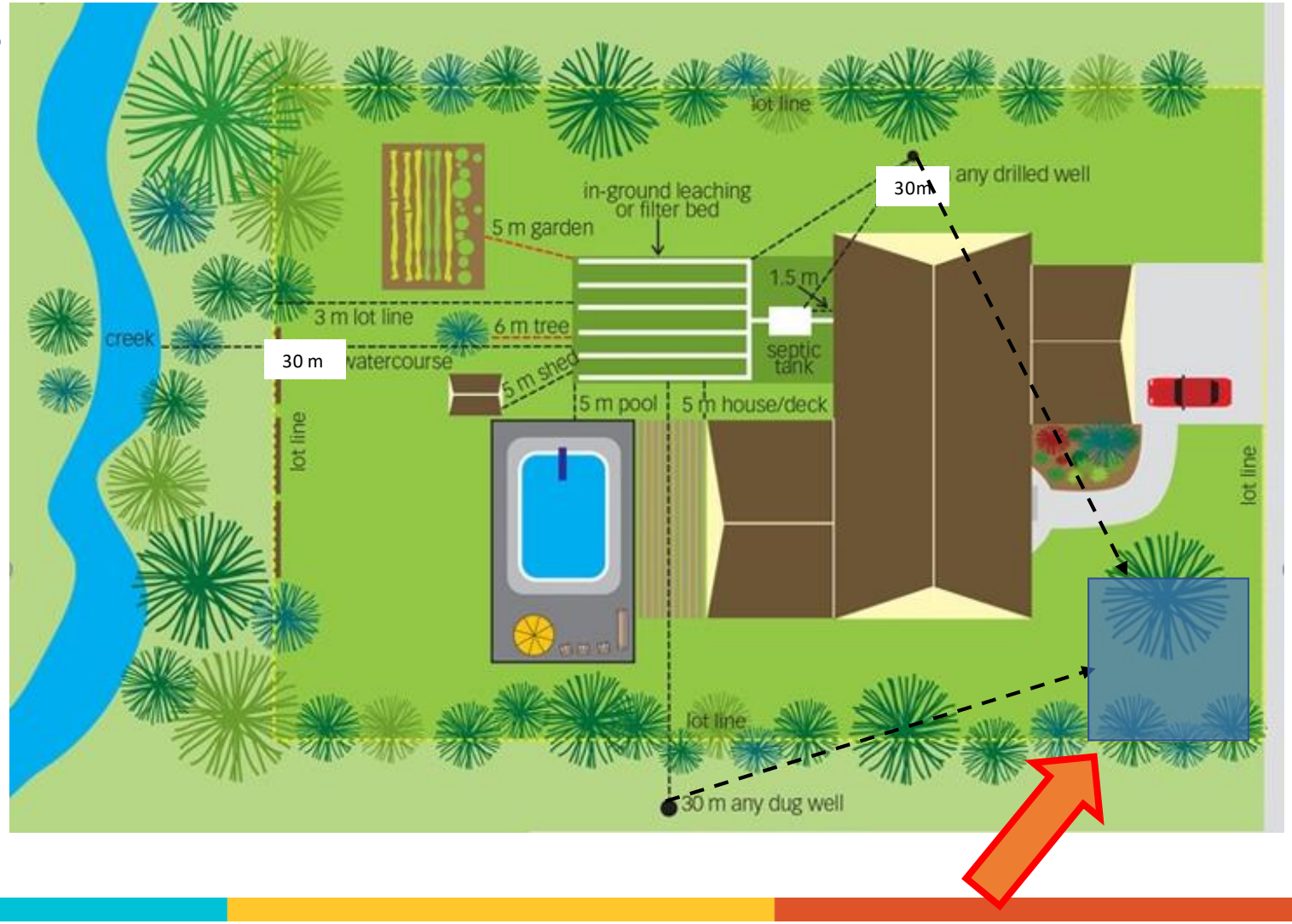
BRITISH COLUMBIA

ASTTBC TECHNOLOGY PROFESSIONALS

Public Health Act (gov.bc.ca)
Sewerage System Regulation (gov.bc.ca)
Sewerage System Standard Practice Manual - (gov.bc.ca)

Considerations for Onsite Sewerage Servicing

1. Distance to surface water and wells
2. Shallow depth to groundwater
3. Steep slopes
4. Distance to cut bank
5. Soil too tight or too loose
   (clay or gravelly sand)
6. Small lot
   - Absolute minimum = backup area
   - Guidelines:
     - 1 hectare – onsite sewage & water
     - 0.2 hectare – onsite sewage & community water

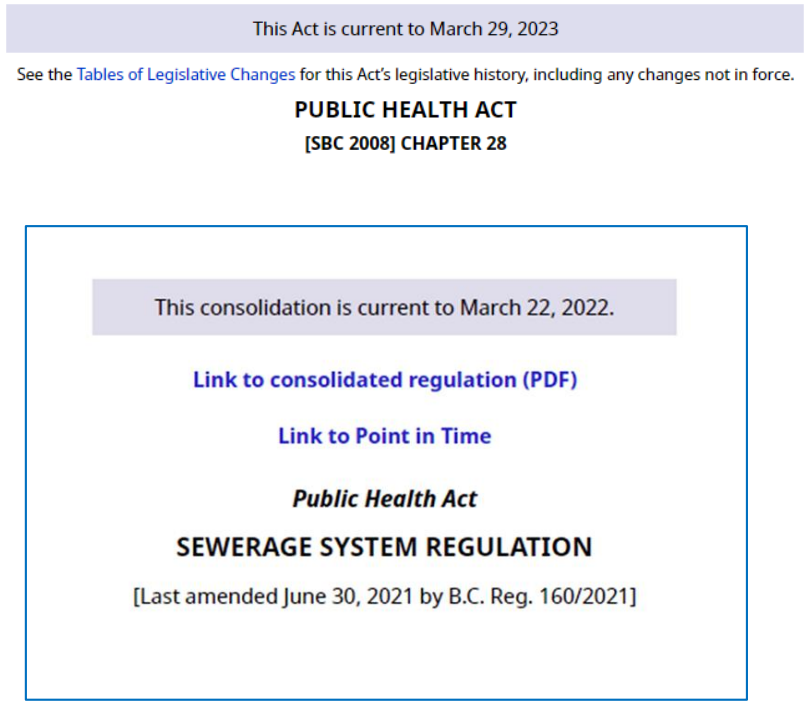


septic-image-10-1200px.jpg (1200×1100) (fitzbros.ca)


2D

What is the Sewerage System Regulation NOT designed to do (well)?

- Manage and protect against cumulative impacts from
  - Nutrients
    (i.e phosphates & nitrates)
  - Pathogens
    (e.g. viruses)
- Consider long-term self sufficiency of subject parcel for onsite servicing
- Consider impacts at broader neighborhood and community level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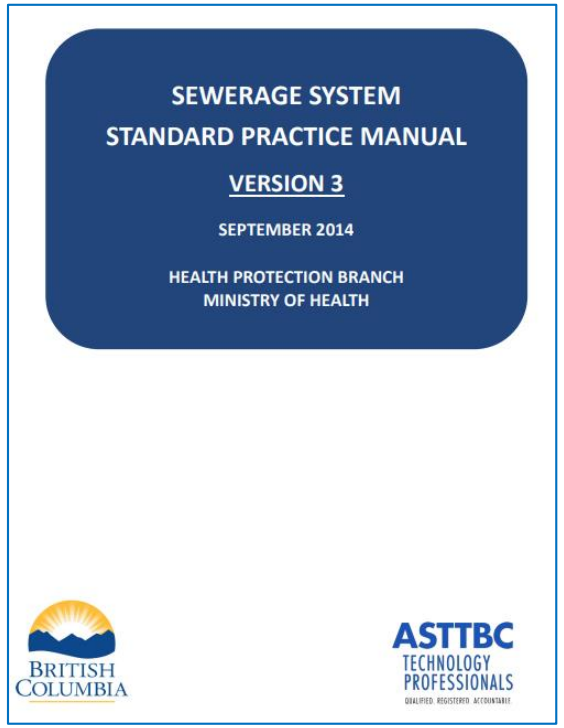
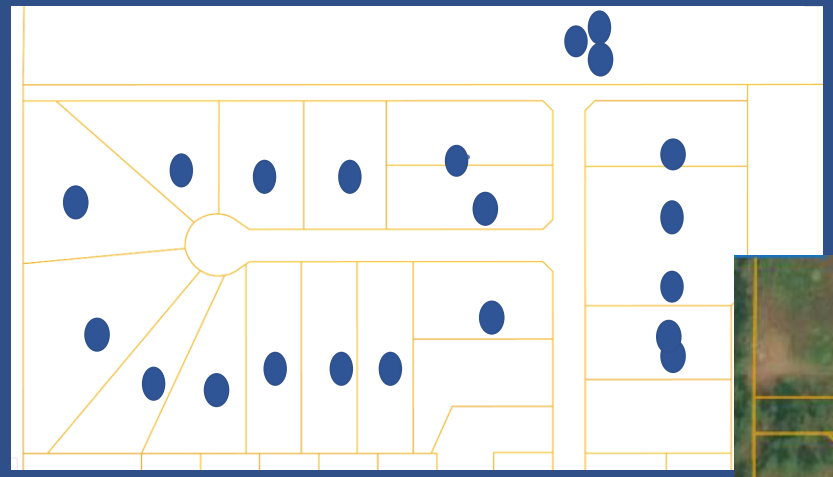
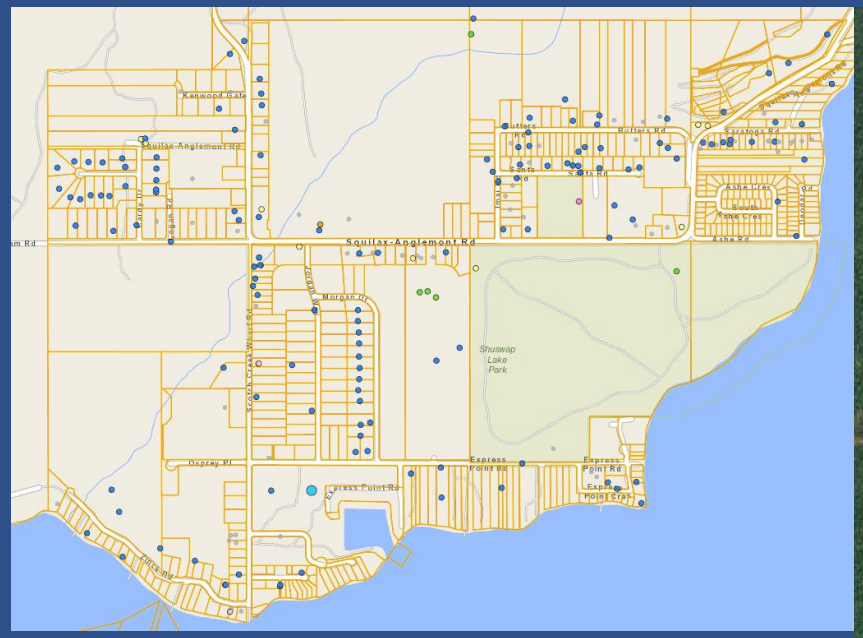
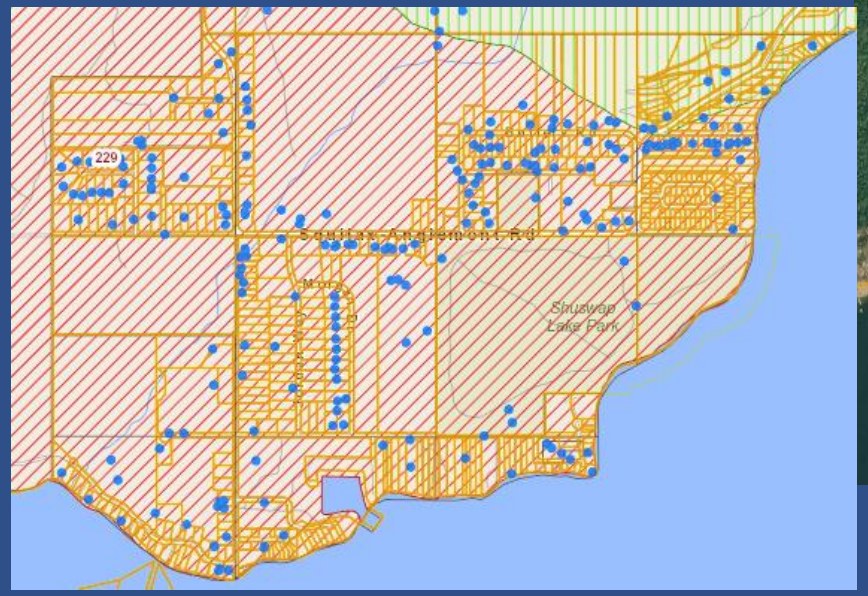





Squilax-Anglemont Rd
Shuswap Lake Park
Express Point Rd


229
Squilax-Anglemont Rd
Shuswap Lake Park

Highlighting Healthy Public Policy & Practices

CRD:

- Shoreland Management Policy (2004)
- Green Lake OCP (2012)
  - Riparian DPA

CSRD:

- Area E OCP (2022) - OCP Vision, Goals, Objectives and Policies
- Lakes 100 m DPA
- Building inspection business process confirms sewerage filing

What we can (continue to) do together

Leverage our collective knowledge:

- CRD: local communities, context and planning tools
- IH: how planning & design links to health and Provincial regulations

Add capacity to planning & development:

- Consider how bylaws, policies and practices could be improved to support health
- Consider health implications for proposed developments
- Provide community and population health level data
- Support facilitating planning processes

Educate and raise awareness

- Be present at planning events (eg open houses and public presentations)
- Support developing educational resources
- Offer presentations/workshops to staff, elected officials & community champions

Questions?

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