

# Wastewater Disposal and Its Effect on Aquatic Habitats



## 18 AAC 72.005(a)(1-3)

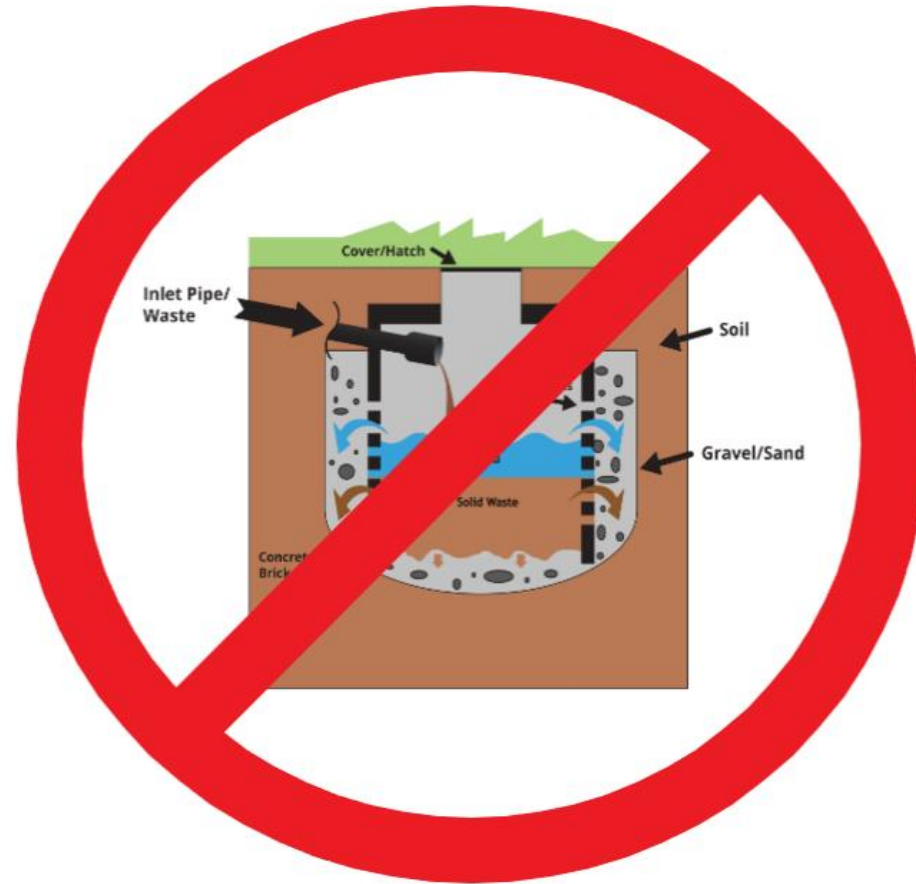
- (1) protect human health, through the prevention of the transmission of diseases and illnesses through exposure to wastewater;
- (2) protect the environment and water quality from degradation by discharge of wastewater; and
- (3) establish minimum treatment, construction, operation, and maintenance standards for wastewater treatment works and disposal systems.

# Minimum Treatment Requirements

- Depends on site and soil conditions
- Allows for solids to settle
- Biological treatment
- Typically discharged to soil for further treatment

# Types of Treatment

## Conventional Septic System

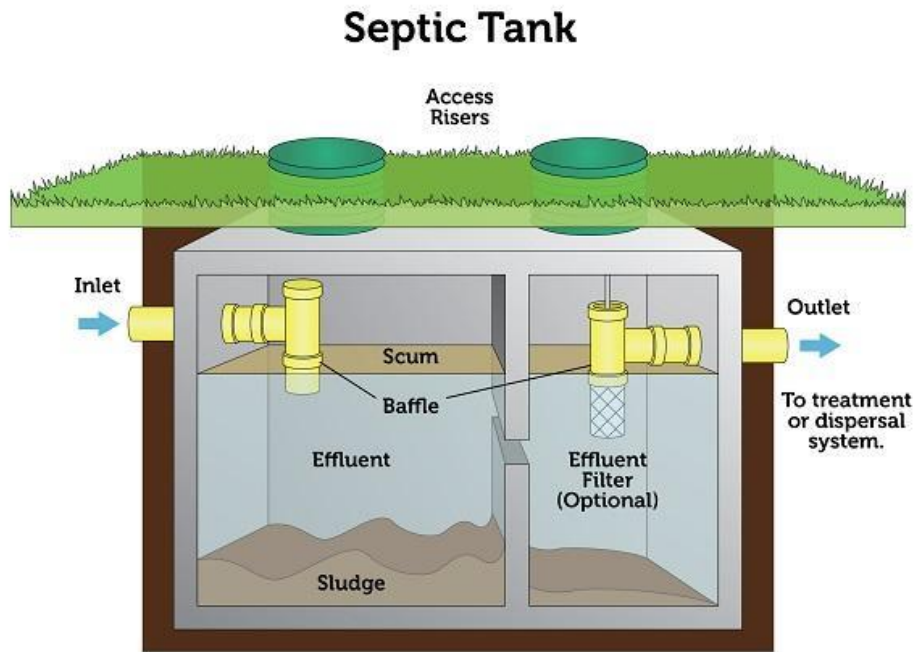


**CESSPOOLS DO NOT PROVIDE TREATMENT!**

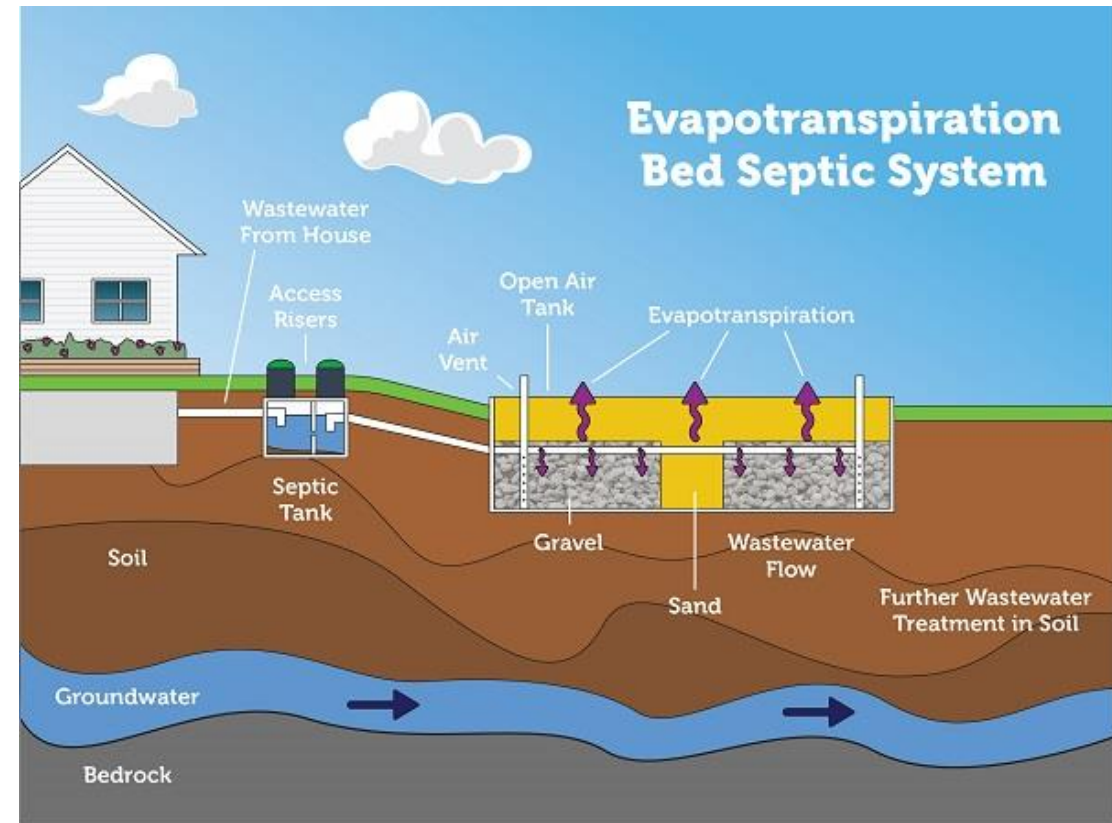
# Types of Treatment

## Conventional Septic System

- Septic tank
- Two compartments
- Discharged to soil for further treatment



Please note: The number of compartments in a septic tank vary by state and region.



Please note: Septic systems vary. Diagram is not to scale.

Photo Credit EPA

# Types of Treatment Engineered Systems

- Advanced Treatment Units (ATU)
- Can provide extremely clean effluent
- Capable of discharging to surface water (with a permit)

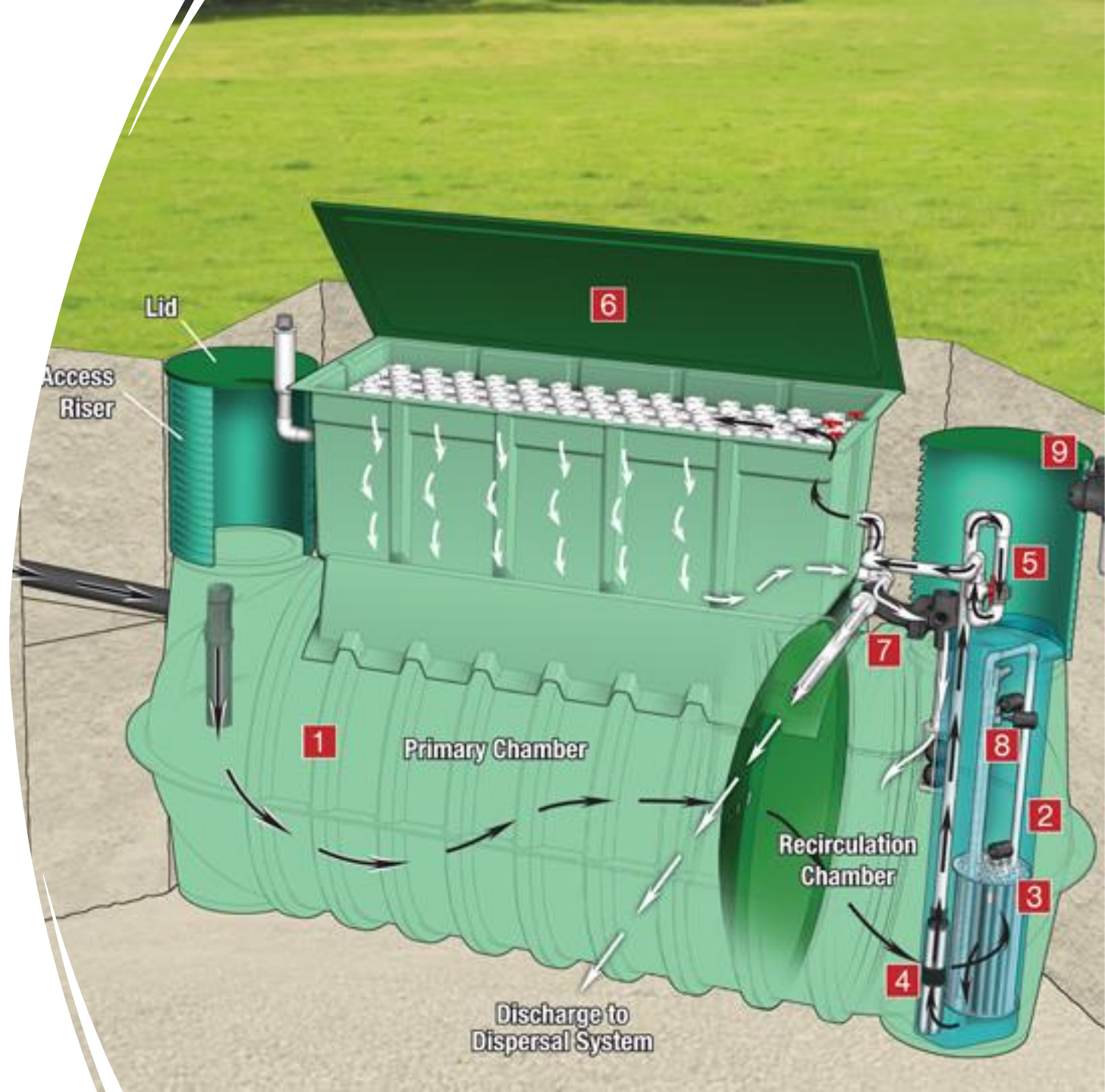


Photo Credit Orenco

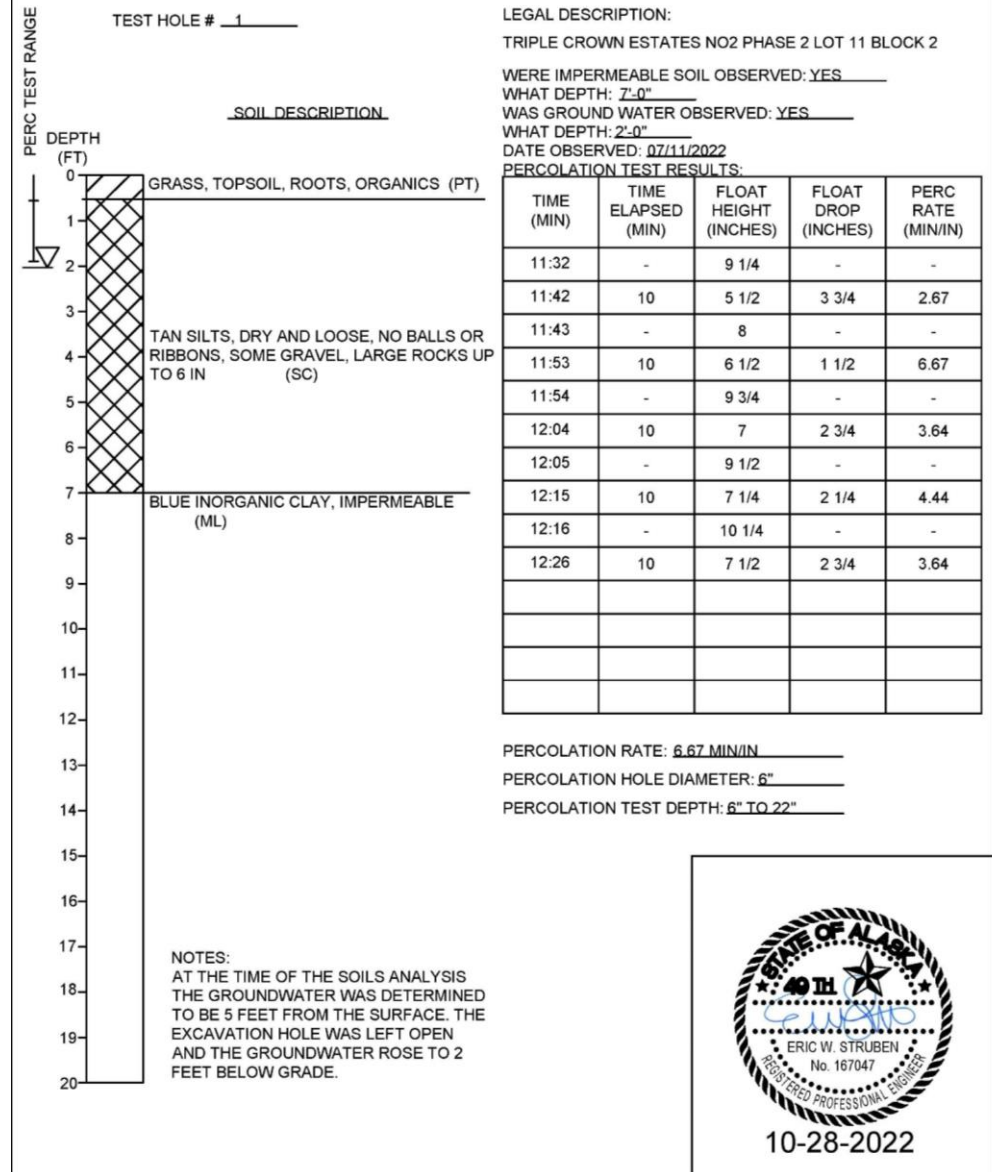


# Types of Treatment Engineered Systems

- Soil logs show soil types, layers and groundwater depth.
- Minimum vertical separation distances
  - 4 feet to groundwater
  - 6 feet to impermeable soil

Soil Log Credit Kalie Rubalcava

## SOIL LOG AND PERCOLATION TEST



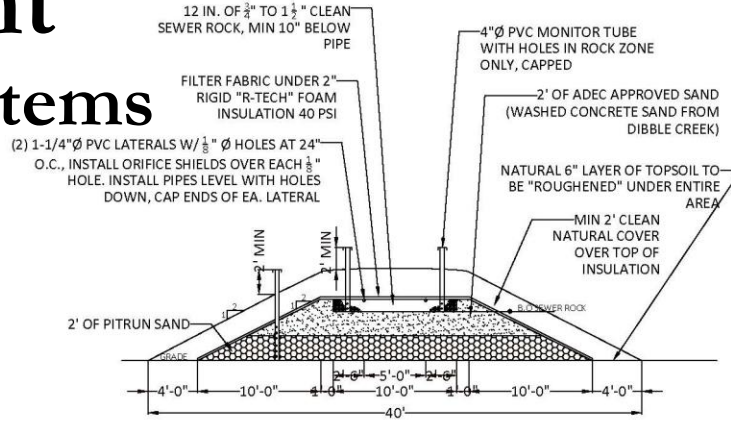
BAYSIDE ENGINEERING LLC  
4375 KACHEMAK DRIVE  
HOMER, AK 99603  
(907-299-2266)

MORAN PROJECT  
NA  
HOMER, AK 99603

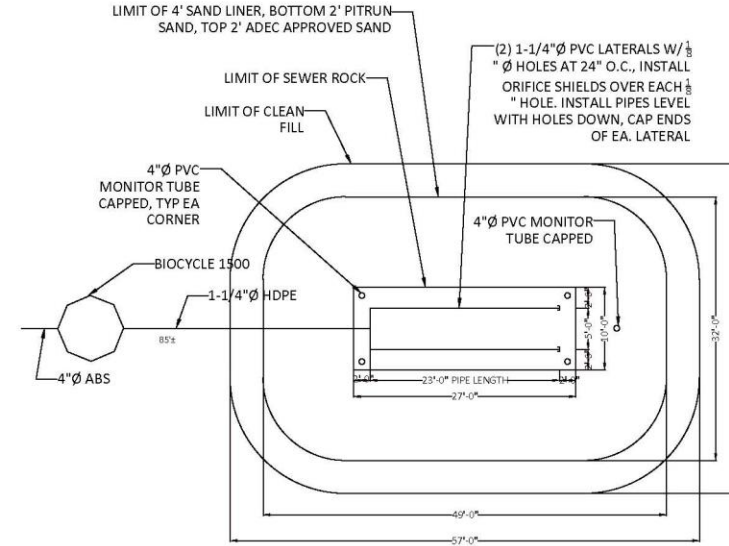
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# Types of Treatment Engineered Systems

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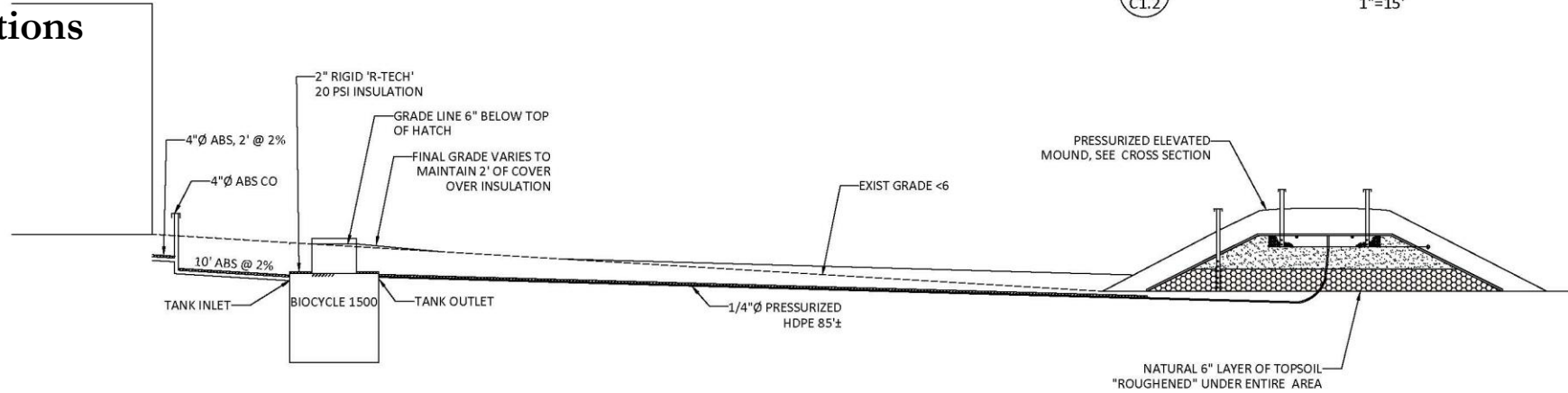


1 CROSS SECTION  
C1.2 1"=10'



2 PLAN VIEW  
C1.2 1"=15'

- Mounded soil absorption system
  - Uses engineered fill
  - Used to meet vertical separation distances or in poor soil conditions



3 ELEVATION  
C1.2 1"= 10'-0"

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STATE OF ALASKA  
 PROFESSIONAL ENGINEER  
 ERIC W. STRUBEN  
 No. 167047

10-28-2022

CLIENT: MORAN  
 JOB TITLE: DOMESTIC WASTEWATER TREATMENT SYSTEM  
 TRIPLE CROWN ESTATES NO 2  
 PHASE 2 LOT 11 BLOCK 2,  
 HOMER, AK

**PLAN PROFILE ELEVATION**

ENR/REV:	KR	CHECKED BY:	EWJ
JOB NO.:	050	DRAWN BY:	KR
DATE:	10-28-2022		
SHEET NUMBER			

**C1.2**



# Minimum Horizontal Separation Distances

- Directly related to protecting human health and the environment (18 AAC 72.005(a)(1-2))
- Distance to a private well is 100 feet
- Distance to a public well is 200 feet
- Distance to surface water is 100 feet
- Distance to a steep slope is 50 feet
- Minimum distances. Department may require may require larger distance to protect human health and the environment.
- Waiver process

# Effects of Untreated Wastewater on Aquatic Habitats

- Low dissolved oxygen (DO)
- 5 Day Biological Oxygen Demand (BOD<sub>5</sub>)





# Effects of Untreated Wastewater on Aquatic Habitats

- Ammonia  $\rightarrow$  Nitrite
- Nitrite  $\rightarrow$  Nitrate ( $\text{NO}_3^-$ )
- Algal Blooms
- $2\text{NO}_3^- + 10e^- + 12\text{H}^+ \rightarrow \text{N}_2 + 6\text{H}_2\text{O}$



# What We Can All Do

- Maintain your system!
- Know your system
- Document your system
- SWPP

*This Home*  
USES A SEPTIC SYSTEM

*Please only Flush*


**TOILET PAPER**

NO FEMININE PRODUCTS  
BABY WIPES • TISSUES

*Hair*  
**OR PAPER TOWELS**

➔ *Thank You!* ➔



Three glass jars with silver lids are lined up on a white surface. Each jar has a white label with black text. The first jar on the left is labeled 'Paper Towel' and contains a white paper towel. The middle jar is labeled 'Toilet Paper' and contains a piece of white toilet paper. The third jar on the right is labeled 'Flushable Wipe' and contains a white wipe. The jars are partially filled with their respective samples.

Paper Towel

Toilet Paper

Flushable Wipe



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