



December 18, 2023

**JEFFERSON COUNTY
BOARD OF COUNTY COMMISSIONERS**

AGENDA REQUEST

TO: Board of County Commissioners
Mark McCauley, County Administrator

FROM: Pinky Mingo, Environmental Public Health and
Water Quality Director

DATE: December 18, 2023

SUBJECT: Septage Capacity Analysis Study

STATEMENT OF ISSUE:

In September of 2022, the Board of County Commissioners provided \$30,000 to the City of Port Townsend through an Interlocal Agreement to conduct a septage capacity analysis. In September 2023, the City's consultant RH2 Engineering completed their analysis and we are requesting a workshop to present the findings and options.

ANALYSIS/STRATEGIC GOALS/PRO'S and CON'S:

The lack of a capacity for the treatment of septage is a growing concern in Jefferson County as the region grows and there are limited options for septage disposal. The City of Port Townsend's septage facility has 4,000 gallons a day capacity and the rest of the septage is taken to Kitsap and Mason Counties. Across the region, wastewater treatment plants (WWTP) are aging and reaching capacity. As WWTPs reach capacity, they often reduce or reject their acceptance of septage. This can create a public health crisis when facilities are unavailable or transportation costs become excessive.

It is within the County's best interest to increase septage capacity locally to avoid a public health crisis and to ensure a cost-effective disposal option for our residents.

Fiscal Impacts

No fiscal impacts at this time.

REVIEWED BY:


Mark McCauley, County Administrator

12/12/23
Date

December 18, 2023

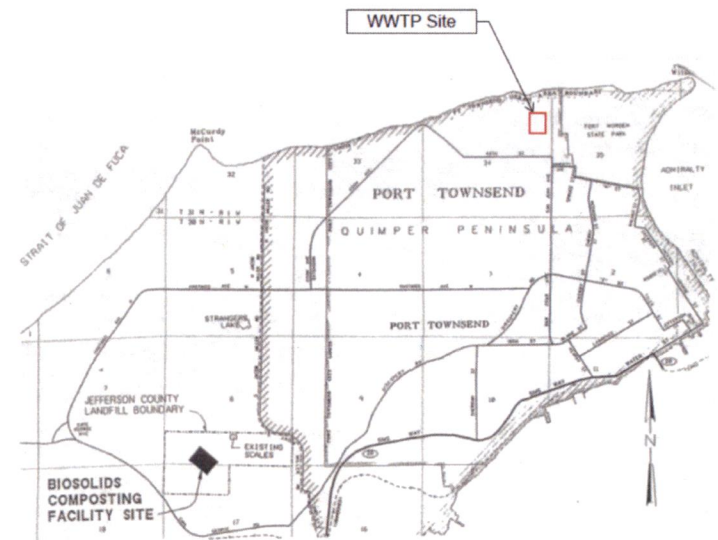
Septage Receiving Facility Expansion Alternatives Analysis

Dan Mahlum, PE, RH2
Steve King, PE, City of Port Townsend
Bliss Morris, City of Port Townsend
Pinky Mingo, Jefferson County



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 - Capturing County-wide septage generation
- Major Considerations
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 - Expansion alternatives



Flows: Existing Conditions

- The City operates the existing facility 5 days per week
- Receives an average of 40+ tankers a month
- Table shows average daily effluent flows by month over the 2016-2021 data period (excluding 2019 and 2020 due to excessive flows from QFC drain field failure)
- Annual Average Daily effluent flow and Maximum Month Average Daily effluent flow

Annual Average Day Flow (gpd)	2,040
Max. Month Average Day Flow (gpd)	3,208

Month	Average Daily Effluent (gal)
Jan	1,440
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Dec	1,158
Average	2,040
Peaking Factor (MMF/AAF)	1.57

Flows: Projections

- 2016 to 2021 data from Jefferson County (note 2018 and 2019 are outliers)
- 2021 Annual Average: 1,312,623 gallons = **3,700 gpd**
- 2021 Max Month Average: 1.57 (peaking factor) * AAF = **5,800 gpd**
- Assumed Jefferson County Annual Growth Rate = **0.63%**

Existing Data

	2016	2017	2018	2019	2020	2021
Annual Gallons Pumped	1,245,430	1,137,065	1,900,637	1,751,859	1,170,831	1,312,623
Average Monthly Gallons	103,786	94,755	158,386	145,988	97,569	109,385
Average Weekly Gallons	23,951	21,867	36,551	33,690	22,516	25,243
Average Daily Gallons (7-day week)	3,422	3,124	5,222	4,813	3,217	3,606
Average Daily Gallons (5-day week)	4,790	4,373	7,310	6,738	4,503	5,049

Projections

	Year-1	Year-20
Average Day Flow (gpd)	3,700	4,195
Max. Month Average Day Flow (gpd)	5,800	6,576
5-Day Week Max. Day Flow (gpd)	9,000	10,000
Number of 1,000-gal Tankers per day	9	10

Existing State Waste Discharge Permit

S4. FACILITY LOADING

A. Design Criteria

The flows or waste loads for the permitted facility must not exceed the following design criteria:

Maximum Month Design Flow (MMDF)	4,000 gpd
Daily Maximum Flow	6,200 gpd

Projections, Year 1

5,800 gpd

9,000 gpd

Existing State Waste Discharge Permit

Effluent Limits: SBR Effluent		
Latitude 48.10117 Longitude -122.83416		
Parameter	Average Monthly ^a	Average Weekly ^b
Biochemical Oxygen Demand (BOD ₅)	30 milligrams/liter (mg/L) 1 pound/day (lbs/day) 85% removal of influent BOD ₅	45 mg/L 1.5 lbs/day
Total Suspended Solids (TSS)	30 mg/L 1 lbs/day 85% removal of influent TSS	45 mg/L 1.5 lbs/day
Parameter	Minimum	Maximum ^d
pH ^e	6.0 Standard Units (SU)	9.0 SU
Effluent Limits: Wetland Influent		
Parameter	Monthly Geometric Mean	7- day Geometric Mean
Fecal Coliform ^c	200 col./100 mL	400 col./10 mL
Parameter	Average Monthly ^a	Average Weekly ^b
Total Residual Chlorine	0.5 mg/L	0.75 mg/L
Effluent Limit: Wetland Effluent		
Parameter	Average Monthly ^a	Average Weekly ^b
Nitrate	10 mg/L as N	-----

Existing Septage Receiving Facility



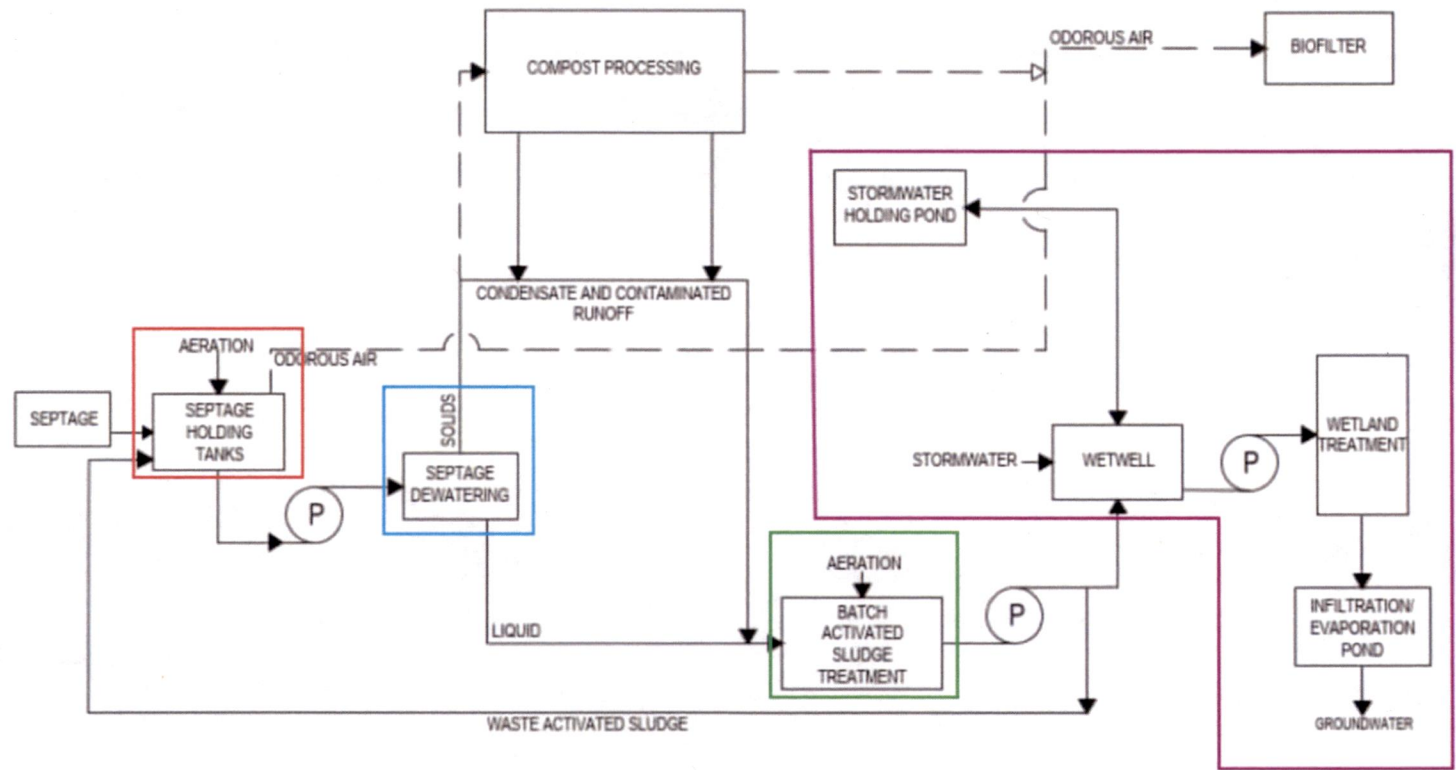
Existing Septage Receiving Facility – Capacities and Deficiencies

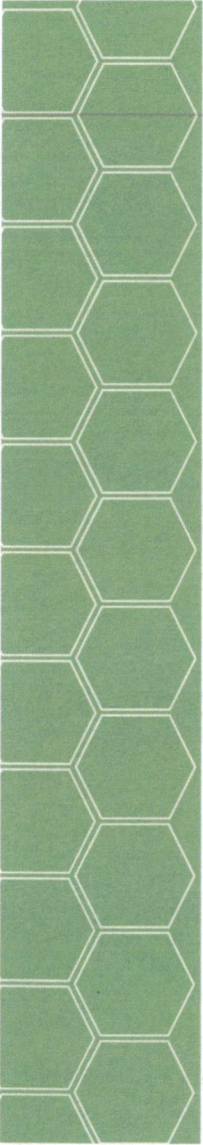
The septage holding tanks and aeration system are insufficient to meet projected flows and loads.

The septage dewatering system is assumed sufficient to meet projected flows and loads.

The SBR and aeration system are insufficient to meet projected flows and loads.

Effluent disposal system is not rated for projected flows. Ecology must be brought in to discuss steps needed to expand disposal system or an off-site disposal option is needed.





On-Site Treatment Alternative: New Infrastructure and Improvements

- Improvements
 - Add/enhance influent screening and grit removal
 - Increase capacity of the septage holding tanks
 - Construct an additional SBR tank and upgrade all process equipment
- Order of Magnitude Costs
 - On-Site Improvements: \$3,800,000+

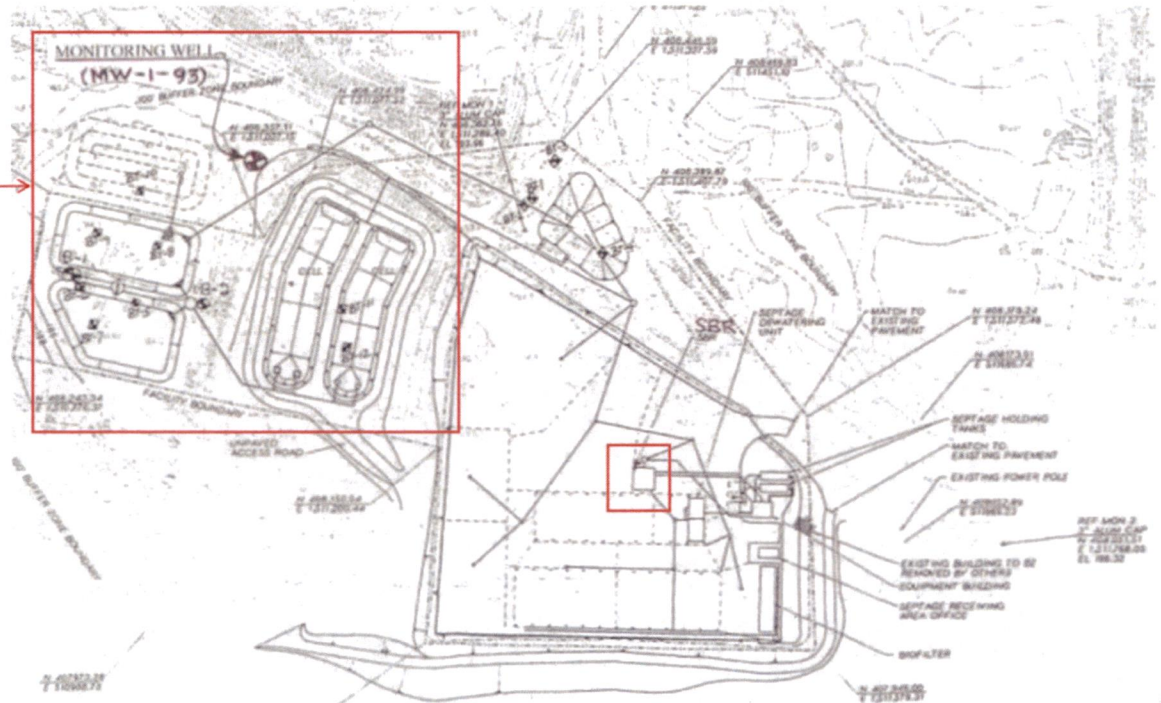
Disposal Considerations

(Ecology comments in Fact Sheet)

- “Ecology is not requiring additional monitoring wells on this site in recognition of the small flows and high quality of the effluent, but may require additional wells and monitoring in the future. No upgradient wells existing to determine background quality of the groundwater.”
- “The facility must operate within the approved design parameters and comply with all conditions in the permit.”

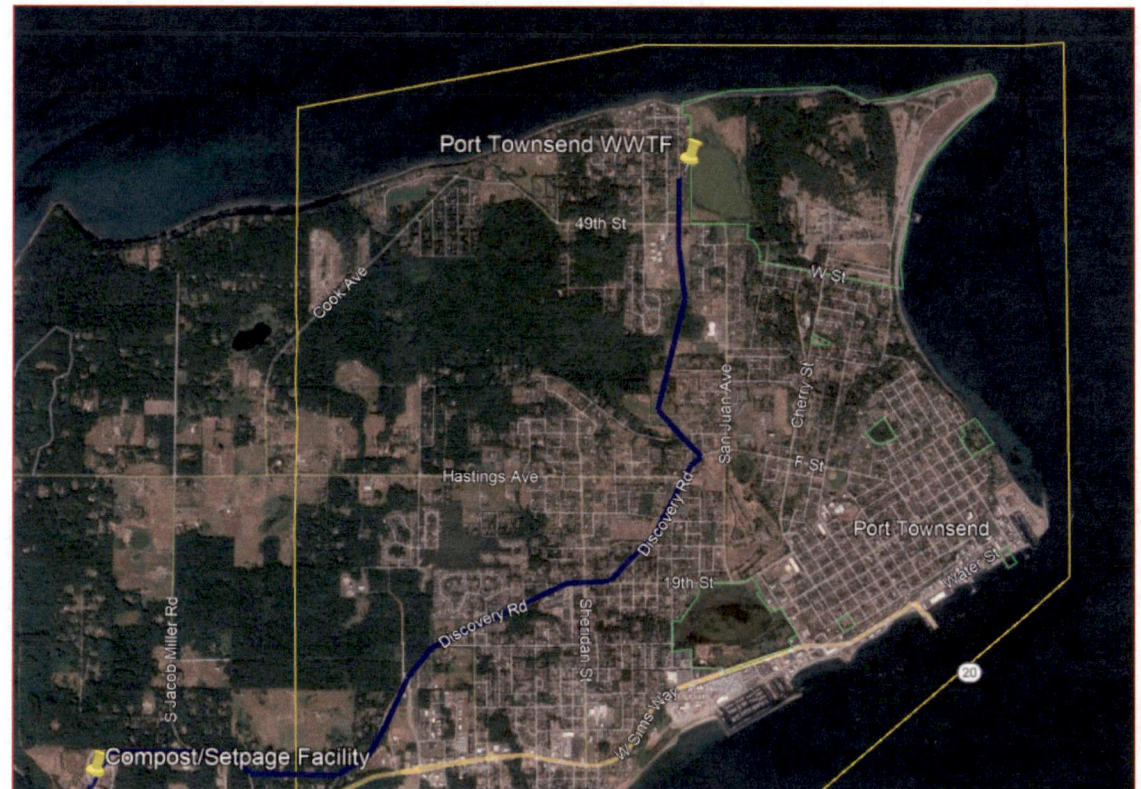
Observations from the Fact Sheet:

- The wetland ponds are used to reduce SBR nitrate concentrations from 6 mg/L to about 1 mg/L.
- Groundwater concentration in downgradient well is the point of compliance; current requirement is 10/mg/L.
- Infiltration area is mapped as advanced outwash sand – highly permeable and the Fact Sheet indicates substantial thickness of sand and gravel underlies the area.
- Conservative estimate of the infiltration capacity assumes only 0.5 inches per hour rate for 15,000 ft² pond area.
- Geo reports and original design documents not currently available for review.



Off-Site Treatment Alternative: Connection to WWTP

- City also owns and operates a municipal wastewater treatment plant
- Site is constrained, and truck traffic is not allowed for adding a septage receiving station
- Force main from existing septage facility would run approximately 4.8 miles.



Off-Site Treatment Alternative: Connection to WWTP

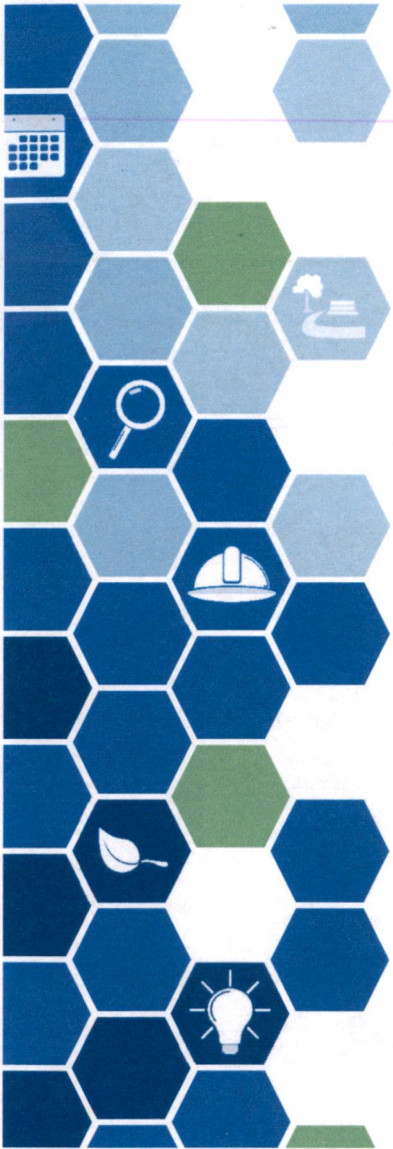
- Improvements
 - New lift station
 - New force main from Compost Facility to WWTP (~4.8 miles)
- Order of Magnitude Costs
 - Force main directly to WWTP: \$20,000,000+
 - Force main to collection system: \$6,000,000+
 - These do **not** include WWTP costs
- Challenges
 - Septage quality concerns
 - WWTP treatment impacts and Puget Sound General Permit restrictions
 - Shorter forcemain path to collection system would be less expensive but potentially damage City's existing collection system piping

Summary

- City of Port Townsend's septage receiving facility is near capacity and receives approximately 40% of the County-wide septage
- Achieving 100% capture of County-wide septage would require expansion of existing facility or sending to main municipal WWTP
- Recommendation is to expand existing facility
 - Lowest cost at approximately \$3.8M
 - Avoids issues with City's collection system and main WWTP
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Next Steps

- County would need to lead effort on funding that needs to be secured
- Rates would need to be analyzed and set
 - City 2024 rate charges: \$0.135 per gallon of septage
 - Mason County 2024 charges: \$0.153 per gallon of septage
 - Note – Neither location accepts mixed septage or grease
- Engineering Report and Ecology Coordination needed
 - Permit modifications and Ecology approval needed to proceed with design
 - Early discussions needed with Ecology on disposal considerations



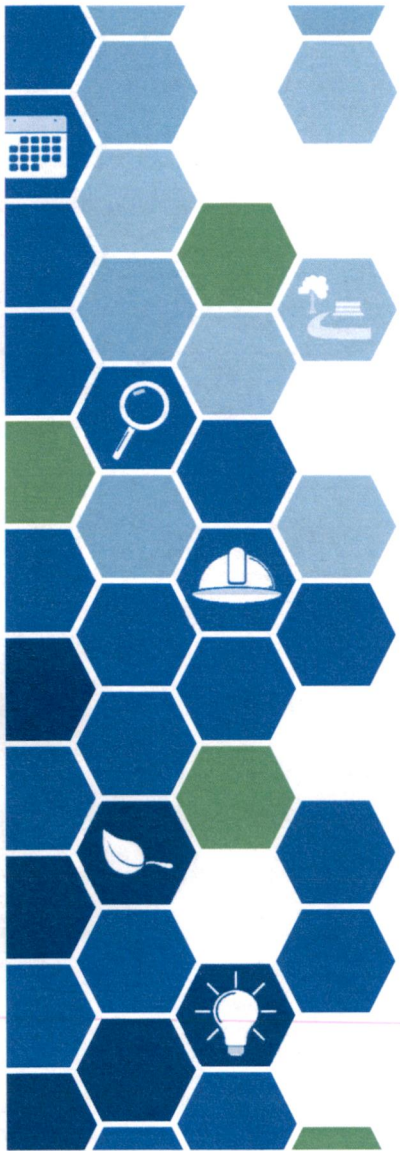
QUESTIONS?



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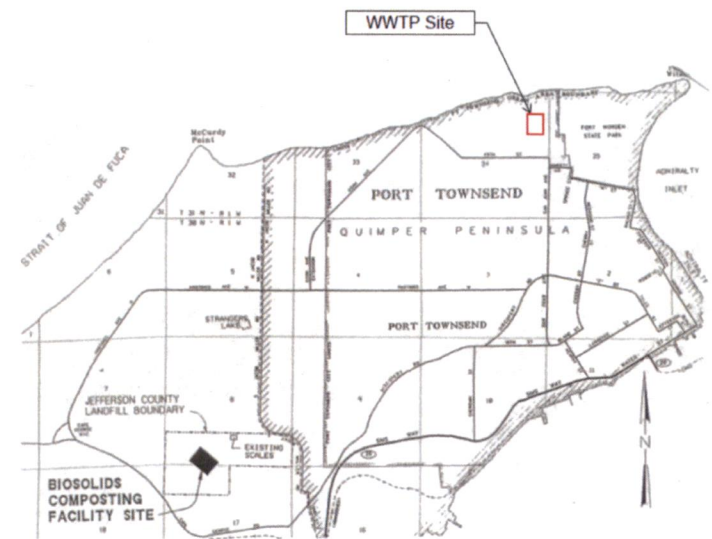
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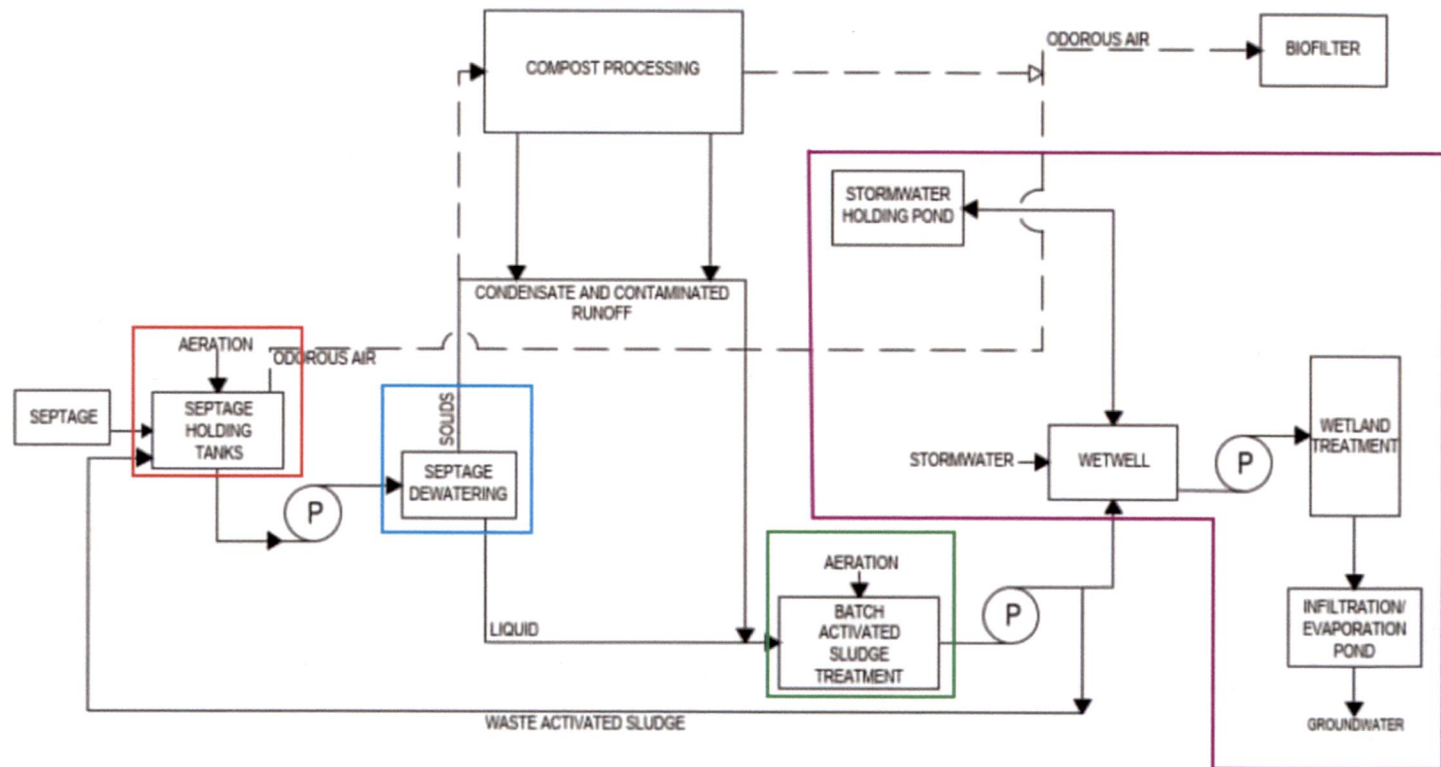
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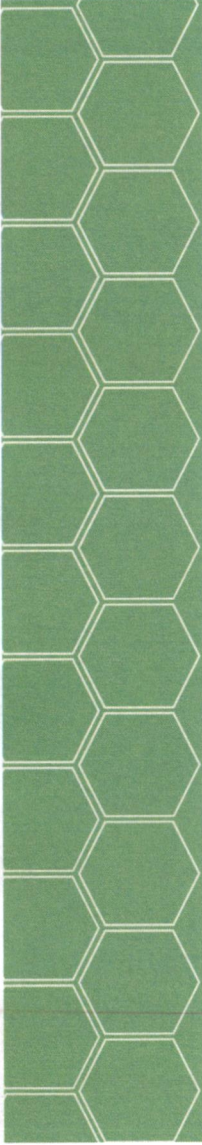
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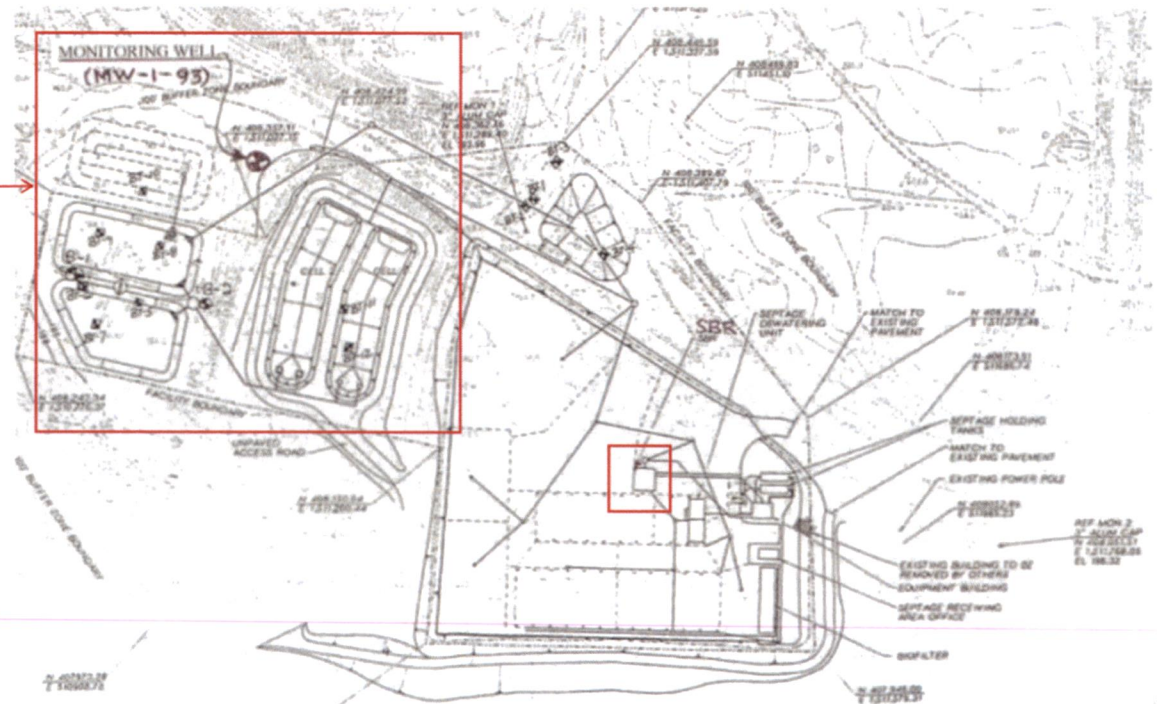
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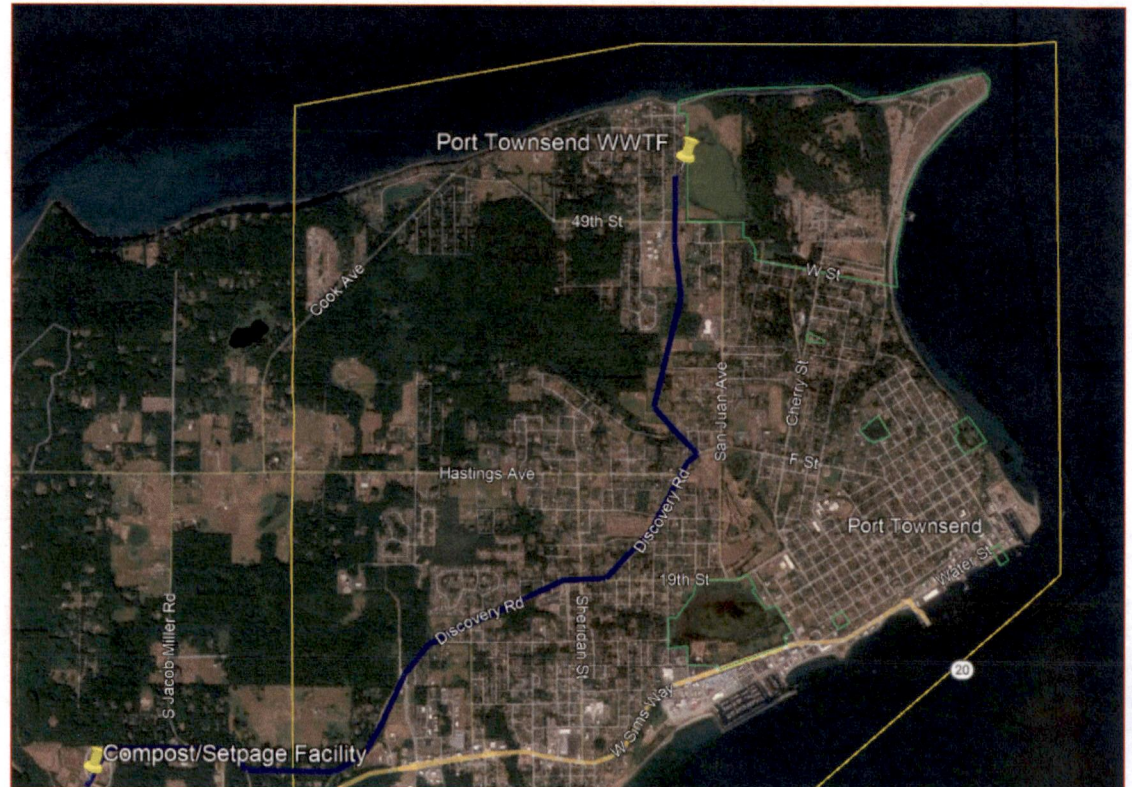
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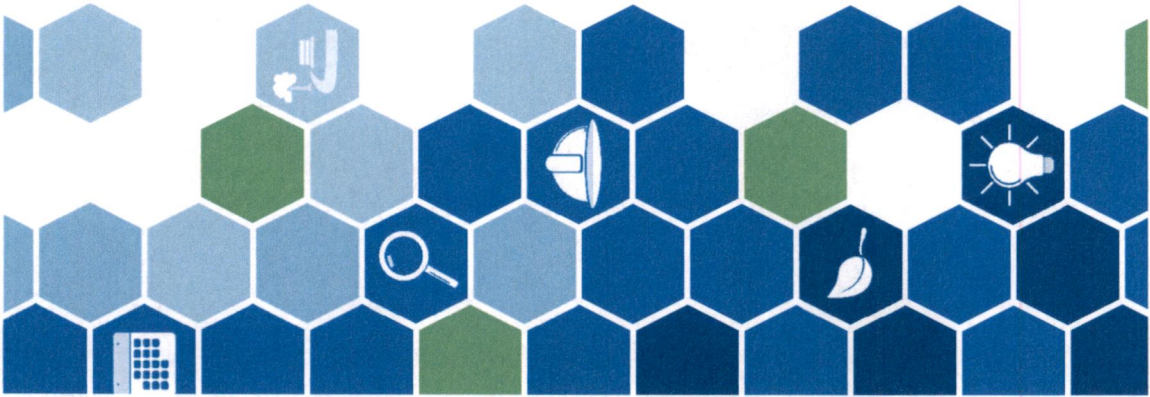
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QUESTIONS?



DATED this 8th day of November, 2023.

JEFFERSON COUNTY WASHINGTON

CLALLAM COUNTY EDC

Board of County Commissioners
Jefferson County, Washington

Colleen McAleer 11/8/2023
Coleen McAleer, Date
Executive Director

By: _____
Greg Brotherton, Chair Date

By: _____
Kate Dean, Commissioner Date

By: _____
Heidi Eisenhour, Commissioner Date

SEAL:

ATTEST:

Carolyn Gallaway, CMC Date
Clerk of the Board

Approved as to form only:

P. C. Hunsucker
November 9, 2023
Philip C. Hunsucker Date
Chief Civil Deputy Prosecuting Attorney



December 7, 2023

**JEFFERSON COUNTY
BOARD OF COUNTY COMMISSIONERS**

AGENDA REQUEST

TO: Board of County Commissioners
Mark McCauley, County Administrator

FROM: Pinky Feria Mingo, Director, Environmental Health and Water Quality
Tami Pokorny, Natural Resources Program Coordinator

DATE: December 18, 2023

SUBJECT: Workshop and Possible Approval of the Brinnon Reach Assessment & Conceptual Design Project Agreement and Authorizing Resolution, RCO #23-1062P; **Upon Signature; \$218,428.00**

STATEMENT OF ISSUE:

Public Health requests a workshop and possible Approval of the Brinnon Reach Assessment & Conceptual Design Project Agreement and Authorizing Resolution, RCO #23-1062P

ANALYSIS:

The Brinnon Reach Assessment & Conceptual Design is a planning-only project to assess current floodplain conditions involving the community of Brinnon and the lower one mile of the Dosewallips River and estuary. Reach geomorphology, hydrology (flood modeling), the Brinnon levee, existing habitat, and other floodplain functions and features will be assessed on foot with landowner permission, or utilizing remote imagery. A conceptual design will be developed and refined through a series of meetings of the Dosewallips River Collaborative to address diverse needs and concerns related to flood risk, land use, climate change, and habitat for listed salmon species.

In addition to the grant agreement, the RCO requires formal approval of a specifically worded resolution authorizing representatives to execute documents, confirming review of a sample grant agreement, stipulating that any assistance will be used only for appropriate costs on a reimbursement basis, and confirming additional understandings.

FISCAL IMPACT:

Costs for the project will be provided by the Recreation and Conservation Office with an in-kind match of at least 15% provided by the following: a contribution of aerial images from the Jamestown S’Klallam Tribe, a portion of a FEMA Cooperating Technical Partners Program grant from American Rivers, related Community Health Assessment activities from JCPH, and a portion of the value of the County’s recent Sea Level Rise Study from DCD.

RECOMMENDATION:

JCPH Management recommends that a workshop be held and the Brinnon Reach Assessment & Conceptual Design Project Agreement and Authorizing Resolution for RCO #23-1062P be approved.

REVIEWED BY:

Mark McCauley, County Administrator

Date

Jefferson County
Board of Commissioners

NOTICE OF ADJOURNMENT

Special Meeting – WSAC Virtual Assembly

Date: _____

Time: _____

Approved:

Greg Brotherton, Chair
Jefferson County Commissioners

Next Meeting:

Time: Regular Meetings, Monday's at 9 a.m. or Special Meeting if properly noticed pursuant to
RCW 42.30.080.

Place: Commissioners' Chambers