

## Treatment System

The WWTP uses two steps to physically remove contaminants from the wastewater. These include:

- **Screening & Grit Removal**

Two combined plants screen and remove large debris, such as food waste, paper towels and any other material larger than 0.0082 inches. A cylindrical chamber in each unit uses centrifugal force to remove sand, silt and other inorganic material.

- **Primary Clarification**

A large, cylindrical tank slows the flow of the wastewater, allowing smaller suspended material time to settle and to be pumped out. Floatable material, such as grease and foam, are skimmed from the top of the water column.

# SLUDGE

- **Sludge Digester**

Sludge from the clarifier is moved to a digester. Then a biological process reduces the amount of organic material.

- **Sludge Dewatering**

A belt-filter press removes water, leaving the processed biosolids with about 17 percent solids-content.

- **Solids Disposal**

Each year the WWTP removes over 60 tons of solid contaminants from the wastewater. In 2022, the volume weighed 61 tons. The dewatered sludge biosolids are transported to the local landfill for depositing.



## Treated Water Disposal

Once the water leaves the last stage of the treatment process, it flows to the outfall in Portage Cove. The area surrounding the outfall is referred to as the mixing zone. It is a circular area, 1,600 meters in radius that centers on the end of the outfall and extends from off the shoreline of the Small Boat Harbor. While the Alaska Department of Environmental Conservation recommends that citizens do not bath or consume shellfish with the mixing zone, the Borough's water quality tests show an extremely low impact on this area from the WWTP effluent.

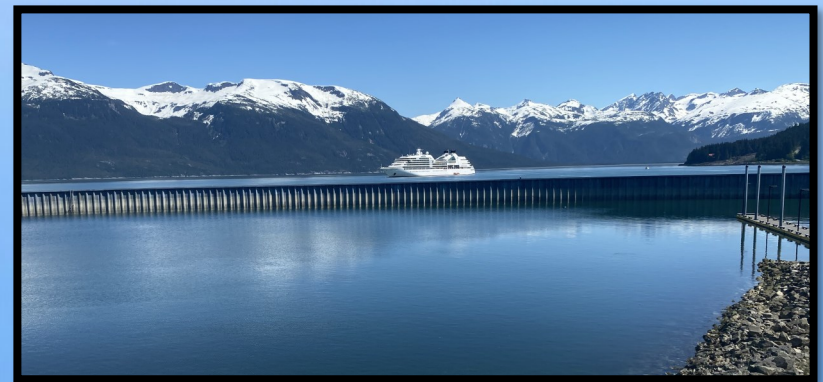
## Infiltration & Inflow

The Townsite's Sanitary Sewer System contains pipes installed multiple decades ago. Older pipes, especially those made with asbestos cement, have a tendency to crack and leak. During heavy precipitation events, water infiltrating the ground leaks into the cracks in the sewer lines as well as through manholes lacking sealed covers and vaults. This inflow creates a huge surge for the WWTP to handle. Household roof drain, sump pumps, foundation and driveway drains should be hooked up to the Storm Water Sewer—not the Sanitary Sewer. If you believe your home has any of these unauthorized connections, contact the Department of Public Works.



## Wastewater Utility

In 2001, the City of Haines was granted a National Pollution Discharge Elimination (NPDES) Permit, AK-002138-5, by the US Environmental Protection Agency. The permit authorizes the Borough's Wastewater Utility to operate and maintain a 1.9 million gallon per day primary treatment facility and seven lift stations that comprise the community's collection system. The Wastewater Treatment Plant (WWTP) processes about 200 million gallon of wastewater per year while meeting the discharge limitations and preserving quality of Lynn Canal waters. The facility is staffed by three-full time operators, who also run the Water Utility in the Department of Public Works. In addition to the operation and maintenance of the Sanitary Sewer System, these operators perform required laboratory analyses to ensure compliance with state and federal regulations.



## Collection System

The Borough's Townsite wastewater collection system transports sewage from 554 customer connections to the WWTP. The collection system consists of 19 miles of underground piping, 267 manholes and 7 lift stations.



# Haines Borough

PO Box 1209, Haines, Alaska 99827  
907-766-2231



Parameter	Effluent Permit Limits Monthly Average	Haines Townsite Effluent Monthly Average
TSS	140 mg per L or ppm	40.0 ppm
TSS	30% minimum removal	55.0 % removal
BOD	140 ppm winter 260 in summer	52 ppm Oct-April 177 ppm May Sept
BOD	30% minimum removal	41.0% removal
FC	1,000,000 FC per 100 ml	189,542 FC per 100 ml
DO	2 to 17 ppm	6.1 ppm
pH	6.5 to 8.5	7.1
Flow	1.9 MGD	0.289 MGD

## Water Quality

Wastewater Operators are responsible for performing approximately 300 laboratory tests each year to ensure compliance with the Borough's NPDES permit. These tests include:

- **Biochemical Oxygen Demand (BOD):** A water quality measurement that indicates what demand a stream of wastewater will incur on the dissolved oxygen content in the receiving waters.
- **Total Suspended Solids (TSS):** A measure of the concentration of suspended matter present in wastewater.
- **Fecal Coliform:** An indicator bacteria indicative of warm-blooded animals and humans. The measurement shows the strength of the wastewater.
- **Dissolved Oxygen (DO)** A measure of the amount of oxygen dissolved in the wastewater. Dissolved oxygen is essential in sustaining aquatic life.
- **pH:** The measurement of the acidity or basicity of the wastewater.

## 2022 HAINES SEWER SYSTEM FACTS

- ◆ Annual Effluent Volume: **109.2 Million Gallons**
- ◆ Average Daily Wastewater Treatment Volume: **0.288 Million Gallons**
- ◆ Number of Connections: **554 Customers**
- ◆ Gallons per Capita per Day: **185 Gallons per Person**
- ◆ Cost to Treat 1,000 Gallons of Wastewater: **\$4.86**
- ◆ Gravity Sewer Main: **17.5 Miles**
- ◆ Force Sewer Main: **1.4 Miles**
- ◆ Number of Lift Stations: **7**
- ◆ Number of Manholes: **267**

## Household Hazardous Waste

Borough staff are doing their part to treat the wastewater generated in your homes. Haines citizens can help by paying attention to what they put down the drain.

- Grease and oil can build up in sewer lines and cause blockages.
- Rags, disposable wipes and paper towels can get caught in pumps causing interruptions in service and potential pump damage.
- Household hazardous waste can create serious problems when introduced into the sewer. Corrosive, toxic and flammable substances are harmful to the collection and treatment systems, Borough personnel and Portage Cove. If hazardous wastes are detected during routine sampling, additional testing is immediately required placing a tremendous financial burden while tracking down this pollution source. Fines can be levied on the Borough and the responsible individuals for violation of discharge requirements. Customers are urged to dispose of hazardous waste in a proper manner.

*We thank you for your help in keeping our wastewater free of these pollutants and protecting the environment.*

*Please take part in the collection event to ensure proper disposal of hazardous waste.*

## HOW TO PROPERLY DISPOSE OF HAZARDOUS WASTE

The Borough sponsored a Household Hazardous Waste collection event on July 19–20, 2022. With your assistance, the Borough collected 995 gallons as well as 4 cubic yards of waste. The next collection even will be held summer 2023.

### Eligible Items

Items that can be brought to the event free of charge include: poisons, disinfectants, solvents, herbicides, used oil, flammable liquids (gasoline, diesel fuel, Blazo, etc.), paint products, paint thinner, furniture stripper, antifreeze, acids, cleaners, pesticides, transmission fluid, wood preservatives, floor wax, printing and photographic chemicals, Ni-Cad and lithium batteries, auto batteries, and mercury.

**Items not in the original container will NOT be accepted under any circumstances.**

### Ineligible Items

Explosives, blasting caps and gun powder, reactive such as sodium metal, infectious wastes, radioactive wastes, light bulbs of any kind, household batteries (AAA, AA, C, D, 9-volt, etc.) and any item not mentioned in the [Eligible Item](#) list.

**FREE HOUSEHOLD HAZARDOUS WASTE COLLECTION**

