

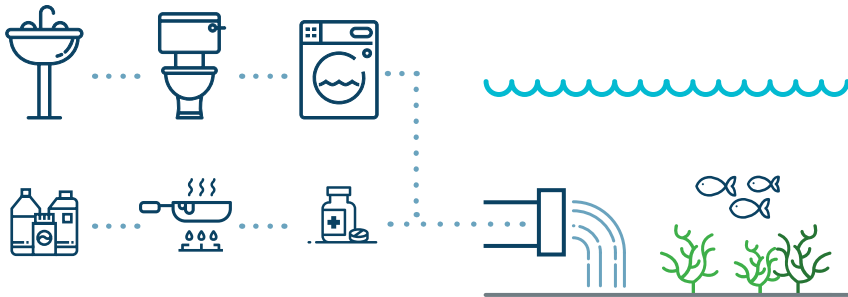


Wastewater Treatment Project

Treated for a cleaner future

What is wastewater?

- Wastewater is used water from human activities such as washing dishes, doing laundry, and flushing the toilet.
- Some pollutants in wastewater include industrial and commercial waste, detergents, cooking fats, and prescription drugs.



Why we treat wastewater

- To reduce contaminants prior to releasing the effluent into the environment, helping to protect and maintain healthy waterways.
- If pollutants in wastewater are not removed, they flow directly into the ocean. This can threaten fisheries, wildlife habitat, recreation, quality of life, and public health.

About the system

- Wastewater flows from residences and businesses into a sewer pipe that connects to larger pipes under our streets, which ultimately connect to either the Clover Point Pump Station or the Macaulay Point Pump Station.
- At present, wastewater is screened at these pump stations and then discharged into the Strait of Juan de Fuca without treatment.
- The Wastewater Treatment Project will connect these two pump stations to the McLoughlin Point Wastewater Treatment Plant so that wastewater can be treated to a tertiary level prior to discharge.

Did you know?

In the Core Area:

- There are **seven municipalities** (Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford, and Colwood) and the Esquimalt and Songhees Nations.
- The population is approximately **320,000 people** covering **215km²**.
- There are over **175 pump stations** and **110km** of existing sanitary sewer pipes.
- The McLoughlin Point Wastewater Treatment Plant will treat up to **108,000,000 litres** of wastewater per day, providing capacity to accommodate future population growth.
- Every person produces an average of **185-200 litres** of wastewater per day.
- Wastewater flows are greater on rainy days.

Treatment Process

1 CONVEYANCE SYSTEM

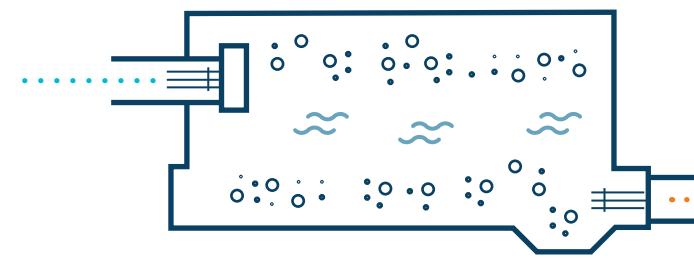
Collects wastewater from across the core area and conveys it to the Clover Point and Macaulay Point pump stations.

Screening

Wastewater is screened (6mm) to remove stones, paper, cloth, plastics and other debris.

Grit Removal

A vortex system uses centrifugal force to keep the organic material suspended while grit settles and is removed.



Pumping

Wastewater will be pumped to the new treatment plant.

The grit and screenings are compacted and trucked to an approved landfill.

Storm Outfalls

Currently, untreated wastewater is discharged out of the Clover Point and Macaulay Point outfalls. Once the Project is built, these outfalls will only be used to discharge storm flows associated with heavy-rain events. To reduce the need to discharge storm flows, a buried underground concrete tank (the Arbutus Attenuation Tank) will be built in Saanich to temporarily store flows during high volume storm events. In addition, core area municipalities have committed to an inflow and infiltration program that will reduce the volume of storm flows that need to be discharged.



2 M'CLOUGHLIN POINT WASTEWATER TREATMENT PLANT

PRIMARY TREATMENT

Is the physical separation of solids from wastewater.

Removing Solids

Heavier solids settle to the bottom and lighter 'scum' floats to the top.

SECONDARY TREATMENT

Is a biological process that removes dissolved and suspended organic compounds in the wastewater.

Fine Screening

Primary effluent will be finely screened (2mm) to remove smaller debris.

Biological Reactors

Wastewater flows through tanks where microorganisms grow. The microorganisms consume organic compounds in the wastewater and reproduce to form cells that result in residual biological solids. Solids are removed and sent to the Residuals Treatment Facility for further treatment. Treated secondary effluent is sent to tertiary treatment.

TERTIARY TREATMENT

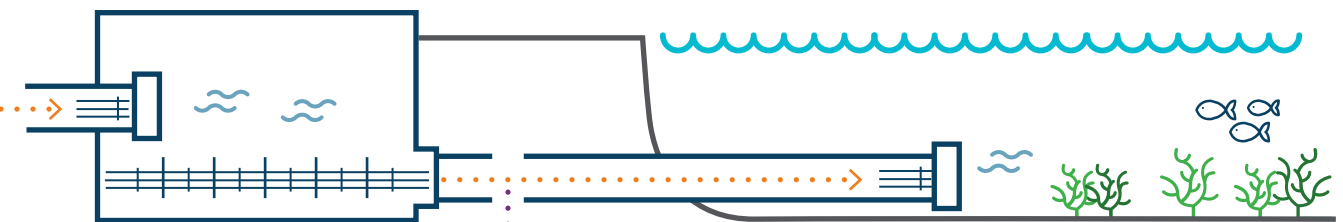
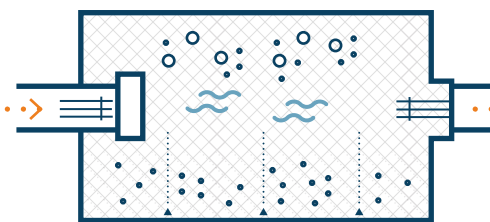
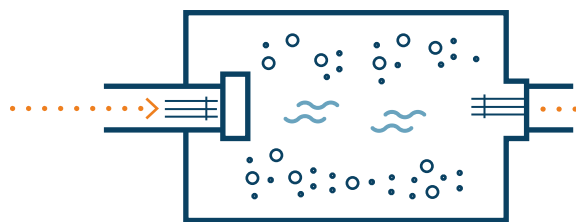
Is one of the highest levels of treatment, reducing contaminants that remain after the secondary treatment process.

Disc Filter

Wastewater will pass through a fabric disc filter (5-micron), reducing many pharmaceuticals, hormones, microplastics and other contaminants.

OUTFALL

The tertiary-treated effluent will flow through the outfall and discharge into the ocean approximately 2km from shore and 60m deep.



As wastewater moves through the treatment process, residual solids are removed. These solids will be pumped to the Residuals Treatment Facility for further treatment.

3 RESIDUALS TREATMENT FACILITY

Digestion

The residual solids undergo anaerobic digestion in which microorganisms will break down biodegradable material in the absence of oxygen and produce biogas.

Biogas

Biogas produced during the digestion process will be collected and reused within the facility as fuel for the dryer.

Drying

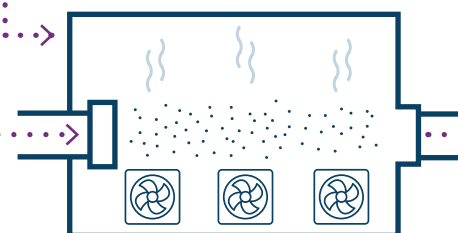
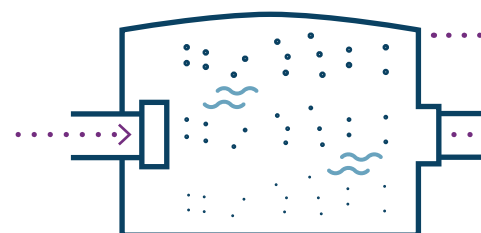
The residual solids are dewatered and then heated at a very high temperature (220°C).

Biosolids

Dried Class A biosolids will be produced that will contain almost no detectable levels of pathogens. These are the highest standard of biosolids and are suitable for beneficial use. The biosolids will be dark, dry granular pellets.

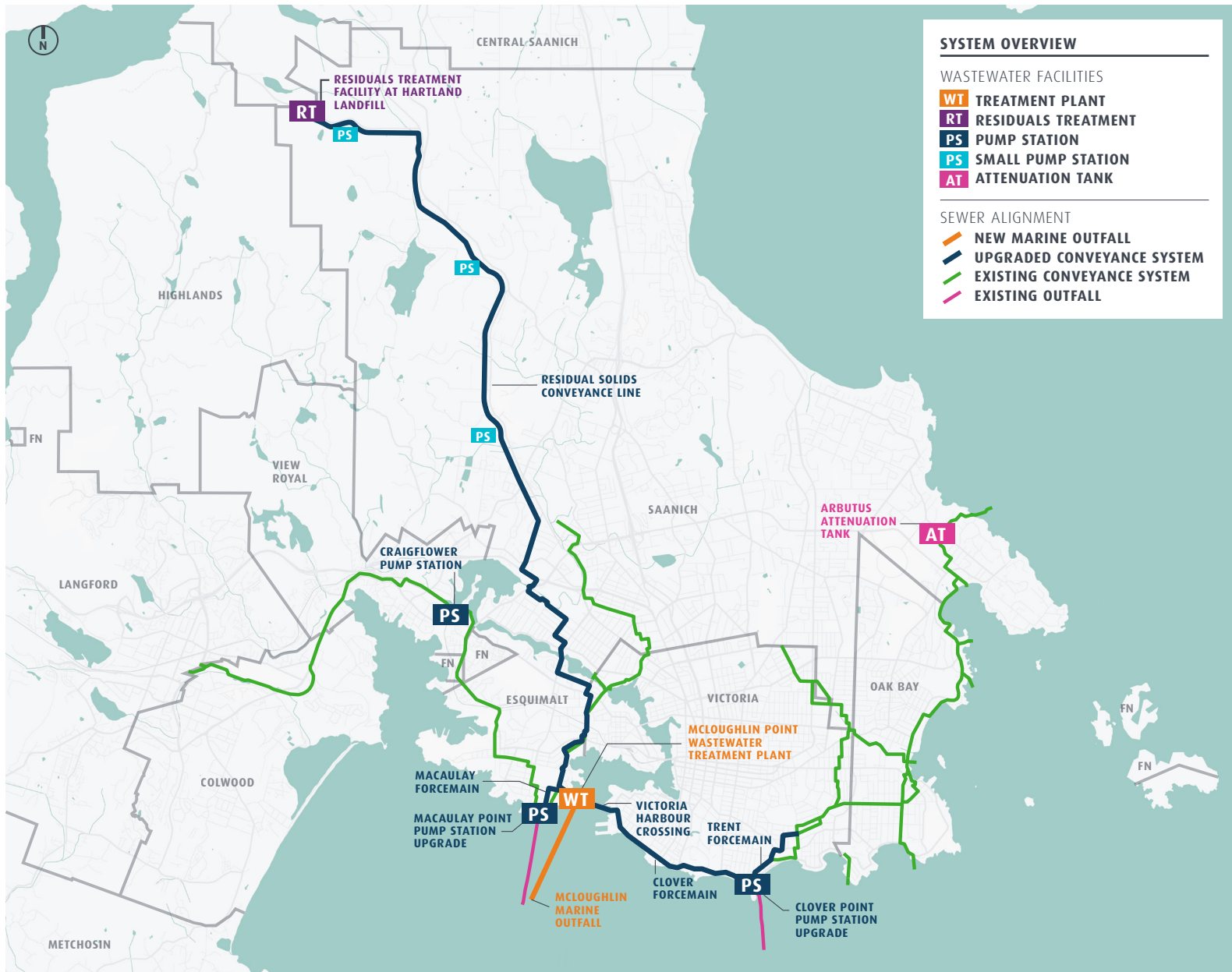
Residual Solids Conveyance Line

Will consist of two pipes and three small pump stations to transport all residual solids to the Residuals Treatment Facility. Liquid removed from the residual solids during the treatment process will be returned to the McLoughlin Point Wastewater Treatment Plant through the conveyance system.



Wastewater Treatment Project Components

The Wastewater Treatment Project is being built to meet the provincial and federal regulations for treatment by December 31, 2020.



For more information



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