

What are Biosolids?



Making a difference...together

Biosolids are a by-product of wastewater treatment and can be used for a number of beneficial purposes.

After wastewater is treated at the McLoughlin Point Wastewater Treatment Plant, the residual solids are conveyed through a 19km pipe to the Residuals Treatment Facility at Hartland Landfill.

The solids then undergo a treatment process where they are digested, heated and dried, resulting in "Class A" biosolids, the highest standard of biosolids, containing almost no detectable levels of pathogens.

Biosolids produced in our region will resemble dark, dry granular pellets. The final characteristics will depend on both the attributes of the sewage entering the treatment plant and the treatment process itself.

It is expected that approximately 7,000 tonnes of "Class A" biosolids will be produced each year, starting in 2021.



Beneficial use of Biosolids



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“Beneficial use” means that the biosolids produced from wastewater treatment will be used for environmental or community benefit. When treated, biosolids can be used for a number of beneficial purposes, while ensuring health and environmental protection.



The Ministry of Environment & Climate Change Strategy establishes and enforces standards for wastewater treatment, and the beneficial use of biosolids.



Although some communities use biosolids for landscaping and agricultural purposes, in 2013 the CRD Board banned the land application of biosolids as a precautionary measure due to the potential impacts of pharmaceuticals and other evolving compounds of concern being applied to land.



Using these biosolids beneficially as an alternative fuel source aligns with the CRD’s commitment to climate action and environmental stewardship.

Biosolids Quality



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“Source Control” is a pollution prevention initiative aimed at reducing the amount of contaminants that industry, businesses, institutions and households discharge into the sanitary sewer systems. Source Control is a cost-effective way of protecting wastewater collection and treatment systems and the environment.



Controlling what goes into the sanitary sewer system reduces the type and concentration of contaminants entering the wastewater treatment plant. By limiting contaminants and pathogens entering the system, the greater the number of beneficial management options exist at the end of the sewage treatment process.



The CRD established a Regional Source Control Program in 1994 to augment the Sewer Use Bylaw. Several industry-specific Codes of Practice have been developed by the CRD, with the objective of improving the quality of industrial wastewater discharges into the municipal wastewater collection system.

The Dental Code of Practice requires the installation of amalgam separators in dental offices. Dental amalgam, used in mercury fillings, is a major source of mercury in wastewater and can account for up to 90% of mercury levels in wastewater.

Since implementation of the Dental Code of Practice in 2001, the CRD has observed a continual decline in mercury concentrations within biosolids produced by the Saanich Peninsula Wastewater Treatment Plant*

**(Morrison Hershfield, 2010)*

Biosolids as an Alternate Fuel in Cement Plants



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The CRD is proposing that the biosolids produced from treated wastewater be transported to the Lower Mainland where they can be used as an alternate fuel source in cement manufacturing plants.

Using biosolids as an alternate fuel in cement kilns will reduce their reliance on other non-renewable fuels currently being used.

Once the Province approves this plan, the CRD would enter into a beneficial use agreement for up to five years.

Biosolids are used as an alternative fuel source in several communities across North America, including Montreal and several US locations. This is the first time in BC that biosolids will be used in the production of cement.



Where to Next: Planning Long-Term Strategy for Beneficial use of Biosolids



Once wastewater treatment is underway by the end of 2020, planning will begin to determine the long-term beneficial use strategy for utilizing biosolids, including the potential for innovative and/or closer-to-home options as part of a diversified management program.

Public and First Nations consultation will be an important component of developing a long-term strategy.

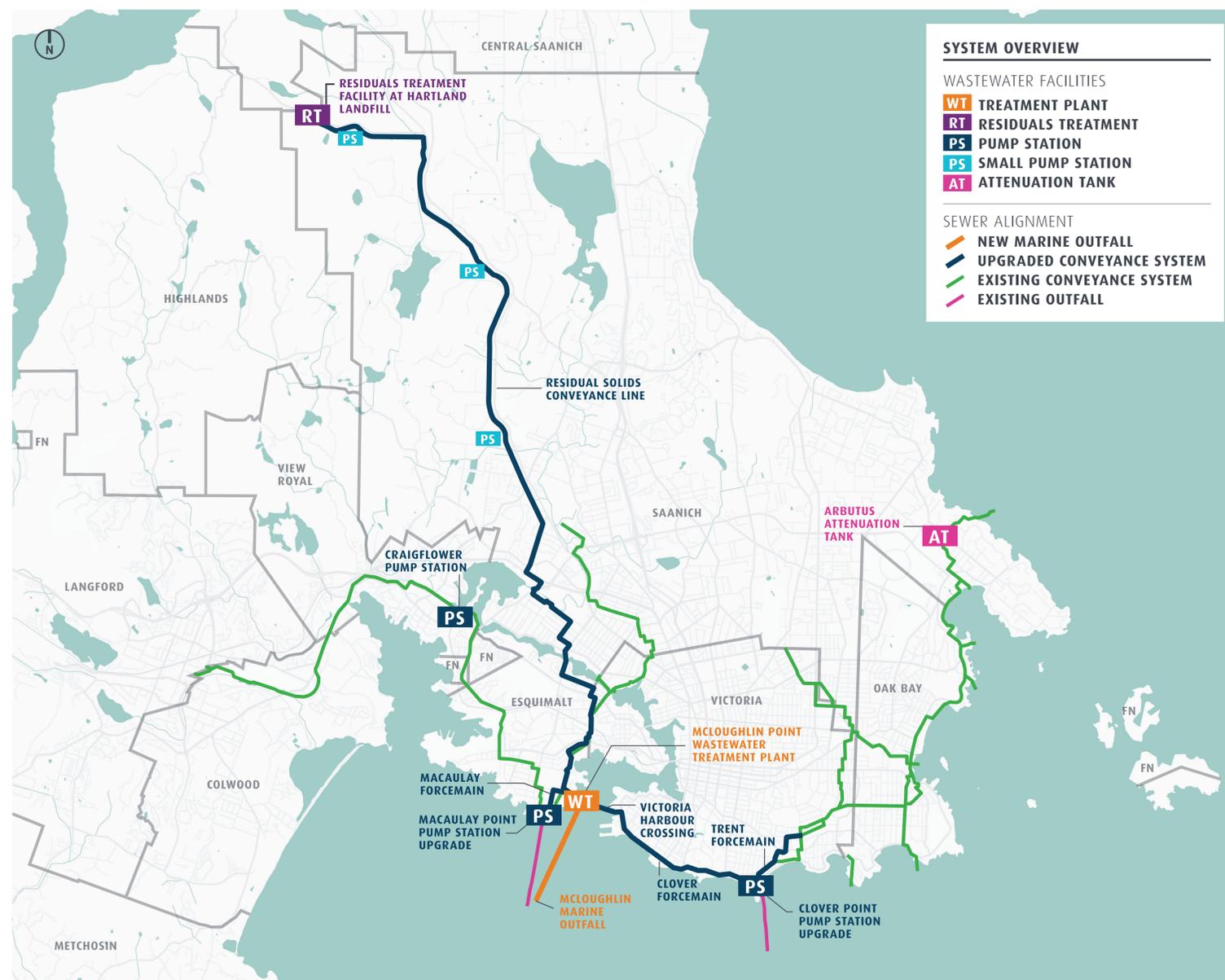


Wastewater Treatment Project



Wastewater Treatment Project
Treated for a cleaner future

The Wastewater Treatment Project will provide tertiary treatment for wastewater from the core area municipalities of Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford and Colwood, and the Esquimalt and Songhees Nations. The Project is being built so we comply with federal regulations by the end of 2020.



THE PROJECT CONSISTS OF THREE MAIN COMPONENTS:

McLOUGHLIN POINT WASTEWATER TREATMENT PLANT

Located at McLaughlin Point, the wastewater treatment plant will provide tertiary treatment to the core area's wastewater.

RESIDUALS TREATMENT FACILITY

Residual solids from the wastewater treatment plant will be piped to Hartland Landfill, where they will be turned into what are known as Class A biosolids. These biosolids are a high quality by-product treated such that it is safe for further use.

CONVEYANCE SYSTEM

The conveyance system refers to the “pumps and pipes” of the Wastewater Treatment Project. This system will carry wastewater from across the core area to the treatment plant, and carry residual solids from the wastewater treatment plant to the Residuals Treatment Facility.

McLoughlin Point Wastewater Treatment Plant



Wastewater Treatment Project
Treated for a cleaner future

Artist rendering



Located at McLoughlin Point in Esquimalt, the McLoughlin Point Wastewater Treatment Plant will provide tertiary treatment to the core area's wastewater.

- The plant will treat up to 108 megalitres of wastewater per day, providing capacity to accommodate future population growth.
- Wastewater will go through primary, secondary and tertiary treatment and then be discharged into the ocean through a new outfall approximately 2km from shore and 60m deep.

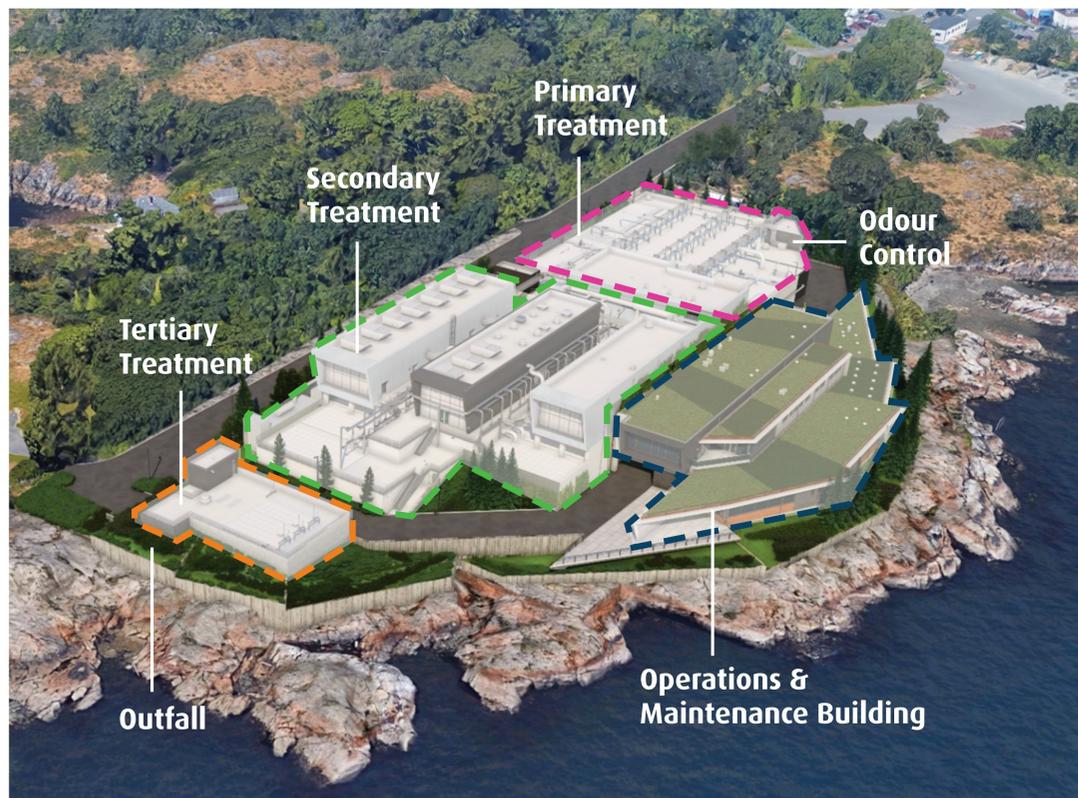
ODOUR

The plant has been designed so there will be no detectable odour by residents. It will include the following:

- State-of-the-art odour control;
- 24-hour odour control monitoring system;
- Detailed procedures for responding to odour issues, in the unlikely event that one occurs; and,
- A CRD phone line to report any odour issues 24 hours a day.

NOISE

In accordance with the Township of Esquimalt's Zoning Bylaw, operational noise from the McLoughlin Point Wastewater Treatment Plant will not exceed 60 decibels (dBA) outside of the plant's property line.



Wastewater Treatment Process



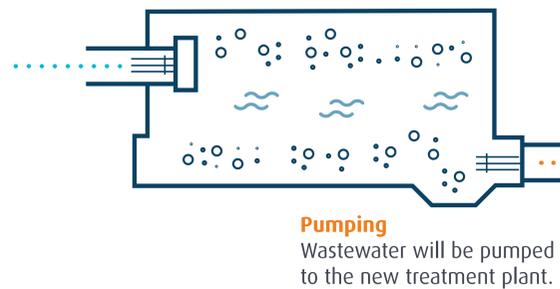
Wastewater Treatment Project
Treated for a cleaner future

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.



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.

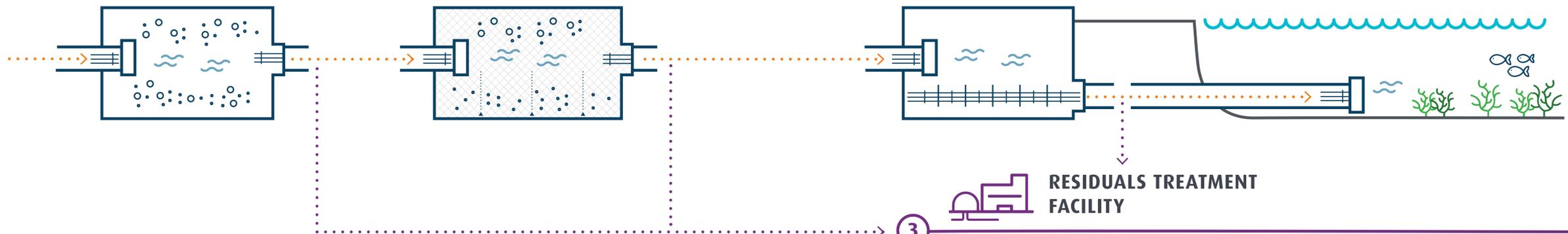
Fine Screening
Primary effluent will be finely screened (2mm) to remove smaller debris.

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 to the outfall to be discharged 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.

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.

Residuals Treatment Facility
The Residuals Treatment Facility will be built at the Hartland Landfill, to process residual solids produced by the McLoughlin Point Wastewater Treatment Plant into Class A biosolids - the highest level product suitable for beneficial use.

Residuals Treatment Facility



**Wastewater
Treatment Project**
Treated for a cleaner future

The Residuals Treatment Facility will process residual solids produced by the McLoughlin Point Wastewater Treatment Plant into Class A biosolids, a high quality by-product treated such that it is safe for further use.

The Residuals Treatment Facility is located within the footprint of the Hartland Landfill and all treatment processes will be completed within closed containers.

Hartland Resource Management Group (HRMG) has been selected to design, build, finance, operate and maintain the Residuals Treatment Facility over a 20-year term.

Odour control systems will ensure there is no discernible odour in the community from the facility. Noise from the facility will be minimal and will comply with District of Saanich bylaws.

Construction began in spring 2018 and will take approximately 2.5 years to complete.

CURRENT CONSTRUCTION ACTIVITIES

- Pouring concrete for building foundations, digester tanks, and storage tanks

UPCOMING CONSTRUCTION ACTIVITIES

- Construction of dryer building, residuals handling building and operations and maintenance building



Artist rendering of the Residuals Treatment Facility

