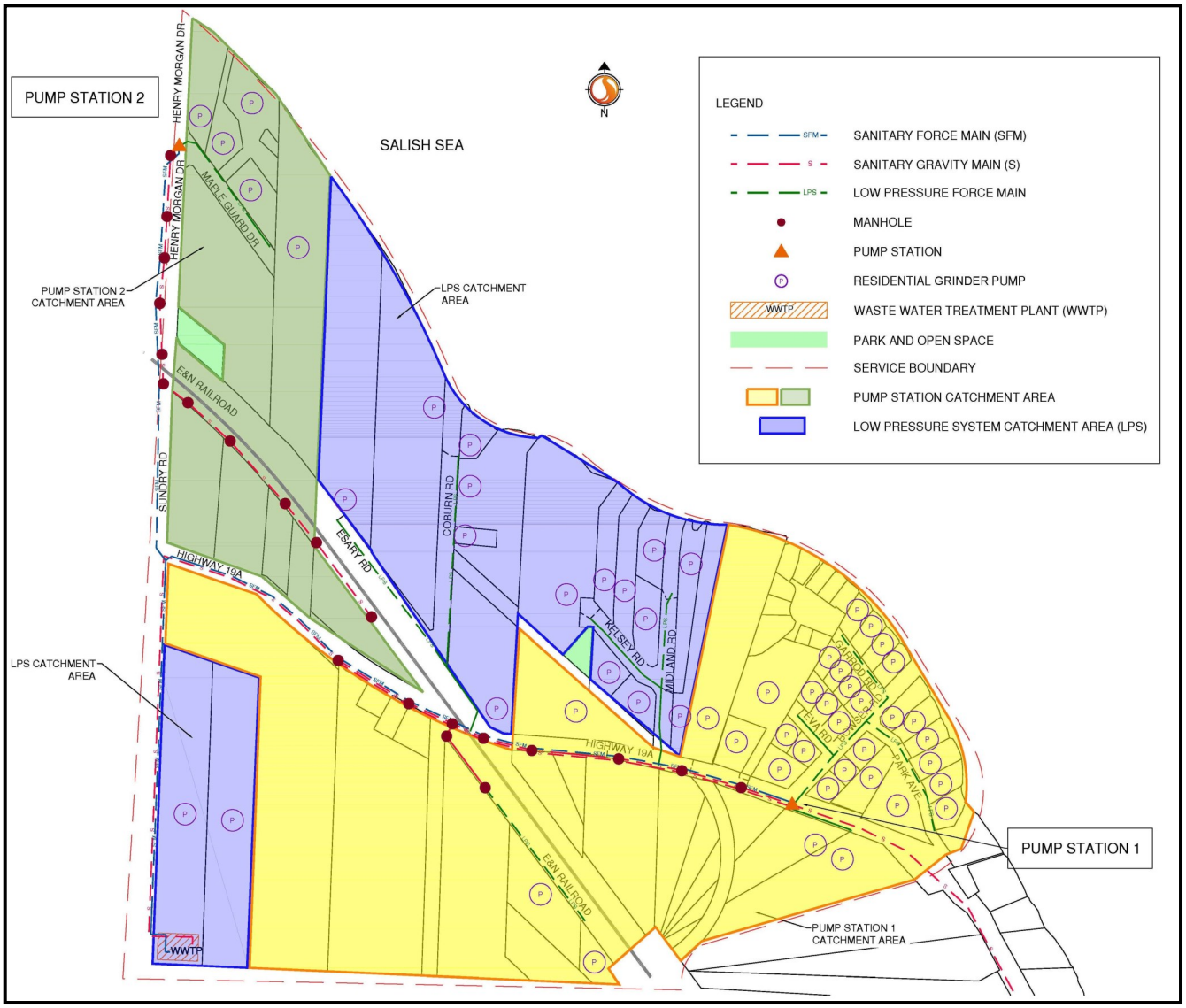
Wastewater System Factsheet - July 2017

The proposed Bowser Village Centre Wastewater Project service area is defined by the Bowser Village Centre boundary (see Map 1 below).

Regulatory Requirements

The project will meet or exceed federal and provincial regulatory standards which are based on scientific studies and monitoring. The regulations establish discharge standards that protect human health and marine life.

The Municipal Wastewater Regulation establishes minimum effluent quality and outfall design criteria based on the properties of the receiving environment and effluent flow rates. The Wastewater Systems Effluent Regulations establishes minimum effluent quality criteria.



Map 1: Proposed Bowser Sewer Service Area and Service Plan

Bowser Village Centre Wastewater Project
Wastewater System Factsheet

Project Components

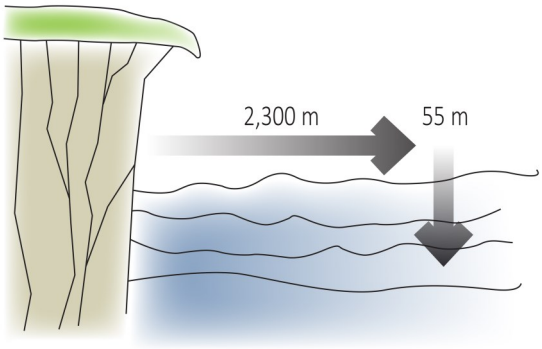
The proposed project has three major components: **Collection System**, **Wastewater Treatment Plant** and **Outfall**.

Collection System

The collection system is designed to accommodate current and future flows from the Bowser Village Centre. Two pump stations will deliver wastewater to the treatment plant.

Wastewater Treatment Plant

Wastewater treatment is designed to eliminate hazards to human health and the environment. The wastewater treatment plant is designed as a secondary treatment facility using Sequencing Batch Reactor technology. Wastewater is treated in batches in a single tank that is used for both aeration and secondary clarification. Each batch is sequenced through four treatment stages, typically over a four-hour period. Treatment also includes prescreening to remove debris from the raw sewage before entering the tank. Effluent will be disinfected with ultraviolet light to remove the potential risk from microorganisms such as bacteria, viruses and parasites. Ultraviolet disinfection goes above and beyond the regulatory requirements. The plant is designed to contain the odours within the fenceline of the property.

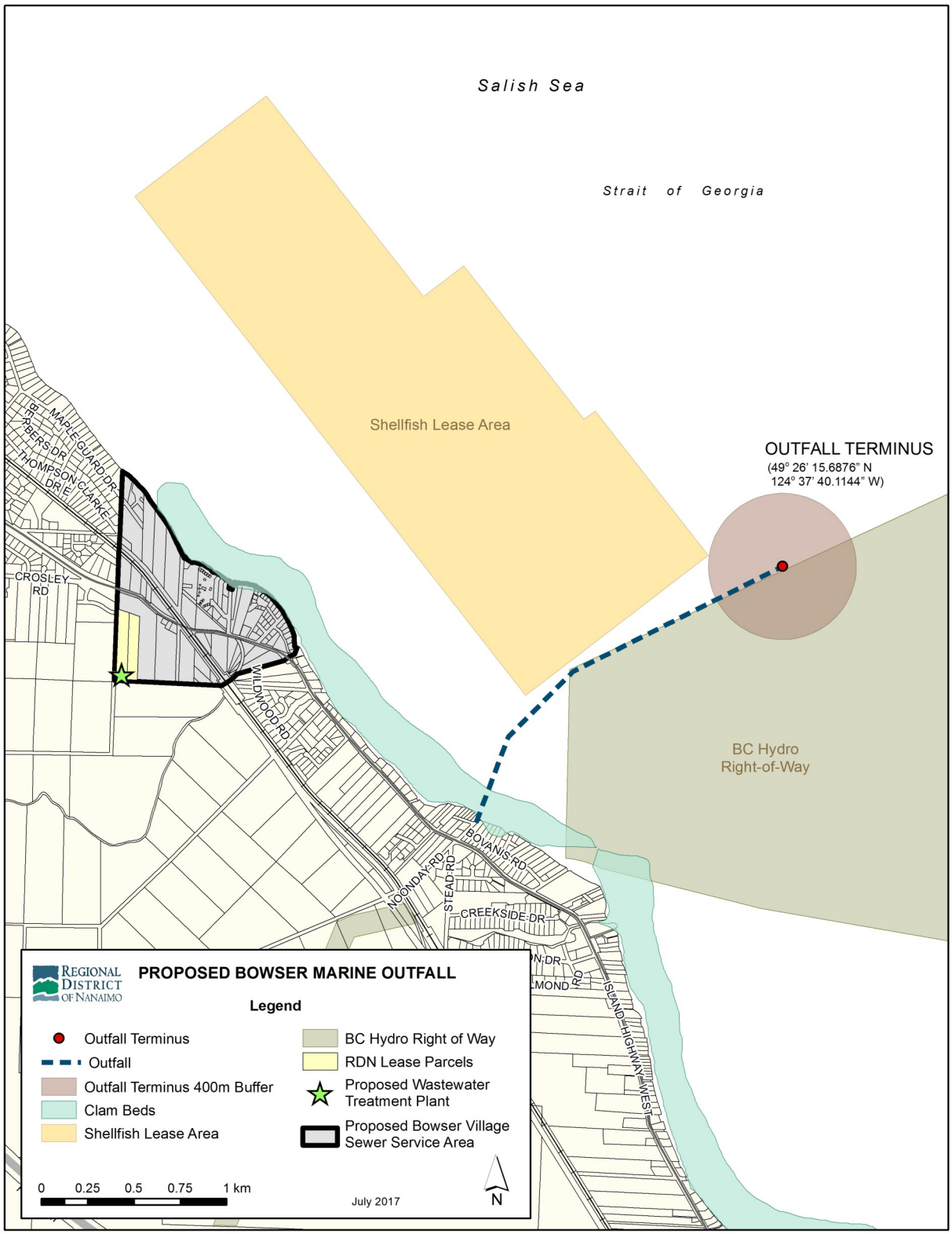


The outfall will be about 200 mm in diameter, 2,300 m long, and will sit at the bottom of the ocean at a water depth of about 55 m. It will provide sufficient capacity to serve the area for more than 50 years.

Outfall

The preliminary engineering design stage of the Bowser Village Wastewater Project considered both ground disposal and marine disposal as options to dispose of treated wastewater effluent. The engineering consultant (Stantec Consulting Ltd.) determined that existing ground and soil conditions are not suitable for ground disposal. They recommended marine disposal.

The marine environment near Bowser is capable of accepting treated effluent. Given the open marine environment and the ocean's large volume, tidal action, and presence of marine microorganisms, it has a high capacity to assimilate and break down nutrients and mix and disperse effluent. The proposed outfall location follows the most direct route possible with the least potential for environmental impact (see Map 2 on the next page).



Map 2: Proposed Bowser Marine Outfall Location

Next Steps

Preliminary design of the outfall is complete. Detailed design of the Marine outfall will be carried out if the petition to establish a sewer service area for Bowser is successful. The detailed design of the marine outfall will require the collection of site specific environmental data. Oceanographic studies will be required as part of the design phase for the marine outfall. Currents and water column properties in the vicinity of the discharge will be confirmed. Accordingly, the following studies are planned to be carried out prior to construction:

- Baseline water quality sampling
- Collection of water column profiles
- Current measurements
- Detailed bathymetric and backshore survey to delineate the topography of the backshore and foreshore seabed
- Geotechnical investigations
- The presence and inventory of sensitive habitats along the outfall route and proximity to shellfish beds
- Archeological review along the outfall route
- Stage II Environmental Impact Study.

Additionally, the outfall will not be constructed until all the permits are in place. The permits and approvals relevant to the marine outfall include:

- Navigation Protection Act
- Fisheries Act
- Crown land tenure
- Municipal Wastewater Regulation registration
- Liquid Waste Management Plan.

For more information, visit www.rdn.bc.ca/bowser or contact the Regional District of Nanaimo. Contact information is provided below.

For More Information

Municipal Wastewater Regulation
Wastewater Systems Effluent Regulations

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