

DATE: July 4, 2023

FILE: 5330-20/SSCP

TO: Chair and Members
Sewage Commission

FROM: Jake Martens
Acting Chief Administrative Officer

Supported by Jake Martens
Acting Chief Administrative Officer

J. Martens

RE: Groundwater Protection Policy Update

Purpose

To update the Sewage Commission about an assessment underway regarding changes to the groundwater protection policy approved by the Comox Valley Sewage Commission in February 2022.

Recommendation from the Acting Chief Administrative Officer:

THAT staff be directed to develop an update to the Lazo Hill Groundwater Protection Policy given the changes in the Sewer System Conveyance Project scope approved by the Sewage Commission in May 2023, and bring a revised version of the policy back for Sewage Commission review in fall 2023.

Executive Summary

In February 2022, the Comox Valley Sewage Commission approved the Lazo Hill Groundwater Protection Policy. The policy was created to address concerns related to potential impacts of the Sewer System Conveyance Project, in part raised by local residents, on groundwater in the Lazo Hill area, and includes a number of commitments that reflect the Comox Valley Regional District's (CVRD) focus on protecting groundwater as part of the project, which include the following:

- Designing and building a conveyance pipe that won't leak;
- Implementing leak detection to identify a leak as early as possible if one were to occur;
- Repairing a leak as quickly as possible if one were to occur; and
- If the water from a groundwater well is shown to have become contaminated and is not suitable for domestic use as a result of a leak from the conveyance pipe, the CVRD will offer all reasonable assistance to affected residents.

In May 2023, the Sewage Commission approved a number of scope changes to the Sewer System Conveyance Project prompted by the collaborative design-build procurement process due for completion this summer. Key changes in project scope that could affect the need for, and ability to achieve, specific commitments in the Lazo Hill Groundwater Protection Policy include:

- Shift from horizontal directional drilling to cut and cover installation over Lazo Hill;
- Larger separation of conveyance pipe from the Quadra Sands aquifer;
- Shift in alignment away from some of the existing groundwater monitoring wells; and
- Loss of infrastructure providing means to pressurize the Lazo Hill section of alignment for the purposes of acoustic leak detection.

The CVRD remains committed to protecting groundwater in the Lazo Hill area. Staff recommend that the commission direct staff to perform the analysis and study work required to understand the

full implications of the shift in alignment and construction methodology across Lazo Hill, and bring back a revised draft groundwater protection policy for Sewage Commission review in the fall.

Prepared by:

K. La Rose

Kris La Rose, P.Eng.
Acting General Manager of
Engineering Services

Attachments: Appendix A – Lazo Hill Groundwater Protection Policy

Policy Title: Lazo Hill Groundwater Protection Policy	Policy Number: P87
Policy Category: Engineering	
Approval Date: February 22, 2022	Policy Owner: Engineering Services
Approved by: Sewage Commission	File Reference: 0340-50

PREAMBLE

1. Through the Comox Valley Regional District's liquid waste management planning process, a rigorous consultation process guided by engineering consultants, and a technical and public advisory committee, a preferred conveyance solution for the Comox Valley Sewage System has been selected.

PURPOSE

2. The selected conveyance solution includes installation of a sewer pipeline through Lazo Hill using horizontal direction drilling (HDD). Lazo Hill (Electoral Area B) residents rely on groundwater wells for their drinking water and a number of concerns in regard to water quality and quantity have been raised by residents in the area. To help address concerns of residents surrounding impacts deriving from a leak, the intent of this policy is to address specific mitigation measures throughout design, construction and subsequent operation of the pipeline through Lazo Hill.

SCOPE

3. This policy applies to the Comox Valley Sewerage Service, functions 335-338, for construction and operation of the pipeline under Lazo Hill as part of the Sewer System Conveyance Project.

DEFINITIONS

“Groundwater Well” means a well that is used for supplying water for domestic purposes, such as human consumption, food preparation, sanitation or other household purposes.

“Horizontal Direction Drilling” means a pipeline installation methodology utilizing trenchless methods. It involves the use of a drilling machine to drill along a selected borepath and pullback the associated pipe.

“Lazo Hill (Electoral Area B)” means all properties within Electoral Area B within the East-West bounds of Torrence Road to Brent Road/Curtis Road and North-South Bounds of Brent Road/Noel Avenue to the Strait of Georgia.

“Sewer Pipeline” means a sewer pipe that conveys wastewater.

POLICY

4. The CVRD commits to the following measures for the design and construction of the conveyance pipeline in order to minimize the risk of a leak by:
 - a. Establishing design criteria for the pipeline that will include:

- i. Meeting and or exceeding National Building Code of Canada Standards for infrastructure in seismic events (pipeline to be designed to withstand 2475 year return seismic event).
 - ii. Pipeline materials to meet all relevant and applicable standards including but not limited to American National Standards Institute/American Water Works Association (ANSI/AWWA), Canadian General Standards Board (CGSB), Canadian Standards Association (CAN/CSA) and ASTM International.
 - iii. Design of the conveyance system with the objective to operate at the lowest pressures necessary.
 - iv. Design, installation, monitoring and maintenance of the necessary corrosion protection equipment dependent on the pipeline material.
 - v. Implementation of service and inspection equipment into the design to accommodate monitoring and maintenance of the pipeline integrity.
 - b. Implementing and following a number of quality control measures during construction of the pipeline, including:
 - i. Completion of hydrostatic and leakage testing in accordance with the applicable ANSI/AWWA standards for pipe material.
 - ii. Quality control during construction, including construction inspections completed by a qualified professional for inspections involving HDD installations.
5. The CVRD commits to implementing leak detection to identify a leak as early as possible if one were to occur by:
 - a. Completing accurate leak and gas pocket detection inspections annually within the Lazo Hill portion of the pipeline utilizing acoustic inspection technologies.
 - b. If real-time leak detection monitoring equipment becomes available in the future and it is feasible to install on the HDD alignment, CVRD commits to doing so.
 - c. Maintaining a program to monitor groundwater quality after installation of the pipeline, including continuous monitoring of conductivity, pH, temperature and dissolved oxygen, all proxies for potential contamination from wastewater within the groundwater.
6. The CVRD commits to repairing a leak, if one occurs, as quickly as possible following detection by:
 - a. Developing a comprehensive emergency response plan, updated regularly, which includes designs for repairs of varying sections of the pipeline, including HDD sections at various depths.
 - b. Having a spill response kit, stored at the Comox Valley Water Pollution Control Center, which includes all the necessary repair materials for a repair of the pipeline (pipe, fittings etc.)
 - c. Developing a clear emergency process to expedite contract award with contractors, engineers etc. for the necessary services required to facilitate the repair of a leak, with the process to be reviewed and updated regularly.
7. If the water from a Groundwater Well is shown to have become contaminated and is not suitable for domestic use as a result of a leak from the conveyance pipeline, the CVRD will offer all reasonable assistance to affected residents, which may include:
 - a. Providing a temporary water supply to affected properties for the period of time that wells cannot be utilized.

- b. Assistance with installation of a new groundwater well, in the unlikely event that a property owner's well is irreversibly damaged as a direct result of construction or operation of the sewer pipeline.
- c. Subject to approval and adoption of the necessary bylaws, incorporation of the affected properties into the Comox Valley Water System, in the unlikely event that the aquifer is irreversibly impacted as a direct result of the Sewer System Conveyance Project.

ROLES AND RESPONSIBILITIES

- 8. Design criteria and construction inspection will be completed by an engineering consultant and will be the responsibility of the Manager of Capital Projects and Senior Manager of Water/Wastewater Services to ensure all parties are compliant with this policy.
- 9. Coordination and completion of all inspections of the pipeline will be the responsibility of the Manager of Wastewater Services.

REVISION HISTORY

Approval Date	Approved By	Description of Change