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Sent: Monday, September 14, 2026 2:53 PM
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Cc: northinfo <northinfo@islandstrust.bc.ca>
Subject: ATTN: Medical Health Officer & Drinking Water Officer (Central Vancouver Island)

SUBJECT: Section 475 Local Government Act Referral — Draft Gabriola Island Official Community Plan (OCP) Bylaw: Drinking Water Safety, Documented Well Contamination, Onsite Wastewater Feedback Loops, and Public Health Risk

DELIVERED VIA EMAIL / REFERRAL INTAKE

EXECUTIVE SUMMARY

As part of the statutory agency referral process under Section 475 of the *Local Government Act* for the First Reading draft Gabriola Island Official Community Plan (OCP), this memorandum brings critical public health considerations to the attention of Island Health's Environmental Public Health and Drinking Water Protection teams.

Gabriola Island relies entirely on a single, highly fractured sandstone bedrock aquifer system for drinking water, combined with individual onsite sewerage systems for wastewater disposal. Modern hydrogeological dynamics demonstrate that high-density residential clusters located over interconnected fracture networks create semi-closed hydrogeological feedback loops during summer low-flow periods. Concentrated well extraction combined with nearby septic effluent discharge increases the risk of cumulative nitrate loading, bacterial contamination, and saltwater upconing.

Island Health is urged to recommend a dedicated groundwater quality testing program, mandatory baseline testing, and water neutrality safeguards in its formal Section 475 referral response to the Local Trust Committee (LTC).

KEY PUBLIC HEALTH & HYDROGEOLOGICAL CONCERNS

1. High Failure Rates in Tested Wells vs. Administrative Blind Spots

- **Troubling Baseline Data:** Local sampling records show alarming indicators in tested private wells across Gabriola—including total coliform presence in up to 60% of samples, *E. coli* in roughly one-third of tested sources, elevated nitrates, and localized conductivity spikes from saltwater intrusion.
- **Misleading "Data Gaps":** Staff Q&A commentary relies on sparse voluntary testing to minimize water quality concerns. In a fractured bedrock environment, the absence of a comprehensive public monitoring network must not be conflated with hydrogeological safety. The limited data available indicates that populated bedrock fracture zones are actively deteriorating.

2. Unmonitored Septic Effluent & Well Extraction Feedback Loops

- **Recycling Under Drought Stress:** In medium- to high-density clusters (such as the village core and small-lot subdivisions), late-summer well pumping draws groundwater rapidly toward domestic wellheads. When adjacent properties discharge septic effluent into shallow soils directly above the same bedrock fracture network, a localized recirculating loop forms.
- **Pathogen & Chemical Cumulative Loading:** Standard Type 1 and Type 2 septic systems do not filter out nitrates, pharmaceuticals, or personal care products (PPCPs). Concentrated sewage discharge over fractured bedrock creates cumulative chemical mounding, threatening nearby drinking wells.

3. Saltwater Upconing & Aquifer Salinization

- **Water Quality Degradation:** Over-pumping individual wells along coastal and low-elevation margins pulls deeper, highly saline water upward into the active pumping zone (upconing). High sodium and chloride concentrations render drinking water non-potable and pose health risks for residents on sodium-restricted diets.

4. Inadequacy of Surface Hazard DPAs for Drinking Water Protection

- **Two-Dimensional Limitations:** The First Reading draft attempts to address water hazards using surface-mapped Development Permit Areas (DPAs). These static lines fail to account for 3D subsurface fracture paths, leaving private drinking water wells vulnerable to off-site contamination from nearby developments located outside mapped hazard boundaries.

RECOMMENDED ISLAND HEALTH SUBMISSION TO THE LOCAL TRUST COMMITTEE

To protect public health and maintain safe drinking water standards under the *Drinking Water Protection Act* and *Public Health Act*, it is requested that Island Health's official Section 475 referral reply include the following recommendations to the LTC:

1. **Establish a Dedicated Island-Wide Water Quality Monitoring Program:** Recommend that the OCP commit the Local Trust Committee, in partnership with Island Health and the RDN Drinking Water and Watershed Protection (DWWP) program, to fund and maintain a dedicated, ongoing groundwater testing framework. This program must track seasonal trends in nitrates, *E. coli*/coliforms, chloride, and Total Dissolved Solids (TDS) across key fracture zones.
2. **Mandatory Baseline Water Quality Proof for Net-New Density:** Require all multi-lot subdivisions or commercial re-zonings to submit comprehensive chemical and microbiological baseline testing (including nitrates, chloride, and conductivity) verified over full seasonal dry periods prior to land-use approval.

3. **Island-Wide Water Neutrality Requirement:** Endorse a requirement for 100% engineered rainwater harvesting and seasonal storage for net-new density to eliminate additional groundwater extraction pressure on stressed fracture zones.
4. **Closing Groundwater Extraction Loopholes:** Advise the LTC to require physical or policy limits on cistern top-ups from private wells during summer drought windows to prevent local water table drawdowns that accelerate septic effluent migration toward wellheads.
5. **Inter-Agency Health & Stewardship Coordination:** Support the formal integration of Island Health into the proposed **Gabriola Water Stewardship Table** to oversee regional watershed health and public health risk mitigation.

Respectfully submitted for Island Health consideration,

Ewout van Dishoeck

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Copy provided to the Gabriola Island Local Trust Committee for the official Section 475 referral record.