MEMORANDUM

File No.: Long Range Planning: 09-6500-20-2021

DATE OF MEETING:	March 24, 2022
TO:	Mayne Island Local Trust Committee
FROM:	Narissa Chadwick, Island Planner Southern Team
COPY:	Robert Kojima, Regional Planning Manager Kim Stockdill, Island Planner William Shulba, Senior Freshwater Specialist
SUBJECT:	Groundwater Sustainability Implementation

PURPOSE

The purpose of this memo is to introduce to the North Pender Local Trust Committee additional mapping data to be used in the development of draft bylaws addressing groundwater vulnerability on North Pender Island.

THE DATA

Planning staff have been working with the Senior Freshwater Specialist and mapping staff to create mapping layers that identify different impacts to groundwater vulnerability. These layers, as identified in Appendix 1 include:

Groundwater Availability Assessment - Completed by GW Solutions in October 2021, this mapping was introduced to the LTC at the February 2022 meeting.

Saltwater Intrusion - In coastal areas, freshwater aquifers are in direct contact with the ocean and under normal conditions, fresh groundwater flows towards the ocean. In areas with risk of saltwater intrusion, seawater moves into a freshwater aquifer (Allen and Klassen, 2016). Wells proximal to the coast are at higher risk for saltwater intrusion and when it occurs one or more wells can be impacted making water unpotable and unlawful to operate under the Groundwater Protection Regulation.

Vulnerability to Contamination - This is determined using intrinsic fractured media aquifer vulnerability mapping (Denny and Allen, 2007). The methodology is known as "DRASTIC". D = Depth to water; R = Net Recharge; A = Aquifer Media; T =Topography; I = Impact of Vadose Zone (vadose zone is the area above the water table); C = Conductivity of the Aquifer (this refers to how fast the water moves).

Planning Staff have also begun to identify area with subdivision potential. Where subdivision potential exists in areas where groundwater is vulnerable staff will be identifying options to reduce negative impact.

NEXT STEPS

- Staff will present the LTC with options for DPA boundaries
- Staff will develop options for zoning regulation changes in critical areas

- Staff will draft OCP amendments
- Staff will draft LUB amendments

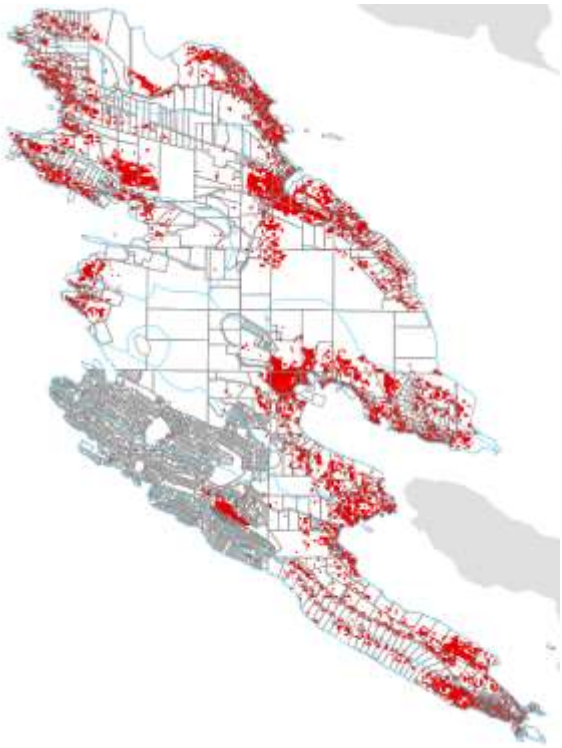
Submitted By:	Narissa Chadwick, RPP Island Planner	March 15, 2022
Concurrence:	Robert Kojima, Regional Planning Manager	March 16, 2022

ATTACHMENTS

1. Groundwater Vulnerability Analysis Maps

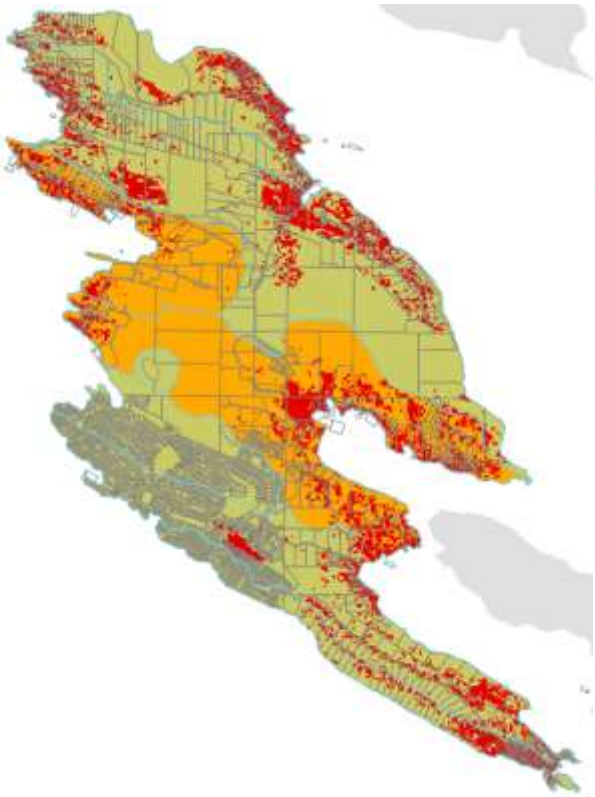
Appendix 1 - Groundwater Vulnerability Analysis Maps

Aquifer Vulnerability to Saltwater Intrusion

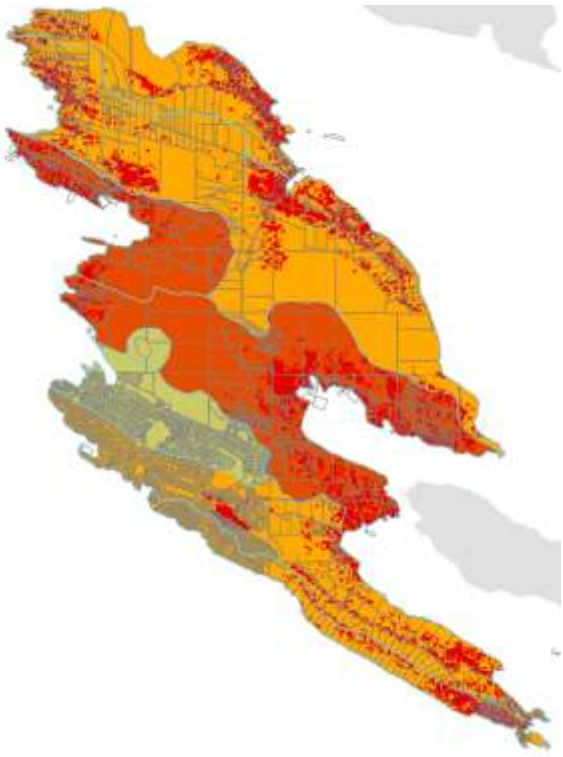


DRASTIC Mapping

Saltwater & GW Assessment Normal



Saltwater & GW Assessment Driest



Aquifer Vulnerability to Saltwater Intrusion

High; Moderately High

DRASTIC Aquifer Intrinsic Vulnerability

High

Moderately High

% of Use from Recharge

Low

Moderate

High