

Groundwater Investigation

BACKGROUND

In 2016, the SCRD initiated a groundwater investigation project to supplement and diversify current water sources. This was a recommendation of the Comprehensive Regional Water Plan.

Phase 1 consists of a feasibility study to identify aquifers for potential water production.

Sites with high probability of yielding high quality water at a volume significant enough to justify development costs are selected.

The selected sites are in geological formations with quick recharge and unconsolidated material from previous glaciations. They are ideally protected from surface contamination with an impervious rock layer.

Phase 2 involves drilling test wells on the identified sites and testing for maximum yield, water quality, sustainable production, and potential impacts on other groundwater users.

Phase 3 involves conceptual design and budget for connecting the well to the Chapman Water System. A water license application is submitted to the Province. More detailed studies to determine maximum sustainable yield and impacts to neighboring creeks and water right holders may be needed.

Phase 4 consists of the preparation of final design and construction tendering documents.

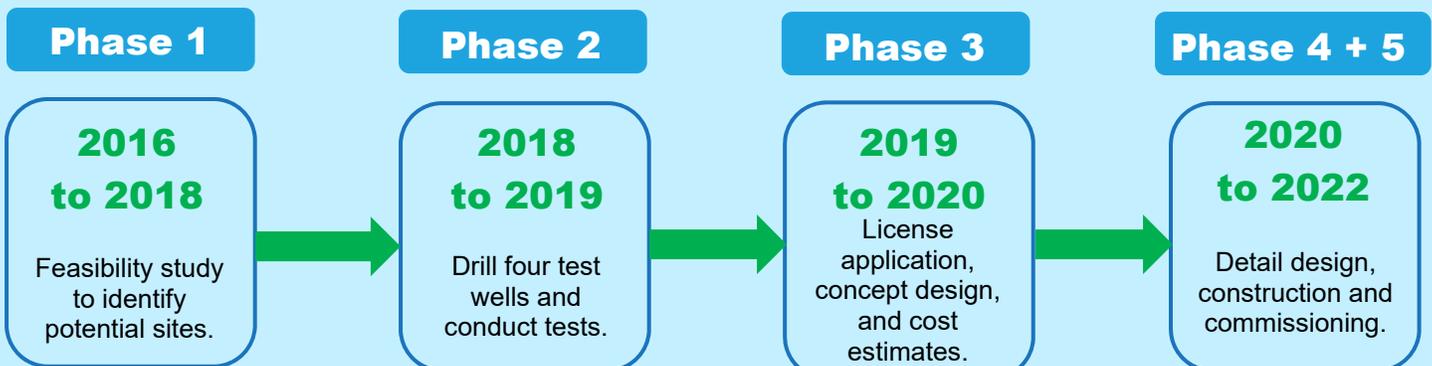
Phase 5 consists of construction and commissioning.

This involves drilling the well, installing a pump and bringing power to the sites. Construction of transmission mains are necessary in order to bring water to a treatment site.

The sites the SCRD is pursuing have high water quality and will only require chlorination to ensure water safety in the distribution system.

Water then goes to a pump station and, in some cases, to a reservoir at higher altitude. The reservoirs buffer changes in water demand and keep the water system pressurized so water flows from your tap.

TIMELINE





WHERE DOES GROUNDWATER COME FROM?

Groundwater is an important part of the water cycle. It comes from rain, snow, sleet and hail that soak into the ground. The water moves down into the ground because of gravity, passing between particles of soil, sand, gravel, or rock, until it reaches a depth where the ground is filled, or saturated, with water.

The area that is filled with water is called the saturation zone and the top of this zone is called the water table. The water table may be very near the ground's surface or it may be hundreds of meters below.

Although groundwater exists everywhere underground, some parts of the saturated zone contain more water than others. An aquifer is an underground formation of permeable rock or loose material which can produce useful quantities of water when tapped by a well.

These aquifers may be small, only a few hectares in area, or very large, underlying thousands of square kilometers of the earth's surface.

Even if groundwater is not used by people, it may still play an important role in the local environment and sustain rural livelihoods that way.

Under natural conditions water in aquifers is brought to the surface by means of a spring, a borehole or can be discharged into lakes, streams or the ocean. We as humans can extract groundwater through a borehole which is drilled into the aquifer.

(Source:Wikipedia)

SUSTAINABILITY AND LEGISLATIVE FRAMEWORK

In British Columbia, the *Water Sustainability Act* regulates groundwater via the The Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRORD).

In order to get a water licence for groundwater from FLNRORD, an application needs to demonstrate what the maximum sustainable yield for the aquifer is. Applications also cannot negatively impact other water right holders, land owners, the environment and the rights and title of First Nations.

For up to date information on the groundwater investigation project, visit:

www.scrd.ca/groundwater-investigation

