

SUNSHINE COAST REGIONAL DISTRICT STAFF REPORT

TO: Infrastructure Services Committee – April 19, 2018

AUTHOR: Remko Rosenboom – General Manager, Infrastructure Services
Janette Loveys, Chief Administrative Officer

SUBJECT: PHASE 2 TEST DRILLING OF THE GROUNDWATER INVESTIGATION

RECOMMENDATION

THAT the report titled Phase 2 Test Drilling of the Groundwater Investigation be received;

AND THAT the SCRD proceed with Phase 2 of the Groundwater Investigation and that staff bring forward future reports with the results and analysis;

AND THAT the SCRD exchange information with local governments, First Nations and other potentially affected parties on Phase 2 Test Drilling of the Groundwater Investigation;

AND THAT the SCRD collaborate on a framework with the Town of Gibsons and the Sḱw̱x̱wú7mesh Nation to establish a Groundwater Management Zone related to the Gibsons Aquifer and that staff bring forward a future report;

AND FURTHER THAT the SCRD establish a working group with infrastructure staff from local governments, *shíshálh* Nation and Sḱw̱x̱wú7mesh Nation to share information and opportunities for cooperation.

BACKGROUND

The Board adopted the following recommendation at October 26, 2017 meeting:

300/17 **Recommendation No. 1** *Groundwater Investigation to Supplement Chapman Creek Water Supply*

THAT the report titled Groundwater Investigation to Supplement Chapman Creek Water Supply be received;

AND THAT recommendations from the Groundwater Investigation to Supplement Chapman Creek Water Supply Report be brought forward to the 2018 Budget process;

AND FURTHER THAT the SCRD consult with the Town of Gibsons, District of Sechelt, and Sechelt Indian Government District regarding proposed aquifer exploration identified in the report, prior to concluding the 2018 Budget process.

Consultation with local governments was structured as the Regional Groundwater Task Force with Terms of Reference adopted at the December 14, 2017 Board meeting.

346/17 **Recommendation No. 9** *Regional Groundwater Task Force Draft Terms of Reference*

THAT the report titled Regional Groundwater Task Force Draft Terms of Reference be received;

AND THAT the 1. Purpose be amended as follows:

- a. Provide a forum for the staff at all four local governments on the Sunshine Coast to work towards – in the spirit of cooperation and collaboration – recommendations for the potential management of groundwater sources within the context of the region’s water supply concerns.

AND THAT 2.1 c. be amended to “To identify all the local governments water strategies, concerns and potential solutions...”;

AND FURTHER THAT the Regional Groundwater Task Force Terms of Reference be adopted as amended.

The Board adopted the following resolution at its March 22, 2018 meeting:

107/18 THAT consideration of Infrastructure Services Committee Recommendation No. 1 of March 15, 2018 be postponed to the April 19, 2018 Infrastructure Services Committee meeting as follows:

Recommendation No. 1 *Regional Groundwater Task Force – Next Steps*

THAT the report titled Regional Groundwater Task Force – Next Steps be received;

AND THAT the SCRD proceed with Phase 2 of the Groundwater Investigation Project and that staff bring forward a future report with the results;

AND THAT the SCRD exchange information with local governments and other potentially affected parties on Phase 2 Test Drilling with respect to monitoring results;

AND THAT the SCRD collaborate on a framework with the Town of Gibsons to establish a Groundwater Management Zone related to the Gibsons Aquifer and that staff bring forward a future report;

AND THAT the SCRD establish a working group with infrastructure staff from all four local governments to discuss upcoming projects and opportunities for collaboration;

AND FURTHER THAT the Mahan well drilling be delayed until such time as data is available from the other three well sites.

DISCUSSION

Legislative Framework

As per the Constitution of Canada, the legal right to administer ground and surface water use is vested in the Crown and regulated by the Province and, specifically in British Columbia, the *Water Sustainability Act*. The Ministry of Forest, Land, Natural Resource Operations and Rural Development (FLNRORD) is responsible for the administration of this legislation. Upon application by any land owner or local government FLNRORD can issue Water Licences to applicants who meet their requirements and whose applications do not adversely impact other Water Right holders, land owners, the environment and the rights and title of First Nations. Parties who feel that their interests are insufficiently considered by the FLNRORD Statutory Decision Maker can appeal the decision to the Environmental Appeal Board. Under the current legislation. Local governments are treated in a similar manner as any application from a resident or commercial operation.

All groundwater users who were using groundwater prior to February 29, 2016 on an ongoing basis are eligible to apply for an Existing Use Groundwater Licence for the volumes as used on or shortly before February 29, 2016. Local governments might be granted an Existing Use Groundwater Licence which could include predicted water demand for the population growth aligned to their respective OCP's but no later than 2026.

Any applications for use of groundwater not already occurring on February 29, 2016 will require a New Use Groundwater application and have to meet more stringent requirements and a more detailed technical review and consideration of adverse effects. It is relevant to note that FLNRORD can cancel or amend Water Licences if licensees are not using their allocated amounts, this to prevent applicants from staking water rights and in doing so, prevent other potential users from being granted the right to use water.

Policy Development

With the potential development of additional water sources to supply the Chapman System, there is a need to develop a Water Sourcing Policy (WSP). Such WSP would outline how the current and future water demand (until 2030) would be met using the available supply sources within the Chapman System. It would establish target volumes to be drawn from a particular source and criteria for when those sources would be used. The long-term water demand (after 2030) will be considered in to the Regional Growth Strategy Options report targeted for June 2018.

The Water Sourcing Policy would provide guidance and integrate to the operational focused Drought Management Plan.

One of the recommendations from the Groundwater Taskforce was establish a Groundwater Management Zone for the Gibson Aquifer. The purpose of any Groundwater Management Zone is to define an area and the permitted uses for any activities. Such a Plan would outline water quality, quality objectives and performance measures. The Plan would also outline the relevant

and applicable land use planning tools (e.g. OCP and Development Permit Areas) and potential other tools the SCRD commits to implement.

Regional Growth Strategy

The District of Sechelt sent correspondence to all four governments requesting the SCRD begin the process of initiating a Regional Growth Strategy. In December 2017, the SCRD has heard from shíshálh Nation Chief and Council on the importance of a coordinated regional growth strategy for all our communities.

The issue of collaboration and cooperation on the development of a regional growth strategy remains important and relevant with the delivery of sustainable resources and infrastructure. There will be a need to review and integrate various master plans into community service levels for such services as water, solid waste/landfill management and transit. There is also an opportunity to revisit the Sustainable Land Use Principles report co-developed by planning staff from the local governments in the overall context of this initiative.

The development of a Groundwater Management Zone for the Gibson Aquifer is an opportunity and in order to be an effective planning tool, should be aligned within the context of the larger regional growth planning exercise.

The February 8, 2018 report identified a future report which will provide Committee with options and process for moving forward with the planning. Staff are working towards Q3 for this report and will ensure all of these various planning exercises are identified and incorporated into the report.

Stakeholder Engagement

Staff from the four local governments who participated in the Taskforce Groundwater Investigation experienced the opportunity to share information with respect to the infrastructure, operations and water initiatives. Staff found this beneficial and included in the recommendations was to establish a working group to continue this information sharing and to extend the invitation to Sk̓w̓w̓7mesh Nation. The establishment of the working group would align well with the mission and values of the SCRD with respect to collaboration and transparency.

In this same spirit, staff from the Town of Gibsons and SCRD met again on April 4, 2018 to specifically gain further insight into the specific of the water supply infrastructure systems in Zone 3. Staff also discussed, at a high level, issues/topics to consider in the process of the Town of Gibsons taking back some responsibilities as it relates to Zone 3.

It was also discussed that the current water wells of the Town of Gibson have enough capacity to supply Zone 3 moving forward, but that the intention is to develop a new well to ensure adequate redundancy in their water supply, to reduce the dependency on water supply from the SCRD by increasing the withdrawal from the Gibson Aquifer and guarantee the water supply for buildout of the town until 2070.

Town of Gibsons' staff reiterated their willingness to collaborate with the SCRD on developing a comprehensive plan to address all water demands on the Sunshine Coast by all possible sources. They also reiterated their concerns about the SCRD exploring the feasibility of a

production well at Mahan Road to address its current water demand as that could impact their own plans to support their own long term (2050-2070) water demands.

Implementation Timelines For Additional Water Supply Sources

The following table present the current best estimates for the different phases of the development of the four CWRP-projects. For the Groundwater Investigation timeline, there are two scenarios included: one scenario which includes all 4 sites to be test drilled and one report which contains the results and analysis. The second scenario is where the testing of the four sites is done with 2 test phases and Mahan Road site is tested after the results of the other three sites are analysed and a decision is made to proceed with the Mahan Rd Site as well.

Table 1

| Water Source | Feasibility confirmed | Authorizations received (incl. land ownership) | Commence Construction | Commissioning |
|---|------------------------------|--|------------------------------|----------------------|
| Universal metering | - | - | 2016 | 2019 |
| Chapman Lake: supply expansion project | Confirmed | Spring 2019 | Summer 2019 | Late 2019 |
| Groundwater Investigation – non-phased approach | Late 2018 | 2020-2022 | 2019-2020 | 2021-2022 |
| Groundwater Investigation –phased approach | Late 2019 | 2021-2023 | 2010-2021 | 2022-2023 |
| Raw Water Reservoir | 2019 | 2022-2024 | 2025-2026 | 2026-2027 |

Attachment A provides more detailed information on the difference between the two timing options currently under consideration for the Phase 2 test drilling in context to the timeline for other water initiatives which are underway.

Technical Ranking Potential Production Well Sites

During Phase 1 of the Groundwater Investigation, a technical desktop assessment was done to determine potential areas for new production wells. The 12 selected areas were subsequently more precisely defined and ranked on multiple subjective criteria including Hydrological potential, infrastructure requirements and costs, water quality, stakeholder concerns, environmental impacts and regulatory requirements.

The total score and ranking of all potential sites for new production well is presented in the table below:

Table 2

| Ranking | Considered sites | Score | Proposed for test drilling |
|----------------|-------------------------------------|--------------|-----------------------------------|
| 1 | Mahan Road* | 108 | X |
| 2 | Gray Creek | 108 | X |
| 3 | Soames Reservoir | 108 | X |
| 4 | District of Sechelt Operations Yard | 81 | X |
| 5 | Chapman WTP** | 72 | |
| 6 | Mahan Road | 54 | |
| 7 | Chaster Road Well | 48 | |
| 8 | Mahan Road | 36 | |
| 9 | Mahan Road | 36 | |
| 10 | Frank West | 36 | |
| 11 | Chapman Zone 1 | 36 | |
| 12 | Reed Pump Station | 12 | |

* There were 4 different locations considered along Mahan Road, all with different characteristics.

** Subsequent review concluded that a production well on this site might impact the flows downstream in the Chapman Creek watershed which is counterproductive to the intent of the project.

Acknowledging the information already available on the Gibson Aquifer, the memo from our consultant hydrogeologist at Waterline Resources is included as Attachment B.

It concludes that the testing proposed under Phase 2 of the Groundwater Investigation is not possible with the Town of Gibsons monitoring well in that area. It also concludes that the proposed testing would fill an essential knowledge gap in the mapping of the Gibsons Aquifer essential for the development of a Groundwater Protection Zone for that area. It also clarifies that all the information to date is insufficient to determine the potential production capacity on this site.

Waterline Resources will attend the Committee meeting and be available to respond to questions related to their work.

Financial Implications

The implementation timelines for the additional water supply source projects listed in Table 1, will all have an impact to the Comprehensive Regional Water rates in the future. Rates set for 2018 only cover the current projects approved. A comprehensive financial report will be provided in Q4 in preparation for approval of the 2019 user rates and parcel taxes once more information is known on the estimated costs of the future projects.

STRATEGIC PLAN AND RELATED POLICIES

The Groundwater Investigation Project is intended to supplement the existing water supply and ensure that the SCR D can continue to meet its mission of providing quality services to our community through effective and responsive government.

The establishment of a working group to share information and identify opportunities for cooperation on the use of groundwater resources would further allow for an effective and sustainable use of all available water supply sources.

The SCR D Board Strategic Priorities of Embed Environmental Leadership, Enhance collaboration with the *shíshálh* and Sk̓w̓x̓wú7mesh Nations and Ensure Fiscal Sustainability are all aligned with this initiative and recommendations contained in this report.

CONCLUSION

The objective of the Groundwater Investigation is to determine the feasibility of the development of additional production wells with to reduce the reliance on the Chapman system.

Based on a technical assessment of all potential sites within the Chapman system, Phase 1 of the Groundwater Investigation concluded that there are four sites with a high feasibility for the development of production well.

Staff recommend that any decision on the development of new production wells be made in the context of a Water Sourcing Policy. The proposed policy would outline how the current and future water demand (until 2030) would be met using the available water supply sources.

A phased approach to the test drilling on the four proposed sites could result in one year delay (until 2020) of the actual development of a production well.

Staff support the recommendation from the Taskforce Groundwater to collaborate with the Town of Gibsons on the development of a Groundwater Management Zone for the Gibsons Aquifer in the context of development of a regional growth strategy.

Staff recommend the establishment of a working group groundwater with technical staff from local governments, *shíshálh* Nation and Sk̓w̓x̓wú7mesh Nation to enhance information sharing opportunities and protection of the groundwater resources in our region.

Attachments

- Attachment A - Proposed Test Drilling Timeline
- Attachment B – Memo from Waterline Resources

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|--------------|---------------|-------------|--|
| Reviewed by: | | | |
| Manager | | Finance | |
| GM | | Legislative | |
| CAO | X – J. Loveys | Other | |

Proposed Test Drilling Timeline

Attachment A

Proposed Test Drilling Timeline for 4 Sites in context to the other water initiatives which are underway.

Staff will keep Committee informed throughout all the stages and significant milestones.

| Activity | 4 Sites Test Drilling | 3 Sites + Mahan Rd Test Drilling |
|--|--------------------------|-------------------------------------|
| Post to BC Bid | April 27, 2018 | April 27, 2018 |
| RFP Closes | June 1, 2018 | June 1, 2018 |
| Report to ISC with tender results | June 21, 2018 | June 21, 2018 |
| Board Direction on tender | June 28, 2018 | June 28, 2018 |
| Contract Executed | July 6, 2018 | July 6, 2018 |
| Data collection and analyses | July-September 2018 | July-September 2018 |
| Report to Board outlining results - well development | December 2018 | December 2018 |
| Report to Board outlining results - water reservoir | December 2018 | December 2018 |
| Report to Board on Water Sourcing Policy | February 2019 | |
| Budget approval for development of additional water sources | March 2019 | |
| Additional data collection and analyses - Mahan Rd | | January-March 2019 |
| Report to Board outlining results - Mahan Rd | | April 2019 |
| Report to Board on Water Sourcing Policy | | June 2019 |
| Budget approval for development of additional water sources | | March 2020 |
| Initiate production wells | Summer 2019 | Summer 2020 |



Technical Memorandum

| | | | |
|----------------------|--|------------------|---------------|
| Prepared For: | Sunshine Coast Regional District | Date: | April 6, 2018 |
| Prepared By: | Darren David, VP Operations | File No.: | 2746-18-001 |
| Subject: | SCRD Groundwater Supply Investigation – Response to Mahan Road Exploration Site Concerns | | |

Following the SCRD Groundwater Task Force Meetings relating to the proposed groundwater exploration drilling program, several concerns were raised by the Town of Gibsons and SCRD Board members. The enclosed memo provides Waterline Resources Inc.’s response to these concerns.

Waterline understands that SCRD Board members raised the question of what more could be learned from test drilling at the Mahan Rd site. It was suggested that considerable information is already available to assess the potential of this site and that possibly no further test drilling would be required. The board requested a response outlining what added-value test drilling would provide.

Waterline Response:

Some risks still exists that this site may not be suitable for the SCRD to develop a useable production well. The following summarizes key points that need to be considered which support the recommended drilling and testing at this location:

- The Mahan Road site is located near the western extent of the mapped Gibsons Aquifer. The geological data in that area is sparse and it is possible that the aquifer thins or is not as productive/permeable to the north and west of the Town of Gibsons well field. The exploration drilling and testing program will help to further define and map the aquifer in that area and determine if any restrictive (natural) barriers exist that would otherwise reduce well yield and possible groundwater extraction volumes.
- Although theoretical calculations suggests that impact to the existing users should be insignificant, under the Water Sustainability Act, the SCRD must prove through testing that a proposed SCRD Well(s) would not adversely affect existing users such as the Town of Gibsons. Furthermore, as part of the Groundwater Task Force meetings held in January and February 2018, the Town of Gibsons indicated a desire to protect some future amount of groundwater from the Gibsons Aquifer to accommodate expected population growth as described in the Town of Gibsons OCP. Although no definitive water demand/volume was identified for protection/conservation during the meetings, the discussion included possible protection of groundwater to supply projected community growth ranging from 5 years (based on Waterline’s discussion with MFLNRO) to over 100 years (Town of Gibsons preference). In order to address this issue, actual long-term capacity values for any new SCRD production wells being contemplated are needed which could only be achieved through exploration drilling and testing.

