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**REPORT TO CEDARS OF TUAM WATER SERVICE COMMITTEE
MEETING OF SATURDAY 24 JANUARY 2009**

SUBJECT OPTIONS FOR AN ALTERNATE WATER SUPPLY FOR CEDARS OF TUAM WATER SERVICE AREA

PURPOSE

To provide the Cedars of Tuam Water Service Committee (CTWSC) with a summary of options and associated funding for developing a secure water supply for the Cedars of Tuam water service area.

BACKGROUND

The Capital Regional District (CRD) has been trying to locate and develop an alternative groundwater source for the Cedars of Tuam water utility. The present well has been re-developed, however production during the dry fall period remains inadequate for the needs of the community. Staff have made a number of inquiries to landowners in the general vicinity to the water area requesting permission to search for an alternate groundwater supply. No residents in the immediate area have indicated willingness to assist the water utility in this regard, citing a variety of reasons, most plausible. If groundwater is to continue to be used, it is evident that the funds available to develop a new water supply for the community will not be adequate due to the high cost of construction of the watermain needed to connect a well remote from the community to the existing distribution system. CRD staff have considered other water supply options and have developed costs for remote well development for the information of the community.

Original Capital Project

A summary of funds on hand and expenditures to set up the original capital project was presented to the CTWSC at their last meeting in October 2008. Since that date a number of the pressing issues with the water system have been addressed through the capital project. These include redevelopment of the well to remove sand and optimize production, upgrade of the pumping and piping system to correct long term corrosion issues, completion of the new chlorine monitoring and control system and general overhaul of works, including tidy-up of the access. The expenditures from the original \$100,000 budget amounts to \$25,000, leaving a further \$75,000 which can be used for development of a new water supply source. It should be noted that although the well redevelopment was successful in cleaning out sand and restoring well storage, production from the well remains at or about one gallon per minute during the dry time of the year.

Options Considered for Secure Water Supply

As previously mentioned, the location of an alternate supply well within close proximity to the existing water distribution system has proven fruitless to date. There are potential options for development of wells further from the water system, however even these locations are difficult to secure, and will in any case require construction of a water main extension of considerable distance at considerable cost. If the community determines CRD should continue down the path of groundwater well development, there will be an additional borrowing necessary to connect the well to the existing water system. For purposes of this report the following two geographical locations for well development are considered:

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- Geographical area around the old school site on Isabella Point Road at Meadow Drive.
- Geographical area around the Ruby Alton Land Reserve.

The two sites are detailed on the attached sketch plans.

The CRD has also further evaluated an option to interconnect and operate as one, the Cedars of Tuam water service with the Fulford water service, by way of underwater pipeline. This option, also shown on the attached sketch plans may provide the most cost effective alternative to the community, while also benefitting the Fulford water area through reduced operating and debt servicing costs.

Discussion of Options:

Development and testing of a new groundwater well requires the following construction components:

- Land negotiation for access to development site.
- Registration of right of way.
- Construction of access road for drill rig and future servicing.
- Drilling and casing the well.
- 72-hour well test as required by Ministry of Health for all public systems.
- Water quality testing.
- Subject to acceptable test results for quality and quantity:
 - Installation of pump and piping
 - Construction of well house,
 - Control, electrical, disinfection systems

The typical estimated costs for these works, at either of the proposed locations, amounts to \$122,000 construction cost with engineering and contingency not included. A more detailed description of three options is presented following:

Option 1 – New Groundwater Well at Meadow Drive

The site with the highest probability of developing a good water source would be in the area of the old school. As the CRD has no right of way between Isabella Point Road and the present water reservoir, and as the present owner of the land has not indicated a willingness to grant such a right of way, the CRD is left to route the interconnecting main down Isabella Point Road and back along Roland Road. The main length required for this location, approximately 775 metres, makes this option the most expensive, given the recent costs for watermain installation, rock removal and reinstatement on the island. Under this proposal, as with all options, the present water tank and well would be retained. In this option the well would be mothballed for emergency conditions but the tank would remain in active service at its present location. If this proposal were to be initiated, staff would recommend development and proving out of the well as an initial phase, followed by construction of the interconnecting main. In this regard, if the site does not prove out, the expenditure of funds is limited to the cost of drilling and testing the well.

Option 2 – New Groundwater Well at Ruby Alton Land Reserve

The second option for a groundwater well would be in the area adjacent to Ruby Alton Farm. The access to a suitable site in this area is a major challenge and requires further negotiations between the Trust Conservancy of Canada, Ministry of Transportation and Salt Spring Trust Conservancy. While not futile, the negotiations and construction requirements arising from those negotiations may add considerable cost to the well development at this site. Again, as with the school site, the major cost of this option remains the water main interconnection between the well site and the end of the distribution system, a distance of some 375 metres. As with the first groundwater option, the continued use of the water tank

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would be needed, however the existing well would be mothballed except for emergency use. The construction of the well would follow the same procedure as in Option 1, with the well secured in advance of any further expenditures for site infrastructure or watermains.

Option 3 – Interconnect to Fulford Water

The third option is somewhat unique in that it would make up the shortfall in water supply from the Fulford water service area, which is supplied by Weston Lake. There has not been a lot of support for this initiative in past from the Fulford Water Service Committee. The Fulford water district however is facing additional costs for construction of their new water plant and operating the new system and may be open to a partnership if the financial benefits to Fulford residents can be shown to be significant. For the Fulford committee to consider such an approach, they have identified a requirement for the CRD to evaluate the present and future water needs of the Fulford community and the sufficiency of the Weston Lake source to provide for servicing both the Cedars of Tuam water area and the long term development objectives for the Fulford area.

This option would include construction of a small diameter underwater pipeline some 3 kilometres in length from the Fulford dock to the right of way access at the south end of the Cedars of Tuam water service area. Once connected, water from the Fulford system would provide daily and peak flow requirements. The design calls for the present water tank and well will be retained to provide balancing for the system as required and to be the prime supply should a failure in the Fulford connection occur. The pipeline material is thick wall high density polyethylene. The material is heat fused into one continuous length and then weighted to ensure the pipe remains submerged. The material is very robust, designed for this specific application, and used extensively. The material usage locally includes the Ganges sewer outfall, which has been in service to date over 20 years and Piers Island which receives its water supply from the CRD water system at North Saanich.

Where new properties are added to an existing system, it has been the practice for the new parcels coming into the area to contribute to the system in recognition of funds already invested by the host area. As the Fulford ratepayers have recently invested heavily in a new state of the art water treatment plant, a new balancing reservoir and a number of new supply and distribution mains, it is expected that the residents of Cedars of Tuam would be required to purchase or buy into the Fulford system. The most recent example of this process is the Fulford School which provided a significant benefit to the water district in the form of land for the water reservoir and water treatment plant in exchange for receiving water from the community system.

Although not approved by Fulford, an allowance for this capacity purchase has been included in the costing of this option. Also included is an allowance for CRD staff to conduct a water balance exercise to ensure there is sufficient water available for both Fulford and Cedars of Tuam. While there are considerable extra costs required for construction of works to interconnect the two systems and to buy into the Fulford system, the long term operating costs for the combined utilities are considerably less than what users on the Cedars of Tuam system currently pay. This coupled with a more secure water supply, while also retaining the existing source as a backup supply suggest this option is worth consideration.

Cost Comparison of Options

Option	Capital Cost	Annual Debt Cost, New + Existing	Per Parcel Charges	Fulford Parcel Charge	Annual Operating Cost	Total Annual	2009 Cost	Net Increase
1	\$581,813	\$58,149	\$3,825		\$1,002	\$4,827	\$1,238	\$3,589
2	\$380,263	\$35,991	\$2,368		\$1,002	\$3,370	\$1,238	\$2,132
3	\$257,246	\$22,466	\$1,478	\$545	\$730	\$2,753	\$1,238	\$1,515

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Notes:

1. Capital cost is net of cash on hand and grant.
2. Annual debt estimates for new debt estimated at 6% over 15 years through the Municipal Finance Authority (MFA).
3. Fulford parcel charge would be the same cost Fulford assesses its property owners for debt servicing.
4. Annual operating includes a fixed fee of \$642 plus a variable fee, which, based on present consumption trends, would average \$88 for a Cedars of Tuam resident. As Fulford is just now proposing to meter its residential properties, the committee has not yet approved a final fee formula. The formula proposed for this analysis will be recommended to the Fulford Water Service Committee for consideration, however the final version may alter the annual charges somewhat.

Recommended Option

The present output of the Cedars well has been optimized, but remains inadequate to meet the needs of the community during the dry fall period. The success of locating and developing a new well site for the Cedars of Tuam water service area is limited predominantly by the cost of construction of interconnection of the new well to the existing system. On this basis CRD staff looked elsewhere for a potential solution to provide an adequate and secure supply for the water area. The most promising alternative is to interconnect the Cedars of Tuam water area to the Fulford water area by way of an underwater pipeline. It goes without saying that the increase in costs for this or any of the proposals is extreme. Property owners will need to consider whether the additional security of water supply and more consistent water quality are sufficient to warrant the additional cost. If supported by in principle by a majority of ratepayers, CRD staff, in concert with the Cedars of Tuam water service committee will:

1. Meet with the Fulford Water Service Committee to agree on the terms of such a process, expected to include the funding by Cedars of Tuam of a capacity purchase charge in recognition of Fulford water district sharing its water supply. For purposes of the cost of this option an allowance of approximately \$55,000 has been included.
2. On completion of the negotiations, host a further meeting of the Cedars of Tuam residents to provide an overview of final details; and
3. Subject to continued support, complete a formal petition of property owners to obtain the necessary assent for CRD to borrow funds for the project.

ALTERNATIVES

1. That the Cedars of Tuam Water Service Committee accept a staff recommendation to support Option 3 as the preferred method to obtain a long term stable supply of water for the Cedars of Tuam water area, and pursuant to that option, direct staff to arrange a meeting with the Fulford Water Service Committee to agree on the terms and conditions of expansion of the Fulford Water service area to Cedars of Tuam.
2. That the Cedars of Tuam Water Service Committee direct staff to proceed with an alternate option to that recommended by staff to solve the present water shortage problem.

FINANCIAL IMPLICATIONS

The proposed program as outlined will exhaust the present capital funds. Additional funds will be required to be borrowed through the CRD for any of the options presented. The committee will need to poll the property owners in the water area by petition to approve a further borrowing. The recommended

option, interconnection to the Fulford water service area, is subject to pre-approval by the Fulford Water Service Committee. Under this proposal, on completion of the interconnect, the CRD Board would be requested to expand the boundaries of the Fulford water service area to include the Cedars of Tuam water service area. Once expanded, the fees and charges applicable to water customers and property owners in the existing Fulford water service area would be applied to all properties and customers in the expanded Fulford water service area. The Cedars of Tuam water service area would be retained as a service until the obligations for debt servicing of the present and proposed works was retired.

SUMMARY/CONCLUSIONS

The present water supply well for the community has been redeveloped, cleaned out and optimized for production, however it is evident the well is inadequate and cannot be considered as a secure supply for the community. Staff have been unable to identify viable options to develop an alternate groundwater supply well in the immediate vicinity of the present water system. Potential sites for groundwater exploration exist further afield, however the high cost of watermain construction renders these sites very expensive to develop. As a consequence, CRD staff looked to other options for alternatives and have developed an option to interconnect the Cedars of Tuam water service to the Fulford water service. Although the details of the interconnection would need to be negotiated with Fulford, it is evident this option may be the most cost effective option to the community at this time. With this option, the average cost for provision of water, mostly due to increased debt servicing, would be in the order of \$2,753 a significant increase over the present cost of on average, \$1,238.

If supported in principle, staff suggest the Cedars of Tuam Water Service Committee meet formally with the Fulford Water Service Committee to discuss and agree on terms of such a proposal.

RECOMMENDATION

That the Cedars of Tuam Water Service Committee accept a staff recommendation to support Option 3 as the preferred method to obtain a long term stable supply of water for the Cedars of Tuam water area, and pursuant to that option, direct staff to arrange a meeting with Fulford Water Service Committee to agree on the terms and conditions of expansion of the Fulford water service area to Cedars of Tuam.

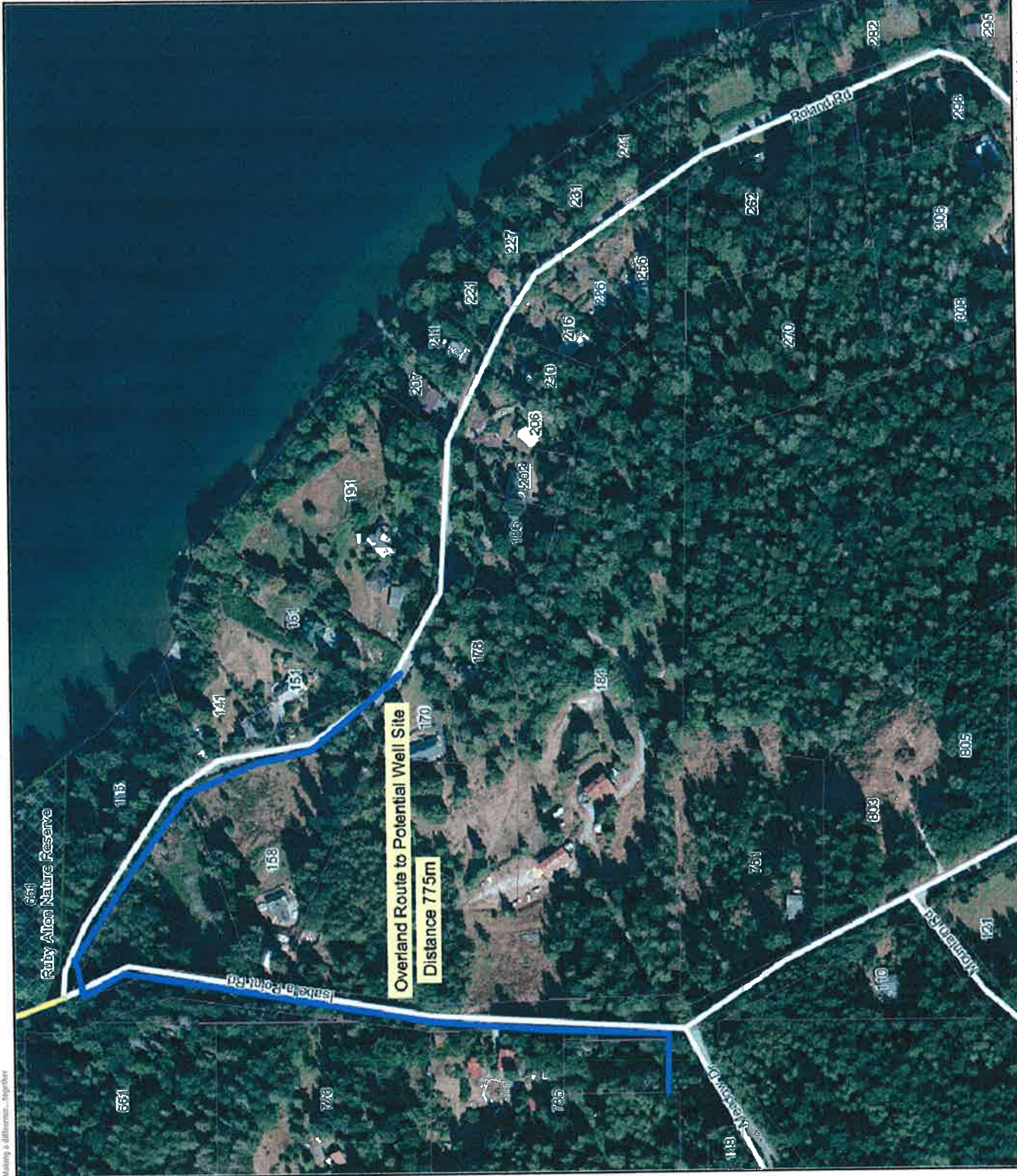


Colwyn Sunderland, ASCT
Local Services Engineering Coordinator

GH:ls

Attachments: 5

Cedars of Tuam - Overland Route to Meadow Drive



Legend

- Municipal Boundaries
- Highways
- Major Roads
- Roads
- Parks & Protected Areas
- Federal Park
- Provincial Park
- Provincial Ecoversery
- Regional Park
- Future Regional Park
- Municipal and Community Parks
- Protected Area
- Lot Boundaries
- Major Lakes
- Lakes and Rivers
- CRD Boundary

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Cedars - Overland Route to RW at Ruby Alton



Overland Route Road Right of Way Ruby Alton 375m

Legend

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Scale: 1:3,870
 Created: January 15, 2009

Fulford Terminus



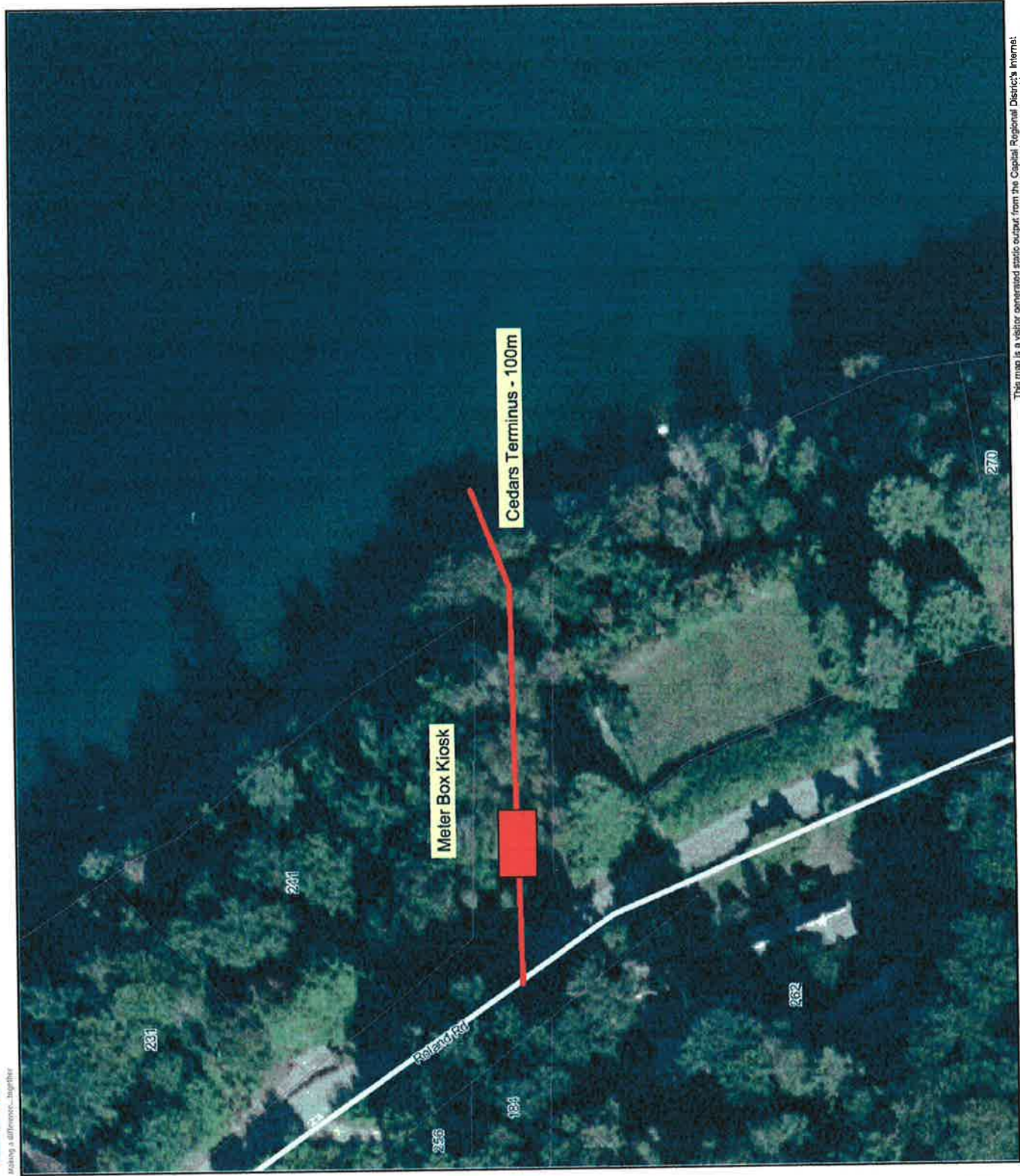
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- Municipal Boundaries
 - Highways
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Cedars Terminus



Legend

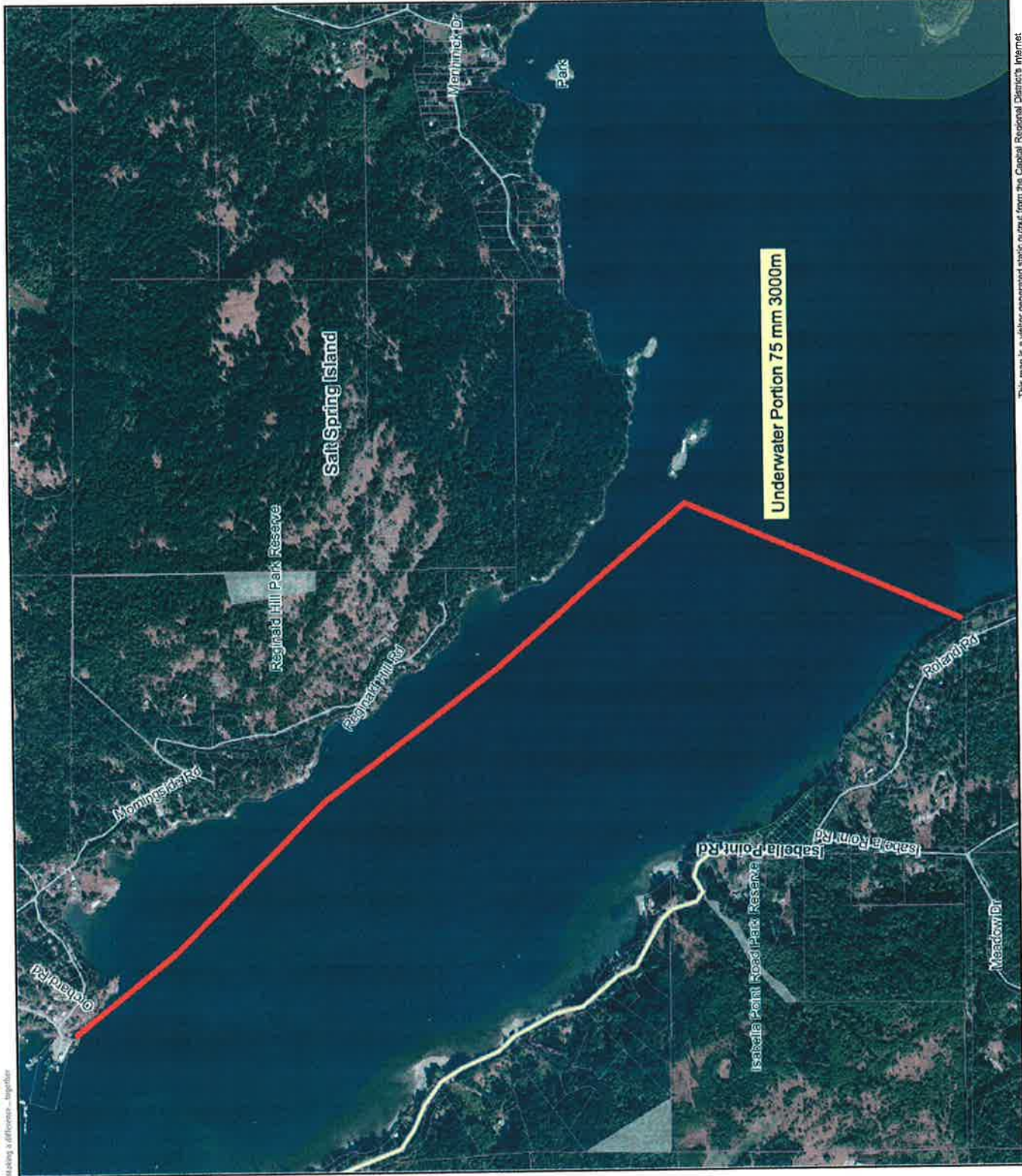
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Fulford / Cedars Interconnect - Underwater Portion



Legend

- Municipal Boundaries
- Highways
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- Provincial Park
- Provincial Ecoserve
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Scale: 1:14,728
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