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**REPORT TO MAGIC LAKE ESTATES WATER AND SEWER LOCAL SERVICES
COMMITTEE
MEETING OF FRIDAY, APRIL 25, 2014**

SUBJECT **ISLAND HEALTH NOTICE OF VIOLATION OF SEWERAGE SYSTEM
REGULATION REGARDING CHART DRIVE SEPTIC SYSTEM AND
DISPOSAL FIELD**

ISSUE

On April 14, 2014, the Capital Regional District (CRD) received a written Order from Island Health stating that the Chart Drive septic and disposal field is no longer considered operational and has ordered its use be discontinued pending repair. The Island Health notice is included in this report as Attachment 1.

BACKGROUND

Pursuant to Section 25 of the *British Columbia Public Health Act*, the Environmental Health Office of Island Health, on April 2, 2014 conducted an inspection of the Chart Drive septic and disposal field. As a result of the inspection, Island Health have reasonable and probable grounds to believe and do believe that the Chart Drive septic and disposal field is in contravention of the *Sewerage Regulations (BC Regulations 326/2004)*.

The requirements of the Island Health Order are as follows:

1. Repair or replace the existing sewage disposal system pursuant to the regulations of the government agency having jurisdiction or;
2. Connect the structure to a public or community sewer system, to be completed no later than May 22, 2014 pursuant to Section 11(b)(i) of BC Reg. 326/2004; or
3. Pump out all domestic sewage, generated by this system using an approved wastewater hauler and have it disposed of at an approved site.

As a precaution, staff have collected a sample of the effluent and will look at using caution tape to cordon off the area to prevent anyone from walking through the area.

In 2011, the CRD's Integrated Water Services retained Stantec Consulting Ltd. to undertake a condition assessment of the Magic Lake Estates wastewater system. The final 2012 Stantec report contained recommendations for repairs and replacement over a 20-year period for all aspects of the sewer system including the Chart Drive septic and disposal field. The existing pumping station serves 18 lots and pumps to two distribution fields; the total design flow is 14.3m³/day. The Stantec report indicates that the septic field is grossly undersized by today's standards and would need to be upgraded to continue effective disposal at the site. Two long term options were provided with order of magnitude costs estimates only.

In 2014 budget deliberations and in response to CRD staff's recommendations, the Magic Lake Estates Water and Sewer Local Services Committee approved in principle, a 2015 expenditure

of up to \$500,000 to address the Chart Drive septic system. The description below is an excerpt from the 2014 budget:

*“Chart Drive Septic Replacement (2015) \$500,000
The Chart Drive septic system, which provides sewer service to 18 properties, has reached the end of its useful life and requires replacement. A project plan, including conceptual design and budgetary cost estimate for elimination of the septic system and replacement with pumping to the Schooner plant, will be developed in 2014. The budget for this item is an order of magnitude estimate only and will be refined for the 2014 referendum to seek public approval to borrow funds for the work.”*

However, it is important to note that this option may also require upgrades to the Schooner Wastewater Treatment Plant. The 2012 Stantec report identifies two approaches for addressing issues with the Schooner plant.

New Clarifier and Equalization Tank

This approach consists of installing a new Clarifier #1 and an equalization tank. This approach will extend the life of the existing plant and allows further time for funding a new treatment plant in 15-20 years. The Class E cost estimate for this approach is \$1,540,000 (not including taxes).

New Treatment Plant

If the results of the ultrasonic testing of the aeration tanks indicate the remaining life is less than 15 years, it is recommended to forgo the replacement of Clarifier #1, and instead to build a new sequencing batch reactor plant adjacent to the existing plant. The Class E cost estimate for this approach is \$3,010,000 (not including taxes).

ALTERNATIVES

Short Term Alternatives

Short Term Alternative 1

That the Magic Lake Estates Water and Sewer Local Services Committee direct staff to implement the short term solution of hauling from Chart Drive pump station and disposal to the collection system upstream to Schooner wastewater treatment plant at an estimated cost of \$1,000/day; and

Fund the work from the Magic Lake Sewer Capital Reserve Fund (#1042).

Short Term Alternative 2

Hauling and disposal from Chart Drive off Island is estimated to cost \$1,800/day (trucking rate \$0.30/gallon plus disposal rate \$0.29/gallon plus ferry charges) with a monthly estimated cost of \$55,000.

Implications – Short Term Alternatives

Island Health has ordered the CRD to discontinue use of the disposal field and an immediate (short term) solution is required. The above short term alternatives both involve hauling wastewater.

The above estimates are calculated based on the estimated average daily flows for the Chart Drive system as reported in the Stantec report (3,000 Gallons/day).

Based on the costs above, hauling and disposal at the Schooner plant (short term option 1) is the most cost effective option to address the Island Health Order. Funding for this aspect of the work could come from the Magic Lake Sewer Capital Reserve Fund (#1042) as this is related to a failure of the system and requires a capital upgrade. As of December 31, 2013 there is \$307,257 available.

Long Term Alternatives

Long Term Alternative 1

Pursue the long term solution of replacing the Chart Drive septic system by undertaking a hydrogeological investigation to determine feasibility and report back to the committee on feasibility and estimated costs. The cost of this investigation is approximately \$15,000 including engineering (15%), but not taxes; and

Fund the work from the Magic Lake Sewer Capital Reserve Fund (#1042).

Long Term Alternative 2

Install a small pump station and new force main to the existing gravity system. Flows would then be treated by the Schooner plant. Although more expensive, diverting the flows to Schooner eliminates the possibility of future field failures. The Class E cost estimate for this option is \$800,000.

Implications – Long Term Alternatives

Long Term Alternative 1 – This alternative has a lower initial capital cost provided the hydrogeological investigation results are favourable. However, the expected life of a septic field is approximately 20 years. At that time, the septic field would need to be re-built again. There would also be additional operating and maintenance costs associated with keeping this system functioning properly over the 20-year operating life.

Alternative 1 includes provision of a new packaged treatment system and upgraded distribution field. This option is only feasible if hydrogeological conditions are favourable. Investigation of the hydrogeological conditions was not conducted in the Stantec study and would be the first step if this option is pursued. The Class E cost estimate for this option is \$400,000.

Long Term Alternative 2 – This alternative is a higher initial capital cost but provides a permanent solution to the issue. The ongoing operating and maintenance costs would be lower in order to keep the system functioning properly over the life of the system. Given that most houses along the forcemain route are currently serviced by their own septic fields, which have a limited life span, there may be an opportunity to construct a system which allows connection of these houses in the future. This option would allow for some cost recovery from these properties if they agree to connect to the system and join the Magic Lake Estates sewer area, subject to the committee's approval.

Funding available from the Magic Lake Sewer Capital Reserve Fund (#1042) as of December 31, 2013 is \$307,257. There was also a \$500,000 Building Canada Fund approved for the new water treatment plant servicing Magic Lake Estates. This funding has since been

reallocated to provide water main upgrades as part of the Magic Lake Estates water system improvements. The committee could direct CRD staff to approach the Province to investigate reallocating the funding to help address the Chart Drive sewer issue.

CONCLUSION

The best short term solution which meets the requirements of the Island Health Order is to haul the septage to the Schooner plant. This should be undertaken until such time a long term solution is implemented.

The least cost long term alternative is to replace the Chart Drive septic fields and pumping station. This alternative should be pursued further through a hydrogeological investigation to prove feasibility. The cost of this investigation is approximately \$15,000 including engineering (15%), but not taxes.


RECOMMENDATION

That the Magic Lake Estates Water and Sewer Local Services Committee direct staff to:


1. Implement the short term solution of hauling from Chart Drive pump station and disposal to the collection system upstream to Schooner wastewater treatment plant at an estimated cost of \$1,000/day; and
2. Pursue the long term solution of replacing the Chart Drive septic system by undertaking a hydrogeological investigation to determine feasibility and report back to the committee on feasibility and estimated costs. The cost of this investigation is approximately \$15,000 including engineering (15%), but not taxes; and
3. Fund the work from the Magic Lake Sewer Capital Reserve Fund (#1042).



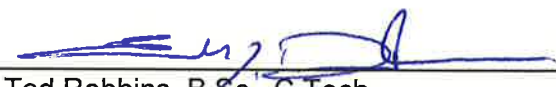
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