

Staff Report to Council

Title: Sludge Removal

Report Number: Environmental Services-2024-27

Director: Infrastructure & Development

Manager: Environmental Services

Meeting Date:
Wednesday, October 9, 2024

Date to be considered by Council:
Wednesday, October 9, 2024

Recommendation:

That Council approve a 2024 budget amendment to accelerate a project for sludge removal from both the Kincardine and Tiverton Lagoon sites at a cost of \$680,000 funded from the Sewer Reserve Fund 67.

Executive Summary:

The Municipality continues to invest long-term improvements to its water and wastewater infrastructure. In the spring of 2024, odour related issues began to cause problems at the Kincardine lagoon site. Compliance related issues surrounding total suspended solids became a problem mid 2024 at both the Kincardine and Tiverton lagoon sites. Staff are recommending a procedure to begin the process of removing sludge out of the lagoon systems.

Strategic Priorities:

D.16-Ensure the Municipality provides value for money and long-term sustainability

Financial Considerations:

The updated water and wastewater financial plans currently being completed have identified the aeration Cell in Kincardine, and Cells 3 & 4 at the Tiverton wastewater site as high priority for completion in 2025. The sludge removal process for the project has a budget estimate of \$680,000.

Policy:

N/A

Context and Background Information:

The Kincardine Wastewater site was built in 1965 initially consisting of the current two large ponds on the site at 520 Bruce Avenue. In the late 1970's the addition of the small aeration pond at the headworks of the plant was designed and installed for improved treatment. Staff are aware that in 2012, sludge was removed from the small aeration cell in Kincardine and field applied to surrounding agricultural lands. Staff are unaware of any other sludge removal applications.

The Tiverton Wastewater site came online in the early 1990's and was transferred to the Municipality of Kincardine in 2011. Since the transfer there has been no sludge removal from the ponds, and there is also no indication historically of previous sludge removal from the site.

Staff are recommending a process to start working with select contractors in which the sludge is pumped into geotubes. The tubes capture the solids in a hard woven bag (geotube) and allow the decant water product to drain back off for further treatment. Some small site preparation will be required to ensure proper grade and drainage.

Often past practice for this type of work includes attempting to reach out to local landowners and working to land apply the sludge like farm operations. Staff have been advertising locally, to determine if there was any interest from local landowners but did not receive any interest in application. This process is becoming difficult as large quantities of land are needed for application, risks associated with transport can be a nuisance, and overall costs are making this unaffordable for Municipalities.

In the spring of 2024 staff noted that dissolved oxygen levels, an important component for treatment in the aeration cell was running quite low. This was followed by odour related issues in the surrounding neighborhood for about a three-week period in the late spring. Compliance related issues surrounding total suspended solids at both sites have left the sites just over allowable limits through the late summer months, as staff work to bring these sites back into compliance. Staff believe the sludge levels and volumes within these ponds are having a significant factor in the treatment process. These issues are driving the need to get this work completed. Monthly exceedances at the wastewater sites are reported to the Ministry of Environment Conservation and Parks, and continued non-compliance or worsening conditions could lead the Ministry into investigating what Kincardine is doing to proactively resolve the issue, or orders could be implemented to resolve the issue.

With Council support of the project the goal would be to procure and have Kincardine at the front of the queue for the spring of 2025, which would allow us to likely begin the work in early April and have it completed within about three weeks hopefully alleviating the issues that caused problems to the system through the 2024 season. Afterwards the two ponds at the Tiverton site would be completed.

Consultation Overview:

In July of 2024, Kincardine worked with Hydra-Survey, a company that conducts assessment of sludge levels in all 7 wastewater cells at the lagoon sites. These reports (attached) provided a footprint of overall sludge volumes, capacity they are taking up in each pond, and staff have worked to identify a process for sludge removal both for 2025, and coming years in the updated financial plans.

Additionally, staff completed internal works in the summer of 2024, to review the new aeration system that has been installed in Kincardine and why the site is struggling to perform and maintain dissolved oxygen levels. Those findings revealed that not only are sludge levels high, but the cell also has significant rag build-up which is causing plugging of the diffuser system and poor performance. New sites such as Connaught Park and Huron Terrace lift stations now have automated bar screens that work to remove these issues, but past practice has resulted in this cell being overloaded with product. This is impacting the overall effectiveness of the new aeration system, and the sludge removal process will work to remove this problem and provide better treatment long term.

Origin:

Treatment and Compliance Concerns/ Odour Related Issues/ Water & Wastewater Financial Plans.

Implementation Considerations:

Tendering for the project would begin upon Council's approval of the budget amendment. The maintenance work for the Kincardine site would commence in the spring of 2025, and hopefully allow for completion prior to any odour or treatment problems. The Tiverton site would be completed immediately after to have limit mobilization costs.

Risk Analysis:

Both sites continue to run slightly over compliance levels for total suspended solids. While it is possible the Ministry could implement orders, it is more likely they would be looking to see if the Municipality is proactively trying to resolve the issue. Furthermore, trying to resolve these issues to maintain a positive relationship with the community and resolve problems would be beneficial.

Attachments: Hydra-Survey Studies

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Submitted by: Mark O'Leary, Manager of Environmental Services

Report Approval Details

Document Title:	Sludge Removal - Environmental Services-2024-27.docx
Attachments:	- 24049B Tiverton, ON Wastewater Lagoon Sludge Surveys 2024 - Report.2024.07.30.R0.pdf - 24049A Kincardine, ON Wastewater Lagoon Sludge Surveys 2024 - Report.2024.07.30.R0.pdf
Final Approval Date:	Oct 2, 2024

This report and all of its attachments were approved and signed as outlined below:

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