

SUMMARY OF COMMENTS/RECOMMENDATIONS

PROPOSAL NAME: Rural Municipality of Lawrence
Community of Rorketon Wastewater
Treatment Lagoon

CLASS OF DEVELOPMENT: 2

TYPE OF DEVELOPMENT: Wastewater Treatment Lagoon – Waste/Scrap

CLIENT FILE NO.: 5464.00

OVERVIEW:

On May 12, 2010, the Department received a Proposal from J.R. Cousin Consultants Ltd. on behalf of Rural Municipality of Lawrence for the construction and operation of a wastewater treatment lagoon located on the northeast quarter of section 9-28-16 WPM in the Rural Municipality of Lawrence, to serve the community of Rorketon and rural areas in the R.M. of Lawrence. The proposed development will consist of the construction of a new primary cell, a new secondary cell, and a truck turnaround and spillway. Treated wastewater from the wastewater treatment lagoon will be discharged between June 15th and November 1st of any year into the perimeter ditch by gravity via a discharge pipe. From the perimeter ditch, the effluent would be discharged approximately 165 m directly west via a drainage ditch to marsh areas and 2nd and 3rd order drains which flow north to Spence Lake and Lake Manitoba.

On June 4, 2010, Manitoba Conservation placed copies of the Proposal in the Public Registries located at 123 Main St. (Union Station), the Winnipeg Millennium Public Library, the Manitoba Eco-Network, the Dauphin Public Library and the R.M. of Lawrence Office. Copies of the Proposal were also provided to the Technical Advisory Committee (TAC) members. The Department placed public notification of the Proposal in the Dauphin Herald on Tuesday, June 8, 2010.

On July 12, 2010, Manitoba Conservation forwarded requests for additional information from the TAC to the proponent's consultant. On September 13, 2010, Manitoba Conservation received comments/responses on TAC comments from the proponent.

On September 14, 2010, the consultant's responses were distributed to the participating TAC for review and comment.

All additional information necessary for the review was placed in the Public Registries.

COMMENTS FROM THE PUBLIC:

No comments were received from the public.

Manitoba Conservation – Parks and Natural Areas Branch

- *No concerns*

Manitoba Innovation, Energy and Mines – Mines Branch

- *No concerns*

Manitoba Conservation – Wildlife and Ecosystem Protection Areas

- *No concerns*

Manitoba Conservation – Environmental Services

- *No concerns*

Manitoba Conservation – Pollution Prevention Branch

- *No concerns*

Manitoba Infrastructure and Transportation

July 06, 2010

- *All potential drainage into our ditches from the site should be controlled within a bermed area around the facilities and equipped with a control valve so that any contaminated run-off could be contained within premises. Drainage of such run-off is not to be allowed into surrounding provincial highway ditches.*
- *A liability agreement must be considered if drainage is proposed from site into the highway ditch. It is recommended that the applicant be requested to enter into an agreement with MIT to cover potential liability issues that may be associated with such discharge.*

Proponent Response (September 13, 2010):

- The lagoon cells will be bermed structures equipped with a control valve to contain the wastewater.
- The proponent understands the requirement for an agreement with Manitoba Infrastructure and Transportation (MIT) in relation to utilizing the PR 364 ditch and culvert for lagoon drainage purposes. When the project proceeds to the design stage, an agreement between the proponent and with MIT will be entered into.

Disposition:

- After receiving the additional information from the proponent, no further comments were received from Manitoba Infrastructure and Transportation.

Manitoba Conservation - Sustainable Resource & Policy Management Branch & Land Branch

June 28, 2010

- *The proposed effluent discharge route as shown in Plan L1 runs through Crown Land coded 7a (haying and grazing, no development allowed) at SE 23-29-16W and SE 24-29-16W. Manitoba Conservation is working with Manitoba Agriculture and Agri-Food and Rural Initiative (MAFRI) on an agreement to protect lands that are coded for haying and grazing. As these parcels have potential for protection, the Protected Areas Initiative (PAI) does not support establishment of new drains, if required, in these parcels.*

Proponent Response (September 13, 2010):

- There are no new proposed drains to be installed in Sections 23-29-16 W or 24-29-16W.

Disposition:

- After receiving the additional information from the proponent, no further comments were received from Sustainable Resource & Policy Management Branch & Land Branch of Manitoba Conservation.

Manitoba Conservation – Environmental Operations

June 23, 2010

- The Proposal indicated that there are currently 46 residents on holding tanks in the R.M of Lawrence with an estimated 20 year increase of 4. I have reviewed three subdivision proposals within the last year for 75 cottage lots within the RM of Lawrence that would be on holding tanks in addition to the current 46. This area is showing an increased demand for lakefront lots and should be taken into consideration in the population increase and therefore the overall capacity of the lagoon. In addition, there are several cottages on holding tanks in the unorganized territory operated by Aboriginal and Northern Affairs, while not the R.M. of Lawrence's responsibility, are closer in proximity to the proposed lagoon in Rorketon than to the lagoon in Waterhen. If this population were to be considered, there would be an approximately another additional 100 holding tanks contributing to the lagoon. This office feels that the development in the area should be considered in sizing the lagoon appropriately.

Proponent Response (September 13, 2010):

- The proponent has identified that approximately 125 additional subdivision lots have recently been proposed in the RM, for development within the next 5 years. These lots would be on holding tank systems and would require disposal in the proposed

lagoon. Therefore, if these lots proceed, the RM would have to provide direction to re-size the lagoon during the design phase to incorporate the increased demand. In regards to the Aboriginal and Northern Affairs territory, if an agreement can be reached for the nearby cottage lot loading, the lagoon would be re-sized to meet this additional demand.

Disposition:

- After receiving the additional information from the proponent, no further comments were received from Manitoba Conservation – Environmental Operations.

Manitoba Water Stewardship – Planning and Coordination Branch

July 06, 2010

- *Manitoba Water Stewardship recommends an Environment Act Licence to include the following requirements:*
 - *The proponent indicates a discharge period of two (2) weeks to maximize nutrient uptake in the drainage path is feasible.*
 - *Effluent quality standards must be achieved before the facility discharges and must be maintained throughout the discharge period.*
 - *Manitoba Water Stewardship is concerned with any discharges that have the potential to impact the aquatic environment and/or restrict present and future uses of the water.*
 - *The Licencee is required to actively participate in any future watershed based management study, plan/or nutrient reduction program, approved by the Director.*
- *Manitoba Water Stewardship submits the following concerns:*
 - *The Department has a concern pertaining to drainage.*
 - *The proponent is required to provide the details (profile and cross section) of the proposed effluent discharge outlet channel from the perimeter ditch to the PR ditch.*
 - *Some aspects of the geotechnical investigation were inadequately or inappropriately conducted or reported. The proponent shall address the following concerns and submit additional information:*
 - *The majority of the test holes were done by the R. M. of Lawrence in 2006 and samples provided to Cousin Consultants Ltd. The*

locations of these test holes were not shown on a map or sketch, nor were logs provided. The method of excavation and sampling was also not reported. Test drilling and sample collection should be done under the supervision of a qualified person who would provide a log of the materials encountered;

- *Excavation was only conducted to a depth of about 8 feet. Excavation should have been conducted at a considerably greater depth;*
 - *Information was not provided on the expected geology or hydrogeology of the area, based water well logs or other information;*
 - *The proposal assumed that, if an HDPE liner was installed, leakage would not occur. This does not allow for the potential of a tear in the liner following installation. Site evaluation should have been conducted to allow for a discussion of the consequences of a tear in the liner and whether there is any need for monitoring, both of which should have been discussed in the Proposal; and,*
 - *The Proposal includes an assessment of the hydraulic conductivity of the sub-soils, based on Atterberg limits. This assessment does not provide reference documentation to support the conclusion.*
- *Manitoba Water Stewardship submits the following comments:*
 - *The Manitoba Department of Water Stewardship is mandated to ensure the sustainable development of Manitoba’s water resources. Manitoba Water Stewardship is committed to the goals of: protecting aquatic ecosystem health; ensuring drinking water is safe and clean for human health; managing water-related risks for human security; and stewarding the societal and economic values of our waterways, lakes and wetlands; for the best water for all life and lasting prosperity. Manitoba Water Stewardship achieves these goals, in part, through administering legislation, including The Water Protection Act, The Water Rights Act, and The Water Power Act.*
 - *The Water Rights Act requires a person to obtain a valid licence to control water or construct, establish or maintain any “water control works.” “Water control works” are defined as any dyke, dam, surface or subsurface drain, drainage, improved natural waterway, canal, tunnel, bridge, culvert borehole or contrivance for carrying or conducting water, that temporarily or permanently alters or may alter the flow or level of water, including but not limited to water in a water body, by any means, including drainage, OR changes or may change the location or direction*

of flow of water, including but not limited to water in a water body, by any means, including drainage. If a proposal advocates any of the aforementioned activities, a person is required to submit an application for a Water Rights Licence to Construct Water Control Works. A person may contact the following Water Resource Officer to obtain an application and/or obtain information.

- *A contact person is Mr. Ed MacKay, C.E.T., Senior Water Resource Officer, Water Control Works and Drainage Licensing, Manitoba Water Stewardship, 1129 Queens Avenue, Brandon, Manitoba R7A 1L9, telephone: (204) 726-6226, email: ed.mackay@gov.mb.ca.*
- *The proponent needs to be informed that if the proposal in question advocates any construction activities, erosion and sediment control measures should be implemented until all of the sites have stabilized.*
- *The Lake Winnipeg Stewardship Board has recommended that all small wastewater treatment facilities, should meet a phosphorus limit of 1.0 mg/L. The proposed phosphorus limit of 1.0 mg/L is consistent with efforts underway across Manitoba and in upstream jurisdictions to reduce nutrient loads to Lake Winnipeg and its watershed. In the Lake Winnipeg Stewardship Board's December 2006 report to the Minister of Water Stewardship, the Board provides several strategies on how nutrient reduction could be achieved for small wastewater treatment facilities (see recommendations 14-20) including trickle discharge.*

Proponent Response (September 13, 2010):

- In accordance to the Environmental Act Licence, the RM will achieve the effluent quality standards before the lagoon is discharged, and will have to maintain the treated effluent to ensure the quality standard is met throughout the discharge period. The proponent would also be willing to participate in any future watershed-based management study, plan/or nutrient reduction program, approved by the Director, Water Science and Management Branch, and Manitoba Water Stewardship for the protection of the aquatic environment and water resources for present and future use.
- The depth of the outlet channel from the lagoon to the marsh area to the west of the lagoon site will be determined based on detailed topographic information obtained during the design phase of the project. Flow information through the marsh area, north to the ditch along P.R. 364, was obtained from local knowledge by residents in the R.M. of Lawrence, and from the JRCC site investigation. Detailed topographic information throughout the marsh area could not be ascertained through the site investigation, however the RM did provide an elevation plan along the drainage route, attached in Appendix B of the EAP.

- The test holes performed by the R.M. of Lawrence were located throughout the location of the proposed primary and secondary cell. The proposed arrangement of the cells during that investigation varied from the current proposed cell arrangement, however the location of the cells was similar. Results of the sampling were similar to the results obtained from the JRCC geotechnical investigation of the test holes to the south of the proposed cells. Logs of the soil profile in the test holes performed by the RM were not recorded at the time of sampling, however samples were taken at regular intervals of 0.4 inches in each test hole, allowing for an interpretation of the soil profile upon later inspection. The soils assessment letter included in Appendix C of the EAP, is an interpretation of the soil samples from both JRCC and from samples sent to National Testing Laboratories.
- Test holes were excavated to a maximum depth of 2.4 m due to hardpan refusal. Due to the known soil conditions at the site, a geomembrane liner was pre-selected for the lagoon construction. The additional soil testing was conducted to determine whether the soils were suitable to form the structure of the lagoon cells below the liner, and possibly the bedding and liner cover material. Therefore, there was no need to excavate any deeper.
- Soil survey information of the area describes the soils as being in the Lundar Series. These soils are Gleyed Carbonated Rego Black soils developed on extremely calcareous, medium textured stoney till. There were no well logs from the area of the proposed lagoon site, however, well logs to the southwest and southeast of the site indicate that the profile consists of a mixture of till, sand and clay hardpan down to approximately 6 m, followed by sand, glacial till and boulders down to approximately 30 m, followed by limestone.
- The HDPE liner bedding will be constructed of compacted insitu soil, which will be free of large or sharp stones to prevent any tears in the liner. The HDPE liner would be tested upon installation to ensure it is properly sealed, then covered with 0.3 m of sand (free of stones) to prevent damage to the liner, and then lined with rip rap around the inside slopes to prevent erosion. These measures are put in place to prevent tears in the HDPE liner. Monitoring wells will only be installed if outlined in the Environment Act Licence.
- Based on previous experience with samples tested for Atterberg limits and hydraulic conductivity, the National Testing Laboratories suggests that soil with a plasticity index of 25 may achieve an in-situ hydraulic conductivity of 1×10^{-7} cm/s or less. None of the samples submitted were found to have a plasticity index that would indicate the samples could attain an in-situ hydraulic conductivity of equal to or less than 1.0×10^{-7} cm/s. Based on these results and field observations, it was not deemed necessary to have any samples tested further for hydraulic conductivity.
- The proponent understands the requirement for Water Rights Act in relation to water control works. It does not appear that this proposal advocates any of the activities listed in the letter from Manitoba Water Stewardship.

- Erosion and sediment control measures will be implemented as necessary. As indicated in Sections 4.3 of the Environment Act Proposal (EAP), the specifications would state that the contractor is responsible for erosion control. At the time of preparing the specification, more detailed description of the procedures to be followed by the contractor would be provided.
- As indicated in Section 2.6.8.2 of the EAP, the phosphorus level in the treated effluent could be tested prior to discharge and alum could be spread in the lagoon to reduce the level of phosphorus in the treated effluent to 1.0 mg/L, if required.

September 30, 2010

- *If earthworks or excavation is necessary in order to establish an outlet channel, a Licence shall be required—prior to the commencement of construction—to apply for a Water Rights Licence to Construct Water Control Works pursuant to The Water Rights Act.*
- *Regarding the municipality conducting field work such as excavating test holes and collecting samples from the test holes, properly trained personnel should have been present when the field work was conducted. Experienced and trained personnel would have ensured that the test hole locations were properly recorded and provided on a map of the site, and the method of test hole excavation would have been documented. Implementing trained personnel in the field is a common and accepted engineering practice.*
- *Documentation was not provided to support the estimates of hydraulic conductivity that were developed from the laboratory testing. If the laboratory has developed a correlation between standard engineering tests and hydraulic conductivity then that information should be provided to support the estimates of hydraulic conductivity.*

Disposition:

- The draft Environment Act Licence includes clauses that address the above concerns.

COMMENTS FROM FEDERAL REPRESENTATION:

Canadian Environmental Assessment Agency (CEEA)

June 15, 2010

- *Project information was reviewed by the Department of Fisheries and Oceans, the Department of Indian and Northern Affairs and Environment Canada as part of the federal coordination process.*
- *Based on the responses to the survey an environmental assessment of the project under the Act is not necessary.*

PUBLIC HEARING:

A public hearing is not recommended because no comments were received from the public.

RECOMMENDATION:

The Proponent should be issued a Licence for the construction and operation of the wastewater treatment lagoon in accordance with the specifications, limits, terms and conditions of the attached draft Licence. Enforcement of the Licence should be assigned to the Environmental Assessment and Licensing Branch until the liner testing has been completed and the Development is commissioned.

A draft Environment Act Licence is attached for the Director's consideration.

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