

## **SUMMARY OF COMMENTS/RECOMMENDATIONS**

**PROPONENT:** Brightstone Holding Co. Ltd  
**PROPOSAL NAME:** Brightstone Colony Wastewater Treatment Lagoon  
**CLASS OF DEVELOPMENT:** 2  
**TYPE OF DEVELOPMENT:** Wastewater Treatment Lagoon  
**CLIENT FILE NO.:** 5389.00

### **OVERVIEW:**

On February 04, 2009, the Department received an Environment Act Proposal (EAP) from the Brightstone Holding Co. Ltd. for the construction and operation of a wastewater treatment lagoon in NW 34-15-9EPM in the Rural Municipality of Lac du Bonnet to service the Brightstone Colony farmsite that is located in Section 27-15-9EPM. An existing wastewater treatment lagoon located in NW Section 27-15-9EPM that currently services the farmsite will be decommissioned once the new wastewater treatment lagoon is commissioned. Treated wastewater from the new wastewater treatment lagoon will be discharged between June 15th and November 1st of any year to municipal drains that flow west and north into Main Drain No. 1 that flows north into Catfish Creek that flows north into Traverse Bay of Lake Winnipeg.

The Department, on February 25, 2009, placed copies of the EAP report in the Public Registries located at 123 Main St. (Union Station), the Manitoba Eco-Network, the Winnipeg Millennium Public Library and the Brokenhead River Regional Library. Copies of the EAP were also provided to the Canadian Environmental Assessment Agency (CEAA) and to the Technical Advisory Committee (TAC) members. The Department placed public notifications of the EAP in the Lac du Bonnet Leader and the Selkirk Journal on Friday, February 27, 2009. The newspapers and TAC notifications invited responses until March 30, 2009.

On April 17, 2009, Manitoba Conservation and Water Stewardship forwarded requests for additional information from the TAC to the proponent's consultant and sent copies of TAC correspondences to the Public Registries. Response to the request was received from the proponent on July 28, 2009 and was then distributed to the participating TAC for review and comment on July 30, 2009. Additional comments were received from TAC on August 07, 2009.

On July 11, 2011, the Department received a notice of alteration for the proposed lagoon development from the proponent. Construction of the new lagoon will be relocated in the SE quarter of section 34-15-09 EPM, approximately 125m southeast from the originally proposed location. Discharge route remains unchanged.

### **COMMENTS FROM THE PUBLIC:**

There were no comments from the public.

**COMMENTS FROM THE TECHNICAL ADVISORY COMMITTEE:**

**Intergovernmental Affairs – Community Planning Services**

No concerns

**Manitoba Conservation and Water Stewardship – Historic Resources Branch**

No concerns

**Manitoba Conservation and Water Stewardship – Parks and Natural Areas Branch**

No concerns

**Manitoba Conservation and Water Stewardship – Sustainable Resources & Policy Management Branch**

No concerns

**Manitoba Innovations, Energy and Mines – Mines Branch**

No concerns

**Manitoba Infrastructure and Transportation – Environmental Services**

March 25, 2009

- *We note that the project proposal indicated that the treated effluent will flow through increasing order of drains and converges with Main Drain No. 1. If the proponent will install a permanent structure at the proposed outlet in the Main Drain No.1, additional drainage information will have to be provided to this Department for review.*
- *Also, a liability agreement clause must be considered if drainage from the proposed site is directed into the PTH ditch. It is recommended that the applicant be requested to enter into an agreement with MIT to cover potential liability issues.*

Proponent Responses – July 28, 2009:

- A permanent structure will not be required or installed at the convergence of the second order drain and Main Drain No. 1, as illustrated in Figure 7.1 of the EAP.
- In dry periods, the lagoon effluent discharged from the lagoon is not expected to reach Main Drain No. 1. In wet periods, the lagoon discharge is expected to be a very small (i.e. negligible) portion of the volume flow through the drains. Therefore, based on the anticipated flows from the lagoon, there does not seem to be a need for a liability agreement with Manitoba Infrastructure and Transportation.

Disposition:

- After receiving the additional information from the proponent, no further comments were received.

**Manitoba Conservation and Water Stewardship – Environmental Services**

April 03, 2009

- *(1) We recommend the consideration of the new CCME guideline for BOD5 of <25 mg/L in the effluent.*
- *(2) Is there any industry on site (tannery, slaughterhouse, mtg, etc) that would vary the wastewater composition from regular domestic strength?*
- *(3) Why does the proposal include the option for pumping when discharging the secondary cell? (p.12)*
- *(4) Are there any plans for nutrient reduction to be incorporated into the design at this stage?*
- *(5) The interior berm top elevation should be slightly lower than the exterior top elevation*
- *(6) There is no rip rap shown on the drawing to prevent erosion from wave action.*
- *(7) Chlorine should not be considered an option to achieve discharge limits at this stage, due to the loading rates indicated and the potential environmental effects of chlorine; it is only utilized in site specific cases with consultation from Water Stewardship. (p.21).*
- *(8) Written authorization needs to be received from Manitoba Hydro & MTS for the pipeline crossing their easements/lines and for the proximity of the proposed lagoon to their line.*
- *(9) We recommend a concrete splash pads for transfer pipes instead of rip rap (C03).*

Proponent Responses – July 28, 2009:

- (1) While, we would expect that the effluent from the new Brightstone Colony lagoon would meet 25 mg-BOD<sub>5</sub>/L, the implementation of the CCME guideline should occur after full acceptance and adoption by Manitoba Conservation.
- (2) Typically, any food processing that occurs for Colony use and consumption is considered part of normal domestic wastewater. If the Colony processes saleable items, then this would be identified in the Environment Act Proposal as an additional wastewater source.
- (3) As noted on Drawing C03 (Appendix 2), “Elevation of discharge pipe will not permit a complete discharge based on drainage ditch elevations. Remaining effluent shall be discharged by pump.”
- (4) Trickle discharge may be an option for the gravity discharge portion of the treated lagoon effluent.
- (5) Please consult with Environmental Assessment & Licensing Branch of Manitoba Conservation regarding Comment #5.

- (6) Smaller clay lined wastewater lagoons are less prone to erosion by wave action. As stated in a typical lagoon license, rip rap will be required if significant erosion of the interior surfaces of the dykes occurs.
- (7) Rarely are adequately designed small wastewater lagoons in situations where the treated effluent exceeds any of the parameters currently included in licenses (i.e. BOD<sub>5</sub>, total and fecal coliform). Use of chlorine to lower coliform levels would be a highly exceptional case. In almost all cases, a retest of the effluent after additional treatment from sunlight has shown to bring the coliform levels into the acceptable range. In the unlikely event that chlorine is used, any residual chlorine will be dissipated from contact with the contents of the lagoon and with air, vegetation and soil along the discharge route prior to the effluent reaching Main Drain No. 1.
- (8) Both Manitoba Hydro and MTS were contacted concerning the pipeline crossing of their right-of-way/easements.
- (9) Use of rip rap aids in energy dissipation of the effluent during transfer from cell to cell.

August 07, 2009 (TAC)

- *Item#3 – Please explain why a new structure is being designed to not be able to completely discharge via a gravity discharge pipe. Due to the additional maintenance, and caution needed to properly discharge a lagoon cell with a pump, both for bank stability, and receiving stream/ditch integrity and conditions, Environmental Services does not recommend the use of a pump for the discharge of a sewage lagoon except for irrigation type operations. In the event that this design must proceed as shown with a pump, very specific pumping parameters should be included in the license requirements for the operator to follow including, but not limited to: maximum discharge flow rates, size of pump and piping to be used, as well, a pump out ramp should be installed to protect the integrity of the clay liner.*
- *Item #7 – The option for the use of Chlorine should be removed from the Discharge Procedure section of page 21, as the use of chlorine must be approved by Manitoba Conservation.*
- *Item #9 – Environmental Services strongly recommends any and all rip rap utilized for erosion protection from pipes (influent, effluent, transfer) and truck dump ramps etc be concreted in place.*

Disposition:

- The draft Licence includes a clause that requires the Licencee, when discharging effluent from the wastewater treatment lagoon using a pump:
  - a) to pump effluent in a manner such that it would not affect or de-stabilize the integrity of the clay liner; and
  - b) to provide a splash pad below the pump discharge pipe directed towards the discharge route to prevent soil erosion on the outside of the dyke.

- The draft Licence includes a clause that requires the Licencee, when chlorine is used as a disinfecting agent to:
  - a) notify the Director in advance;
  - b) dechlorinate effluent prior to discharge;
  - c) obtain grab samples prior to and daily during the discharge period and have them analyzed for total residual chlorine; and
  - d) not discharge effluent where the concentration of the total residual chlorine is in excess of 0.02 milligrams per litre.
- The draft Licence includes a clause that requires the Licencee, if, in the opinion of the Director, significant erosion of the interior surfaces of the dykes occurs, repair the dykes and place riprap on the interior dyke surfaces from 0.6 metres above the high water mark to the bottom of the dykes to protect the dykes from wave action.

**Manitoba Conservation and Water Stewardship – Water Stewardship Division (Planning and Coordinating Branch)**

*March 23, 2009*

- *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.*
- *Prior to beginning construction of the proposed development, the proponent is required to submit an application for a Water Rights Licence to Construct Water Control Works, including the submission of an engineered drainage plan, prepared by a Professional Engineer, registered to practice in the Province of Manitoba.*
  - *A contact person is Mr. Geoff Reimer C.E.T., Senior Resource Officer, Water Control Works and Drainage Licensing, Manitoba Water Stewardship, Box 4588, Stonewall, Manitoba R0C 2Z0, telephone: (204) 467-4450, email: geoff.reimer@gov.mb.ca*
- *The Department recommends for an Environment Act Licence to require implementing a groundwater monitoring network around the completed lagoons but such a program should only be designed once the subsurface materials to a depth of 6-10 m have been characterized by test drilling and the potential for seepage to impact potential sand/gravel aquifers is assessed. Furthermore, there is considerable uncertainty at this site about the occurrence of sand layers or lenses in the glacial till that underlies the clays identified in the test pits.*
- *The Department recommends for an Environment Act Licence to require the development and implementation of a nutrient mitigation plan that reduces nutrient contributions from this facility, including the following:*
  - *All wastewater treatment facilities within the Lake Winnipeg watershed should be implementing strategies to reducing their nutrient load to Lake Winnipeg. The Minister of Water Stewardship has adopted the Lake Winnipeg Stewardship Board's recommendation that all small wastewater treatment facilities, including municipal*

*lagoons, 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. It is desirable to recycle these nutrients on land, rather than releasing effluent directly to waterways. 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).*

- *Trickle discharge may be the most practical nutrient mitigation strategy for this lagoon, however the proponent may wish to consider alternate nutrient mitigation strategies. The long discharge route provides an opportunity for implementing trickle discharge such that the nutrients discharged from this facility to be assimilated along the drainage ditch prior to reaching Lake Winnipeg. If the trickle discharge method of nutrient mitigation is chosen, the effluent release should be spread out over at least a one month period (preferably longer) in the spring and then again in the fall. In this way, the soil and vegetation along the drainage route will be an opportunity to assimilate the nitrogen and phosphorus in the effluent. In order to ensure that these assimilated nutrients are not later released when the above-ground dies back, the vegetation in the upper drainage ditch should be periodically cut and removed from the effluent discharge route. In addition, the proponent should be required to suspend effluent discharge during any significant rainfall events, or when the drainage ditches immediately downstream of the discharge point are flowing.*
- *The effluent outlet shall be rip-rapped and monitored on an annual basis for erosion.*

Proponent Responses – July 28, 2009:

- The Contractor shall be required to implement appropriate sediment and erosion control measures where deemed necessary. All disturbed areas are generally reseeded at the end of the project. Any areas noted to be prone to erosion are typically armoured with rip rap.
- Activities involved in the construction of the lagoon project are not expected to trigger an application for a Water Rights Licence to Construct Water Control Works. No drainage infrastructure will be constructed as part of this project. To date, domestic sewerage systems including wastewater treatment lagoons have not been considered to be water control works as defined by The Water Rights Act.
- Adequate treatment, containment, storage capacity and successful testing of the wastewater are all essential components of mitigating any groundwater impacts contributable to a lagoon. These aforementioned components are included in the engineering design and the Manitoba Conservation licensing of a lagoon. Therefore no impact to the local groundwater system in the area is anticipated from a properly designed and constructed lagoon, especially since the lagoon is not in a groundwater pollution hazard area. According to the testpit logs, there remains approximately one metre of clay beneath the reworked clay liner and the till encountered in testpits 3 and 4. Further characterization of the subsurface materials to a depth of 6-10 metres will be performed as required by Manitoba Conservation.

- Any nutrient mitigation will be carried out as required by Manitoba Conservation. We are still waiting for the public consultation stage of the proposal to implement the phosphorus limitation of 1 mg/L. Implementation of this limitation prior to its full adaptation is premature.
- Trickle discharge may be an appropriate implementation for the gravity discharge portion, however it is not practical for the pumped portion of the discharge, which is typically performed by a tractor powered pump. The volume discharged by gravity in the Brightstone Colony lagoon is expected to be approximately 4,500 m<sup>3</sup> leaving 8,000 m<sup>3</sup> to be discharge by pump. Even though it does not seem justifiable to implement trickle discharge in this case because of the two types of discharge required, in general implementing trickle discharge over the course of a one month period (or longer) for both discharge periods seems impracticable. Essentially, the lagoon would then need to be redesigned to store the wastewater flows for a minimum of 60 extra days, and the secondary cell would also need to be resized because it would need to store more volume at a lower operating depth.
- All general comments are noted.

Disposition:

Discharged effluent must meet the required total phosphorus limit as required by the *Manitoba Water Quality Standards, Objectives and Guidelines Regulation (MR 196/2011)* under *The Water Protection Act*.

- The draft Licence includes a clause that requires the Licencee not to discharge effluent from the wastewater treatment lagoon where the total phosphorus content of the effluent is in excess of one milligram per litre.

**COMMENTS FROM FEDERAL REPRESENTATION:**

**Canadian Environmental Assessment Agency**

- *A survey of federal departments with respect to the project proposal was completed and project information that was provided was reviewed by all federal departments with a potential interest. Based on the responses to the CEAA survey, application of The Canadian Environmental Assessment Act (the Act) with respect to this proposal will not be required.*
- *Fisheries and Oceans Canada and Health Canada would be able to provide specialist advise if requested DFO in addition provided a copy of letter of advice addressed to the proponent providing additional mitigation measures for construction of the project.*

**PUBLIC HEARING:**

As no requests for public hearing were made, a public hearing is not recommended.

**CROWN-ABORIGINAL CONSULTATION:**

The Government of Manitoba recognizes it has a duty to consult in a meaningful way with First Nations, Métis communities and other Aboriginal communities when any proposed provincial law, regulation, decision or action may infringe upon or adversely affect the exercise of a treaty or Aboriginal right of that First Nation, Métis community or other Aboriginal community.

This development is a small wastewater treatment lagoon located on private land that is replacing an existing facility. The project would not create land use changes or affect resource use on First Nation land. Therefore, it is concluded that Crown-Aboriginal consultation is not required for the project.

**RECOMMENDATION:**

All comments received in the proposal that required follow-up have been addressed as licence conditions and additional information. 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 condition of the attached draft Licence. Enforcement of the Licence should be assigned to the Environmental Approvals Branch until the liner testing has been completed and the development is commissioned.

**PREPARED BY:**

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