

SUMMARY OF COMMENTS/RECOMMENDATIONS

PROPONENT: Blooming Prairie Holding Ltd.
PROPOSAL NAME: Blooming Prairie Colony Wastewater Treatment Lagoon
CLASS OF DEVELOPMENT: 2
TYPE OF DEVELOPMENT: Waste/Scrap Wastewater Treatment Lagoons
CLIENT FILE NO.: 5039.00

OVERVIEW:

On April 7, 2004, the Department received a Proposal from Envirotech Ag Systems Ltd. on behalf of Blooming Prairie Holding Ltd. for a Development to construct and operate a new wastewater treatment lagoon. The new lagoon facility will be located on the northeast quarter of Section 8-7-3 WPM. The treated wastewater will be discharged to a municipal ditch which discharges into the Norquay Channel. The Norquay Channel discharges into the Morris River.

The Department, on May 10, 2004, placed copies of the Proposal in the Public Registries located at 123 Main St. (Union Station), the St. James-Assiniboia Public Library, the Manitoba Eco-Network and the South Central Regional Library. Copies of the Proposal were also provided to the Technical Advisory Committee (TAC) members. The Department placed a public notification of the Proposal in the Carman Valley Leader on Monday, May 17, 2004. The newspaper and TAC notification invited responses until June 14, 2004.

COMMENTS FROM THE PUBLIC:

No responses were received from the public notification.

COMMENTS FROM THE TECHNICAL ADVISORY COMMITTEE:

Agriculture and Food

- *No concerns.*

Conservation - Sustainable Resource Management

- *The minimum flow rate used in this proposal was based on three years of data for the months of March, April and May. These are typically high discharge months and there are concerns that during the time the proponent will be releasing effluent there will not be adequate flows to dilute this effluent. The June flow rate should be determined and the proponent should adjust their effluent discharge rate accordingly. This information should then be supplied to the Department prior to licensing.*
- *Erosion and sediment control measures should be incorporated before, during and after construction of the cells, water reservoir and gated culvert. Measures should*

also be taken to ensure that soil erosion of the municipal ditch that will be receiving the effluent discharge does not occur.

- *Water quality should be monitored in the Norquay Channel at the point of discharge of the effluent from the municipal ditch to ensure that this water quality meets provincial requirements.*
- *The proponent has indicated that the contribution from water infiltration to the facility and the wastewater collection system is considered negligible. Information to support this statement should be provided.*

Proponent Response (February 8, 2005):

- As available flow data is limited for the Norquay Channel, it is difficult to determine based on historical data what the expected flow would be during the month of June when discharge is anticipated. In addition to the lack of monitoring on the Norquay Channel, there is also insufficient information from monitoring of the Boyne River which supplies the channel, and the Morris River which the channel feeds into, in order to extrapolate the required flow rates. From the information available for the Norquay Channel, the minimum flow rate over the four year recording period for May 31, the last day of recording, was 0.434 m³/s. For this date, the mean flow rate was 0.988 m³/s, and the maximum flow was 2.41 m³/s. Based to the proposed discharge rate of 0.073 m³/s and the minimum flow of 0.434 m³/s recorded on May 31st, the expected dilution would be approximately 6:1. A considerably higher dilution rate would be realized under normal and high flow rates. In order to ensure adequate dilution is afforded, it is proposed to establish a manually operated flow metering station upstream of the point of discharge into the Norquay Channel. Based on the flow measured during the time when discharge is to take place, the discharge rate would be adjusted to ensure sufficient dilution occurs.
- Erosion and sediment control measures as suggested by the Department of Fisheries and Oceans Canada will be implemented throughout the construction phase. Erosion protection devices consisting of either rip-rap or concrete pads will be incorporated at the outfalls into the municipal ditch and Norquay Channel to ensure soil erosion does not occur.
- A protocol for water quality monitoring at the point of discharge in the Norquay Channel can be implemented if required. This information will also be helpful in establishing acceptable discharge rates to ensure acceptable dilution is achieved.
- It has been stated that water infiltration to the facility and wastewater collection system is considered negligible, and was therefore not a consideration in determining the overall storage capacity. This statement is justified by the fact that the water table is below the depth of excavation of both the piping and the bottom of the wastewater lagoon and will therefore have no opportunity to infiltrate these items. In addition to the absence of a water source, the piping to be utilized for the gravity collection system will consist of gasketed bell and spigot PVC piping that has the inherent ability to keep water from penetration through the joints.

Disposition:

After receiving the additional information from the proponent, these comments were satisfied and are no longer of concern:

Culture, Heritage and Tourism - Historic Resources

- *No concerns.*

Health

- *No comments received.*

Transportation and Government Services

- *No concerns.*

Intergovernmental Affairs

- *The area affected by this proposed subdivision is currently designated as "Rural Policy Area" under the R.M. of Dufferin Development Plan. Policy 5.4.1(1) Private On-site Systems states, Proper installation, operation and maintenance of private water and sewage disposal systems as per appropriate provincial regulations will be required by the municipality to ensure pollution and health risks are minimized.*
- *Under the current R.M. of Dufferin Zoning By-law, the affected area is within the "AG" Agricultural General Zone. The minimum use and site requirements are as follows:*

Site Area (acres)	Site Width (feet)	Front Yard (feet)	Side Yard (feet)	Rear yard (feet)
80	800	325	324	325

- *In Section 8 the Blooming Prairie Colony owns 294.07 acres under three titles, and 224.37 acres under two titles in the E ½ of Section 8. The siting requirements, as specified in the zoning by-law, appear to be met.*
- *Community Planning Services advised that the applicant needs to apply to Council for a conditional use order. Otherwise, Community Planning Services has no concerns with the proposal.*

Proponent Response (February 8, 2005):

- *The required approvals will be obtained from council prior to any construction taking place.*

Canadian Environmental Assessment Agency

- *Following a review by all federal departments with a potential interest in the proposed development, the application of the CEAA will not be required.*
- *DFO, Environment Canada and Health Canada would be able to offer specialist information with respect to the project review*

Comments by Environment Canada:

- *Figure 1 of the Environment Act proposal shows the locations of the domestic wastewater lagoon, animal waste manure storage lagoon and water reservoir.*

However, the proposal only discusses design, construction and operation of the domestic wastewater lagoon. Little or no information is provided on the manure storage lagoon and water reservoir. The proponent should provide information on how these facilities will be designed, constructed and operated, including potential environmental impacts and any required mitigation measures.

- *Erosion control – The developments are relatively close to the Norquay Channel (about 100m for the lagoon, closer for the reservoir). The potential for impacts on water quality in the channel during construction should be discussed, including the possible need for erosion control measures to prevent sedimentation of the channel, which is a fish-bearing water.*
- *The potential effects of accidents, malfunctions and natural occurrences, such as heavy rainfall events, should be discussed in the report. For example, will the lagoons (wastewater and manure) have sufficient freeboard to accommodate heavy rainfall if this should occur when they are already at or near capacity? If lagoon overtopping occurs, what are the potential impacts (e.g. on surface water, etc.)?*
- *Wastewater discharges – The proposal indicates that some slaughtering will be done and the wastewater discharge to the lagoon. The federal Meat and Poultry Products Liquid Effluent Regulations under the Fisheries Act may apply to the slaughtering facility and wastewater discharges. A copy of the colony's proposal will be forwarded to Environment Canada's enforcement and compliance section for review on the possible applicability of the regulations to this operation. If applicable, the regulations will require that certain monitoring, reporting and effluent quality requirements be met. I expect that the enforcement and compliance section will contact the colony directly if additional information or clarification is required.*
- *Effluent quality and surface water impacts – We note that the recommended lagoon retention time will be one year, which will offer some flexibility in discharge periods as well as provide additional treatment capacity. However, since slaughterhouse wastewater will be directed to the lagoon, monitoring for additional parameters, such as ammonia, oil and grease, SAR, and perhaps toxicity, should be considered. We note from section 7.2 that flows in the Norquay Channel, which is fish-bearing, can be quite low, and depending on when the lagoon is discharged, effluent flow may comprise a large portion of the total flow. (Section 7.2 of the report appears to have some contradictory information regarding flows. On one hand, it indicates that minimum flows in the channel may be as low as $0.073\text{m}^3/\text{s}$, and effluent discharge rates would therefore be restricted to that amount. In the last paragraph on page 11, it indicates that the portion of wastewater will be small, resulting in significant dilution in the channel. This should be clarified.)*
- *Section 36(3) of the Fisheries Act prohibits the deposit of deleterious substances into water frequented by fish or in a place where such substances may enter water frequented by fish.*

Proponent Response (February 8, 2005):

- A domestic wastewater lagoon, animal waste manure storage lagoon and a water reservoir are intended to be constructed as part of the site development. Construction of the earthen manure storage lagoon is regulated by Manitoba Conservation. Design and construction details have been submitted to Manitoba Conservation and a permit

was issued based on the submission (Permit #LM-710). Design and construction of the water reservoir is being conducted in conjunction with PFRA. PFRA will be providing the necessary construction details and mitigative measures to be employed in order to minimize the effect on the environment.

- The Norquay Channel is a diked waterway. Runoff water enters into the channel through gated culverts typically at municipal road locations. Much of the land adjacent to the channel including the parcel on which the proposed development is to take place, is cultivated farmland. During the proposed development, that portion of the parcel of land that is not being developed will be seeded to an annual crop providing a vegetative buffer between the construction and the channel. This vegetative buffer will trap any sediment generated from proposed development and contain it on the property. Following completion of the proposed earthworks, the exposed surfaces of the structures will be seeded to grass in order to stabilize the embankments and prevent deterioration from wind and water.
- The municipal drainage system also acts as an interceptor to prevent sediments from entering the Norquay Channel. Any runoff from the proposed site must first enter the municipal drainage system before entering the channel. The vegetation within the municipal ditches slows the flow of water and acts as a filter that settles and traps waterborne sediment.
- In addition to the inherent protection provided by the surrounding landscape, the Department of Fisheries and Oceans has also provided a list of recommendations to mitigate the effect of the proposed development on fish habitat. These recommendations will be implemented and enforced on site.
- The design of the wastewater and manure lagoons incorporates a freeboard which takes into account the occurrence of significant rainfall events when the storages are at or near design capacity. The "Design Objectives for Standard Sewage Lagoons in the Province of Manitoba" requires that the wastewater lagoon have a freeboard of three feet. The "Technical Reference Manual for Liquid Manure Structures" stipulates that for livestock manure storages the minimum distance between the maximum operating level and the top of the dikes shall be no less than twenty inches.
- Regular inspection of the storage facilities is required to monitor correct operation and liquid levels. As a minimum, inspections should be conducted on a weekly basis in order to identify any deficiencies early and afford the necessary repairs. If these regular inspection are carried out, there is little potential for the accidental release of the contents of the storage.
- In the event that there is accidental escape or overtopping, soil conditions on site are such that rapid infiltration into the sub-soil will not occur. Soil conditions and the absence of groundwater resources would result in no effect to groundwater resources. Due to the relatively small volumes of effluent to be pumped on a daily basis, if the event is detected in a timely fashion, it can be expected that the spill would be contained within the property due to the separation distance from property lines and waterways. Soil conditions on site are of suitable quality that appropriate earthen diking can be erected to temporarily contain the spill until the cleanup can be facilitated.
- A catastrophic spill is not anticipated, as the failure of an earthen dike is not likely without prior warning signs. Piping and appurtenances used for filling and emptying

the storages will be equipped with isolation valves or siphon breaks to prevent and stop the escape of effluent.

- The degree of slaughtering is limited to that required to supply the needs of the colony. No commercial scale slaughtering is intended. If deemed necessary by Environment Canada's Enforcement and Compliance Section, Blooming Prairie Colony will comply with the prescribed monitoring, reporting, and effluent quality requirements.
- Operation of the proposed slaughterhouse will not be on the same scale or contain the same degree of processing which occurs at traditional commercial slaughterhouse facilities. The paunch, blood and unused trimmings will be disposed of through rendering or composting instead of being introduced into the lagoon. Much of the slaughtering will be done manually eliminating the need to clean and sanitize a significant amount of mechanical equipment. Most colonies have developed slaughterhouse facilities to meet their needs. In many of these cases, this was not taken into consideration when the domestic wastewater lagoons were originally designed. I am not aware of any such instances where the additional of this non-commercial slaughtering capability has resulted in unacceptable levels of ammonia, oil and grease, SAR or toxicity. Monitoring of these constituents can be included to determine whether excessive levels of any of these parameters exist.
- As available flow data is limited for the Norquay Channel, it is difficult to determine based on historical data what the expected flow would be during the month of June when discharge is anticipated. From the information available, the minimum flow rate over the four year recording period for May 31, the last day of recording, was 0.434 m³/s. For this date, the mean flow rate was 0.988 m³/s, and the maximum recorded flow was 2.41 m³/s. Based to the proposed discharge rate of 0.073 m³/s and the minimum flow of 0.434 m³/s recorded on May 31st, the expected dilution would be approximately 6:1. A considerably higher dilution rate would be realized under normal and high flow rates. In order to ensure adequate dilution is afforded it is proposed to establish a manually operated flow metering station upstream of the point of discharge into the Norquay Channel. Based on the flow measured during the time when discharge is to take place, the discharge rate would be adjusted to ensure sufficient dilution occurs.
- It is anticipated that maximum constituent levels will be stipulated in the Environmental Permit. These criteria will be met before any discharge into a waterway is permitted.

Disposition:

After receiving the additional information from the proponent, these comments were satisfied and are no longer of concern:

PUBLIC HEARING:

A public hearing is not recommended.

RECOMMENDATION:

The Proponent should be issued a Licence for the construction and operation of the wastewater treatment lagoon in accordance with the specifications, 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.

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