

July 19, 2016

Project No. 151-13571-00

Barsha Sagan, P. Eng.
Environmental Engineer
Manitoba Sustainable Development
Environmental Approvals
160 - 123 Main Street (Box 80)
Winnipeg MB R3C 1A5

Dear Ms. Sagan,

Re: Maxwell Colony Farms Wastewater Treatment Lagoon – Environment Act Proposal

Pursuant to your preliminary review of the Maxwell Colony Farms Wastewater Treatment Lagoon Environment Act Proposal (EAP) and the request for additional information, the following information is submitted in response to the request dated March 9, 2016:

1. The Maxwell Colony's meat processing plant is used for slaughtering, cutting and packaging poultry and hogs for food at the Colony. Poultry slaughtering is reported to be done three (3) times per year, in a single day preparing sufficient meat for the ensuing four months. Water use is for cooling the slaughtered birds and for wash-down of the facility on completion of each event. Blood and offal from the processing is captured via thorough cleanup and removed from the facility so as to minimize wash-down requirements. It does not end up in the wastewater. Cooling water to chill the carcasses is run for an estimated two hours for each event at a rate of 30 litres per minute for a total flow of 3,600 litres per event. Over three events per year that would amount to 10.8 m³ of wastewater flow. The washdown, after the meat is packaged and removed for storage in the freezer, takes another two hours or less with a hose that produces 19 litres per minute for an estimated maximum of 2,280 litres per event, a total of 6.84 m³.

The slaughter of hogs occurs once every five (5) months so there will be either two or three events in alternate years. The water use is for washing and takes an estimated two hours at 19 litres per minute, 2,280 litres per event. In a year when three events occur, the total flow will be 6.84 m³. All of these events in a year will combine to produce an estimated wastewater flow of 24.5 m³ which is 0.1 % of the total yearly flow estimated for the Colony in the EAP report.

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The strength of the cooling water is relatively low, beyond the initial wash, picking up only minor organic matter. There would be more organic matter in the washdown water, especially the initial flow. The capture and alternate disposal of the organic material reduces this to a small fraction of the total produced in the event. We do not have a measure of the strength of any actual flow but estimate the strength would not exceed 500 mg/L of BOD₅ and given the extent of the chilling and washdown, is probably diluted to less than that. At 500 mg/L, the total load for the year would be 12.25 kg of BOD₅, which is 0.2% of the total yearly organic loading to the lagoon. Both the hydraulic and the organic load contributed by the meat processing facility were considered to be included in the original projections of the totals in the report and are not to be considered here as additional to those reported earlier.

2. The application for approval of the forcemain to the lagoon will be submitted to the Environmental Assessment and Licencing Branch under the Water Works, Sewerage and Sewage Disposal Regulation, MR 33/88R of the Public Health Act at such time as the Licence for the proposed wastewater treatment lagoon is issued. Assuming that a Licence will be issued for the proposed lagoon at the location indicated in the Environment Act Proposal (EAP), the proposed pipeline will be about 900 metres in length, preliminary design at 100 mm diameter (subject to review depending on the assessment and possible modification of the current lift station). The expected alignment will be approximately as shown on the attached photomap of the area. The anticipated coordinates of the Highway crossing are shown on the photomap.

3. The decommissioning of the existing lagoon is proposed to be undertaken after the proposed lagoon is licenced, constructed and commissioned. There is expected to be an accumulation of sludge in the existing lagoon, the extent of which has not been determined. As indicated in the EAP, once this lagoon is no longer being used, it will be drained in the same way as it has been during the current operation with the testing of the contents for BOD₅, fecal and total coliform and discharged. It will then be left for a minimum of one year to allow the accumulation of sludge to stabilize and dry. It is then proposed to remove it and apply it to agricultural land in a way similar to the application of manure from the Colony's livestock operations. As indicated in your letter of March 9, 2016, this requires authorization in an Environment Act Licence. It is desired that this be included in the current EAP for the Licence to cover the construction and commissioning of the proposed new lagoon. It is understood that the characteristics of the sludge from the existing lagoon must be assessed as well as that of the soils of the land on which the sludge is to be applied prior to undertaking this operation. The land on which the sludge is expected to be applied is that lying just to the south of the Colony as shown on the attached photomap. Since the characteristics of both the sludge and that of the soil of this field will be subject to change in the intervening period, which could be several years, it is proposed that the requirement to provide this information be included as a deliverable in the Licence (similar to those of the construction reports and soil testing that are typically required at commissioning, and the testing of the lagoon effluent at discharge). That way the information that is provided prior to land application will reflect the conditions that actually exist at that time.

4. The flood information for the 100 year flood has been requested. The information that was provided is for the 200 year flood elevation of 241.9 metres and the flood protection level of 242.5 metres for the Maxwell Colony at the Assiniboine River. The proposed lagoon design drawings show elevations relative to the ground level at the site. A recent survey shows that the proposed top of dike elevation is 242.5 metres at the north, east and south sides of the primary cell. The east and south sides of the secondary cells are 0.3 metres lower and will be raised to match the elevation of the primary cell. The west side of the lagoon will be joined to the existing east dike of the manure storage pond which is about 2 metres higher and well above the proposed flood protection level.
5. The portable pipe that the Colony uses is a multipurpose pipe that may be used for various purposes in the Colony operations, which could include irrigation, drainage and may on occasion be used for pumping liquid manure (the Colony now has buried pipes in the field for this purpose which are covered by a permit from Manitoba Sustainable Development (formerly Conservation). When the pipe is used for whatever purpose, on completion, it is swabbed and blown out so that it is clean and ready for whatever its next use will be. The discharge pipe from the secondary cell is 150 mm in diameter, more than enough capacity to supply the discharge flow. The portable discharge pipe will be secured to the outlet via the secure Camlock connector. The valve will obviously not be opened until the connection is secure.
6. The EAP indicates in Section 5.3 that the proposal offers a “nutrient reduction strategy” as permitted for “Small wastewater treatment facilities” in lieu of meeting the standard phosphorus limit of 1 mg/L required of wastewater treatment facilities serving population centres of 2000 people or more. The strategies that are offered here include trickling the effluent through a bed of crushed limestone as it has been demonstrated to absorb some phosphorus. At this time we have no data from any scientific study to determine the degree of effectiveness or to provide an articulated design to achieve a specific reduction. The project may provide an opportunity to see how effective this mitigation measure is. Typically, the most significant phosphorus mitigation measure has been the slow release of the treated effluent, allowing absorption and plant uptake of both the liquid and of the dissolved and insoluble solids. The Barrickman Drain, with its wide bottom and emergent vegetation cannot be quantified in terms of a specific degree of phosphorus reduction in any given year. But together with the uptake of both nutrients and water volume, it is known from observations that we have made of actual discharges from other lagoons that this provides a significant reduction of these constituents, sometimes complete elimination of the discharge from entering the designated receiving stream.

It is understood that some of the information requested is not yet available. I trust that the foregoing is sufficient to proceed with the EAP review process. As indicated in the responses, some of the details requested in the March 9, 2016 letter will be available only after the project is in operation and will be provided at that time as a condition of the Environment Act Licence

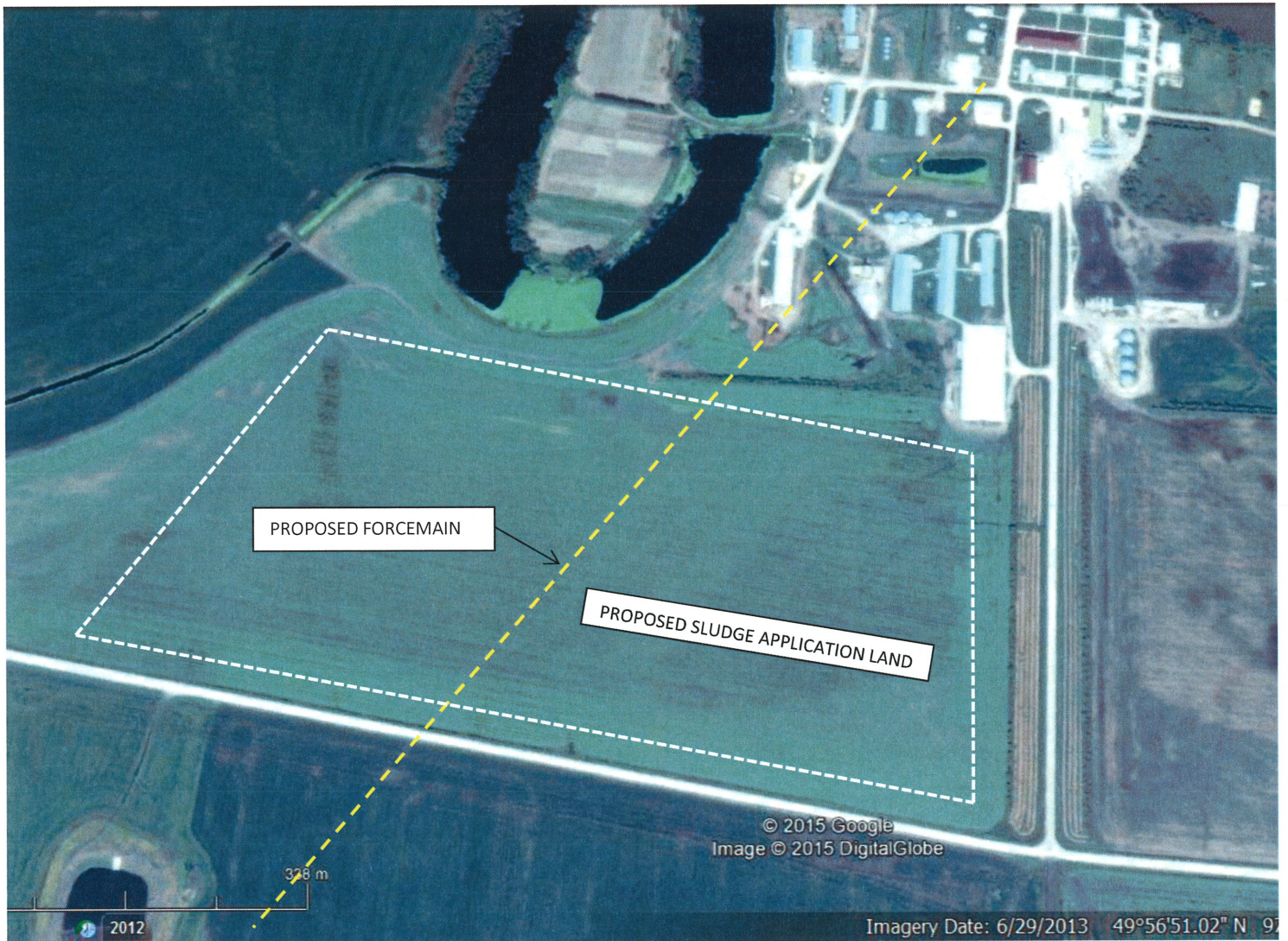
Yours truly,

WSP Canada Inc.

A handwritten signature in blue ink, appearing to read "Alf Poetker", with a long horizontal flourish extending to the right.

Alf Poetker, P. Eng.
Special Projects

enclosure



MAXWELL COLONY WASTEWATER TREATMENT LAGOON

Proposed Forcemain Location from Lift Station to Proposed Lagoon (preliminary)

(Highway Crossing at Approximately 49° 56' 40" N, 97° 39' 23" W)

Proposed Decommissioning Sludge Application Land – Approximately 25 Hectares

Manitoba



Conservation and Water Stewardship
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Environmental Approvals Branch
123 Main Street, Suite 180, Winnipeg, Manitoba R3C 1A5
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March 09, 2016

Jason Bunn, P.Eng.
Environmental Engineer
WSP Canada Inc.
1600 Buffalo Place,
Winnipeg, MB R3T 6B8

Dear Mr. Bunn:

Re: Maxwell Colony Farms Wastewater Treatment Lagoon – Environment Act Proposal

A preliminary internal review of the Environment Act Proposal (EAP) for the Maxwell Colony Farms Wastewater Treatment Lagoon sent on January 27, 2016 has been completed. Upon completion of this review, it has been determined that the EAP report does not contain the following required components or information:

1. In section 3.2.1, it is indicated that there is a meat processing facility at the Maxwell colony which is used for food processing for the use of colony residents and only wash water is contributing to the Colony Sewer system from that facility. Please indicate how much organic and hydraulic loading from that facility would be contributing towards lagoon treatment and storage.
2. Although it is indicated in section 4.7 that the design of the forcemain would be submitted at a later date upon confirmation of the location, please provide general characteristics of the forcemain such as size, route, highway crossing location, etc.
3. In the section 4.8, it is indicated that the sludge from the existing lagoon would be incorporated into soil on the colony's agricultural land after drying for one year as part of the decommissioning process. The characteristics of the sludge from the existing lagoon and the soils of the land chosen for applying the sludge must be assessed to determine the characteristics before land application. Application of biosolids or sludge to agricultural land requires authorization through acquisition of an Environment Act Licence. Either the plan for land application of the sludge can be included with this Environment Act

Proposal (EAP) or you can submit a new EAP at a later date incurring another \$7,500 application fee.

4. The EAP did not include information relative to the 100 year flood elevation at the site as compared to dike top elevation. Please provide such information.
5. In section 5.3, it is indicated that a portable piping system would be used to transport the effluent from the lagoon to the Barrickman Drain (1 km long). It was not clear from the EAP that the pipe would be dedicated only to discharge treated wastewater and the sizing of the pipe would be compatible with the effluent discharge pipe to avoid spilling.
6. In section 5.3, it is indicated that a submerged bed of graded limestone for the purpose of phosphorus adsorption. Please indicate whether that bed would be considered to be a part of the Development or not. If so, please provide more details such as dimensions of that area.

In discussion with Environmental Compliance and Enforcement Branch, we would like to receive above additional information in a timely fashion. Please address and respond to these requests by March 31, 2016 so that the EAP review process may continue. If you have any questions or would like to discuss further, please contact me at 204-945-5234.

Yours sincerely,



Barsha Sagan, P. Eng.
Environmental Engineer

c: Peter Wipf, Maxwell Hutterian Mutual Corporation,
Nada Suresh/ Yvonne Hawryliuk, Environmental Compliance and Environment