



**Conservation and Water Stewardship**

Environmental Stewardship Division  
Environmental Approvals Branch  
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**File: 651.20**

January 17, 2014

Joy Kennedy  
Water Protection Officer  
Water Quality Management Section  
Water Science and Management Branch  
Manitoba Conservation and Water Stewardship  
160-123 Main Street, Winnipeg, MB  
R3C 1A5

Dear Ms. Kennedy:

**Re: Stephenfield Provincial Park Wastewater Treatment Lagoon Upgrades - Environment Act Proposal**

In response to the November 12, 2013 letter from Manitoba Conservation and Water Stewardship regarding the Environment Act Proposal (EAP) for the Stephenfield Provincial Park Wastewater Treatment Lagoon Upgrades, supplementary information has been submitted by the proponent's consultant.

Attached you will find the consultant's January 3, 2014 letter responding to the comments and requests for additional information presented by the TAC. Please review the response to determine if your comments and requests for additional information have been satisfactorily addressed.

Your comments, if any, are required not later than two weeks after the date of this letter. No response on your part will be assumed to indicate no concern.

If you have any questions, please contact me at (204) 945-2614 or by e-mail at [Rafiqul.Chowdhury@gov.mb.ca](mailto:Rafiqul.Chowdhury@gov.mb.ca).

Yours truly,

*“Originally signed by”*

Rafiqul Chowdhury, M.Eng., P.Eng  
Environmental Engineer

Attachment

- c. Donna Smiley, Provincial Manager, Environmental Compliance and Enforcement Branch  
Public Registries



**Stantec Consulting Ltd.**  
905 Waverley Street  
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January 3, 2014  
File: 111213890

**Attention: Mr. Rafiquel Chowdhury, P.Eng.,  
Environmental Engineer**

Manitoba Conservation and Water Stewardship  
Climate Change and Environmental Protection Division  
Environmental Approvals Branch  
123 Main Street, Suite 160  
Winnipeg, MB R3C 1A5

Dear Mr. Chowdhury,

**Reference: Stephenfield Provincial Park  
Wastewater Treatment Lagoon Upgrades  
Environment Act Proposal  
Supplemental Comments**

We have the following response to the supplemental questions and comments as outlined in your letter of November 12, 2013, and our telephone conversations:

**1. Memorandum from Water Quality Management Section, Water Science and Management Branch – Manitoba Conservation and Water Stewardship, dated November 8, 2013**

Point 1           The phosphorus limit of <1 mg/L will be met as previously confirmed in our letter of August 26, 2013.

Point 2           a)       Effluent Irrigation/Land Application of Treatment Effluent

The treated effluent quality will be significantly improved after upgrading and will meet both organic and hydraulic loading requirements, which it does not currently meet. The upgraded treated effluent will not be a factor in causing heavy algae blooms as no treated effluent will be discharged during the summer. The use of alum for phosphorus reduction would only be if required, and it is not expected that it will be required at this time. There is no land owned by the Park were treated effluent could be used for effluent irrigation/land application. The operating cost for effluent irrigation/land application would be very substantial and it would be in addition to the upgrade costs outlined in the Stantec EAP document. Therefore, effluent irrigation/land application is not considered necessary or feasible.



January 3, 2014  
Mr. Rafiquel Chowdhury, P.Eng.,  
Environmental Engineer

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Wastewater Treatment Lagoon Upgrades  
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b) Nutrient Reduction Strategies

Again, we expect the nutrient levels to meet Provincial requirements as stated in point a) above. Therefore, nutrient reduction would not be required. A constructed wetland is not considered feasible as there is no Park land available and the capital cost would be prohibitive as this cost is in addition to the lagoon upgrade costs. Vegetation harvesting is part of the required operating procedures and the Park will remove vegetation if and as required. There are no alternative lagoon designs, including trickle discharge, that are considered appropriate or feasible for this lagoon. Chemical treatment, other than potentially alum for phosphorus removal, is not expected to be appropriate.

Point 3 Revised Primary Cell Hydraulic Storage for Alternative 4

As discussed, the accumulated sludge zone in the existing primary is to be considered part of the 1.5 m operating zone. Also, there is a minimum of .3 m dead zone at the bottom of the 1.5 m operating zone. Therefore, the maximum allowable hydraulic storage zone is 1.2 m.

The existing Interconnecting pipe between the two cells is .44 m above the bottom of the lagoon. Therefore, the hydraulic storage zone is 1.06 m for the existing primary and 1.2 m for the existing secondary which is to be converted to a second primary cell. Therefore, the allowable half storage of the existing two cells has been calculated to be 2,215 m<sup>3</sup> reduced from 2,767 m<sup>3</sup> in the EAP. This results in a new secondary cell with a required 3,852 m<sup>3</sup> hydraulic storage, increased from 3,300 m<sup>3</sup> in the EAP. To achieve this increase in hydraulic storage, the bottom dimensions of the proposed new secondary cell would be 25 m by 93 m instead of 25 m by 61 m as calculated in the EAP. This would be a .39 hectare cell at full supply level (1.5 m of wastewater). The cell width would remain the same as it is restricted by the Park property. The additional storage would be achieved by lengthening the proposed new secondary bottom by 32 m for which there is adequate property.

This revised Alternative 4 scenario results in all cells having a bottom elevation of 300.50 m. Therefore the interconnecting dike only requires impervious clay fill raising of .5 m instead of 1.0 m. Similarly, the outside dikes only need to have .5 m of liner raising or impervious clay fill rather than 1.0 m. Due to the 50% reduction in raising the height of existing dikes, the capital cost for Alternative 4 is considered to be unchanged with the new scenario.



January 3, 2014  
Mr. Rafiquel Chowdhury, P.Eng.,  
Environmental Engineer

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**Reference: Stephenfield Provincial Park  
Wastewater Treatment Lagoon Upgrades  
Environment Act Proposal  
Supplemental Comments**

We trust this addresses the comments and requested additional information.

Yours truly,

**STANTEC CONSULTING LTD.**

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