

## **SUMMARY OF COMMENTS/RECOMMENDATIONS**

**PROPONENT:** BERGER PEAT MOSS LTD.  
**PROPOSAL NAME:** DEER LAKE PEAT HARVESTING DEVELOPMENT  
**CLASS OF DEVELOPMENT:** 2  
**TYPE OF DEVELOPMENT:** MINING – PEAT HARVESTING & PROCESSING OPERATIONS  
**CLIENT FILE NO.:** 5507.00

### **OVERVIEW:**

On February 25, 2011 Manitoba Conservation received a Proposal dated February 23, 2011, from Berger Peat Moss Ltd. to develop the Deer Lake Bog to harvest peat for the production horticultural peat products. The proposed development is located on Crown Land and covers an area of approximately 2557 ha. The targeted peatland is located approximately 60 km north of Riverton, MB on part of Sections 13, 24, 25, and 36 Township 29, Range 4E and on part of Sections 18 to 21, 27 to 34 Township 29, Range 5E and parts of 2, 4, 5 and 11, Township 30, Range 5E.

Public concerns were received in response to the advertisement of this proposal in the Interlake Spectator published on Thursday, March 17, 2011. The proposal was also placed in the Public Registries at the Millennium Public Library, the Manitoba Eco-Network, Village of Riverton, the RM of Bifrost and the Conservation Library (Main). The proposal was distributed to TAC on March 15, 2011, with the closing date for TAC and Public comments on April 18, 2011.

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

#### **Matheson Island Community Council**

Council would like to support the application, but has some concerns at this time. Our primary concern is the condition of PR234. We are wondering if the increase in traffic volume is being taken into consideration by MIT and if any upgrades are being done to enhance PR234. Is there any possibility of job opportunities for people of this area?

Disposition: Comments forwarded to the proponent. Concerns related to existing highways and job opportunities fall outside the scope of The Environment Act; however concerns regarding PR 234 were forwarded to Manitoba Infrastructure and Transportation. Berger Peat Moss Ltd. may be contacted for further information on job opportunities.

## **COMMENTS FROM THE TECHNICAL ADVISORY COMMITTEE:**

### **Canadian Environmental Assessment Agency**

- Based on their staff survey, application of the *Canadian Environmental Assessment Act* by a federal authority will not be required for this project.
- Department of Fisheries and Oceans (DFO) has indicated in its response that it will provide a letter of advice to the proponent for a stream crossing connected with the proposed construction of the peat mine development access road. On May 12, 2011, DFO issued a letter of advice to the proponent stating that “provided your plans are implemented as described, DFO has concluded that your proposal is not likely to result in impacts to fish and fish habitat.”
- Environment Canada has notified the Agency that it has an interest in the project related to its mandate and would like to participate in the provincial review.

**Disposition:** Comments were provided to the proponent. Manitoba Conservation will continue to work cooperatively with federal agencies on this project.

### **Manitoba Conservation, Aboriginal Relations Branch**

A review of the Environment Act Proposal for the Berger development of Deer Lake Bog for peat harvesting activities has been done by the Aboriginal Relations Branch at Manitoba Conservation. A number of comments and recommendations have been made and a summary of those is briefly described here.

This proposal is in close proximity to 3 First Nations, two of which are within the 30 km of the study area established by KGS Group.. The project has an expected life span of 77 years – as such, careful consideration of both short term and long term impacts to the surrounding First Nation communities must established.

The Government of Manitoba 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 the First Nation, Métis community or other aboriginal community.

As Manitoba Conservation is aware, if a thorough, adequate consultation process is not completed by the Government of Manitoba, the possibility of a successful legal challenge from First Nation and Aboriginal communities is significantly increased. The claim could be based on an unjustified infringement(s) of a Treaty or Aboriginal right.

We assume that we do not know all of the aboriginal rights that are beyond the assertions already made and therefore information gathering and consultation results in these issues

being brought forward by the people who practice them and use the land. Issues are accommodated and building relationships in a process like this includes assessments on the following; Traditional Ecological Knowledge (TEK), capacity building and education, adequate information sharing and access, environmental impacts, heritage, cultural and significant sites, socio-economic impacts and public involvement in the process from the start.

The Deer Lake Bog site proposal is not only in close proximity to Peguis First Nation's traditional land, but is located in their Community Interest Zone (CIZ). This is one of the issues that must be discussed in full with Peguis First Nation prior to any decisions to accept this proposal can be made.

Given the extreme flooding issues that has affected and displaced hundreds of First Nation people in certain communities, the drainage capacity for the bog to store run off must be considered for public health and safety issues. Water quality issues, encroachment into areas where traditional plants are gathered, and possible hunting territory are examples of some of the issues that need to be addressed as well.

Berger has stated that the quality and quantity of peat at this site would allow for continuous harvesting that could last up to 77 years. Activity of this duration will have a significant impact on the environment in the area, including, but not limited to, disrupting habit for large game; changing the soil moisture content, therefore effecting the types of flora able to grow in the area; and, ground water filtration for the watershed.

With respect to the planning, designing and construction and subsequent maintenance of the proposed peat operations, the Aboriginal Relations Branch recommends that a communication process be established to provide two things; a) an opportunity for area residents to voice their concerns regarding impacts of the harvesting on their daily lives, and b) information packages such as the EIA documents and a resource person in each community that is easily accessible in order to be transparent and provide independent research opportunities for community members throughout the process. A communications process may identify problem areas, address conflict situations and resolve potential disputes.

An impact benefit agreement is also recommended to help mitigate the loss of potential harvesting and economic potential including but not limited to carbon tax credits related to climate change issues over the next century.

The Branch recommends that traditional ecological knowledge be sought and applied where possible. The Branch recognizes that incorporating traditional ecological knowledge is essential to land and natural resource use planning.

The Branch recommends that all environmental licensing requirements be met and to develop partnerships with Aboriginal governments in the Environmental Assessment and have Aboriginal participation in any monitoring or technical committees.

The Manitoba Government is in the process of developing a provincial peatlands stewardship strategy. It is recommended that decisions on new peat mining development in the province should be postponed until the peatland strategy is further along in the process.

The Branch recommends that the use of the term “Stakeholder” be taken out when referring to First Nations and that they should be considered to be “First Nations” instead.

In response to Section 5.3 of the EIA report stating the following:

5.3 STAKEHOLDER CONCERNS - “While the Peguis First Nation, Chief Glenn Hudson, provided a letter response they did not express any environmental concerns associated with the proposed development. The concerns expressed by the Peguis First Nation were related to treaty and aboriginal rights around land use.

This is a separate issue from the Environment Act Licencing process, which is being addressed by the Province of Manitoba, and therefore their concerns have not been discussed any further in this EAP report.”

ARB recommends that this licence not be issued until the concerns and process of consultation be addressed and completed for Peguis first Nation. Treaty and Aboriginal rights are in large part an environmental concern and should be treated as such.

Disposition: Comments were forwarded to the proponent. Comments regarding consultation were also provided to Manitoba Department of Science, Technology, Energy and Mines, Mines Branch for consideration. On July 13<sup>th</sup>, 2011, Environmental Assessment and Licensing Branch was informed by Manitoba Department of Science, Technology, Energy and Mines, Mines Branch that no environmental concerns were identified during the Section 35 consultation.

### **Manitoba Conservation, Pollution Prevention Branch**

The Air Quality Section has reviewed the above Environment Act proposal application and offers the following air quality related comments:

Potential dust generation (or suspended particulate matter) and emissions from vehicles and equipment during the construction and operation phase are adequately addressed in the proposal.

The submitted discussion on quantification of potential releases of GHG from the proposed development is acceptable. Their estimated annual GHG emission is  $\sim 9.86 \times 10^3$  tonnes CO<sub>2</sub>-e which include emission from extraction/processing, transportation and land use change. My calculation on the potential annual GHG emission is  $\sim 9.865 \times 10^3$  tonnes CO<sub>2</sub>-e granting that the restored area become carbon neutral after one year after restoration.

The assumption that the restored peatland will be carbon neutral one year after restoration may be questionable. The study used as reference, Waddington, Strack and Greenwood

[2010], stated that while the study provides promising evidence that restoration projects of cutover peatlands do have the potential to return to a net carbon sink within three years after restoration, it suggests that degraded peatland ecosystem will likely return to a net carbon sink in 6 – 10 years post-restoration. It seems that the period a restored peatland will be carbon neutral is more than one year post-restoration.

Though not part of the development activity since this relates to commercial use of the product, ~24,153 tonnes CO<sub>2</sub>e per year will be from the decomposition of the peat during application, storage, and other uses (Cleary, et al. 2005).

If the proposed site remained undisturbed and unutilized, the net CO<sub>2</sub> accumulation (carbon sink function) per year is estimated to be ~ 582 tonnes CO<sub>2</sub>e assuming restored site is net carbon sink 6 years post-restoration. [Waddington, Strack and Greenwood (2010); Cleary, et al. (2005)].

Disposition: Comments were forwarded to the proponent.

### **Manitoba Conservation, Sustainable Resource and Policy Management Branch & Land Programs Branch**

Section 3.4 Project Location: The existing peat leases are not reflected in the 2011 operational land use codes. The peat leased lands have codes of A/C/M, A/C/T, C/T and C1 as per the 2011 code book. The operational land use code will need to be reviewed to identify the D values associated with these leases.

Section 3.6.1 Project Components: The main access road identified is in the area of the Little Deer Crown Cottage Subdivision of 120 lots. The proponent should be aware that this recreational development is in close proximity and should operate in a manner that results in minimal if any effects that may negatively affect the recreational values associated with this Crown developed subdivision. The Integrated Resource Management Team (IRMT) defers to Manitoba Infrastructure and Transportation (MIT) in regards to road maintenance, use impacts and safety aspects in relation to the future demands on PR 234.

Culvert Crossing: The proponent is required to provide detailed engineered drainage plan to Water Stewardship including specifications of drains and culverts. This plan will cover aspects of sedimentation ponds, main drainage ditches, field drainage ditches and outlet ditch.

Sedimentation Ponds: Report suggest number may vary between 10 and 36 ponds. That is a significant range to identify in a final report. Requests confirmation that the proposed 2 hour retention time for water entering the pond to discharge is acceptable for water surface quality objectives? Section 6.3.4 page 59 suggests that if the retention time (2hrs) is not long enough to maintain water chemistry a limestone or carbonate lined drainage ditch can be installed. Installation of the liner during construction of the pond would provide for that

safety factor during initial construction. Installation at construction stage may avoid concerns with pH issues after drainage become operational.

3.6.2 Project Activities: Recommend the proponent provide a site prep map of the areas adjacent to Deer Lake, the unnamed lake, Little Deer Lake that identifies the proposed 100 m buffer and 50 meter buffers as well as the suggested expanded buffer where the depth of peat is less than 1 meter. Section 4.1.10 provides information that was supplied by government agencies in regards to fish and fish habitat, section 6.3.8 concludes effects on these lakes to be not significant but the proponent did not provide any information they had done any active investigation in these lakes with respect to their current status. The expanded buffers as suggested may be appropriate in the absence proponent supplied data on fish and fish habitat.

The proponent will be required to obtain a Crown Land Work Permit prior to initiation of construction assuming the Environment Act licence is issued. A pre construction meeting with the Central Region IRMT is recommended.

The proponent should contact the Bullhead Trappers Association as their operation is within their Registered Trapline Area (RTL) in addition to the Provincial Manitoba Trappers Association and the Little Deer Cottagers Association.

Section 6.2.1: Loss of wetlands the proponent does not address the issue simply suggest their effect is small in comparison to other areas of wetland loss.

Section 6.2.3: Loss of rare Vegetative Species; similar response as above does not address the loss rather it directs attention to the existence of other undeveloped areas supporting unique vegetative types and the proposed development has therefore a minimal in effect.

Sections 6.2.7 and 6.5.1: The proponent will require a burning permit between April 15 and Nov 15 of the calendar year. The proponent should also be advised that operations (development, harvest) may be restricted or terminated during extreme high fire threat conditions.

Section 6.3.7: Wildlife The proponent may be required to advise Aboriginal and Northern Affairs (ANA) and/or the Community of Pine Dock in regards to the use of the newly constructed waste disposal site on PR 234 to use for their waste stream (page 64).

Section 6.4.3: The regional office is aware of the ongoing increase in traffic on PR 234. A number of regional clients (approximately 260 cottage lots, commercial fishers, forest harvest companies, recreational hunters, trappers etc.) all use PR 234. With the probability of three peat processors in operation and the associated increase in traffic at the same time as the recreational users the probability of issues developing in regards to PR 234 should not be unexpected.

Section 2.1: Is the proposed .50 meter minimum peat thickness acceptable and consistent with other licensed peat operation closure plans? Would the reclamation project such as at

the Elma bog have more relevance to peat closure plans in Manitoba than proponents referencing plans that are located in New Brunswick?

The IRMT was recently made aware of a Provincial Boreal Peat land Strategy but is not aware of how or if this strategy has an influence on this development and Environment Licence.

Disposition: Comments were forwarded to the proponent. Concerns related to the loss of rare vegetative species can be addressed with licence conditions. Comments regarding retention times of sedimentation ponds were forwarded to the proponent for additional information (see 'Request for Additional Information' section of this summary).

### **Manitoba Infrastructure and Transportation, Highway Planning and Design Branch**

- The proponent shall ensure that all proposed access and service roads that require access onto a Provincial roadway are reviewed to conform to Department standards. All proposed access roads accessing onto Provincial roadways, as well as structures located within the controlled area, will require permit approvals from Manitoba Infrastructure & Transportation.
- Traffic volumes generated by the proponent will be monitored to ensure that the volumes don't exceed 50vpd making left turn movements or 200vpd. If these traffic volumes are exceeded intersection improvements are warranted and the proponent shall be responsible for these intersection improvements.
- Existing drainage patterns are to be maintained. All affected slopes, ditches etc. to be restored to an acceptable condition.

Disposition: These comments were forwarded to the proponent.

### **Manitoba Conservation, Climate Change and Environmental Protection**

The proponent intends to extract a total of 2085 ha of peat from the Deer Lake Bog, approximately 60 kilometres north of Riverton over a 77 year period.

In terms of restorative work, Berger will extract an initial 75 ha in year 1, followed by annual extractions of 50 ha per year for 9 years (2022). Following the initial 10 years of mining activity, Berger will extract 30 ha per year and simultaneously restore a total of 30 ha per year until 2074, when extraction ceases. From 2074 to 2088, restorative work will continue at a pace of 30 ha per year. Berger proposes to restore the fully-harvested phases based on their experience gained from a previous restoration at another existing operation, the Baie Sainte-Anne demonstration site in Quebec.

In terms of GHG impacts, the proponent sites a few valid references, one of which is Cleary et al, and makes the following CO<sub>2</sub>e estimates:

- Land use change impact = 15% of total = 392,900 tonnes CO<sub>2</sub>e
- Harvesting/processing = 4% = 104,770 tonnes CO<sub>2</sub>e
- Transport = 10% = 261,930 tonnes CO<sub>2</sub>e
- Decomposition = 71% = 1,859,710 tonnes CO<sub>2</sub>e
- Total = 2,619,000 tonnes or 2.62 megatonnes CO<sub>2</sub>e

Berger claims that the GHG emissions from decomposition are associated with the end use and should not be attributed to the producer. Based on the fact that the Deer Lake Bog project will affect 2085 ha, the estimated range for the Berger peat extraction project is from 1.3 to 8.3 megatonnes CO<sub>2</sub>e (2085/1170 X .73-4.68). The 2.62 megatonne estimated provided by Berger falls within this range.

Berger makes no mention of the new acrotelm transplant extraction method of peat extraction. This method supposedly restores some of the natural peatland functions because it helps preserve and replace the surface layer vegetation as part of the extraction process.

Disposition: These comments were forwarded to the proponent.

### **Manitoba Water Stewardship**

Manitoba Water Stewardship recommends an *Environment Act* Licence to include the following requirements:

- The Licencee shall conduct weekly discharge volume monitoring.
- Discharge from the development shall meet tier II water quality objectives as specified in the current Manitoba Water Quality Standards, Objectives and Guidelines.
- The development shall not cause the water quality of Deer Lake, Lake Winnipeg, or any other surface water to be degraded with respect to the current Manitoba Water Quality Standards, Objectives and Guidelines.
- The Licencee shall develop and implement an emergency response plan that includes a requirement for spill response kits to be present within each vehicle and building.
- The Licence shall comply with the Manitoba Stream Crossing Guidelines for the Protection of Fish and Fish Habitat.
- The Licencee shall develop and implement a sediment control plan, including initial construction measures that state the use of erosion mats,

barriers, and other materials, to reduce sediment transport into receiving waters.

- The Licencee shall develop and implement a post construction monitoring program of the culverts to ensure fish passage, in addition to low flow connectivity.
- The Licencee shall develop and implement fish and habitat investigations into the receiving aquatic environments, including the near shore aquatic substrate/vegetation, of the following: Deer Lake, the creek located between Moose Lake, Moose Lake, the small unnamed Lake located south of Deer Lake, and Little Deer Lake. Note: There does not appear to be any additional fish and habitat investigations into the receiving aquatic environments other than that obtained from what was found through correspondence with government staff. There is also no understanding of the near shore aquatic environment in the areas where the outlets will be directed towards. Without current understanding of these systems, Manitoba Water Stewardship is concerned about the inability to verify the effects should the discharge rates be larger than anticipated, possibly resulting in the following: potential water quality (sediment) issues, erosion of shorelines, and sedimentation/changes to near shore habitat/inverts/fish utilization.
- The Licencee shall develop an understanding of how the lakes respond to precipitation events/runoff in terms of fluctuating water levels to verify that these systems are assimilating the runoff during the active harvesting season and after the spring freshet or major precipitation events as predicted and there is no downstream effect on the creek and Moose Lake. Note: Concerns addressed through water quality sampling or discharge monitoring would assist in determining the magnitude and extent of effects.
- The Licencee shall participate in an assessment of peat restoration techniques and implement peat restoration techniques as directed.
- The Licencee must apply for a Crown land lease/permit from the Crown Lands and Property Agency to develop on land located within the Lake Winnipeg Water Power Storage Reserve. Note: The proposed development is located on land within and outside of the Lake Winnipeg Water Power Storage Reserve. The land, proposed to be utilized for the structures associated with the proposed development, is located outside of the Lake Winnipeg Water Power Storage Reserve. Some of the land of the proposed development to be utilized for the mining of peat is located within the Lake Winnipeg Water Power Storage Reserve.

- The Licencee shall comply with Manitoba Water Stewardship's Wetland Policy: The net loss of semi-permanent or permanent wetlands shall not occur. Wetlands are defined as areas that are periodically or permanently inundated by surface or ground water long enough to develop special characteristics including persistent water, low-oxygen soils, and vegetation adapted to wetland conditions. These include but are not limited to swamps, sloughs, potholes, marshes, bogs and fens.
- The proponent shall establish and maintain a buffer zone with at least a 15-metre width.
- Prior to beginning construction of the proposed development, the Licencee is required to submit an application for a Water Rights Licence to Construct Water Control Works. A contact person is Mr. Geoff Reimer C.E.T., Senior Water Resource Officer, Water Control Works and Drainage Licensing, Manitoba Water Stewardship, Box 4558, Stonewall, Manitoba R0C 2Z0, telephone: (204) 467-4450, email: geoff.reimer@gov.mb.ca.
- The Licencee shall develop and implement a water quality monitoring program to include the following:
  - Detection limits should be commensurate with an interpretation of the Canadian Environmental Quality guidelines.
  - Sampling locations include the outlet ditch(s), and upstream/downstream receiving waters including Deer Lake.
    - Develop and implement sampling locations from the field drains near the confluence with Deer Lake.
    - Manitoba Water Stewardship requires an *Environment Act* Licence to include the option for amending a water quality monitoring program to require additional monitoring locations, sampling frequencies and/or analytical parameters.
  - Monitoring data should be summarized in an annual report, including trend analysis of previous years monitoring data. In addition an electronic copy of all monitoring data should be submitted to Manitoba Water Stewardship in a spreadsheet compatible format.

- All water quality analysis shall be performed by a laboratory accredited by the Canadian Association for Laboratory Accreditation Inc.
- weekly monitoring of pH, total suspended sediment at outlet ditches;
- weekly monitoring sedimentation pond;
- annual monitoring of total mercury (cold vapour) outlet ditch and receiving waters; and,
- monthly monitoring during the open water season (April to November) of the following:
  - Total alkalinity;
  - Acidity;
  - Conductivity;
  - Total dissolved solids;
  - Total suspended solids;
  - 5-day biochemical Oxygen Demand;
  - Hardness;
  - Total Phosphorus;
  - Total Kjeldahl Nitrogen;
  - Total ammonia as (N);
  - Nitrate +Nitrite (as N);
  - Sulphates;
  - Total organic carbon; and,
  - Complete Metal Scan by Inductively Coupled Plasma Mass Spectrometry or similar method.
- Manitoba Water Stewardship recommends to defer the approval of an *Environment Act* Licence until the Provincial Boreal Peatland Strategy is implemented.
- The closure plan needs to identify the depth of peat that shall remain to provide the best restoration?
- The proposal identifies that large volumes of water (1,068,750 m<sup>3</sup>) will be drained from the wetland during the initial year of operation.
  - How will this affect stream velocities in the receiving waters?
- The proponent proposes sedimentation ponds with a two hour residence time be constructed to allow for settling of sediments.

- Can the proponent demonstrate whether a two hour residence time is adequate?
- Manitoba Water Stewardship does not object to this proposal, at this time.
- 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*.

Disposition: Comments were provided to the proponent. Several comments can be accommodated as licence conditions. Some comments were forwarded to the proponent for additional information (see 'Request for Additional Information' section of this summary).

#### **ADDITIONAL INFORMATION REQUEST:**

EAL Branch contacted the proponent with questions from TAC members and the public concerning the project on May 5, 2011. A submittal in response to comments was received on May 25, 2011 and included the following in response to TAC member questions:

**The proposal identifies that large volumes of water will be drained from the wetland during the initial year of operation. How will this affect stream velocities in the receiving water? How does the increased flow compare to the entire drainage area of the receiving waters?**

As described in Section 3.6.1 of the EAP (pg 18 and 19) Deer Lake Bog will be developed by opening 75 ha of peatland in the first year followed by an additional 50 ha per year until peak operation after which 30 ha per year would be developed. Based on the field ditches being cut to a depth of 1.5 m the total volume of peat to be drained during development of the initial 75 ha is approximately 1,125,000 m<sup>3</sup>. Assuming an initial average of 95 percent moisture content and that an average of 25 percent moisture content drains, the volume of drainage water from the 75 ha of peatland will total approximately 281,250 m<sup>3</sup>.

Once a drain is cut it takes approximately 3 weeks for the initial draining to occur. It will take approximately 12.5 weeks to cut the 30,000 m of field ditches required for the initial 75 ha area. Therefore if the drains are cut during active draining (summer) it will take approximately 15.5 weeks to drain the entire 75 ha area, resulting in an average flow of 0.03 m<sup>3</sup>/s. In comparison, if the drains are cut when the ground is frozen between January and April then the entire 75 ha area would drain over a period of 3 weeks during the spring freshet.

Drainage of the approximately 281,250 m<sup>3</sup> over a three week period results in an average flow of 0.155 m<sup>3</sup>/s. Drainage from development of the subsequent 50 ha and 30 ha areas will be less than that for the initial 75 ha area.

The initial drainage and harvesting will begin in the vicinity of the staging area in the southeast corner of the development area (QL's 2218, 2212 and 2456). Under the existing conditions, with no constructed drainage, the design discharge from the initial 75 ha area would be 0.15 m<sup>3</sup>/s. Therefore the constructed drainage with an average flow of 0.155 m<sup>3</sup>/s would be an increase in flow of 3.3% for the 3 weeks of drainage under typical conditions. This temporary increase in flow rate from the bog area would have a negligible impact on the receiving stream and Lake Winnipeg for the following reasons;

- The initial 75 ha area being drained under development is only 4% of the 1800 ha total drainage area for the receiving stream; and
- The temporary increase in flow rate of 0.005 m<sup>3</sup>/s (3.3% over the existing flow) to the unnamed stream is an increase of only 0.14% compared to the design discharge of 3.61 m<sup>3</sup>/s in the unnamed stream at the PR 234 outlet to Lake Winnipeg.

Once the initial increased drainage is completed following drain cutting the amount of drainage from the developed areas would be the same as drainage prior to development. The timing of drainage, however, would be slightly modified. During a rain event there will be a slight lag (delay in time) before drainage from a developed area begins compared to undeveloped peat land and then the drainage rate would be slightly higher because of the constructed drains. As noted above the increased drainage rate would be negligible compared to the flow in the unnamed stream and as described in the EAP the sedimentation ponds are equipped with gates to control the flow if required.

**The proponent proposes sedimentation ponds with a two hour residence time be constructed to allow for settling of sediments. Can the proponent demonstrate whether a two hour residence time is adequate?**

The two hour minimum retention time for the sedimentation ponds is a typical design criteria used by the peat industry. The retention time will vary in response to the inflow rate of drainage water; however it will never be less than the minimum two hours to ensure adequate time to allow settling. As noted in Section 3.6.1 (pg 16) of the EAP a control culvert with a sliding gate is located in the inlet ditch upstream of the sedimentation pond which can be used to reduce or stop inflow to the sedimentation pond in the event that inflow rates exceed the design flow criteria. The sedimentation ponds proposed to mitigate potential TSS effects are also equipped with floating booms in addition to the control gate at their inlet. As noted in Section 6.3.4 of the EAP, the effectiveness of the sedimentation ponds to mitigate TSS concerns will be monitored by collecting water quality samples from each outlet weekly for analysis of TSS.

**Please provide a figure with both downstream sampling locations and sedimentation ponds.**

Figure 3 (enclosed) has been revised from what was provided in the EAP to show the downstream monitoring locations in addition to the sedimentation ponds as requested. As discussed, at this time 3 downstream monitoring locations have been shown to assess the

potential effect of drainage water on Deer Lake and Moose Lake. Should the results of the monitoring from the sedimentation pond discharge points identify the need for additional sampling locations these would be added upon request of the Director as typically specified in the Environment Act Licence for the development.

**DISCUSSION AND ANALYSIS:**

This information is sufficient to allow several TAC concerns to be addressed through licence conditions. There are no overriding technical issues associated with this project that would preclude the issuance of an Environment Act Licence with appropriate conditions.

**PUBLIC HEARING:**

No requests were received for a public hearing on the project. Technical issues surrounding the project are sufficiently understood. A public hearing is not recommended for the project.

**RECOMMENDATION:**

All comments received on the Proposal can be addressed as licence conditions or have been forwarded to the proponent for information. It is recommended that an Environment Act Licence be issued for the project subject to the limits, terms and conditions as described on the attached draft licence. Administration of the licence should be assigned to the Central Region, with technical assistance to be provided by Environmental Assessment and Licensing Branch upon request.

**PREPARED BY:**

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