Kontzamanis Graumann
Smith MacMillan Inc.
3rd Floor - 865 Waverley St
Winnipeg, MB R3T 5P4

P 204-896-1209
F 204-896-0754
kgsgroup.com

August 16, 2024

Environmental Approvals Branch
Manitoba Environment and Climate Change
Box 35, 14 Fultz Boulevard
Winnipeg, Manitoba R3Y 0L6

Attention: Ms. Agnes Wittmann
Director

Re: Sun Gro Horticulture Canada Ltd.
Sugar Creek Peat Harvesting
Environment Act Proposal

Dear Ms. Wittmann:

On behalf of Sun Gro Horticulture Canada Ltd. (Sun Gro), KGS Group is pleased to submit 2 hard copies and 1 electronic copy of the Environment Act Proposal submission for the proposed Sun Gro Horticulture Canada Ltd. Sugar Creek Peat Harvesting Project. As part of the licencing process an Environment Act Proposal Form with the $7,500.00 application fee has been included with this Environmental Assessment report.

Please do not hesitate to contact the undersigned if you have any questions or require additional information.

Yours truly,

Shaun Moffatt, M.Sc.
Senior Environmental Scientist

DL/jr
cc: Tim North – Sun Gro Horticulture Canada Ltd.

Environment Act Proposal Form

Manitoba

Name of the development:

Sugar Creek Peat Harvesting

Type of development per Classes of Development Regulation (Manitoba Regulation 164/88):

Class 2 Development - Mining

Legal name of the applicant:

Sun Gro Horticulture Canada Ltd.

Mailing address of the applicant: #52080 Peat Moss Road

Contact Person: Mr. Tim North

City: Elma Province: Manitoba Postal Code: R0E 0Z0

Phone Number: (204) 346-2990 Fax: email: tim.north@sungro.com

Location of the development: Interlake, Manitoba

Contact Person: Mr. Tim North

Street Address: N/A

Legal Description: Parts of S18, 19, 28, 29, T27, R03, E1 and S29 - 32, T26, R03, E1

City/Town: N/A Province: Manitoba Postal Code: R0E 0Z0

Phone Number: (204) 346-2990 Fax: email: tim.north@sungro.com

Name of proponent contact person for purposes of the environmental assessment:

Mr. Shaun Moffatt

Phone: (204) 318-2054 Fax:	Mailing address: KGS Group 3rd Floor - 865 Waverley Street Winnipeg, Manitoba, R3T 5P4

Email address: smoffatt@kgsgroup.com

Webpage address: kgsgroup.com

Date: 2024-08-16	Signature of proponent, or corporate principal of corporate proponent: Printed name: Shaun Moffatt

PRINT RESET

A complete **Environment Act Proposal (EAP)** consists of the following components:

- ☑ **Cover letter**
- ☑ **Environment Act Proposal Form**
- ☑ **Reports/plans supporting the EAP** (see "Information Bulletin - Environment Act Proposal Report Guidelines" for required information)
- ☑ **Application fee** (Cheque, payable to Minister of Finance, for the appropriate fee)

Per Environment Act Fees Regulation (Manitoba Regulation 168/96):

Class 1 Developments	$1,000
Class 2 Developments	$7,500
Class 3 Developments:	
Transportation and Transmission Lines	$10,000
Water Developments	$60,000
Energy and Mining	$120,000

Submit the complete EAP to:
Director
Environmental Approvals Branch
Environment and Climate Change
Box 35, 14 Fultz Boulevard
Winnipeg MB R3Y 0L6
EABDirector@gov.mb.ca

For more information:
Toll-Free: 1-800-282-8069
Phone: 204-945-8321
Fax: 204-945-5229

https://www.gov.mb.ca/sd/permits_licenses_approvals/eal/licence/index.html

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$1,000.....C1 B-02
$7,500.....C2 B-02
$10,000....TT B-02
$60,000.....WD B-02
$120,000...EM B-02

SUN GRO HORTICULTURE CANADA LTD.

Sugar Creek Peat Harvesting Environment Act Proposal

Revision:
Final/Rev 0

KGS Group Project:
22-0293-003

Date:
August 19, 2024

PREPARED BY:

[redacted]

Dan Leitch, M.Sc.
Environmental Scientist

REVIEWED BY:

[redacted]

Shaun Moffatt, M.Sc.
Senior Environmental Scientist

APPROVED BY:

[redacted]

Bonnie Hoffensetz, M.Sc.
Associate Principal & Environmental Department Head

EXECUTIVE SUMMARY

Kontzamanis Graumann Smith MacMillan Inc. (KGS Group) was contracted by Sun Gro Horticulture Canada Ltd. (Sun Gro) to prepare a Manitoba Environment Act Proposal (EAP) to obtain the required Environment Act Licence for peat harvesting at the Sugar Creek sub areas B, C, D and E. The proposed peat harvesting development will not likely result in significant adverse environmental effects, based on the available information for this project, the environment, the assessment of environmental effects outlined in this environmental assessment report, and application of proposed mitigation measures, including conducting the required follow-up.

Sun Gro is the largest producer of peat moss in North America and the largest distributor of peat moss and peat-based growing media products. To sustain Sun Gro's current needs it is necessary to develop the Sugar Creek sub-areas for future peat moss harvesting. Sun Gro previously held a quarry lease for the Sugar Creek site in anticipation of this future need, which has since been converted to a Peat Harvest Licence (PHL) along with other quarry leases. The purpose of the proposed Sugar Creek sub-areas development is to continue to provide quality peat-based growing media products to meet the demand of the distribution network in over 40 countries worldwide.

The scope of the project includes planning, designing, constructing, operating, maintenance and eventual decommissioning and restoration of the proposed peat development at the Sugar Creek sub-areas. The scope of the assessment included identification, assessment and mitigation of adverse environmental effects of the project, and evaluation of the significance of residual environmental effects. The scope of the assessment also included consideration of direct and indirect biophysical and socio-economic effects.

The project will include an access road, staging area, bog roads, drainage ditch system, sedimentation ponds and an outlet ditch with a gated culvert which discharges water toward the adjacent bog area south of the site. Major project activities include providing access, clearing vegetation and surface soils, harvesting and stockpiling unprocessed peat, excavating and trenching, transporting and restoring harvested peatland.

The environmental assessment of the proposed peat development was carried out based on project information provided by Sun Gro and in accordance with the Manitoba Environment Act Proposal Report Guidelines. Additional information was acquired from literature and internet searches, publications by the peat industry and environmental organizations; contacts with provincial government representatives; engagement with stakeholders; and site investigations by the project team. Requirements of The Environment Act (Manitoba) and regulations were followed in the preparation of this EAP.

Information regarding the proposed peat development project has been provided to identified rightsholders and stakeholders in the region through various means, including letters, telephone conversations, and meetings with community representatives as part of a community engagement program. Comments and concerns expressed by rightsholders and stakeholders and mitigation measures to address them have been summarized in this EAP.

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STATEMENT OF LIMITATIONS AND CONDITIONS

Limitations

This report has been prepared for Sun Gro Horticulture Canada Ltd. (Sun Gro) in accordance with the agreement between KGS Group and Sun Gro (the "Agreement"). This report represents KGS Group's professional judgment and exercising due care consistent with the preparation of similar reports. The information, data, recommendations and conclusions in this report are subject to the constraints and limitations in the Agreement and the qualifications in this report. This report must be read as a whole, and sections or parts should not be read out of context.

This report is based on information made available to KGS Group by Sun Gro. Unless stated otherwise, KGS Group has not verified the accuracy, completeness or validity of such information, makes no representation regarding its accuracy and hereby disclaims any liability in connection therewith. KGS Group shall not be responsible for conditions/issues it was not authorized or able to investigate or which were beyond the scope of its work. The information and conclusions provided in this report apply only as they existed at the time of KGS Group's work.

Third Party Use of Report

Any use a third party makes of this report or any reliance on or decisions made based on it, are the responsibility of such third parties. KGS Group accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions undertaken based on this report.

Geo-Environmental Statement of Limitations

KGS Group prepared the geo-environmental conclusions and recommendations for this report in a professional manner using the degree of skill and care exercised for similar projects under similar conditions by reputable and competent environmental consultants. The information contained in this report is based on the information that was made available to KGS Group during the investigation and upon the services described, which were performed within the time and budgetary requirements of Sun Gro. As this report is based on the available information, some of its conclusions could be different if the information upon which it is based is determined to be false, inaccurate or contradicted by additional information. KGS Group makes no representation concerning the legal significance of its findings or the value of the property investigated.

1.0 INTRODUCTION

Kontzamanis Graumann Smith MacMillan Inc. (KGS Group) was contracted by Sun Gro Horticulture Canada Ltd. (Sun Gro) to prepare a Manitoba Environment Act Proposal (EAP) to obtain the required Environment Act Licence for peat harvesting at the Sugar Creek sub areas B, C, D and E. The proposed project consists of developing a peat harvesting mine at the Sugar Creek sub-areas (Figure 1) to continue to provide quality peat to meet the demand of Sun Gro's distribution network.

An EAP is required for environmentally significant developments within the province of Manitoba, under *The Environment Act* (C.C.S.M. c. E125). The purpose of this EAP is to ensure that the proposed peat harvesting operation is designed, constructed, and operated in an environmentally responsible manner consistent with provincial environmental legislation, policies, and guidance. A peat harvesting operation such as the one proposed by Sun Gro is considered a mining development under the Classes of Development Regulation 164/88 and is therefore considered a Class 2 Development. The EAP was prepared in accordance with the Manitoba *Environment Act Proposal Report Guidelines* (Manitoba Environment and Climate, 2023).

Sun Gro is the largest producer of peat moss in North America and the largest distributor of peat moss and peat-based growing media products to the North American professional plant grower's market. Sun Gro sells products primarily to professional greenhouse, nursery, and specialty crop growers throughout North America, as well as to golf course developers and landscapers. To sustain current needs, it is necessary to develop the Sugar Creek sub-areas for future peat moss harvesting. Sun Gro previously held a quarry lease for the Sugar Creek sub-areas in anticipation of this future need, which has since been converted to a Peat Harvest Licence (PHL) along with several other quarry leases. The purpose of the proposed development is to continue to provide quality peat-based growing media products to meet the demand of the distribution network in over 40 countries worldwide.

Sun Gro was founded in 1929 in British Columbia as the Western Peat Company Ltd., as a producer of peat moss. Initial success enabled the company to grow, and its operations expanded throughout British Columbia and eastward into central Canada. The business has had several owners over the years and was acquired by Madison Dearborn Partners II, L.P. ("Madison Dearborn") in 1995, a Chicago based private equity firm. Sun Gro operates in 25 locations throughout North America, many of which are in small rural towns and are committed to providing jobs that are safe and pay a fair wage. Sun Gro employs over 800 people and contributes to the economic well-being of local communities. Sun Gro is also committed to minimizing the impact on the local environment and takes great pride in their stewardship of natural resources.

1.1 Previous Studies and Activities

A summary of notable past studies and activities completed in relation to the project is as follows.

- Peat harvesting occurs at the nearby Ramsay Point bog under PHL No. 4, the same licence group that includes the Sugar Creek sub-areas.
- In 2015, several existing Quarry Peat Leases were converted into a PHL in accordance with *The Peatlands Stewardship Act* which came into force on June 15, 2015. PHL No. 4 South Washow is

comprised of 6 Quarry Lease areas (now termed sub-areas) including Ramsay Point and Sugar Creek A, B, C, D and E (Appendix A).

- In 2017, Vertex Professional Services Ltd. completed a Peat Exploration Assessment in the Sugar Creek sub-areas A to E to assess the quality, depth and extent of peat in the PHL area to determine if the peat was harvestable and to estimate volumes (Vertex, 2017).
- In accordance with *The Peatlands Stewardship Act,* Sun Gro submitted an associated Peatland Management Plan (PMP), Peatland Recovery Plan (PRP), and a Community Engagement Plan for PHL No. 4 (Sun Gro, 2019b; Sun Gro, 2019c; Sun Gro, 2018). The PMP promotes responsible economic development of Crown peatlands through proactive resource planning and long-term peat resource management strategies (Manitoba Sustainable Development, 2017a). The PRP outlines how the harvest areas will be restored once operations at a given site are complete. The Community Engagement Plan outlines Sun Gro's engagement plan within the regional area. At the time of submission of the PMP and PRP, Sun Gro did not anticipate harvesting at Sugar Creek sub-areas B and E within the PHL timelines (2015-2030). Given that Sun Gro now plans to harvest at these sub-areas, the proposed development change will require review by the Manitoba Environment and Climate Change in accordance with the PHL Guidelines (Government of Manitoba, 2017). The review and consultation requirements required to satisfy the PHL will be combined with the Environment Act Licence (Government of Manitoba, 2017).
- A peat assessment was conducted by KGS Group at Sugar Creek in 2020 and 2021 to supplement and confirm investigations previously conducted by Vertex Professional Services Ltd. (KGS Group, 2022). The investigation confirmed that peat at the Sugar Creek bog was of sufficient quality and quantity to warrant harvesting.

2.0 PROJECT DESCRIPTION

The following sections have been structured to address the Description of Proposed Development requirements as outlined in the EAP Report Guidelines (Manitoba Environment and Climate, 2023).

2.1 Status of Title

As the proposed project lies on provincial Crown Land, there are no Certificates of Titles available, however Sun Gro holds the peat harvesting rights for the proposed harvest area under Manitoba PHL No. 4 – South Washow (Appendix A). The Sugar Creek sub-areas are located on parts of Sections 28, 29, Township 27, Range 03, E1 for sub-area B, Sections 18, 19, Township 27, Range 03, E1 for sub-area C, Sections 31, 32, Township 26, Range 03, E1 for sub-area D, and Sections 29, 30, Township 26, Range 03, E1 for sub-area E.

2.2 Mineral Rights

Sun Gro holds the peat harvesting rights to the Sugar Creek sub-areas within PHL No. 4. Four of the five Sugar Creek sub-areas included in PHL No. 4 are a part of this EAP.

These Sugar Creek sub-areas cover 1,810 ha, however only approximately 750 ha is proposed to be harvested, as shown on Figure 2. Other areas have insufficient peat depth to warrant harvesting and/or fall within buffer areas around the sub-area boundary. The bog is estimated to contain approximately 17,177,150 m^3 of *Sphagnum* moss (KGS Group, 2022). This is equivalent to approximately 1,717,715 tonnes of product assuming 0.1 tonnes of product per cubic metre of peat harvested.

2.3 Existing and Adjacent Land Use

The proposed harvest site is currently a forested peat bog in a remote location covered predominantly with black spruce. An old logging/conservation trail off Provincial Road (PR) 325 is present to the west of the bog areas (Appendix B, Photo 1). Limited agricultural areas are present south of the sub-areas (south of PR 325). To the north-east of the sub-areas, several peat harvest operations are active, including Sun Gro's Ramsay Point bog operation.

Land use within the regional study area includes a mixture of resource extraction and recreation including forestry, peat harvesting, agriculture, hunting, trapping and snowmobiling.

2.4 Land Use Designation and Zoning

The proposed harvest site is on Provincial Crown land within the Municipality of Bifrost-Riverton. The site is within Moose Creek Provincial Forest as well as the Moose Creek Wildlife Management Area (WMA). The Sugar Creek sub-areas are located on parts of Sections 28, 29, Township 27, Range 03, E1 for sub-area B, Sections 18, 19, Township 27, Range 03, E1 for sub-area C, Sections 31, 32, Township 26, Range 03, E1 for sub-area D, Sections 29, 30, Township 26, Range 03, E1 for sub-area E.

2.5 Proposed Development

The proposed Sugar Creek peat harvesting project will include the components described in the following sub-sections and shown in Figure 2.

2.5.1 ACCESS ROAD

An access road will be constructed from PR 325 to the southwest corner of sub-area E. The total access road length will be approximately 7.8 km. Approximately 6.0 km of the access road will follow the existing trail that is located west of the Sugar Creek and connects to PR 325. The existing trail would be upgraded to accommodate peat haul trucks, including the placement of additional gravel, and may require installation of additional culverts for drainage equalization. The remaining 1.8 km would be a newly constructed access road. The access road will generally be 15 m (50 feet) wide with a 2 percent minimum grade. This will be sufficient to accommodate simultaneous ingress and egress of emergency vehicles in the event of an emergency. Ditches will be constructed on both sides of the road. Material excavated during ditching will be used to build the road base. Gravel will be hauled on-site from the nearest available source and spread to a thickness that will be determined on-site after evaluating the road base condition. A geotextile material will be used beneath the gravel in areas where the earth is swampy or otherwise unstable. Corduroy logs will be installed as needed in areas where existing ground conditions do not have sufficient strength to support haul trucks. The proposed access road will require the installation of culverts to equalize water levels in the roadside ditches. Culvert diameter will be a minimum of 900 mm, with culvert number and locations to be determined based on field conditions.

2.5.2 SEDIMENTATION PONDS

Sedimentation ponds will be constructed before starting main drainage ditch and field drainage ditch construction. Sedimentation ponds are used to treat peatland drainage water by slowing down the water flow to maximize the settlement of suspended peat particles. The design of the sedimentation ponds will be based on the following criteria:

- Minimum basin volume of 25 m^3 per ha of peatland area drained.
- Minimum depth at outlet of 1.5 m.
- Optimum length to width ratio of 6.5:1 to 12:1.
- Minimum retention time of two hours to allow for settling of sediments.
- Five year maximum instantaneous discharge of 0.75 $m^3/sec/km^2$ resulting in a peak five-year flow of 0.148 m^3/sec.

The production area of the peat bogs determines the total number of sedimentation ponds based on the above criteria. Sedimentation ponds will be constructed to ensure efficiency during cleaning and maintenance. The drainage network at sub-area B will operate independently, while sub-areas C, D and E will have interconnected drainage networks with a common discharge location (Figure 2). Each drainage area will have a suitable number and size of sedimentation ponds to manage the discharge. At sub-area B, a single sediment pond will be able to handle the peatland drainage from the proposed 133.6 ha harvest area. The sedimentation pond will be constructed approximately 120 m long x 4 m deep in a V-shape that is 2 m wide at the bottom and 12 m wide at the top resulting in a total volume of approximately 3,360 m^3. The proposed

615 ha drainage area included within sub-areas C, D and E will be managed by four sedimentation ponds that will be constructed to be approximately 140 m long x 4 m deep in a V-shape that is 2 m wide at the bottom and 12 m wide at the top resulting in a total volume of approximately 3,920 m^3/each, for a joint capacity of 15,680 m^3.

The sedimentation ponds will be constructed at the end of the main drainage ditches and will have an outlet ditch to discharge drainage water to the surrounding environment. Each sedimentation pond will be equipped with a floating boom situated near the outlet to prevent escape of floating debris.

The sedimentation ponds will be cleaned periodically to ensure that the accumulated sediment volume does not exceed 25% of the total basin volume. Water levels will be monitored during periods of normal operation to ensure that there is always at least a 1 m depth of free water over a minimum 10 m distance from the pond outlet. Cleaning will take place before and after any significant ditch cleaning or cutting takes place within the upstream catchment area. Solids will be scooped from the pond with a backhoe.

2.5.3 FIELD DRAINAGE DITCHES

Field drainage ditches are used to remove interstitial surface water and prepare the peat surface for harvesting after clearing. A network of parallel ditches will be cut through the bog using a “V” ditcher. Each field ditch is excavated to 1.5 m deep and 1.5 m wide and spaced approximately 33 m apart. Field drainage ditches will typically be constructed at 90° angles to the main drainage ditches (Figure 2). At the peak development with all 750 ha under operation, a total of 428 field ditches will have been cut. Water will drain from the field ditches into the main drains, and then through the sedimentation ponds where it will eventually flow off-site. Field ditch construction is typically completed during the winter when the peat is frozen. Therefore, initial site drainage is highest during the spring runoff period. After this period, the rate at which water drains from the bog will depend on the amount of precipitation. Water will continue to drain from the bog until the water table is reduced to the elevation of the ditches or until the peat becomes frozen.

The Sugar Creek sub-areas will likely be opened over a ten-year period. To be conservative, calculations within this EAP have assumed that the initial development of 80 ha will be prepared for harvesting each year to the full harvesting area of 750 ha in year 10. The storage volume of the development area was calculated to estimate the potential water discharge following the development of the field drains. Based on the field ditches being cut to a depth of 1.5 m the total volume of peat to be drained annually is approximately 1,200,000 m^3. This volume of peat will hold approximately 1,114,000 m^3 of water assuming an average 95% moisture content before drainage. Moisture content generally varies between 60 to 85% following drainage after the field ditches are cut (Thibault, 1998). Therefore, assuming an average of 70% moisture content remains after drainage (25% drains), the volume of drainage water from opening 750 ha of peatland will total approximately 300,000 m^3.

As peat is harvested, the drainage ditches must be deepened to maintain their depth. The ditches are typically deepened by approximately 0.15 m every second year during the summer months at a rate of approximately 6 ha per day, amounting to 2,250 m^3 of water discharged daily during ditch deepening activities. Since the contribution to downstream peak flows resulting from drain deepening is much less than flows originating from the initial drainage construction and since it is unlikely that the flows from the drain deepening coincide with the annual peak flow (the annual peak flow is likely to occur during the spring

freshet, prior to drain deepening), these flows are considered much less critical than the flows resulting from the initial drainage.

2.5.4 MAIN DRAINAGE DITCHES

Field drains will drain into main drainage ditches which will be excavated through the harvest area and along the perimeter of the harvesting area (Figure 2). The main drainage ditches will be approximately 2 m wide and 3 m deep and are designed with a low gradient to maintain a slow flow so that they will be more conducive to settlement of suspended solids. The main drainage ditches connect the field ditches to the sedimentation ponds located in the southeast corner of sub-areas b and E, which then discharge drainage water through the outlet ditches into adjacent bog areas south and east of the sub-areas.

2.5.5 OUTLET DITCH

The outlet ditch conveys water from the main drains off-site to an adjacent bog area to integrate the drainage into the existing drainage system and minimize change to the water regime. Two outlets are proposed, with one conveying discharge from sub-area B and the second conveying discharge from sub-areas C, D and E. The outlet ditches will be excavated into the adjacent peat bogs until the bottom of the outlet ditch reaches the elevation of the adjacent peat, with no anticipated direct discharge to a natural waterbody. However, based on following the existing drainage pattern in the area water discharged from the peat harvesting areas will eventually flow towards Sugar Creek and then into Lake Winnipeg. The existing drainage pattern for the area is shown in the Hydrologic and Hydraulic Analysis in Appendix C.

A control culvert with a sliding gate will be placed in the outlet ditch at the downstream end of the sedimentation ponds which will be used to regulate water levels in the peat layer within the harvesting area and allow for some control of water discharge from the site. The gate can be closed as needed to slow the water flow and allow for the settlement of suspended peat particles prior to the water being discharged off-site. The gate can also be used to reduce or stop discharge in the event of a major precipitation event which exceeds the design flow criteria. The control gate will remain closed until the main drain construction is complete and the drain blocks have been removed. A certain amount of water will always be held within the sedimentation ponds for use fighting fires on site.

2.5.6 BOG ROADS

The bog roads connect the staging area to the individual harvesting areas within each sub-area. The bog roads will be constructed using non-merchantable timber and surface vegetation that is removed from the fields as part of the site preparation activities. A clay base and gravel topping will be added to allow trucks access to the fields for loading purposes (Figure 2).

2.5.7 FACILITY AND EQUIPMENT REQUIRED AT PROPOSED PEAT DEVELOPMENT SITE

A 4-ha staging area will be developed as part of the proposed project in the south-west corner of sub-area E where the access road reaches the site (Figure 2). This area will be cleared, graded for drainage to match the surrounding topography and will have gravel placed over top of the existing materials. The staging area will be used for employee vehicle parking, equipment storage and maintenance. Peat may be temporarily

stockpiled in this staging area before it is hauled to existing Sun Gro processing facilities near Elma and Vassar, Manitoba.

A building will be located at the staging area for equipment and employees. The building will consist of a shop area which will be used for equipment repair, maintenance and refueling. The building will also include an office area and lunchroom for staff. The lunchroom and washroom will be equipped with a septic tank installed and maintained by a local authorized contractor. The site will be serviced with a combined system which will include including solar power and an on-site generator. Drinking water will be brought to site as no groundwater wells are proposed.

All fuel required for this development will be stored in the 4-ha staging area in accredited (CAN/ULC S601) steel double walled diesel fuel aboveground storage tanks (ASTs). All the ASTs will be equipped with a 90 L/m electric pump for dispensing fuel. Sun Gro will comply with the Canadian Council of Ministers of the Environment (CCME) Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products. Manitoba provincial and municipal guidelines and regulations will also be followed for the installation and operation of all ASTs. Small amounts of gasoline will also be stored at the site in portable containers. The gasoline and other petroleum products, such as hydraulic oil, motor oil, and lubricants will be stored in a designated contained storage area within the shop on site.

On-site equipment will include farm tractors to haul and power the different types of peat harvesting operation equipment, loaders to push stacks and load trucks, and dozers and excavators to maintain bog operations.

2.5.8 SCHEDULE OF PROJECT STAGES AND ACTIVITIES

Development at the site is expected to begin once the necessary project approvals have been received. The schedule presented here and summarized in Table 1 assumes of receiving the necessary approvals and permits in 2025. Initial work would consist of constructing the access road to the site, clearing of the first 80 ha area of trees within the harvest area, and installation of the sedimentation pond and drainage ditches in the winter of 2025/2026. Subsequent work in the spring and summer of 2026 would include additional site preparation and contouring, as well as any additional upgrades needed to the access road. Peat harvesting at Sugar Creek would begin as early as summer 2026.

The development plan proposes that peat harvesting operations start with harvesting within the first 80 ha in 2026. Additional 80 ha areas will be cleared and prepared for harvesting each your over 10 years until the full 750 ha harvest area is open in 2035. The estimated project lifespan of approximately 37 years, from 2026 until approximately 2062, is based on an estimated average peat production rate of approximately 850 m^3/ha/year and an estimated total of 17,177,150 m^3 of horticultural grade peat (KGS Group, 2022). At this point, the bog area is expected to be harvested down to the final planned depth of harvesting, maintaining the required minimum of 0.5 m of peat in place after harvesting. Restoration activities will begin once peat harvesting is complete at a given sub-area.

2.6 Project Boundaries

2.6.1 SPATIAL BOUNDARIES

The spatial boundaries of the assessment include the development area, the project study area, and regional study area (Figure 1). The development area constitutes the area within the sub-area boundaries which is cleared, drained and harvested or used for the staging area or buffer zones. The project study area includes the sub-areas and the area within a 3 km radius of the sub-area boundaries, which encompasses a total area of 10,736 ha. The regional study area includes the sub-areas and the area within a 10 km radius of the sub-area boundaries, which encompasses a total area of 53,339 ha. Direct and indirect biological and physical environmental effects of the project are considered within the project study areas, while socio-economic effects are considered in the regional study area.

2.6.2 TEMPORAL BOUNDARIES

The temporal boundary for the assessment is the life expectancy of the proposed peat harvesting operation. This is estimated to be approximately 42 years, which includes 37 years of harvesting followed by 5 years of decommissioning and restoration. Following the expected decommissioning and restoration of the peat harvesting sites, monitoring would continue for a number of years, as required, until any outstanding environmental issues are addressed, or Manitoba Environment and Climate Change is satisfied.

2.7 Funding

Funding for the proposed development comes from Sun Gro.

2.8 Other Approvals

In addition to the PHL which Sun Gro has already obtained and the Environment Act Licence which is being applied for as part of this EAP, Sun Gro will require the following licences/permits (Government of Manitoba, 2017):

- A General Permit from Crown Lands is required under *The Crown Lands Act* for the access road.
- A Work Permit from Natural Resources and Northern Development is required to authorize work on Crown land.
- A Timber Appraisal is required from the Department of Economic Development, Investment, Trade and Natural Resources to authorize removal of any timber within the PHL.

Sun Gro will also be required to revise the existing PMP and PRP for PHL No. 4 to account for harvesting at the Sugar Creek sub-areas within the PHL license terms. The current PHL will also have to be renewed prior to its expiry in 2030.

A request was submitted by the Fisher River Cree Nation to the Impact Assessment Agency of Canada (the Agency) to designate the project as a development pursuant to Section 9 of the *Impact Assessment Act*. Under the *Impact Assessment Act* the Minister may designate a physical activity that is not prescribed in the Physical Activities Regulation. Fisher River Cree Nation raised concerns regarding the potential effect of the Project to fish and fish habitat, species at risk, cumulative effects and impacts to the rights of Indigenous

Peoples. The Agency completed an analysis of the project, taking into account information received as part of the designation request. Upon analysis and review, the Minister's decision was that the project does not warrant designation under the *Impact Assessment Act* (Appendix D). This decision was made based on existing provincial and federal legislation that provides a framework to address the potential for adverse effects and consultation with potentially impacted Indigenous peoples. These included through the provincial licensing process under *The Environment Act*, and federal legislative mechanisms such as an authorization under the *Fisheries Act*.

The Department of Fisheries and Oceans (DFO) also reached out to Sun Gro to further discuss the project. DFO initially indicated that a Request for Review would need to be submitted for the project to evaluate whether the project may result in killing fish or causing a Harmful Alteration, Disruption or Destruction (HADD) of fish habitat, and therefore requiring of a *Fisheries Act* authorization (DFO 22-HCAA-02682). However, following review of the Sugar Creek Peat Harvesting Development Aquatic Habitat Assessment and additional information shared through emails and meetings, DFO indicated they were satisfied that the proposed project would not result in impacts to fish and fish habitat, and therefore no longer required submission of a Request for Review for the project (Appendix D).

3.0 INDIGENOUS AND PUBLIC ENGAGEMENT

An Indigenous and public engagement program was developed and carried out to support the EAP. The engagement program included identification of potentially affected rightsholders and stakeholders, preparation of engagement materials, distribution of project information, and communication with identified rightsholders and stakeholders. A communication log was maintained to document inquiries, follow-ups, responses and action items. Meetings occurred with the Manitoba Metis Federation (February 20, 2024), the Municipality of Bifrost-Riverton council (March 1, 2024), the Brokenhead Ojibway Nation (March 27, 2024), and a community meeting in Pine Dock (April 15, 2024) which included participation from nearby cottage associations (Beaver Creek, Mill Creek, Little Deer, Leaside Beach) and local Community Councils (Dallas-Red Rose, Matheson Island, Pine Dock). Details of meeting results, questions/concerns, correspondence, the communication log, sample letters and engagement presentation slides are provided in the Community Engagement Report in Appendix E.

During engagement for the Sugar Creek peat harvesting area, Sun Gro also conducted engagement for two proposed amendment areas at Ramsay Point Bog under PHL 4. While the amendment areas are not part of this EAP, this information is summarized in the Community Engagement Report. It is important to note that some concerns raised during engagement relate specifically to Ramsay Point Bog, which is in close proximity to the cottage areas along PR 234, and not necessarily related to Sugar Creek.

A list of issues that were heard during engagement, along with a description of where this is discussed in the EAP and/or the mitigation measures to address this concern are summarized as follows.

- **Greenhouse gas emissions** - Greenhouse gas (GHG) emission calculations for the life of the project are described in Section 5.2.4 and summarized in Table 13. GHG effects, mitigation measures and follow-up measures to address these are discussed in Section 5.3.2. Potential effects and mitigation measures are also summarized in Tables 14 and 15, with follow-up measures summarized in Table 16.
- **Engagement and agreements with Indigenous communities** – A summary of engagement activities, including who was engaged with, questions and concerns, and engagement outcomes, is described in the Community Engagement Report (Appendix E). A question was also raised regarding whether Sun Gro has existing or past agreements with Indigenous communities. Sun Gro does not have any formal agreements or partnerships with Indigenous communities in Manitoba, although peat harvesting does generate local employment, as described in Section 5.4.1.
- **Sun Gro site operation and processing** – Details regarding site development, operation, site services, and schedule are discussed in Section 2.5. Details regarding site staffing are discussed in Section 5.4.1.
- **Tree clearing** – Tree clearing and timber harvest at a regional level are discussed in Section 4.2.6.2. Environmental effects and mitigation measures related to tree clearing at the sub-area, as well as the use of non-merchantable timber, are discussed in Section 5.3.6. Potential effects and mitigation measures are also summarized in Tables 14 and 15, with follow-up measures summarized in Table 16. A timber appraisal will be required as noted in Section 2.8. Business opportunities related to tree clearing are discussed in Section 5.4.2.
- **Aboriginal and Treaty Rights** – Potential project effects on hunting, trapping and traditional harvesting practices as part of Aboriginal and Treaty Rights, as well as mitigation measures, are discussed in Section

5.4.7. Potential effects and mitigation measures are also summarized in Tables 14 and 15, with follow-up measures summarized in Table 16.

- **Emergency Response** – Sun Gro maintains an emergency preparedness plan, spill response plan and fire response procedures. Response to fires and forest fires is discussed in Sections 5.5.1 and 5.6.3. Sun Gro does not operate in hot and dry conditions, as per provincial requirements. Response to other potential emergencies (accidents, floods, spills) are discussed in Sections 5.5 and 5.6.
- **Water quality** – Proposed surface water quality monitoring frequency, parameters and locations are discussed in Section 5.3.5, and will be refined based on correspondence with Manitoba Environment and Climate Change through the licensing process. Proposed mitigation measures, follow-up, and potential adaptive management measures are described in Section 5.3.5 and summarized in Tables 14 and 15, with follow-up measures summarized in Table 16. Monitoring requirements are described within the publicly accessible Environment Act Licence for a given project. Water quality monitoring reports prepared by Sun Gro in response to licence requirements can be accessed by contacting Manitoba Environment and Climate Change.
- **Socioeconomic Benefits** – Socioeconomic effects of the project, including employment and business opportunities, are discussed in Sections 5.4.1 and 5.4.2. Sun Gro employs 86 people across Manitoba with variable workforce sizes at different sites depending on size and stage of site development and harvesting.
- **Restoration** – Details about how the sub-area will be restored following harvesting are provided in Section 5.2.8, including links to additional resources.
- **Drainage and hydrology** – A Hydrologic and Hydraulic Assessment was conducted for the site to evaluate potential impacts of water run-off (provided in Appendix C). Baseline surface water drainage conditions are summarized in Section 4.1.6, and potential effects are assessed in Section 5.3.5. Mitigation measures are also summarized in Tables 14 and 15, with follow-up measures summarized in Table 16.
- **Application of *Fisheries Act*** – Background aquatic assessment information is provided in Section 4.1.10. Potential effects to fish and fish habitat were discussed in Section 5.3.9, and summarized in Tables 14 and 15, with follow-up measures summarized in Table 16. An Aquatic Habitat Assessment was conducted for the project and is provided in Appendix F.
- **Traffic Impacts** – Traffic increases related to peat harvesting is discussed in general in Section 5.2.7. Socioeconomic effects and mitigation measures related to traffic impacts are discussed in Section 5.4.3. Potential impacts of peat harvest on air quality (i.e. dust) are discussed in Section 5.3.2. Potential effects and mitigation measures are also summarized in Tables 14 and 15, with follow-up measures summarized in Table 16.
- **Air Quality –** Background air quality conditions are discussed in Sections 4.1.2. Potential impacts to air quality, including from harvesting activities and from traffic, are discussed in Section 5.3.2, and summarized in Tables 14 and 15, with follow-up measures summarized in Table 16. GHG emissions are also discussed in Sections 5.2.4 and 5.3.2.
- **Moose Populations** – Background information regarding wildlife is provided in Section 4.1.8. Potential effects of the project on moose populations are discussed in Sections 5.2.2 and 5.3.7. Potential effects are summarized in Tables 14 and 15, with follow-up measures summarized in Table 16.

4.0 EXISTING ENVIRONMENT

4.1 Biophysical

4.1.1 PHYSIOGRAPHY AND CLIMATE

The Sugar Creek sub-area is located within the Grindstone Ecodistrict of the Mid-Boreal Lowland Ecoregion in the Boreal Plain Ecozone (Smith et al., 1998). The Grindstone Ecodistrict is situated along the western shore of Lake Winnipeg from approximately Matheson Island to the north and Riverton to the south.

The Grindstone Ecodistrict was covered by the ancient glacial Lake Agassiz, as such the surface moderately trends north-south, with a drumlinoid or ridge and swale topographic pattern with the ridges ranging from 400-800 metres wide. The depressional areas found in the ecodistrict have finer texture sediments, with clayey sediments in the lower portions of the till plain deposited by glacial lake Agassiz. Due to the topographic pattern in the ecodistrict, the area is poorly drained and extensively covered by peatlands (Smith et al., 1998). The mean elevation within the ecodistrict is 229 m. This ecodistrict falls within the Lake Winnipeg watershed and is part of the Nelson River drainage system (Smith et al., 1998).

The Grindstone Ecodistrict is located in the Low Boreal Ecoclimatic Region, which is characterized by short warm summers and long cold winters (Smith et al., 1998). The nearest weather station with historical data is at Hodgson, approximately 25 km southwest of the project site. Data from the Hodgson weather station is based on a 30-year record from 1981 – 2010 (Environment Canada, 2024). The mean annual air temperature at the weather station is 1.1°C and the daily mean temperature ranges between 18.1°C in July and -18.6°C in January (Environment Canada, 2024). Precipitation at the station averages 593 mm annually, with 408 mm falling as rain and the remainder falling as snow. June has the highest average rainfall (87.5 mm) and December has the highest average snowfall (41.6 cm) (Environment Canada, 2024). The average growing season within the ecodistrict is 171 days with approximately 1,470 growing degree-days and an average annual moisture deficit of 50 mm (Smith et al., 1998).

4.1.2 AIR QUALITY

Real-time air quality concentrations are monitored at several sites in Manitoba. While not all sites record the same parameters, most sites measure particulate matter ($PM_{2.5}$), ozone (O_3), nitric oxide (NO), nitrogen dioxide (NO_2), nitrous oxides (N_2O). At present however, routine air quality monitoring only occurs in urban areas.

The Department of Environment and Climate Change Canada has developed an Air Quality Health Index (AQHI) which converts air quality measurements into a single index that represents the measured quality of air. The AQHI provides a general idea of air quality to the public broken into four risk levels (Table 2). It is provided in this report for reference purposes only as the study area is a remote location.

TABLE 2: AIR QUALITY HEALTH INDEX

Health Risk	Air Quality Health Index	Health Messages	
		At Risk Population	General Population
Low Risk	1-3	Enjoy your usual outdoor activities.	Ideal air quality for outdoor activities.
Moderate Risk	4-6	Consider reducing or rescheduling strenuous activities outdoors if you are experiencing symptoms.	No need to modify your usual outdoor activities unless you experience symptoms such as coughing and throat irritation.
High Risk	7-10	Reduce or reschedule strenuous activities outdoors. Children and the elderly should also take it easy.	Consider reducing or rescheduling strenuous activities outdoors if you experience symptoms such as coughing and throat irritation.
Very High Risk	Above 10	Avoid strenuous activities outdoors. Children and the elderly should also avoid outdoor physical exertion.	Reduce or reschedule strenuous activities outdoors, especially if you experience symptoms such as coughing and throat irritation.

(https://weather.gc.ca/airquality/healthmessage_e.html)

It is expected that the AQHI for the regional study area is typically low risk throughout the year, although there are no published sources of air quality data. Air quality in the area is generally excellent compared to large cities and commercial and industrial areas in Manitoba and Canada. Other industrial developments within the regional study area include other peat harvest areas. Other developments in the regional study area include forestry, and recreational activities (ATVs, snowmobiles). The regional study area is otherwise predominantly undeveloped forest and wetlands, with agriculture along the southern limits. The AQHI may be periodically reduced to Moderate Risk during dry periods resulting in dust along the access road and in peat harvest areas during periods of high winds affecting the peat harvesting area, or during forest fires that may result in increased particulates.

4.1.3 GEOLOGY

The Mid-Boreal Lowland Ecoregion is underlain with limestone rock, which is covered by glacial deposits. Elevation ranges from 350 m along the west side of the ecoregion into Saskatchewan to 218 m at the eastern end of the ecoregion near Lake Winnipeg (project location). The surface in the Mid-Boreal Lowland ecoregion is generally level, with a north to south ridged topographic pattern that slopes from 1 to 5 percent (Smith et al., 1998).

4.1.4 SOILS

Soils within the Grindstone Ecodistrict are dominated by Typic (deep) Fibrisols that are developed on sphagnum peat moss. Other organic soils are present including Mesisols developed on sedge and brown peat moss. Upland soils in the ecodistrict include-well drained Eluviated Eutric Brunisols on calcareous loamy till, and imperfectly drained Gray Luvisols and Dark Gray Chernozems on calcareous clayey glaciolacustrine

sediments. Large areas of poorly drained, clayey, peaty Gleysolic soils are present in swales and along the edges of peatlands (Smith et al., 1998).

As part of peat investigations conducted at the Sugar Creek sub-areas, KGS Group completed 19 peat cores in February of 2021 (KGS Group, 2022). Live sphagnum peat was present from surface to depths ranging from 0.3 m to 0.5 m below ground surface. Overall peat depths ranged from 1.8 to 3.8 m, which were underlain by a mineral clay bottom. This low permeability clay cover forms a very good barrier between the perched water within the peat layer and the groundwater in the underlying aquifers described in the following section.

4.1.5 GROUNDWATER

Groundwater within the Grindstone Ecodistrict is primarily found in shallow sandy and gravelly aquifer associated with the till, inter-till outwash, beach, and deposits (Smith et al., 1998). Groundwater flow is assumed to be in an easterly direction toward Lake Winnipeg. Wells are generally drilled into the Silurian limestone bedrock aquifers which are used as a potable water source. Regional groundwater is variable in quantity and quality (Smith et al., 1998). Total dissolved solids in regional groundwater are generally between 1,000 mg/L and 1,300 mg/L (Betcher et al., 1995).

A search of a provincial groundwater well database (GW Drill, 2018) indicated the presence of three registered groundwater well within 5 km of the Sugar Creek sub-areas. These wells are all active production wells which were drilled to depths of 15 to 24 metres into limestone. The water table was found to be 2.4 to 2.7 m below the ground surface at the time of well installation (GW Drill, 2018).

4.1.6 SURFACE WATER

The Grindstone Ecodistrict is located within the Lake Winnipeg watershed that is part of the Nelson River drainage system. No major rivers are present in the regional study area. Sugar Creek to the southeast of the site drains a peat area into Lake Winnipeg. Several small unnamed creeks north of the sub-areas drain peatlands northward into Lake Winnipeg. As noted in section 4.1.1, the area is generally poorly drained, although overall surface water in the ecodistrict flows east and north towards Lake Winnipeg.

No waterbodies are present within the Sugar Creek sub-areas; however, a frequently wetted area is located at the north-east corner of sub-area C which appears to be ephemeral. Waterbodies within the 10 km regional study area include Sugar Creek to the southeast, a drain that runs parallel to PR 325 (locally referred to as 2-mile drain and flows into Sugar Creek), and several small unnamed creeks that flow from peatlands to Lake Winnipeg.

The Sugar Creek sub-areas are situated within a sub-watershed drainage basin which flows east toward the Sugar Creek (Appendix C, Figure 1). Water in Sugar Creek flows eastward through forested and agricultural land-use areas before passing under a bridge at PR 234 and discharging to Lake Winnipeg (Appendix B; Photos 3, 4 and 6). The catchment area, which includes the Sugar Creek sub-areas covers an area of 244.8 km^2 (24,480 ha). A hydrologic and hydraulic assessment was conducted to assess drainage and flow, which is summarized herein, with additional details and calculations available in Appendix C. Frequency flows were calculated based on the topographic and physiographic characteristics of the watershed. Flow rates were calculated for Sugar Creek where it crosses PR 234. Flow rates for a 1 in 2 year (50% frequency flow), 1 in 5 year (20% frequency flow), and 1 in 100 year (1% frequency flow) flood events were calculated to be 0.67 m^3/s, 2.08 m^3/s, and 12.23 m^3/s, respectively. Flow rate increases were calculated for initial site drainage and

for ditch deepening. Flow volume increases in Sugar Creek due to the peat harvesting operations remain within the hydraulic design criteria of the bridge. Additional details and calculations are provided in Appendix C.

Baseline surface water samples were collected on July 4, 2022 from five locations within and nearby the sub-areas as shown in Figure 3. Sample locations included three locations within the peat inside the sub-areas (SC-SW-02, SC-SW-03, SC-SW-03), one from the frequently wetted area in sub-area C (SC-SW-05), and one from the unnamed drain adjacent to PR 325 (Appendix B; Photo 2). Water sampling locations within the peat were determined in the field based on available water and are representative of the perched groundwater table in the peat layer (e.g., Appendix B, Photo 5). As part of the Quality Assurance / Quality Control (QA/QC), one duplicate sample was also collected and analyzed. All laboratory samples were submitted to Bureau Veritas Laboratories (BV Labs), an accredited laboratory in Winnipeg.

In-situ field measurements of general water quality parameters (dissolved oxygen (DO), temperature, conductivity and turbidity) were recorded as part of the baseline sampling program and are summarized in Table 3. Water samples were collected for laboratory analysis of general surface water quality parameters (Table 4) and total and dissolved metals (Table 5 and Table 6, respectively) and compared to the Manitoba Water Quality Standards, Objectives and Guidelines (MWQSOG). These baseline water quality results will form a baseline for comparison of any future surface water sampling at the Sugar Creek sub-areas.

Baseline surface water samples collected from the peat water at the Sugar Creek sub-areas (SC-SW-02, SC-SW-03, SC-SW-04) had acidic pH levels ranging from 3.77 to 4.12 (Table 4). The frequently wetted area within sub-area C (SC-SW-05) also had a slightly acidic pH value of 6.07. These pH levels are below the MWQSOG which is between 6.5 and 9.0. In comparison, the water within the unnamed drain (SC-SW-01) was within the criteria and not acidic with a pH value of 7.82.

Dissolved oxygen levels were low at all surface water sampling locations. Concentrations at sites within the peat (SC-SW-02, SC-SW-03, SC-SW-04) ranged from 1.91 to 3.34 mg/L, while concentrations at the frequently wetted area (SC-SW-05) and the unnamed drain (SC-SW-01) were slightly higher at 4.31 mg/L and 3.50 mg/L, respectively, but still below MWQSOG values (Table 3).

Specific conductance values were relatively low at the sample locations within the peat and the frequently wetted area (SC-SW-02, SC-SW-03, SC-SW-04, SC-SW-05; <50 µS/cm). Conductivity in the unnamed drain (SC-SW-01) was higher, with a concentration of 274.1 µS/cm (Table 3). Turbidity values were low at the unnamed drain and at two of the peat sites (SC-SW-01, SC-SW-02, SC-SW-03) and high at one of the peat sites and at the frequently wetted area in sub-area C (SC-SW-04, SC-SW-05) although the elevated turbidity could be a result of disturbing the sediment in the sample area before collecting the sample.

Based on laboratory analysis of general water quality parameters, the peat samples had acidic pH levels, nutrient values are low in all samples, often below laboratory detection limits and total suspended solids (TSS) concentrations ranged from 2.3 mg/L to 98 mg/L (Table 4). Phosphorus was above the MWQSOG at two of the peat sample locations (SC-SW-03, SC-SW-04) and at the frequently wetted area (SC-SW-05), while the laboratory detection limit for the duplicate sample from SC-SW-04 was above the phosphorus guidelines due to matrix interferences, therefore it cannot be confirmed if the concentration was below guidelines. Laboratory analysis of total metals and dissolved metals parameters shows levels of aluminum, cadmium, copper, iron, lead, mercury and zinc above guideline values in one or more of the peat and wetted area

samples (SC-SW-02 to SC-SW-05; Tables 5-6). The laboratory detection limits of several metals were elevated above some guideline values due to sample matrix interferences at the laboratory. Exceedances of aluminum and iron are associated with the acidic peat water and have been routinely observed in other bog areas (e.g. KGS Group 2010, KGS Group 2011, KGS Group 2020, KGS Group 2024). No metal concentrations exceeded MWQSOG at the sample collected from the unnamed drain (SC-SW-01).

4.1.7 VEGETATION

Wetlands are considered one of the most productive ecosystems, sustaining more life than any other ecosystem. Wetlands in Canada developed following the most recent retreat of glacial ice and are typically between 5,000 and 10,000 years old. Canada has more than 1.29 million km^2 of wetlands covering approximately 13% of Canada's land areas (ECCC, 2016a). Canada has 25% of the world's wetlands, covering 6% of the earth's land and freshwater surface (Daigle and Gautreau-Daigle, 2001; Warner and Rubec, 1997).

Due to the abundance of peatlands in the Grindstone Ecodistrict, vegetation is dominated by peatland-associated species, including black spruce, ericaceous shrubs, and sphagnum peat moss. Other species found predominantly in fens in the ecodistrict include sedges, tamarack and swamp birch. Outside of peatlands and fens, common species include trembling aspen, alder, hazel and dogwood (Smith et al., 1998).

The proposed harvesting area would be classified as a bog. Bogs generally receive all their water and nutrients from precipitation (termed ombrotrophic), rather than from groundwater, and are thus mineral-poor. A bog is characteristically acidic with the water table at, or near, the surface (perched). Bogs typically have a dense layer of peat covered with moss, shrubs, and sedges, while trees are also common. Typical vegetation dominating bog peatlands are stunted black spruce, Sphagnum moss and ericaceous shrubs (Warner and Rubec, 1997; Daigle and Gautreau-Daigle, 2001). The Sugar Creek sub-areas can be described as a mixture of open, sparsely treed and moderately treed bog areas (Appendix B, Photos 8-10).

The Manitoba Conservation Data Center (MBCDC) lists over 3,000 vegetation species in Manitoba, including 50 species in the Mid-Boreal Lowland Ecoregion that are provincially tracked (Appendix G). Species tracked by MBCDC include those that are provincially critically imperilled (S1), imperiled (S2) or vulnerable (S3). To provide more site-specific information, the MBCDC was contacted to review the rare species database for occurrences of rare species within the project site and within a 3 km radius of the project site. Currently there are no occurrences of rare vegetation species listed within the MBCDC database at the project site or within a 3 km radius of the project site. Two species were identified as being present within the general area in apparently similar habitats (Appendix D). These vegetation species and their associated provincial ranking include the following.

- Tuberous Grass-pink (*Calopogon tuberosus var. tuberosus*; S2)
- White Beakrush (*Rhynchospora alba*; S3)

Neither of these species are protected by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), the *Species at Risk Act* (SARA), or *The Endangered Species and Ecosystems Act* (ESEA) of Manitoba. The absence of a rare plant in the MBCDC database does not necessarily mean a lack of that plant in the region. This may be related to a lack of botanical surveys conducted in the area.

Vegetation surveys were conducted by qualified and experienced personnel at the Sugar Creek sub-areas during two site visits along transects established throughout the project study area (Figure 3). Prior to

conducting surveys, information about rare species was identified through desktop investigations to become familiar with species habitat preferences and key characteristics to ensure proper identification. Surveys were conducted in early summer (July 5-7, 2022) and late summer (August 22-24, 2022) to maximize the chance of species identification by coinciding with early and late blooming species. Transect locations were selected by examining aerial imagery and topographic maps to ensure that all vegetation communities within proposed harvest area as well as potential donor sites were visited. Transects were approximately 150 m in length and spaced out from other transects to maximize spatial coverage. A total of 11 transects were surveyed as shown in Figure 3. In addition to completing surveys along the transects, surveyors were also observing for plant species while navigating to the site and between transects.

During the vegetation surveys a total of 41 plant species were observed (Table 7). Most of the species documented are provincially ranked as S5 (secure) or S4 (apparently secure), with only one S2 (imperiled) species, the tuberous grass-pink, observed. The tuberous grass-pink, as previously noted, is not listed or protected by the COSEWIC, SARA, or ESEA.

4.1.8 MAMMALS/HABITAT

The Mid-Boreal Lowland Ecoregion is habitat to a diversity of wildlife including black bear, moose, white-tailed deer, wolf, lynx and snowshoe hare (Smith et al., 1998). Bogs provide habitat to species such as muskrat, beaver, moose, deer, and small rodents, however mammal diversity within bogs is generally low (Daigle and Gautreau-Daigle, 2001; Rochefort et al., 2012).

The MBCDC lists 102 mammal species as being potentially present in Manitoba, including six tracked species in the Mid-Boreal Lowland Ecoregion (Appendix G). The MBCDC was contacted to request a list of wildlife species of concern located within the project study area. Currently the MBCDC has no recordings of rare wildlife species within the site or within 3 km (Appendix D). The absence of a rare mammals in the MBCDC database does not necessarily mean a lack of that mammal in the region. This may be related to a lack of surveys conducted in the area.

Mammal surveys were conducted by qualified and experienced personnel in parallel with the vegetation surveys, bird surveys and amphibian surveys throughout the Sugar Creek sub-areas (Figure 3). Surveyors observed for animals or animal signs while walking the vegetation transects as well as all travel between transects. All land-types present were surveyed. The presence of a species was recorded if an animal was observed, tracks or scat were identified, it was heard or other clear signs were observed (beds, foraging sign, rubs, etc.).

Mammal surveys identified the presence of eight mammal species within the sub-areas, including beaver, black bear, bobcat, muskrat, gray wolf, moose, red squirrel and white-tailed deer (Table 8). Except for bobcat, which is provincially listed as vulnerable (S3), all other mammal species identified are provincially listed as secure (S5) and none of these species are protected by COSEWIC, SARA or ESEA.

4.1.9 BIRDS/HABITAT

The Mid-Boreal Lowland Ecoregion provides habitat for various bird species such as ducks, geese, white pelican and cormorant (Smith et al., 1998). The MBCDC website identifies over 400 bird species that are present in Manitoba, including 39 tracked species in the Mid-Boreal Lowland Ecoregion (Appendix G). The MBCDC database has no recordings of rare bird species within the site or within 3 km of the site. Eight rare

bird species have been recorded in the general area by MBCDC (Appendix D). These species and their associated provincial ranking include the following.

- Eastern Whip-poor-will (*Antrostomus vociferus*; S2S3B)
- Canada Warbler (*Cardellina canadensis*; S3B)
- Evening Grosbeak (*Coccothraustes vespertinus*; S2S3)
- Eastern Wood-pewee (*Contopus virens*; S3B)
- Yellow Rail (*Coturnicops noveboracensis*; S3B)
- Bobolink (*Dolichonyx oryzivorus*; S3S4B)
- Barn Swallow (*Hirundo rustica*; S4B)
- Golden-winged Warbler (*Vermivora chrysoptera*; S2S3B)

The Manitoba Breeding Bird Atlas (MBBA) was also reviewed. Due to a lack of surveys in the area, only five bird species have been documented within the MBBA squares that include the Sugar Creek sub-areas (14PB28, 14PB38; Appendix H). All species recorded are common and not protected by COSEWIC, SARA or ESEA. Species of conservation concern tracked by the MBCDC that may be present within these squares, based on >50% presence in MBBA squares in the Southern Interlake region include barn swallow and bobolink.

Bird surveys were conducted at the Sugar Creek sub-areas following established survey methodology from the Saskatchewan Forest Bird Survey Protocol (Government of Saskatchewan, 2020b). While the methodology requires a minimum of two surveys four surveys were conducted at the Sugar Creek sub-areas using Automated Recording Units (Appendix B, Photo 7). Surveys were conducted on June 6, June 17, June 28, and July 5, 2022. A total of eight locations were selected as bird listening stations (Figure 3). Incidental observations were also recorded while conducting other fieldwork within the sub-area. A total of 48 bird species were recorded within the Sugar Creek sub-areas (Table 8). Most bird species encountered are provincially secure (S5) or apparently secure (S4), with the exception of three rare birds that were documented during the bird surveys, including:

- Common Nighthawk (*Chordeiles minor*; S2S3B)
- Eastern Whip-poor-will (*Antrostomus vociferus*; S2S3B)
- Olive-sided Flycatcher (*Contopus cooperi*; S2S3B)

A description of each of the above bird species of conservation concern identified by the MBCDC or observed at the site is provided in the following paragraphs. In addition to the potential protection under SARA and ESEA, all of these birds discussed are protected under the *Migratory Birds Convention Act* (MBCA).

The eastern whip-poor-will was documented during bird surveys within the sub-area and has been recorded in the general area by MBCDC. It is provincially imperilled to vulnerable for their breeding population (S2S3B) and is listed as Threatened under SARA and ESEA. Globally it is listed as secure (G5). They are a medium-sized nocturnal insect-eating bird with a large head, large eyes and a small bill with a large mouth ringed with long fine feathers which serve as sensory bristles and aid in capturing flying insects (Environment Canada, 2015). In Canada they can be found in the southern parts of Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia and Prince Edward Island. Eastern whip-poor-wills nest in semi-open forests or patchy forests with clearings, particularly in early successional forests and in areas with well-drained soil. Common

tree associations are pine and oak, which are generally not present within the sub-area. Breeding habitat is also thought to require ground-level vegetation and nearby shrubby pastures or wetlands. Foraging habitat includes prairies, wetlands with shrubs, regenerating clearcuts, agricultural fields and other habitats with low tree cover. It is not well understood why their population is declining, but main threats include decreased insect prey availability, agricultural expansion and intensification, urban expansion, energy development and mineral extraction (Environment Canada, 2015).

The Canada warbler was not observed during bird surveys at the site but has been identified by MBCDC as being present in the general area. It is provincially vulnerable for their breeding population (S3B) and is listed as Threatened under SARA and ESEA. Globally it is listed as secure (G5). The Canada warbler is a small songbird whose habitat preference generally includes moist forests with a dense deciduous shrub layer, including forested swamps, riparian woodlands, moist forests, mature forests, and muskeg (Environment Canada, 2016a). Areas with contiguous forest are preferred over fragmented areas. Their range is throughout Canada and the United States. Threats include land conversion, forest harvesting, energy and mining exploration and extraction, over-browsing and a reduction of insect prey.

The evening grosbeak was not observed during bird surveys at the site but has been identified by MBCDC as being present in the general area. It is provincially imperilled to vulnerable (S2S3) and is listed as a species of Special Concern under SARA but is not listed under ESEA. Globally it is listed as secure (G5). The evening grosbeak is a large finch whose range includes all provinces and territories. During breeding season, they can be found in open, mature mixedwood forests, where fir and/or white spruce are dominant, and where spruce budworm is present (COSEWIC, 2016). Outside of the breeding season they are more likely to be found on firs and spruces in the boreal forest. Threats include fluctuations to spruce budworm populations, habitat loss from forestry, and mortality from road collisions.

The eastern wood-pewee was not observed during bird surveys at the site but has been identified by MBCDC as being present in the general area. While it is globally secure (G5), it is provincially vulnerable for its breeding population (S3B). It is listed as a species of Special Concern under SARA but is not listed under ESEA. The eastern wood-pewee is a small greyish-olive songbird which is common and widespread during the breeding season from Saskatchewan to the Maritime Provinces and south to Texas. It overwinters in South America. Its breeding habitat includes forest clearings and edges of deciduous and mixed forests. The population of the eastern wood-pewee has declined however limiting factors are not clearly understood. Possible threats are thought to include loss and/or degradation of breeding habitat due to urban development and forest management, loss and/or degradation of habitat in winter grounds, a reduction in insect prey due to unknown reasons, high rates of mortality during migration and/or in winter grounds, an increase in nest predation, and changes in forest structure due to white-tailed deer over-browsing (COSEWIC, 2012).

The yellow rail was not observed during bird surveys at the site but has been identified by MBCDC as being present in the general area. It is provincially vulnerable for their breeding population (S3B) and is listed as a species of Special Concern under SARA but is not listed under ESEA. Globally it is listed as apparently secure (G4). The yellow rail is a small secretive bird whose breeding range includes parts of most provinces, particularly from Alberta to Ontario. Their habitat includes shallow wetlands and other wet areas with grass-like vegetation, including damp hay fields or meadows, floodplains, bogs, estuaries, and salt marshes

(Environment Canada, 2012). Threats include loss of wetland habitat, primarily through agricultural, commercial, industrial and infrastructure development.

The bobolink was not observed during bird surveys at the site but has been identified by MBCDC as being present in the general area. The species provincially is vulnerable to apparently secure for its breeding population (S3S4B) and is globally secure (G5). It is listed as Threatened under SARA, however, it is not listed under ESEA. The bobolink is a medium-sized songbird that feeds on insects and grain. Its breeding range includes southern Canada from British Columbia to Newfoundland and much of the United States, while it overwinters in South America. Breeding habitat includes open grasslands and agricultural fields. Their population has declined due to agricultural development, habitat loss and fragmentation, exposure to pesticides and bird control programs in their winter habitat (COSEWIC, 2022).

The barn swallow was not observed during bird surveys at the site but has been identified by MBCDC as being present in the general area. The species is provincially apparently secure for its breeding population (S4B) and is globally secure (G5). It is listed as Threatened under SARA, however, it is not listed under ESEA. The barn swallow is found throughout the world, often in association with rural human settlements. Preferred foraging habitat includes grassy fields, pastures, agricultural crops, lake/river shorelines, cleared rights-of-way, cottage areas, farmyards, islands and wetlands. They frequently nest on artificial structures such as barns, outbuildings, houses, bridges and culverts (COSEWIC, 2021). Threats include loss of insect prey, increased prevalence of severe temperature fluctuations, and loss of suitable nesting sites.

The golden-winged warbler was not observed during bird surveys at the site but has been identified by MBCDC as being present in the general area. The species is globally apparently secure (G4) however provincially it is imperiled to vulnerable for its breeding population (S2S3B). It is listed as Threatened under SARA and ESEA. It is a small warbler with a breeding range that extends from southern Saskatchewan to southern Quebec and in the eastern United States. Its wintering range includes Central and South America. Habitat includes forested areas, especially early successional habitat. Populations have declined due to competition and hybridization with the closely related blue-winged warbler as well as habitat loss (ECCC, 2016b).

The common nighthawk was documented during bird surveys within the sub-areas although it was not previously recorded in the general area by MBCDC. The species is provincially imperilled to vulnerable for their breeding population (S2S3B) and is globally secure (G5). It is listed as a species of Special Concern under SARA and as Threatened under ESEA. The common nighthawk is a medium sized bird whose range extends across most of Canada and is found in all provinces. Their habitat includes open and partially open areas including forest openings, prairies, bogs, wetlands and disturbed habitats. They nest in bare or short-cropped surfaces, outcrops, and on flat roofs. The reason for their population decline is unclear, however is thought to relate to a reduction in insect prey, loss and degradation of habitat, climate change and severe weather, accidental mortality, pollution, and invasive species (Environment Canada, 2016b).

The olive-side flycatcher was documented during bird surveys within the sub-areas although it was not previously recorded in the general area by MBCDC. The species is provincially imperilled to vulnerable for their breeding population (S2S3B) and is globally apparently secure (G4). It is listed as Threatened under SARA and ESEA. The olive-side flycatcher is a medium sized songbird whose breeding range includes most of Canada below the tree line and is found in all provinces. Their habitat includes open coniferous or mixed

coniferous forests, often located near water or wetland, especially where tall dead trees are present. They are found at higher densities in areas where there has been recent forest fire. The cause of their population decrease is thought to relate to a reduction of insect prey, fire suppression, deforestation, forest harvesting, resources exploration and extraction, and residential and commercial development (Environment Canada, 2016c).

4.1.10 AQUATIC BIOTA/HABITAT

Aquatic biota and habitat, particularly fish and fish habitat are protected under the *Fisheries Act*. The MBCDC identifies the presence of 95 fish species in Manitoba, including three tracked species in the Mid-Boreal Lowland Ecoregion (Appendix G). A request was submitted to the MBCDC to search for recordings of species of conservation concern, however no aquatic species of conservation concern have been documented within the project site or the regional area (Appendix D).

An Aquatic Habitat Assessment was conducted on July 4, 2022, to assess the site for fish habitat and potential fish use of the project area. As no open water is present in sub-areas B, D and E, the assessment focused on sub-area C as well as the unnamed drain present near PR 325. Based on the aquatic assessment, the frequently wetted area in sub-area C would not be considered suitable fish habitat. The unnamed drain adjacent to PR 325 is considered suitable habitat for small-bodied fish capable of tolerating low oxygen conditions. While no fish were captured or observed at either site assessed, species that may be encountered at the unnamed drain include forage fish such as fathead minnow, brook stickleback and central mudminnow. The Aquatic Habitat Assessment is provided in Appendix F.

4.1.11 AMPHIBIANS AND REPTILES

A total of 17 amphibians and 13 reptile species are listed by MBCDC as being present in Manitoba. Within the Mid-Boreal Lowland Ecoregion, MBCDC notes the present of three amphibian species of conservation concern (blue-spotted salamander, northern leopard frog, plains spadefoot) and one reptile species of conservation concern (red-sided garter snake) (Appendix G). A request was submitted to the MBCDC to search for occurrences of rare species near the project site. No rare amphibian or reptile species have been documented at or within 3 km of the project site however MBCDC noted that the blue-spotted salamander (*Ambystoma laterale*) has been recorded in the general area (Appendix D). The blue-spotted salamander is not listed under COSEWIC, SARA or ESEA.

Amphibian surveys were conducted by qualified and experienced personnel following established survey methodology from the Saskatchewan Amphibian Visual Survey Protocol (Government of Saskatchewan, 2020b). Amphibian surveys were conducted on four dates: April 16, April 26, May 16, and May 28. A total of eight locations were selected as amphibian listening stations (Figure 3). Incidental observations were also recorded while conducting other fieldwork within the sub-area. A total of three amphibian species were recorded within the sub-area (Table 8). All amphibian species recorded are provincially secure (S5) or apparently secure (S4). No rare species were encountered, including the blue-spotted salamander, northern leopard frog, plains spadefoot, or red-sided garter snake.

4.2 Socioeconomic

4.2.1 COMMUNITIES

The Sugar Creek sub-areas are located on remote Crown land and there are no communities within the 3 km project study area or the 10 km regional study area. The southern portion of the regional study areas fall within the Municipality of Bifrost-Riverton. Larger communities present outside of the regional study area within the Municipality of Bifrost-Riverton include the Village of Riverton (35 km southeast) and Fisher Branch (37 km to the southwest).

4.2.2 INDIGENOUS

There are no Indigenous communities located in the project or regional study areas. Indigenous communities located within 100 km of the study area include the Berens River First Nation (100 km north), Black River First Nation (74 km south-east), Bloodvein First Nation (54 km north east), Brokenhead Ojibway Nation (100 km south-east), Dauphin River First Nation (91 km north-east), Fisher River Cree Nation (11 km north west), Hollow Water First Nation (57 km east), Kinonjeoshtegon First Nation (60 km north), Lake St. Martin First Nation (located 91 km north-west), Little Saskatchewan First Nation (92 km north-west), Peguis First Nation (19 km west), Pinaymootang First Nation (97 km north-west) and Sagkeeng/Fort Alexander First Nation (88 km south-east). The Sugar Creek sub-areas are located approximately 6 km north outside of the Recognized Metis Harvesting Area.

First Nation and Metis communities may have interest in the proposed project based on their proximity to the proposed harvesting site and possible traditional land use (TLU) in the area. The Indigenous communities identified under the Participant Profile have been approached about the proposed project through the project's Indigenous and public engagement program (see Section 3.0 and Appendix E).

4.2.3 ECONOMY

The economic base in the region includes agriculture, forestry, fishing, hunting, construction and manufacturing. Sources of income in 2020 within the Municipality of Bifrost-Riverton include: employment income (62.3%) and government transfer payments (24.3%) (Statistics Canada, 2023). The median after tax income for a person 15 years or older who worked a full year at full time was $30,200 while the average household total income was $77,800 (Statistics Canada, 2023).

In the Municipality of Bifrost-Riverton there were 2,570 people over the age of 15 in 2021, with 1,545 in the labour force. Of those in the labour force, 1,445 were employed and 95 were unemployed, resulting in an unemployment rate of 6.1% (Statistics Canada, 2023). Of the 1,545 people in the labour force, the main occupational categories include trades, transport and equipment operators and related occupations (380 people; 24.6%), natural resources, agriculture and related production occupations (340 people; 22%) sales and service (245 people; 15.9%), business, finance and administration occupations (140 people; 9.1%) occupation in education, law and social, community and government services (130 people; 8.4%), occupations in manufacturing and utilities (110 people; 7.1%), health occupations (105 people; 6.8%) (Statistics Canada, 2023). Other employment industry categories accounted for the remaining 6.1% of the jobs in the Municipality of Bifrost-Riverton (Statistics Canada, 2023).

4.2.4 POPULATION

As previously noted, the Sugar Creek sub-areas are partially located in the Municipality of Bifrost-Riverton. Population statistics for the RM are presented in Table 9. The nearest larger community outside of the regional study area included the Village of Riverton for which population statistics are also presented in Table 9.

TABLE 9: POPULATION STATISTICS FOR NEARBY COMMUNITIES

Population / Dwelling Information	Municipality of Bifrost-Riverton	Village of Riverton
Population in 2016	3,378	538
Population in 2021	3,320	475
2016 to 2021 Population Change (%)	-1.7	-11.7
Total Private Dwellings	1,598	254
Population Density per km^2	2.0	398.3
Land Area (km^2)	1,643.14	1.19

(Source: Statistics Canada, 2023)

Population information for Indigenous communities located within 100 km of Sugar Creek sub-areas is presented in Table 10.

TABLE 10: POPULATION STATISTICS FOR SURROUNDING INDIGENOUS COMMUNITIES

Community	On Own Reserve	On Other Reserve	Off Reserve	Total
Berens River First Nation	2,215	18	1,570	3,803
Black River First Nation	696	86	891	1,673
Bloodvein First Nation	1,228	15	878	2,121
Brokenhead Ojibway Nation	668	13	1,589	2,270
Dauphin River First Nation	287	1	146	434
Fisher River Cree Nation	1,485	13	2,889	4,387
Hollow Water First Nation	1,090	12	1,114	2,216
Kinonjeoshtegon First Nation	309	12	531	852
Lake St. Martin First Nation	1,711	19	1,265	2,995
Little Saskatchewan First Nation	675	11	795	1,481
Peguis First Nation	3,703	129	8,002	11,834
Pinaymootang First Nation	1,494	6	2,140	3,640

Community	On Own Reserve	On Other Reserve	Off Reserve	Total
Sagkeeng/Fort Alexander First Nation	3,670	40	5,038	8,748

(Source: Crown-Indigenous Relations and Northern Affairs Canada, 2024)
Notes:

1. On Reserve counts include "On Reserve" and on "Own Band Crown Land."
2. Off Reserve counts include those people living on "Other Band Crown Land," "No Band Crown Land" and "Off Reserve".

4.2.5 SERVICES

The Sugar Creek sub-areas are located north of PR 325 approximately 170 km north of Winnipeg. No amenities or services are present within the regional study area. Outside of the regional study area, the nearest communities with services include Riverton, Fisher Branch and Arborg. The communities have amenities such as stores, post office, hotels, recreation complexes, churches, and schools.

The Royal Canadian Mounted Police provides law enforcement services to the communities located in the area with the nearest detachments being in Fisher Branch. The nearest fire departments are situated in Riverton and Arborg. The nearest hospitals to the proposed project are in Arborg and Hodgson.

4.2.6 LAND USE

Land use within the regional study area includes a mixture of resource extraction and recreation including agriculture, forestry, peat harvesting, hunting, fishing and trapping, and off-road vehicle use (snowmobiles and ATVs).

4.2.6.1 Agriculture

Agriculture within the Mid-Boreal Lowlands Ecoregion is limited to relatively small areas generally along rivers and streams where drainage has been improved. A small area of agriculture is present at the south end of the regional study (Figure 1). Common crops within the ecoregion include grains for livestock feed, oilseeds and hay which are grown in the glaciolacustrine soils (Smith et al., 1998).

4.2.6.2 Forestry

Forestry is prevalent in the Mid-Boreal Lowlands Ecoregion however no current forestry is apparent within the regional study area. Based on the small size of trees typically found within peat bogs, it is likely that limited amounts of merchantable timber would be present within the 750 ha area to be harvested. Sun Gro will contact the regional forestry office regarding timber removal at the site.

4.2.6.3 Peat Harvesting

The existing and active Sun Gro Ramsay Point peat harvesting area is located approximately 9.5 km east of the Sugar Creek B sub-are. The Ramsay Point sub-area is also part of Sun Gro's PHL No. 4 South Washow. Additionally, outside of the regional study area to the northeast are several other existing peat harvesting areas operated by other peat harvesting companies.

4.2.6.4 Hunting, Fishing and Trapping

The Sugar Creek sub-areas are within Manitoba Game Hunting Area (GHA) #21A, which has hunting seasons for white-tailed deer, black bear, gray wolf, upland game birds and migratory game birds. Moose hunting has been closed in the region as a conservation measure (Government of Manitoba, 2023a). The Sugar Creek sub-

areas are on Crown land located in part within the Moose Creek Provincial Forest and Moose Creek WMA where the public is permitted to hunt. Most hunting seasons are in the fall and early winter; however, some seasons are also in the spring (i.e. bear, migratory game bird). First Nation and Metis hunters can hunt for subsistence year-round. No hunting lodges are known to be present within the regional study area.

The project regional study area is within Open Trapping Area #3 where trapping for furbearing animals such as beaver, mink, muskrat, otter, badger, fisher, red fox, coyote, lynx, bobcat, marten, raccoon, red squirrel, wolf and weasel is permitted by licenced trappers at various times between October and April (Government of Manitoba, 2023b). The extent of trapping activity within the regional study area is not known. The Manitoba Trappers Association was engaged as part of the EAP (Section 3.0 and Appendix E).

Sport fishing activities do not likely occur within the regional study area due to the lack of waterbodies of sufficient size to support sport fish. Outside of the regional study area, sport fishing and commercial fishing occurs in Lake Winnipeg to the north and east.

The Sugar Creek sub-areas and the project and regional study areas are located within the Peguis First Nation Community Interest Zone (CIZ), which covers the extent of the area shown in Figure 1. CIZs are areas of protection, generally within 30 km adjacent to First Nation reserves, with the intent to protect the area from development while a First Nation undergoes Treaty Land Entitlement (Manitoba TLE Framework Agreement, 1997).

4.2.6.5 Parks, Recreation and Snowmobiling

No provincial or federal parks are located within the regional study area. The Julius Sugar Creek sub-areas are in part within the Moose Creek Provincial Forest (Figure 1). Sustainable use of natural resources is permitted in provincial forests under *The Forest Act* (Manitoba).

The region also appears to be used for recreational snowmobile and ATV riding however no snowmobile or ATV clubs appear to maintain trails within the regional study area (Snoman, 2024; ATVMB, 2024). It is likely that old trails and old roads are used as unofficial snowmobiles and ATV trails in the area.

4.2.7 WILDLIFE MANAGEMENT AREAS AND AREAS OF INTEREST

The Moose Creek WMA overlaps in part with the Sugar Creek sub-areas and encompasses much of the project study area and regional study area. Additional WMAs present to the south of the regional assessment area include the David G. Tomasson WMA and the Lee Lake WMA. The Lee Lake Game Bird Refuge is also present adjacent to the Lee Lake WMA outside of the regional study area.

No Areas of Special Interest (ASIs) are present within the local and regional study areas. The Horseshoe Ridge ASI is present outside of the regional study area to the southwest. ASIs are not legally designated or protected (Government of Manitoba, 2022).

4.2.8 HERITAGE RESOURCES

Heritage resources are protected in Manitoba under *The Heritage Resources Act*. The Manitoba Historic Resources Branch of Manitoba Culture, Heritage and Tourism has reviewed the proposed project development area Sugar Creek sub-areas and has indicated a low potential to impact significant resources. Therefore, the Historic Resources Branch has no concerns with the project at this time (Appendix D). The Heritage Resources Branch stipulated that Sun Gro is to develop and implement a Heritage Resource

Protection Plan (HRPP) to be included in planning, development and operations. The HRPP will describe actions to be taken should a heritage resource be encountered at the site.

5.0 ENVIRONMENTAL EFFECT ANALYSIS

5.1 Environmental Assessment Methods

The environmental assessment of the proposed peat harvesting development was carried out based on project information provided by Sun Gro and in accordance with the Manitoba *Environment Act Proposal Report Guidelines* (Manitoba Environment and Climate, 2023). Additional information was acquired from literature and internet searches, publications by the peat industry and environmental organizations, contacts with provincial government representatives, Indigenous and public engagement, and site investigations by the project team. Requirements of *The Environment Act* (Manitoba) and regulations were followed in the preparation of this EAP.

The environmental effects of the proposed peat harvesting project on the environment in the project and regional study areas were identified using checklists and professional judgment. Advice by government representatives, concerns expressed by the rightsholders and stakeholders, and brainstorming among the consultant team was also used to identify environmental issues and associated environmental effects. The adversity of environmental effects was determined based on categories presented in Table 11.

The significance of the residual environmental effects of the proposed peat harvesting operation were evaluated following industry best practice. The degree of change from the existing conditions and the value of the environmental components being affected determine significance of an adverse effect. Criterion for this determination as referenced in Table 12 include: a) Societal value of affected environmental components, b) Ecological value or sensitivity of affected environmental components, c) Duration, d) Frequency, e) Geographic extent, f) Magnitude, and g) Reversibility. For each criterion a particular level of significance rating (1, 2 or 3) is assigned. To judge the overall significance of an effect, the rating and criteria should be considered together. An effect is determined significant when: (1) it rates a “3” for at least four criteria, at least one of which must be criteria a or b; or (2) it is rated “2” or “3” for all criteria.

5.2 Environmental Issues

Potential environmental issues associated with the project were identified by considering the nature of the project, the location, and environmental effects typical of peat harvesting projects. Site specific environmental issues will be discussed in a regional context.

5.2.1 LOSS OF WETLAND

Public concern exists regarding the loss of wetlands as a function of wildlife habitat and other ecological functions. This is due to land use changes such as urban development, increased population and in particular agricultural development, especially in the prairie regions of Canada, where there are fewer wetlands remaining (Rubec, 2003). Many wetland areas have been lost due to draining for agricultural land use. Overall, development has accounted for approximately 15% loss of Canadian wetlands (Smith et al., 1998). Horticultural peat harvesting, in comparison, accounts for 0.03% (34,000 ha) of Canada’s total peatland area (CSPMA, 2023). Additionally, the CSPMA has research from peatland restoration activities showing that a functioning wetland ecosystem can be restored within 5 to 7 years following completion of restoration.

5.2.2 LOSS OF WILDLIFE HABITAT

Loss of wildlife habitat, particularly waterfowl nesting areas, is another concern. Waterfowl and other wildlife species favour swamps, marshes and shallow open water wetland classes as habitat due to the diverse range of vegetation. In contrast, bogs and fens have limited importance as habitat for waterfowl and some wildlife species because they tend to have very little open water (Gautreau-Daigle, 1990), low diversity of vegetation and limited cover for waterfowl or other bird nesting purposes. An evaluation of waterfowl use of bog areas found that some waterfowl use ponds within bogs for staging and migration. Usage was directly related to the availability of open water in the area and little difference was noted between developed and undeveloped areas (Gautreau-Daigle, 1990). The number of waterfowl and wildlife species and the total wildlife populations in bogs and fens are generally lower in comparison to other wetland classes or to mineral soil ecosystems.

Mammal species such as muskrat and beaver and game species such as woodland caribou, moose and deer utilize peatland habitat. Overall, wildlife diversity within bogs is low due to low vegetation productivity of the bog habitat with little variation in populations noted between the natural and disturbed areas (Gautreau-Daigle, 1990).

Moose populations have been shown to use bog areas, but no population differences were observed between harvested and unharvested bogs (Gautreau-Daigle, 1990). Based on information provided by Forestry and Peatlands Branch, the decline in moose populations occurring throughout Manitoba is not thought to be due to peat harvesting activities, rather a multitude of other causes, including diseases and parasites, increased predation, over-harvesting by hunters, climate change and habitat change. No studies have linked peat harvesting to a decline in moose populations.

5.2.3 LOSS OF RARE VEGETATION SPECIES

Protecting rare or endangered species and other vegetation is a concern regarding peat harvesting projects. Peat harvesting affects vegetation that is unique to peatland bog environments such as pitcher plants (*Sarracenia* spp.), bladderworts (*Utricularia* spp.) and sundews (*Drosera* spp.) that are not found in other mineral soil environments. These types of species occupy a niche that few other species are suited to and are found in many bog ecosystems. Many of these species are widely distributed throughout Canada's boreal wetland regions. Several orchid species, some of which are rare, also occur in peatland environments (Daigle and Gautreau-Daigle, 2001).

The composition of vegetation in bogs tends to have a typical association of species adapted to the regional conditions. As such, the potential effects of a peat harvesting project will depend on the regional environment. If there is a large area of undisturbed bog in the region that will still support the unique vegetation types, then harvesting a peat bog that is only a small portion of the area will have minimal effects on rare vegetative species.

5.2.4 RELEASE OF GREENHOUSE GASSES

The release of greenhouse gas (GHG) emissions associated with peat harvesting is another environmental concern. As *Sphagnum* grows, carbon is stored in the plant material, which accumulates as peat due to the anaerobic conditions (low oxygen levels) caused by the high water table. Land use change, particularly from undisturbed peatland (which typically has a high water table and full vegetation cover) to peatland under

extraction (which has a reduced water table and no vegetation cover), results in a net increase in GHG emissions (Cleary et al., 2005). The net increase is caused by an increase in the rate of in-situ decomposition through increased diffusion of oxygen, increased carbon dioxide (CO_2) emissions, and a reduction of ecosystem production resulting through the removal of living biomass from the peatland surface.

Research by Cleary et al. (2005) described the net GHG emissions from the Canadian peat industry and established a formula for estimating the GHG emissions from land use change, which includes a value for the standard flux of GHG per unit area within peatland under extraction (1,061 t/km^2/yr) and within cutover peatland under restoration (1,288 t/km^2/yr) (Cleary et al., 2005). Other literature was also reviewed which cited similar flux rates (Maljanen, et al., 2010). Values from Cleary et al. (2005) were used as they are from Canadian peatlands rather than European (Maljanen et al., 2010).

Work conducted by Waddington et al. (2010) and Strack et al. (2014) suggests that sphagnum restoration could result in a disturbed area returning to a carbon sink, during the growing season, in as little as 2-3 years post-restoration. Waddington et al. (2010) state that harvested peatlands will likely return to a net carbon sink (on an annual basis) in 6 to 10 years post-restoration. Strack (2018) noted restored peatlands can become annual carbon sinks within 15 years post-restoration. Environment and Climate Change Canada (2022) states that there is a high degree of variability regarding whether restoration sites act as a carbon source or sink 10 years following restoration. Based on these studies it was assumed that the restored harvest areas become net neutral for GHG 5 years post restoration for the purposes of calculating CO_2 eq. values. The latest research indicates that the annual carbon balance returns to values comparable to the natural environment between 10 and 15 years following restoration (Waddington et al., 2010; Strack et al., 2014; Strack and Zuback, 2013; Waddington and Day, 2007).

Using the equations established by Cleary et al. (2005) incorporating peatland under extraction and cutover peatland under restoration, the total quantity of CO_2 eq. produced due to land use change throughout the 37 years of operation and 5 years post-restoration was calculated to be 265,062 t - CO_2 eq. (Table 13). Cleary et al. estimated the GHG contributions from each component of the life cycle of peat harvesting where land use change accounted for 15%, peat harvesting and processing accounted for 4%, transport to market accounted for 10% and decomposition accounted for 71% (Cleary et al. 2005). However, GHG emissions from decomposition are associated with the end use and should not be attributed to the producer. Therefore, after 37 years of operation and 5 years post restoration of the Sugar Creek sub-areas, in addition to the 265,062 t - CO_2 eq. emitted from land use change (Table 13), the GHG emissions from peat harvesting and processing would be 70,683 t - CO_2 eq. and from transportation to market would be 176,708 t - CO_2 eq., respectively. This equates to a total GHG emission of 512,454 t - CO_2 eq. over the project lifetime and equivalent to 12,201 t - CO_2 eq/yr. The most recent available data for CO_2 emissions in Canada are for 2022, which had a total value of 7.08 x 108 t - CO_2 eq (708 Mt) (ECCC, 2024). Therefore, an average year of production at the Sugar Creek sub-areas will account for approximately 0.0018% of the total annual emissions for the country. If the 71% decomposition (1,254,628 t - CO_2 eq.) is also attributed to Sun Gro then this equates to a total GHG emission of 1,767,082 t - CO_2 eq. over the project lifetime, equivalent to 42,073 t - CO^2 eq/yr which accounts for approximately 0.0063% of the total annual emissions for the country. This quantity of CO_2 eq. can be decreased by incorporating mitigation measures to minimize GHG emissions throughout the life cycle of peat harvesting.

5.2.5 IMPACTED SURFACE WATER QUALITY

Good surface water quality is valued for consumption, agriculture, and recreation, and is important for migratory birds and aquatic biota. Impacts to surface water quality due to peat harvesting activities are an environmental concern. Following the removal of surface vegetation, the exposed peat particles can be transported into the drainage system, thus increasing suspended particles and other chemical parameters (primarily pH) in the water. Management of drainage water to slow down the flow of water enabling solids to settle out of the discharge water have become an integral part of peat harvesting operations. Surface water quality will be monitored at the drainage outlets in accordance with licence requirements. In particular, monthly samples will be collected for analysis of TSS to verify the effectiveness of the sedimentation ponds in removal of suspended sediment. Water quality monitoring conducted at other Sun Gro sites has demonstrated that TSS rarely exceeds the allowable criteria at the discharge sites, demonstrating the effectiveness of sedimentation ponds. Additionally, drainage ditches will be cleaned on a regular basis, and inspection for erosion will be conducted, to mitigate the potential movement of particulate matter.

5.2.6 IMPACTED DRAINAGE PATTERNS

Impacts to the existing drainage pattern due to peat harvesting activities are an environmental concern. The constructed drainage at the harvesting area will discharge water to the south and east, consistent with the existing drainage pattern. During initial drainage and subsequent ditch deepening, there will be a temporary increase to downstream flows resulting from the removal of interstitial water within the peat. After construction of the field drains, it is uncertain whether the peat drainage will result in an increase or decrease to downstream peak flows following future precipitation events. Some reporting (Daigle and Gautreau-Daigle, 2001) suggests that downstream peak flows tend to be reduced following peatland drainage due to the increased available pore space (i.e., storage) in the drained peat. Conversely, Landy and Rochefort (2012) summarize peatland drainage research from various authors and lists numerous reasons to explain how peatland drainage can either increase or decrease downstream peak flows, depending on the drainage technique used, the type of peatland, and its placement in the landscape. Similarly, Holden et al. (2004) reviewed a number of conflicting studies on this topic and emphasizes the importance of considering the ditch network design and peat properties when determining the effects of artificial drainage on water storage and runoff generation from peatlands. Project-related drainage and existing downstream bridge capacity was evaluated (Appendix C) and project-related drainage effects will be mitigated to ensure there is no additional risk of flooding downstream (see Section 5.3.5).

5.2.7 INCREASED TRAFFIC

Transportation of peat from the harvest areas to the processing facility during operation will result in a seasonal increase in traffic volumes on roadways, typically from April to October, as described in Section 5.4.3. Increased truck traffic will increase dust, will further degrade the road requiring more frequent road maintenance and has the potential to increase the number of vehicle accidents and vehicle-wildlife interactions. The volume of traffic in the regional area would be increased as a result of the project.

5.2.8 RECLAMATION AND RESTORATION

Reclamation focuses on the potential after-uses of harvested peatland sites, whereas restoration focuses more on re-establishment of the site as a peatland, with a functional natural ecosystem with characteristics

as close as possible to the pre-harvesting conditions. Though reclamation and restoration requirements for peat harvesting projects in Canada have not been clearly defined, it has become an integral part of peatland management in this country.

There are several methods for peatland reclamation such as transforming the site into a new functioning wetland that would be useful as waterfowl habitat, developing agricultural cropland or establishing a forestry plantation on site. Sun Gro proposes to restore the fully harvested areas to pre-disturbance conditions, as *Sphagnum* peat bogs based on their restoration experience at other peat bogs in Manitoba (e.g., Elma and Moss Spur bogs), and in accordance with the peatland restoration methods described in CSPMA Peatland Restoration Guide (Quinty and Rochefort, 2003). Sun Gro has developed a PRP for PHL 4 following Manitoba's Submission Guidelines for Peatland Recovery Plans - Peatland Management Guidebook (Manitoba Sustainable Development, 2017b) to fulfill the requirements of *The Peatlands Stewardship Act*. The report describes the actions Sun Gro will be taking to restore harvest areas to a peat accumulating ecosystem once harvesting is complete. Sun Gro continues to work with the Peatland Ecology Research Group (PERG) to study peat recovery as several Sun Gro sites. Research results will help inform future recovery approaches at Sun Gro sites (Sun Gro, 2019c).

5.2.9 PEAT FIRE

The burning of peat deposits can result in smoke which may cause health concerns and traffic accidents. Fires may be started naturally or as a result of human activity. In some instances, in the past, fires have been deliberately set to remove peat for cereal crop agriculture (Manitoba Clean Environment Commission, 1977). Peat fires can burn for long periods of time (months, years) propagating in a creeping fashion beneath the peat surface. Forest fires are a key element for ecosystem renewal within the boreal shield environment with fires started by lightning being the dominant disturbance (Neary et al., 2005). Without fire suppression, an area of forest burns every 50 to 100 years (Bergeron et al., 2004).

Beginning in 2021, the Province began providing detailed real-time weather information four days in advance, allowing peat harvesting operators to better plan operations. In addition, Sun Gro has a Fire Response Procedures – Peat Fires outlining emergency fire response (Sun Gro, 2024).

5.3 Biophysical Effects Assessment

5.3.1 MICROCLIMATE

The vegetation clearing in preparation for the proposed peatland development project will likely result in minor changes in airflow, wind speed and snow depositional pattern in and immediately adjacent to the development area. The potential adverse effects of the project on microclimate were assessed as minor. The effects may be mitigated by installing snow fences to control snow deposition on the property if required. Follow-up involves periodic observation of the changes in airflow patterns and snow deposition. The residual effect was determined to be not significant (Table 14).

5.3.2 AIR QUALITY

Increases in fugitive dust may occur in the local area during construction, operation and reclamation of the project associated with access road construction, clearing, ditching, harvesting, stockpiling, loading and

transporting activities. A total of approximately 750 ha of peat will be exposed to potential wind erosion at the Sugar Creek sub-areas. Handling of peat during harvesting and loading will potentially result in fugitive dust as well as increased truck traffic along the gravel access road to the site. Dust is controlled as part of the routine operation to reduce particulate matter in the air. It is unlikely that Manitoba's air quality guidelines would be exceeded during construction and operation phases of the project. The potential effects on air quality were assessed to be moderate. The effects may be mitigated by using an approved dust suppressant such as water on roads, minimizing peat harvesting and handling activities during high wind events, reducing the area of peat in fields and peat stockpiles exposed to prevailing winds, controlling vehicle speeds, instructing employees on proper harvest equipment operation to minimize dust, covering loads being hauled from the site, re-vegetating harvested areas and utilizing windbreaks (tree and brush barriers). Proposed follow-up involves periodic observations for fugitive dust levels, inspections of local area for accumulated dust and tracking of public complaints. The residual environmental effect of increased fugitive dust during construction and operation was determined to be not significant (Table 14).

Increased levels of NO_x, SO_2 and GHGs may result from equipment and vehicle emissions during site preparation, peat harvesting and transporting activities. Additionally, some construction materials and the use of fuel may release volatile organic compounds (VOCs). The potential adverse effects on air quality in the local area were assessed to be minor. Proposed mitigation measures include using low sulphur fuels, requiring a high standard of maintenance for equipment and vehicles, limiting unnecessary long-term idling and using appropriate fuel dispensing equipment. Proposed follow-up includes periodic observation of air quality during construction, recording maintenance of heavy equipment and requiring submission of Safety Data Sheets (SDSs) for all products used. Residual environmental effects of NO_x, SO_2, GHGs and VOCs on air quality were determined to be not significant (Table 14).

Increased releases of GHG into the atmosphere will result from clearing and land use change associated with peat harvesting activities. While construction of ditches reduces the release of methane, harvesting peat releases CO_2 and reduces carbon sequestering (Landy and Rochefort, 2012). The overall net flux, as discussed in Section 5.2.4 is an increase in GHG with an estimated release of 265,062 t - CO_2 eq. from land use change throughout the 37 years of operation and 5 years post restoration. The total GHG emission over the project lifetime are 1,767,082 t - CO_2 eq., when accounting for GHG contributions for each component of the life cycle of peat harvesting. This is equivalent to 42,0753t - CO_2 eq/yr which accounts for approximately 0.0063% of the total annual emissions for the country. This potential increase in GHG, when compared to national levels, is considered to be a minor effect. Mitigation measures proposed to address GHG concerns include minimizing the areas cleared and implementing the PRP activities to restore the area to a carbon sink. The proposed follow-up involves adherence to licence terms and conditions. The residual effect of increased GHGs during construction and operation was determined to be not significant (Table 14).

5.3.3 SOILS

Site preparation and peat harvesting activities will result in an average loss of 2.3 m depth of surface cover and peat; however, the actual depth of loss will vary across the site as the peat thickness is variable. The average harvesting of peat is estimated to be 850 m^3/ha/year. The full 750 ha harvestable peat area will be cleared and prepared over ten years starting in 2026, with peat harvesting continuing until the end of approximately 2062, at which time the sub-areas are expected to have been harvested to the final planned

depth of harvesting. This removal of soil (peat) from the site through the process of harvesting was assessed to be major. Mitigation measures proposed to address the effects of soil loss include minimizing the surface area disturbed to the area being harvested, leaving non-commercial peat reserves in place, and implementing the PRP to restore the area to natural conditions. Proposed follow-up includes annual monitoring and reporting on implementation of the progressive restoration activities. The residual effect of soil loss was determined to be not significant (Table 14).

Soils in the development area may become contaminated from accidental leaks, spills and releases of fuel or other hazardous substances during site preparation and peat harvesting activities. The potential adverse effects on soil quality were assessed to be moderate. Proposed mitigation includes preventing leaks, spills and releases, providing ULC Certified double-walled fuel storage tanks with spill prevention and leak detection, requiring drip trays for equipment, designating re-fueling areas, ensuring equipment arrives to site in good condition, providing spill clean-up equipment and materials, and providing an emergency spill response plan. Proposed follow-up includes periodic inspections for leaks, spills and releases, ensuring construction and operation crews adhere to designated areas, remediate and record fuel spills and releases, periodic updates of the spill response plan (Sun Gro, 2019a) and adherence to licence terms and conditions. The residual effect of accidental leaks, spills and releases on soil quality was determined to be not significant (Table 14).

5.3.4 GROUNDWATER

Groundwater in the harvest area may become contaminated from accidental leaks, spills and releases of fuel or other hazardous substances during site preparation and peat harvesting activities. Groundwater quality in the development area has not been analyzed for contaminants, however it is assumed to be good quality due to its remote location. Groundwater is used as a potable water source within 5 km of the site. The low permeability clay cover on-site below the peat, as discussed in Section 4.1.4 forms a very good barrier between the perched water in the peat and the underlying local bedrock aquifer. This essentially isolates the peat from the groundwater so the proposed development will have little to no measurable effect on the groundwater table. The proposed development does not include the installation of any groundwater wells which could provide a conduit if installed incorrectly. The potential adverse effects of the project on groundwater quality were assessed to be minor. Proposed mitigation includes preventing leaks, spills and releases, providing ULC Certified double-walled fuel storage tanks with spill prevention and leak detection, requiring drip trays for equipment, providing spill clean-up equipment and materials, and provide an emergency spill response plan (Sun Gro, 2019a). Follow-up proposed involves periodic inspections for leaks, spills and releases, remediate and record any fuel spills and releases, periodic updates of the emergency response plan and adherence to license terms and conditions. The residual effects of accidental leaks, spills and releases on groundwater quality were determined to be not significant (Table 14).

5.3.5 SURFACE WATER

While there are no waterbodies within the Sugar Creek sub-areas and waterbodies outside the sub-areas will not be disturbed, low lying areas within the harvesting area such as small intermittent ponds and drainage swales that contain water only during spring snow melt and/or when the water table is high will be lost due to site drainage for peat harvesting operations. Research has shown that ditches created in organic soils can result in water table influences between 5 m (with moderately decomposed peat) and 50 m (within less

decomposed peat) from a ditch (Boelter, 1972). Approximately 750 ha (41% of the sub-areas) of land will be cleared and drained within the Sugar Creek sub-areas. A buffer zone with no development will be implemented within 100 m of the sub-area limits. The restoration work to begin when the harvesting area is closed will result in development of wetland areas that will offset the surface water area lost during project construction. Potential adverse effects on surface waters associated with drainage for the proposed development were assessed to be moderate. Proposed mitigation includes minimizing the area disturbed, maintaining water levels on the adjacent undisturbed lands, and implementing the PRP to restore water levels to pre-harvesting conditions. Follow-up proposed includes periodic inspection of surface waters and annual reporting on implementation of the restoration activities. The residual effect of loss of surface waters was determined to be not significant (Table 14).

Site drainage activities during construction, operation and on-going maintenance will result in changes to the flow rate of surface water, however there will be no change to the direction of surface water runoff from the harvest area. As discussed in Section 2.5.2, drainage from the harvesting areas will be directed from the sedimentation ponds through outlet ditches to adjacent bog areas where it will be integrated into the existing natural drainage system and minimize changes to the water regime. Drainage patterns in the proposed harvest area discharge indirectly to Sugar Creek which flows to Lake Winnipeg. A hydrologic and hydraulic assessment was conducted to assess potential effects of drainage to the adjacent environment and infrastructure (provided in Appendix C and summarized herein). Median annual flows at the downstream PR 234 crossing were calculated to be 0.67 m^3/s, 2.08 m^3/s, and 12.23 m^3/s for a 1 in 2 year, 1 in 5 year, and 1 in 100 year flow events, respectively. During initial site drainage, the project is estimated to increase downstream discharge by a maximum of 85% during passage of the median annual flood (1 in 2 year event) and a 12% increase during a 1 in 50 year flow event. The relative increase during ditch deepening activity is smaller with a calculated flow increases of 10% during a 1 in 2 year event and 6% during a 1 in 50 year event. Hydraulic design criteria is met at the downstream bridge on PR 234 under existing conditions as well as during initial drainage and ditch deepening. While water levels upstream of the bridge crossing adjacent to cultivated farmland are expected to increase to some degree due to the flow rate changes, they are estimated to remain largely within the channels banks for flow conditions up to the 1 in 100 year event. The changes to the flow rate of surface water and associated effects from the project were assessed to be minor. Proposed mitigation includes installing a gated culvert at the outlet of the sedimentation pond to control outflow from the peat development area if necessary, during downstream flooding. Follow-up proposed includes monitoring the outlet pipe to ensure proper operation and monitoring of discharge flow rates from the harvest area in accordance with licence terms and conditions. The residual effect of changes to the surface water regime was determined to be not significant (Table 14).

Suspended sediment levels in the surrounding wetlands may become elevated during spring snowmelt and major precipitation events due to increased exposed peat area associated with harvesting. As discussed in section 4.1.6, baseline surface water samples collected from the peat within the sub-area generally had low suspended solids concentrations (<10 mg/L). Drainage from the harvest sites will not be discharged directly into a waterbody as the outlet ditches use over-land flow with the drain terminating into the surrounding bog area south-east of the harvest areas. This will provide ample time for particulate matter in the water to be filtered by the surrounding bog area prior to flowing to a waterbody. The potential adverse environmental effects to surface water quality were determined to be minor. Proposed mitigation includes installing a gated

culvert to block drainage from the harvest area if needed to manage suspended sediment. Proposed follow-up includes collecting surface water samples from the outlet monthly with analysis for suspended sediment levels, develop additional surface water sampling if required in consultation with Manitoba Environment and Climate Change, cleaning of drainage ditches on a regular basis, periodically inspecting for evidence of erosion and adherence to licence terms and conditions. The residual effect of increase surface water runoff on suspended sediments was determined to be not significant (Table 14).

The surface water chemistry in the downstream receiving water may become altered during site construction and operation associated with the drainage management. As discussed in section 4.1.6, baseline surface water samples collected from within the Sugar Creek sub-areas had acidic pH levels that were outside of the MWQSOG. Elevated concentrations of metals in some water samples (aluminum, cadmium, copper, iron, lead, mercury, zinc) collected at the sub-areas also exceeded MWQSOG, however these parameters are commonly naturally elevated in the environment (e.g. KGS Group, 2010; KGS Group, 2011; KGS Group, 2020; KGS Group, 2024). The proposed harvesting will discharge water overland into the surrounding bog area, which will eventually discharge into Sugar Creek and Lake Winnipeg. The proposed development may alter the timing and rate of drainage during both initial drainage of the harvest area and during operation, as previously discussed. The volume of water discharged during initial drainage and during operation will be similar to existing conditions and is minimal in comparison to the drainage area within the watershed and the size of the receiving catchment. The potential adverse environmental effects to surface water quality were determined to be minor. Proposed mitigation includes using a gated culvert to control discharge from the harvest area if required. If the control of the discharge is not sufficient in maintaining the water chemistry, a limestone or carbonate lined drainage ditch can be installed to increase the pH of the draining bog water before being discharged to the environment. Proposed follow-up includes collecting monthly surface water samples from the outlet to carry out pH analysis. Any additional surface water sampling required will be developed in consultation with Manitoba Environment and Climate Change. The residual effect of bog water runoff on surrounding water bodies was determined to be not significant (Table 14).

Surface water in the development area may become contaminated during construction and operation from accidental leaks, spills or releases of fuels or other hazardous substances. The baseline surface water sampling did not include contaminants such as hydrocarbons, however, it is assumed that they would not be present as the area is remote. The potential adverse effect of spills on surface water quality was assessed to be moderate. Proposed mitigation includes preventing leaks, spills and releases, providing ULC Certified double-walled fuel storage tanks with spill prevention and leak detection, requiring drip trays for equipment, providing spill clean-up equipment and materials, and preparing an emergency spill response plan (Sun Gro, 2019a). Follow-up proposed involves periodic inspections for leaks, spills and releases, remediate and record any fuel spills and releases, periodic updates of the emergency response plan and adherence to license terms and conditions. The residual effects of accidental leaks, spills and releases on surface water quality were determined to be not significant (Table 14).

5.3.6 VEGETATION

The proposed harvesting activities will result in the loss and disturbance of terrestrial vegetation including tree, shrub, herbaceous and grass species. A total of 750 ha of land will be cleared for the peat development. MBCDC has no records of rare or endangered plant species within 3 km of the Sugar Creek sub-areas,

however, two tracked species were noted to be present within the general area (tuberous grass-pink, white beakrush; Section 4.1.7). Neither of these two species are listed under COSEWIC, SARA or ESEA. Vegetation surveys identified 41 species within the sub-areas with all but one species being common. The tuberous grass pink was identified on the site, which is a provincially tracked species (S2, imperiled), however, as noted it is not listed under COSEWIC, SARA or ESEA. The potential adverse effect of the project on vegetation loss was assessed to be moderate. Proposed mitigation measures include minimizing loss and disturbance of vegetation, protecting vegetation along the perimeter of the cleared areas from blow-down, limiting construction activities to designated areas, utilizing timber removed from site, and re-vegetating disturbed or reclaimed areas during and after harvesting operations. Proposed follow-up includes periodic inspection for vegetation stress and mortality around the cleared area and for the invasion of nuisance or weed species and reporting annually on restoration activities implemented. The residual effects were determined to be not significant (Table 14).

Increases in fugitive dust will result in the local area during construction and operation of the project, as previously noted, which can settle on and stress vegetation in the local area. The potential adverse effects of dust on vegetation were assessed to be minor. However, the effects may be mitigated by controlling dust and stopping operational activities during high wind events. Proposed follow-up involves periodic inspection of the local area for accumulated dust. The residual effects of dust on vegetation were determined to be not significant (Table 14).

Peat harvesting activities pose a risk of starting a peat fire. Sources of fire include spontaneous ignition, lightning strikes, equipment and accidents. Sparks or dust accumulation on hot surfaces of the engine and exhaust are the usual causes of fire from equipment. Fire is a concern in the harvest area as well as the local and regional areas. Uncontrolled fires can result in substantial loss of peat resources to Sun Gro, forest cover and wildlife habitat, property damage and the loss of life. Potential adverse effects from a peat fire were assessed to be major. Mitigation measures proposed to address potential fires include implementation of peat fire response procedures (Sun Gro, 2024). Sun Gro has a First Responder Committee with employees from the different levels of operations. Committee objectives are to detect, prevent and make recommendations to company representatives and employees. This committee works in collaboration with provincial and municipal regulations, codes and guidelines to provide fire suppression equipment on-site, prepare, exercise and implement an emergency response plan that includes fire and explosion prevention, notification and response. The committee will notify Manitoba Environment and Climate Change immediately if a fire or explosion occurs. Every piece of mobile equipment will be equipped with one 10 lb ABC fire extinguisher. Rake, conditioner, profiler and vacuum harvesters will also be equipped with one 12 L galvanized steel bucket with a 3 m rope. A mobile suction water pump with sufficient discharge hose to cover the peat harvesting area will be installed. Main drains will be constructed in a manner to retain a certain amount of water which can be used for fire fighting. In areas without a natural water source, a filled water tank wagon will be on site. Other on-site equipment will also include fire blankets and water backpacks. Proposed follow-up includes regular inspections, including routine examination of fire suppression equipment, and periodic testing and evaluation of the emergency preparedness plan and fire response procedure. Preventative measures will include regular employee education and training in the use of this equipment. The residual effects of the project on the risk of fire were determined to be not significant (Table 14).

5.3.7 MAMMALS/HABITAT

Site preparation will result in loss and disturbance of mammal habitat. The total area to be cleared is approximately 750 ha. This area accounts for approximately 7.0% of the project study areas and 1.4% of the regional study area, in which there is abundant habitat, as this is a relatively undeveloped region. As previously noted, the MBCDC has no records of rare wildlife species within the project study area, and no mammal species listed under COSEWIC, SARA or ESEA were observed within the study area during baseline investigations. While a common concern is that peat harvesting negatively impacts moose populations, information provided by the Forestry and Peatlands Branch suggests that, while peat harvesting does cause a disturbance, the decline in moose populations in the Interlake is similar to the rest of the province and most likely related to a combination of other factors including diseases and parasites, increased predation, over-harvesting by hunters, climate change and habitat change. No studies have linked peat harvesting to a decline in moose populations. The potential adverse effects of clearing on habitat loss were assessed to be minor. Proposed mitigation measures include minimizing loss and disturbance of vegetation, limiting construction activities to designated areas, limit operation activities to areas disturbed during construction and re-vegetating disturbed or reclaimed areas after harvesting is complete. Proposed follow-up involves periodic inspection during construction and operation, maintenance of re-vegetated areas, and ensuring adherence to environmental guidelines and protocols. The residual effects of mammal habitat loss and disturbance were determined to be not significant (Table 14).

Construction activities and equipment use during operation may have adverse effects on terrestrial mammals. Some of the mammals may adapt, whereas most will avoid the area and use the abundant surrounding habitat. As discussed above, no protected species have been documented within the regional study area, and none were observed at the sub-area. Therefore, the potential adverse effects were assessed to be minor. Proposed mitigation measures include minimizing the area of disturbance by limiting construction activities to designated areas, limit operation activities to areas disturbed during construction, maintaining habitat around the sub-area and implementing the PRP to restore wildlife habitat. Follow-up proposed includes maintenance of re-vegetated areas and ensuring adherence to licence terms and conditions. The residual effects were determined to be not significant (Table 14).

Vehicle traffic associated with site preparation and operation activities, in particular transporting peat, may result in increased vehicle – wildlife interactions and associated wildlife mortalities, vehicle damage, and human injury or death. No local data are available on wildlife mortalities, vehicle damage or human injury/deaths. The potential adverse environmental effect of peat harvesting operations on vehicle – wildlife interactions was assessed to be minor. Mitigation measures proposed to address the effects on wildlife-vehicle interactions include operating transport trucks during daylight hours, providing wildlife awareness information to drivers and adhering to posted speed limits. Proposed follow-up includes maintaining records of vehicle-wildlife interactions. The residual effect was determined to be not significant (Table 14).

Domestic waste materials at the bog facility may attract problem or nuisance wildlife to the development area. Problem or nuisance wildlife may include black bear, porcupine, skunk, rodents or raccoons. Garbage cans will be regularly removed from site for off-site disposal. The potential environmental effect was assessed to be minor. Mitigation measures proposed include regular disposal of waste at existing waste facilities and use of animal deterrents such as noisemakers, reflectors and scents if required. Proposed follow-up includes maintaining records of problem or nuisance wildlife and adhering to licence terms and

conditions. The residual effect of problem or nuisance wildlife associated with the peat mining operation was determined to be not significant (Table 14).

5.3.8 BIRDS/HABITAT

Site preparation will result in loss and disturbance of migratory bird habitat and potentially waterfowl habitat during site preparation. In addition to the tree clearing being a direct impact on bird habitat, disturbance through noise in proximity to the proposed harvest sites may adversely impact waterfowl habitat. As discussed in Section 4.1.9, three rare bird species were documented within the sub-areas; common nighthawk (S2S3B; listed as Special Concern by SARA and Threatened by ESEA), eastern whip-poor-will (S2S3B; listed as Threatened by SARA and ESEA) and olive-sided flycatcher (S2S3B; listed as Threatened by SARA and ESEA). The sub-areas do not provide suitable nesting habitat for these species; however, the sites do provide foraging habitat. Common nighthawks nest on bare or short-cropped surfaces, outcrops, and on flat roofs, which are not found at the site. The eastern whip-poor-will nests in semi-open or patchy forests with clearings, particularly in early successional forests and in areas with well-drained soil. While the site consists of open forest it does not have well-drained soil and therefore does not appear to provide suitable nesting habitat. The olive-side flycatcher prefers areas with an abundance of tall dead trees, particularly near waterbodies or wetlands and areas where forest fires have created clearings. Nests are built on the tip of coniferous branches. The sub-areas do not contain an abundance of tall dead trees, and spruce trees present are small, and likely not sufficiently large for nests (see Appendix B, photos 8 to 10). A primary threat that is common for these species is a reduction in insect prey, which will not be affected by the project. Regardless due to the presence of these three rare bird species the potential adverse environmental effects of habitat loss were generally assessed to be moderate. Proposed mitigation measures include minimizing loss and disturbance of vegetation, completing tree clearing in the winter in accordance with the *Migratory Birds Convention Act* (specifically outside of critical nesting and rearing periods of April 14 to August 28), limiting construction activities to designated areas, limit operation activities to areas disturbed during construction, maintain 100 m buffer zone around the sub-area boundaries, and re-vegetating disturbed or reclaimed areas after harvesting is complete. Proposed follow-up involves periodic inspection during construction and operation, maintenance of buffer zones and re-vegetated areas, and ensuring adherence to environmental guidelines and protocols. The residual effects of bird habitat loss and disturbance were determined to be not significant (Table 14).

Noise and vibrations associated with the use of heavy equipment during construction and operation of the proposed harvesting area may result in the disturbance of migratory and other birds and waterfowl during nesting and rearing periods. Spring and early summer are the most critical times for most of these bird species. The clearing will be conducted during the winter outside of these critical times. Therefore, the potential adverse effects of peat harvesting on birds were assessed to be minor. Proposed mitigation measures include locating peat harvesting components away from any identified critical migratory bird habitat and scheduling construction activities outside of critical nesting and rearing periods and maintaining buffer zones around sub-area boundaries. Proposed follow-up consists of adherence to licence terms and conditions. The residual effects on bird nesting and rearing were determined to be not significant (Table 14).

5.3.9 AQUATIC BIOTA/HABITAT

Construction and operation of the proposed project may have adverse effects on aquatic biota and habitat. As noted in section 4.1.10, the Sugar Creek sub-areas do not provide fish habitat, however there is potential for forage fish to be present at downstream receiving waterbodies. Due to the lack of waterbodies within the sub- area, any concerns related to aquatic biota are associated with the drainage from the development area.

Drainage and harvesting activities during operation of the project could result in increased sediment loads to downstream waterbodies. Elevated levels of suspended sediment can reduce water quality, which may interfere with fish spawning, navigation and the ability to locate food and escape predators. Settling suspended particles can potentially smother and kill fish eggs or larvae. The drainage plan does not discharge any water to natural waterbodies. A control culvert with a sliding gate will be installed at the outlet which can stop the flow of water leaving the site, if required, during a major precipitation event which exceeds the design flow criteria. Closing the culvert gate allows for the settlement of suspended peat particles. Water leaving the outlet ditch will be discharged overland (i.e., not into a waterbody) which will provide ample time for particulate matter in the water to be filtered by the surrounding bog area prior to flowing to a waterbody. The potential adverse effects of sediments on aquatic biota and habitat were assessed to be minor. Mitigation measures include the installation of the gated culvert. Follow-up measures included periodically inspecting the outlet ditch for debris, cleaning of drainage ditches and monitoring water discharge on a monthly basis as previously detailed in Section 5.3.5. The residual effects were assessed to be not significant (Table 14).

5.3.10 AMPHIBIANS AND REPTILES

Peat harvest area construction and operation activities, in particular site drainage and equipment and vehicle use may have adverse effects on amphibians and reptiles and their habitat in the harvest areas. A request to the MBCDC did not identify any documented recordings of rare amphibian or reptile species within 3 km of the project site, however MBCDC did note that the provincially tracked blue-spotted salamander has been recorded in the general area. The blue-spotted salamander is not listed under COSEWIC, SARA or ESEA and no rare species were encountered during the site investigations. The potential adverse effects were assessed to be minor. Proposed mitigation includes minimizing the area of disturbance by limiting construction activities to designated areas and limiting operation activities to areas disturbed during construction. No follow-up activities are proposed. The residual effects of the project on amphibians and reptiles were determined to be not significant (Table 14).

5.4 Socioeconomic Effects Assessment

5.4.1 ECONOMIC CONDITIONS

The economy in the regional area surrounding the proposed development includes forestry, fishing, hunting, construction and manufacturing. The peat harvesting industry currently has a positive impact on economic conditions in the development area, employing residents from the surrounding communities, supporting local businesses and contracting local companies for service works (e.g., trucking, sewage and waste disposal). The proposed project will support the employment of 20 new employees over time once harvesting

scales up. Therefore, the potential effect to the regional economy was determined to be positive. As such no mitigation or follow-up activities are proposed (Table 14).

5.4.2 BUSINESS OPPORTUNITIES

Additional business opportunities will be created for local contractors associated with the contract for harvesting merchantable timber, constructing the access road, transporting harvested peat, disposal of sewage and domestic wastes as well eventual site restoration. The potential effects were determined to be positive. As such no mitigation or follow-up measures have been proposed (Table 14).

5.4.3 TRAFFIC

Construction and operation activities will result in an increase in traffic. A small and temporary increase in traffic will occur during construction at the site (tree clearing, ditching, and access road construction). Subsequently, during operation (harvesting), employees driving to the site and transportation of peat from the harvest area to the processing facility will result in a seasonal increase in traffic volumes on roadways. Increased traffic will increase dust on gravel roads (access road, PR 325 and PR 234), will further degrade the road requiring more frequent road maintenance and has the potential to increase the number of vehicle accidents (evaluated further in Section 5.5.2) and vehicle-wildlife interactions. When the full 750 ha area in Sugar Creek is being harvested, approximately 3,763 truckloads would be required annually, which is equivalent to approximately 125.4 trucks/week, or 17.92 trucks/day based on the proposed 7 days/week operation schedule from April to October. An estimated additional 20 vehicles per day will be on the roads due to employees driving to the harvest site. Total project-related vehicle volumes at peak operation (haul trucks and employee vehicles) would result in an approximate 126% increase from the existing 30 vehicles per day along PR 325 compared to an increase of only approximately 9.7 to 13.5 % from the existing 280 to 390 vehicles per day along PR 234 based on currently available average traffic data (Manitoba Infrastructure, 2020). The potential adverse effects associated with the traffic were assessed to be moderate. Proposed mitigation measures include dust control on the gravel access road by using an approved suppressant such as water, reducing the number of vehicles during high wind events, directing all traffic associated with the development to drive according to road conditions and adhere to the posted speed limits, operating transport trucks during daylight hours and providing wildlife awareness information to drivers. Follow-up measures proposed include recording the number of vehicles associated with the peat harvesting operation and any public complaints and vehicle accidents. Further action will be considered as warranted. The residual effect was determined to be not significant (Table 14).

5.4.4 NOISE AND VIBRATION

Construction and operation activities including the use of heavy equipment and transport trucks will result in increased noise and vibration levels in the local area. Transport trucks will also result in noise and vibration on the highways. There is a buffer zone of forest between the proposed harvest area and the sub-area boundary. Additionally, the Sugar Creek sub-areas are in a remote area >12 km from the nearest residences. However, the transport trucks will overlap in time and space with local people traveling on the same highway and therefore the potential adverse effects were assessed to be minor. Proposed mitigation includes muffling vehicles and equipment, limiting unnecessary long-term idling and requiring a high standard of maintenance for heavy equipment. Proposed follow-up involves monitoring and periodically tracking noise levels and

public complaints. The residual effects of noise and vibration during construction and operating were determined to be not significant (Table 14).

5.4.5 HUMAN HEALTH

Due to the relatively sparse population density within the vicinity of the Sugar Creek sub-areas, there are very few people that would be affected by the operational activities. Regardless, the increased noise, vibrations and dust generated from the traffic transporting peat may affect the public attitude toward the project and may adversely affect their well-being. Additionally, with the traffic there is risk of vehicle collisions that could adversely affect the public and workers health. The potential adverse effects on human health and general public attitude/wellbeing were assessed to be moderate. Proposed mitigation measures include applying dust control such as water, reducing the number of vehicles traveling during high wind events, driving according to road conditions, adhering to the posted speed limits and operating transport trucks during daylight hours. Proposed follow-up involves monitoring dust and tracking any public complaints. Further action will be considered as warranted. The residual effect on human health was determined to be not significant (Table 14).

Indoor air quality inside the lunchroom and shop facilities could potentially be affected by VOCs and carbon monoxide, propane gas and dust. VOCs and carbon monoxide in the shop is of particular concern. VOCs and carbon monoxide may be a concern when in close proximity to operating machinery. The potential adverse effects on human health associated with air quality were determined to be minor. Mitigation measures proposed include providing adequate ventilation of buildings and ensuring a high standard of equipment maintenance. Follow-up includes regular maintenance of equipment. The residual effect was determined to be not significant (Table 14).

Construction and operation of the proposed peat development may have adverse effects on public and worker safety. Due to the remote location and limited access to the project site, security measures will be limited. Signs indicating ‘No Trespassing’ and a locked gate will be installed on the access road to the Sugar Creek sub-areas. The gate and sign will not be on the existing trail so that local access to the area will not be affected, rather it will be located closer to the staging area east of the existing trail. The gate will remain locked at night and during inactivity at the site. As well, the main ditches surrounding the harvesting areas will limit access to trespassers. Due to the inaccessibility of the site to the public the potential adverse effects on public safety are negligible, whereas the effects on worker safety were assessed as minor. Proposed mitigation to reduce worker safety includes compliance with Manitoba Workplace Safety and Health regulations, development and enforcement of standard operation procedure guidelines, provision of training to employees and ensuring all visitors to the site have reported in and are accompanied by an employee. Follow-up proposed includes recording the occurrence of workplace accidents/incidents and updating employee training and safety guidelines as required. The residual effect was determined to be not significant (Table 14).

5.4.6 AESTHETIC VALUES

The proposed peat harvesting operation is located in a relatively remote location with very few local residents and is unlikely to be seen by regional visitors. Additionally, the Sugar Creek sub-areas will only be accessible via the locked gated access road. Therefore, any potential effects of the project on aesthetics are

primarily associated with transportation of peat. The truck traffic on the existing access road will contribute to covering vegetation in a layer of dust between rain events. The potential adverse effects of the project on aesthetic values were assessed to be minor. Proposed mitigation measures include utilizing dust control methods and covering loads during transport to and from the site. While not visible to the public re-vegetation of the harvest area in accordance with the PRP (Sun Gro, 2019c) will return the aesthetics in the area to a natural environment after peat harvesting. Proposed follow-up includes observing dust levels and debris and recording public complaints. The residual effect of decreased aesthetics was determined to be not significant (Table 14).

5.4.7 ABORIGINAL AND TREATY RIGHTS

The proposed peat harvest area is located within Crown land and therefore can be used for hunting, trapping, and other traditional harvesting practices as part of Aboriginal and Treaty rights. As such, development of the project may reduce access to lands that could be used to enact Aboriginal and Treaty rights. No First Nation communities are located within the regional study area; however, several communities are situated within 100 km of the site (see Section 4.2.2). These communities may have interest in the Sugar Creek bog area and possible traditional land use in the area based on their proximity. The site is located within the Peguis First Nation CIZ. The nearest First Nation Communities are Peguis First Nation, which is situated approximately 19 km west of the site and Fisher River Cree Nation, which is situated approximately 10 km north-west of the site. The Sugar Creek sub-areas are located just outside the Recognized Metis Harvesting Area, with the northern limit in the region being PR 325, just south of the site. The current or historic use of the Sugar Creek sub-areas for Aboriginal and Treaty rights is not known. As part of the public and Indigenous engagement program, Sun Gro reached out to communities in the area to examine if the proposed harvest area is used for Aboriginal and Treaty rights (see Section 3.0). At the time of submission of this EAP, no specific information related to resource use in the area was available. The Sugar Creek sub-areas are in a relatively remote location and access to the site is limited. Additionally, the Sugar Creek sub-areas do not contain unique habitat as peat bogs are regionally abundant and the area to be cleared (750 ha) is relatively small in comparison to the surrounding Moose Creek Provincial Forest (65,800 ha). With the exception of initial site preparation which occurs in the winter, peat harvesting activities at the sub-area will generally be limited to the summer, therefore not overlapping with hunting and trapping activities in the late fall to spring period. The potential adverse effects of the project on Aboriginal and Treaty rights were assessed to be moderate. Proposed mitigation measures include minimizing the area cleared, restoring the harvest area to pre-harvest conditions (peat-accumulating bog) once harvesting is complete, and maintaining buffer zones around the sub-area boundaries. Additional mitigation measures will be considered if warranted, and based on ongoing communication with First Nation communities that may use the area for Aboriginal and Treaty rights. Follow-up measures include ensuring adherence to license terms and conditions. The residual effect of decreased access to lands for Aboriginal and Treaty rights practices was determined to be not significant (14).

Construction and operation of the proposed project may have adverse effects on resources harvested as part of Aboriginal and Treaty rights, such as vegetation, mammals and birds. As previously described, the harvest area is very small relative to the surrounding Moose Creek Provincial Forest, and the harvest area is not unique in the area as peat bogs are regionally abundant. The potential adverse effects of the project on vegetation, mammals and birds and their habitat were assessed to be minor to moderate (Sections 5.3.6, 5.3.7, 5.3.8). Therefore, the potential adverse effects of the project on resources harvested as part of

Aboriginal and Treaty rights was assessed to be minor. Mitigation measures include those identified to protect vegetation, mammals, and birds (Sections 5.3.6, 5.3.7, 5.3.8) such as minimizing the loss and disturbance of vegetation, protecting vegetation along the perimeter of the cleared areas from blow-down, limiting construction activities to designated areas, maintaining habitat around the sub-area, maintaining 100 m buffer zone around the sub-area boundary, and re-vegetating disturbed or reclaimed areas during and after operation. Additionally, Sun Gro will maintain ongoing communications with First Nation communities with respect to use of the area for Aboriginal and Treaty rights. Proposed follow-up includes those identified to protect vegetation, mammals, and birds (Section 5.3). The residual effect of impacts to Aboriginal and Treaty rights was determined to be minor (Table 14).

5.4.8 RECREATION/TOURISM

The traffic associated with peat hauling on the highways and the generation of dust have the potential to affect tourism and recreational vehicle use in the area. However, as previously described the increase in traffic along PR 234, where the majority of tourism/recreation traffic occurs, will be minimal and seasonal. As such, the potential adverse effects of the peat harvesting operation on recreational areas were assessed to be minor. Proposed mitigation measures are those previously outlined for controlling dust and driving safely which include covering loads during transport to and from the site, reducing the number of vehicles traveling during high wind events, driving according to road conditions, adhering to the posted speed limits and operating transport trucks during daylight hours. Proposed follow-up includes tracking public complaints. The residual effect was determined to be not significant (Table 14).

5.4.9 AREAS OF INTEREST

The proposed project is situated in a region rich in natural resources with current land use in the regional study area consisting of natural resource harvesting including forestry, agriculture, peat harvesting and hunting. As such, the proposed project to harvest natural resources is commensurate with the current land use in the regional area. With the measures proposed to mitigate the environmental effects of the project, the effect on land use will be negligible. The proposed project is also located within various areas of interest such as the Moose Creek Provincial Forest, Moose Creek WMA and the Peguis First Nation CIZ. Several other WMAs and a game bird refuge are also present nearby, outside of the regional assessment area (see Sections 4.2.6, 4.2.7). The proposed harvesting areas will be occupying land that may be used for hunting and trapping, which would make them no longer accessible for this purpose during the summer, although the surrounding land would still be accessible. The potential adverse environmental effect of the project on these areas of interest was assessed as minor. Proposed mitigation measures include limiting construction activities to designated areas, protecting adjacent trees from blow-down and re-using timber from clearing. Follow-up measures include periodically tracking the site during construction for signs of potential disturbances and ensuring construction crews adhere to designated areas. Residual environmental effects of the proposed development site on land use and areas of interest were evaluated to be not significant (Table 14).

5.4.10 HERITAGE RESOURCES

The Historic Resources Branch of Manitoba Culture, Heritage and Tourism has indicated that there are no known heritage sites within the sub-area and there is a low potential to impact significant resources and therefore has no concerns with the project at this time (Appendix D). The potential adverse effects on

cultural resources were assessed to be minor. Sun Gro will prepare a Heritage Resource Protection Plan that will describe mitigation and follow-up actions to be taken in the event heritage resources are encountered. The potential for adverse environmental effects of the project on cultural resources is unlikely and assessed as not significant (Table 14).

5.5 Effects of Accidents and Malfunctions

5.5.1 FIRES AND EXPLOSIONS

Fires and explosions may result from spontaneous combustion, lightning strikes, equipment malfunctions, improper handling and storage of hazardous materials, as well as various construction and operation activities. Diesel fuel and small quantities of gasoline may be stored, transported and dispensed as part of peat harvesting. Small quantities of hazardous materials and potentially flammable materials will be stored on-site. Fires and explosions can cause serious harm to staff, construction workers, contractors, the public and the environment. Potential adverse environmental effects of fires and explosions were assessed to be major. Proposed mitigation includes complying with applicable provincial and municipal legislation, codes and guidelines, maintaining the First Responder Committee, providing and testing fire suppression equipment on-site, preparing, exercising and implementing an emergency response plan that includes peat fire response procedures (Sun Gro, 2024) and notifying Manitoba Environment and Climate Change immediately if a fire or explosion occurs. Follow-up proposed includes adhering to licence terms and conditions, regular inspections for fire risk, routine examination of fire suppression equipment, and periodic testing and evaluation of the fire response procedures. The residual effect of fires and explosions was determined to be not significant.

5.5.2 TRANSPORTATION ACCIDENTS

Heavy equipment, specialty equipment, large trucks and support vehicles are used during peat harvesting activities. Construction equipment and some materials will be brought onto the project site during construction. Once the peat harvesting development is operational, large trucks will haul peat to the processing plant. There is a risk of accidents involving trucks and other vehicles accessing the peat harvest site operated by Sun Gro staff, the public and others. Accidents may also occur while transporting other materials to the site. The potential adverse effects of ground transportation accidents were assessed to be moderate. Mitigation proposed includes following safe transportation routes, adhering to speed restrictions and signage, compliance with applicable provincial and municipal legislation, preparing, exercising and implementing an emergency spill response plan that includes transportation accident prevention and response. Proposed follow-up includes adhering to licence terms and conditions, periodic testing and evaluation of the emergency response plan, ensuring that dangerous goods carriers are licensed and inspecting all shipments for compliance with regulatory requirements. The residual effect of ground transportation accidents on the environment was determined to be not significant.

5.5.3 LEAKS AND SPILLS OF FUEL AND HAZARDOUS MATERIALS

Fuels and other hazardous substances may be released during site preparation and operation. Common hazardous substances include fuels (diesel, gasoline and propane), waste oils and lubricants as well as chemicals and solvents. Releases of hazardous substances may impair air quality, cause soil, surface water

and groundwater contamination, and affect worker and public health depending on the type of product as well as the nature, size and location of the spill. The effects of these were evaluated under the effects on soil, groundwater and surface water in Section 5.3.3, 5.3.4 and 5.3.5, respectively.

5.6 Effects of the Environment on the Project

5.6.1 CLIMATE

The cold continental climate of southern Manitoba produces very harsh environmental conditions for buildings, infrastructure and facilities. The Hodgson weather station, located approximately 25 km southwest of the project site, is the closest active weather station. The mean annual air temperature at the weather station is 1.1°C and the daily mean temperature ranges between 18.1°C in July and -18.6°C in January (Environment Canada, 2024). The lowest temperature recorded between 1990 and 2020 was -45.6°C in February 1967 whereas the highest was 38.0°C in May 1980 (Environment Canada, 2024). Any equipment or infrastructure on-site must be designed to withstand extreme low and high temperatures, damaging winds, significant precipitation events and hail, and even tornadoes.

High wind velocities can cause increased dust and blow loose peat materials off the property. Mitigation measures include limiting stockpiled material during high wind events, orienting peat stockpiles in the prevailing wind direction to minimize the area exposed, observing wind directions before unloading and loading of peat, ensuring peat stockpiles has a crusted layer on top, using a tree or brush buffer to act as a windbreak, modifying and equipping peat harvesters to reduce peat dust emissions, covering peat transport trucks with tarps to eliminate dust emissions during transport, instructing employees in proper harvesting equipment operation to reduce dust emissions and suspending operations during high wind events.

Heavy rains or abrupt snowmelt can potentially flood the peatland area, cause soil erosion and create unsafe working conditions, slippery surfaces, and reduced visibility. The resulting high volumes of surface water runoff can erode off-site drainage channels and wash out roads and culverts. Proposed mitigation includes designing adequate drainage channels, installing a gated culvert to control drainage release from the sedimentation pond, providing additional on-site pumping capacity, suspending work during high precipitation events and including flooding in the emergency preparedness plan.

Manitoba is in a low seismic hazard area in Canada. Further consideration of the effects of an earthquake on the project is not warranted in this environmental assessment.

5.6.2 FLOODING

The proposed peat harvesting development site is not normally subjected to significant overland flooding during spring runoff or following significant precipitation events. The site is typically wet in low lying locations, but peat contains a large capacity for absorption. Once on- site drainage has been constructed, all surface water within the site will drain southeast toward Sugar Creek which eventually drains into the Lake Winnipeg. Temporary flooding may occur from extreme precipitation events if on-site drainage becomes overwhelmed. Mitigation measures are the same as those proposed to deal with heavy rains as noted in Section 5.6.1.

5.6.3 WILDFIRE

Wildfire is common in the Mid-Boreal Lowland Ecoregion, particularly during periods of drought. Operation and construction of the proposed project can potentially be interrupted in the event of a forest fire burning near the site. Forest fires risk the safety and health of workers and may damage equipment. Proposed mitigation measures include providing fire suppression equipment at construction areas and within buildings during operation and implementing an emergency response plan that includes fire prevention, notification and response. Follow-up includes periodic testing of fire suppression equipment during construction and operation, periodic assessment of wildfire risk during construction and operation and periodically updating the emergency response plan.

6.0 MITIGATIVE SUMMARY

Mitigation measures is defined under the *Impact Assessment Act* as measures to eliminate, reduce, control or offset the adverse effects of a project or designated project, and includes restitution for any damage caused by those effects through replacement, restoration, compensation or any other means. Mitigation measures to address potential effects of the peat harvesting development are identified in Sections 5.3, 5.4 and 5.5 and are summarized in Table 15. The nature of the mitigation measures, whether they are design, proposed, regulatory or management is shown in the table and described in the following sections.

6.1 Design Mitigation

Design mitigation includes measures that are either already included in the design of the proposed development or are to be addressed as a result of this environmental assessment. The design of the proposed development incorporates components, systems, controls and features that will mitigate potential adverse environmental effects typically associated with peat harvesting operations. Design mitigation measures for the proposed project are summarized in Table 15. Responsibility for implementing design mitigation rests with the proponent and their contractors.

6.2 Proposed Mitigation

Proposed mitigation includes measures that are identified in the environmental assessment report to address potential adverse environmental effects. These mitigation measures, while not required by legislation, serve to eliminate, reduce and control potential adverse environmental effects and render them not significant. These measures are summarized in Table 15. For the most part, the measures are operational in nature and require incorporation into specifications for construction and standard operational procedures.

6.3 Regulatory Requirements

The proposed peatland development is subject to various federal and provincial environmental legislations. Regulatory requirements serve to mitigate adverse environmental effects, which may have potentially significant environmental and human health consequences. Environmental legislation applicable to this development includes the following:

Manitoba

- *The Peatland Stewardship Act*
- *The Environment Act*
    - Peat Smoke Control Regulation
    - Litter Regulation
    - Waste Disposal Grounds Regulation
- *The Dangerous Goods Handling and Transportation Act*
    - Environmental Accident Reporting Regulations
    - Storage and Handling of Petroleum Products and Allied Products Regulation

  - Generator Registration and Carrier Licensing Regulation
  - Manifest Regulation
- *The Public Health Act*
  - Atmospheric Pollution Regulation
  - Protection of Water Sources Regulation
- *The Ozone Depleting Substances Act and Regulations*
- *The Forest Act*
  - Forest Use and Management Regulations
- *The Workplace Safety and Health Act* and Regulations
- *The Contaminated Sites Remediation Act*
- *The Climate and Green Plan Act*
- *The Endangered Species and Ecosystems Act*
- *The Highway Traffic Act* and Regulations
- *The Water Protection Act*

Canada

- *Impact Assessment Act*
- *Canadian Environmental Protection Act* and Regulations
- *Fisheries Act*
- *Species at Risk Act*
- *Migratory Birds Convention Act*

Regulatory mitigation applies to site preparation activities, harvesting operations, transport and storage of hazardous substances, reporting of spills and accidental releases, reporting as a licence condition, worker and public safety, etc. Table 15 includes mitigation measures that are regulatory in nature.

Guidelines followed in the preparation of an EAP for peat harvesting developments include the following:

- Manitoba Environment Act Proposal Report Guidelines
- Manitoba Water Quality Standards, Objectives, and Guidelines

6.4 Management Practices

Good environmental management practices can further protect the environment and human health and safety from potentially adverse effects of peat harvest site preparation and operation activities. While many of the practices are not required by legislation, various policies, guidelines and procedures exist that provide direction in relation to environmental protection, environmental stewardship and sustainable development principles and guidelines. Examples of good management practices are summarized in Table 15.

Implementation of mitigation measures proposed by Sun Gro will be carried out through development of an Environmental Protection Plan that includes mitigation measures, follow-up requirements, licence and permit terms and conditions, and other related requirements. The Environmental Protection Plan also provides for effective integration of environmental assessment results into operational procedures.

6.5 Recovery Plan

A PRP has been developed and submitted for Sun Gro's PHL No. 4, in accordance with requirements of *The Peatlands Stewardship Act* of the Forestry and Peatlands Branch of Manitoba Conservation and Climate (Sun Gro, 2019c). The recovery plan outlines the restoration process of harvest areas when harvesting is complete. As Sun Gro did not initially plan to harvest at the Sugar Creek sub-areas within the PHL license term, the PRP will be amended to include additional information regarding the restoration of Sugar Creek sub-areas.

7.0 FOLLOW-UP

Follow-up is defined under the *Impact Assessment Act* as a program to verify the accuracy of the impact assessment of a project and determine the effectiveness of any mitigation measures. Follow-up requirements identified for the proposed peat harvesting development in Sections 5.3, 5.4 and 5.4 are summarized in Table 16. The primary nature of the follow-up, whether they are inspecting, monitoring, record keeping or reporting is shown in the table and described in the following sections.

7.1 Inspecting

Inspecting involves periodic or regular observations of the project and local area during site preparation, construction and operation activities to determine whether mitigation measures are implemented and if they are effective in eliminating, reducing or controlling adverse environmental effects. Inspecting includes surveillance to identify problems, issues and concerns, and environmental effects not predicted in the environmental assessment report. Inspections may involve the use of checklists and should be maintained at the project site. Inspection requirements for the proposed peatland development during site preparations and construction are summarized in Table 16. Sun Gro staff are typically responsible for the inspections during the site preparation and operation phases.

7.2 Monitoring

Monitoring includes periodic or regularly scheduled collection or sampling for environmental information in the development or project area. Monitoring may be required by the environmental assessment or it may become necessary as a result of inspections that are carried out after the assessment. Follow-up monitoring for the proposed development during site preparation includes surface water quality after spring thaw. Monitoring during site operation includes surface water quality at the discharge location monthly or as directed by Manitoba Environment and Climate Change in the Environment Act Licence.

7.3 Record Keeping

Record keeping includes maintaining files and documentation related to mitigation measures and follow-up implemented as well as recording public complaints. Record keeping requirements for the proposed development include monitoring and tracking complaints from local residents, submission of SDSs for all products used, number of vehicle-wildlife interactions, number of problem or nuisance wildlife situations, number of amphibians and reptiles observed on the site, fuel volumes delivered and used, maintaining peat transportation manifests, number of monitoring and testing samples collected and analytical data generated, details of incidents requiring implementation of the emergency response plan and updating the emergency response plan following testing.

7.4 Reporting

Reporting in the context of environmental assessment follow-up includes documentation and communication that mitigation measures and follow-up are implemented and whether or not they have been effective. Such reports are normally required by the Manitoba Environment and Climate Change Environment Act Licence and are submitted to the Province. Reporting is also required in the event of an accidental spill or release of hazardous substances. Reporting requirements for the proposed development will also likely include an annual compliance surface water quality report, summary of annual generation of peat and a detailed report following incidents that require implementation of the emergency response plan. Sun Gro will be responsible for submitting all required reports to Manitoba Environment and Climate Change as specified in the Environment Act Licence.

8.0 CONCLUSIONS

KGS Group was retained by Sun Gro to prepare an EAP for the proposed peat harvesting development at the Sugar Creek sub-areas to obtain a Manitoba Environmental Act License. An EAP is required for environmentally significant developments within the province of Manitoba, under *The Environment Act* (C.C.S.M. c. E125). The report followed the requirements of the environmental assessment and licensing process under *The Environment Act* (Manitoba). A peat harvesting operation such as the one proposed by Sun Gro is considered a mining development under the Classes of Development Regulation 164/88 and is therefore considered a Class 2 Development. The EAP was completed in accordance with the *Manitoba Environment Act Proposal Report Guidelines* (Manitoba Environment and Climate, 2023).

The environmental assessment of the proposed peat project was carried out based on project information provided by Sun Gro, information acquired from literature, internet searches, and publications by the Canadian peat industry and environmental organizations; contacts with provincial government representatives; Indigenous and public engagement; and site investigations by the project team. Potential environmental effects of the proposed peat harvesting project were identified using scoping methods, public comments, advice from specialists and professional judgment. Effects of the environment on the project were also determined. Mitigation measures were identified to eliminate, reduce and control environmental effects determined to be adverse. Follow-up monitoring was proposed to verify the accuracy of the assessment and determine the effectiveness of the mitigation measures. Significance of the residual environmental effects remaining after mitigation was then evaluated.

Based on the available information on the project and the environment, the assessment of environmental effects outlined in this assessment, and the application of proposed mitigation measures and the conduct of follow-up monitoring, the proposed project is not expected to result in any significant residual adverse environmental effects.

9.0 REFERENCES

All Terrain Vehicle Association of Manitoba (ATVMB) (2024). ATV Club Trails Download Data Warehouse. Retrieved from: https://trails.atvmb.ca (accessed July 26, 2024).

Bergeron, Y., Flannigan, M., Gauthier, S. Leduc, A. and P. Lefort (2004). Past, Current and Future Fire Frequency in the Canadian Boreal Forest: Implications for Sustainable Forest Management. Ambio Vol. 33 No. 6.

Betcher R., G. Grove, and C. Pupp (1995). Groundwater in Manitoba: hydrogeology, quality concerns, management. NHRI Contribution No. CS-93017. March, 1995.

Boelter, D. (1972). Water table drawdown around an open ditch in organic soils, Journal of Hydrology, Volume 15(4), pp. 329-340.

Canadian Sphagnum and Peat Moss Association (CSPMA) (2023). Industry Statistics. Retrieved from: https://peatmoss.com/statistics/ (accessed November 2023).

Cleary, J, N.T. Roulet and T.R Moore (2005). Greenhouse Gas Emissions from Canadian Peat Extraction, 1990-2000: A Life-cycle Analysis. Ambio, vol. 34, pp 456-461.

COSEWIC (2012). COSEWIC assessment and status report on the Eastern Wood-pewee *Contopus virens* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 39 pp.

COSEWIC (2016). COSEWIC assessment and status report on the Evening Grosbeak *Coccothraustes vespertinus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 64 pp.

COSEWIC (2021). COSEWIC assessment and status report on the Barn Swallow *Hirundo rustica* in Canada Committee on the Status of Endangered Wildlife in Canada. Ottawa. xii + 60 pp.

COSEWIC (2022). COSEWIC assessment and status report on the Bobolink *Dolichonyx oryzivorus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 60 pp.

Crown-Indigenous and Northern Affairs Canada (2024). First Nation Profiles. Retrieved from: https://geo.sac-isc.gc.ca/cippn-fnpim/index-eng.html (accessed July 2024).

Daigle, J.-Y. and H. Gautreau-Daigle (2001). Canadian Peat Harvesting and the Environment (2nd Edition). Issues Paper, No. 2001-1. North American Wetlands Conservation Council Committee.

Environment and Climate Change Canada (ECCC) (2016a). Canadian Environmental Sustainability Indicators: Extent of Canada's Wetlands. Retrieved from: https://www.canada.ca/content/dam/eccc/migration/main/indicateurs-indicators/69e2d25b-52a2-451e-ad87-257fb13711b9/4.0.b-20wetlands_en.pdf (accessed June 28, 2024).

Environment and Climate Change Canada (2016b). Recovery Strategy for the Golden-winged Warbler (*Vermivora chrysoptera*) in Canada. Species at Risk Act Recovery Strategy Series. Environment and Climate Change Canada, Ottawa. vii + 59 pp.

Environment and Climate Change Canada (ECCC) (2022). National Inventory Report 1990-2020. Greenhouse Gas Sources and Sinks in Canada – Canada's Submission to the United Nations Framework Convention on Climate Change. Retrieved from: https://publications.gc.ca/collections/collection_2022/eccc/En81-4-2020-2-eng.pdf (accessed May 22, 2024).

Environment and Climate Change Canada (ECCC) (2024). Canadian Environmental Sustainability Indicators: Greenhouse gas emissions. Retrieved from: www.canada.ca/en/environment-climate-change/services/environmental-indicators/greenhouse-gasemissions.html (accessed May 22, 2024).

Environment Canada (2012). Management Plan for the Yellow Rail (*Coturnicops noveboracensis*) in Canada [Proposed]. Species at Risk Act Management Plan Series. Environment Canada, Ottawa. iii + 23 pp.

Environment Canada (2015). Recovery Strategy for the Eastern Whip-poor-will (*Antrostomus vociferus*) in Canada [Proposed]. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. v + 59 pp.

Environment Canada (2016a). Recovery Strategy for the Canada Warbler (*Cardellina canadensis*) in Canada. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. vii + 56 pp.

Environment Canada (2016b). Recovery Strategy for the Common Nighthawk (*Chordeiles minor*) in Canada. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. vii + 49 pp.

Environment Canada (2016c). Recovery Strategy for the Olive-sided Flycatcher (*Contopus cooperi*) in Canada. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. vii + 52 pp.

Environment Canada (2024). Canadian Climate Normals 1981-2010 Data - Hodgson. Retrieved from: https://climate.weather.gc.ca/climate_normals/index_e.html (accessed June 28, 2024).

Gautreau-Daigle, H. (1990). Evaluation of Ecological Constraints on Peat Mining in New Brunswick. I. Waterfowl Population Survey II. Moose Population Survey. Open File Report No. 90-6. Minerals and Energy Division. New Brunswick Depart of Natural Resources and Energy. Fredericton, New Brunswick. 71p.

Government of Manitoba (2017). Peat Harvest Licencing Guide. Released by Forestry and Peatlands Branch of Manitoba Sustainable Development, September 2017.

Government of Manitoba (2022). Areas of Special Interest. KML file retrieved from: https://mli2.gov.mb.ca/adminbnd/kml_files/bdy_special_interest_parks_py_shp.kmz (accessed September 6, 2022).

Government of Manitoba (2023a). Manitoba Hunting Guide 2023. Retrieved from: https://www.gov.mb.ca/nrnd/fish-wildlife/pubs/fish_wildlife/huntingguide.pdf (accessed July 26, 2024).

Government of Manitoba (2023b). 2023-2024 Manitoba Trapping Guide. MG-8691 (Rev. 2023). Retrieved from: https://www.gov.mb.ca/nrnd/fish-wildlife/pubs/fish_wildlife/trapping_guide.pdf (accessed July 26, 2024).

Government of Saskatchewan (2020a). Species Detection Survey Protocol: 10.0 Forest Birds Surveys. April 2020. Saskatchewan Ministry of Environment, Fish, Wildlife and Lands Branch, Regina, Saskatchewan, Canada.

Government of Saskatchewan (2020b). Species Detection Survey Protocol: 2.0 Amphibian Visual Surveys. January 2020. Saskatchewan Ministry of Environment, Fish, Wildlife and Lands Branch, Regina, Saskatchewan, Canada.

GW Drill (2018). Internal KGS Group ArcGIS Web Map Database. Sourced from available 2018 well logs.

Holden, J. Chapman, P.J. and J.C. Labadz (2004). Artificial Drainage of Peatlands: Hydrological and Hydrochemical Process and Wetland Restoration. Progress in Physical Geography: 28,1, pp. 95-123.

KGS Group (2010). Environment Act Proposal - Ramsay Point Peat Mine Development. Submitted to Manitoba Conservation December 2010.

KGS Group (2011) Environment Act Proposal - Hay Point Peat Mine Development. Submitted to Manitoba Conservation October 28, 2011.

KGS Group (2020). Environment Act Proposal - Evergreen Bog Peat Harvesting. Submitted to Manitoba Conservation and Climate October 15, 2020.

KGS Group (2022). Peat Exploration – Manitoba – Sugar Creek – Final/Rev 2. Submitted to Sun Gro March 25, 2022.

KGS Group (2024). Julius Lake West Peat Harvesting Environment Act Proposal – Final Rev 0. Submitted to Manitoba Environment and Climate July 2024.

Landy, J. and L. Rochefort (2012). The Drainage of Peatlands: Impacts and Rewetting Techniques. Written by Universite Laval Peatland Ecology Research Group.

Maljanen, M., Sigurdsson, B. D., Guomundsson, J., Óskarsson, H., Huttunen, J. T., and P.J. Martikainen (2010). Greenhouse gas balances of managed peatlands in the Nordic countries- present knowledge and gaps. Biogeosciences, 7(9), 2711–2738.

Manitoba Clean Environment Commission (1977). Report on the Investigation of Smoke Problems Encountered in Southern Manitoba in 1976.

Manitoba Environment and Climate (2023). *Environment Act Proposal Report Guidelines*. Information Bulletin. June 2023.

Manitoba Infrastructure (2020). 2019 Traffic Flow Map- Annual Average Daily Traffic on Provincial Trunk Highways and Provincial Roads. Retrieved from: https://www.manitoba.ca/mti/traffic/pdf/flowmap2019.pdf (accessed June 4, 2024).

Manitoba Sustainable Development (2017a). Manitoba's Submission Guidelines for Peatland Management Plans. Released by Forestry and Peatlands Branch, Manitoba Sustainable Development. September 2017.

Manitoba Sustainable Development (2017b). Manitoba Submission Guidelines for Peatland Recovery Plans, Peatland Management Guidebook. Manitoba Sustainable Development, Forestry and Peatland Branch. Winnipeg, Manitoba.

Manitoba Treaty Land Entitlement Framework Agreement (1997). Agreement between Treaty Land Entitlement Committee of Manitoba Inc. and Her Majesty the Queen in Right of Canada and Her Majesty in Right of Manitoba. Signed May 29, 1997. Retrieved from:

https://www.gov.mb.ca/inr/resources/pubs/tle%20framework%20agreement%201997.pdf (accessed July 26, 2024).

Neary, Daniel G.; Ryan, Kevin C.; DeBano, Leonard F., eds. (2005). (revised 2008). Wildland fire in ecosystems: effects of fire on soils and water. Gen. Tech. Rep. RMRS-GTR-42-vol.4. Ogden, UT: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 250 p.

Quinty, F. and L. Rochefort (2003). Peatland Restoration Guide, 2nd edition. Canadian Sphagnum Peat Moss Association and New Brunswick Department of Natural Resources and Energy. Quebec, Quebec.

Rochefort, L., Strack, M., Poulin, M., Price, J., Graf, M., Desrochers, A. and C. Lavoie (2012). Chapter 9: Northern Peatlands in Wetland Habitats of North America: Ecology and Conservation Concerns (Edited by Batzer and Baldwin), University of California Press. pp 119-134.

Rubec, C.D.A. (2003). Wetlands Stewardship in Canada. Report No. 03-2.

Smith, R.E., H. Veldhuis, G.F. Mills, R.G. Eilers, W.R. Fraser, and G.W. Lelyk (1998). Terrestrial Ecozones, Ecoregions, and Ecodistricts, An Ecological Stratification of Manitoba's Landscapes. Technical Bulletin 98-9E. Land Resource Unit, Brandon Research Centre, Research Branch, Agriculture and Agri-Food Canada, Winnipeg, Manitoba.

SnoMan (2024). Snowmobile club trails. Retrieved from https://snoman.evtrails.com/# (accessed July 26, 2024).

Statistics Canada (2023). Census Profile. 2021 Census of Population. Statistics Canada Catalogue no. 98-316-X2021001. Ottawa. Released November 15, 2023. Retrieved from: https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/index.cfm?Lang=E (accessed July 25, 2024).

Strack, M. and Y.C.A. Zuback (2013). Annual carbon balance of a peatland 10 yr following restoration. Biogeosciences 10: 2885-2896.

Strack, M., Keith, A.M. and B. Xu (2014). Growing season carbon dioxide and methane exchange at a restored peatland on the Western Boreal Plain. Ecological Engineering 64: 231-239.

Strack, M. (2018). Returning the Carbon Sink Function: An Overview of Canadian Peatland Restoration. Webinar provided as part of Wetland BMP Knowledge Exchange January 24, 2018. Retrieved from: https://www.cclmportal.ca/resource/webinar-returning-carbon-sink-function-overview-canadian-peatland-restoration (accessed May 22, 2024).

Sun Gro (2018). Community Engagement Plan – Interlake Peat Harvesting Licence. September 2018.

Sun Gro (2019a). Central Region Bogs Policy Manual: Spill Response. Original issue: April 2015. 2 pp.

Sun Gro (2019b). Peatland Management Plan – Peat Harvest Licence No. 4 – South Washow. September 2019.

Sun Gro (2019c). Peatland Recovery Plan – Peat Harvest Licence No. 4 South Washow. September 2019.

Sun Gro (2024). Health & Safety Manual: Fire Response Procedures – Peat Fires. 7 pp.

Thibault, J.J. (1998). Guidelines for Peat Mining Operations in New Brunswick. Minerals and Energy Divisions. New Brunswick Department of Natural Resources and Energy. Open file 98-7, 17.

Vertex Professional Services (2017). 2017 Peat Exploration Assessment: Sugar Creek Peat Harvest Licence. Prepared for Sun Gro. December 2017.

Waddington, J.M. and S.M. Day (2007). Methane emissions from a peatland following restoration. Journal of Geophysical Research 112 (3), G03018.

Waddington, J.M, Strack, M. and M.J. Greenwood (2010). Toward Restoring the Net Carbon Sink Function of Degraded Peatlands: Short-term Response in CO2 Exchange to Ecosystem-scale Restoration. Journal of Geophysical Research, vol. 115. G01008, doi:10.1029/2009JG001090.

Warner, B.G. and C.D.A. Rubec (1997). The Canadian Wetland Classification System, Second Edition. National Wetlands Working Group. Wetlands Research Centre. University of Waterloo. Waterloo, Ontario. 68p.

TABLES

TABLE 1
ESTIMATED PEAT PRODUCTION SCHEDULE

Production Year	Active Harvesting	Total Volume (m^3) Harvested/Year	Truckloads/ Year
2026	80	68,000	401
2027	160	136,000	803
2028	240	204,000	1204
2029	320	272,000	1605
2030	400	340,000	2007
2031	480	408,000	2408
2032	560	476,000	2809
2033	640	544,000	3211
2034	720	612,000	3612
2035	750	637,500	3763
2036	750	637,500	3763
2037	750	637,500	3763
2038	750	637,500	3763
2039	750	637,500	3763
2040	750	637,500	3763
2041	750	637,500	3763
2042	750	637,500	3763
2043	750	637,500	3763
2044	750	637,500	3763
2045	750	637,500	3763
2046	750	637,500	3763
2047	750	637,500	3763
2048	750	637,500	3763
2049	750	637,500	3763
2050	750	637,500	3763
2051	750	637,500	3763
2052	750	637,500	3763
2053	725	616,250	3637
2054	565	480,250	2834
2055	455	386,750	2283
2056	375	318,750	1881
2057	295	250,750	1480
2058	255	216,750	1279
2059	255	216,750	1279
2060	215	182,750	1079
2061	135	114,750	677
2062	55	46,750	276
2063	0	0	0
Total		17,365,500	102,491

TABLE 3
FIELD CHEMISTRY

Sample ID	Date	Time	Water Source	Parameter					
				Temperature (°C)	pH (pH units)	Specific Conductance (µS/cm)	Dissolved Oxygen (mg/L)	Dissolved Oxygen (%)	Turbidity (NTU)
SC-SW-01	04-Jul-22	11:05	Unnamed Drain	18.6	-	274.1	3.50	44.1	0.11
SC-SW-02	04-Jul-22	16:00	Peat	14.1	-	40.5	2.77	27.5	0.94
SC-SW-03	04-Jul-22	15:40	Peat	15.4	-	43.5	3.34	35.4	0.71
SC-SW-04	04-Jul-22	14:30	Peat	16.5	-	38.5	1.91	20.2	78
SC-SW-05	04-Jul-22	15:00	Wetted Area	21.0	-	38.9	4.31	50.2	78
Manitoba Water Quality Standards, Objectives, and Guidelines [1]									
Freshwater Aquatic Life				-	6.5 - 9.0	-	[2]	-	-

Notes:
"-" = No Data
NTU = Nephelometric Turbidity Units

1. Manitoba Water Quality Standards, Objectives, and Guidelines, Manitoba Water Stewardship, November 28, 2011.
2. MWQSOG lowest acceptible dissolved oxygen concentration (mg/L):

Ecosystem	Early Life Stages	Mature Life Stages
Cool Water (>5°C)	6.0	5.5
Cold Water (≤5°C)	9.5	6.5

- Exceedance of MWQSOG

TABLE 4
GENERAL WATER QUALITY

Sample ID	Date	Duplicate ID	Water Source	Parameter									
				pH (units)	E.C.	Alkalinity as $CaCO_3$	Bicarbonate as HCO_3	Carbonate as CO_3	Hydroxide (OH)	Hardness as $CaCO_3$	Chloride (Cl)	Sulphate (SO_4)	Total Ammonia (N)
				-	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
SC-SW-01	4-Jul-22		Unnamed Drain	7.82	330	170	200	<1.0	<1.0	190	1.4	<2.0 (1)	<0.015
SC-SW-02	4-Jul-22		Peat	3.81	48	<1.0	<1.0	<1.0	<1.0	2.4	1.6	<1.0	<0.015
SC-SW-03	4-Jul-22		Peat	3.77	53	<1.0	<1.0	<1.0	<1.0	2.1	2.5	<1.0	<0.015
SC-SW-04	4-Jul-22		Peat	4.12	41	<1.0	<1.0	<1.0	<1.0	6	2.2	<1.0	0.016
		SC-SW-100		4.02	44	<1.0	<1.0	<1.0	<1.0	<0.50	2.3	<1.0	<0.015
SC-SW-05	4-Jul-22		Wetted Area	6.07	34	6.6	8.1	<1.0	<1.0	21	1.1	<2.0 (1)	<0.015
Laboratory Detection Limits				*N/A*	*2.0*	*1.0*	*1.0*	*1.0*	*1.0*	*0.50*	*1.0*	*1.0-2.0*	*0.015*
Manitoba Water Quality Standards, Objectives, and Guidelines (4)													
Freshwater Aquatic Life				6.5 - 9.0	-	-	-	-	-	-	-	-	(5)

Sample ID	Date	Duplicate ID	Water Source	Parameter									
				Nitrate & Nitrite (as N)	Nitrate (as NO_3)	Nitrate (as N)	Nitrite (NO_2)	Nitrite (as N)	B.O.D.	Total Phosphorus	T.D.S.	T.S.S.	T.K.N.
				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
SC-SW-01	4-Jul-22		Unnamed Drain	<0.050 (1)	<0.22	<0.050	<0.033	<0.010	<2.0 (2)	<0.015 (1)	260	2.3	1.19
SC-SW-02	4-Jul-22		Peat	<0.050 (1)	<0.22	<0.050	<0.033	<0.010	<3.2	0.019 (1)	84 (3)	5.5	0.619
SC-SW-03	4-Jul-22		Peat	<0.050 (1)	<0.22	<0.050	<0.033	<0.010	5.6	0.086 (1)	76	51 (3)	1.53
SC-SW-04	4-Jul-22		Peat	<0.050 (1)	<0.22	<0.050	<0.033	<0.010	5.5	0.11 (1)	84	35 (3)	4.27
		SC-SW-100		<0.050 (1)	<0.22	<0.050	<0.033	<0.010	7.4	<0.30 (1)	96	98 (3)	3.29
SC-SW-05	4-Jul-22		Wetted Area	<0.050 (1)	<0.22	<0.050	<0.033	<0.010	<3.6	0.058	76	2.5	1.53
Laboratory Detection Limits				*0.050*	*0.22*	*0.050*	*0.033*	*0.010*	*2.0*	*0.0030-0.30*	*10*	*1.0-2.3*	*0.050-0.10*
Manitoba Water Quality Standards, Objectives, and Guidelines (4)													
Freshwater Aquatic Life				-	-	13	-	0.06	-	0.025/0.05 (6)	-	(7)	-

Notes:

E.C. = Electrical Conductivity
B.O.D. = Biochemical Oxygen Demand
T.D.S. = Total Dissolved Solids
T.S.S. = Total Suspended Solids
T.K.N. = Total Kjeldahl Nitrogen

1. Detection limits raised due to matrix interference.
2. Sample analyzed past hold time. Sample analysis is recommended within 48 hours of sampling.
3. Detection limit raised based on sample volume used for analysis.
4. Manitoba Water Quality Standards, Objectives, and Guidelines, Manitoba Water Stewardship, November 28 2011.
5. MWQSOG Surface Water Ammonia Guideline for Aquatic Life, Cool Water, All Periods (Eq. 3). Manitoba Water Stewardship, November 2011.
6. For general guidance, unless it can be demonstrated that total phosphorus is not a limiting factor, total phosphorus should not exceed 0.025 mg/L in any reservoir, lake, or pond, or in a tributary at the point where it enters such bodies of water. In other streams, total phosphorus should not exceed 0.05 mg/L.
7. Total Suspended Sediment Guidelines:
   5 mg/L Induced Change over 30 days from background TSS <= 25 mg/L
   25 mg/L Induced Change over 1 day from background TSS <= 250 mg/L
   10% Induced Change over 1 day from background TSS > 250 mg/L

- Exceedance of MWQSOG
- Laboratory Detection Limit exceeds MWQSOG

TABLE 5
TOTAL METALS IN WATER

Sample ID	Date	Duplicate ID	Water Source	Parameter [1]															
				Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Lithium	Magnesium	Manganese	Mercury
SC-SW-01	4-Jul-22		Unnamed Drain	0.0081	<0.00060	0.0013	0.017	<0.0010	<0.020	<0.000020	47	<0.0010	<0.00030	<0.0010	<0.060	<0.00020	<0.020	18	0.015	0.0000058
SC-SW-02	4-Jul-22		Peat	0.093	<0.00060	0.00056	<0.20	<0.0010	<0.40	<0.000020	<6.0	<0.0010	<0.00030	<0.0010	<1.2	<0.00020	<0.40	<4.0	<0.080	0.000127
SC-SW-03	4-Jul-22		Peat	0.2	<0.0012	0.00069	<0.010	<0.0020	<0.020	<0.000040	0.73	<0.0020	<0.00060	<0.0020	0.26	<0.00040	<0.020	0.31	0.046	0.000050
SC-SW-04	4-Jul-22		Peat	0.28	<0.0012	0.00078	<1.0	<0.0020	<2.0	0.000059	<30	<0.0020	<0.00060	0.0021	<6.0	0.00062	<2.0	<20	<0.40	0.000053
		SC-SW-100		0.099	<0.0012	0.00042	<0.010	<0.0020	<0.020	<0.000040	1.5	<0.0020	<0.00060	<0.0020	0.2	<0.00040	<0.020	0.59	0.13	0.0000288
SC-SW-05	4-Jul-22		Wetted Area	0.035	<0.00060	0.00033	<0.010	<0.0010	<0.020	<0.000020	4.1	<0.0010	<0.00030	<0.0010	0.31	<0.00020	<0.020	2.2	0.086	0.0000098
Laboratory Detection Limits [2]				*0.0030-0.0060*	*0.00060-0.0012*	*0.00020-0.00040*	*0.010-1.0*	*0.0010-0.0020*	*0.020-2.0*	*0.000020-0.000040*	*0.30-30*	*0.0010-0.0020*	*0.00030-0.00060*	*0.0010-0.0020*	*0.060-6.0*	*0.00020-0.00040*	*0.020-2.0*	*0.20-20*	*0.0040-0.40*	*0.0000019-0.000019*
Manitoba Water Quality Standards, Objectives, and Guidelines [3]																			
Freshwater Aquatic Life				0.005/0.1 [4]	-	0.15/0.34 [5]	-	-	1.5/29 [6]	[7a]	-	-	-	[7b]	0.3	[7c]	-	-	-	0.000026

Sample ID	Date	Duplicate ID	Water Source	Parameter [1]															
				Molybdenum	Nickel	Phosphorus	Potassium	Selenium	Silicon	Silver	Sodium	Strontium	Sulphur	Thallium	Tin	Titanium	Uranium	Vanadium	Zinc
SC-SW-01	4-Jul-22		Unnamed Drain	<0.00020	<0.00050	<0.10	3.1	<0.00020	11	<0.00010	1.3	0.066	0.38	<0.00020	<0.0010	<0.0010	<0.00010	<0.0010	<0.0030
SC-SW-02	4-Jul-22		Peat	<0.00020	<0.00050	<2.0	<6.0	<0.00020	2.4	<0.00010	<10	<0.40	<4.0	<0.00020	<0.0010	0.002	<0.00010	<0.0010	0.0042
SC-SW-03	4-Jul-22		Peat	<0.00040	<0.0010	<0.10	1.3	<0.00040	2.1	<0.00020	<0.50	<0.020	0.26	<0.00040	<0.0020	0.0064	<0.00020	<0.0020	<0.0060
SC-SW-04	4-Jul-22		Peat	<0.00040	0.0013	<10	<30	<0.00040	16	<0.00020	<50	<2.0	<20	<0.00040	<0.0020	0.0078	<0.00020	<0.0020	0.034
		SC-SW-100		<0.00040	<0.0010	<0.10	3.2	<0.00040	2.5	<0.00020	<0.50	<0.020	0.27	<0.00040	<0.0020	<0.0020	<0.00020	<0.0020	0.015
SC-SW-05	4-Jul-22		Wetted Area	<0.00020	<0.00050	<0.10	1.1	<0.00020	2.2	<0.00010	0.53	<0.020	0.31	<0.00020	<0.0010	0.0011	<0.00010	<0.0010	0.0055
Laboratory Detection Limits				*0.00020-0.00040*	*0.00050-0.0010*	*0.10-2.0*	*0.30-30*	*0.00020-0.00040*	*0.10-10*	*0.0010-0.0020*	*0.50-50*	*0.020-2.0*	*0.20-20*	*0.00020-0.00040*	*0.0010-0.0020*	*0.0010-0.0020*	*0.00010-0.00020*	*0.0010-0.0020*	*0.0030-0.0060*
Manitoba Water Quality Standards, Objectives, and Guidelines [3]																			
Freshwater Aquatic Life				0.073	[7d]	-	-	0.001	-	0.0001	-	-	-	0.0008	-	-	0.015/0.033 [8]	-	[7e]

Notes:

"-" = No Data

1. All values are expressed in milligrams per litre (mg/L) unless otherwise specified.
2. Detection limit raised based on sample volume used for analysis.
3. Manitoba Water Quality Standards, Objectives, and Guidelines, Manitoba Water Stewardship, November 28 2011.
4. If pH<6.5, guideline is 0.005 mg/L. If pH>6.5, guideline is 0.1 mg/L.
5. Arsenic Tier II Objectives:
   0.15 mg/L = Duration 4 Days, Not more than once each 3 years, on average
   0.34 mg/L = Duration 1 Hour, Not more than once each 3 years, on average
6. Short-term exposure = 29 mg/L; Long-term exposure = 1.5 mg/L.
7. Tier II - Water Quality Objectives, Manitoba Water Quality Standards, Objectives, and Guidelines, Manitoba Water Stewardship, November 28 2011.
   Guideline is variable based on hardness and is calculated with equations. For the following equations, hardness is expressed as CaCO3 in mg/L and the guideline is in mg/L exposure.

Metal	Exposure	Guideline Formula
Cadmium [a]	4 Days	(EXP(0.7409*(LN(Hardness))-4.719)*((1.101672-((LN(Hardness)*(0.041838))))))/1000
	1 Hour	(EXP(1.0166*(LN(Hardness))-3.925)*(1.136672-((LN(Hardness)*(0.041838))))))/1000
Copper [b]	4 Days	(EXP(0.8545*(LN(Hardness))-1.702))*0.96/1000
	1 Hour	(EXP(0.9422*(LN(Hardness))-1.7))*0.96/1000
Lead [c]	4 Days	EXP(1.273*(LN(Hardness))-4.705)*((1.46203-((LN(Hardness)*(0.145712)))))/1000
	1 Hour	EXP(1.273*(LN(Hardness))-1.46)*((1.46203-((LN(Hardness)*(0.145712)))))/1000
Nickel [d]	4 Days	(EXP(0.846*(LN(Hardness))+0.0584))*0.997/1000
	1 Hour	(EXP(0.846*(LN(Hardness))+2.255))*0.998/1000
Zinc [e]	4 Days	(EXP(0.8473*(LN(Hardness))+0.884))*0.986/1000
	1 Hour	(EXP(0.8473*(LN(Hardness))+0.884))*0.978/1000

8. Short-term exposure = 0.033 mg/L; Long-term exposure = 0.015 mg/L

- Exceedance of MWQSOG
- Laboratory Detection Limit exceeds MWQSOG

TABLE 6
DISSOLVED METALS IN WATER

Sample ID	Date	Duplicate ID	Water Source	Parameter [1]														
				Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Lithium	Magnesium	Manganese	Mercury
SC-SW-01	4-Jul-22		Unnamed Drain	0.0036	<0.00060	0.0011	0.021	<0.0010	<0.020	<0.000020	47	<0.0010	<0.00030	0.0017	<0.060	<0.00020	<0.020	18	0.013	-
SC-SW-02	4-Jul-22		Peat	0.076	<0.00060	0.00047	<0.010	<0.0010	<0.020	<0.000020	0.47	<0.0010	<0.00030	0.0037	0.18	<0.00020	<0.020	0.30	0.013	-
SC-SW-03	4-Jul-22		Peat	0.10	<0.00060	0.00055	<0.010	<0.0010	<0.020	<0.000020	0.50	<0.0010	<0.00030	0.0031	0.13	<0.00020	<0.020	0.22	0.02	-
SC-SW-04	4-Jul-22		Peat	0.082	<0.00060	0.00042	<0.010	<0.0010	<0.020	<0.000020	1.4	<0.0010	<0.00030	0.012	0.18	<0.00020	<0.020	0.57	0.1	-
		SC-SW-100		0.13	<0.00060	0.00053	<0.010	<0.0010	0.021	0.000062	<6.0	<0.0010	<0.00030	0.0010	0.30	0.00038	<0.020	<4.0	0.31	-
SC-SW-05	4-Jul-22		Wetted Area	0.031	<0.00060	0.00038	<0.010	<0.0010	<0.020	<0.000020	4.3	<0.0010	<0.00030	0.0026	0.20	<0.00020	<0.020	2.4	0.043	-
Laboratory Detection Limits [2]				*0.0030*	*0.00060*	*0.00020*	*0.010*	*0.0010*	*0.020*	*0.000020*	*0.30/6.0*	*0.0010*	*0.00030*	*0.0010*	*0.060*	*0.00020*	*0.020*	*0.20/4.0*	*0.0040/ 0.080*	-
Manitoba Water Quality Standards, Objectives, and Guidelines [3]																				
Freshwater Aquatic Life				0.005/0.1 [4]	-	0.15/0.34 [5]	-	-	1.5/29 [6]	[7a]	-	-	-	[7b]	0.3	[7c]	-	-	-	0.000026

Sample ID	Date	Duplicate ID	Water Source	Parameter [1]														
				Molybdenum	Nickel	Phosphorus	Potassium	Selenium	Silicon	Silver	Sodium	Strontium	Sulphur	Thallium	Tin	Titanium	Uranium	Vanadium	Zinc
SC-SW-01	4-Jul-22		Unnamed Drain	<0.00020	<0.00050	<0.10	3.1	<0.00020	11	<0.00010	1.2	0.069	0.36	<0.00020	<0.0010	<0.0010	<0.00010	<0.0010	0.0058
SC-SW-02	4-Jul-22		Peat	<0.00020	<0.00050	<0.10	1.2	<0.00020	2.3	<0.00010	<0.50	<0.020	<0.20	<0.00020	<0.0010	0.0013	<0.00010	<0.0010	<0.0030
SC-SW-03	4-Jul-22		Peat	<0.00020	<0.00050	<0.10	1.1	<0.00020	1.9	<0.00010	<0.50	<0.020	<0.20	<0.00020	<0.0010	0.0029	<0.00010	<0.0010	0.0037
SC-SW-04	4-Jul-22		Peat	<0.00020	<0.00050	<0.10	2.9	<0.00020	2.6	<0.00010	<0.50	<0.020	0.23	<0.00020	<0.0010	0.0017	<0.00010	<0.0010	0.0088
		SC-SW-100		<0.00020	<0.00050	<0.10	4.0	<0.00020	2.9	<0.00010	<10	<0.020	0.31	<0.00020	<0.0010	0.0013	<0.00010	<0.0010	0.038
SC-SW-05	4-Jul-22		Wetted Area	0.0002	<0.00050	<0.10	1.2	<0.00020	2.3	<0.00010	0.52	<0.020	0.26	<0.00020	<0.0010	<0.0010	<0.00010	<0.0010	0.0061
Laboratory Detection Limits				*0.00020*	*0.00050*	*0.10*	*0.30*	*0.00020*	*0.10*	*0.00010*	*0.50/10*	*0.020*	*0.20*	*0.00020*	*0.0010*	*0.0010*	*0.00010*	*0.0010*	*0.0030*
Manitoba Water Quality Standards, Objectives, and Guidelines [3]																			
Freshwater Aquatic Life				0.073	[7d]	-	-	0.001	-	0.0001	-	-	-	0.0008	-	-	0.015/0.033 [8]	-	[7e]

Notes:

"-" = No Data

1. All values are expressed in milligrams per litre (mg/L) unless otherwise specified.
2. Detection limit raised based on sample volume used for analysis.
3. Manitoba Water Quality Standards, Objectives, and Guidelines, Manitoba Water Stewardship, November 28 2011.
4. If pH<6.5, guideline is 0.005 mg/L. If pH>6.5, guideline is 0.1 mg/L.
5. Arsenic Tier II Objectives:
   0.15 mg/L = Duration 4 Days, Not more than once each 3 years, on average
   0.34 mg/L = Duration 1 Hour, Not more than once each 3 years, on average
6. Short-term exposure = 29 mg/L; Long-term exposure = 1.5 mg/L.
7. Tier II - Water Quality Objectives, Manitoba Water Quality Standards, Objectives, and Guidelines, Manitoba Water Stewardship, November 28 2011.
   Guideline is variable based on hardness and is calculated with equations. For the following equations, hardness is expressed as CaCO3 in mg/L and the guideline is in mg/L exposure.

Metal	Exposure	Guideline Formula
Cadmium [a]	4 Days	(EXP(0.7409*(LN(Hardness))-4.719)*((1.101672-((LN(Hardness)*(0.041838))))))/1000
	1 Hour	(EXP(1.0166*(LN(Hardness))-3.925)*(1.136672-((LN(Hardness)*(0.041838))))))/1000
Copper [b]	4 Days	(EXP(0.8545*(LN(Hardness))-1.702))*0.96/1000
	1 Hour	(EXP(0.9422*(LN(Hardness))-1.7))*0.96/1000
Lead [c]	4 Days	EXP(1.273*(LN(Hardness))-4.705)*((1.46203-((LN(Hardness)*(0.145712)))))/1000
	1 Hour	EXP(1.273*(LN(Hardness))-1.46)*((1.46203-((LN(Hardness)*(0.145712)))))/1000
Nickel [d]	4 Days	(EXP(0.846*(LN(Hardness))+0.0584))*0.997/1000
	1 Hour	(EXP(0.846*(LN(Hardness))+2.255))*0.998/1000
Zinc [e]	4 Days	(EXP(0.8473*(LN(Hardness))+0.884))*0.986/1000
	1 Hour	(EXP(0.8473*(LN(Hardness))+0.884))*0.978/1000

8. Short-term exposure = 0.033 mg/L; Long-term exposure = 0.015 mg/L

- Exceedance of MWQSOG
- Laboratory Detection Limit exceeds MWQSOG

TABLE 7
VEGETATION SPECIES LIST

Species		Ranking			Protection		
Common Name	Latin Name	Global	National	Provincial	*The Endangered Species and Ecosystems Act*	*Species At Risk Act*	COSEWIC
Trees							
Balsam fir	*Abies balsamea*	G5	N5	S5	-	-	-
Balsam poplar	*Populus balsamifera*	G5T5	N5	S5	-	-	-
Black spruce	*Picea mariana*	G5	N5	S5	-	-	-
Paper (white) birch	*Betula papyrifera*	G5	N5	S5	-	-	-
Tamarak (American larch)	*Larix laricina*	G5	N5	S5	-	-	-
Trembling aspen	*Populus tremuloides*	G5	N5	S5	-	-	-
Shrubs							
Bog birch	*Betula glandulosa*	G5	N5	S5	-	-	-
Bog rosemary	*Andromeda polifolia*	G5	N5	S5	-	-	-
Common Labrador tea	*Rhododendron groenlandicum*	G5	N5	S5	-	-	-
Creeping snowberry	*Gaultheria hispidula*	G5	N5	S4S5	-	-	-
Green alder	*Alnus viridis*	G5	N5	S5	-	-	-
Late lowbush blueberry	*Vaccinium angustifolium*	G5	N5	S4	-	-	-
Leather leaf	*Chamaedaphne calyculata*	G5	N5	S5	-	-	-
Mountain cranberry (lignonberry)	*Vaccinium vitis-idaea*	G5	N5	S5	-	-	-
Pale (Bog) laurel	*Kalmia polifolia*	G5	N5	S5	-	-	-
Red-osier dogwood	*Cornus sericea*	G5T5	N5	S5	-	-	-
Velvetleaf blueberry	*Vaccinium myrtilloides*	G5	N5	S5	-	-	-
Herbaceous							
Bogbean	*Menyanthes trifoliata*	G5	N5	S5	-	-	-
Cloudberry	*Rubus chamaemorus*	G5	N5	S5	-	-	-
Common horsetail	*Equisetum arvense*	G5	N5	S5	-	-	-
Marsh cinquefoil	*Potentilla palustris*	G5	N5	S5	-	-	-
Northern pitcher plant	*Sarracenia purpurea*	G5	N5	S4S5	-	-	-
Small cranberry	*Vaccinium oxycoccos*	G5	N5	S5	-	-	-
Spiked water-milfoil	*Myriophyllum sibiricum*	G5	N5	S5	-	-	-
Three-leaved false Solomon's seal	*Maianthemum trifolium*	G5	N5	S5	-	-	-
Tuberous grass-pink	*Calopogon tuberosus*	G5	N4N5	S2	-	-	-
Graminoid							
Beaked sedge	*Carex rostrata*	G5	N5	S4	-	-	-
Bluejoint	*Calamagrostis canadensis*	G5	N5	S5	-	-	-
Broad-leaved cattail	*Typha latifolia*	G5	N5	S4S5	-	-	-
Mud sedge	*Carex limosa*	G5	N5	S5	-	-	-
Narrowleaf cotton-grass	*Eriophorum angustifolium*	G5	N5	S5	-	-	-
Northern bog sedge	*Carex gynocrates*	G5	N5	S5	-	-	-
Tall cotton-grass	*Eriophorum angustifolium*	G5	N5	S5	-	-	-
Three-seeded Sedge	*Carex trisperma*	G5T5	N5	S4S5	-	-	-
Water sedge	*Carex aquatilis*	G5	N5	S5	-	-	-
Woolgrass bulrush	*Scirpus atrovirens*	G5	N5	SU	-	-	-
Non-Vascular Plant Species							
Beard lichen	*Usnea spp.*	G5	N5	SNR	-	-	-
Gray reindeer lichen	*Cladonia rangiferina*	G5	N5	S5	-	-	-
Knight's-plume moss	*Ptilium crista-castrensis*	G5	N5	S4S5	-	-	-
Peat moss	*Sphagnum sp.*	G5	N5	S5	-	-	-
Red-stemmed feather moss	*Pleurozium schreberi*	G5	N5	S4S5	-	-	-

Notes:

Provincial Status (S-Rank) and National Statis (N-Rank) : S1/N1 = Critically Imperiled, S2/N2 = Imperiled, S3/N3 = Vulnerable, S4/N4 = Apparently Secure, S5/N5 = Secure, S#S#/G#G# indicates range of uncertainty in status

Global Status (G-rank): G1= Critically Imperiled, G2= Imperiled, G3= Vulnerable, G4= Apparently Secure, G5= Secure, G#G# indicates range of uncertainty in status

Status modifiers: U = unrankable, SNR - status not yet assessed, T - interspecific taxon

"-" = Species Not Listed

TABLE 8
WILDLIFE SPECIES LIST

Species		Ranking			Protection		
Common Name	Latin Name	Global	National	Provincial	*The Endangered Species and Ecosystems Act*	*Species At Risk Act*	COSEWIC
Amphibians							
Boreal Chorus Frog	*Pseudacris maculata*	G5	N5	S5	-	-	-
Gray Treefrog	*Hyla versicolor*	G5	N5	S4S5	-	-	-
Spring Peeper	*Pseudacris crucifer*	G5	N5	S5	-	-	-
Mammals							
American Beaver	*Castor canadensis*	G5	N5	S5	-	-	-
American Black Bear	*Ursus americanus*	G5	N5	S5	-	-	-
Bobcat	*Lynx rufus*	G5	N5	S3	-	-	-
Common Muskrat	*Ondatra zibethicus*	G5	N5	S5	-	-	-
Gray Wolf	*Canus lupus*	G5	N5	S5	-	-	-
Moose	*Alces americanus*	G5	N5	S5	-	-	-
Red Squirrel	*Tamiasciurus hudsonicus*	G5	N5	S5	-	-	-
White-tailed deer	*Odocoileus virginianus*	G5	N5	S5	-	-	-
Avian							
Alder Flycatcher	*Empidonax alnorum*	G5	N5B,N5M	S5B	-	-	-
American Crow	*Corvus brachyrhynchos*	G5	N5B,N5N,N5M	S5B,SUN	-	-	-
American Goldfinch	*Spinus tristis*	G5	N5B,N5N,N5M	S5B	-	-	-
American Redstart	*Setophaga ruticilla*	G5	N5B,N5M	S5B	-	-	-
American Robin	*Turdus migratorius*	G5	N5B,N4N5N,N5M	S5B	-	-	-
American Woodcock	*Scolopax minor*	G5	N5B,N5M	S4B	-	-	-
Black and White Warbler	*Mniotilta varia*	G5	N5B,N5M	S5B	-	-	-
Blue Jay	*Cyanocitta cristata*	G5	N5B,N5N,NNRM	S5	-	-	-
Boreal Owl	*Aegolius funereus*	G5	N5B,N5N,NUM	S4	-	-	-
Broad-winged Hawk	*Buteo platypterus*	G5	N5B,N5M	S5B	-	-	-
Canada Goose	*Branta canadensis*	G5	N5B,N5N,N5M	S5B	-	-	-
Cedar Waxwing	*Bombycilla cedrorum*	G5	N5B,N5N,N5M	S5B,SUN	-	-	-
Chestnut-sided Warbler	*Setophaga pensylvanica*	G5	N5B,N5M	S5B	-	-	-
Chipping Sparrow	*Spizella passerina*	G5	N5B,N5M	S5B	-	-	-
Clay-colored Sparrow	*Spizella pallida*	G5	N5B,N5M	S5B	-	-	-
Common Nighthawk	*Chordeiles minor*	G5	N4B,N3M	S2S3B	Threatened	Special Concern	Special Concern
Common Raven	*Corvus corax*	G5	N5	S5	-	-	-
Common Yellowthroat	*Geothlypis trichas*	G5	N5B,N5M	S5B	-	-	-
Connecticut Warbler	*Oporornis agilis*	G4G5	N5B,N4N5M	S4B	-	-	-
Dark-eyed Junco	*Junco hyemalis*	G5	N5B,N5N,N5M	S5B,SUN	-	-	-
Eastern Whip-poor-will	*Antrostomus vociferus*	G5	N4B,N3M	S2S3B	Threatened	Threatened	Special Concern
Gray Jay	*Perisoreus canadensis*	G5	N5B,N5N,NUM	S5	-	-	-
Great Blue Heron	*Ardea herodias*	G5	N5B,N3N,N5M	S5B	-	-	-
Greater Yellowlegs	*Tringa melanoleuca*	G5	N5B,N4N,N5M	S5B,SUM	-	-	-
Golden-crowned Kinglet	*Regulus satrapa*	G5	N5B,N5N,N5M	S4B	-	-	-
Hairy Woodpecker	*Picoides villosus*	G5	N5B,N5N,NUM	S5	-	-	-
Hermit Thrush	*Catharus guttatus*	G5	N5B,NUN,N5M	S5B	-	-	-
House Wren	*Troglodytes aedon*	G5	N5B,N5M	S5B	-	-	-
Lincoln's Sparrow	*Melospiza lincolnii*	G5	N5B,N5N,N5M	S5B	-	-	-
Mallard	*Anas platyrhynchos*	G5	N5B,N5N,N5M	S5B	-	-	-
Marsh Wren	*Cistothorus palustris*	G5	N5B,N5N,N5M	S5B	-	-	-
Mourning Dove	*Zenaida macroura*	G5	N5B,N5N,N5M	S4B	-	-	-
Nashville Warbler	*Oreothlypis ruficapilla*	G5	N5B,N5M	S5B	-	-	-
Olive-sided Flycatcher	*Contopus cooperi*	G4	N4B,N3M	S2S3B	Threatened	Threatened	Special Concern
Ovenbird	*Seiurus aurocapilla*	G5	N5B,N5M	S5B	-	-	-
Pileated Woodpecker	*Dryocopus pileatus*	G5	N5	S5	-	-	-
Red-eyed Vireo	*Vireo olivaceus*	G5	N5B,N5N,N5M	S5B	-	-	-
Ruby-crowned Kinglet	*Regulus calendula*	G5	N5B,N5N,N5M	S5B	-	-	-

Species		Ranking			Protection		
Common Name	Latin Name	Global	National	Provincial	*The Endangered Species and Ecosystems Act*	*Species At Risk Act*	COSEWIC
Sandhill Crane	*Grus canadensis*	G5	N5B,N1N,N5M	S5B	-	-	-
Song Sparrow	*Melospiza melodia*	G5	N5B,N5N,N5M	S5B	-	-	-
Spruce Grouse	*Falcipennis canadensis*	G5	N5	S4	-	-	-
Swamp Sparrow	*Melospiza georgiana*	G5	N5B,NUN,N5M	S5B	-	-	-
Veery	*Catharus fuscescens*	G5	N5B,N5M	S5B	-	-	-
White-throated Sparrow	*Zonotrichia albicollis*	G5	N5B,N5N,N5M	S5B	-	-	-
Winter Wren	*Troglodytes hiemalis*	G5	N5B,N5M	S5B	-	-	-
Wilson's Snipe	*Gallinago delicata*	G5	N5B,N5M	S5B	-	-	-
Yellow Warbler	*Setoophaga petechia*	G5	N5B,N5M	S5B	-	-	-
Yellow-rumped Warbler	*Setophaga coronata*	G5	N5B,N4N,N5M	S5B	-	-	-

Notes:

Provincial Status (S-Rank) and National Statis (N-Rank): S1/N1 = Critically Imperiled, S2/N2 = Imperiled, S3/N3 = Vulnerable, S4/N4 = Apparently Secure, S5/N5 = Secure, SNA = Conservation status not applicable, S#S#/G#G# indicates range of uncertainty in status

Global Status (G-rank): G1= Critically Imperiled, G2= Imperiled, G3= Vulnerable, G4= Apparently Secure, G5= Secure, G#G# indicates range of uncertainty in status

Status modifiers: For a migratory species B = rank applies to the breeding population in the province, N = rank applies to the non-breeding population in the province, M = rank applies to the transient population, U = unrankable, T - Infraspecific taxon

"-" = Species Not Listed

TABLE 11
CATEGORIES OF ADVERSE BIOPHYSICAL, SOCIO-ECONOMIC AND CULTURAL EFFECTS

Adversity Category	Biophysical	Socio-Economic	Physical and Cultural Heritage
Negligible	Effect on the population or a specific group of individuals at a local project area and/or over a short period in such a way as to be similar to small random changes in the population due to environmental irregularities but having no measurable effect on the population as a whole.	Effect of either very short duration or affects a small group of people or which occurs in the local project area in a manner similar to small random changes to extraneous irregularities, but having no measurable effect on the population as a whole.	Effect on physical and cultural heritage resources of short duration and in the local project area. The effect on physical and cultural resources is not detectable. The resources are not publicly recognized or protected by legislation.
Minor	Effect on a specific group of individuals in a population in the project area and/or over a short period (one generation or less), but not affecting other trophic levels or the integrity of the population itself.	Effect either of short-term duration or affects a specific group of people in the local project area but not necessarily affecting the integrity of the entire group itself.	Effect on physical and cultural heritage resources of short duration but over the adjacent local area. The effect on physical and cultural resources is minor or repairable. The resources are publicly recognized but not protected by legislation.
Moderate	Effect on a portion of a population that results in a change in abundance and/or distribution over one or more generations of that portion of the population or any population dependent upon it, but does not change the integrity of any population as a whole. The effect may be localized.	Effect either of medium-term duration (which affects one or two generations and/or the portion of the population dependent upon it) or affects a moderate portion of the population without affecting the integrity of the population as a whole.	Effects on physical and cultural heritage resources of moderate duration. Resources affected over the adjacent local area. The effect on physical and cultural resources is reversible. The resources are protected by legislation.
Major	Effect on a whole stock or population of a species in sufficient magnitude to cause a decline in abundance and/or change in distribution beyond which natural recruitment would not return that population or species dependent upon it, to its former level within several generations.	Effect either of long duration (lasting several generations) or affecting an entire definable group of people in sufficient magnitude to cause severe change in economic, physical or psychological well-being or long established activity patterns that would not return to pre-project levels or patterns within several generations.	Effect on physical and cultural heritage resources of long duration. Resources affected over large regional area. There is an irreversible effect on physical/cultural resources. The resources are protected by legislation.

TABLE 12
CRITERIA AND RATINGS FOR EVALUATING SIGNIFICANCE

Criteria	Rating		
	1	2	3
a) **Societal value of the affected environmental components** – includes nature and degree of protection provided	Not valuable (no designation)	Moderately valuable (designated or protected locally, regionally or provincially)	Highly valuable (designated or protected nationally or internationally)
b) **Ecological value** – includes rarity and uniqueness, fragility, importance within ecosystem, importance to scientific studies	Not valuable	Moderately valuable	Highly valuable
c) **Duration** – length of time the project activity will last	Short-term (less than 1 year)	Moderate (between 1 and 100 years)	Long-term (more than 100 years)
d) **Frequency** – rate of reoccurrence of the project activity causing the effect	Rarely (less than once per year)	Sporadically (less than once per month)	Frequently (more than once per week)
e) **Geographic extent** – area over which the effect will occur	Single point	Localized	Regional or greater
f) **Magnitude** – predicted disturbance compared to existing conditions	No measurable disturbance	Measurable disturbance but no loss of function	Measurable disturbance with loss of function
g) **Reversibility** – time the environmental component will take to recover after the source of the effect ceases	Less than a year	Between 1 and 100 years	Irreversible

TABLE 13
ESTIMATED GREENHOUSE GAS EMISSIONS

Production Year	Area (ha)				Area (km^2)		Annual GHG from Land Use Change (tonne - CO^2 equivalent)		
	Opened	Closed	Harvesting	Total Disturbed	Harvesting	Cumulative Restoration (1)	Harvesting Activities (2)	Restoration Activities (3)	Total
2026	80	0	80	80	0.8	0	849	0	849
2027	80	0	160	160	1.6	0	1698	0	1698
2028	80	0	240	240	2.4	0	2546	0	2546
2029	80	0	320	320	3.2	0	3395	0	3395
2030	80	0	400	400	4.0	0	4244	0	4244
2031	80	0	480	480	4.8	0	5093	0	5093
2032	80	0	560	560	5.6	0	5942	0	5942
2033	80	0	640	640	6.4	0	6790	0	6790
2034	80	0	720	720	7.2	0	7639	0	7639
2035	30	0	750	750	7.5	0	7958	0	7958
2036	0	0	750	750	7.5	0	7958	0	7958
2037	0	0	750	750	7.5	0	7958	0	7958
2038	0	0	750	750	7.5	0	7958	0	7958
2039	0	0	750	750	7.5	0	7958	0	7958
2040	0	0	750	750	7.5	0	7958	0	7958
2041	0	0	750	750	7.5	0	7958	0	7958
2042	0	0	750	750	7.5	0	7958	0	7958
2043	0	0	750	750	7.5	0	7958	0	7958
2044	0	0	750	750	7.5	0	7958	0	7958
2045	0	0	750	750	7.5	0	7958	0	7958
2046	0	0	750	750	7.5	0	7958	0	7958
2047	0	0	750	750	7.5	0	7958	0	7958
2048	0	0	750	750	7.5	0	7958	0	7958
2049	0	0	750	750	7.5	0	7958	0	7958
2050	0	0	750	750	7.5	0	7958	0	7958
2051	0	0	750	750	7.5	0	7958	0	7958
2052	0	0	750	750	7.5	0	7958	0	7958
2053	0	25	725	750	7.25	0.25	7692	322	8014
2054	0	160	565	750	5.65	1.85	5995	2383	8377
2055	0	110	455	750	4.55	2.95	4828	3800	8627
2056	0	80	375	750	3.75	3.75	3979	4830	8809
2057	0	80	295	750	2.95	4.55	3130	5860	8990
2058	0	40	255	750	2.55	4.7	2706	6054	8759
2059	0	0	255	750	2.55	3.1	2706	3993	6698
2060	0	40	215	750	2.15	2.4	2281	3091	5372
2061	0	80	135	750	1.35	2.4	1432	3091	4524
2062	0	80	55	750	0.55	2.4	584	3091	3675
2063	0	55	0	750	0	2.55	0	3284	3284
2064	0	0	0	750	0	2.55	0	3284	3284
2065	0	0	0	750	0	2.15	0	2769	2769
2066	0	0	0	750	0	1.35	0	1739	1739
2067	0	0	0	750	0	0.55	0	708	708
2068	0	0	0	750	0	0	0	0	0
Totals							**216,762**	**48,300**	**265,062**

Notes:

1 - Assumes that a restored field returns to net neutral GHG flux 6 years after restoration (i.e., 5 years cumulative area)

2 - Calculated using the Cleary et. al. (2005) GHG Flux for Peatland Under Extraction of 1061 t / km^2 / yr

3 - Calculated using the Cleary et. al. (2005) GHG Flux for Cutover Peatland Under Restoration of 1288 t / km^2 / yr

TABLE 14
ENVIRONMENTAL EFFECTS ANALYSIS SUMMARY FOR THE PROPOSED PEAT DEVELOPMENT

Environmental Effect	Adversity (Table 10)	Mitigation Measures	Follow-up	Significance (S)* (see Table 11)							
				a	b	c	d	e	f	g	S
Microclimate											
Changes in airflow, wind speed and snow deposition pattern	Minor	Install snow fences to control snow deposition on the property if required	Observe for changes in airflow patterns and snow deposition periodically	1	2	2	2	2	2	2	N
Air Quality											
Increased fugitive dust from site preparation, construction, operation and reclamation activities	Moderate	Use approved dust suppressant Minimize peat handling activities during high wind events Reduce exposed peat area (harvesting fields and peat stockpiles) to prevailing winds Control vehicle speeds Instruct employees on proper harvest equipment operation to minimize dust Cover loads being hauled from the site Re-vegetate harvested areas Utilize windbreaks (tree and brush barriers)	Observe site periodically for fugitive dust levels Perform inspections of local area for accumulated dust Track public complaints	2	1	2	3	2	2	1	N
Increased levels of NO_x, SO_2, GHGs and VOCs from equipment/vehicle emissions during site preparation, peat harvesting and transporting activities, construction materials and fuel use	Minor	Use low sulphur fuels Require a high standard of maintenance of equipment and vehicles Limit unnecessary long-term idling Use appropriate fuel dispensing equipment	Perform periodic observations of air quality during construction Record maintenance of heavy equipment Require submission of SDSs for all products used	2	1	2	3	2	2	1	N
Increased releases of GHGs into the atmosphere from clearing and peat-harvesting activities	Minor	Minimize the areas cleared Implement the Peatland Recovery Plan to restore the area to a carbon sink condition	Adhere to licence terms and conditions	3	1	2	3	2	1	2	N

Table 14 Cont'd

Environmental Effect	Adversity (Table 10)	Mitigation Measures	Follow-up	Significance (S)* (see Table 11)							
				a	b	c	d	e	f	g	S
Soils											
Loss and disturbance of surface soil during site preparation and harvesting activities	Major	Minimize the surface area disturbed Leave non-commercial peat reserves in place Implement the Peatland Recovery Plan to restore the area to natural conditions	Monitor annually and report on implementation of progressive restoration activities	1	2	2	3	2	3	3	N
Contamination of soils from leaks and accidental spills and releases of fuel or other hazardous substances during site preparation and harvesting activities	Moderate	Prevent leaks, spills and releases Comply with fuel storage and dispensing regulations and storing hazardous materials in approved containers (secondary containment) Require drip trays for equipment Designate re-fueling areas Ensure equipment arrives to site in good condition Provide spill clean-up equipment and materials Provide an emergency spill response plan	Perform periodic inspections for leaks, spills and releases Ensure construction and operation crews adhere to designated areas Remediate and record fuel spills and releases Update the emergency spill response plan periodically Adhere to licence terms and conditions	3	1	2	1	1	2	1	N
Groundwater											
Contamination of groundwater from leaks and accidental spills and releases of fuels or other hazardous substances during site preparation and harvesting activities	Minor	Prevent leaks, spills and releases Comply with fuel storage and dispensing regulations and storing hazardous materials in approved containers (secondary containment) Require drip trays for equipment Provide spill clean-up equipment and materials Provide an emergency spill response plan	Perform periodic inspections for leaks, spills and releases Remediate and record fuel spills and releases Update emergency response plan periodically Adhere to licence terms and conditions	3	1	2	1	1	1	2	N

Table 14 Cont'd

Environmental Effect	Adversity (Table 10)	Mitigation Measures	Follow-up	Significance (S)* (see Table 11)							
				a	b	c	d	e	f	g	S
Surface Water											
Loss of small intermittent ponds and drainage swales due to site drainage for peat harvesting operations	Moderate	Minimize the area disturbed Maintain water levels on adjacent undisturbed lands Implement the Peatland Recovery Plan to restore pre-development water levels	Perform periodic inspections of surface waters Report annually on implementation of the restoration activities	1	2	2	3	2	3	1	N
Modified surface water runoff flow rate due to site drainage and land profiling activities during construction and operation	Minor	Installation of a gated outlet control discharge pipe to limit outflow from the peat development if necessary during downstream flooding	Monitor outlet pipe to ensure proper operation Monitor discharge flow rates from peat development according to licence terms and conditions	2	1	2	3	2	2	1	N
Increased suspended sediment levels in surface water during construction and operation	Minor	Install gated culvert to control water discharge and manage suspended sediment if required	Collect surface water samples from the outlet monthly for analysis of suspended sediment levels Conduct additional water monitoring if required in consultation with Manitoba Clean drainage ditches and sedimentation ponds on a regular basis Perform periodic inspections for evidence of erosion Adhere to licence terms and conditions	3	2	2	3	2	2	1	N
Alteration of surface water chemistry of downstream receiving waters during construction and operation	Minor	Install gated culvert to control water discharge If necessary, install a limestone or carbonate-lined drainage ditch to increase pH of draining bog water	Collect surface water samples from the outlet monthly for pH analysis Conduct additional water monitoring if required in consultation with Manitoba	3	2	2	3	2	1	1	N

Table 14 Cont'd

Environmental Effect	Adversity (Table 10)	Mitigation Measures	Follow-up	Significance (S)* (see Table 11)							
				a	b	c	d	e	f	g	S
Contamination of surface water from leaks and accidental spills and releases of fuels or other hazardous substances during construction and operation	Moderate	Prevent leaks, spills and releases Comply with fuel storage and dispensing regulations and storing hazardous materials in approved containers (secondary containment) Require drip trays for equipment Provide spill clean-up equipment and materials Prepare an emergency spill response plan	Perform periodic inspections for leaks, spills and releases Remediate and record fuel spills and releases Update the emergency response plan periodically Adhere to licence terms and conditions	3	2	2	1	1	2	2	N
Vegetation											
Loss and disturbance of terrestrial vegetation during site preparation and construction	Moderate	Minimize loss and disturbance of vegetation Protect vegetation along the perimeter of the cleared areas from blow-down Limit construction activities to designated areas Utilize timber removed from site Re-vegetate disturbed or reclaimed areas	Perform periodic inspections for vegetation stress and mortality around the cleared area Perform periodic inspections for invasion of nuisance or weed species Report annually on restoration activities implemented	1	2	2	3	2	2	2	N
Impairment of vegetation from dust accumulation during construction and operation	Minor	Control dust using approved suppressant Curtail construction and operation during high wind events	Perform periodic inspections of local area for accumulated dust	1	2	2	2	2	1	1	N
Risk of fire during construction and operation	Major	Adhere to fire response procedures Provide fire suppression equipment on-site (extinguishers, shovels, hose, pumping equipment, etc.) Notify Manitoba Environment and Climate Change immediately if a fire or explosion occurs	Examine firefighting equipment in accordance with the fire response procedure Conduct periodic testing, evaluation and updating of the emergency preparedness plan Provide employee education and training in the use of this equipment regularly	2	3	1	1	3	2	2	N

Table 14 Cont'd

Environmental Effect	Adversity (Table 10)	Mitigation Measures	Follow-up	Significance (S)* (see Table 11)							
				a	b	c	d	e	f	g	S
Mammals / Habitat											
Loss and disturbance of mammal habitat during site preparation activities	Minor	Minimize loss and disturbance to vegetation Limit construction to area designated Limit operation activities to areas disturbed during construction Re-vegetate disturbed or reclaimed areas	Perform periodic inspections during construction and operation Maintain re-vegetated areas Ensure adherence to environmental guidelines and protocols	1	2	2	2	2	2	2	N
Loss and disturbance of large, small and burrowing mammals during construction and operation activities	Minor	Minimize the area of disturbance by limiting construction to designated areas Limit operation activities to areas disturbed during construction Maintain habitat around the sub-area Implement the Peatland Recovery Plan to restore wildlife habitat	Adhere to licence terms and conditions Maintain re-vegetated areas	1	2	2	3	2	2	2	N
Increased wildlife-vehicle interactions during peat transportation	Minor	Operate trucks during daylight hours Provide wildlife awareness information to drivers Adhere to posted speed limits	Maintain records of vehicle-wildlife interactions	1	1	2	3	3	1	2	N
Attraction of problem or nuisance animals	Minor	Regular disposal of waste at existing waste facilities Use animal deterrents such as noisemakers, reflectors and scents if required	Maintain records of problem or nuisance wildlife Adhere to licence terms and conditions	1	1	2	3	2	1	1	N
Birds / Habitat											
Loss and disturbance of bird habitat during site preparation activities	Moderate	Minimize loss and disturbance of vegetation Complete tree clearing in the winter in accordance with the *Migratory Birds Convention Act* (outside of critical nesting and rearing periods of April 14 to August 28) Limit construction to designated areas Limit operation activities to areas disturbed	Perform periodic inspections during construction and operation for signs of potential effects Maintain buffer zones Maintain re-vegetated areas Ensure adherence to environmental guidelines and protocols	1	2	2	3	2	1	1	N

Table 14 Cont'd

Environmental Effect	Adversity (Table 10)	Mitigation Measures	Follow-up	Significance (S)* (see Table 11)							
				a	b	c	d	e	f	g	S
		during construction Maintain 100 m buffer zone around sub-area boundaries Re-vegetate disturbed or reclaimed areas during and after operation									
Disturbance of migratory and other bird nesting during construction and operation activities from equipment noise and vibration	Minor	Locate peat harvesting components away from critical migratory bird habitat Schedule construction activities outside of critical nesting and rearing periods Maintain 100 m buffer zones around sub-area boundaries	Adhere to licence terms and conditions	1	2	2	2	2	1	2	N
Aquatic Biota / Habitat											
Disturbance to aquatic biota and habitat due to elevated levels of suspended sediment in peatland drainage water	Minor	Install gated culvert to control water discharge if needed to manage suspended sediment	Perform periodic inspections of outlet ditch for debris Clean drainage ditches on a regular basis Monitor water discharge on a monthly basis	3	2	2	3	2	1	1	N
Amphibians and Reptiles / Habitat											
Loss and disturbance to amphibians and reptiles and their habitat	Minor	Minimize the area of disturbance by limiting construction to designated areas Limit operation activities to areas disturbed during construction	None proposed	1	2	2	2	2	1	2	N
Economic Conditions											
Creation of employment and introduction of money to the regional economy	Positive	None proposed	None proposed	3	1	2	3	3	1	2	N

Table 14 Cont'd

Environmental Effect	Adversity (Table 10)	Mitigation Measures	Follow-up	Significance (S)* (see Table 11)							
				a	b	c	d	e	f	g	S
Business Opportunities											
Creation of jobs and contracts for construction and operation requirements	Positive	None proposed	None proposed	3	1	2	2	3	1	2	N
Traffic											
Traffic may cause dust, result in increased road maintenance and increase the number of vehicle accidents and vehicle-wildlife interactions	Moderate	Utilize dust control on the access road Reduce the number of vehicles traveling during high wind events Reduce speed and follow posted limits Only travel during daylight hours Provide wildlife information to drivers	Monitor the number of vehicles traveling associated with peat harvesting operation Record public complaints and vehicle accidents Consider further action as warranted	2	1	2	3	3	2	1	N
Noise and Vibration											
Increased noise and vibration in the regional area and on highways	Minor	Muffle vehicles and equipment Limit unnecessary long-term idling Require a high standard of maintenance for heavy equipment	Monitoring and periodically tracking noise levels and public complaints	2	1	2	3	2	2	1	N
Human Health											
Risk of adverse effects on public attitude and general health and well-being due noise, vibrations and dust generated	Moderate	Utilize dust control methods Reduce number of vehicles travelling during high wind events Drive according to road conditions Adhere to posted speed limits Operate transport trucks only during daylight hours	Monitor dust levels Track public complaints Consider further action as warranted	3	1	2	3	2	2	1	N
Risk of effects to worker health associated with poor indoor air quality from VOCs, carbon monoxide, propane gas and dust	Minor	Provide adequate ventilation Ensure a high standard of equipment maintenance	Conduct regular maintenance of equipment	3	1	2	3	3	2	1	N

Table 14 Cont'd

Environmental Effect	Adversity (Table 10)	Mitigation Measures	Follow-up	Significance (S)* (see Table 11)							
				a	b	c	d	e	f	g	S
Potential threat to public and worker safety during construction and operation activities	Public - Negligible and Worker - Minor	Locked gate signed with no trespassing Compliance with Manitoba Workplace Safety and Health regulations Develop and enforce standard operation procedure guidelines Provide training to employees Ensure visitors have reported in and are accompanied by an employee	Record occurrence of workplace accidents/incidents Update employee training and safety guidelines as required	3	1	2	3	2	2	1	N
Aesthetic Values											
Impaired aesthetic during peat harvesting from transport trucks and dust	Minor	Utilize dust control methods and cover loads during transport to and from the site Re-vegetate the peat fields in accordance with the Peatland Recovery Plan	Observe dust and debris levels Record public complaints	2	1	2	3	2	2	1	N
Aboriginal and Treaty Rights											
Reduced access to lands for practicing traditional harvesting activities such as hunting, trapping and gathering of plants	Moderate	Minimize area cleared Re-store site to pre-harvest conditions (peat-accumulating bog) once harvesting is complete Maintain buffer zones around sub-area boundary Additional mitigation measures will be considered, if warranted, and based on ongoing communication with First Nation communities that may use the area for Aboriginal and Treaty rights	Adhere to licence terms and conditions	3	1	2	3	2	2	2	N
Reduction of traditional resources available for hunting, trapping and other traditional harvesting practices	Minor	<u>Follow mitigation measures identified for vegetation, mammals, birds, such as:</u> Minimize loss and disturbance of vegetation Protect vegetation along the perimeter of the	Ensure adherence to environmental guidelines and protocols Adhere to licence terms and conditions	3	1	2	3	2	1	2	N

Table 14 Cont'd

Environmental Effect	Adversity (Table 10)	Mitigation Measures	Follow-up	Significance (S)* (see Table 11)							
				a	b	c	d	e	f	g	S
		cleared areas from blow-down Limit construction activities to designated areas Maintain habitat around the sub-area Maintain 100 m buffer zone around sub-area boundaries Re-vegetate harvest area to natural conditions Maintain ongoing communications with First Nation communities with respect to use of the area for Aboriginal and Treaty rights	Maintain re-vegetated areas and buffer zones								
Recreation / Tourism											
Truck traffic and resulting dust could cause decline in tourism to nearby recreational areas	Minor	Utilize dust control methods Cover loads during transport to/from the site Reduce number of vehicles travelling during high wind events Drive according to road conditions Adhere to posted speed limits Operate transport trucks only during daylight hours	Track public complaints	2	1	2	2	3	2	1	N
Areas of Interest											
Disturbance and alteration to the Moose Creek Provincial Forest and WMA, and hunting and trapping activity	Minor	Limit construction activities to designated areas Protect adjacent trees from blow-down Re-use timber from clearing	Periodically inspect the site for signs of potential disturbances Ensure construction crews adhere to designated areas	3	1	2	3	2	2	2	N
Heritage Resources											
Impact to heritage sites within the sub-area	Minor	Prepare a Heritage Resource Protection Plan that describes actions to be taken in the event heritage resources are encountered	Follow actions identified in the Heritage Resource Protection Plan	2	1	2	1	2	1	3	N

Table 14 Cont'd

Environmental Effect	Adversity (Table 10)	Mitigation Measures	Follow-up	Significance (S)* (see Table 11)							
				a	b	c	d	e	f	g	S
Fires and Explosions											
Potential for fires and explosions from spontaneous combustion, lightning strikes, equipment malfunctions, improper handing and storage of hazardous materials, as well as various construction and operation activities	Major	Complying with applicable provincial and municipal legislation, codes and guidelines Maintaining the First Responders Committee Providing and testing fire suppression equipment on-site Preparing, exercising and implementing an emergency response plan that includes peat fire response procedures Notify Manitoba Environment and Climate Change immediately if a fire or explosion occurs	Adhering to licence terms and conditions Regular inspections for fire risk Routine examination of fire suppression equipment Periodic testing and evaluation of the fire response procedures	2	2	2	1	3	2	2	N
Transportation Accidents											
Risk of vehicular accidents during construction activities and transporting peat	Moderate	Following safe transportation routes Adhering to speed restrictions and signage Compliance with applicable provincial and municipal legislation Preparing, exercising and implementing an emergency spill response plan that includes transportation accident prevention and response	Adhering to licence terms and conditions Periodic testing and evaluation of the emergency response plan Ensuring that dangerous goods carriers are licensed Inspecting all shipments for compliance with regulatory requirements	2	1	2	3	1	1	3	N

* S = significance

Y = significant - rated a "3" for at least four criteria, at least one of which must be criteria a or b; or rated "2" or "3" for all criteria

N = not significant

TABLE 15
MITIGATION MEASURES SUMMARY FOR THE PROPOSED PEAT DEVELOPMENT

Mitigation Measures	Design	Proposed	Regulatory	Management
Microclimate				
Install snow fences to control snow deposition on the property if required		●		
Air Quality				
Use an approved dust suppressant and control vehicle speed		●		●
Limit peat handling activities during high wind events				●
Orient peat harvesting and stockpiles with prevailing winds	●	●		
Instruct employees on proper equipment operation to minimize dust				●
Cover loads being hauled		●		
Re-establish vegetation on disturbed areas		●		
Utilize windbreaks (tree and brush barriers)	●	●		
Require a high standard of maintenance for construction equipment and vehicles, use low sulphur-containing fuels and limit unnecessary idling				●
Use appropriate fuel dispensing equipment			●	●
Minimize the area cleared	●			
Implement the Peatland Recovery Plan that addresses greenhouse gas emissions		●		●
Soils				
Minimize the surface area disturbed	●			
Leave non-commercial peat reserves in place	●			●
Implement the Peatland Recovery Plan to restore the area to natural conditions			●	●
Prevent leaks, spills and releases	●			
Comply with provincial fuel storage and dispensing regulations and storing hazardous materials in approved containers (secondary containment)			●	●
Provide drip trays for equipment and spill clean-up equipment and materials	●			●
Designate refueling areas	●			●
Ensure equipment arrives to site in good condition				●
Prepare an emergency (spill) response plan		●		●
Groundwater				
Prevent leaks, spills and releases	●			
Comply with provincial fuel storage and dispensing regulations and storing hazardous materials in approved containers (secondary containment)			●	
Provide drip trays for equipment and spill clean-up equipment and materials	●			●
Preparing an emergency (spill) response plan		●		●

Mitigation Measures	Design	Proposed	Regulatory	Management
Surface Water				
Limit surface area disturbance	●			
Maintain water levels on undisturbed areas		●		●
Implement the Peatland Recovery Plan to restore pre-harvesting water levels			●	●
Install a gated outlet control pipe to limit outflow from the peat development if necessary during downstream flooding	●			●
Install gated culvert to control water discharge if needed to manage suspended sediment	●			
If necessary, install a limestone or carbonate-lined drainage ditch to increase pH of draining bog water			●	●
Prevent leaks, spills and releases and provide fuel storage secondary containment	●			●
Comply with provincial fuel storage and dispensing regulations and storing hazardous materials in approved containers (secondary containment)			●	●
Provide drip trays for equipment and spill clean-up equipment and materials	●			●
Prepare an emergency (spill) response plan		●		●
Vegetation				
Minimize vegetation loss or disturbance		●		
Protect vegetation along perimeter from blow-down		●		
Restrict activities to designated areas	●			
Utilizing timber removed from site		●		●
Re-vegetate disturbed and reclaimed areas during and after operation	●			
Use an approved dust suppressant and limit construction activity during high wind events	●	●		●
Adhere to an fire response procedures		●		●
Provide on-site fire suppression equipment		●		●
Notify Manitoba Environment and Climate Change immediately in event of a fire or explosion				●
Mammals / Habitat				
Minimize habitat (vegetation) loss or disturbance		●		
Limit construction to designated areas and operation activities to areas disturbed during construction	●			
Maintain habitat around the sub-area		●		
Implement the Peatland Recovery Plan to revegetate disturbed areas after harvesting is complete	●		●	●
Transport peat during daylight hours, post signs to warn and educate drivers to avoid wildlife on the highway and adhere to posted speed limits				●
Provide wildlife awareness information to drivers	●			●
Regular disposal of waste at existing waste facilities		●		
Animal deterrents such as noise makers, reflectors and scents if required		●		

Mitigation Measures	Design	Proposed	Regulatory	Management
Birds / Habitat				
Minimize habitat (vegetation) loss or disturbance		●		
Complete tree clearing in the winter in accordance with the *Migratory Birds Convention Act* (outside of critical nesting and rearing periods of April 14 to August 28)	●		●	●
Limit construction to designated areas and operation activities to areas disturbed during construction	●			
Maintain 100 m buffer zones around sub-area boundary		●		
Locate peat harvesting components away from critical migratory bird habitat	●			
Re-vegetate disturbed or reclaimed areas during and after operation	●		●	●
Aquatic Biota / Habitat				
Install gated culvert to control water discharge if needed to manage suspended sediment	●			
Amphibians and Reptiles / Habitat				
Minimize the area of disturbance by limiting construction to designated areas		●		
Limit operation activities to areas disturbed during construction	●			
Economic Conditions				
No mitigation proposed				
Business Opportunities				
No mitigation proposed				
Traffic				
Road dust control by approved dust suppressant, reducing speed, following posted limits and reducing the number of vehicles during wind events		●		●
Reduce accidents and wildlife interactions by traveling only during daylight hours and providing wildlife information to drivers		●		●
Noise and Vibration				
Require a high standard of maintenance for construction equipment and vehicles, muffle vehicles and equipment and limit unnecessary idling				●
Human Health				
Utilize dust control methods, reduce number of vehicles travelling during high winds, adhere to posted speed limits, drive according to road conditions and operate transport trucks during the day		●	●	●
Provide adequate ventilation in any buildings	●			
Require a high standard equipment maintenance	●			●
Locked gate with no trespassing signs on access road	●			
Comply with Manitoba Workplace Safety and Health regulations			●	●
Provide employee training and develop and enforce standard operation procedure guidelines			●	●
Ensure all visitors have reported in and are accompanied by an employee				●

Mitigation Measures	Design	Proposed	Regulatory	Management
Aesthetic Values				
Utilize dust control methods and cover loads during transport to and from the site		●		
Re-vegetate the harvest areas in accordance with the Peatland Recovery Plan	●			
Aboriginal and Treaty Rights				
Minimize area cleared and disturbed, maintain buffer around sub-area boundary, protect vegetation along the perimeter of the cleared area from blow-down	●	●	●	
Restore site to pre-harvest conditions (peat-accumulating bog) once harvesting is complete		●	●	
Limit construction activities to designated areas		●		
Additional mitigation measures will be considered, if warranted, and based on ongoing communication with First Nation communities that may use the area for Aboriginal and Treaty rights		●		●
Recreation/Tourism				
Limit dust generation by covering loads, reducing vehicle travel during high winds, driving according to road conditions, adhering to posted speed limits and operate transport trucks during daylight hours		●	●	●
Areas of Interest				
Limit construction activities to designated areas, protect adjacent trees from blow-down and re-use timber from clearing	●	●		
Heritage Resources				
Prepare a Heritage Resource Protection Plan that describes actions to be taken in the event heritage resources are encountered			●	●
Fires and Explosions				
Complying with applicable provincial and municipal legislation, codes and guidelines			●	●
Maintaining the First Responder Committee				●
Providing and testing fire suppression equipment on-site			●	●
Preparing , exercising and implementing an emergency response plan that includes peat fire response procedures			●	●
Notify Manitoba Environment and Climate Change immediately if a fire or explosion occurs			●	●
Transportation Accidents				
Following safe transportation routes		●		
Adhering to speed restrictions and signage			●	●
Compliance with applicable provincial and municipal legislation			●	●
Preparing, exercising and implementing an emergency spill response plan that includes transportation accident prevention and response			●	●

TABLE 16
FOLLOW-UP SUMMARY FOR THE PROPOSED PEAT DEVELOPMENT

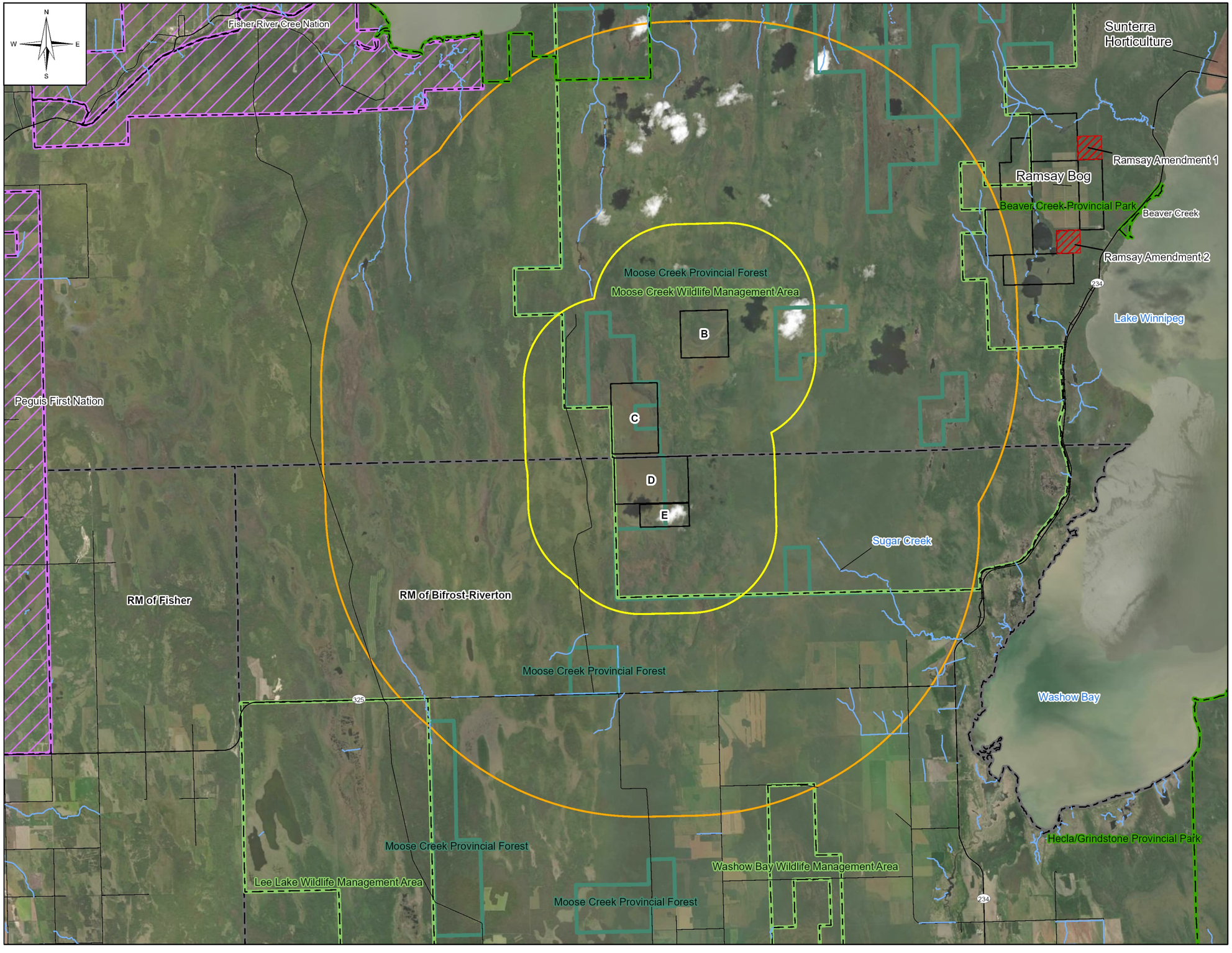
Follow-up	Inspecting	Monitoring	Record Keeping	Reporting
Microclimate				
Periodic observation for changes in airflow and snow deposition patterns	●			
Air Quality				
Observe fugitive dust levels during construction and accumulated dust during operation	●			
Perform periodic inspections of adjacent properties and access roads for dust and debris	●			
Track complaints from local residents			●	
Perform periodic inspections of air quality during construction	●			
Record maintenance of equipment			●	
Require submission of Safety Data Sheets for all products used			●	
Adhere to licence terms and conditions	●			
Soils				
Conduct annual monitoring and report on implementation of the progressive restoration activities		●	●	●
Perform periodic inspections for leaks, spills and releases	●			
Ensure construction and operation crews adhere to designated areas	●			
Remediate and record fuel spills and releases	●		●	●
Update the emergency response plan periodically			●	
Adhere to licence terms and conditions	●			
Groundwater				
Perform periodic inspections for leaks, spills and releases	●			
Remediate and record fuel spills and releases	●		●	●
Update the emergency (spill) response plan periodically			●	
Adhere to licence terms and conditions	●			
Surface Water				
Perform periodic inspections of surface water bodies	●			
Report on implementation of the progressive restoration activities annually	●		●	●
Monitor outlet control pipe to ensure proper operation	●			
Monitor discharge flow rates from the harvest area according to licence terms and conditions		●	●	
During operation collect water samples from the outlet monthly for analysis of suspended sediment and pH		●	●	
Conduct additional water monitoring as developed with Manitoba Environment and Climate Change		●	●	●
Clean drainage ditches and sedimentation pond on a regular basis	●			

Follow-up	Inspecting	Monitoring	Record Keeping	Reporting
Perform periodic inspections for evidence of erosion	●			
Perform periodic inspections for leaks, spills and releases	●			
Remediate and record fuel spills and releases	●		●	●
Update the emergency (spill) response plan periodically			●	
Adhere to licence terms and conditions	●			
Vegetation				
Perform periodic inspections for vegetation stress and mortality around cleared area and invasion of nuisance or weed species	●			
Observe accumulated dust on plants during operation	●			
Examine fire fighting equipment in accordance with the fire response procedure	●		●	
Conduct periodic assessments of fire risk and updates to emergency preparedness plan and fire response			●	
Conduct employee training in the use of this equipment regularly			●	
Mammals / Habitat				
Perform periodic inspections of habitat during construction and operation	●			
Maintain re-vegetated areas and buffer zones	●			
Ensure adherence to environmental guidelines and protocols	●			
Maintain records of vehicle-wildlife interactions			●	
Maintain records of problem or nuisance wildlife situations			●	
Adhere to licence terms and conditions	●			
Birds / Habitat				
Perform periodic inspections of habitat during construction and operation for signs of potential effects	●			
Maintain re-vegetated areas and buffer zones	●			
Ensure adherence to environmental guidelines and protocols	●			
Adhere to licence terms and conditions	●			
Aquatic Biota / Habitat				
Perform periodic inspections of outlet ditch for debris	●			
Clean drainage ditches regularly	●			
Monitor water discharge on a monthly basis		●	●	●
Amphibians and Reptiles / Habitat				
No follow-up proposed				
Economic Conditions				
No follow-up proposed				

Follow-up	Inspecting	Monitoring	Record Keeping	Reporting
Business Opportunities				
No follow-up proposed				
Traffic				
Monitor the number of vehicles travelling associated with the peat harvesting	●		●	
Record public complaints and vehicle accidents			●	
Monitor situation and take further action as warranted	●			
Noise and Vibration				
Observe and periodically track noise levels and public complaints	●		●	
Human Health				
Observe dust levels	●			
Track health complaints from local residents			●	
Monitor situation and take further action as warranted	●			
Conduct regular maintenance of equipment	●		●	
Record workplace accidents			●	
Update employee training and safety guidelines as required			●	
Aesthetic Values				
Observe dust and debris levels	●			
Track public complaints			●	
Aboriginal and Treaty Rights				
Ensure adherence to environmental guidelines and protocols	●			
Maintain re-vegetated areas and buffer zones	●			
Adhere to licence terms and conditions	●			
Recreation/Tourism				
Track public complaints			●	
Areas of Interest				
Inspect site during construction for signs of potential disturbances	●			
Ensure crews adhere to designated construction areas	●			
Heritage Resources				
Follow actions identified in the Heritage Resource Protection Plan			●	●

Follow-up	Inspecting	Monitoring	Record Keeping	Reporting
Fires and Explosions				
Adhering to licence terms and conditions	●		●	●
Regular inspections for fire risk	●		●	
Routine examination of fire suppression equipment	●		●	
Periodic testing and evaluation of the fire response procedures	●		●	●
Transportation Accidents				
Adhering to licence terms and conditions	●	●	●	●
Periodic testing and evaluation of the emergency response plan	●		●	
Ensuring dangerous goods carriers are licensed	●		●	●
Inspecting all shipments for compliance with regulatory requirements	●		●	●

FIGURES



LEGEND:

- Road
- Railway
- Provincial Road
- River
- Sugar Creek Sub-Area Boundaries
- Study Area
- Regional Area
- First Nation
- Provincial Forest
- Rural Municipality Boundary
- Provincial Parks
- Wildlife Managment Areas

NOTES:
1. All units are metric and in metres unless otherwise specified. Transverse Mercator Projection, NAD 1983, Zone 14. Elevations are in metres above sea level (MSL).
2. Entire map extent is within the Peguis First Nation Community Interest Zone with the exception of the small area within the Hecla/Grindstone Provincial Park

1 0 1 2 3 4
Kilometres

SCALE: 1:128,000 METRIC 11"x17"

NO	YY/MM/DD	DESCRIPTION	ISSUED BY	CHECK BY
0	24/08/14	ISSUED WITH FINAL REPORT	SFM	DL

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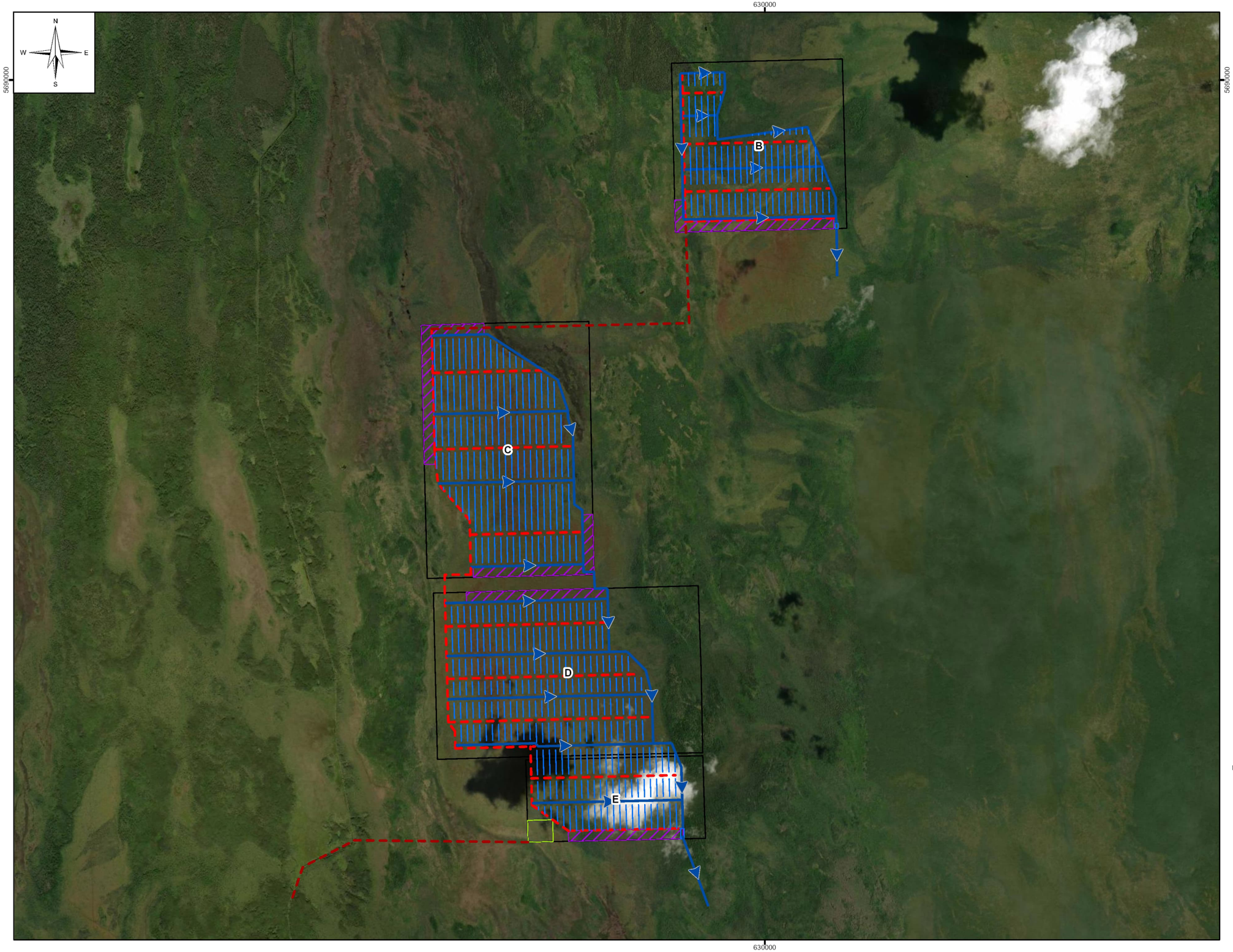
SUGAR CREEK
ENVIRONMENT ACT PROPOSAL

REGIONAL SITE LOCATION

AUGUST 2024 | FIGURE 01 | REV: 0

FileName: R:\Projects\2022\22-0293-003\Dwg\GIS\ArcPro\Sugar_Creek_Environment_Act\Sugar_Creek_Environment_Act.aprx 22-0293-003_Fig01
11"x17" PLOT SCALE 1:1



LEGEND:

- Main Drain Direction
- Bog Road
- Finger Drains
- Access Road
- Donar Area
- Staging Area
- Sedimination Pond
- Sugar Creek Sub-Area Boundary

NOTES:
1. All units are metric and in metres unless otherwise specified. Transverse Mercator Projection, NAD 1983, Zone 14. Elevations are in metres above sea level (MSL).

0.35 0 0.35 0.7 1.05 1.4
Kilometres

SCALE: 1:35,000 METRIC 11"x17"

NO.	YY/MM/DD	DESCRIPTION	ISSUED BY	CHECK BY
0	24/08/14	ISSUED WITH FINAL REPORT	SFM	DL

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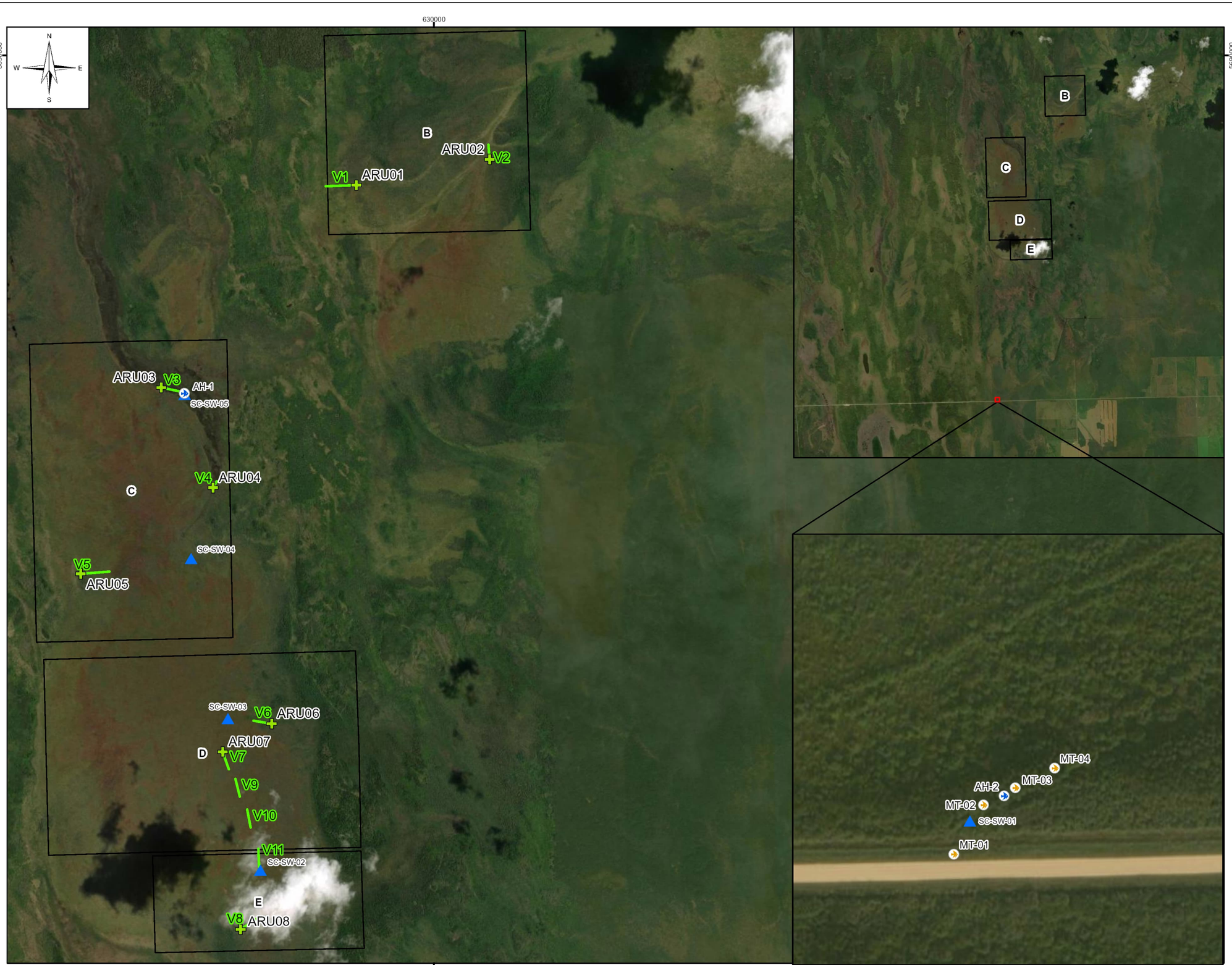
SUGAR CREEK
ENVIRONMENT ACT PROPOSAL

GENERAL SITE LAYOUT

AUGUST 2024	FIGURE 02	REV: 0

FileName: R:\Projects\2022\22-0293-003\Dwg\GIS\ArcPro\Sugar_Creek_Environment_Act\Sugar_Creek_Environment_Act.aprx 22-0293-003_FigXX
11"x17" PLOT SCALE 1:1



LEGEND:

- Bird and Amphibian Survey Location
- Vegetation Transects
- Sugar Creek Sub-Area Boundary
- Water Quality Stations
- Aquatic Assessment
- Minnow Trap

NOTES:
1. All units are metric and in metres unless otherwise specified. Transverse Mercator Projection, NAD 1983, Zone 14. Elevations are in metres above sea level (MSL).
2. Wildlife surveys were also conducted incidentally at ARU survey stations and vegetation transects

0.3 0 0.3 0.6 0.9 1.2
Kilometres

SCALE: 1:30,000 METRIC 11"x17"

NO.	YY/MM/DD	DESCRIPTION	ISSUED BY	CHECK BY
0	24/08/14	ISSUED WITH FINAL REPORT	SFM	DL

REVISIONS / ISSUE

KGS GROUP | sungro HORTICULTURE

SUGAR CREEK
ENVIRONMENT ACT PROPOSAL

BASELINE SAMPLING PROGRAM

AUGUST 2024	FIGURE 03	REV: 0

FileName: R:\Projects\2022\22-0293-003\Dwg\GIS\ArcPro\Sugar_Creek_Environment_Act\Sugar_Creek_Environment_Act.aprx 22-0293-003_Fig05
11"x17" PLOT SCALE 1:1

APPENDIX A

Peat Harvest Licence

Peat Harvest Licence

Manitoba

Licence No. / Licence n°: 4

Issue Date / Date de délivrance : June 15, 2015

REVISED/REVISE :

REVISED/REVISE :

Issued to:

SUN GRO HORTICULTURE CANADA LTD.

Issued for:

All those portions of sections 09-28-04, 10-28-04, 11-28-04, 02-28-04, 03-28-04, 04-28-04, 15-28-04, 16-28-04, 34-27-04, 33-27-04, 31-26-03, 30-26-03, 32-26-03, 29-26-03, 18-27-03, 19-27-03, 26-27-03, 28-27-03, 29-27-03, 27-27-03, 35-27-03, 23-27-03 and 22-27-03 EPM as shown on the map attached as Schedule "A" to this Licence;

(collectively the "Licence Area").

Licence term:

This Licence is valid until December 31, 2030

This Licence is issued in accordance with and subject to The Peatlands Stewardship Act, its regulations, both as may be amended from time to time, and the terms and conditions set out in this Licence.

[redacted]

DIRECTOR
THE PEATLANDS STEWARDSHIP ACT

DEFINITIONS

In this Licence,

"Active Area" means the area(s) within a Licence Area that are experiencing activities related to the peat harvesting process, such as, but not limited to, clearing of brush or trees, ditching, or the removal of materials. Also, an Active Area requires an Environment Act Licence and triggers the requirements for the restoration security under the Regulation;

"Crown" means Her Majesty the Queen in right of the Province of Manitoba, as represented by the Forest and Peatlands Management Branch of Manitoba Conservation and Water Stewardship, or such successor branch or agency of the Government of Manitoba;

"Crown Peat Return" means the statutory declaration required by the Regulation, as amended from time to time;

"Director" means the person appointed as the director of peatlands stewardship under The Peatlands Stewardship Act, or such successor to that person;

"The Peatlands Stewardship Act" or the **"Act"** means The Peatlands Stewardship Act (C.C.S.M., c. P31), as amended from time to time; and

"Regulation" means the Peatlands Stewardship Regulation (M.R. 82/2015), as amended from time to time.

AUTHORIZATION

1. Subject to the terms and conditions of this Licence, the Licencee is authorized to engage in peat harvesting by removing peat from Crown peatland within the Licence Area for commercial purposes, including any activity undertaken on or in respect of the Licence Area to facilitate the removal of peat from the Licence Area, continued vertically downward.

2. Thirty (30) days prior to making an area within the Licence Area active (Active Area), the Licencee shall notify the Director of its plan and provide the security required under clause 9 of this Licence.

PLANNING

i. PEATLAND MANAGEMENT PLAN

3. The Licencee shall submit to the Director a peatland management plan in accordance with the Act. The Licencee shall manage the Licence Area in accordance with the approved management plan.

ii. PEATLAND RECOVERY PLAN

4. The Licencee shall submit to the Director a peatland recovery plan in accordance with the Act. The Licencee must ensure that the activities set out in the approved peatland recovery plan are undertaken in the Licence Area and completed at the time set out in the plan.

5. Until the peatland recovery plan is approved by the Director, the Licencee shall comply with the Environment Act Licence requirements respecting the mine closure plan it prepared under the *Mine Closure Regulation 67/99.*

6. Any alteration of a peatland management plan or peatland recovery plan is subject to submission to the Director or a proposed alteration to that plan and approval by the Director of that alteration.

FEES AND CHARGES

7. The Licencee shall pay to the Crown an annual land reservation charge in accordance with the Regulation.

8. The Licencee shall pay to Crown the prescribed royalty fee by March 1st each year in accordance with the Regulation.

9. In accordance with the Regulation, the Licencee shall provide to the Director the form of security approved by the Director before any activity under this Licence begins in any Active Area.

RECORDS AND REPORTING

10. The Licencee shall make, maintain and submit to the Crown such records as are required by the Act and Regulation.

11. The Licencee shall make, maintain and submit to the Crown such reports as are required by the Act and Regulation.

12. The Licencee shall submit to the Director a Crown Peat Return, setting out the information required by the Regulation.

13. The Licencee shall meet with the Director, or his or her representatives, in each year of the Licence term. The Licencee will present its annual reports and annual plan at the meeting. The annual meeting may be held concurrently with any meeting required under The Environment Act Licence.

LIABILITY

14. The Licencee shall indemnify and save harmless Her Majesty the Queen in Right of the Province of Manitoba, her Ministers, officers, agents and employees from and against any and all claims, liability and demands for or by reason of anything done or omitted to be done by the Licencee or its agents or employees with respect to the Licence Area.

15. This Licence shall in no way limit Manitoba Hydro's or the Government of Manitoba's right to raise or lower the water levels on any body of water which may affect the Licence Area and Manitoba Hydro or the Government of Manitoba shall not be held liable for changes in the water level. This Licence does not imply any guarantee of water levels at the Licence Area.

GENERAL TERMS AND CONDITIONS

16. This Licence may be suspended, cancelled or its renewal refused in accordance with the Act and the Regulation.

17. In addition to the rights under clause 16 of this Licence, the Director may cancel this Licence if the Licencee makes an assignment for the benefit of creditors, becomes bankrupt or insolvent, takes the benefit of, or becomes subject to, any statutes that may be in force relating to bankrupt or insolvent debtors (the appointment of a receiver or receiver and manager of the assets of the Licencee being conclusive evidence of insolvency), or if any certificate or order is made or granted for the winding-up or dissolution of the Licencee, voluntarily or otherwise.

18. This Licence does not provide any other authority that may be required under federal or provincial enactments that may apply to the Licence Area or the Licencee's activities. The Licencee shall obtain and comply with all other authorizations as may be necessary for its activities on the Licence Area, including, but not limited to, a Licence under The Environment Act.

We, the undersigned Licencee, or duly authorized representative of the Licencee, have read, in their entirety, the terms and conditions contained in this Licence. We understand the rights and responsibilities attached to this Licence, and we further understand that failure to comply with any Licence terms and conditions may result in the suspension or cancellation of the Licence, or any other enforcement actions as provided for in The Peatlands Stewardship Act.

THE LICENCEE

Per: [redacted]
Title:

Per: [redacted]
Title:

I/We have authority to bind the Licencee.

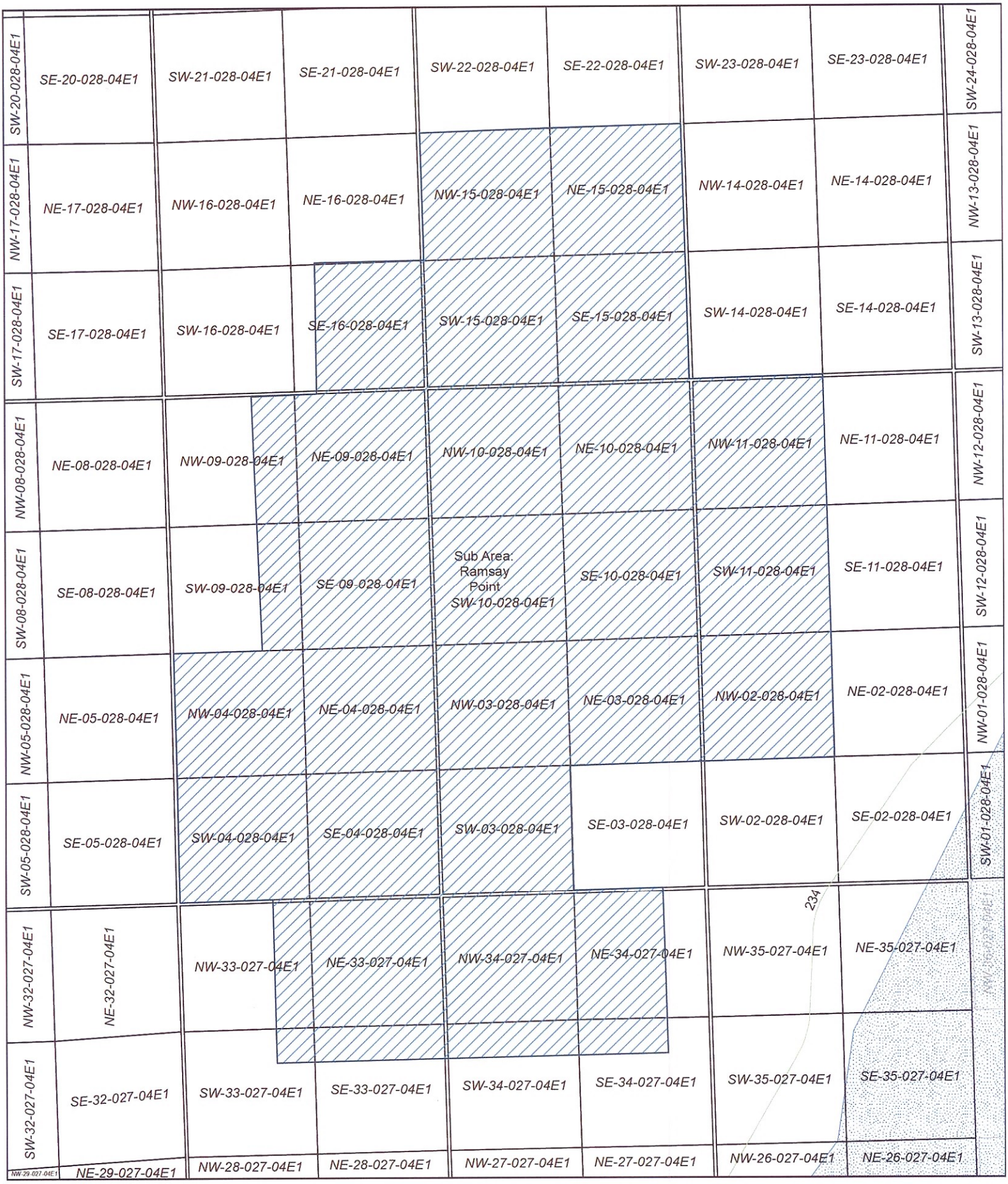
Schedule "A" Maps

Peat Harvest Licence No. 4

Company: SUN GRO HORTICULTURE CANADA LTD

Licence Group: South Washow

Sub Area: Ramsay Point
Sub Area: Sugar Creek A
Sub Area: Sugar Creek B
Sub Area: Sugar Creek C
Sub Area: Sugar Creek D
Sub Area: Sugar Creek E



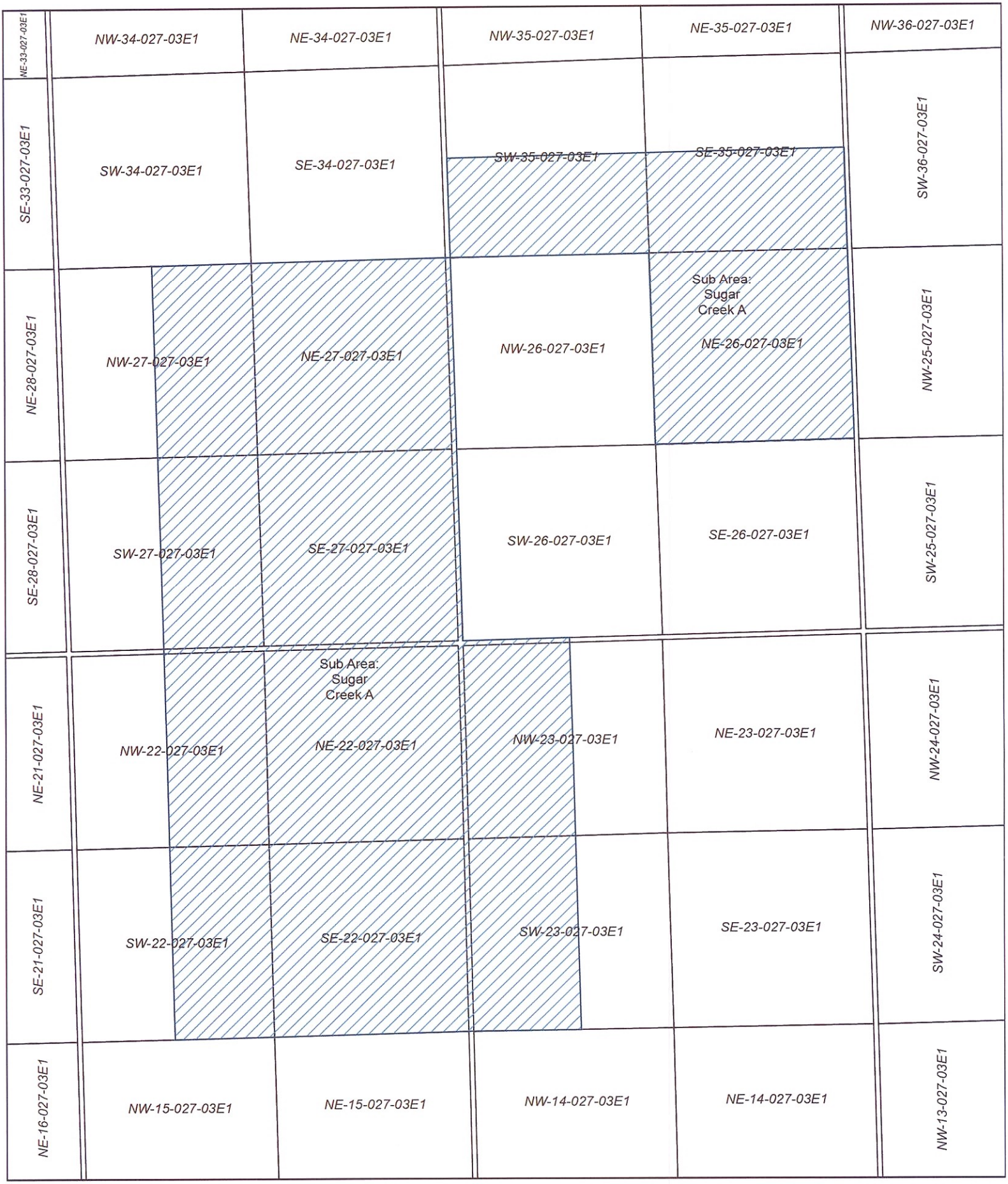
Company: SUN GRO HORTICULTURE CANADA LTD.

Sub Area: Ramsay Point

0 0.45 0.9 1.8 Kilometers

1:30,000

N W E S



Company: SUN GRO HORTICULTURE CANADA LTD.

Sub Area: Sugar Creek A

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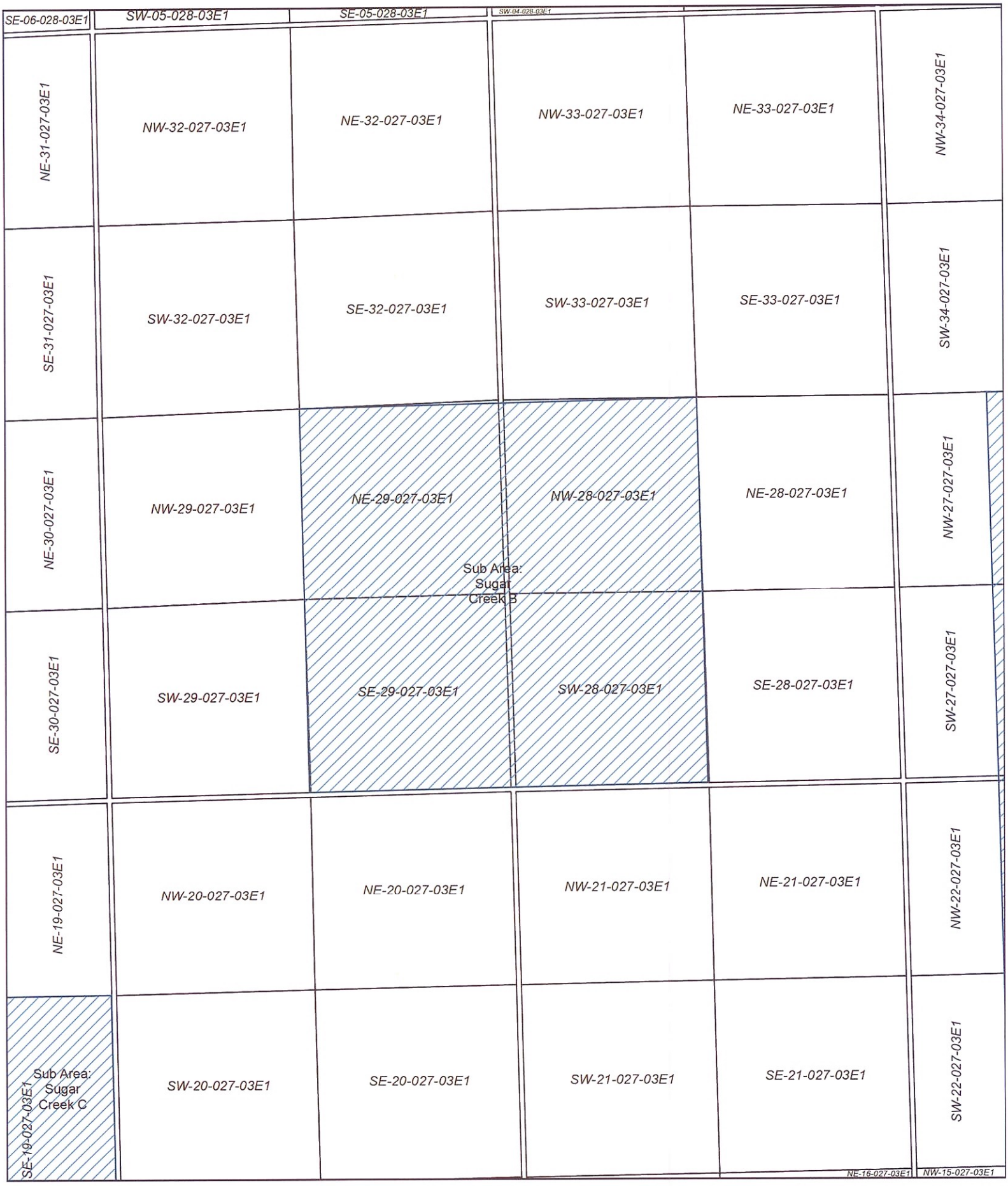
1:20,000

N W E S



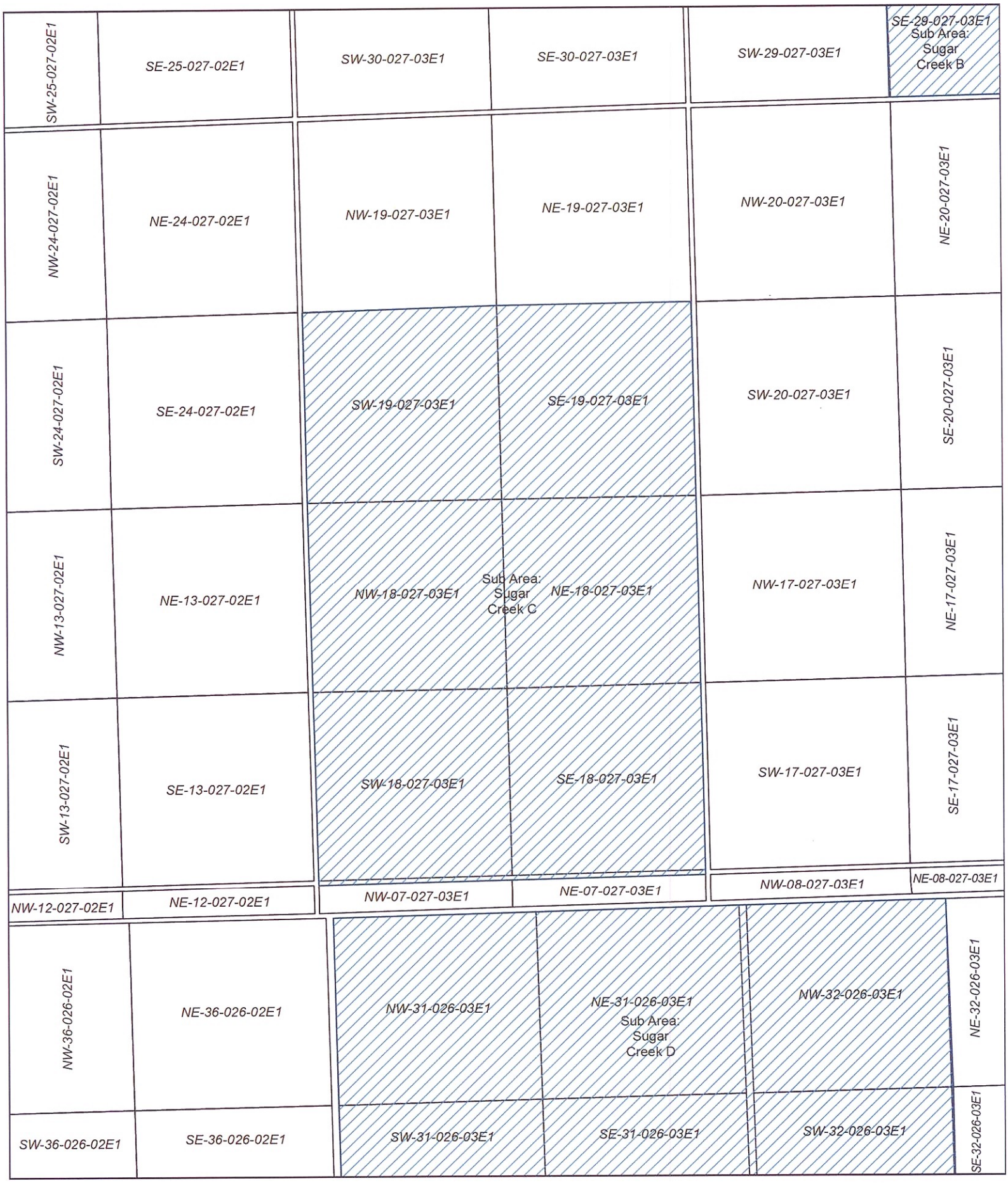
Company: SUN GRO HORTICULTURE CANADA LTD.

Sub Area: Sugar Creek B

0 0.3 0.6 1.2 Kilometers

1:20,000

N W E S



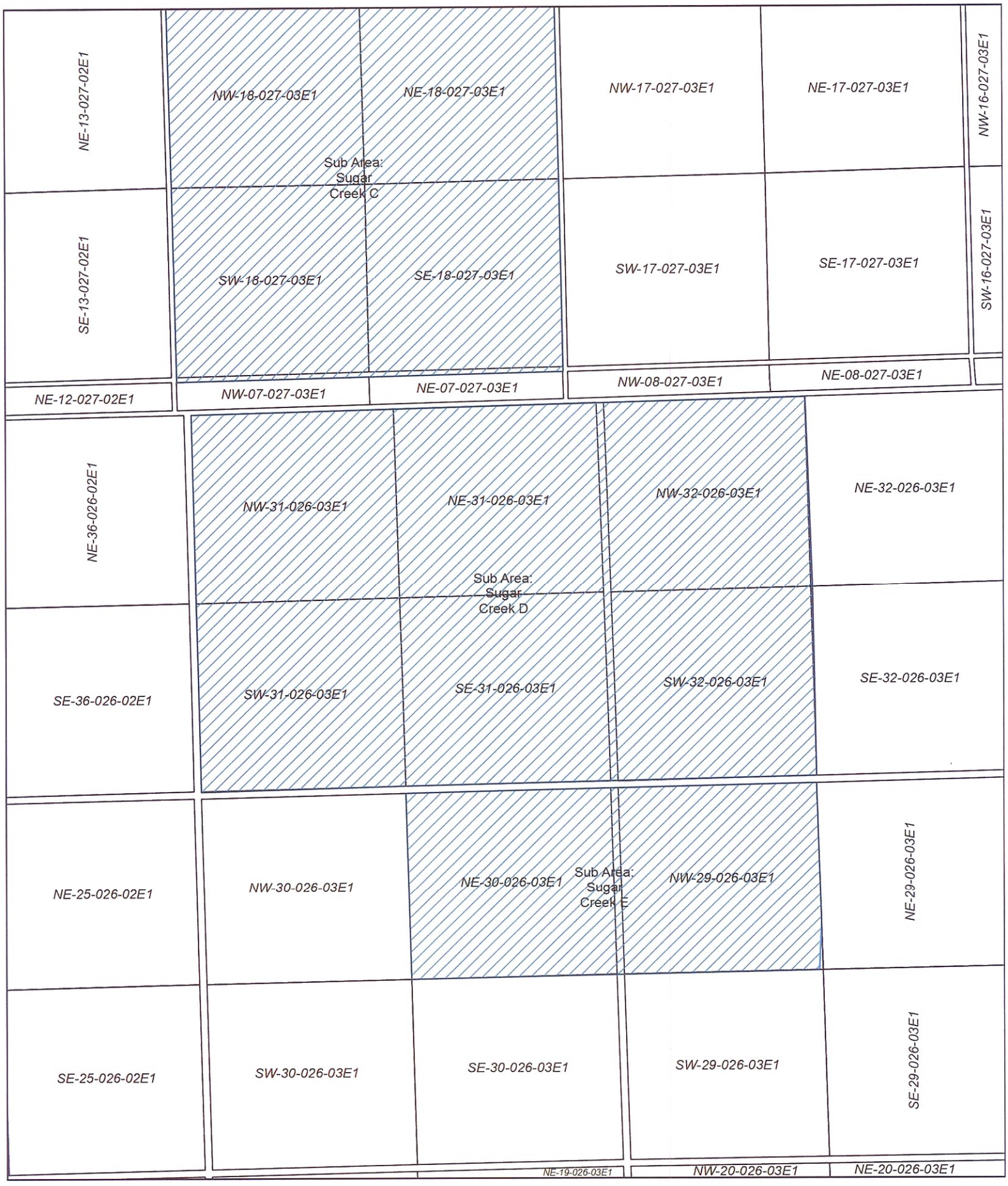
Company: SUN GRO HORTICULTURE CANADA LTD.

Sub Area: Sugar Creek C

0 0.3 0.6 1.2 Kilometers

1:20,000

N W E S



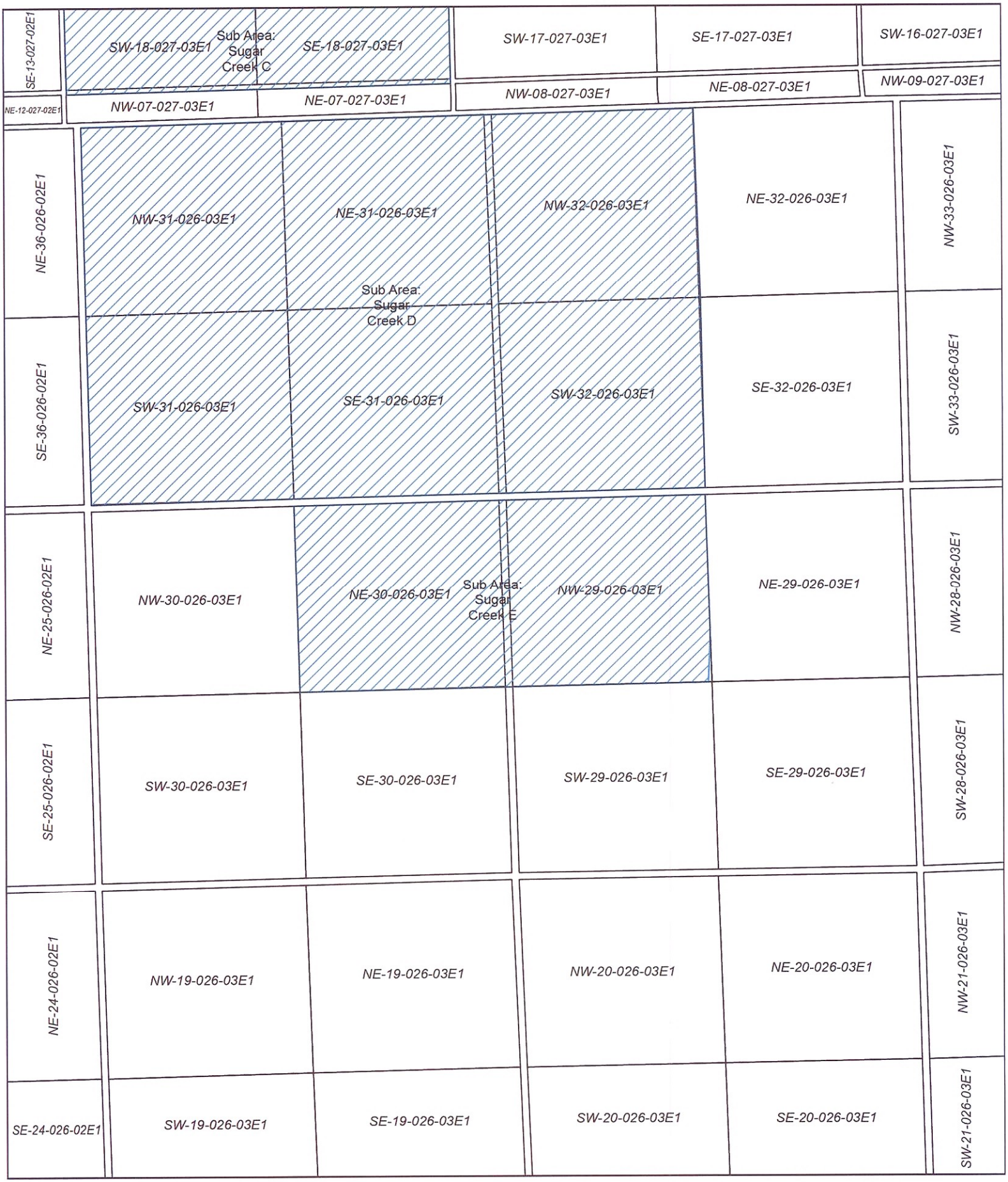
Company: SUN GRO HORTICULTURE CANADA LTD.

Sub Area: Sugar Creek D

0 0.3 0.6 1.2 Kilometers

1:20,000

N W E S



Company: SUN GRO HORTICULTURE CANADA LTD.

Sub Area: Sugar Creek E

0 0.3 0.6 1.2 Kilometers

1:20,000

N W E S

APPENDIX B

Site Photographs

Photo 1: Looking North along existing trail from PR 235 that will be upgraded as access road.

Photo 2: Looking north along unnamed drain downstream of PR325 culvert crossing.

Photo 3: Looking upstream along Sugar Creek at PR234 bridge crossing.

Photo 4: Looking downstream along Sugar Creek at PR234 bridge crossing.

Photo 5: Standing water within peat harvesting area used for baseline water quality sampling.

Photo 6: Aerial view looking southeast at 2-Mile drain located southeast of harvest area.

Photo 7: Typical installation of an Automated Recording Unit for baseline biological survey.

Photo 8: Example of an open area of sphagnum moss.

Photo 9: Example of sparsely treed sphagnum area.

Photo 10: Example of moderately treed sphagnum area.

APPENDIX C

Hydrologic and Hydraulic Assessment of Drainage Impacts

Kontzamanis Graumann
Smith MacMillan Inc.
3rd Floor - 865 Waverley St
Winnipeg, MB R3T 5P4

P 204-896-1209
F 204-896-0754
kgsgroup.com

August 12, 2024

Sun Gro Horticulture Canada Ltd.
#52080 Peat Moss Road
Elma, Manitoba, R0E 0Z0

Attention: Mr. Tim North
Natural Resource Manager

Re: Sugar Creek Peat Harvesting Environmental Act Proposal
Hydrologic and Hydraulic Assessment of Drainage Impacts

Dear Mr. North:

KGS Group is pleased to submit our Hydraulic and Hydraulic Assessment of Drainage Impacts report in support of the Peat Harvesting Environmental Act Proposal for the proposed Sugar Creek peat harvesting development.

1.0 INTRODUCTION

Kontzamanis Graumann Smith MacMillan Inc. (KGS Group) was retained by Sun Gro Horticulture Canada Ltd. (Sun Gro) to prepare a Manitoba Environment Act Proposal (EAP) to obtain the required Environment Act Licence for peat harvesting at the Sugar Creek sub areas B, C, D and E. As part of this environmental assessment, the potential effects of the project to downstream peak flows were evaluated and the resulting changes to flow conditions at downstream infrastructure was assessed.

2.0 HYDROLOGIC ASSESSMENT

2.1 Existing Conditions Hydrologic Assessment

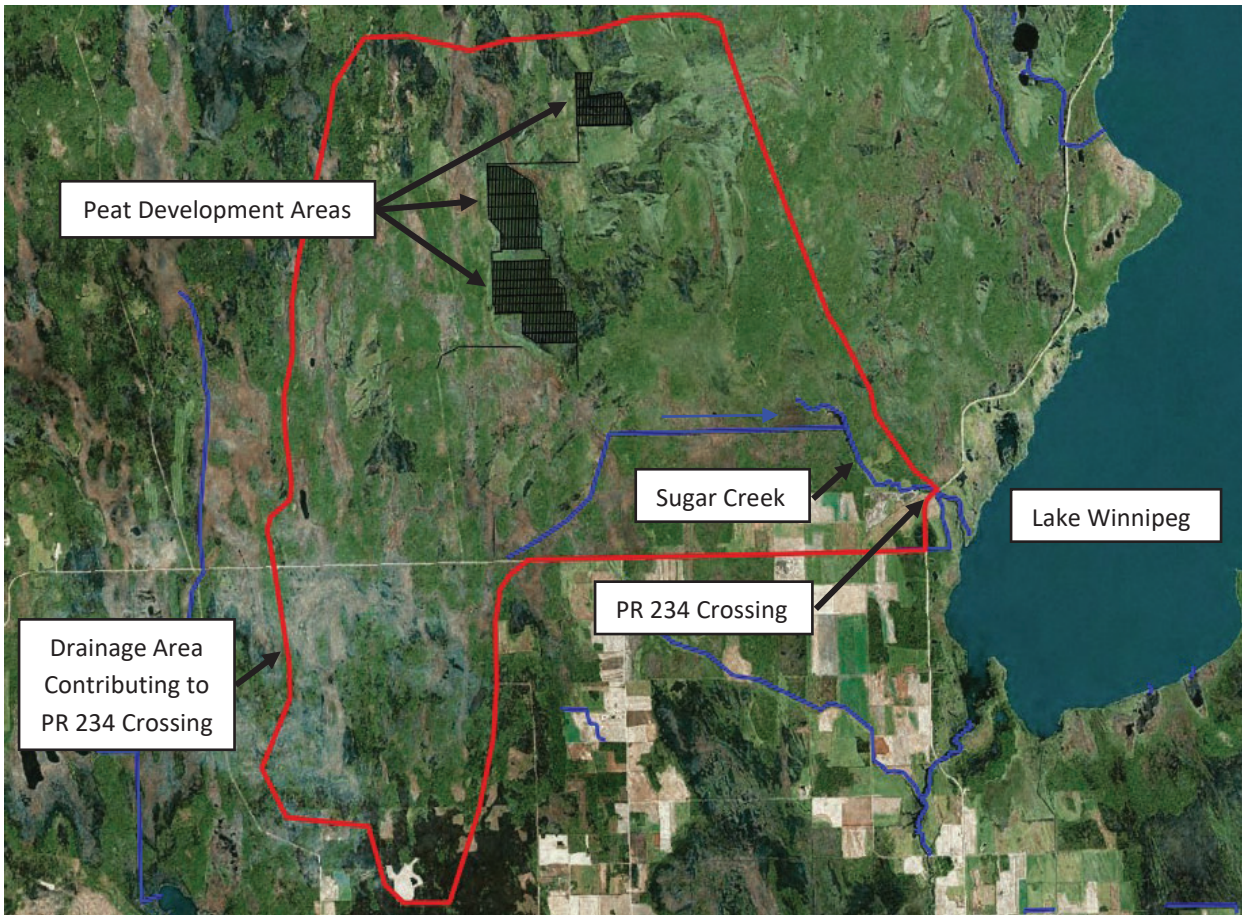
The Sugar Creek development areas are located within the Sugar Creek sub-watershed, which drains into Lake Winnipeg and eventually the Hudson Bay via the Nelson River. The Sugar Creek sub-watershed was delineated using available topographic and hydrographic information and was calculated to have an area of 244.8 km^2, as

Kontzamanis Graumann Smith MacMillan Inc.
3rd Floor - 865 Waverley St
Winnipeg, MB R3T 5P4

P 204-896-1209
F 204-896-0754
kgsgroup.com

shown in Figure 1. In general, the Sugar Creek sub-watershed is poorly drained, consisting primarily of wetlands (marshes and treed/open bog) and forested areas, with a smaller area within the downstream portion of the drainage area appearing to have been developed for agricultural production. At its downstream end, Sugar Creek meanders through forested and agricultural land-use areas before passing under a bridge at Provincial Road (PR) 234 and discharging to Lake Winnipeg shortly thereafter.

FIGURE 1: SUGAR CREEK DRAINAGE AREA AT PR 234 CROSSING



Frequency-flows at the PR 234 crossing site were determined using the "Interlake Runoff Coefficient" calculation tool recently developed by Manitoba Transportation and Infrastructure (Lou, 2022). This tool, applicable to watersheds in the Interlake area (except for the Fisher and Icelandic River watersheds), is used to calculate runoff coefficients (C-values) based on the fraction of the watershed area considered to be "water storage area", as it was found that this was by far the most significant parameter which affects downstream peak flows (aside from watershed area). For the purposes of utilizing this tool, Manitoba Transportation and Infrastructure defined "water storage area" as any areas classified as either water bodies, marshes/fens, or treed and open bogs, as defined by Manitoba Land Initiative's land use/cover maps. Under the existing conditions, 106.1 km^2 of water

Kontzamanis Graumann Smith MacMillan Inc.
3rd Floor - 865 Waverley St
Winnipeg, MB R3T 5P4

P 204-896-1209
F 204-896-0754
kgsgroup.com

storage area was delineated within the 244.8 km^2 Sugar Creek watershed area, accounting for 43% of the watershed total area. The resulting runoff coefficients, along with the overall watershed area, were then used to calculate frequency-flows at the PR 234 crossing site, as summarized in Table 1.

TABLE 1: FREQUENCY OF FLOWS AT PR 234 BRIDGE CROSSING UNDER THE EXISTING AND PROPOSED CONDITIONS

Flood Frequency	Existing Conditions Flows (m^3/s)	Flows During Operation (m^3/s)	Flows Following Initial Drainage of 0.8 km^2 Peatland Area* (m^3/s)
1%	12.23	12.9 (+5%)	13.40 (+10%)
2%	8.94	9.48 (+6%)	9.98 (+12%)
3%	8.40	8.80 (+5%)	9.30 (+11%)
5%	5.51	5.85 (+6%)	6.35 (+15%)
10%	3.56	3.76 (+6%)	4.26 (+20%)
20%	2.08	2.29 (+10%)	2.79 (+34%)
33%	1.41	1.48 (+5%)	1.98 (+40%)
50%	0.67	0.74 (+10%)	1.24 (+85%)
3dQ10	2.62	2.76 (+5%)	3.26 (+24%)

*Conditions during spring freshet following initial drainage of last remaining 0.8 km^2 area (most critical condition)

2.2 Assessment of Hydrologic Conditions During Initial Drain Construction and Drain Deepening

As discussed in Section 2.2, field drainage ditches will be constructed to remove interstitial water within the peat and prepare the peat surface for harvesting. It is understood that approximately 0.8 km^2 (80 hectares) of peatland will be drained each year until the entire 7.5 km^2 (750 hectares) is in operation, and that the construction of drainage channels will be completed in winter, when the peat is frozen. As such, the melting of the interstitial water within the peat and the resulting discharge from the drainage channels will likely coincide with spring runoff occurring throughout the rest of the catchment area.

Kontzamanis Graumann Smith MacMillan Inc.
3rd Floor - 865 Waverley St
Winnipeg, MB R3T 5P4

P 204-896-1209
F 204-896-0754
kgsgroup.com

The storage volume of the development area was calculated to estimate the potential water discharge following the initial drainage from a 0.8 km^2 area of peat. Based on field ditches being cut to a depth of 1.5 m, the total volume of peat to be drained is approximately 1,200,000 m^3. This volume of peat will hold approximately 1,140,000 m^3 of water assuming an average 95% moisture content before drainage. Moisture content generally varies between 60 to 85% following drainage after the field ditches are cut (Thibault, 1998). Therefore, assuming an average of 70% moisture content remains after drainage (25% drains), the volume of drainage water from opening 0.8 km^2 of peatland will total approximately 300,000 m^3.

The increase to downstream peak flows is dependant on the rate at which the peat drains, which may be controlled by several factors. Sun Gro has indicated that based on their field experience, it typically takes approximately three weeks for the peat to drain during the snowmelt period following the initial drainage. For the purposes of this assessment, KGS Group has assumed that the initial peat drainage will occur over this three week period, and that the peak contribution to downstream flows will be approximately three times the average contribution over this three week period. Based on these assumptions, it is estimated that the initial drainage of a 0.8 km^2 area of peat bog will increase downstream peak flows by 0.50 m^3/s during the spring freshet period. This flow increase from the draining peat, as summarized in Table 1, would be in addition to the potential increased rate of spring runoff resulting from the loss of “water storage area”, as discussed in Section 2.3.

As the peat is harvested, the drainage ditches must be deepened to maintain their depth. It is understood that the ditches are typically deepened by approximately 0.15 m every second year, and that they are deepened during the summer months. As such, it is anticipated that runoff resulting from the initial drainage of peat (which occurs in winter) will not coincide with runoff resulting from drain deepening. For the purposes of this assessment, it was assumed that the rate of drain deepening would not exceed 0.06 km^2 (6 hectares) per day. Based on these assumptions, the estimated increase to downstream flows would be approximately 0.03 m^3/s. Since the contribution to downstream peak flows resulting from drain deepening is much less than that resulting from the initial drainage construction and since it is unlikely that the flows from the drain deepening coincide with the annual peak flow (the annual peak flow is likely to occur during the spring freshet, prior to drain deepening), these flows are considered much less critical than the flows resulting from the initial drainage and are therefore are not the governing conditions.

2.3 Assessment of Hydrologic Conditions During Operation

Field drainage ditches will be constructed to remove interstitial water within the peat and prepare the peat surface for harvesting after clearing. A network of parallel ditches will be cut through the bog in a “V” shaped geometry. Each field ditch is excavated 1.5 m deep, with a 1.5 m wide top width, and spaced approximately 33 m apart. Field drainage ditches will typically be constructed at 90° angles to the main drainage ditches.

The constructed drainage at the harvesting area will discharge water to the south, consistent with the existing drainage patterns. During initial drainage and subsequent ditch deepening, there will be a temporary increase to downstream flows resulting from the removal of interstitial water within the peat, as discussed in Section 2.3. After construction of the field drains, it is uncertain whether the peat drainage will result in an increase or

Kontzamanis Graumann Smith MacMillan Inc.
3rd Floor - 865 Waverley St
Winnipeg, MB R3T 5P4

P 204-896-1209
F 204-896-0754
kgsgroup.com

decrease to downstream peak flows following future precipitation events. Some literature (Daigle, J. and Gautreau-Daigle, H., 2001) suggests that downstream peak flows tend to be reduced following peatland drainage due to the increased available pore space (i.e. storage) in the drained peat. Conversely, Landy and Rochefort (2012) summarize peatland drainage research from various authors and lists numerous reasons to explain how peatland drainage can both increase and decrease downstream peak flows, depending on the drainage technique used, the type of peatland, and its placement in the landscape. Similarly, Holden et al. (2004) reviews a number of conflicting studies on this topic and emphasizes the importance of considering the ditch network design and peat properties when determining the effects of artificial drainage on water storage and runoff generation from peatlands.

Considering the range of uncertainty in the literature and science for determining the effects of peat drainage to downstream peak flows, KGS Group completed a hydrologic assessment of the potential impacts of the peat drainage whereby it was assumed that the drained peat areas were excluded from the "water storage area" when determining runoff coefficients using the "Interlake Runoff Coefficients" tool. In this way, the drained peat areas are assumed to have similar runoff characteristics to that of the non - "water storage areas" (e.g. forested, agricultural, or grassland areas) within the Interlake region. A total of 7.5 km^2 of peat bog is proposed to be drained as part of the peat harvesting operation, resulting in a reduction to the "water storage area" within the Sugar Creek watershed from 106.1 km^2 to 98.6 km^2 (43.3% to 40.3%). Similar to the hydrologic assessment of the existing conditions, the resulting runoff coefficients were then used to calculate frequency-flows at the PR 234 crossing site during operation of the peat bog (after construction of the peat drainage), as summarized in Table 1.

3.0 HYDRAULIC ANALYSIS

Peat bog drainage flows exiting the developed areas are anticipated to travel through poorly channelized open bog area before discharging into Sugar Creek. Through its lower reach, Sugar Creek meanders alongside some developed agricultural area and passes through a field crossing before travelling through the PR 234 bridge crossing and eventually discharging into Lake Winnipeg.

A coarse 1-dimensional HEC-RAS hydraulic model was developed of the lower reach of Sugar Creek extending from Lake Winnipeg to 3.3 km upstream of the PR 234 bridge, which is just upstream of the field crossing. Model cross sections were extracted from 2 m resolution LiDAR collected in 2011. It should be noted that the vegetation and LiDAR resolution may be impacting the accuracy of these modelled cross-sections. In the downstream portion of the modelled reach extending from Lake Winnipeg to some distance upstream of the PR 234 bridge, the creek bathymetry was represented by extending the existing channel side slopes down to an assumed channel bottom elevation of 217.5 m, which is approximately 1 m deeper than the surveyed water surface at the bridge structure. This was completed to represent conditions below the water surface at the time of the LiDAR survey which appeared to be affected by higher than average Lake Winnipeg water levels.

Kontzamanis Graumann Smith MacMillan Inc.
3rd Floor - 865 Waverley St
Winnipeg, MB R3T 5P4

P 204-896-1209
F 204-896-0754
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The HEC-RAS model was used to evaluate the hydraulic conditions through the PR 234 bridge crossing. The PR 234 crossing consists of a 12.4 m long clear span concrete bridge superstructure and timber abutments. PR crossings are typically designed to satisfy hydraulic design criteria during the 3% runoff event. These criteria include a maximum bridge opening velocity of 1.5 m/s, a maximum headloss of 0.20 m, and a minimum clearance from the upstream underside of girder elevation to the headwater level of 0.3 m. It was assumed that Sugar Creek is not a navigable waterway and therefore navigability criteria were not assessed. it was found based on the analysis that the hydraulic design criteria for the bridge were met for both the existing and proposed project conditions. The hydraulic performance of the PR 234 crossing under the existing hydrologic conditions, the hydrologic conditions immediately following initial drain construction, and the hydrologic conditions during operation of the peat bog are summarized in Tables 2, 3, and 4, respectively.

TABLE 2: PR 234 OVER SUGAR CREEK - HYDRAULIC PERFORMANCE UNDER EXISTING CONDITIONS

Flood Frequency	Mean Daily Flow at Crossing Site (m^3/s)	Upstream Water Level (m)	Downstream Water Level (m)	Head Loss (m)	Clearance (m)	Velocity (m/s)
1%	12.23	219.08	219.01	0.03	0.42	0.99
2%	8.94	219.01	218.97	0.02	0.49	0.75
3%	8.40	219.00	218.96	0.02	0.50	0.71
5%	5.51	218.90	218.89	0.01	0.60	0.51
10%	3.56	218.78	218.77	0.01	0.72	0.38
20%	2.08	218.58	218.58	0.01	0.92	0.29
33%	1.41	218.42	218.42	0.00	1.08	0.24
50%	0.67	218.17	218.17	0.00	1.33	0.19
3dQ10	2.62	218.68	218.67	0.01	0.82	0.32

Kontzamanis Graumann Smith MacMillan Inc.
3rd Floor - 865 Waverley St
Winnipeg, MB R3T 5P4

P 204-896-1209
F 204-896-0754
kgsgroup.com

TABLE 3: PR 234 OVER SUGAR CREEK - HYDRAULIC PERFORMANCE IMMEDIATELY FOLLOWING INITIAL DRAIN CONSTRUCTION*

Flood Frequency	Mean Daily Flow at Crossing Site (m^3/s)	Upstream Water Level (m)	Downstream Water Level (m)	Head Loss (m)	Clearance (m)	Velocity (m/s)
1%	13.40	219.11	219.03	0.04	0.39	1.06
2%	9.98	219.04	218.99	0.03	0.46	0.82
3%	9.30	219.02	218.98	0.03	0.48	0.77
5%	6.35	218.93	218.91	0.01	0.57	0.57
10%	4.26	218.83	218.82	0.01	0.67	0.43
20%	2.79	218.70	218.69	0.00	0.80	0.33
33%	1.98	218.56	218.55	0.00	0.94	0.28
50%	1.24	218.35	218.35	0.01	1.15	0.24
3dQ10	3.26	218.75	218.74	0.01	0.75	0.36

*Conditions during spring freshet following initial drainage of last remaining 0.8 km^2 area (most critical condition)

Kontzamanis Graumann Smith MacMillan Inc.
3rd Floor - 865 Waverley St
Winnipeg, MB R3T 5P4

P 204-896-1209
F 204-896-0754
kgsgroup.com

TABLE 4: PR 234 OVER SUGAR CREEK - HYDRAULIC PERFORMANCE DURING OPERATION OF PEAT BOG

Flood Frequency	Mean Daily Flow at Crossing Site (m^3/s)	Upstream Water Level (m)	Downstream Water Level (m)	Head Loss (m)	Clearance (m)	Velocity (m/s)
1%	12.90	219.09	219.02	0.04	0.41	1.03
2%	9.48	219.03	218.99	0.02	0.47	0.79
3%	8.80	219.01	218.97	0.02	0.49	0.74
5%	5.85	218.91	218.89	0.02	0.59	0.53
10%	3.76	218.79	218.78	0.01	0.71	0.40
20%	2.29	218.63	218.62	0.01	0.87	0.30
33%	1.48	218.45	218.45	0.01	1.05	0.25
50%	0.74	218.19	218.19	0.00	1.31	0.19
3dQ10	2.76	218.70	218.69	0.00	0.80	0.33

As shown, it is anticipated that there would be some minor increases to head losses and water levels under the proposed conditions, however the hydraulic design criteria would still be met, based on an assumed channel bottom elevation of 217.5 m.

Water levels adjacent to cultivated land upstream of the PR 234 crossing are also expected to increase due to the peat drainage. The coarse HEC-RAS model suggests that during a 3% event, water levels through this reach would be anticipated to increase by 3 to 6 cm immediately following initial drainage (during the most critical condition) and 1 to 3 cm thereafter. Similarly, during a 50% event, water levels through this reach would be anticipated to increase by 5 to 18 cm immediately following initial drainage and 1 to 2 cm thereafter. It is observed that flows are largely within the channel banks for events up to the 1% event under both the existing and proposed conditions. As previously noted, information was not available for the upstream field crossing and thus the impacts of the peat drainage at this field crossing were not assessed.

Kontzamanis Graumann Smith MacMillan Inc.
3rd Floor - 865 Waverley St
Winnipeg, MB R3T 5P4

P 204-896-1209
F 204-896-0754
kgsgroup.com

4.0 CONCLUSIONS

As described in the sections above, the proposed peat drainage is anticipated to result in an increase to downstream peak flows. At the PR 234 bridge crossing site, assuming a channel bed elevation of 217.5 m, it is estimated that hydraulic design criteria for the bridge will still be met under the proposed conditions with the anticipated flow increase. Water levels upstream of the bridge crossing adjacent to cultivated farmland are expected to increase to some degree but are still estimated to remain largely within the channels banks for flow conditions up to the 1% event.

5.0 REFERENCES

- Holden, J. Chapman, P.J. and J.C. Labadz. 2004. Artificial Drainage of Peatlands: Hydrological and Hydrochemical Process and Wetland Restoration. Progress in Physical Geography: 28,1, pp. 95-123.
- Landy, J. and L. Rochefort. 2012. The Drainage of Peatlands: Impacts and Rewetting Techniques. Written by Universite Laval Peatland Ecology Research Group, April 2012.
- Lou, B. 2022. Relationship Between Water Storage Areas and Runoff Coefficient for Select Interlake Basins. Manitoba Transportation and Infrastructure.
- Daigle, J. and Gautreau-Daigle, H. 2001. Canadian Peat Harvesting and the Environment. Second Edition. North American Wetlands Conservation Council Committee.
- Thibault, J.J. 1998. Guidelines for Peat Mining Operations in New Brunswick. Minerals and Energy Divisions. New Brunswick Department of Natural Resources and Energy. Open file 98-7, 17.

STATEMENT OF LIMITATIONS AND CONDITIONS

Limitations

This report has been prepared for Sun Gro Horticulture Canada Ltd. (Sun Gro) in accordance with the agreement between KGS Group and Sun Gro (the “Agreement”). This report represents KGS Group’s professional judgment and exercising due care consistent with the preparation of similar reports. The information, data, recommendations, and conclusions in this report are subject to the constraints and limitations in the Agreement and the qualifications in this report. This report must be read as a whole, and sections or parts should not be read out of context.

This report is based on information made available to KGS Group by Sun Gro. Unless stated otherwise, KGS Group has not verified the accuracy, completeness or validity of such information, makes no representation regarding its accuracy and hereby disclaims any liability in connection therewith. KGS Group shall not be

KGS GROUP

Kontzamanis Graumann Smith MacMillan Inc.
3rd Floor - 865 Waverley St
Winnipeg, MB R3T 5P4

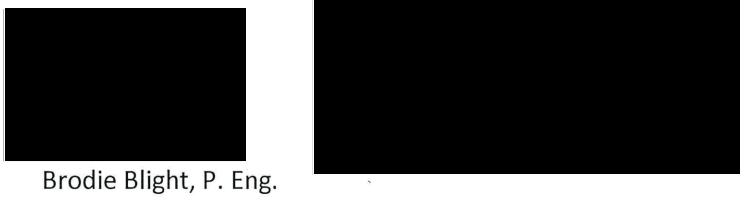
P 204-896-1209
F 204-896-0754
kgsgroup.com

responsible for conditions/issues it was not authorized or able to investigate or which were beyond the scope of its work. The information and conclusions provided in this report apply only as they existed at the time of KGS Group's work.

Third Party Use of Report

Any use a third party makes of this report or any reliance on or decisions made based on it, are the responsibility of such third parties. KGS Group accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions undertaken based on this report.

Prepared By:



Brodie Blight, P. Eng.
Water Resources Engineer

Reviewed By:

Patrice Leclercq, P.Eng.
Senior Water Resources Engineer

APPENDIX D

Government Correspondence

Minister's Response — Sugar Creek Peat Harvesting Project

Physical Activities

Sun Gro Horticulture Canada is proposing the construction, operation, decommissioning, and abandonment of the Sugar Creek Peat Harvesting Project (the physical activities referred to as the project), located approximately 20 kilometres southeast of Fisher River Cree Nation, Manitoba. As proposed, the project would extract peat from four sub areas and include an access road, bog roads, a staging area, sedimentation ponds, and a drainage network.

Decision

The project does not warrant designation.

Reasons

Pursuant to section 9 of the *Impact Assessment Act* (the IAA), I, Steven Guilbeault, Minister of Environment and Climate Change, considered the potential for the project to cause adverse effects within federal jurisdiction, adverse direct or incidental effects, public concerns related to these effects; as well as adverse impacts on the Aboriginal and Treaty rights of the Indigenous peoples of Canada. In forming my opinion, I took into account the analysis prepared by the Impact Assessment Agency of Canada.

I am of the opinion that the designation of the project is unwarranted for the following reasons:

- The legislative processes that currently apply to the project and related consultations with potentially impacted Indigenous peoples provide a framework to address the potential adverse aforementioned effects and impacts, and concerns raised by Indigenous peoples and members of the public. These processes include:
  - the provincial environmental assessment and licensing process under Manitoba's *The Environment Act*, which can include terms and

conditions to mitigate potential environmental effects for all stages of the development;
    - the provincial legislation, as applicable, such as *The Endangered Species and Ecosystems Act*, and *The Heritage Resources Act*; and
    - the federal authorizations, approvals, and reporting that may be required under the *Fisheries Act*; the *Canadian Navigable Waters Act*; the *Species at Risk Act*; the *Migratory Birds Convention Act, 1994*; and the *Canadian Environmental Protection Act, 1999*.
- The project must be carried out in compliance with provincial and federal legislation, including *The Environment Act; The Endangered Species and Ecosystems Act;* the *Fisheries Act;* the *Canadian Navigable Waters Act;* the *Species at Risk Act;* the *Migratory Birds Convention Act, 1994;* and the *Canadian Environmental Protection Act, 1999*.

Document Reference Number: 3

Date modified: 2023-01-23

Shaun Moffatt

From: [redacted]
Sent: February 16, 2023 5:48 PM
To: Shaun Moffatt
Cc: [redacted]
Subject: RE: Sugar Creek Peat Harvesting Project – Project re-review required under new Fisheries Act [22-HCAA-02682]

*** This is an external eMail. Please be careful with attachments and links. ***

Hi Shaun and Co.

Thanks for meeting with DFO to discuss the Sugar Creek Project in further detail.

I have reviewed *the SUGAR CREEK PEAT HARVESTING DEVELOPMENT AQUATIC HABITAT ASSESSMENT OF SUB-AREA "C"* report, dated July 2022, along with the information provided below in the email body. In response to my letter dated February 8, 2023, in which I requested that a Request for Review be submitted, this action will no longer be required as the information provided gives me enough assurance that impacts to Fish and Fish Habitat would not occur.

Thank you for providing the additional information to the department,

[redacted]
(she/her)
Biologist – Mining, Oil & Gas – South
[redacted]

Fish and Fish Habitat Protection Program (FFHPP) | Programme de protection du poisson et de son habitat (PPPH)

Fisheries and Oceans Canada | Pêches et Océans Canada

Ontario and Prairie Region | Région de l'Ontario et des Prairie

1028 Parsons Rd SW

Edmonton, Alberta T6X 0J4

The Edmonton office is located on traditional Treaty 6 territory

---

From: Shaun Moffatt <smoffatt@kgsgroup.com>
Sent: Monday, February 13, 2023 10:42 AM
To: [redacted]
Cc: Tim North (Tim.North@sungro.com) <tim.north@sungro.com>; Warren Walker <warren.walker@sungro.com>; Dan

[redacted]

Subject: FW: Sugar Creek Peat Harvesting Project – Project re-review required under new Fisheries Act [22-HCAA-02682]

[redacted]

Thanks to [redacted] for taking the time to speak with us to better understand the proposed Sun Gro - Sugar Creek Peat Harvesting Project and hear our rationalization as to why the project will not be killing fish or causing a Harmful Alteration, Disruption or Destruction (HADD) of fish habitat. As discussed, it is anticipated that the project would not be in contravention of the Fisheries Act and a Request for Review should not need to be submitted for this project.

As presented during the meeting, attached is an Aquatic Habitat Assessment completed for the Sugar Creek project area which confirms that there is no fish habitat within the harvest areas and describes the downstream receiving water. Also attached is Figure 1 that will be part of the provincial Environment Act Licence application, which clearly shows that the harvest sub-areas are no where near a natural fish bearing waterbody. As for the impacts from loss of water quantity downstream of the project, as we discussed, the text below provides a general hydraulic effects assessment that is included as part of the provincial assessment. Essentially, there is an initial flush of increased flow from the harvesting area following initial ditch construction or ditch deepening maintenance but otherwise the same volume of water drains from the harvesting area following rain events.

Field Drainage Ditches

Field drainage ditches are used to remove interstitial surface water and prepare the peat surface for harvesting after clearing. A network of parallel ditches will be cut through the bog using a "V" ditcher. Each field ditch is excavated to 1.5 m deep and 1.5 m wide and spaced approximately 33 m apart. Field drainage ditches will typically be constructed at 90° angles to the main drainage ditches. At the peak development with all 750 ha under operation, a total of 428 field ditches will have been cut. Water will drain from the field ditches into the main drains then into sedimentation ponds, where it will eventually flow off-site by outlet ditches following the existing drainage pattern to the southeast. Field ditch construction is typically completed during the winter when the peat is frozen. Therefore, initial site drainage is highest during the spring runoff period. After this period, water will drain more gradually; however, the rate at which water drains from the bog will depend on the amount of precipitation. Water will continue to drain from the bog until the arrival of frost.

The Sugar Creek sub-areas will likely be opened up over a ten year period to be conservative, calculations within the EAP have assumed that the initial development of 80 ha will be prepared for harvesting each year to the full harvesting area of 750 ha in the 10^{th} year. The storage volume of the development area was calculated to estimate the potential water discharge following the development of the field drains. Based on the field ditches being cut to a depth of 1.5 m the total volume of peat to be drained in each 80 ha block is approximately 1,200,000 m^3. This volume of peat will hold approximately 1,140,000 m^3 of water assuming an average 95% moisture content before drainage. Moisture content generally varies between 60 to 85% following drainage after the field ditches are cut (Thibault, 1998). Therefore, assuming an average of 70% moisture content remains after drainage (25% drains), the volume of drainage water from opening each 80 ha area of peatland will total approximately 300,000 m^3. It will take approximately three weeks in spring to drain the ditches which were cut during the winter. Based on a hydraulic analysis of the site, the initial average discharge was calculated to be approximately 0.17 m^3/s during the three week spring drainage.

During initial drainage and subsequent ditch deepening, there is a temporary increase in runoff, however this is over a limited period of time and well below the runoff of large rain events. Once the drainage system is constructed at the peat harvesting site, the rate of runoff is slightly delayed (lag time) during a rain event and the peak is slightly lower in magnitude (Gemtec, 1991; Northlands Associates Ltd., 1989) however the total amount of runoff remains unchanged. This appears to be due to the storage capacity of the constructed drainage and the increased absorption created by the drained peat.

Shaun Moffatt M.Sc.

SENIOR ENVIRONMENTAL SCIENTIST

P 204-896-1209 ext 467
D 204-318-2054 C 204-396-2502
smoffatt@kgsgroup.com | kgsgroup.com

From: Tim North <Tim.North@sungro.com>
Sent: Wednesday, February 8, 2023 7:13 PM
To: Shaun Moffatt smoffatt@kgsgroup.com
Subject: Fwd: Sugar Creek Peat Harvesting Project – Project re-review required under new Fisheries Act [22-HCAA-02682]

*** This is an external eMail. Please be careful with attachments and links. ***

Please review and comment.

Tim

Begin forwarded message:

From: "[redacted]
Date: February 8, 2023 at 7:01:09 PM EST
To: Tim North <Tim.North@sungro.com>
Cc: "[redacted]
Subject: Sugar Creek Peat Harvesting Project – Project re-review required under new Fisheries Act [22-HCAA-02682]

WARNING: External E-Mail. Do not click on links or open attachments you were not expecting.

Hello Tim,

Please see attached letter with Fisheries and Ocean Canadas request regarding the Sugar Creek Peat Harvesting Project.

Let me know if you would like to meet with DFO to discuss the contents.

Thanks,

[redacted]

Fish and Fish Habitat Protection Program (FFHPP) | Programme de protection du poisson et de son habitat (PPPH)

Fisheries and Oceans Canada | Pêches et Océans Canada

Ontario and Prairie Region | Région de l'Ontario et des Prairie

1028 Parsons Rd SW
Edmonton, Alberta T6X 0J4

Please be advised that amendments to the *Fisheries Act* came into force on August 28th, 2019. DFO encourages all project proponents to avoid causing the death of fish and the harmful alteration, disruption or destruction of fish habitat. The measures to protect fish and fish habitat will help proponents avoid impacts to fish and fish habitat. If there are aquatic species at risk in the area, proponents must also avoid harming, harassing, capturing or taking those species. Proponents who can implement these measures do not require a project review by the Fish and Fish Habitat Protection Program. General information regarding the management of impacts to fish and fish habitat and Codes of Practice are available at DFO's "Projects Near Water" website at www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html. For all occurrence reports, or project proposals where you have determined that you cannot avoid impacts to fish and fish habitat, please submit to DFO.OPhabitat.MPO@dfo-mpo.gc.ca. For general inquiries, call 1-855-852-8320.

Shaun Moffatt

From: Murray, Colin (ARD) <Colin.Murray@gov.mb.ca>
Sent: March 22, 2022 12:13 PM
To: Dan Leitch
Subject: DR D Leitch KGS 20220318 Sun gro sugar cr
Attachments: DR D Leitch KGS 20220318 Sun gro sugar cr.xlsx; SUNGroSugarCr4Sites and b3k.zip

Hi Dan
Thank you for your information request. I completed a search of the Manitoba Conservation Data Centre's (CDC) rare species database for your area of interest. This includes the four locations identified as B, C, D, and E; and a 3km radius buffer from the footprint boundaries.

I am attaching a Microsoft Excel spreadsheet summarizing these occurrences. The spreadsheet includes scientific and common names, the provincial (SRank) rank for each species as well as the Manitoba Endangered Species and Ecosystem Act, and the federal Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and Species at Risk Act (SARA) designations. I'm also including ESRI Shapefiles used to fulfill the request.

Further information on this ranking system can be found on our website at: http://www.natureserve.org/conservation-tools/conservation-status-assessment.
These designations can be found at:
http://web2.gov.mb.ca/laws/statutes/ccsm/e111e.php,
https://www.cosewic.ca/index.php/en-ca/ and
http://www.sararegistry.gc.ca/default.asp?lang=En&n=24F7211B-1.

Manitoba's recommended setback distances can be found at:
https://www.gov.mb.ca/sd/pubs/conservation-data-centre/mbcdc_bird_setbacks.pdf.

The information provided in this letter is based on existing data known to the Manitoba Conservation Data Centre of the Wildlife and Fisheries Branch at the time of the request. These data are dependent on the research and observations of CDC staff and others who have shared their data, and reflect our current state of knowledge. An absence of data does not confirm the absence of any rare or endangered species. Many areas of the province have never been thoroughly surveyed, therefore, the absence of data in any particular geographic area does not necessarily mean that species or ecological communities of concern are not present. The information should not be regarded as a final statement on the occurrence of any species of concern, nor should it substitute for on-site surveys for species or environmental assessments. Also, because our Biotics database is continually updated and because information requests are evaluated by type of action, any given response is only appropriate for its respective request.

Please contact the Manitoba CDC for an update on this natural heritage information if more than six months passes before it is utilized.

Third party requests for products wholly or partially derived from our Biotics database must be approved by the Manitoba CDC before information is released. Once approved, the primary user will identify the Manitoba CDC as data contributors on any map or publication using data from our database, as the Manitoba Conservation Data Centre; Wildlife and Fisheries Branch, Manitoba Sustainable Development.

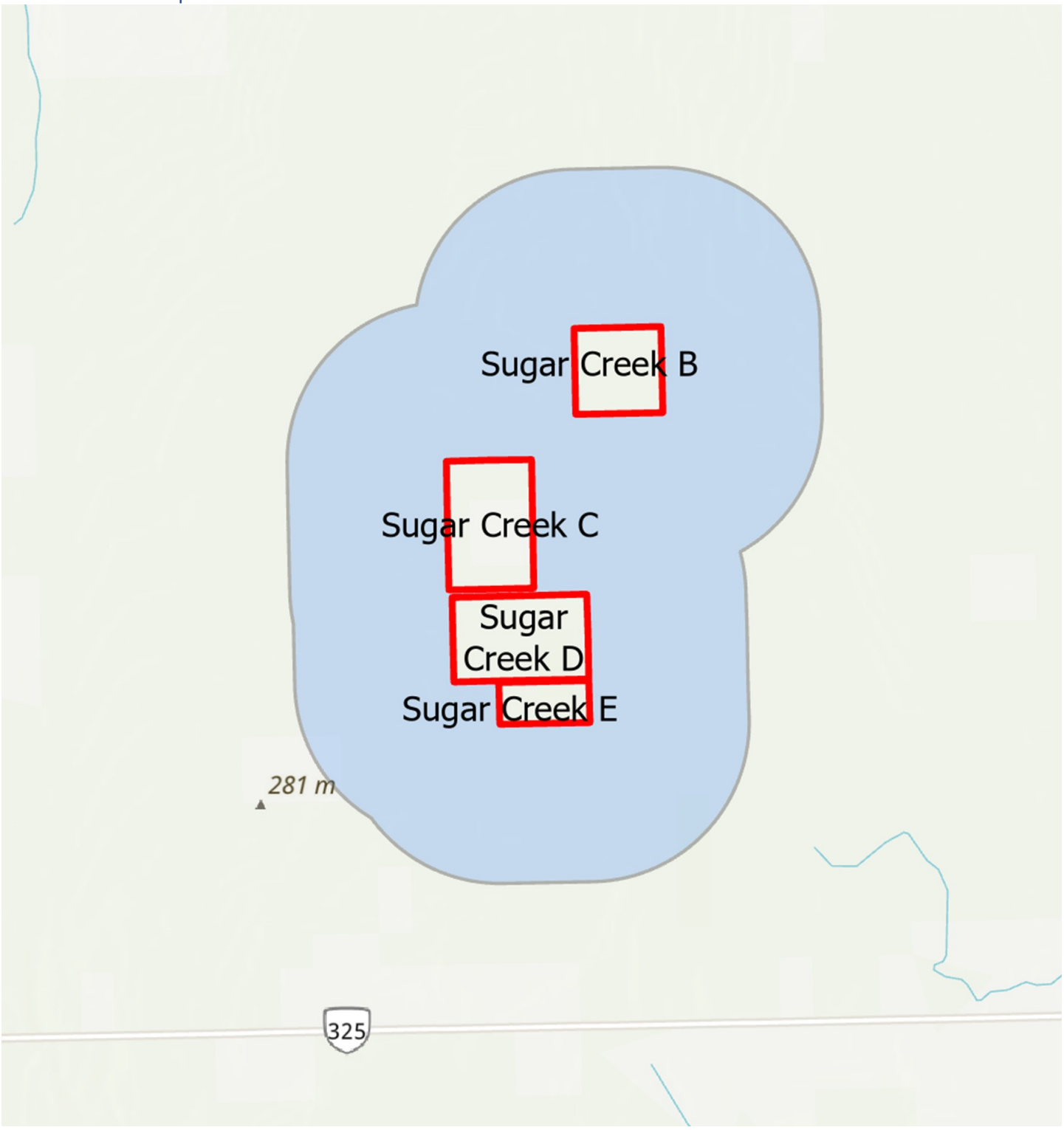
This letter is for information purposes only - it does not constitute consent or approval of the proposed project or activity, nor does it negate the need for any permits or approvals required by the Province of Manitoba.

We would be interested in receiving a copy of the results of any field surveys that you may undertake, to update our database with the most current knowledge of the area.

If you have any questions or require further information contact me directly at (204) 945-7760.

Colin

Reference screen clip:



Colin Murray

Information Manager- Manitoba Conservation Data Centre
Fish and Wildlife Branch, Natural Resources and Northern Development
200 Saulteaux Crescent, Winnipeg, MB R3J3W3
T: 204-945-7760 **F**: 204-945-3077

From: Dan Leitch <dleitch@kgsgroup.com>
Sent: March 18, 2022 3:07 PM
To: Murray, Colin (ARD) <Colin.Murray@gov.mb.ca>
Subject: Sun Gro - Sugar Creek

Hi Colin,

Sun Gro Horticulture is proposing to harvest peat from the Sugar Creek sub-areas B, C, D and E within their existing Peat Harvest Licence (PHL) #4. An Environment Act Proposal (EAP) is currently being prepared. As part of the EAP, baseline environmental conditions will be assessed. Records of the presence of Species at Risk will help inform the effects assessment and ensure appropriate mitigation measures are proposed. The Sugar Creek sub-areas are 265 ha, 387 ha, 404 ha, and 134 ha in size, for sub-areas B, C, D and E, respectively. The sub-areas are located approximately 28 km ENE of the town of Hodgson, and fall within parts of Townships 26 and 27, Range 3-E.

A KMZ file showing the approximate property limits is attached along with a corresponding PDF for reference as well.

We are requesting information regarding the location of any plant, wildlife, or aquatic Species at Risk occurrences on the project site, within a 3 km project study area, and within the regional area. The information will be used to assess the potential presence of Species at Risk and suitable habitat at the site.

If you have any questions, please don't hesitate to contact me.

Thanks,

Dan Leitch M.Sc.
ENVIRONMENTAL SCIENTIST

KGS GROUP

P 204-896-1209 ext 324
dleitch@kgsgroup.com | **kgsgroup.com**
3rd Floor - 865 Waverley St
Winnipeg, MB R3T 5P4

SEARCH CRITERIA	SITE	SCINAME	COMNAME	S_RANK	ESEA	SARA	COSEWIC	FIRSTOBS	LASTOBS	EO_RANK	REPACC	NOTES
Within	Sugar Creek B	No listed or tracked species occurrences found at this time										
Within	Sugar Creek C	No listed or tracked species occurrences found at this time										
Within	Sugar Creek D	No listed or tracked species occurrences found at this time										
Within	Sugar Creek E	No listed or tracked species occurrences found at this time										
Within 3km radius of site boundary of	Sugar Creek B,C,D,E	No listed or tracked species occurrences found at this time										
Records in general area of	Sugar Creek B,C,D,E	Ambystoma laterale	Blue-spotted Salamander	S3S4				2009-08-22	2009-08-22	E - Verified extant (viability not assessed)	Medium	
Records in general area of		Antrostomus vociferus	Eastern Whip-poor-will	S2S3B	Threatened	Threatened	Threatened	2012-07-26	2015-05-12	E - Verified extant (viability not assessed)	Medium	
Records in general area of		Calopogon tuberosus var. tuberosus	Tuberous Grass-pink	S2				Jul-10	Jul-10	C - Fair estimated viability	High	
Records in general area of		Cardellina canadensis	Canada Warbler	S3B	Threatened	Threatened	Special Concern	2013-06-04	2013-06-04	E - Verified extant (viability not assessed)	Medium	
Records in general area of		Coccothraustes vespertinus	Evening Grosbeak	S2S3		Special Concern	Special Concern	2013-06-06	2013-06-06	E - Verified extant (viability not assessed)	Medium	
Records in general area of		Contopus virens	Eastern Wood-pewee	S3B		Special Concern	Special Concern	2013-06-09	2013-06-09		High	
Records in general area of		Coturnicops noveboracensis	Yellow Rail	S3B		Special Concern	Special Concern	1989-07-14	2015-05-12	E - Verified extant (viability not assessed)	Very Low	
Records in general area of		Dolichonyx oryzivorus	Bobolink	S3S4B		Threatened	Threatened	2014-07-28	2014-07-28	E - Verified extant (viability not assessed)	Medium	
Records in general area of		Hirundo rustica	Barn Swallow	S4B		Threatened	Threatened	2012-06-15	2012-06-15	E - Verified extant (viability not assessed)	Medium	
Records in general area of		Rhynchospora alba	White Beakrush	S3				1983-08-07	1983-08-07	H - Historical		
Records in general area of		Vermivora chrysoptera	Golden-winged Warbler	S2S3B	Threatened	Threatened	Threatened	2013-06-09	2013-06-09	E - Verified extant (viability not assessed)	Medium	

Manitoba
Sport, Culture and Heritage

Memorandum

DATE: **2022-11-21**

TO: **Jonathan McInnis**
KGS Group
3rd Floor – 865 Waverley St.
Winnipeg, MB R3T 5P4
smoffatt@kgsgroup.com

FROM: **Archaeological Assessment Services Unit**
Historic Resources Branch
Main Floor – 213 Notre Dame Avenue
Winnipeg, MB
R3B 1N3

T: (204) 945-2118 F: (204) 948-2384
e: HRB.archaeology@gov.mb.ca

SUBJECT: **KGS Group Transmittal No. 22-0293-003-0005**
Sun Gro Sugar Creek Peat Harvesting Development - Heritage Resource Screening - HRB File AAS-22-19629

Conditional Approval – Implement a heritage resource protection plan (HRPP)
Further to your e-mail regarding the above noted application, the Manitoba Historic Resources Branch (HRB) has examined the location in conjunction with Branch records for areas of potential concern. The potential to impact heritage resources is believed to be low based on analysis of current data, therefore, the Historic Resources Branch has no concerns with the proposed project at this time. HRB requires a HRPP be included in planning, development, and operations, in the event heritage resources (including human remains and palaeontological resources) are accidentally encountered.

Legislation
Under Section 46 and 51 of the Heritage Resources Act (the Act), if at any time, heritage resources are encountered in association with these lands during testing and development, there is an obligation to report any heritage resources and a prohibition on destruction, damage or alteration of said resources. HRB may require that an acceptable heritage resource management strategy be implemented by the proponent/developer to mitigate the effects of their activity on the heritage resources.

Under Section 12(2) of the Act, the minister may require such other plans, documents, material and information, with respect to the work, activity, development or project, prior to commencement.

A copy of this legislation can be found at this address:

- https://web2.gov.mb.ca/laws/statutes/ccsm/h039-1e.php.

Heritage Resource Protection Plan
The HRPP consists of operational procedures to limit damage or destruction of heritage resources. This document assists proponents, landowners, managers, employees, and/or contractors etc. on what to do and whom to call should heritage resources accidentally be encountered when testing and development is underway on site. Please find attached a HRPP template that proponents/contractors/operators can use as a guide, as well as a fact sheet outlining the legal provisions involving found human remains.

If you have any questions, please contact as above for proper assignment and queueing.

Historic Resources Branch
Archaeological Assessment Services Unit

Attachments: HRPP and human remains fact sheet

APPENDIX E

Community Engagement Report

Sun Gro Horticulture Canada Ltd.

COMMUNITY ENGAGEMENT REPORT

Environment Act Proposal for a Peatland Development

At Sugar Creek B, C, D, and E sub-areas

&

Engagement for two additional harvesting areas

associated with Ramsay Point Bog

KGS GROUP
&
SCATLIFF + MILLER + MURRAY

Introduction

KGS Group (KGS), in partnership with Scatliff + Miller + Murray (SMM), is preparing an Environment Act Proposal (EAP) on behalf of Sun Gro Horticulture Canada Ltd. (Sun Gro) for a proposed peatland development at Sugar Creek sub-areas B, C, D, and E, as well as engagement for two additional harvesting areas associated with Ramsay Point Bog. The sub-areas are located on Provincial Crown land within the Rural Municipality of Bifrost-Riverton and the Moose Creek Provincial Forest, west of Lake Winnipeg, near Washow Bay. It is near existing peat harvesting operations at Ramsay Point Bog.

The sub-areas are 1,810 hectares total, of which up to 750 hectares may be harvested, considering buffer areas around the sub-areas' boundaries. There are no water bodies within the sub-areas' boundaries.

The Ramsay Point Bog is adjacent to Provincial Road 234, west of Beaver Creek Provincial Park and east of Moose Creek Provincial Forest. Sun Gro is proposing two additional harvesting areas associated with the existing Ramsay Point Bog Environment Act License #2964 ER.

The Sugar Creek sub-areas have an estimated 37 years of peat capacity under ideal harvesting conditions. The scope of the project will include:

- Site preparation and access (vegetation clearing; installing access to-from the sub-areas; establishing staging and buffer areas),
- Ground and surface water management (ditching and drainage; overland flow siltation),
- Harvesting and shipping (field harrowing; harvesting; on-site stockpiling and transport to the processing plant near Elma, MB and Vassar, MB; shipping to customers), and
- Progressive site recovery.

EAPs are required for all proposed environmentally significant developments within Manitoba under The Environment Act (C.C.M.S. c. E125). This includes proposed peat harvesting operations. In accordance with EAP requirements, KGS is in the process of assessing potential environmental interactions (within a 3-kilometre radius of the project sub-areas) and socio-economic interactions (within a 10-kilometre radius of the project sub-areas). The EAP will then identify mitigation measures to either eliminate or control potential adverse effects.

Community and stakeholder engagement are also critical to the EAP process. Sun Gro proactively engaged with all identified stakeholders and rightsholders prior to the submission of the EAP to keep these communities informed and document concerns. The enclosed report prepared by SMM outlines the communications and engagement

activities undertaken by SMM, KGS and Sun Gro representatives (project team) from January to May 2024 in support of this EAP. It outlines the process objectives, which guided the engagement methods and activities, and summarizes what was heard and the feedback received. This report informs the final EAP submission prepared by Sun Gro for the province.

Engagement Planning

1.1 Engagement Plan

The engagement plan was developed to define the engagement process, including goals and objectives as well as communication and engagement tools. The plan, which is attached to this report in Appendix A, was guided by the principles of transparency and openness, and represented a roadmap for all communication and engagement events in support of this EAP.

The engagement goals and objectives were as follows:

- Ensure an open and transparent process with clear communication,
- Establish trust and relationships with engagement participants,
- Provide key information clearly and consistently,
- Provide opportunities for early and meaningful engagement,
- Understand and address local community concerns pertinent to the project, and
- Gather information from neighbouring Indigenous communities to address any impacts to their Treaty Rights for hunting, fishing, trapping, and gathering, as well as significant cultural or spiritual areas.

As part of the engagement plan, SMM also created a Rightsholder and Stakeholder Profile (Profile) to identify relevant rightsholder and stakeholder groups (participants), based on the following attributes:

- Geography and proximity to the sub-areas, and
- Interests in the sub-areas and/or issues with the project.

The Profile organized community contacts to assist in connecting with relevant parties and promoting engagement activities. An EAP was prepared for Julius Lake West at the same time as the EAP for Sugar Creek sub-areas B, C, D, and E (as well as two additional harvesting areas associated with Ramsay Point Bog). Several of the

participants identified were affected by both projects (hereafter referred to as "Combination").

The Profile was reviewed and updated as necessary based on input from the project team, other government organizations, and the liaison with the participants.

1.2 Engagement Activities

Communications Log

Throughout the project, SMM documented all inquiries, contact information, dates, follow-ups, responses, and action items in a Communications Log. It is attached to this report in Appendix B.

Letter Campaign and Phone Calls

On January 17, 2024, SMM launched a letter campaign to the participants identified in the Profile. The intent of this letter was as follows:

- Provide information about the project and the EAP process to interested and affected stakeholders and rightsholders,
- Determine stakeholder and rightsholder interest in engaging with the project team about the project, and
- Arrange opportunities for engagement.

Participants were advised of the following engagement options:

- Leadership Meeting – An in-person or virtual meeting with Chief and Council, Elders/RM Council members/Association members and other community members, to introduce key project information and respond to comments and questions regarding the proposed development from members of leadership, or
- Community Meeting – An in-person or virtual event with the community with a presentation by the project team to introduce the project, provide context and information about peat processing in Manitoba, and describe the potential effects and mitigation methods to reduce potential effects of the harvesting process.

A sample of this letter is attached to this report in Appendix C. In addition, an example of the letter that was sent to Combination Participants is attached to this report in Appendix D.

Following receipt of the letter and fact sheet, SMM contacted each group by

phone to determine if and how they wished to be engaged. The outcome of these phone calls is shown on the Communications Log in Appendix B.

As a result of the letter campaign and phone calls, SMM was contacted by the Manitoba Métis Federation, Brokenhead Ojibway Nation, Sagkeeng First Nation (SFN), and the Municipality of Bifrost-Riverton. Except SFN, all other communities requested a leadership meeting with the project team.

Corey Shefman, of Olthius Kleer Townshend LLP (OKT), represented SFN, who are rightsholders for both Sugar Creek and Julius Lake projects. OKT initiated a discussion with SMM regarding the status of the EAP and the potential to enter into an impact benefit agreement (IBA) with Sun Gro. A summary of communications can be found in Appendix B, and the full correspondence can be found in Appendix E.

SMM was contacted by Beaver Creek Cottage Association, who expressed interest in a community meeting. Additionally, Stewart Sabiston (Director of North Central Region, Northern Affairs Branch, Municipal and Northern Relations, Government of Manitoba) contacted SMM in response to the letter and fact sheet sent to Dallas-Red Rose Community Council, recommending a community engagement event with additional communities and cottage sub-divisions that were not included in the original participant profile. These include:

- Matheson Island Community Council
- Pine Dock Community Council
- Mill Creek cottage sub-division
- Little Deer cottage sub-division
- Leaside Beach cottage sub-division

Based on Stewart Sabiston's recommendation, SMM launched an email campaign to gather interest in a community meeting. The emails were sent on March 15, 2024, to representatives from each community listed above. Emails included an invitation letter and fact sheet. A sample of the letter is attached to this report in Appendix F and the fact sheets used were the same as in the first round of letters (as seen in Appendix C). SMM advised community representatives to respond with community members' interest and preferred dates. Community representatives shared the letter and fact sheet with their community members as they saw fit. SMM followed up with each community representative to ensure the emails were received and to gauge interest in a community meeting. SMM also received responses from four additional community members, who received the letters from their community's representative, indicating their interest in a community meeting.

After the follow-ups, SMM planned a community meeting for April 15, 2024, at Pine Dock Community Hall in Pine Dock, MB. Email invitations were sent on April 4, 2024, to the community representatives and the additional community members who expressed interest. The email invitation is attached to this report in Appendix G. Community representatives distributed the invitation to their community at their discretion.

Stakeholder and Rightsholder Meetings

2.1 Meeting Details

Based on feedback, the project team hosted three leadership meetings and one community meeting:

- One virtual (Julius Lake and Sugar Creek combination) meeting on February 20, 2024, held with representatives from the Manitoba Métis Federation (MMF) via Teams. Additional correspondence was exchanged between the MMF and project team leading up to this meeting. This correspondence is attached to this report in Appendix H. It includes:
    - A letter from MMF, received via email, dated January 18, 2024, which focused on MMF's position that this EAP should adhere to Resolution 8, which was adopted by the MMF in 2007, and sets out the framework for engagement, consultation, and accommodation with the Métis Community; and
    - A letter in response from SMM, dated January 31, 2024, which clarified that the intent of the outreach by the project team was to be proactive and initiate engagement with the MMF as part of the EAP process.
    - A letter from MMF, dated April 8, 2024, detailing a proposed Work Plan and Budget to complete the next steps of Resolution 8.
- One in-person (Sugar Creek only) meeting on March 1, 2024, with the Municipality of Bifrost-Riverton council. The meeting was held at the Municipal Office in Arborg, MB.
- One virtual (combination) meeting on March 27, 2024, with Brokenhead Ojibway Nation's (BON) acting lands manager via Microsoft Teams.
- One in-person (Sugar Creek only) meeting on April 15, 2024, with community members potentially affected by the Ramsay Point Bog expansion. The meeting was held at the Pine Dock Community Hall in Pine Dock, MB.

At the meetings, the project team presented informational slide decks, which are attached to this report in Appendix I (Sugar Creek) and Appendix J (Combination). The presentations focused on the following topics: an introduction to the project; an overview of the peatland industry in Canada and Manitoba; corporate highlights of Sun Gro; the project itself (context, location, and description); the EAP process; typical environmental issues and mitigation measures related to proposed peat harvesting operations; and a project timeline.

At the conclusion of each presentation, the project team answered questions and listened to feedback from the participants about the project. The meeting summaries are attached to this report in Appendix K.

Sun Gro conducted one community meeting at Pine Dock, MB and meeting invite (see Appendix G) was sent to the following seven communities:

1. **Beaver Creek Cottage Association**
2. **Dallas-Red Rose Community Council**
3. **Matheson Island Community Council**
4. **Pine Dock Community Council**
5. **Mill Creek cottage sub-division**
6. **Little Deer cottage sub-division**
7. **Leaside Beach cottage sub-division**

In total, 46 people attended the community meeting in Pine Dock, MB. The meeting followed the same format as the leadership meetings, with the addition of a recording of the presentation portion of the event to be distributed to community members who wanted to attend but were not able to.

A survey was distributed in-person and online for participants to provide feedback to the project team. A copy of the survey is attached to this report in Appendix L. At the community meeting, 12 surveys were received in-person. The online survey (hosted on the Survey Monkey platform) was open for one month following the distribution of the survey link, from April 18 to May 18, 2024. In total, 13 online survey responses were received. the results of both online and paper surveys are summarized in section 2.2.

The project team also agreed to send a summary of the meeting discussion to participants in the weeks following the presentation. The summary was distributed via email, to those who signed up at the meeting, on April 29, 2024 (see Appendix K).

2.2 Community Meeting – In-person and Online Survey Results

In total, 25 survey responses were received after the Pine Dock Community Meeting:

- **13 (52%) online surveys**
  - **seven (28%) complete**
  - **six (24%) incomplete surveys**
- **12 (48%) complete in-person surveys.**

In total, 19 (76%) complete surveys were received.

Summary of the completed surveys is detailed here:

- **Most respondents (68%) agreed or felt neutral about the information presented during the meeting being helpful in understanding the Sugar Creek Project.**
- **Half of the respondents (52%) did not feel their concerns were addressed in the information presented during the community meeting.**
- **Most respondents found the following assessments being the most critical for their community: (i) Water Quality Assessment (84%), (ii) Biological Surveys – Fish Habitat (68%) and (iii) Hydraulic Assessment (surface water flow and drainage) (63%). In addition, concerns regarding highway maintenance, fire management and air quality were further emphasized.**
- **Water Management (78%) was the most important aspect of this project that was important to the respondents.**
- **Some critical concerns noted by the respondents include**
    - **Air quality**
    - **Water quality testing due to high peat sediment in beaches, creeks and lakes**
    - **Wildfire and fire management**
    - **Traffic and highway infrastructure management**
    - **Sustainability and greenhouse gas emissions**
    - **Impact on moose populations**

The complete results of online and in-person surveys are summarized and detailed in Appendix M.

2.3 Meeting Results

Responses to rightsholder and stakeholder queries and questions from the four meetings is summarized and grouped as follows:

(A) The legislative context:

- ***Question:*** ***Does the peat harvesting industry have requirements or opportunities for purchasing carbon credits?***

  Response: **Sun Gro is not able to purchase carbon credits. Sun Gro creates reports to quantify their greenhouse gas (GHG) emissions. The emissions from peat harvesting are relatively small compared to the end users. The lifecycle GHG emissions from peat harvesting is change in land use (15%), harvesting (4%), transport (10%), and decomposition from end users (71%). Sun Gro is held to a standard for emissions and is audited every two years. The average annual emission for Julius Lake West would be an estimated 0.0006% of Canada's annual emissions.**

- *Question:* *Are royalties paid to the government and how do they determine who the money goes to?*

  Response: **On crown land, the royalties are paid directly to the province, per cubic meter of peat harvested, and Sun Gro has no say in how this money is distributed. On private land, the royalties are paid directly to the private owner. The value add for local communities is purchase of goods (fuel, parts, etc.) and creation of local jobs.**

- *Comment:* *As this round of meetings is Phase 1 (Notice and Response), MMF stated that the next step (Phase 2) in the Resolution 8 process is discussing how to obtain feedback from the Red River Métis community members and what capacity of funding would be required to provide the feedback to Sun Gro.*

  Response: **KGS asked MMF to put a proposal together for Phase 2, which would then be discussed by the project team to move forward. The intent of this engagement process is to identify concerns and interests of Indigenous communities, keeping in mind that there is a formal duty to consult process with the Province of Manitoba.**

- *Question:* *Who is Sun Gro engaging with at the province to obtain this licence?*

  Response: **The EAP will be submitted to the director of the Environmental Approvals Branch. However, a primary point of contact person has not yet been assigned. Sun Gro will work with the Peatland Stewardship Branch to update peatland management and recovery plans.**

- *Question:* *What is the review and input process for the EAP?*

  Response: **This is the first stage of the process, in which Sun Gro is preparing the EAP. Engagement at this stage is not required by the province, however, Sun Gro is pre-emptively engaging with impacted communities to mitigate concerns where possible. This meeting is a part of this process by Sun Gro. These responses will be included in the engagement report developed by SMM, and the EAP document will have a section referencing results of Indigenous, public, and stakeholder engagement.**

  Once the EAP is submitted to the province and determined as complete, the final report will be posted to the public registry and will be available for download. This begins a 30-day review period during which anyone, including the public, can review the document and provide further comments directly to the province.

- *Question:* *Does Sun Gro have any existing or past agreements with any Indigenous community?*

  Response: **No, Sun Gro does not and has never had any formal agreements with any Indigenous communities. Sun Gro is not in partnership with any communities but has worked with RMs and First Nations for job creation and funding opportunities for local amenities and activities like in the Town of Beausejour. However, outside of this, Sun Gro does not have formal opportunities in place with any local communities.**
  Engagement with Indigenous communities has been previously conducted for the Evergreen 1 Bog peat harvesting site and a similar process is being conducted for the Julius Lake West and Sugar Creek EAPs.
  During this first stage of the process, where Sun Gro is preparing the EAP, engagement stage is not required by the Province, however, Sun Gro is pre-emptively engaging with impacted communities to mitigate concerns where possible. These rightsholder and stakeholder meetings were conducted as a part of Sun Gro's EAP submission process. Feedback from the meetings will be included in this engagement report developed by SMM, and the EAP document will have a section referencing results of stakeholder and rightsholder engagement.

- *Question:* *Is the purpose of this meeting informational?*

  Response: **Yes, it is. Sun Gro wants to share the EAP details prior to the EAP submission. In addition, Sun Gro also wanted to collect any feedback and concerns to address in the proposal, if possible.**

- *Question:* *Municipality of Bifrost-Riverton noted concerns regarding how the Fisheries Act will impact this project due to past experiences with the Department of Fisheries and Oceans (DFO). They clarified that concerns had been raised by the DFO when a driveway had to be constructed on a site near Sugar Creek.*

  Response: **The project team already had conversations about the project with DFO in 2023, including construction of access roads and drainage. The DFO has determined that the project will not cause fish mortality or harmfully impact existing fish habitats, so Sun Gro is not required to submit a request for review for project authorization from the DFO.**

(B) The project context:

- *Question:* *How many Sun Gro projects are currently in the Agassiz Provincial Forest?*
  Response: **The current peat harvesting locations are Evergreen Bog and South Julius Bog. Elma, Moss Spur, and North Julius Lake are in the recovery phase.**

- *Question:* *Are there many trees in the peat harvesting areas?*
  Response: **There are few trees, mostly tamarack and small black spruce. If and/or when they need to be removed, a permit would be obtained, and Sun Gro would work with a local forester.**

- *Comment:* *MMF would likely be interested in collaborating on recovery areas or emission reduction areas.*
  Response: **Comment was noted.**

- *Question:* *BON expressed concerns regarding traditional territory and land management as they have a recognized ecological reserve and are familiar with peatlands. They are concerned about losing use within their traditional territory, both for their community and other First Nations with whom they are connected. These communities are losing out on land that they can utilize. Loss in any of the surrounding First Nations effects BON's economy and community, and vice versa.*
  Response: **Currently, KGS's surveys have not identified any species at risk. There are plants that Indigenous communities use in the Sugar Creek and Julius Lake West areas that have been identified, but they are commonly found species in the areas.**
  Since these sites are not easily accessible, i.e. there are no access roads currently, the intent is that the impact is minimal on hunting and trapping activities. However, if BON is aware of hunting and trapping areas or sacred plants in the areas, Sun Gro would appreciate the information.

- *Question:* *BON inquired if Sun Gro gives tours of their facilities.*
  Response: **Sun Gro will invite BON on a tour of harvesting and processing facilities, as well as a site in the recovery phase. BON is interested and will likely invite leadership.**

- *Question:* *The Municipality of Bifrost-Riverton discussed the impacts to traffic on PR 325 and 234. Noted additional traffic*

during harvest season along PR 325 from the farmlands along it.

Response: **Sun Gro will use Provincial Roads and there will be an increase in traffic on PR 325 and PR 234. Additional traffic along PR 325 during harvest time will be taken into consideration in the EAP. Additionally, KGS acknowledged concerns regarding increased dust, especially for residents living adjacent the roads.**

- *Question:* *How many trucks are currently entering and exiting the site on a daily/weekly/monthly basis? What would be the additional load as part of the expansion?*

  Response: **At peak, there are currently 12 to 15 truck loads per day, Monday-Friday at the existing Ramsay site. With the proposed Sugar Creek area initially, there would be an additional 2 to 3 truck loads per day on PR 234 heading south from PR 325 with up to 12 to 15 truck loads per day eventually at the peak.**

- *Question:* *Does Sun Gro plan to put a processing plant in the Bifrost-Riverton area and can screening happen in the Municipality?*

  Response: **There are no plans currently or any time soon during the initial stages of peat production to construct a processing plant in the Bifrost-Riverton area. However, it is a possibility in the future as the harvesting in the region increases to become the largest producer in the province. Current processing plants are in Elma and Vassar, Manitoba, and both are mixed plants.**
  Screening of the peat (80% peat and 20% other materials) in the Bifrost-Riverton area has been considered but will be decided upon once both Ramsay Point Bog and Sugar Creek Bog are in production as cost of hauling the peat to the processing plant is expensive.

- *Question:* *Will Hydro be installed on site?*

  Response: **Since Hydro is very expensive, the shop on site will rely on primarily solar energy with a generator back up. Sustainability on site, along with cost, is also a driver for this decision.**

- *Question:* *What will be studied within the 10-km project radius?*

  Response: **Socio-economic factors will be studied within this radius, like increased traffic volumes, backing up of drainage, and other social concerns that might be a by-product of these harvesting sites in Sugar Creek. Primary impacted**

stakeholders in the Municipality of Bifrost-Riverton would be residents and farmlands along PR 234 and PR 325.

- ***Question:*** ***MBR requested more information regarding peat hauling operation hours.***

  Response: **Currently at Ramsay Point, from May long weekend to September long weekend, the licence requires all hauling operations and traffic along PR 234 to cease by 3:00 pm on Friday and throughout the weekend. Past these dates and times, hauling is allowed 24/7. Sun Gro typically ceases all hauling by 2:30 pm on Fridays both during the summer licence requirements and outside of the summer dates.**

- ***Question:*** ***Are there any limestone pads in the Sugar Creek Bog site?***

  Response: **No – gravel will need to be brought to site for construction of the staging area and access road.**

- ***Question:*** ***How are operations managed when it is overly hot and dry?***

  Response: **Sun Gro does not operate in these conditions, as per provincial requirements. Since 2021, the province provides detailed real-time weather information four days in advance, allowing peat harvesting operators to better plan operations. This was not the case in the 2021 fire at Beaver Creek. In addition, Sun Gro also has internal restrictions to prevent any emergencies during these conditions which is noted in Sun Gro's Emergency Response Plan.**

- ***Question:*** ***Since there are no water bodies near the sites, what are Sun Gro's mitigation plans in the event of a fire?***

  Response: **Sun Gro confirmed that there are no large water bodies on site, so the sedimentation ponds will be developed with controlled gates to hold water back, as a water source in the event of a fire. This is a similar set up to the current operation at Ramsay Point Bog. Sun Gro's emergency response plan was created by Sun Gro and submitted to the province's local Conservation Officer.**

- ***Question:*** ***Are there opportunities for wild rice farming during the restoration phase of the site?***

  Response: **Rice Farming is not allowed as per current regulation unless a strong case for it can be made. In this case we would look to the Indigenous communities, as they could make a stronger case for these kinds of projects to the**

province's peatland branch. Fisher River has experimented with something similar, but that project has experienced setbacks as the elders stopped working due to health and other reasons, and there hasn't been as much interest to continue this work by the younger members.

(C) The environmental context:

- *Question:* *For Indigenous communities, it is important to think about the forest as a whole and the impact on the larger scale. How is Sun Gro considering this in their proposal?*

  Response: The extents of peat harvesting proposed is much smaller than the extents of tree harvesting and forested zones in the area.

- *Comment:* *BON expressed the importance of wetlands and bogs as the source of important medicines and plants. The plants are connected to BON and other Indigenous communities' ways of life.*

  Response: Comment was noted.

- *Comment:* *Municipality of Bifrost-Riverton noted concerns about water draining into Sugar Creek, via the constructed ditch, locally referred to as 2-mile drain. Currently the Municipality is facing issues with beaver dams causing farmlands to flood north of PR 325. They were concerned about this issue being further exacerbated with the yearly additional water volume from the proposed Sugar Creek peat harvesting sites, especially during spring and early summer.*

  Response: In-depth hydrology studies are being conducted to understand effects of water drainage on the larger watershed surrounding the sub areas. The water will drain south and east from the sub-areas towards sugar creek which then flows to Washow Bay. Potential impacts on the referenced ditch/drain have been noted.
  The concern about extra water volume along the drain would only occur in the first year as the water levels in the sub-areas are reduced for harvesting over the course of approximately three weeks in the spring (during initial drainage construction). After the initial drainage construction, no additional volume of water will be discharged with the snow melt and rain run-off from the developed site being the same volume that would have runoff if the site were not developed.
  Blockage of the drain will also impact operations at the sub-areas. Sun Gro offered to take ownership of keeping

the drain clear and/or doing a yearly removal of beaver dams, as per DFO standard operating policies for beaver dam removal (no permits required), to reduce impacts to farmlands within the Municipality and the sub-areas' operations.

- *Question:* ***What is the frequency, type, and location of water quality testing?***

  Response: **Under the Manitoba Environment Act license, regular water quality testing is mandated.**
  Currently, at Ramsay Point Bog, water is tested: (i) weekly at the sedimentation pond outlet, (ii) two times a year at a creek/stream approximately 5km south of the site, where the ditch crosses the road, entering Lake Winnipeg, and (iii) a full parameter water test three times a year at the sedimentation outlets.
  Water testing monitors (i) pH, (ii) water hardness, (iii) conductivity, (iv) Total Suspended Sediments (TSS), which includes peat, and (v) dissolved metals, like lead and aluminium.
  The baseline TSS, against which the sample water is compared, is established from water quality samples taken from water pockets in the peat, and from downstream receiving water bodies prior to any disturbance. As per current regulation, TSS is currently allowed an increase of 25mg/L over the baseline conditions which is set by the Canadian Council Ministry of Environment as a national standard of increase in suspended sediments. This is determined via scientific studies that consider toxicity and habitat effects. In Sun Gro's experience, it is rare for the discharge water from outlets to go above this set level.
  Water in Bogs is naturally acidic, with a range of acceptable pH. Sun Gro remediates acidic water using limestone which will help raise the pH of the water being discharged from the bogs.
  Due to excessive flooding, an emergency outlet channel was constructed in 2021 by the province to manage floodwater. This channel drained through a peat bog, eventually introducing a large quantity of peat into Lake Winnipeg. Shorelines along Washow Bay are experiencing increased levels of peat extending to Fisher River.
  Results of monitoring are submitted to Manitoba Environment and Climate Change and can be accessed by contacting the province's local Environment Officer (Kim Kmet). In addition, the licence requirements can be accessed by visiting the online Manitoba Public Registry to

view Environment Act Licenses for all of Manitoba (https://www.gov.mb.ca/sd/eal/registries/index.html). Schedule B of the Environment Act Licence provides the full list of parameters that are required to be monitored three times per year, which can be found at the following link: 2964er.pdf.

- *Comment:* *Concerns were raised regarding hydrology and drainage.*
  Response: In-depth hydrology studies are being conducted to understand effects of water drainage on the larger watershed surrounding the sub areas for Sugar Creek. The water will drain south and east from the sub-areas towards Sugar Creek which then flows to Washow Bay. For this study, LiDAR imagery will be used along with watershed boundaries and topography studies.
  In the first year of harvesting, as the water levels in the sub-areas are reduced for harvesting over the course of approximately three weeks in the spring (during initial drainage construction), the rate of water discharged from the harvesting site will be temporarily increased. However, after the initial drainage construction, no additional volume of water will be discharged with the snow melt and rain run-off from the developed site being the same volume that would have runoff if the site were not developed/disturbed. Therefore, the local hydrology will be minimally affected after the first year of peat harvesting both in water quantity and direction of flow.
  Within the harvesting site, the water will flow through the sedimentation ponds to reduce total TTS before being discharged into the surrounding bogs via the outlet. At Sugar Creek, this water will naturally continue to filter through the peat bog to 2-mile drain to the south of the site to reach Sugar Creek, eventually reaching Lake Winnipeg at Washow Bay.

- *Comment:* *Concerns were raised regarding the cumulative effect of peat sediment discharging into Lake Winnipeg.*
  Response: Assessment of cumulative effects has not been done by Manitoba Environment and Climate Change and will be outside of the scope of Sun Gro's work as multiple peat harvesting sites operate in this area. Sun Gro and KGS can present the suggestion.

- *Question:* *Does Sun Gro do base level air quality monitoring?*
  Response: No, as this is not currently mandated by the province as per the licence and regulatory requirements.

However, Sun Gro is proactively looking to reduce peat dust from rising in the air to maximize product volume being harvested. Sun Gro is currently adding cyclones to harvesters to prevent dust pollution in the air, allowing it to be held and then dropped back on the field for harvesting.

- ***Comment:*** ***Community members at the Pine Dock meeting mentioned that they have peat dust/sediment settling in their cottages and on the shores, especially where Beaver Creek meets Lake Winnipeg.***

  Response: **Sunterra drains at the location mentioned. Sun Gro drains further south, not at this location.**

- ***Question:*** ***How will Sun Gro address the issues that residents of Beaver Creek are having with dust coming from the highway?***

  Response: **From Sugar Creek, the trucks will use the access road highlighted in the presentation to reach PR 325. The trucks will take PR 325 east to reach PR 234, and then head south towards Winnipeg, not passing by the Beaver Creek cottage area.**
  Currently at Ramsay Point, from May long weekend to September long weekend, the licence requires all hauling operations and traffic along PR 234 to cease by 3:00 pm on Friday and throughout the weekend. Past these dates and times, hauling is allowed 24/7. Sun Gro typically ceases all hauling by 2:30 pm on Fridays both during the summer restrictions and outside of the summer dates. This is done to limit disturbance to the local traffic, reduce dust in local communities, and reduce impact on road infrastructure. Similar operations will be implemented in Sugar Creek, as well.
  To reduce dust on the roads, improvements to the highway infrastructure is critical. However, any road improvement work on Provincial Highways is within the jurisdiction of the province and needs to be initiated, approved and funded by them. Sun Gro has no influence on how the royalties paid to the province is used.

- ***Question:*** ***Does peat harvesting release CO2? If so, how much? How does Sun Gro estimate its total CO2 emissions for the lifespan of the Sugar Creek Project?***

  Response: **Yes, CO2 is released during the entire life cycle of the peat which includes land use change, harvesting, transportation, and methods of end use.**

CO2 emissions and carbon impacts are estimated as part of the EAP and will be available as a part of that documentation submitted to the province. The provincial government has scientifically developed equations to calculate carbon impacts that Sun Gro is mandated to use in the final report. These calculations are based on the area that is being cleared and harvested and will be vetted by the province. Using these numbers, the province reviews what Sun Gro is proposing to develop. The calculations will be in the final EAP submission and this document will be made available to the public as a part of this process by the province.
The IISD completed a cumulative impacts analysis that looks at nutrient loading and greenhouse gas emissions from peatland harvesting in the Interlake area. The report can be found at the following link: Peatland Mining in Manitoba's Interlake.
Sun Gro noted that last Spring, 43,000 trees were planted as a part of restoration at their other sites, with another 18,000 tree planting proposed for this year. Sun Gro also clarified that restoration activities will happen continuously in smaller sections as peat harvesting capacity is reached in those areas rather than waiting until the harvesting is complete for the entire Sugar Creek area.

(D) The socio-economic context:

- *Question:* *How many people will be employed at the harvesting sites?*
  Response: 86 people are employed in total across Manitoba in all Sun Gro facilities. Currently, at Ramsay Point Bog, which has a lower site area than Sugar Creek Bog, about 20 people are employed. Initially, when harvesting began at Ramsay Point, three people were employed and then six were employed when the harvesting was scaled up, leading to 20 employees over time. A similar set-up is expected at Sugar Creek with some full-time employment supported by a lot of seasonal employment. Initially 2-4 people will be hired in the development stage and that will scale up to 3-5 people during initial harvesting.

- *Question:* *What is the average rate of pay of a Sun Gro employee?*
  Response: Just under $24/hr.

- *Question:* *Has Sun Gro had issues with labour at the Ramsay Point Bog harvesting site?*

Response: **Sun Gro noted that they have had issues getting and retaining workers. Finding good workers post COVID-19 has been a challenge. Investigating opportunities to (i) increase access to these jobs by providing transport from the closest settlement areas to the job site, and (ii) develop consistent and regular working hours. Similar discussion will occur with Peguis and Fisher River First Nations, though these meetings have not yet been scheduled.**

- ***Question:*** ***MBR inquired if Sun Gro would sponsor events or infrastructure at MBR's recreation center.***
  Response: **Sun Gro noted that they have sponsored recreation amenities previously in Beausejour called the Sun Gro Center for recreation. Sponsorship of amenities or events is also a possibility in MBR, as the peat production is scaled up in the area. Community involvement and giving back to the community is a priority for Sun Gro. In addition, previously, Sun Gro has done hampers, sponsored sports events, and supported infrastructure improvements.**

- ***Question:*** ***Is Sun Gro a publicly traded company?***
  Response: **No.**

2.4 Email Submissions

SMM received several email correspondences from community members before and after the Pine Dock community meeting. Ten emails from Beaver Creek Cottage Association were sent by community members who oppose the project (signed by 12 individuals). Forty-five individuals from Little Deer and Mill Creek Beaches cottage subdivisions, and Beaver Creek Provincial Park signed a letter opposing the project. Eighteen individuals from Pebblestone Beach signed a letter of opposition to the project. All letters are included in Appendix N and have been edited to remove personal information of the undersigned, including email and home addresses.

Two individuals emailed SMM to express their support of the project. One noted that they do not oppose the expansion of peat moss operations and the other noted that they support and appreciate the economic benefits of peat harvesting. Detailed notes from these correspondences can be found in the communications log (Appendix B). All emails are included in Appendix N.

Next Steps

Once the EAP has been filed with the Manitoba Environment and Climate Change Environmental Approvals Branch, the Provincial government will determine if additional stakeholder engagement, including engagement with affected Indigenous communities as part of the Province's Duty to Consult obligations under the Canadian constitutional framework, is required.

Should this EAP be approved, Sun Gro will then be able to begin preparing the site, and then engage harvesting and progressive site recovery activities, in accordance with the PHL.

Prepared by:
Scatliff + Miller + Murray

[redacted]

Reviewed by:
Scatliff + Miller + Murray

[redacted]

APPENDIX A

PUBLIC, STAKEHOLDER AND RIGHTSHOLDER ENGAGEMENT PLAN

The Sun Gro Sugar Creek Peat Harvesting Project will include the preparation of the Environmental Act Proposal (EAP) and associated works to obtain the required Environment Act Licence for peat harvesting at Sugar Creek B, C, D and E sub-areas within the Peat Harvesting Licence (PHL) 4. The preparation of an EAP is required for all environmentally significant developments within the province of Manitoba under *The Environment Act* (C.C.M.S. c. E125). A peat harvesting operation is considered a Class 2 Development under Manitoba Regulation 164/88. KGS Group will conduct an environmental assessment of the proposed peat harvesting operation and prepare the required EAP in accordance with Manitoba Environment, Climate and Parks Information Bulletin – Environment Act Proposal Report Guidelines. The EAP will include the following.

- Introduction and background describing the need for and purpose of the project.
- Description of proposed development.
- Description of existing environment in the project area.
- Description of environmental effects of the proposed development.
- Description of the human health effects of the proposed development.
- Mitigation measures to protect the environment and human health, and residual environmental effects.

This engagement plan focuses on public, stakeholder and rightsholder engagement activities to be undertaken by Scatliff + Miller + Murray (SMM), in collaboration with KGS Group. This engagement plan will act as a road map for all community engagement and will define the goals, objectives, communication techniques, and engagement methods that will be employed to deliver outcomes. It will highlight the tactics that will be employed to achieve the outlined goals. SMM is committed to the core values of public participation outlined in the IAP2 Code of Ethics. For us, this commitment not only means following best practices, but also creating distinctive strategies of engagement that are unique to each project.

The community engagement process will involve two rounds of engagement activities involving stakeholders and rightsholders with vested interests in the project, as well as the general public (referred to collectively hereafter as “participants”). Indigenous and community concerns relating to peat harvesting has increased as per KGS’s previous experience developing similar peat harvesting EAPs in Manitoba. Therefore, Indigenous and community involvement is an important part of the environmental assessment process to identify and address potential concerns early in the project approval process. SMM understands that an effective engagement strategy must fulfill the project goals as set out by EAP. This will be accomplished through a comprehensive communication and engagement framework, derived through a collaborative process with Sun Gro and the project team.

SMM will lead the engagement program and will be responsible for executing the public, stakeholder and rightsholder engagement plan, maintaining a communications log, developing a Participant Profile

of key stakeholders and rightsholders, and the design, coordination, and facilitation of participant meetings and public events. SMM's role will include the following.

- Providing participants with introductory project information regarding the proposed peat harvesting development.
- Providing participants with two options to select how they wish to be consulted.
- Gathering input from participants and the public about potential impacts, concerns, and general feedback.
- Communicating how input was addressed by the mitigation measures detailed in the EAP.

OVERALL ENGAGEMENT OBJECTIVES

The overall engagement objectives will be developed with and reviewed by the Project Team and may include, but not be limited to the following.

- Ensure an open and transparent process with clear communication.
- Establish trust and relationships with engagement participants.
- Provide key information clearly and consistently.
- Provide opportunities for early and meaningful engagement.
- Understand and address local community concerns pertinent to this project.
- Gather information from neighbouring First Nations to address any impacts to their Aboriginal Treaty Rights for hunting, fishing, trapping and gathering, as well as significant cultural or spiritual areas.

ENGAGEMENT EVENTS AND ACTIVITIES

Public, Stakeholder and Rightsholder Engagement Timeline

1. PROJECT TEAM COMMUNICATION METHODS AND MEETINGS

All project communication methods and materials will be vetted through KGS Group and Sun Gro. Check-in Sessions will be scheduled with the group and will be valuable for bringing flexibility to the project in both timing and technique. The goal is to ensure that project information is communicated to interested and affected parties and is suitable, consistent, and timely.

SMM will coordinate and facilitate stakeholder and rightsholder meetings and public events either in-person or virtually using the Zoom platform, pending current public health orders and preferences of participants.

The kick-off meeting will define project roles, refine/confirm project scope, gather input, and finalize the schedule. Subsequent meetings will take place prior to and between rounds of meetings to gain feedback and input on our process. SMM will coordinate information sharing which include email updates, scheduling and facilitating meetings with the Project Team.

2. MAINTAIN COMMUNICATIONS LOG

Throughout the project, SMM will document all inquiries, contact information, dates, follow-ups, responses, and action items etc. through a Communications Log. This Communications Log will be included in the final Engagement and Consultation Report. We will work together with the project team to refine our system accordingly and ensure consistent and timely responses. Where applicable, SMM will provide recommendations of mitigation measures in response to participant needs, wants, and concerns.

3. PARTICIPANT PROFILE

Before coordinating any engagement activities, SMM will create a Participant Profile listing possible participants with a particular interest in the project and the engagement process, their contact details, and their relationship to the project. The Participant Profile will identify all those with vested interest in the project, recognize their level of impact, and identified the method of engagement. This profile will be a living document and can be changed throughout the evolution of the project. Participants will be contacted directly to be informed of the upcoming ways to participate. The list of potential participants, who will be invited to participate includes:

Indigenous Communities:

- Black River First Nation
- Brokenhead Ojibway Nation
- Peguis First Nation
- Fisher River Cree Nation
- Lake St. Martin First Nation
- Little Saskatchewan First Nation
- Pinaymootang First Nation
- Dauphin River First Nation
- Berens River First Nation
- Kinonjeoshtegon First Nation
- Bloodvein First Nation
- Hollow Water First Nation
- Sagkeeng Anicinabe First Nation
- Manitoba Metis Federation
- Interlake Reserves Tribal Council Inc.

Communities and Municipalities:	• Municipality of Bifrost-Riverton • Dallas/Red Rose-Northern Affairs Act • Fisher Bay-Northern Affairs Act
Other local organization:	• Manitoba Trapper's Association • Snowman Inc. - the Snowmobilers of Manitoba • All Terrain Vehicle Association of Manitoba • Beaver Creek Cottager's Association

SMM will collaborate with the project team to identify any additional stakeholders and rightsholders who may potentially be affected by the project. For more detail, refer to the participant profile document.

4. PARTICIPANT MEETINGS AND PUBLIC EVENTS

SMM will design, coordinate, and facilitate two rounds of engagement activities with all participants from the finalized Participant Profile in the first round and with interested participants based on responses from the first round of engagement, along with members of the public, in the second round. The project team will meet with all interested participants in the requested format.

For in-person meeting requests, SMM will book all meeting venues, select the date and time of meetings and events, coordinate invitations to all stakeholders and rightsholders as identified in the Participant Profile, and develop any engagement materials necessary. Meetings will likely be held in a community hall, or similar venue. However, SMM is also prepared to quickly pivot to online engagement methods pending a sudden change in Covid-19 public health orders.

Additionally, SMM will document all comments and feedback received over the course of each meeting or event and prepare notes to be circulated amongst the wider project team following each round of engagement.

A. ROUND 1: LETTER AND PHONE CALLS CAMPAIGN

Goal:
Introduce the project to interested and affected parties, gather input on engagement preferences, foster project awareness, and share ideas.

Objectives

- Connect with interested and affected parties
- Provide information about the project location and process
- Determine interest in engagement
- Arrange opportunities for public engagement

Technique

A letter and project fact sheet will introduce the project and inform participants about the project and invite them to receive more information and offer feedback. The letter will suggest two common and effective options for consultation:

i. A PowerPoint presentation with RM council, Chief and Council, or select members of their organization's leadership; or
ii. A community meeting with the public-at-large or all community members.

The letter will be accompanied by a two-page fact sheet which will offer information on the project such as location of the peat bog, scope of impacts of peat harvesting activities, and opportunities for public engagement. Following the receipt of the letter, all stakeholders and rightsholders will receive a follow up phone call to receive initial feedback and discuss about how they would like to be engaged.

B. ROUND 2: PARTICIPANT ENGAGEMENT (TWO OPTIONS)

Based on our experience from the Ramsay Bog, Evergreen 1, and other Interlake peat harvesting developments, we have provided two options for participants to further engage on the project, with opportunities to meet directly with leadership in government, or more broadly with the public-at-large, or community members of First Nations. The two options for engagement in round two are detailed below.

Option 1: Meeting with Government Leadership (Chief and Council or RM Council)

Goals:

To share project information and identify community priorities and concerns.

Objectives:

- Share key information on the project process, impacts, and mitigation measures
- Gain understanding of interests, needs, wants, and concerns
- Obtain feedback on process
- Review timeline and next steps
- Respond to comments and questions

Techniques:

An in-person or virtual meeting with representatives of community leadership (First Nations or Rural Municipalities) will be hosted and facilitated by SMM in collaboration with KGS Group. Depending on the desires of the community, this meeting may include a PowerPoint presentation with key project information or may be a structured conversation to discuss how the community would like to be engaged. KGS Group / SMM team members and Sun Gro personnel will be present to answer any question regarding the proposed development and respond to potential concerns.

Discussion and feedback from these meetings will be documented and summarized for distribution to the client and will be included in the final engagement report.

Additional consultation meetings and events will be facilitated, should they be requested by stakeholders and rightsholders, with approval from Sun Gro.

Option 2: Community Meeting with the public, stakeholders and rightsholders

Goals:
To share project information and identify community priorities and concerns.

Objectives:

- Share key information on the project process, impacts, and mitigation measures
- Gain understanding of interests, needs, wants, and concerns
- Obtain feedback on process
- Review timeline and next steps
- Respond to comments and questions

Techniques:
An in-person event or a virtual presentation using the ZOOM platform will be hosted by KGS Group and SMM staff. This presentation will include relevant images and graphics necessary to introduce the project, provide history and timeline information about peat processing in Manitoba, and describe the potential impacts and subsequent mitigation methods of the harvesting process.

Following a presentation, SMM will facilitate a discussion and invite participants to share their feedback, including how they may be impacted by the project and express their concerns, wants, and needs.

After the presentation, an online survey will be circulated to participants through which they can offer feedback on aspects of the project and the engagement process.

The meeting/presentation will be promoted throughout the community through email, posters, mailbox drops, radio ads, and social media posts.

5. Engagement and Consultation Report

The entire engagement program, including all engagement activities and communication materials, will be summarized in this report, along with all results from the participant meetings and public events. All materials will be documented in the report, including: the project fact sheet and letter, communication log, meeting and event invitations, participant meeting and public event presentation material, attendance records, presentation maps and figures, and all engagement activity notes. The report will provide data on and summarize the following.

- All individuals, groups, organizations and communities that have been invited to engagement activities and have attended.

- The nature, scope, and content of engagement, including examples of the project fact sheet and letter.
- Information received by Sun Gro from the individuals, groups, organizations and communities, including but not limited to concerns, issues, questions, advice (ecosystem and other), traditional land and resource use, and current land and resource use.
- Responses to concerns, issues, questions and information provided to the Proponent, including meeting summaries and the Communication Log.
- As applicable, project changes that were made to accommodate concerns and issues raised, including potential impact to Treaty and Aboriginal rights.

APPENDIX B

Sun Gro Peat Harvesting - Sugar Creek + Julius Lake Combined Participants
updated June 3 2024 (EO)

Communication Log

Participant / Group	Contact Person	Email	Phone No.	Contact Type (i.e.. email, phone) [Contact Person] Date	Notes	Engagement Plan
Black River First Nation (SCJL01)	[redacted]					
Brokenhead Ojibway Nation						
Peguis First Nation (SCJL05)						
Sagkeeng First Nation (SCJL02)						

Sun Gro Peat Harvesting - Sugar Creek + Julius Lake Combined Participants
updated June 3 2024 (EO)

Communication Log

Participant / Group	Contact Person	Email	Phone No.	Contact Type (i.e.. email, phone) [Contact Person] Date	Notes	Engagement Plan
[redacted]						
Manitoba Metis Federation						
Manitoba Trappers Association Zone 4 (SCJL03)						
Snoman Inc. (SCJL04)						
All Terrain Vehicle Association						

Sun Gro Peat Harvesting - Sugar Creek
updated June 24, 2024 (EO)

Communication Log

Participant / Group	Contact Person	Email	Phone No.	Contact Type (i.e.. email, phone) [Contact Person] Date	Notes	Engagement Plan
Fisher River Cree Nation (SC01)	[redacted]					
Lake St. Martin First Nation (SC06)						
Little Saskatchewan First Nation (SC07)						
Pinaymootang First Nation (SC02)						
Dauphin River First Nation (SC10)						
Berens River First Nation (SC03)						

Sun Gro Peat Harvesting - Sugar Creek
updated June 24, 2024 (EO)

Communication Log

Participant / Group	Contact Person	Email	Phone No.	Contact Type (i.e.. email, phone) [Contact Person] Date	Notes	Engagement Plan
Kinonjeoshtegon First Nation (SC04)	[redacted]					
Bloodvein First Nation (SC08)						
Hollow Water First Nation (SC05)						
Interlake Reserves Tribal Council Inc. (IRTC) (SC11)						
Municipality of Bifrost-Riverton						
Municipal and Northern Relations - Northern Affairs Branch	S					

Sun Gro Peat Harvesting - Sugar Creek
updated June 24, 2024 (EO)

Communication Log

Participant / Group	Contact Person	Email	Phone No.	Contact Type (i.e.. email, phone) [Contact Person] Date	Notes	Engagement Plan
Dallas/Red Rose Community Council	[redacted]					
Fisher Bay Community Council (SC14)						
Beaver Creek Cottage Association						
Matheson Island Community Council (SC12)						
Pine Dock Community Council						
Leaside Beach Cottage Area						

Sun Gro Peat Harvesting - Sugar Creek
updated June 24, 2024 (EO)

Communication Log

Participant / Group	Contact Person	Email	Phone No.	Contact Type (i.e.. email, phone) [Contact Person] Date	Notes	Engagement Plan
Little Deer Cottage Area (SC09)	[redacted]					
Mill Creek Beach Cottage Area (SC13)						

Sun Gro Peat Harvesting - Sugar Creek
updated June 3, 2024 (EO)

Communication Log - Community Members

Additional Comments/Questions/Inquiries

Participant / Group	Contact Person	Email	Contact Type (i.e.. email, phone) [Contact Person] Date	Comment / Question
Beaver Creek Cottage Association	[redacted]			
Little Deer Cottage Area				

		[redacted]
Pebblestone Beach Cottage Area		
Other / Undisclosed		

SC01

Phone Call Notes

Name of Organization/FN/RM: Fisher River Cree Nation

Who did you speak with? [redacted]

Who is the best person to speak with? [redacted]

Do they want a meeting? YES / NO

Details/Comments:

[redacted]

If they need the info sent again, what is their correct contact info?

Other Notes:

[redacted]

SCB 2 Feb 6/24

Phone Call Notes

Name of Organization/FN/RM: Pimuymotang First Nation

Who did you speak with? [redacted]

Who is the best person to speak with? _____

Do they want a meeting? YES / NO

Details/Comments:

[redacted]

If they need the info sent again, what is their correct contact info?

[redacted]

Other Notes:

[redacted]

Feb 6/24 - SC 03

Phone Call Notes

Name of Organization/FN/RM: Beren River First Nation

Who did you speak with? _____

Who is the best person to speak with? _____

Do they want a meeting? YES / NO

Details/Comments:

[redacted]

If they need the info sent again, what is their correct contact info?

[redacted]

Other Notes:

[redacted]

Feb 6/24 - SC04

Phone Call Notes

Name of Organization/FN/RM: Kwanlin Dün First Nation

Who did you speak with? [redacted]

Who is the best person to speak with? _____

Do they want a meeting? YES / NO

Details/Comments:

[redacted]

If they need the info sent again, what is their correct contact info?

[redacted]

Other Notes:

[redacted]

SC 05

Phone Call Notes

Name of Organization/TN/RM: Hollow Water First Nation

Who did you speak with? [redacted]

Who is the best person to speak with? [redacted]

Do they want a meeting? YES / NO

Details/Comments:

[redacted]

If they need the info sent again, what is their correct contact info?

[redacted]

Other Notes:

[redacted]

Sc 06

Phone Call Notes

Name of Organization/FN/RM: Lake St. Martin First Nation

Who did you speak with? [redacted]

Who is the best person to speak with? [redacted]

Do they want a meeting? YES / NO

Details/Comments:

[redacted]

If they need the info sent again, what is their correct contact info?

[redacted]

Other Notes:

[redacted]

SC 07

Phone Call Notes

Name of Organization/FN/RM: Little Saskatchewan First Nation

Who did you speak with? [redacted]

Who is the best person to speak with? [redacted]

Do they want a meeting? YES / NO

Details/Comments:

[redacted]

If they need the info sent again, what is their correct contact info?

[redacted]

Other Notes:

[redacted]

SC 08

Phone Call Notes

Name of Organization/FN/RM: Bloodvein First Nation

Who did you speak with? [redacted]

Who is the best person to speak with? [redacted]

Do they want a meeting? YES / NO

Details/Comments:

[redacted]

If they need the info sent again, what is their correct contact info?

Other Notes.

SC09

Phone Call Notes

Name of Organization/FN/RM: Little Deer Cottage Area

Who did you speak with? [redacted]

Who is the best person to speak with? ____

Do they want a meeting? (YES) / NO

[redacted]

Details/Comments:

[redacted]

If they need the info sent again, what is their correct contact info?

Other Notes:

[redacted]

sc 10

Phone Call Notes

Name of Organization/FN/AM: Dauphin River First Nation

Who did you speak with? [redacted]

Who is the best person to speak with? [redacted]

Do they want a meeting? YES / NO

Details/Comments:

[redacted]

If they need the info sent again, what is their correct contact info?

Other Notes:

SC-11

Phone Call Notes

Name of Organization/FN/RN: Interlake Regional

Who did you speak with? [redacted]

Who is the best person to speak with? _____

Do they want a meeting? YES / NO

[redacted]

Details/Comments:

[redacted]

If they need the info sent again, what is their correct contact info?

_____

_____

Other Notes:

Phone Call Notes SC 12 March 27

Name of Organization/TN/RM: Malheur Island Community (owner)

Who did you speak with? [redacted]

Who is the best person to speak with? _____

Do they want a meeting? YES / NO

Details/Comments:

[redacted]

If they need the info sent again, what is their correct contact info?

_____

_____

Other Notes:

Phone Call Notes Sc 13

Name of Organization/FN/RM: Mill Creek Beach Cottage Subdivision

Who did you speak with? [redacted]

Who is the best person to speak with? _____

Do they want a meeting? (YES) NO

[redacted]

Details/Comments:

[redacted]

If they need the info sent again, what is their correct contact info?

_____

_____

Other Notes:

[redacted]

Phone Call Notes 5-14

Name of Organization/FN/RM: Dallas Rock Rose and Fishers Bay Community Council

Who did you speak with? [redacted]

Who is the best person to speak with? [redacted]

Do they want a meeting? YES / NO

Details/Comments:

[redacted]

If they need the info sent again, what is their correct contact info?

[redacted]

Other Notes:

[redacted]

SCJL 01

Phone Call Notes

Name of Organization/FN/RM: Black River First Nation

Who did you speak with? [redacted]

Who is the best person to speak with? _____

Do they want a meeting? YES / NO

Details/Comments:

[redacted]

If they need the info sent again, what is their correct contact info?

Other Notes:

[redacted]

SCJL 02

Phone Call Notes

Name of Organization/FN/RM: Sagkeeng First Nation

Who did you speak with? [redacted]

Who is the best person to speak with? [redacted]

Do they want a meeting? YES / NO

Details/Comments:

[redacted]

If they need the info sent again, what is their correct contact info?

[redacted]

Other Notes:

SCSL 03

Phone Call Notes

Name of Organization/FN/RM: Manitoba Trappers Association

Who did you speak with? [redacted]

Who is the best person to speak with?

Do they want a meeting? YES / NO

Details/Comments:

[redacted]

If they need the info sent again, what is their correct contact info?

Other Notes:

[redacted]

SCJL04

Phone Call Notes

Name of Organization/FN/RM: [redacted]

Who did you speak with? [redacted]

Who is the best person to speak with? [redacted]

Do they want a meeting? (YES) NO [redacted]

Details/Comments: [redacted]

If they need the info sent again, what is their correct contact info?

[redacted]

Other Notes: [redacted]

SCSL 085

Phone Call Notes

Name of Organization/FN/RM: Peguis First Nation

Who did you speak with? [redacted]

Who is the best person to speak with? [redacted]

Do they want a meeting? YES / NO

Details/Comments:

[redacted]

If they need the info sent again, what is their correct contact info?

[redacted]

Other Notes:

[redacted]

APPENDIX C

1120-201 Portage Ave.
Winnipeg, MB R3B 3K6
204 . 927 . 3444
www.scatliff.ca

SCATLIFF + MILLER + MURRAY
visionary urban design + landscapes

January 17, 2024

Municipality of Bifrost-Riverton
PO Box 70
329 River Road
Arborg, MB R0C 0A0

Attention: Larissa Love

RE: Sun Gro Horticulture Canada Ltd.
Environment Act Proposal
Sugar Creek Peat Harvesting

Dear Larissa Love:

KGS Group (KGS) and Scatliff + Miller + Murray (SMM) are submitting this letter on behalf of Sun Gro Horticulture Canada Ltd. (Sun Gro). We are preparing an Environment Act Proposal (EAP) for a peatland development of the Sugar Creek sub-areas B, C, D, and E, and conducting engagement for two additional harvesting areas associated with Ramsay Point Bog within an existing Sun Gro Peat Harvest Licence (PHL) 4. Obtaining an Environment Act Licence is a requirement for proposed peat harvesting developments. KGS and SMM are issuing this letter and accompanying fact sheets to provide a brief description of the project.

KGS and SMM would like to offer the Municipality of Bifrost-Riverton the opportunity to provide comments or questions they have regarding the proposed development to be addressed and incorporated into the EAP. We would like to offer some options for facilitating a conversation, providing project information, identifying your community's priorities, and hearing your feedback. You may select one or both of your choosing. Here are two engagement choices we offer for your consideration:

1. **Leadership Meeting** – An in-person or virtual meeting with RM Council members and other community members (as identified by RM Council), to learn about key project information, and to hear comments and questions regarding the proposed development from members of leadership.

2. **Community Meeting** – An in-person or virtual event with the community that will include a presentation by our team with relevant images and graphics to introduce the project, provide context and information about peat processing in Manitoba, and describe the potential effects and mitigation methods to reduce potential effects of the harvesting process.

The Environmental Assessment process will consider environmental concerns for the project, and be carried out based on project information provided by Sun Gro and advisory documents from Manitoba Environment and Climate. Additional considerations will include: environmental information acquired from published and online literature, publications by the peat industry and environmental organizations, discussions with federal and provincial government representatives, engagement with stakeholders, and site investigations which have been conducted by the project team.

The proposed peat development is located on Provincial Crown land within the Rural Municipality of Bifrost-Riverton and the Moose Creek Provincial Forest, west of Lake Winnipeg in close proximity to Washow Bay (see fact sheet map). The sub-areas are 1,810 ha in size, within which up to 750 ha may be harvested, considering buffer areas at sub-area boundaries. Direct and indirect biological and physical environmental effects of the project will be considered within the project study areas, covering a 3 km radius beyond the sub-area boundary (10,736 ha). Socio-economic effects will be considered in the regional study area, covering a 10 km radius beyond the sub-area boundary (53,339 ha; Figure 1).

Sun Gro also wishes to develop two additional harvesting areas associated with the existing Ramsay Point Bog Environment Act Licence (EAL; License #2964 ER). At the time of issuing the EAL for Ramsay Point Bog, the Province was in the process of transitioning to new regulations and Quarry Leases (QLs) which were in progress were included in Schedule B of the Manitoba Peatland Stewardship Act. QLs 2441 (65 ha) and 2460 (64 ha) are not currently included in PHL 4, however, licenced peat harvest areas can be amended by including QLs listed on Schedule B. Sun Gro wish to engage communities on the amendment of the PHL 4 to include the two QLs noted above.

Further information can be found on the attached fact sheet about Peat Harvesting, Sun Gro, and both Sugar Creek Bog and Ramsay Point Bog.

The scope of the project will include planning, designing, constructing, operating, and maintaining, as well as the eventual decommissioning and restoration of the proposed peat harvesting at Sugar Creek sub-areas B, C, D, and E.

Sugar Creek has an estimated 37 years of peat capacity which can be harvested over that time, starting once licensing and permitting requirements have been fulfilled. Major project activities will include: providing site access, clearing vegetation and surface soils, constructing drainage systems, stockpiling unprocessed peat; and transporting, restoring, and reclaiming harvested peatland.

The assessment for the proposed development will include identification, analysis, and mitigation of adverse environmental effects of the project, and evaluation of the significance of residual environmental effects. This will consist of both direct and indirect biophysical and socio-economic effects. The need for the project, alternatives, and requirements for a follow-up will be considered in the assessment.

Potential environmental concerns being considered in the EAP include: air quality; soil integrity and quality; surface water quality; wetland health; groundwater quality; aquatic and terrestrial vegetation (with special emphasis on species of conservation concern); wildlife (with special emphasis on species of conservation concern); fish and fish habitat; and social and economic conditions associated with the proposed development.

If you are interested in a **Leadership Meeting** and/or **Community Meeting**, please let us know as soon as possible, or at the latest, by February 16, 2024. We would love to meet with you between February 26 - March 8, 2024.

After the meeting, if you prefer to submit your comments in writing, please do so within one month of the meeting date, as a draft of the EAP will be issued for review soon after that time. Any comments received after that date will only be included into the final EAP submission to Manitoba Environment and Climate who will post the document on the Public Registry for review.

Should you have any questions or comments, please do not hesitate to contact the undersigned at (204)-927-3444 ext. 251 or via email at EOuellette@scatliff.ca.

Sincerely,

Elise Ouellette
Public Engagement Support
Scatliff+Miller+Murray

Learn about Peat Harvesting

Fact Sheet

Harvesting Process:

Existing surface vegetation is removed from the site.

Drainage systems are constructed to lower the water content of the peat to be harvested.

The harvest area is leveled, crowned, and harrowed.

Peat is now able to be harvested.

Why is Peat Harvesting Important?

Peat is used for:

Improving Green Spaces

Plants are nurtured by peat moss, beautifying our parks, green spaces, gardens and patios. Plant-filled green spaces improve our outdoor environment.

Producing Food

Many of North America's commercial growers rely on high-quality peat moss and peat-based growing medium to produce food, such as tomatoes.

Starting Seeds

Peat moss is valued by horticulturalists because it can retain a high level of moisture and oxygen without becoming waterlogged or heavy. It is an ideal choice to start seeds.

Peat Moss Facts:

- Canada has more than 113 million hectares of peatlands (25% of the world's supply).
- Less than 0.03% of Canadian peatlands have been harvested
- The amount of peat moss harvested from Canadian peatlands every year is nearly 60 times less than the total annual accumulation of new peat moss.

sungro HORTICULTURE

Our Expertise is Growing

RESPONSIBLY MANAGED PEATLANDS CERTIFIED SCS GLOBAL SERVICES VERIFLORA® PROGRAM

sustainable peatland management

Who is Sun Gro Horticulture?

Sun Gro is committed to maintaining Canadian peatlands as an abundant renewable resource. Only bogs that can be restored are selected to be harvested, and are restored as soon as possible after harvesting.

Mission: Sun Gro Horticulture's mission is to be an industry leader in soilless growing mixes, serving horticultural professionals, retailers, and gardeners with superior quality, branded growing mixes that yield exceptional results.

Environmental Values:
Sun Gro employs the newest research, developments and management practices to ensure this valuable natural resource remains plentiful and renewable.

What is the Sugar Creek Project?

Fact Sheet

Timeline

Spring 2024
Submit Environment Act Proposal

Fall 2024 (Anticipated)
Obtain Environment Act Licence

Winter 2024/2025
Begin site preparation, begin harvesting

2062
End peat harvesting, begin site restoration

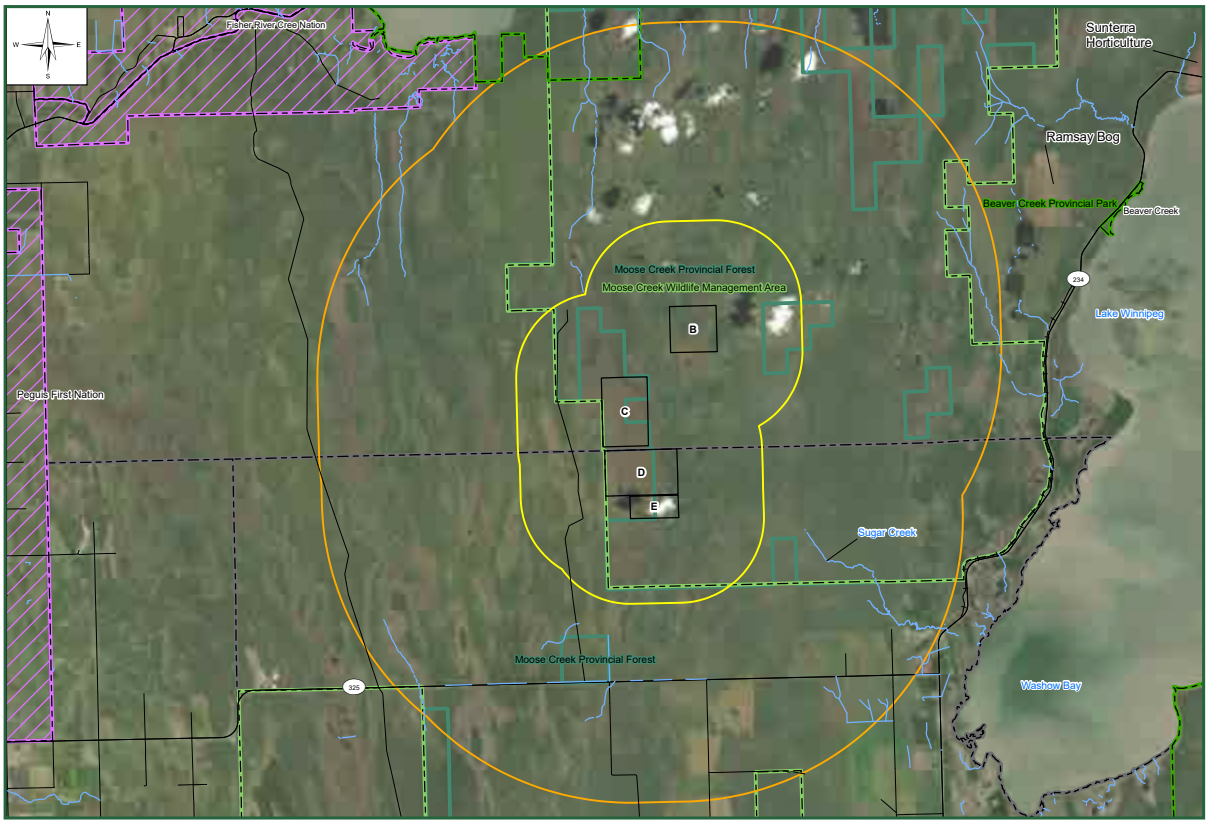
The Project

The proposed project includes harvesting up to 750 ha of peat at the Sugar Creek B, C, D and E sub-areas within the existing the Peat Harvesting Licence (PHL) 4. The harvest area is anticipated to be in operation for 37 years.

Harvested peat will be transported to a peat processing facility where it is prepared and packaged for horticultural purposes. Obtaining an Environment Act Licence is a requirement for proposed peat harvesting developments.

KGS will be assessing:

- Air quality
- Soil integrity/quality
- Surface water quality
- Wetland health
- Groundwater quality
- Aquatic & terrestrial vegetation
- Wildlife
- Fish & fish habitats
- Social & economic considerations



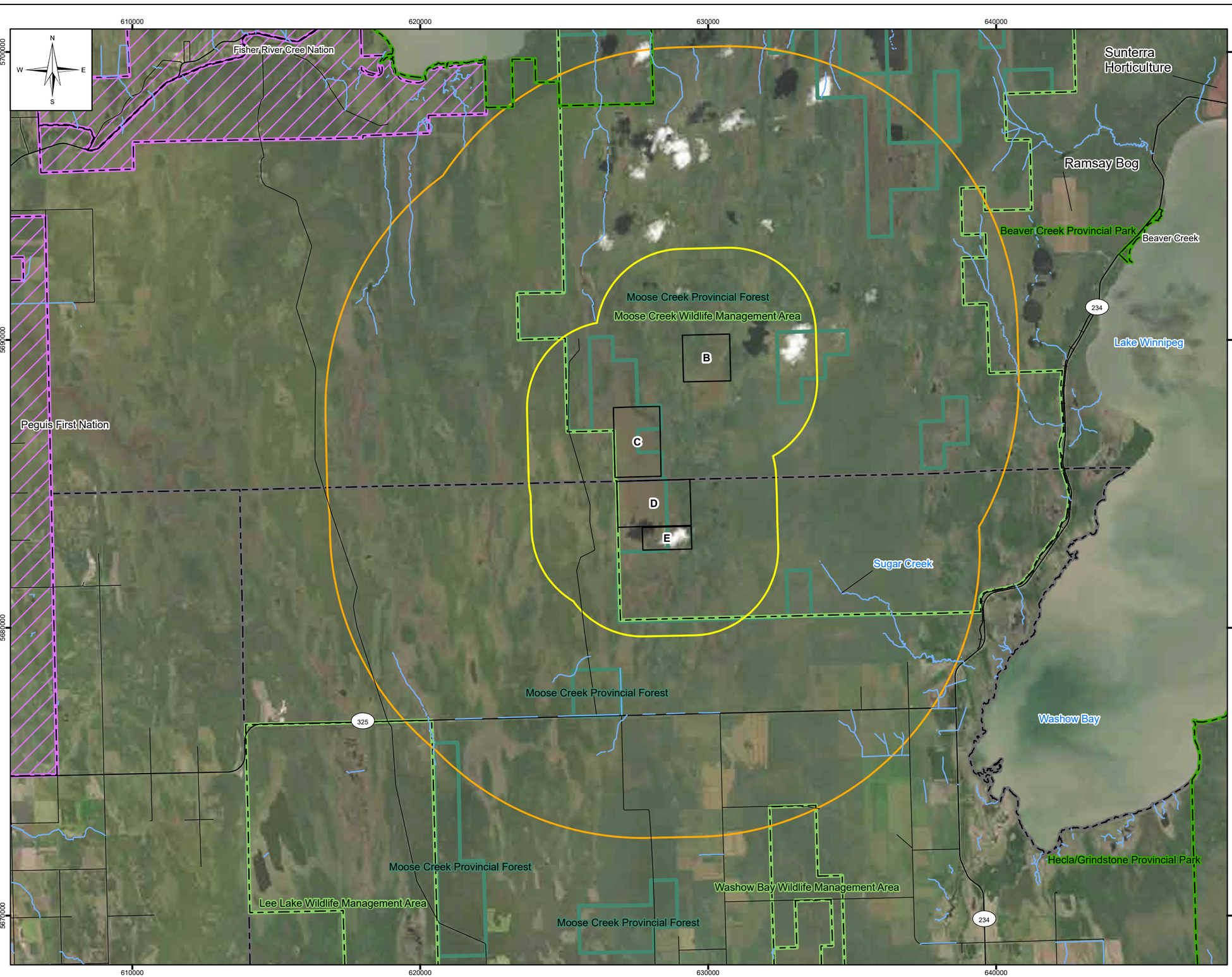
We want to hear from you.

KGS Group and Scatliff + Miller + Murray would like to invite you to provide feedback regarding the proposed development.

Your responses may be addressed, mitigated and/ or incorporated into the Environment Act Proposal.

If you have questions or comments, please do not hesitate to contact Elise Ouellette at Scatliff + Miller + Murray.

(204) 927-3444 ext. 251
EOuellette@scatliff.ca



LEGEND:

- Road
- Railway
- Provincial Road
- River
- Sugar Creek Sub-Area Boundary
- Study Area
- Regional_Area
- First Nation
- Provincial Forest
- Rural Municipality
- Rural Municipality Boundary
- Provincial Parks
- Wildlife Managment Areas

NOTES:
1. All units are metric and in metres unless otherwise specified. Transverse Mercator Projection, NAD 1983, Zone 14. Elevations are in metres above sea level (MSL).
2. Entire map extent is within the Peguis First Nation Community Interest Zone with the exception of the small area within the Hecla/Grindstone Provincial Park

DRAFT

1 0 1 2 3 4
Kilometres

SCALE: 1:128,000 METRIC 11"x17"

All units are metric and in metres unless otherwise specified. Transverse Mercator Projection, NAD 1983, Zone 14. Elevations are in metres above sea level (MSL).

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A	22/11/10	ISSUED FOR REVIEW	SFM	DL

REVISIONS / ISSUE

KGS GROUP | sungro HORTICULTURE

SUGAR CREEK
ENVIRONMENT ACT PROPOSAL

REGIONAL SITE LOCATION

NOVEMBER 2022 | FIGURE 01 | REV: A

FIGURE 1, PAGE 3

FileName: R:\Projects\2022\22-0293-003\Dwg\GIS\ArcPro\Sugar_Creek_Environment_Act\Sugar_Creek_Environment_Act.aprx 22-0293-003_Fig01 11"x17" PLOT SCALE: 1:1

APPENDIX D

1120-201 Portage Ave.
Winnipeg, MB R3B 3K6
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January 17, 2024

All Terrain Vehicle Association of Manitoba
PO Box 40110, RPO Lagimodiere
Winnipeg, Manitoba
R2C 4P3

Attention: All Terrain Vehicle Association of Manitoba (ATVMB) President

RE: Sun Gro Horticulture Canada Ltd.
Environment Act Proposal
Sugar Creek & Julius Lake West Peat Harvesting

Dear ATVMB President:

KGS Group (KGS) and Scatliff + Miller + Murray (SMM) are submitting this letter on behalf of Sun Gro Horticulture Canada Ltd. (Sun Gro). We are preparing an Environment Act Proposal (EAP) for a peatland development of the Sugar Creek sub-areas B, C, D, and E, and conducting engagement for two additional harvesting areas associated with Ramsay Point Bog within an existing Sun Gro Peat Harvest Licence (PHL) 4, and peat harvesting of the Julius Lake West sub-area within an existing Sun Gro PHL 3.

Obtaining an Environment Act Licence is a requirement for proposed peat harvesting developments. KGS and SMM are issuing this letter and accompanying fact sheets to provide a brief description of the project.

KGS and SMM would like to offer ATVMB the opportunity to provide comments or questions they have regarding the proposed developments to be addressed and incorporated into the EAP. We would like to offer some options for facilitating a conversation, providing project information, identifying your community's priorities, and hearing your feedback. You may select one or both of your choosing. Here are two engagement choices we offer for your consideration:

1. **Leadership Meeting** – An in-person or virtual meeting with ATVMB's leadership and other community members (as identified by the leadership), to learn about key project information, and to hear comments and questions regarding the proposed development from members of leadership.

2. **Community Meeting** – An in-person or virtual event with the community that will include a presentation by our team with relevant images and graphics to introduce the project, provide context and information about peat processing in Manitoba, and describe the potential effects and mitigation methods to reduce potential effects of the harvesting process.

The Environmental Assessment process will consider environmental concerns for the project, and be carried out based on project information provided by Sun Gro and advisory documents from Manitoba Environment and Climate. Additional considerations will include: environmental information acquired from published and online literature, publications by the peat industry and environmental organizations, discussions with federal and provincial government representatives, engagement with stakeholders, and site investigations which have been conducted by the project team.

Proposed Peat Development Locations

The proposed Sugar Creek peat development is located on Provincial Crown land within the Rural Municipality of Bifrost-Riverton and the Moose Creek Provincial Forest, west of Lake Winnipeg in close proximity to Washow Bay (Fact Sheet Figure 1). The sub-areas are 1,810 ha in size, within which up to 750 ha may be harvested, considering buffer areas at sub-area boundaries. Direct and indirect biological and physical environmental effects of the project will be considered within the project study areas, covering a 3 km radius beyond the sub-area boundary (10,736 ha). Socio-economic effects will be considered in the regional study area, covering a 10 km radius beyond the sub-area boundary (53,339 ha; Sugar Creek Figure 01).

Sugar Creek has an estimated 37 years of peat capacity which can be harvested over that time, starting once licensing and permitting requirements have been fulfilled. Major project activities will include: providing site access, clearing vegetation and surface soils, constructing drainage systems, stockpiling unprocessed peat; and transporting, restoring, and reclaiming harvested peatland.

Sun Gro also wishes to develop two additional harvesting areas associated with the existing Ramsay Point Bog Environment Act Licence (EAL; License #2964 ER). At the time of issuing the EAL for Ramsay Point Bog, the Province was in the process of transitioning to new regulations and Quarry Leases (QLs) which were in progress were included in Schedule B of the Manitoba Peatland Stewardship Act. QLs 2441 (65 ha) and 2460 (64 ha) are not currently included in PHL 4, however, licenced peat harvest areas can be amended by including QLs listed on Schedule B. Sun Gro wish to engage communities on the amendment of the PHL 4 to include the two QLs noted above.

The proposed Julius Lake West peat development at Julius Lake West sub-area is located in the Rural Municipality (RM) of Reynolds, north of Highway 15 and east of the Brokenhead River (see fact sheet map). The sub-area is 177 ha in size, within which up to 124 ha may be harvested, considering buffer areas at sub-area boundaries. Direct and indirect biological and physical environmental effects of the project will be considered within the project study areas, covering a 3 km radius beyond the sub-area boundary (4,606 ha). Socio-economic effects will be considered in the regional study area, covering a 10 km radius beyond the sub-area boundary (36,894 ha; Julius Lake West Figure 01).

Julius Lake West has an estimated 13 years of peat capacity which can be harvested over that time, starting once licensing and permitting requirements have been fulfilled. Major project activities will include: providing site access, clearing vegetation and surface soils, constructing drainage systems, stockpiling unprocessed peat; and transporting, restoring, and reclaiming harvested peatland.

Project Scope & More Information

The scope of the projects will include planning, designing, constructing, operating, and maintaining, as well as the eventual decommissioning and restoration of the proposed peat harvesting at Sugar Creek sub-areas B, C, D, and E, and at the Julius Lake West sub-area.

Further information can be found on the attached fact sheet about Peat Harvesting, Sun Gro, Sugar Creek, and Julius Lake West.

The assessment for the proposed developments will include identification, analysis, and mitigation of adverse environmental effects of the project, and evaluation of the significance of residual environmental effects. This will consist of both direct and indirect biophysical and socio-economic effects. The need for the project, alternatives, and requirements for a follow-up will be considered in the assessment.

Potential environmental concerns being considered in the EAPs include: air quality; soil integrity and quality; surface water quality; wetland health; groundwater quality; aquatic and terrestrial vegetation (with special emphasis on species of conservation concern); wildlife (with special emphasis on species of conservation concern); fish and fish habitat; and social and economic conditions associated with the proposed development.

Learn about Peat Harvesting

Fact Sheet

Harvesting Process:

Existing surface vegetation is removed from the site.

Drainage systems are constructed to lower the water content of the peat to be harvested.

The harvest area is leveled, crowned, and harrowed.

Peat is now able to be harvested.

Why is Peat Harvesting Important?

Peat is used for:

Improving Green Spaces

Plants are nurtured by peat moss, beautifying our parks, green spaces, gardens and patios. Plant-filled green spaces improve our outdoor environment.

Producing Food

Many of North America's commercial growers rely on high-quality peat moss and peat-based growing medium to produce food, such as tomatoes.

Starting Seeds

Peat moss is valued by horticulturalists because it can retain a high level of moisture and oxygen without becoming waterlogged or heavy. It is an ideal choice to start seeds.

Peat Moss Facts:

- Canada has more than 113 million hectares of peatlands (25% of the world's supply).
- Less than 0.03% of Canadian peatlands have been harvested
- The amount of peat moss harvested from Canadian peatlands every year is nearly 60 times less than the total annual accumulation of new peat moss.

sungro HORTICULTURE

Our Expertise is Growing

RESPONSIBLY MANAGED PEATLANDS CERTIFIED SCS GLOBAL SERVICES VERIFLORA® PROGRAM

sustainable peatland management

Who is Sun Gro Horticulture?

Sun Gro is committed to maintaining Canadian peatlands as an abundant renewable resource. Only bogs that can be restored are selected to be harvested, and are restored as soon as possible after harvesting.

Mission: Sun Gro Horticulture's mission is to be an industry leader in soilless growing mixes, serving horticultural professionals, retailers, and gardeners with superior quality, branded growing mixes that yield exceptional results.

Environmental Values:
Sun Gro employs the newest research, developments and management practices to ensure this valuable natural resource remains plentiful and renewable.

What is the Sugar Creek Project?

Fact Sheet

Timeline

Spring 2024
Submit Environment Act Proposal

Fall 2024 (Anticipated)
Obtain Environment Act Licence

Winter 2024/2025
Begin site preparation, begin harvesting

2062
End peat harvesting, begin site restoration

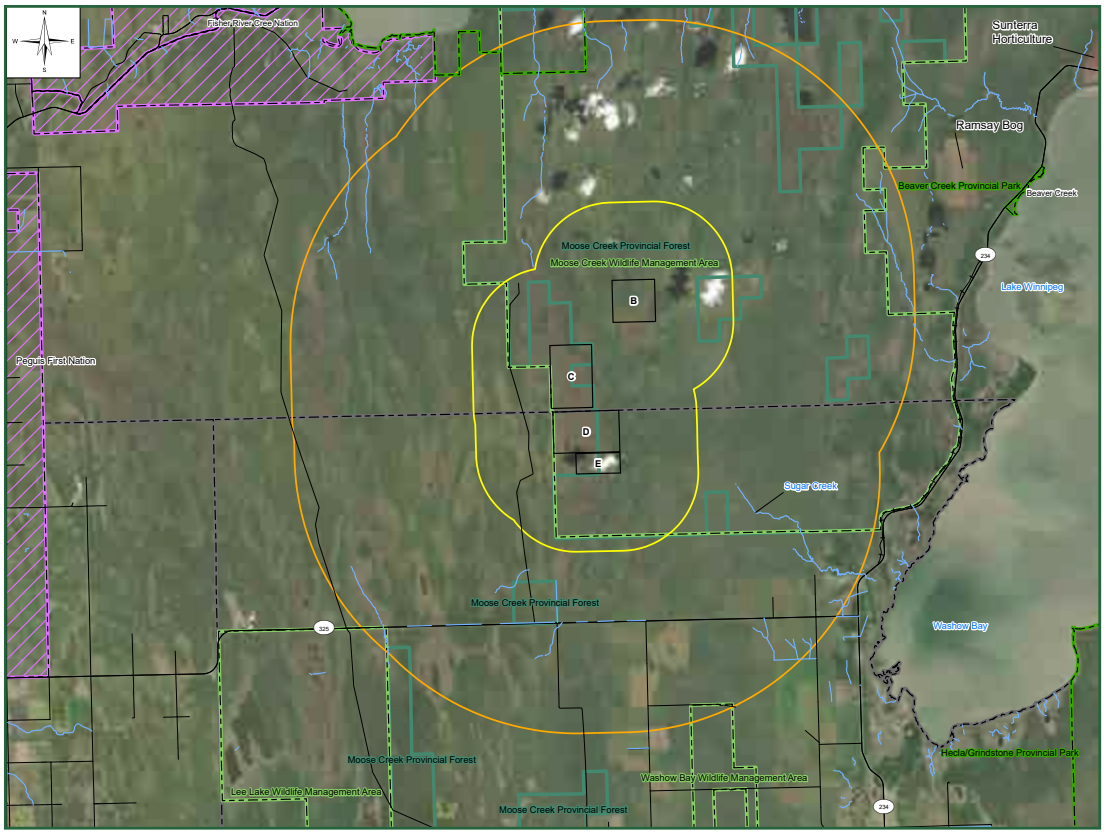
The Project

The proposed project includes harvesting up to 750 ha of peat at the Sugar Creek B, C, D and E sub-areas within the existing the Peat Harvesting Licence (PHL) 4. The harvest area is anticipated to be in operation for 37 years.

Harvested peat will be transported to a peat processing facility where it is prepared and packaged for horticultural purposes. Obtaining an Environment Act Licence is a requirement for proposed peat harvesting developments.

KGS will be assessing:

- Air quality
- Soil integrity/quality
- Surface water quality
- Wetland health
- Groundwater quality
- Aquatic & terrestrial vegetation
- Wildlife
- Fish & fish habitats
- Social & economic considerations



What is the Julius Lake West Project?

Fact Sheet

Timeline

Spring 2024
Submit Environment Act Proposal

Fall 2024 (Anticipated)
Obtain Environment Act Licence

Winter 2024/2025
Begin site preparation, begin harvesting

2038
End peat harvesting, begin site restoration

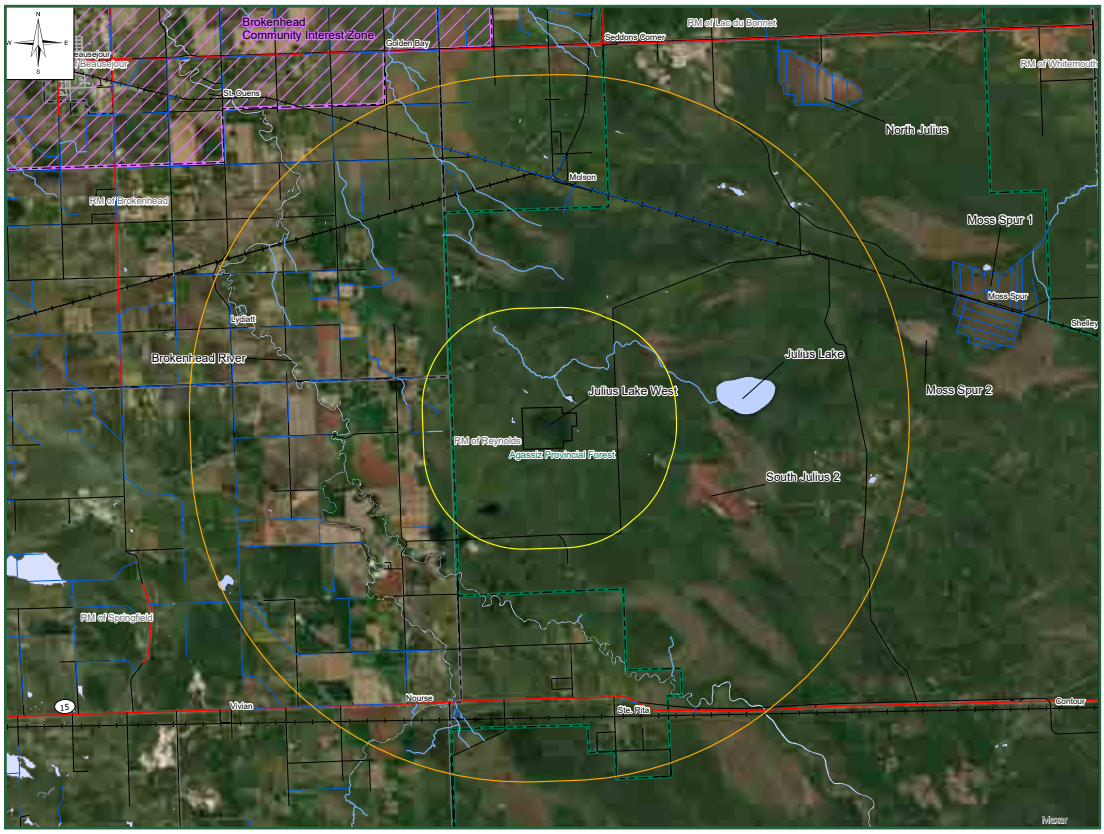
The Project

The proposed project includes harvesting up to 124 ha of peat at the Julius Lake West sub-area, within the existing the Peat Harvesting Licence (PHL) 3. The harvest area is anticipated to be in operation for 13 years.

Harvested peat will be transported to a peat processing facility where it is prepared and packaged for horticultural purposes. Obtaining an Environment Act Licence is a requirement for proposed peat harvesting developments.

KGS will be assessing:

- Air quality
- Soil integrity/quality
- Surface water quality
- Wetland health
- Groundwater quality
- Aquatic & terrestrial vegetation
- Wildlife
- Fish & fish habitats
- Social & economic considerations



We want to hear from you.

KGS Group and Scatliff + Miller + Murray would like to invite you to provide feedback regarding the proposed development.

Your responses may be addressed, mitigated and/or incorporated into the Environment Act Proposal.

If you have questions or comments, please do not hesitate to contact Elise Ouellette at Scatliff + Miller + Murray.

(204) 927-3444 ext. 251
EOuellette@scatliff.ca

FileName: R:\Projects\2022\22-0293-003\Dwg\GIS\ArcPro\Sugar_Creek_Environment_Act\Sugar_Creek_Environment_Act.aprx 22-0293-003_Fig01
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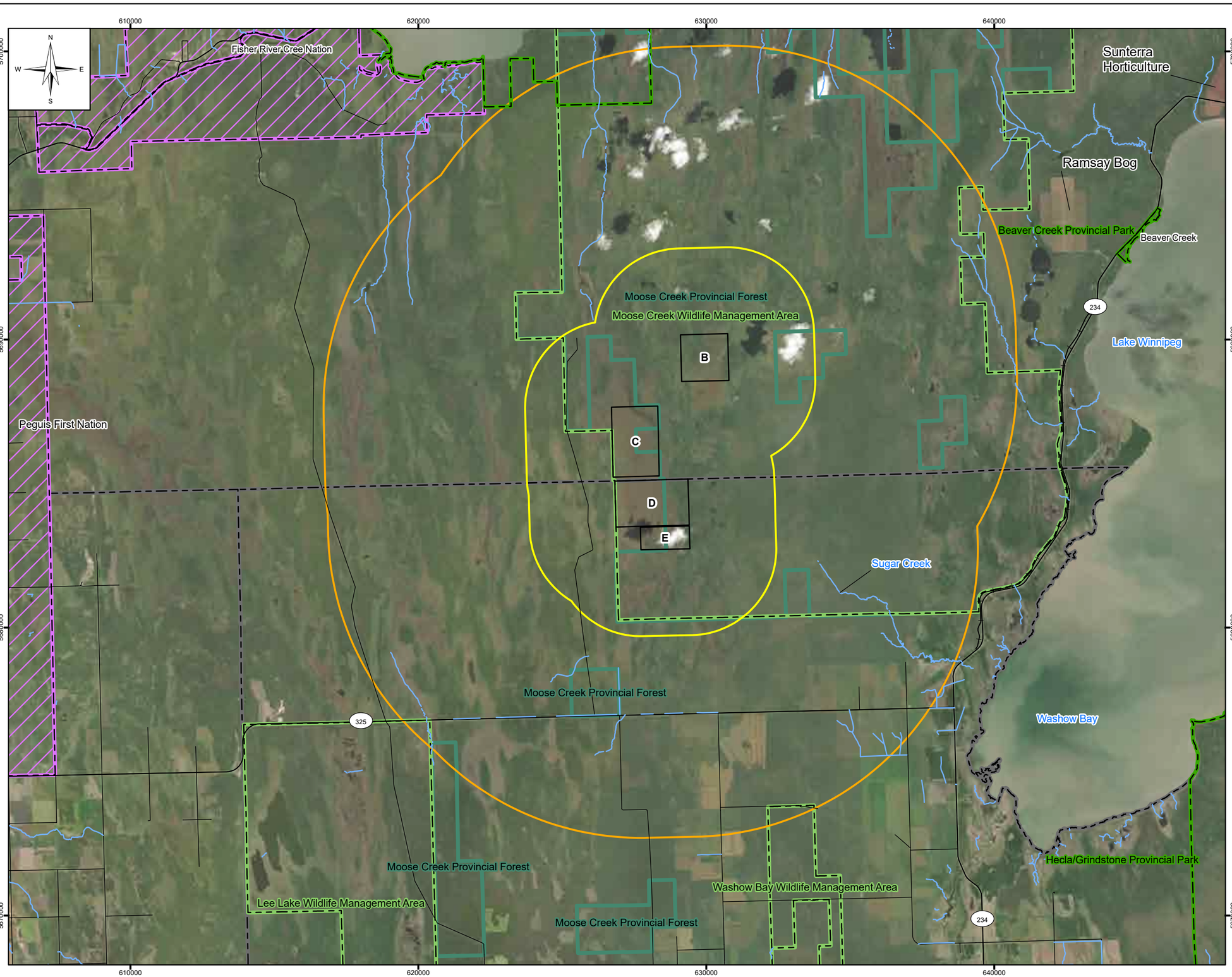

LEGEND:

- Road
- Railway
- Provincial Road
- River
- Sugar Creek Sub-Area Boundary
- Study Area
- Regional_Area
- First Nation
- Provincial Forest
- Rural Municipality
- Rural Municipality Boundary
- Provincial Parks
- Wildlife Managment Areas

NOTES:

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2. Entire map extent is within the Peguis First Nation Community Interest Zone with the exception of the small area within the Hecla/Grindstone Provincial Park

DRAFT

1 0 1 2 3 4
Kilometres

SCALE: 1:128,000 METRIC 11"x17"

All units are metric and in metres unless otherwise specified.
Transverse Mercator Projection, NAD 1983, Zone 14.
Elevations are in metres above sea level (MSL).

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KGS GROUP

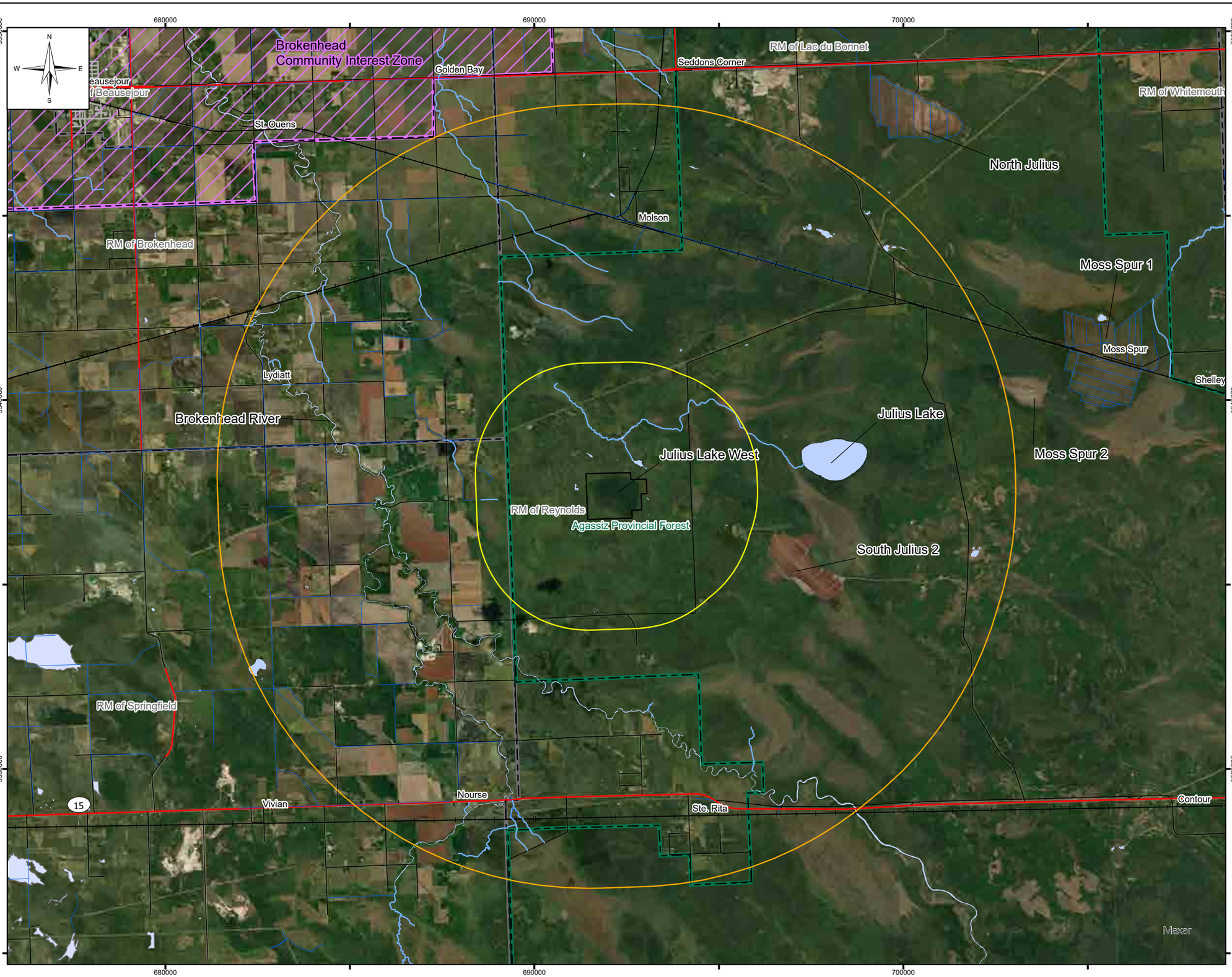
sungro HORTICULTURE

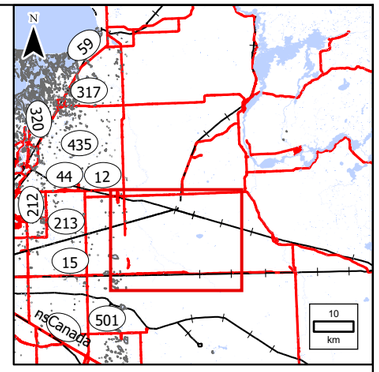
SUGAR CREEK
ENVIRONMENT ACT PROPOSAL

REGIONAL SITE LOCATION

NOVEMBER 2022	FIGURE 01	REV: A

SUGAR CREEK FIGURE 01, PAGE 4





LEGEND:

- Regional Study Area
- Project Study Area
- Julius Lake West sub-area boundary
- Road
- Major Road
- Street
- Railway
- Rural Municipality Boundary
- CommunityInterestZone
- Provincial Forests
- River
- DITCH
- Lake
- Marsh

NOTES:
1. All units are metric and in metres unless otherwise specified. Transverse Mercator Projection, NAD 1983, Zone 14. Elevations are in metres above sea level (MSL).

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Metres

SCALE: 1:100,000 METRIC 11"x17"

All units are metric and in metres unless otherwise specified. Transverse Mercator Projection, NAD 1983, Zone 14. Elevations are in metres above sea level (MSL).

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A	22/08/26	ISSUED FOR REVIEW	XXX	XXX

REVISIONS / ISSUE

KGS GROUP | sungro HORTICULTURE

JULIUS LAKE WEST
ENVIRONMENT ACT PROPOSAL

REGIONAL SITE LOCATION

SEPTEMBER 2022	FIGURE 01	REV. A

FileName: \\192.168.0.226\v-data\Projects\2022\22-0293-002\Dwg\GIS\ArcPro\Julius Lake West Environment Act\Julius Lake West Environment Act.aprx 22-0293-002_Fig01
11"x17" PLOT SCALE 1:1

If you are interested in a **Leadership Meeting** and/or **Community Meeting**, please let us know as soon as possible, or at the latest, by February 16, 2024. We would love to meet with you between February 26 - March 8, 2024.

After the meeting, if you prefer to submit your comments in writing, please do so within one month of the meeting date, as a draft of the EAP will be issued for review soon after that time. Any comments received after that date will only be included into the final EAP submission to Manitoba Environment and Climate who will post the document on the Public Registry for review.

Should you have any questions or comments, please do not hesitate to contact the undersigned at (204)-927-3444 ext. 251 or via email at EOuellette@scatliff.ca.

Sincerely,

Elise Ouellette
Public Engagement Support

APPENDIX E

From: Elise Ouellette
To: [redacted]
Cc: [redacted]
Subject: RE: Sun Gro EAP - Sugar Creek and Julius Lake West
Date: April 3, 2024 12:50:00 PM

Hi [redacted],

Thank you for your patience. At this time, we are conducting proponent-led engagement. While this is not a requirement of the EAP process, it is being conducted with the objective of identifying Indigenous interests and concerns with the project so that we can propose accommodation and mitigation measures early in the process.
The purpose of our initial meeting with Sagkeeng is to present project information and obtain initial feedback prior to completing and submitting the EAP. Currently, there are no technical documents to provide Sagkeeng prior to the meeting, as the EAP is the technical document that will be prepared assessing project effects. However, we can provide the draft Aquatic Assessment that was completed for Sugar Creek, and the draft Vegetation and Wildlife Species Summary Tables completed for both Sugar Creek and Julius Lake.

So far, funding has not been provided to any other communities we met with for the initial meeting. We believe this initial meeting will help us discuss all the points put forward by you in your previous email with the Sun Gro representatives. Would you be amenable to scheduling the first meeting during which Sagkeeng can identify additional steps required and their associated budget needs based on the information? This will be evaluated by Sun Gro prior to the EAP submission to identify accommodation and mitigation measures early in the process. Once the EAP is submitted, the Province will initiate the formal Duty to Consult process through which provincial funding is made available.

The first meeting will give Sagkeeng the opportunity to initiate the conversation regarding the IBA, to be followed up by Sun Gro.

Please let me know if you would like to proceed with setting up this initial meeting and your team's availability over the next two weeks for coordination.

Kind regards,

Elise Ouellette (she/her), BEnvD, MLA
Landscape Designer

SCATLIFF + MILLER + MURRAY
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204.927.3444 ext 251 I eouellette@scatliff.ca I www.scatliff.ca
1120–201 Portage Avenue I Winnipeg, Manitoba I R3B 3K6

From: [redacted]
Sent: Wednesday, March 27, 2024 11:15 AM
To: Elise Ouellette
Cc: [redacted]

Subject: RE: Sun Gro EAP - Sugar Creek and Julius Lake West

Hi Elise,

Thanks for the reply. Sagkeeng wants to make sure that the engagement process is meaningful, and not just checking boxes. To make sure it's meaningful, they'll need to be provided with the relevant technical documents in advance, and an understanding of what potential impacts might result from the project to Sagkeeng's rights, and the environment. This is best done by providing your technical documents, and funding for Sagkeeng to retain an independent technical advisor, but can also happen through a preliminary meeting where your team presents the information. After that, Sagkeeng will take the necessary steps to collect feedback from leadership and community members, and provide its knowledge to you in a way that will best facilitate protection of its rights.

I would suggest planning for at least 3 meetings – one for you to present the initial proposal and potential impacts, a second to discuss those potential impacts and Sagkeeng's views on them, and the third to discuss potential accommodation measures/changes to the project to prevent, mitigate and/or compensate/offset for those impacts.

Sagkeeng will need to be provided with a budget to fund this work. The budget will cover meeting costs, including honoraria for elders.
If that works for your team, I can get dates from Council for when they're available for the first meeting.

In terms of the IBA – Impact Benefit Agreements are standard practice in natural resource projects across Canada, including Manitoba. They provide companies with certainty that their project will be supported by its Indigenous neighbours (sometimes called 'social license') and in exchange, assures the affected Indigenous communities that their rights will be protected, and that they will benefit from the resources being extracted from their territory. Premier Kinew has spoken several times since his recent election about the Manitoba government's support for IBAs, and their importance to ensuring successful projects. Happy to share more information if there are specific questions.

Thanks very much,
[redacted]

[redacted]

***Click here to schedule a meeting with me**: Don't you hate going back and forth by email to schedule a quick check-in? Just click here to access my availability, find a time that works for you, and have an invite automatically sent to both our calendars.*

From: Elise Ouellette
Sent: Friday, March 22, 2024 3:17 PM
To: [redacted]
Cc: [redacted]

Subject: RE: Sun Gro EAP - Sugar Creek and Julius Lake West

Good afternoon [redacted],

Thank you for you email dated March 19. I appreciate your patience in my response.

The EAP has not yet been submitted and there is still time to organize a meeting with Sagkeeng. Could you please verify whether they want a community meeting or a leadership meeting and provide possible dates that would work for them.

Sun Gro has indicated that they want further clarification about the IBA – could you please provide me with more information, and I will pass to them. Alternatively, this can be discussed at the meeting.

Thank you,

Elise Ouellette (she/her), BEnvD, MLA
Landscape Designer

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1120–201 Portage Avenue I Winnipeg, Manitoba I R3B 3K6

From: [redacted]
Sent: Tuesday, March 19, 2024 11:14 AM
To: Elise Ouellette
Subject: Sun Gro EAP - Sugar Creek and Julius Lake West

Hello Elise,

I am writing on behalf of Sagkeeng First Nation in response to your letter dated January 17, and received by Sagkeeng on February 7th. Can you please advise on the status of the EAP, and whether there is an opportunity for Sagkeeng to be consulted on its development?

Sagkeeng is also interested in speaking with your client (the proponent) directly to discuss the possibility of an impact benefit agreement (IBA) with respect to this project. Could you please put us in touch with them?

Thank you,

[redacted]

[redacted]

Click here to schedule a meeting with me*: Don't you hate going back and forth by email to schedule a quick check-in? Just click here to access my availability, find a time that works for you, and have an invite automatically sent to both our calendars.*

250 University Avenue, 8th Floor
Toronto, ON M5H 3E5

APPENDIX F

1120-201 Portage Ave.
Winnipeg, MB R3B 3K6
204 . 927 . 3444
www.scatliff.ca

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March 15, 2024

Matheson Island Community Council
General Delivery
Matheson Island, MB R0C 2A0

Attention: [redacted]

RE: Sun Gro Horticulture Canada Ltd.
Environment Act Proposal
Sugar Creek Peat Harvesting

Dear Mr. [redacted]

KGS Group (KGS) and Scatliff + Miller + Murray (SMM) are submitting this letter on behalf of Sun Gro Horticulture Canada Ltd. (Sun Gro). We are preparing an Environment Act Proposal (EAP) for a peatland development of the Sugar Creek sub-areas B, C, D, and E, and conducting engagement for two additional harvesting areas associated with Ramsay Point Bog within an existing Sun Gro Peat Harvest Licence (PHL) 4. Obtaining an Environment Act Licence is a requirement for proposed peat harvesting developments. KGS and SMM are issuing this letter and accompanying fact sheets to provide a brief description of the project.

KGS and SMM would like to invite Matheson Island Community and Council to an in-person community meeting with the opportunity to provide comments or questions regarding the proposed development, to be addressed and incorporated into the EAP. We are planning to coordinate a community meeting for all communities and cottage sub-divisions in the area that may potentially beimpacted by the proposed project.

This in-person meeting will include a presentation by our team, followed by a question-and-answer session. The presentation will include relevant images and graphics to introduce the project, provide context and information about peat harvesting in Manitoba, and describe the potential effects and mitigation methods to reduce the potential effects of the harvesting process.

The Environmental Assessment process will consider environmental concerns for the project and be carried out based on project information provided by Sun Gro and advisory documents from Manitoba Environment and Climate Change. Additional considerations will include environmental information acquired from published and online literature, publications by the peat industry and environmental organizations, discussions with federal and provincial government representatives, engagement with stakeholders, and site investigations which have been conducted by the project team.

The proposed peat development is located on Provincial Crown land within the Rural Municipality of Bifrost-Riverton and the Moose Creek Provincial Forest, west of Lake Winnipeg near Washow Bay (see fact sheet map). The sub-areas are 1,810 ha in size, within which up to 750 ha may be harvested, considering buffer areas at sub-area boundaries. Direct and indirect biological and physical environmental effects of the project will be considered within the project study area, covering a 3 km radius beyond the sub-area boundary (10,736 ha). Socio-economic effects will be considered in the regional study area, covering a 10 km radius beyond the sub-area boundary (53,339 ha; Figure 1).

Sun Gro also wishes to develop two additional harvesting areas associated with the existing Ramsay Point Bog Environment Act Licence (EAL; License #2964 ER). At the time of issuing the EAL for Ramsay Point Bog, the Province was in the process of transitioning to new regulations and Quarry Leases (QLs) which were in progress were included in Schedule B of the Manitoba Peatland Stewardship Act. QLs 2441 (65 ha) and 2460 (64 ha) are not currently included in PHL 4, however, licenced peat harvest areas can be amended by including QLs listed on Schedule B. Sun Gro wish to engage communities on the amendment of the PHL 4 to include the two QLs noted above.

Further information can be found on the attached fact sheet about Peat Harvesting, Sun Gro, and both Sugar Creek Bog and Ramsay Point Bog.

The scope of the project will include planning, designing, constructing, operating, and maintaining, as well as the eventual decommissioning and restoration of the proposed peat harvesting at Sugar Creek sub-areas B, C, D, and E.

Sugar Creek has an estimated 37 years of peat capacity which can be harvested over that time, starting once licensing and permitting requirements have been fulfilled. Major project activities will include providing site access, clearing vegetation and surface soils, constructing drainage systems, stockpiling unprocessed peat; and transporting, restoring, and reclaiming harvested peatland.

The assessment for the proposed development will include identification, analysis, and mitigation of adverse environmental effects of the project, and evaluation of the significance of residual environmental effects. This will consist of both direct and indirect biophysical and socio-economic effects. The need for the project, alternatives, and requirements for a follow-up will be considered in the assessment.

Potential environmental concerns being considered in the EAP include air quality; soil integrity and quality; surface water quality; wetland health; groundwater quality; aquatic and terrestrial vegetation (with special emphasis on species of conservation concern); wildlife (with special emphasis on species of conservation concern); fish and fish habitat; and social and economic conditions associated with the proposed development.

If you are interested in attending this community meeting, please let us know as soon as possible, or at the latest, by March 29, 2024. The event will be scheduled in the period between April 2 - 12, 2024. Please inform us in your response if your community cannot attend certain dates within this range so we can schedule this meeting accordingly. If you have any suggestions for a location for this meeting that is convenient to your community, please also inform us. Please note that this community meeting will be for all communities and cottage sub-divisions in the area.

After the meeting, if you prefer to submit your comments in writing, please do so within one month of the meeting date as the EAP will be submitted to Manitoba Environment and Climate Change at that time. Any comments after the EAP is submitted will need to be directed to Manitoba Environment and Climate Change as part of the required 30-day public review period.

Should you have any questions or comments, please do not hesitate to contact the undersigned at (204)-927-3444 ext. 251 or via email at EOuellette@scatliff.ca.

Sincerely,

Elise Ouellette
Public Engagement Support
Scatliff+Miller+Murray

APPENDIX G

Sun Gro Environment Act Proposal for Sugar Creek In-Person Community Meeting

Elise Ouellette <EOuellette@scatliff.ca>

Thu 4/4/2024 11:40 AM

Good morning,

On behalf of Sun Gro Horticulture Canada Ltd. (Sun Gro), KGS Group (KGS) and Scatliff + Miller + Murray (SMM) is hosting an in-person community meeting regarding the Environment Act Proposal for Sugar Creek. The meeting will begin with a presentation by SMM and KGS, which will be followed by an question and answer session. A factsheet detailing the project is attached to this invitation for your information.

Please join this community meeting to learn more about the project and share your comments.

Date	**Time**	**Location**
April 15, 2024	5:00-6:30 p.m.	Pine Dock Hall (Lot 1 Pine Ave, Pine Dock, MB)

Please respond to this email if you plan to attend, including the number of people attending with you.

If you are unable to attend the meeting, please reach out to us and we will share a recording of the presentation and a survey to collect your input after the meeting. If you have questions about the event, please contact the undersigned at the SMM office at: (204) 927-3444 ext. 251, or EOuellette@scatliff.ca.

Sincerely,

Elise Ouellette (she/her), BEnvD, MLA
Landscape Designer

SCATLIFF + MILLER + MURRAY
visionary urban design + landscapes

204.927.3444 ext 251 I eouellette@scatliff.ca I www.scatliff.ca
1120–201 Portage Avenue I Winnipeg, Manitoba I R3B 3K6

APPENDIX H

MANITOBA MÉTIS FEDERATION

300 - 150 Henry Ave., Winnipeg, Manitoba R3B 0J7

Phone: (204) 586-8474 Fax: (204) 947-1816 Website: www.mmf.mb.ca

David Chartrand, LL.D. (hon), O.M.
President

January 18, 2024 *****VIA E-MAIL*****

Ms. Elise Ouellette
Landscape Designer
Scatliff + Miller + Murray
Suite 1120-201 Portage Avenue
Winnipeg, MB R3B 3K6

Dear Ms. Ouellette:

Re: Sun Gro Horticulture Canada Ltd. Environmental Act Proposal ("EAP"), Peatland Development, Sugar Creek sub-areas B, C, D, and E, and Engagement regarding Ramsay Point Bog and Julius Lake West Bog

I am writing to you on behalf of the Manitoba Métis Federation ("MMF")—the National Government of the Red River Métis, also known as the Manitoba Métis—to outline the MMF's concerns with respect to the preparation of an EAP for peatland development and engagement regarding peat harvesting within Ramsay Point Bog and Julius Lake West Bog. A project-specific response will be forthcoming.

Specifically, the MMF is deeply concerned with the lack of respect shown by Sun Gro Horticulture Canada Ltd., KGS Group, and Scatliff + Miller + Murray towards the Red River Métis and our constitutionally protected rights and interests because of your failure to follow the Resolution No. 8 despite our previous correspondence.

The Red River Métis are a distinct Indigenous People, Canada's Negotiating Partner in Confederation and Founders of the Province of Manitoba. As you are aware, in 2007 the MMF adopted Resolution No. 8, setting out the framework for engagement and consultation with the Red River Métis. In engaging the MMF, on behalf of the Red River Métis, the Resolution No. 8 framework calls for the implementation of five phases.

Phase I: Notice and Response;
Phase II: Research and Capacity;
Phase III: Engagement and Consultation;
Phase IV: Partnership and Accommodation; and,
Phase V: Implementation.

The Engagement and Consultation Department works to ensure a distinctions-based approach and sets out the community's expectations for appropriate consultation and engagement by the Crown and Proponents. The Department ensures any decision or project that may affect our collective Métis rights, interests and claims is addressed in matters related to engagement, consultation, and accommodation.

The proposed Projects are located within the Recognized Métis Harvesting Area - an area in which the provincial Crown has recognized the *Section 35* Métis harvesting rights of our Community, including hunting, trapping, fishing and gathering for food and domestic use. Our Citizens, including harvesters, continue to use and rely on this area to exercise their rights today. Therefore, a full, proper, and meaningful engagement process with the MMF on behalf of the Red River Métis community through the processes as set out above will need to be followed.

Please note the MMF Project lead will be [redacted], Mines and Minerals Coordinator within our Energy, Infrastructure, and Resource Management Department. Please contact her via telephone at [redacted], or via email at [redacted] if you have any questions regarding this letter.

The MMF looks forward to working collaboratively with KGS Group and Scatliff + Miller + Murray on this Project to ensure that Métis-specific information and concerns are gathered from the Community through a full, proper, and meaningful engagement.

Best regards,

[redacted]

[redacted]
[redacted]

[redacted]

[redacted]
[redacted]
[redacted]
[redacted]

SCATLIFF + MILLER + MURRAY

visionary urban design + landscapes

January 31, 2024

Ms. [redacted]
Mines and Minerals Coordinator
Manitoba Metis Federation
300-150 Henry Avenue
Winnipeg, MB R3B 0J7

RE: Sun Gro Horticulture Canada Ltd. Environment Act Proposal, Peatland Development, Sugar Creek sub-areas B, C, D, and E, and Engagement regarding Ramsay Point Bog and Julius Lake West Bog

Dear [redacted]:

Our sincere thanks to the Manitoba Metis Federation (MMF) for the response and confirmation of receipt of Scatliff + Miller + Murray's (SMM) letter, on behalf of KGS Group, regarding Sun Gro Horticulture Canada Ltd. (Sun Gro) Environment Act Proposal (EAP). The EAP is in preparation for peatland development of the Sugar Creek sub-areas B, C, D, and E, and conducting engagement for two additional harvesting areas associated with Ramsay Point Bog within an existing Sun Gro Peat Harvest Licence (PHL) 4, and peat harvesting of the Julius Lake West sub-area within an existing Sun Gro PHL 3.

We recognize the distinctive identity of the Manitoba Metis Community with rights and interests that are protected in Section 35 of the *Constitution Act, 1982*, throughout Manitoba. We extend our sincere apologies for not adhering to Resolution No. 8. It was never our intention to disrespect the Red River Métis. We acknowledge the need to strengthen our internal understanding of Resolution 8 and its application within the context of this EAP. Steps are being taken to better educate our team.

Since your response on January 18, 2024, we have collaborated internally to assess how we can modify the current engagement process to align with MMF's Resolution 8 more closely. We understand that the resolution advocates for a distinctions-based approach to engagement in the Province and outlines the community's expectations for appropriate consultation and engagement through the implementation of the five phases mentioned in your letter. We also recognize that each phase must be successfully completed before progressing to the next, as they engage different levels of the MMF governance structure. We are committed to working collaboratively with the MMF, making sure that we are better adhering to Resolution 8 hereafter, as we continue to prepare this EAP.

We kindly request your consideration to:

- Initiate Phase 1: Notice and Response of Resolution 8 based on our submitted letter and factsheets regarding Julius Lake and Sugar Creek dated January 17, 2024.
- Table questions concerning engagement dates and time until after the completion of Phase 2: Research and Capacity.

We will initiate Phase 2 of Resolution 8 only after MMF has had the opportunity to conduct a preliminary technical review of the information provided, identifying appropriate rights holders for engagement during this EAP preparation. We appreciate your understanding and cooperation as we strive to ensure meaningful engagement with the Red River Métis Community.

Kindly let us know if you are amenable to this modification and the subsequent steps to continue this engagement process.

Thank you for your time and consideration.

Should you have any questions or comments, please do not hesitate to contact me at (204)-927-3444 ext. 242 or via email at smada@scatliff.ca.

Sincerely,

On behalf of Elise Ouellette
Sanjana Mada, M.Plan
Public Engagement Specialist

MANITOBA MÉTIS FEDERATION WORK-PLAN AND BUDGET

April 8, 2024

Red River Métis Engagement

The Manitoba Métis Federation (MMF) intends to undertake Red River Métis engagement specific to Sun Gro's Environment Act Proposal (EAP) for peatland development of the Sugar Creek sub-areas B, C, D, and E, two additional harvesting areas associated with Ramsay Point Bog within an existing Sun Gro Peat Harvest Licence (PHL) 4, and peat harvesting of the Julius Lake West sub-area within an existing Sun Gro PHL 3. The engagement will consist of a community meeting that will focus on Sun Gro's EAP, long-term planning, harvesting, and road access development in the proposed peatland development areas. Through the engagement, the MMF will document Red River Métis comments, questions, concerns, and recommendations.

The capacity support will also be used to prepare a high-level summary of Red River Métis specific perspectives that includes the results from the community engagement meeting.

Meeting Format

1. MMF staff opens and facilitates the meeting.
2. Present information and answer questions relevant to the proposed EAP and the additional harvest areas within PHL 3 and 4.
3. MMF meets with Red River Métis Citizens to discuss the information and collect comments, questions, concerns, and recommendations to mitigate or accommodate potential impacts.

ITEM	DETAILED BREAKDOWN (of Total Cost)	SUBTOTAL	TOTAL COST
Honoraria Includes honoraria paid for Red River Métis Citizens	Honoraria • Honoraria for community meetings with up to 50 participants • $50.00 per meeting/interview	$2,500	$2,500
Travel Includes travel, accommodation, and meal costs for Citizens and staff to attend meeting	**50 Red River Métis Citizens** - Travel = $0.40 per km x 50 km x 50 participants = **$1,000**	$1,000	$1,000

Meeting Facilities and Catering	Meeting facility - $1,000 Catering - $1,000	$1,000 $1,000	$2,000
Community Meeting Costs associated with community meeting, printing, and promotion	Meeting Materials • Creation of outreach materials, including survey • Coordination of community meeting with Red River Métis Citizens	$2,000	$2,000
Documentation and Reporting One report	The report will summarize Red River Métis traditional knowledge, land use and occupancy within proposed peatland development areas and summarize Red River Métis comments, questions, concerns and recommendations to mitigate or accommodate potential impacts identified during the engagement meeting.	$9,000	$9,000
Administrative	Clerical and financial support services associated with managing funds, monitoring invoices, dispersing payments, tracking expenditures, and ensure activities are within agreed deliverables and budget.	$2,475	$2,475
Total:			**$18,975**

APPENDIX I

Environment Act Proposal

for a peatland development at
Sugar Creek sub-areas B, C, D, and E

+

Engagement

for two additional harvesting areas
associated with Ramsay Point Bog

April, 2024

Presentation Outline

1. Our Process
2. Overview of Peatland Development
3. Who is Sun Gro Horticulture?
4. The Projects
5. The Environmental Assessment Process
6. Typical Environmental Issues and Mitigation Measures
7. Questions?

Our Process

- KGS Group is:
  - preparing an Environment Act Proposal (EAP) for peatland development at Sugar Creek (SC) sub-area B, C, D, and E
  - conducting engagement for two additional sub-areas associated with Ramsay Point Bog

Our Process

- The EAP process will consider biophysical environmental effects of the project (3km radius surrounding the sub-area)
- The EAP process will consider Socio-Economic effects of the project (10km radius surrounding the sub-area)
- We want to hear your comments and feedback as part of the EAP process

Peatlands in Canada & Manitoba

Canada

- covers 113 million ha (25% of global peatlands)
- 70 million tonnes of new peat created per year
- < 0.03% has been harvested to date
- more peat is created than is harvested (60 times more)

Manitoba:

- covers 20 million ha (or 17% of Canada's peatlands)
- peat harvesting started in 1940 at Julius Bog
- Manitoba = 13% of national production
- see map for active peat producers

Current Manitoba Peat Harvest Licences (April 2015)

How is Peat Harvested?

1
Remove existing surface vegetation

2
Construct drainage to lower water content of peat

3
Levelling, crowning, harrowing, and drying of harvest area

4
Dried surface peat is vacuum harvested, screened, baled, packaged, and shipped

Why is Peat Harvesting Important?

Improves Growing Conditions

- regulates moisture, air, and nutrients around plant roots.
- loosens heavy soils which enables proper root growth.
- helps bind and retain moisture and nutrients in sandy soils.

Improves Green Spaces

Plants are nurtured by peat moss, which helps improve our environment.

Saves Water During Growing

Peat moss retains up to 20 times its weight in moisture and releases water slowly as seeds and plants need it.

Food Production

Commercial growers rely on high quality peat moss and peat based growing media to produce food.

Industries Sun Gro's Peat Products Support

Growing Media

Mushrooms

Herbs and Vegetables

Flower Horticulture

Tree Plantations

Who is Sun Gro Horticulture?

History:

Formed in 1929, Sun Gro currently operates 22 production facilities across North America and handles thousands of tons of peat per year.

Mission:

To be an industry leader in soilless growing mixes, serving horticultural professionals, retailers, and gardeners with superior quality, branded growing mixes that yield exceptional results.

A commercial grower leader:

Sun Gro has created the highest quality, most advanced mixes, and peat products for consumers and professional growers across North America.

sustainable peatland management

Sun Gro's Values

Environment:

- maintain Canadian peatlands as an abundant renewable resource
- employ the newest research, development, and management practices to ensure peatlands remain plentiful and renewable
- only select bogs that can be restored as soon as possible after harvesting

Local Communities:

- committed to training and hiring local residents for jobs that are safe and pay a fair wage (82 employees in the Interlake and Southeastern Manitoba are locally hired).

Sharing Knowledge:

- Sun Gro finds ways to improve business for the benefit of all by learning from others and sharing knowledge

Long-Term Thinking:

- frames our decision-making to help secure a brighter future

Sun Gro's Values

Sun Gro is Committed to Supporting Ongoing Research That Align With Their Values

- Environment
- Local Communities
- Sharing Knowledge
- Long-Term Thinking

1

Fen peatland restoration and ecotone creation in south-eastern Manitoba
By Pete Whittington, PhD, & Maria Strack, PhD

Conducted at Sun Gro's Elma bog area

2

Fen restoration in Manitoba
By Peatland Ecology Research Group (PERG)

Conducted at Sun Gro's South Julius, Moss Spur and Elma bog areas

The Sugar Creek Sub-Area B, C, D, & E Bog Project

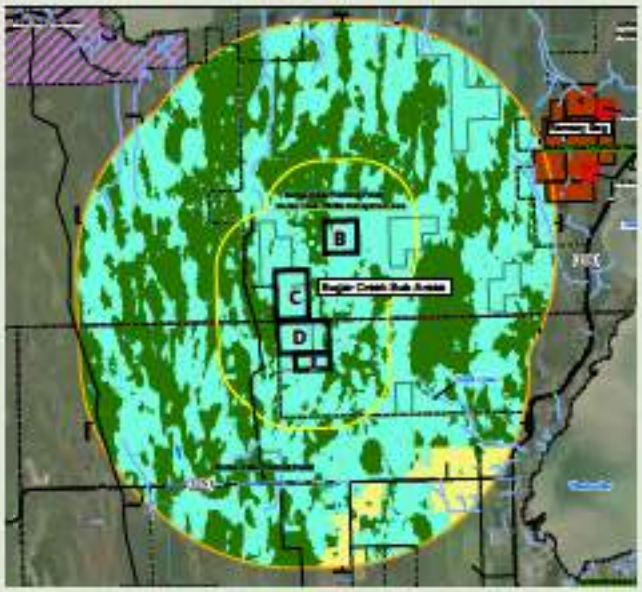
Context

Location:

- Provincial Crown land within the Rural Municipality of Bifrost-Riverton and the Moose Creek Provincial Forest, west of Lake Winnipeg in close proximity to Washow Bay
- adjacent to existing peat harvesting operations (Ramsay Point Bog)

Existing Conditions:

- 1,810 ha total, up to 750 ha of peat will be harvested (due to sub-area boundary buffers)
- no water bodies within sub-area boundaries



Sugar Creek Bog Sub-Area B, C, D, & E: Regional Landcover

LEGEND:

- Agriculture
- Undeveloped Upland Forest
- Peat Harvest Area
- Bog Areas

The Ramsay Point Bog Engagement

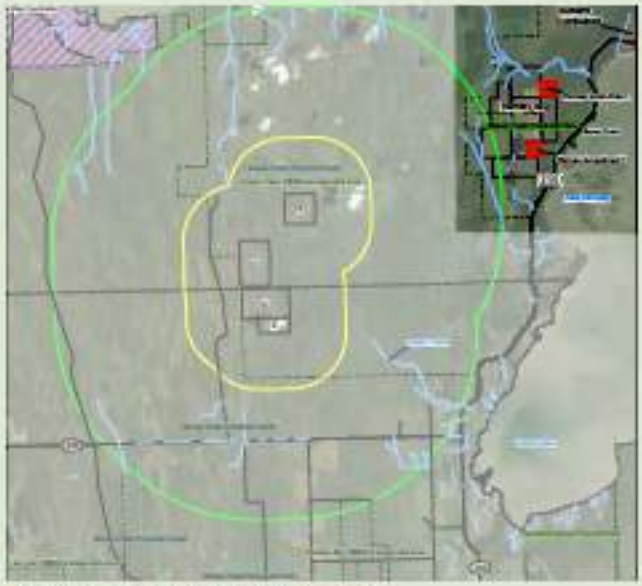
Context

Location:

- adjacent to Provincial Road 234
- west of Beaver Creek Provincial Park and east of Moose Creek Provincial Forest

Existing Conditions:

- two additional harvesting areas associated with the existing Ramsay Point Bog Environment Act Licence (EAL; License #2964 ER)
- former Quarry Leases were not included in PHL 4
- amendment of the PHL 4 to include the two highlighted sub-areas



Ramsay Point Bog Sub-Area: Location

Sun Gro Peat Harvesting Projects

Description

Typical development includes the following components:

1. site preparation and access
2. water management
3. harvesting and shipping
4. recovery

Sugar Creek Bog Site Preparation and Access

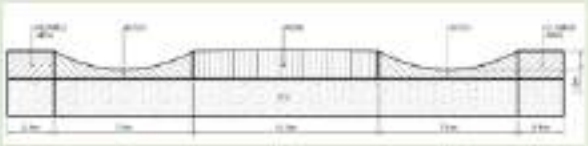
Site Preparation:

- approximately 80 ha will be cleared per year

Access Roads:

- an approximately 7.8km access road will be constructed from PR 325 to the SW corner of sub-area E
- 6km of the access road will follow an existing trail that will need to be upgraded
- ditching on each side of the access road will be installed outside of bog area only
- culverts will be installed, where required, to maintain existing drainage

Sugar Creek Bog Sub-Area: Site Access



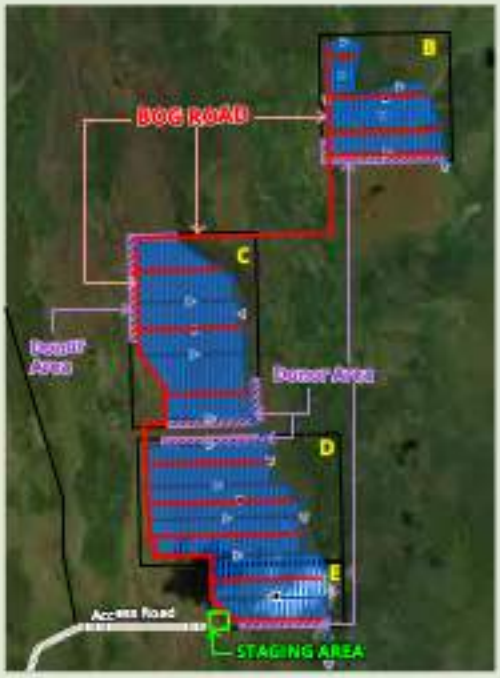
Road Cross-section

Sugar Creek Bog Site Preparation and Access

Staging area of 4 ha in size will be developed the SW corner of sub-area E consisting of:

- shop / office / lunchroom building (one building) - for equipment maintenance, refuelling and for employees
- gravel surface
- no groundwater wells will be installed

Site Preparation



Sugar Creek Bog Sub-Area: Site Preparation

Water Management

Ground and surface water management requires:

- field drainage ditches
- main drainage ditches
- overland flow siltation

Imapct to local hydrology:

- initial construction of drainage will result in a temporary (3 week) increase in local runoff
- during operation there will be no change in the volume runoff

Example of sedimentation ponds

Field Drain Construction with Typical Profile of 1.5m x 1.5m at ~33m Intervals

Harvesting and Shipping

Four phases:

1. field harrowing
2. harvesting
3. on-site stockpiling and transport to the processing plant near:
   - Elma, MB and Vassar, MB
4. shipped to customers

Peat Harvesting at Existing Sun Gro Sites

Peat Harvesting at Existing Sun Gro Sites

Recovery

Process:

- Peatland Restoration Plan under the Peatland Stewardship Act
- recovery plan to replace elements lost due to peat harvesting (e.g. vegetation)
- recovery is progressive and based on research and guidelines

North Moss Spur Shortly After Restoration (1996)

North Moss Spur Nine (9) Years After Restoration (2005)

Environmental Assessment Process

Under *The Environment Act*, an EAP is required for all environmentally significant projects in MB.

1

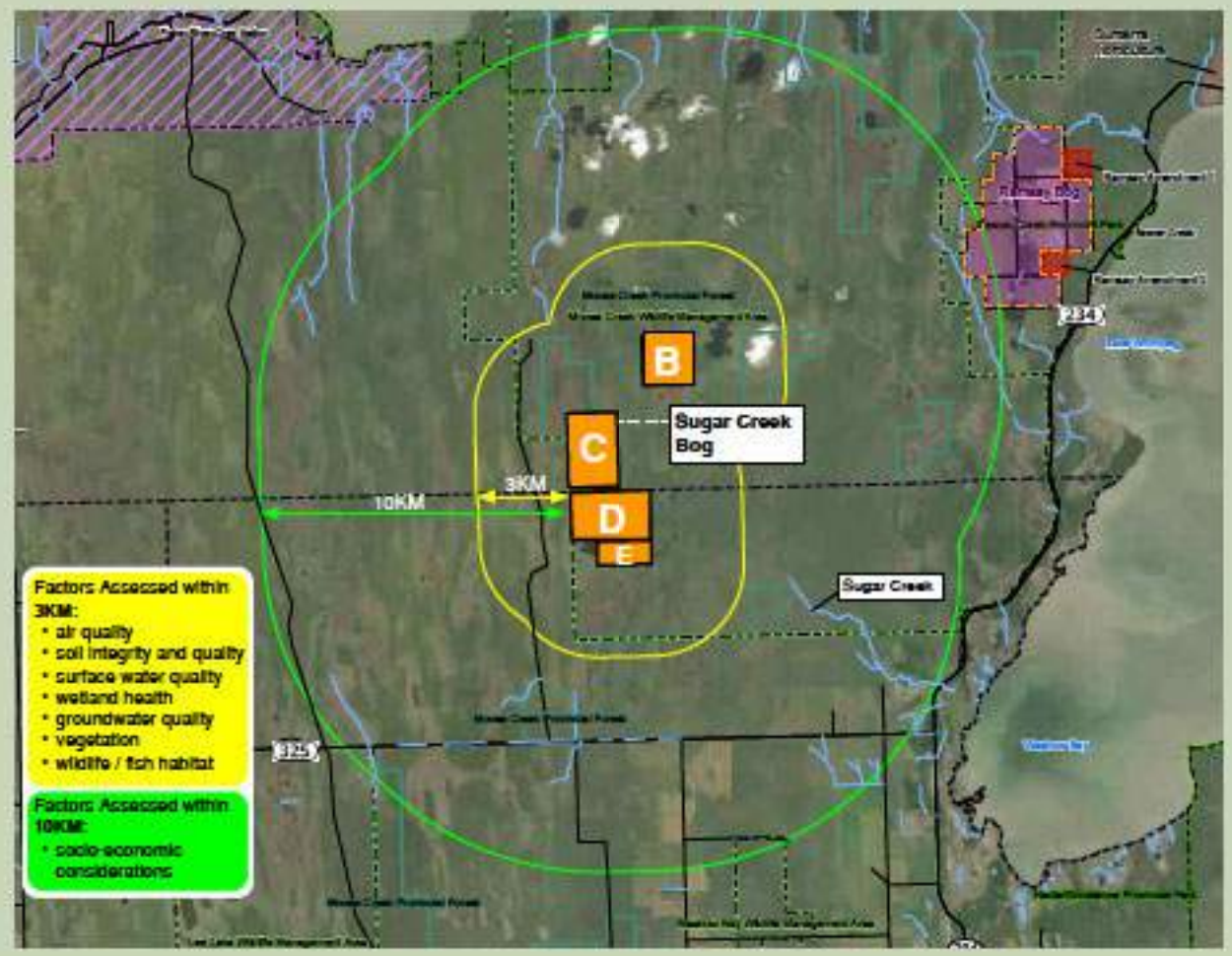
Prepare a project description:

- types and quantities of materials
- harvesting operation methods
- harvesting schedule
- site layout (drainage management)
- environmental controls (e.g. noise)
- resource usage (e.g. water)
- waste management (e.g. sewage)

2

Assess environmental factors

- air quality
- soil integrity and quality
- surface water quality
- wetland health
- groundwater quality
- vegetation
- wildlife / fish habitat
- socio-economic considerations



Environmental Assessment Process (contd.)

3. **Engage the public, stakeholders and Indigenous communities:**
   - letters and factsheets sent by email and regular post on January 17, 2024
4. **Assess effects:**
   - effects of the project on the environment and vice versa
5. **Identify mitigation measures:**
   - to eliminate or reduce adverse project effects to acceptable levels
6. **Assess residual effects after mitigation**
7. **Prepare and file the Final EAP Report** to Manitoba Environment and Climate Change (MECC) Environmental Approvals Branch for review / approval
8. **Monitor the effectiveness of the mitigation measures** during project implementation

Typical Environmental Issues and Mitigation Measures

Concerns:

- accidents
- soil loss
- surface water contamination
- dust emissions
- noise
- drainage changes
- wildlife / habitat loss
- loss of wetlands / vegetation
- CO_2 emissions
- public opposition

Mitigation Measures:

- operations-maintenance/emergency manuals
- harvested area: (750ha) < Sub-Area (1,810ha)
- project drainage
- peat creation > peat harvesting
- progressive recovery plans
- reduce dust (e.g. moisten stockpiles)
- local jobs / economic development

Project Timeline

Thank You

Questions?

APPENDIX J

Environment Act Proposals

for a peatland development at Julius Lake West & Sugar Creek sub-areas B, C, D, and E

+

Engagement

for two additional harvesting areas associated with Ramsay Point Bog

March, 2024

Presentation Outline

1. Our Process
2. Overview of Peatland Development
3. Who is Sun Gro Horticulture?
4. The Projects
5. The Environmental Assessment Process
6. Typical Environmental Issues and Mitigation Measures
7. Questions?

Our Process

- KGS Group is:
  - preparing seperate Environment Act Proposals (EAP) for the following two peatland development sites:
    i. Julius Lake West (JLW) sub-area
    ii. Sugar Creek (SC) sub-area B, C, D, and E
  - conducting engagement for two additional sub-areas associated with Ramsay Point Bog

Our Process

- The EAP process will consider biophysical environmental effects of the project (3km radius surrounding the sub-area)
- The EAP process will consider Socio-Economic effects of the project (10km radius surrounding the sub-area)
- We want to hear your comments and feedback as part of the EAP process

Peatlands in Canada & Manitoba

Canada

- covers 113 million ha (25% of global peatlands)
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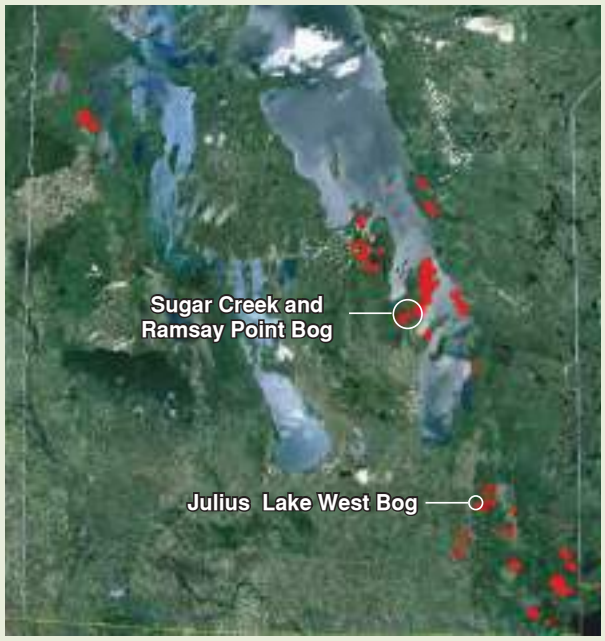

Current Manitoba Peat Harvest Licences (April 2015)

How is Peat Harvested?

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Improves Growing Conditions

- regulates moisture, air, and nutrients around plant roots.
- loosens heavy soils which enables proper root growth.
- helps bind and retain moisture and nutrients in sandy soils.

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Plants are nurtured by peat moss, which helps improve our environment.

Saves Water During Growing

Peat moss retains up to 20 times its weight in moisture and releases water slowly as seeds and plants need it.

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Commercial growers rely on high quality peat moss and peat based growing media to produce food.

Industries Sun Gro's Peat Products Support

Growing Medium

Mushrooms

Herbs and Vegetables

Flower Horticulture

Tree Plantations

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Sun Gro's Values

Environment:

- maintain Canadian peatlands as an abundant renewable resource
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- committed to training and hiring local residents for jobs that are safe and pay a fair wage (82 employees in the Interlake and Southeastern Manitoba are locally hired).

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- Environment
- Local Communities
- Sharing Knowledge
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Conducted at Sun Gro's Elma bog area

2

Fen restoration in Manitoba
By Peatland Ecology Research Group (PERG)

Conducted at Sun Gro's South Julius, Moss Spur and Elma bog areas

The Julius Lake West Bog Project

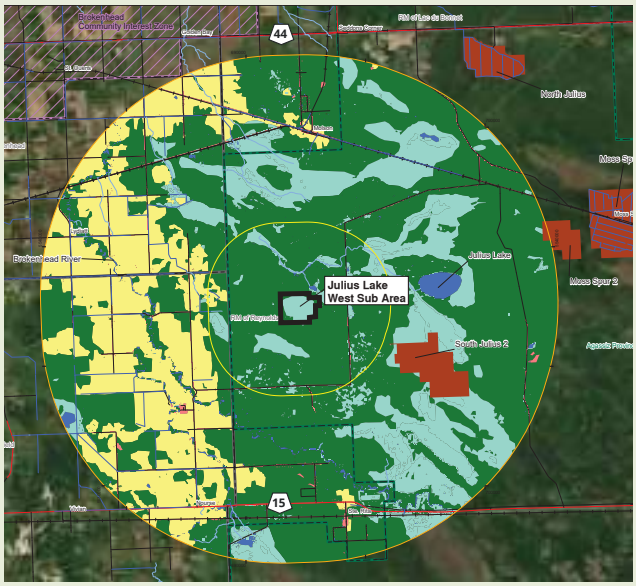
Context

Location:

- Provincial Crown land within the Rural Municipality of Reynolds and Agassiz Provincial Park, north of Highway 15, south of Highway 44, and east of the Brokenhead River
- within an existing Sun Gro Peat Harvest Licence (PHL) 3 area
- near existing peat harvesting operations (South Julius 2 Sub-Area)

Existing Conditions:

- 177ha total, up to 124ha of peat will be harvested at maximum (due to sub-area boundary buffers)
- no water bodies within the sub-area boundary



Julius Lake West Bog Sub-area: Regional Landcover

LEGEND:

- Agriculture
- Undeveloped Upland Forest
- Wetland/Bog Areas
- Peat Harvest Area
- Water Body
- Built Environment

The Sugar Creek Sub-Area B, C, D, & E Bog Project

Context

Location:

- Provincial Crown land within the Rural Municipality of Bifrost-Riverton and the Moose Creek Provincial Forest, west of Lake Winnipeg in close proximity to Washow Bay
- adjacent to existing peat harvesting operations (Ramsay Point Bog)

Existing Conditions:

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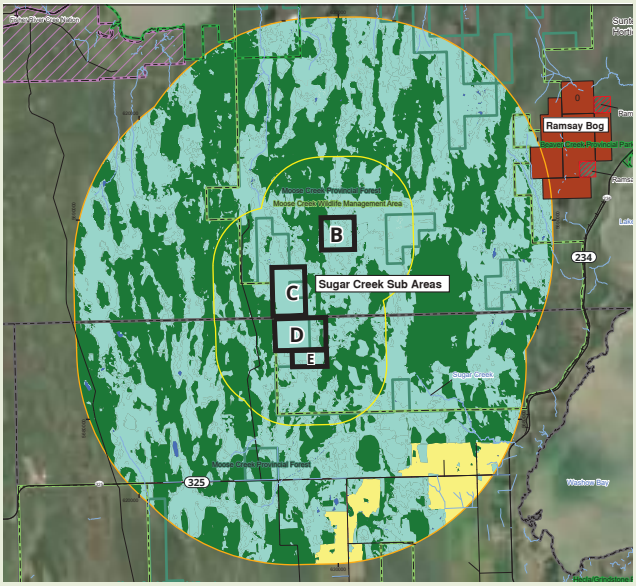

Sugar Creek Bog Sub-Area B, C, D, & E: Regional Landcover

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The Ramsay Point Bog Engagement

Context

Location:

- adjacent to Provincial Road 234
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Existing Conditions:

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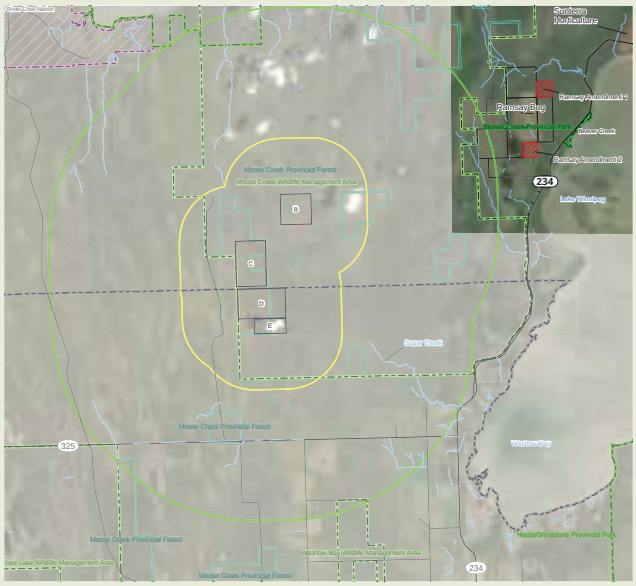


Ramsay Point Bog Sub-Area: Location

Sun Gro Peat Harvesting Projects

Description

Typical development includes the following components:

1. site preparation and access
2. water management
3. harvesting and shipping
4. recovery

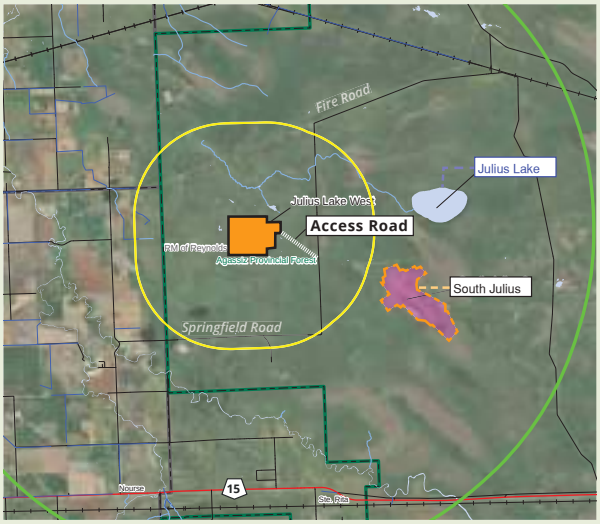
Julius Lake West Bog Site Preparation and Access

Site Preparation:

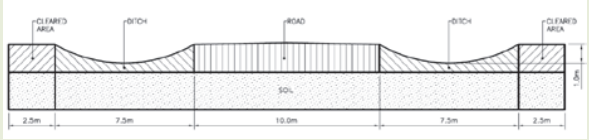
- the full 124 ha area to be harvested will be cleared at the same time

Access Roads:

- an approximately 1.3km road will be constructed from the staging area to an existing fire road east of the sub-area
- portions of the Fire Road and Springfield Road may require upgrades
- ditching on each side of the access road will be installed outside of bog area only
- culverts will be installed, where required, to maintain existing drainage



Julius Lake Bog Sub-Area: Site Access



Road Cross-section

Julius Lake West Bog Site Preparation and Access

Staging area of 4 ha in size will be developed along the east side consisting of:

- shop / office / lunchroom building (one building) - for equipment maintenance, refueling and for employees
- gravel surface
- no groundwater wells will be installed

Site Preperation

Julius Lake Bog Sub-Area: Site Preparation

Sugar Creek Bog Site Preparation and Access

Site Preparation:

- approximately 80 ha will be cleared per year

Access Roads:

- an approximately 7.8km access road will be constructed from PR 325 to the SW corner of sub-area E
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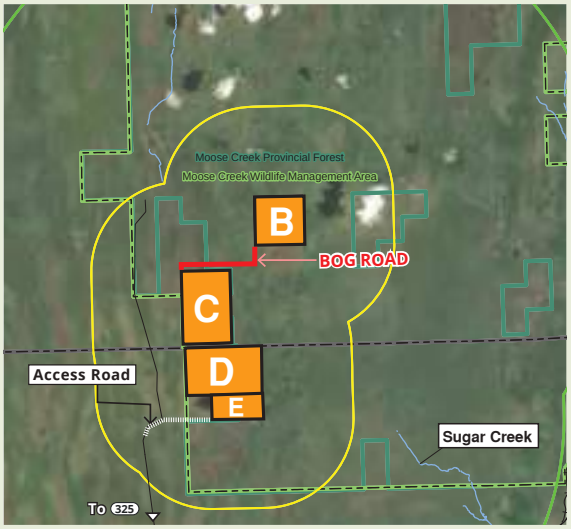
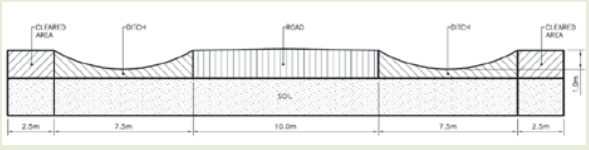
- ditching on each side of the access road will be installed outside of bog area only
- culverts will be installed, where required, to maintain existing drainage



Sugar Creek Bog Sub-Area: Site Access



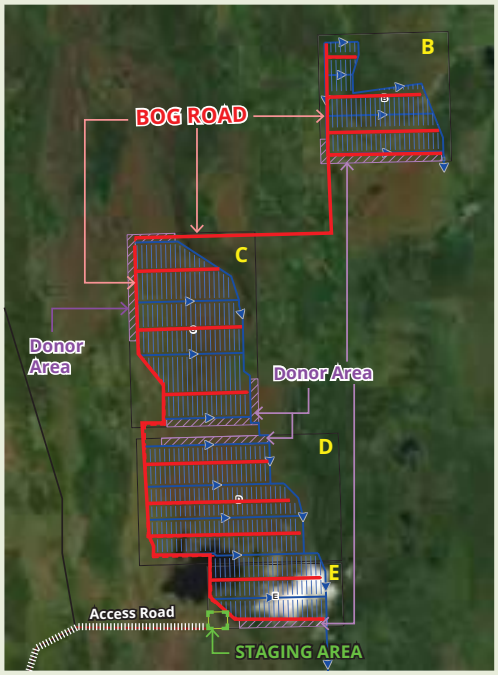
Road Cross-section

Sugar Creek Bog Site Preparation and Access

Staging area of 4 ha in size will be developed the SW corner of sub-area E consisting of:

- shop / office / lunchroom building (one building) - for equipment maintenance, refueling and for employees
- gravel surface
- no groundwater wells will be installed

Site Preperation



Sugar Creek Bog Sub-Area: Site Preperation

Water Management

Ground and surface water management requires:

- field drainage ditches
- main drainage ditches
- overland flow siltation

Imapct to local hydrology:

- initial construction of drainage will result in a temporary (3 week) increase in local runoff
- during operation there will be no change in the volume runoff

Example of sedimentation ponds

Field Drain Construction with Typical Profile of 1.5m x 1.5m at ~33m Intervals

Harvesting and Shipping

Four phases:

1. field harrowing
2. harvesting
3. on-site stockpiling and transport to the processing plant near:
   - Elma, MB for Julius Lake West Bog
   - Elma, MB and Vassar, MB for Sugar Creek Bogs
4. shipped to customers

Peat Harvesting at Existing Sun Gro Sites

Peat Harvesting at Existing Sun Gro Sites

Recovery

Process:

- Peatland Restoration Plan under the Peatland Stewardship Act
- recovery plan to replace elements lost due to peat harvesting (e.g. vegetation)
- recovery is progressive and based on research and guidelines

North Moss Spur Shortly After Restoration (1996)

North Moss Spur Nine (9) Years After Restoration (2005)

Environmental Assessment Process

Under *The Environment Act*, an EAP is required for all environmentally significant projects in MB.

1

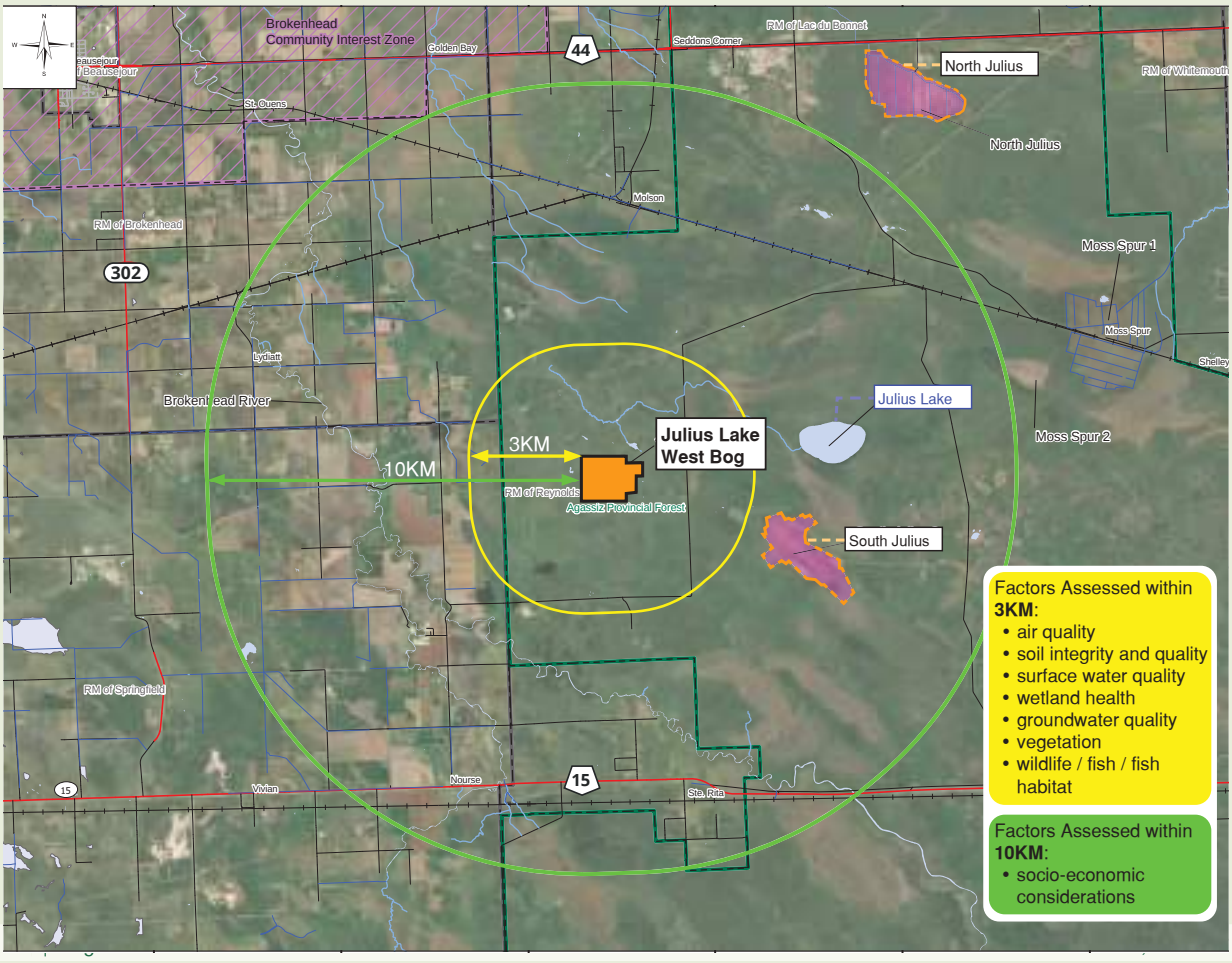
Prepare a project description:

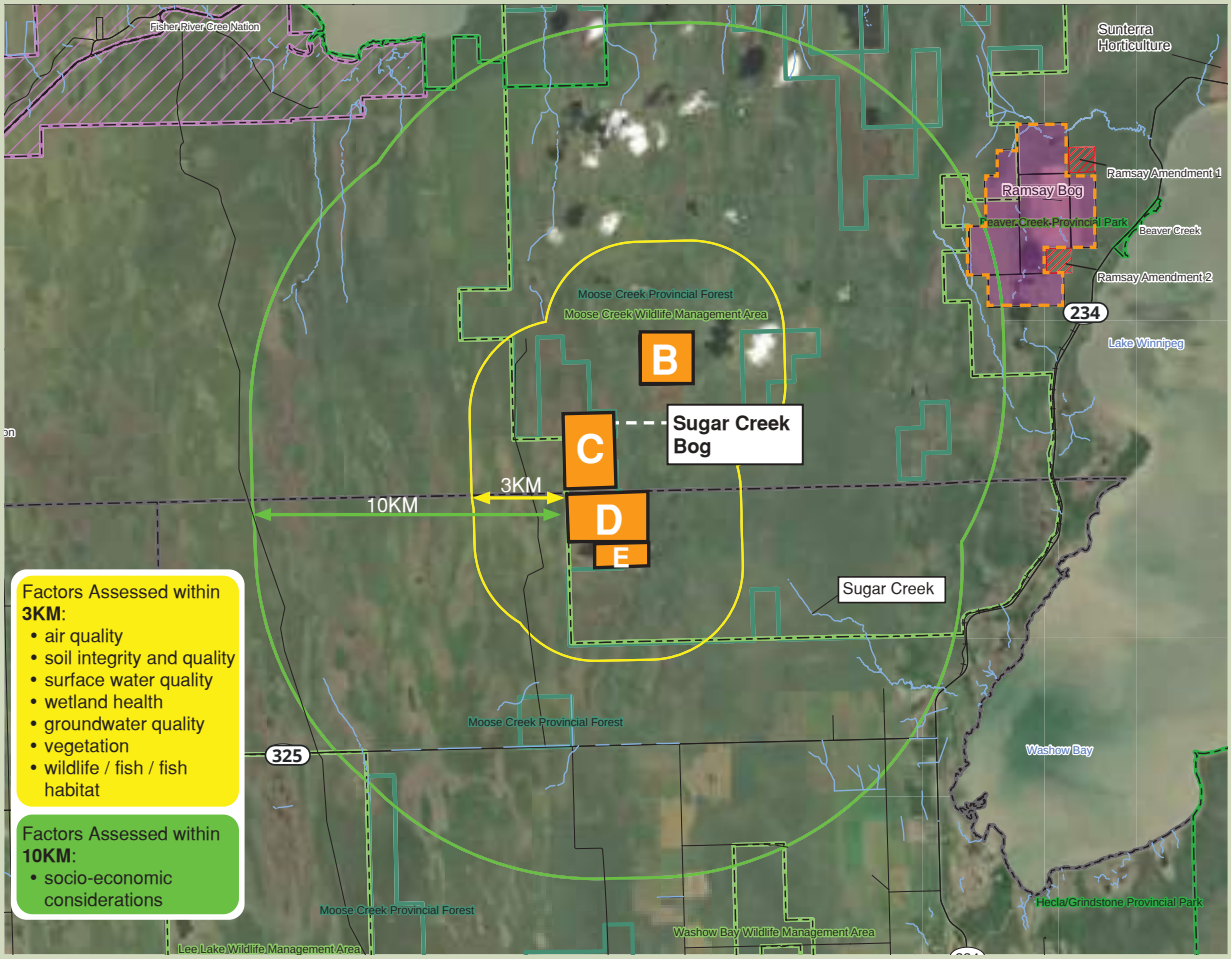
- types and quantities of materials
- harvesting operation methods
- harvesting schedule
- site layout (drainage management)
- environmental controls (e.g. noise)
- resource usage (e.g. water)
- waste management (e.g. sewage)

2

Assess environmental factors

- air quality
- soil integrity and quality
- surface water quality
- wetland health
- groundwater quality
- vegetation
- wildlife / fish / fish habitat
- socio-economic considerations





Environmental Assessment Process (contd.)

3 **Engage the public, stakeholders and Indigenous communities:**
- letters and factsheets sent by email and regular post on January 17, 2024

4 **Assess effects:**
- effects of the project on the environment and vice versa

5 **Identify mitigation measures:**
- to eliminate or reduce adverse project effects to acceptable levels

6 **Assess residual effects after mitigation**

7 **Prepare and file the Final EAP Report** to Manitoba Environment and Climate Change (MECC) Environmental Approvals Branch for review / approval

8 **Monitor the effectiveness of the mitigation measures** during project implementation

Typical Environmental Issues and Mitigation Measures

Concerns:

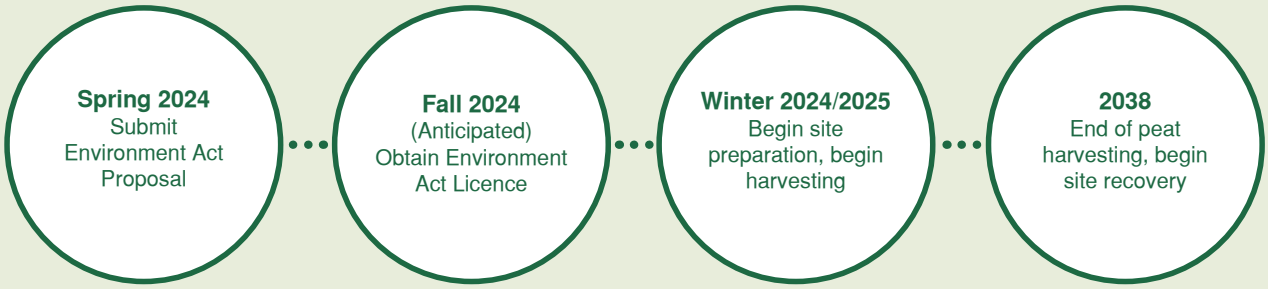
- accidents
- soil loss
- surface water contamination
- dust emissions
- noise
- drainage changes
- wildlife / habitat loss
- loss of wetlands / vegetation
- CO_2 emissions
- public opposition

Mitigation Measures:

- operations-maintenance/emergency manuals
- harvested area
  - Julius Lake West: (124ha) < Sub-Area (177 ha)
  - Sugar Creek: (750ha) < Sub-Area (1,810ha)
- project drainage
- peat creation > peat harvesting
- progressive recovery plans
- reduce dust (e.g. moisten stockpiles)
- local jobs / economic development

Project Timeline

Julius Lake West Bog



Sugar Creek Bog

Thank You

Questions?

APPENDIX K

Brokenhead Ojibway Nation Online Leadership Meeting

Sun Gro Julius Lake West and Sugar Creek EAP and Engagement

Date/Time of Meeting: March 27, 2024 – 02:00 PM – 03:30 PM
Format: Online Leadership Meeting

In Attendance:	Representing:
Dylan Kensick (DK)	Lands Manager, *Lands Department,* Brokenhead Ojibway Nation (BON)
Tim North (TN)	*West/Central Bog Operations Manager,* Sun Gro Horticulture Canada Ltd. (Sun Gro)
Brad Keller (BK)	*Northern Bog Operations Manager,* Sun Gro Horticulture Canada Ltd.
Samantha Simmonds Applin (SSA)	Sun Gro Horticulture Canada Ltd.
Steff Doiron (SD)	Sun Gro Horticulture Canada Ltd.
Shaun Moffatt (KGS)	*Senior Environmental Scientist*, KGS Group (KGS)
Elise Ouellette (EO)	*Engagement Specialist & Urban Planner*, Scatliff + Miller + Murray (SMM)
Sanjana Mada (SMM)	*Engagement Specialist & Urban Planner*, Scatliff + Miller + Murray (SMM)

Regrets: Cheryl Dixon (SMM)

Distribution: Above

Item	Description	Action
1.0	Meeting Opening 1.1. SMM opened meeting at 02:00 PM 1.2. SMM asked BON if they consent to voice recording the meeting for note-taking purposes. DK accepted. 1.3. Project overview and meeting objectives provided by SMM. 1.4. Introductions	INFO
2.0	PowerPoint Presentation 2.1 Presentation opened by SMM. 2.2 KGS spoke to the presentation slides.	INFO

Item	Description	Action
3.0	Question Period	
	3.1 Who is Sun Gro engaging with at the Province to obtain this licence? • *The EAP will be submitted to the director of the environmental approvals branch. However, a primary point of contact person has not yet been assigned.* • *Sun Gro will work with the Peatland Stewardship Branch to update peatland management and recovery plans.*	INFO
	3.2 Does Sun Gro currently have any existing or past agreements with any indigenous community? • No, Sun Gro does not and has never had any formal agreements with any indigenous communities. • Sun Gro is not in partnership with any communities, but has worked with RMs and First Nations for job creation and funding opportunities. However, outside of this, Sun Gro does not have formal opportunities in place with any local communities.	
	3.3 Has there been agreements or engagements with First Nations or any other communities in past peat harvesting projects? • *Engagement with Indigenous communities has been previously conducted for the Evergreen 1 Bog peat harvesting site. The same process is being conducted for the Sugar Creek and Julius Lake West EAPs.* • *We are currently in the first stage of this process where Sun Gro is preparing the EAP. Engagement at this stage is not required by the Province, however, Sun Gro is pre-emptively engaging with impacted communities to mitigate concerns where possible. This meeting is a part of this process by Sun Gro. These responses will be included in the engagement report developed by SMM, and the EAP document will have a section referencing results of Indigenous, public, and stakeholder engagement.*	
	3.4 Is the purpose of this meeting informational? • *Yes, it is. Sun Gro wants to share the EAP details pre-emptive of the EAP submission. In addition, Sun Gro also wanted to collect any feedback and concerns, if any, to address it in the proposal if possible.*	
	3.5 Traditional indigenous values and cultural practices are intrinsically connected to the land and in turn, the local flora and fauna. How will these systems be protected? • *Currently, KGS's surveys have not identified any species at risk. There are plants that Indigenous communities use in the Sugar*	

Item	Description	Action
	Creek and Julius Lake West areas that have been identified, but they are commonly found species in the areas. • *Since these sites are not easily accessible, i.e. there are no access roads currently, we are hoping that there won't be a large impact on hunting and trapping activities. However, if BON is aware of hunting and trapping areas or sacred plants in the areas, Sun Gro would appreciate the information.* 3.6 Can Sun Gro share the biological survey information? • Yes, the information will be shared with BON post this meeting. 3.7 Does Sun Gro do tours of their facilities? If yes, BON would be interested in a tour of an existing active site and facility. • Yes, Sun Gro can do a site tour of the Moss Spur facility with BON leadership and administration. This tour will be coordinated with DK post this meeting.	INFO KGS Sun Gro
4.0	Meeting Close 4.1 SMM closed the meeting. SMM to send biological studies and meeting notes in the upcoming weeks.	SMM

Please review and notify the Writer immediately of any errors, omissions, or discrepancies. For the sake of clarity, discussion items shown above have been organized and therefore may not reflect the order in which they actually occurred.

Per: **SCATLIFF + MILLER + MURRAY**
Sanjana Mada, MPL, B.Arch

Manitoba Métis Federation Meeting

Sun Gro Peat Harvesting EAP and Engagement

Date/Time of Meeting: February 20, 2024 – 11:00 AM – 12:30 PM
Location: Teams Meeting

In Attendance:	Representing:
Isaac Manness (IM)	*Forestry Technician* (Department of Energy, Infrastructure & Resource Management), Manitoba Métis Federation (MMF)
Madelynn Perry (MP)	*Mines, Minerals & Traditional Economies Coordinator* (Department of Energy, Infrastructure & Resource Management), Manitoba Métis Federation
Riley Bartel (RB)	*Policy Analyst* (Department of Energy, Infrastructure & Resource Management), Manitoba Métis Federation
Tim North (TN)	*West/Central Bog Operations Manager,* Sun Gro Horticulture Canada Ltd. (Sun Gro)
Brad Keller (BK)	*Northern Bog Operations Manager,* Sun Gro Horticulture Canada Ltd.
Shaun Moffatt (SMo)	*Senior Environmental Scientist*, KGS Group (KGS)
Sanjana Mada (SMa)	*Engagement Specialist & Urban Planner*, Scatliff + Miller + Murray (SMM)
Elise Ouellette (EO)	*Engagement Support & Landscape Designer*, Scatliff + Miller + Murray

Regrets: Marci Riel (MMF), Cheryl Dixon (SMM)

Distribution: Above

Item	Description	Action
1.0	Meeting Opening 1.1. SMa opened meeting at 11:02 a.m. 1.2. SMa asks MMF if they consent to recording the meeting for note-taking purposes. RB accepts. 1.3. Land acknowledgement, and meeting / project overview by SMa. 1.4. SMa reiterates the purpose of this meeting to begin Phase 1 of Resolution 8, with the intent of moving forward onto Phases 2-4 with MMF. 1.5. Introductions	INFO
2.0	PowerPoint Presentation 2.1 Presentation opened by SMa. 2.2 SMo spoke to the presentation slides.	

Item	Description	Action
	2.3 During presentation, TN asked if MMF would be interested in being involved with Peatland Ecology Research Group (PERG) or recovery of other Sun Gro bog recovery projects. MP expressed interest in learning more. Sun Gro to email more information to MP.	Sun Gro
3.0	Question Period	
	3.1 MP asked to clarify that Sun Gro wanted feedback from stakeholders and rightsholders by Spring to help inform the EAP before submission. SMo confirmed.	INFO
	3.2 MP stated that the next step in the Resolution 8 process is discussing how they will get the feedback from Red River Métis community members and what capacity of funding would be required to provide the feedback to Sun Gro. Smo asked for MMF to put a proposal together for proceeding with Phase 2, which would then be discussed by the project team to decide on how to move forward. Smo explained intent of engagement is to identify concerns and interests of Indigenous communities, keeping in mind that there is a formal duty to consult process with the Province of Manitoba.	MMF
	3.3 Smo explained process of finishing previous EAP to move forward with current process. Current project is behind schedule, so Spring application for EAP is ideal but acknowledged that it is important to honour MMF's process.	INFO
	3.4 MP explains MMF's preference to be engaged before submission of EAP to involve their citizens and respond to their feedback and concerns. Noted that it is in everyone's best interest to do engagement work at the beginning.	
	3.5 MP explains MMF's process might involve (1) a community meeting with MMF's citizens; (2) conducting traditional knowledge and land use studies to understand how citizens are using the land in the project areas; and (3) understanding how economic partnerships can be made during the length of the process.	
	3.6 RB asked how many Sun Gro projects are currently in the Agassiz Provincial Forest. BK responded current peat harvesting locations are Evergreen Bog and South Julius Bog; Elma, Moss Spur, and North Julius Lake are in the recovery phase. RB responded on the importance of thinking about the forest as a whole and how the larger scale is being impacted. SMo noted that the extents of peat harvesting is much smaller than the extents of tree harvesting in the area.	
	3.7 MP inquired about requirements for purchasing carbon credits. SMo explained Sun Gro is not able to purchase carbon credits. Sun Gro creates reports to quantify their greenhouse gas (GHG) emissions. The emissions from peat harvesting are relatively small compared to the end users. The lifecycle GHG emissions from peat harvesting is: change in land use (15%), harvesting (4%), transport (10%), and	

Item	Description	Action
	decomposition from end users (71%). BK explained that Sun Gro is held to a standard for emissions and is audited every two years. SMo notes the average annual emission for Julius Lake West would be 0.0006% of Canada's annual emissions.	
	3.8 MP mentions that MMF would likely be interested in ways to collaborate on recovery areas or emission reduction areas.	SunGro/ MMF
	3.9 RB asked if there were many trees in peat harvesting areas. BK responds that there are few trees, mostly tamarack and small black spruce. SMo added that a permit would be obtained and they would work with a local forester.	
4.0	Meeting Close	
	4.1 SMa closed the meeting. SMM to send notes, presentation slides and recording. We will wait for MMF to get back to us regarding moving on to Phase 2 of Resolution 8.	SMM

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Per: **SCATLIFF + MILLER + MURRAY**
Elise Ouellette, B.Env.D, MLA

Municipality of Bifrost-Riverton In-Person Leadership Meeting

Sun Gro Sugar Creek EAP and Engagement

Date/Time of Meeting: March 01, 2024 – 11:30 AM – 01:00 PM
Location: Municipality of Bifrost-Riverton Council Office
Format: In-person Leadership Meeting

In Attendance:	Representing:
Brian N. Johnson (BJ)	*Reeve*, Municipality of Bifrost-Riverton (MBR)
Chad Johnson (CJ)	*Deputy Reeve and Ward 2 Councillor,* Municipality of Bifrost-Riverton
Larissa Love (CAO)	*Chief Administrative Officer (CAO),* Municipality of Bifrost-Riverton
Ken Stadnek (KS)	*Ward 3 Councillor*, Municipality of Bifrost-Riverton
David King (DK)	*Ward 4 Councillor*, Municipality of Bifrost-Riverton
Gordon Klym (GK)	*Ward 5 Councillor*, Municipality of Bifrost-Riverton
Corey Palsson (CP)	*Ward 6 Councillor*, Municipality of Bifrost-Riverton
Tim North (TN)	*West/Central Bog Operations Manager,* Sun Gro Horticulture Canada Ltd. (Sun Gro)
Brad Keller (BK)	*Northern Bog Operations Manager,* Sun Gro Horticulture Canada Ltd.
Shaun Moffatt (KGS)	*Senior Environmental Scientist*, KGS Group (KGS)
Sanjana Mada (SMM)	*Engagement Specialist & Urban Planner*, Scatliff + Miller + Murray (SMM)

Regrets: Shawn Magnusson (MBR), Cheryl Dixon (SMM), Elise Ouellette (EO)

Distribution: Above

Item	Description	Action
1.0	Meeting Opening	
	1.1. SMM opened meeting at 11:40 AM	
	1.2. SMM asked MBR if they consent to voice recording the meeting for note-taking purposes. MBR Council accepted.	MRB
	1.3. Project overview and meeting objectives provided by SMM.	INFO
	1.4. Introductions	

Item	Description	Action
2.0	PowerPoint Presentation 2.1 Presentation opened by SMM. 2.2 KGS spoke to the presentation slides.	INFO
3.0	Question Period 3.1 MBR noted concerns about water draining into Sugar Creek, via the constructed ditch highlighted in the figure below, locally referred to as 2-mile drain. Currently the Municipality is facing issues with beaver dams along this constructed drain, which can flood farmlands north of PR 325 (due to water backing up), making it impossible to farm those lands. These issues persisted until early summer due to heavy rains on June 20th in 2023. CJ and CP were concerned about this issue being further exacerbated with the yearly additional water volume from the proposed Sugar Creek peat harvesting sites, especially during spring and early summer.  *KGS and Sun Gro note that:* • *KGS noted that In-depth hydrology studies are being conducted to understand effects of water drainage on the larger watershed surrounding the sub areas. The water will drain south and east from the sub-areas towards sugar creek which then flows to Washow Bay. Potential impacts on the referenced ditch/drain have been noted*. MBR asked if LiDAR imagery will be used for these studies. *KGS note that LiDAR imagery will be used along with watershed boundaries and topography studies.* • *KGS noted that the concern about extra water volume along the drain would only occur in the first year as the water levels in the sub-areas are reduced for harvesting over the course of approximately three weeks in the spring (during initial drainage construction). After the initial drainage construction, no additional volume of water will be discharged with the snow melt and rain run-off from the developed site being the same volume that would have runoff if the site were not developed.* • *Sun Gro explained that blockage of the drain will also impact operations at the sub-areas. Sun Gro offered to take ownership of keeping the drain clear and/or doing a yearly removal of beaver*	KGS INFO Sun Gro

Item	Description	Action
	dams, as per Department of Fisheries and Oceans's (DFO) standard operating policies for beaver dam removal (no permits required), to reduce impacts to farmlands within the Municipality and the sub-area operations. Sun Gro will take over this maintenance from the Municipality if amenable to MBR. MBR accepted this offer.	
	3.2 MBR noted concerns regarding how the Fisheries Act will impact this project due to past experiences with the DFO. They clarified that concerns had been raised by the DFO when a driveway had to be constructed on a site near Sugar Creek. (CJ)	
	KGS noted that the project team already had conversations about the project with DFO in 2023, including construction of access roads and drainage. The DFO has determined that the project will not cause fish mortality or harmfully impact existing fish habitats, so Sun Gro is not required to submit a request for review for project authorization from the DFO.	INFO
	3.3 MBR requested information about if royalties are paid to the government and how it is determined. (CJ)	
	Sun Gro noted that on crown land, the royalties are paid directly to the Province, per cubic meter of peat harvested, and has no say in how this money is distributed. On private land the royalties are paid directly to the private owner. The value add for local communities is purchase of goods (fuel, parts, etc.) and creation of local jobs.	
	3.4 MBR discussed the impacts to traffic on PR 325 and 234. Noted additional traffic during harvest season along PR 325 from the farmlands along it. (GK)	
	Sun Gro and KGS noted that traffic will use Provincial Roads and there will be an increase in traffic on PR 325 and PR 234. Additional traffic along PR 325 during harvest time will be taken into consideration in the EAP. Additionally, KGS acknowledged concerns regarding increased dust, especially for residents living adjacent the roads.	Sun Gro/ KGS
	3.5 MBR asked if Sun Gro has any plans to put a processing plant in the Bifrost-Riverton area. Can screening happen in the Municipality? (CJ)	
	Sun Gro confirmed that there are no plans currently or any time soon during the initial stages of peat production. However, it is a possibility in the future as the harvesting in the region increases to become the largest producer in the province. Current processing plants are in Elma and Vassar, Manitoba and both are mixed plants.	INFO
	Screening of the peat (80% peat and 20% other materials) in MBR has been considered but will be decided upon once both Ramsay Point	

Item	Description	Action
	Bog and Sugar Creek Bog are in production as cost of hauling the peat to the processing plant is expensive.	
	3.6 MBR asked if Hydro will be coming into the site. (CJ)	
	Sun Gro noted that since Hydro is very expensive the shop on site will rely on primarily solar energy with a generator back up. Sustainability on site, along with cost, is also a driver for this decision.	INFO
	3.7 MBR requested more information about what will be studied within the 10km radius? (GK)	
	KGS clarified that socio-economic factors will be studied within this radius like increased traffic volumes, backing up of drainage, and other social concerns that might be a by-product of these harvesting sites in Sugar Creek. Primary impacted stakeholders here would be residents and farmlands along PR 234 and PR 325.	
	3.8 MBR requested more information regarding peat hauling operation hours. (CJ)	
	Currently at Ramsay Point, from May long weekend to September long weekend, the licence requires all hauling operations and traffic along PR 234 to cease by 3:00 pm on Friday and throughout the weekend. Past these dates and times, hauling is allowed 24/7. Sun Gro typically ceases all hauling by 2:30 pm on Fridays both during the summer licence requirements and outside of the summer dates.	
	3.9 MBR enquired how many people will be employed at the harvesting sites. (CJ)	
	Sun Gro noted that currently at Ramsay Point Bog, which has a lower site area than Sugar Creek Bog, about 20 people are employed. Initially, when harvesting began at Ramsay Point, three people were employed and then six were employed when the harvesting was scaled up, leading to 20 employees over time. A similar set-up is expected at Sugar Creek with some full-time employment supported by a lot of seasonal employment. Initially 2-4 people will be hired in the development stage and that will scale up to 3-5 people during initial harvesting.	
	3.10 MBR enquired if there are any limestone pads in the Sugar Creek Bog site? (CJ)	
	Sun Gro and KGS noted that there are none so gravel will need to be brought to site for construction of the staging area and access road.	
	3.11 MBR noted that there are no water bodies near the sites and asked what Sun Gro's mitigation plans are in the event of a fire?	
	Sun Gro confirmed that there are no large water bodies in close proximity so the sedimentation ponds will be developed, with	

Item	Description	Action
	controlled gates to hold water back, as a water source in the event of a fire. Similar set up as current operation at Ramsay Point Bog.	
	3.12 MBR enquired if Sun Gro would sponsor events or infrastructure at MBR's recreation center? (CP) *Sun Gro noted that they have sponsored recreation amenities previously in Beausejour called the Sun Gro Center for recreation. Sponsorship of amenities or events is also a possibility in MBR, as the peat production is scaled up in the area. Community involvement and giving back to the community is a priority for Sun Gro. In addition, previously, Sun Gro has done hampers, sponsored sports events, and supported infrastructure improvements.*	INFO
	3.13 MBR enquired if Sun Gro has had issues with labour at the Ramsay Point Bog harvesting site. (KS) *Sun Gro noted that they have had issues getting and retaining workers. Finding good workers post COVID-19 has been a challenge. Investigating opportunities to (i) increase access to these jobs by providing transport from the closest settlement areas to the job site, and (ii) develop consistent and regular working hours. Similar discussion will occur with Peguis and Fisher River First Nations, though these meetings have not yet been scheduled.*	
	3.14 MBR enquired if there are any opportunities for wild rice farming during the restoration phase of the site? (KS) *Rice Farming is not allowed as per current regulation unless a strong case for it can be made. In this case we would look to the Indigenous communities as they would be able to make a stronger case for these kinds of projects to the Province's peatland branch. Fisher River has experimented with something similar, but that project has experienced setbacks as the elders stopped working due to health and other reasons, and there hasn't been as much interest to continue this work by the younger members.*	
	3.15 *Sun Gro noted that last Spring, 43,000 trees were planted as a part of restoration at their other sites, with another 18,000 tree planting proposed for this year. Sun Gro also clarified that restoration activities will happen continuously in smaller sections as peat harvesting capacity is reached in those areas rather than waiting until the harvesting is complete for the entire Sugar Creek area.*	
	3.16 *Sun Gro offered the MBR leadership a tour of the Ramsay Point Bog harvesting areas if there is interest.* MRB leadership confirmed that they are interested and will coordinate this with TN and BK from Sun Gro.	Sun Gro

Item	Description	Action
4.0	Meeting Close 4.1 SMM closed the meeting. SMM confirmed that presentation has been shared with the CAO. SMM to send meeting notes and recording in the upcoming weeks.	SMM

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Per: **SCATLIFF + MILLER + MURRAY**
Sanjana Mada, MPL, B.Arch

Pine Dock In-Person Community Meeting

Sun Gro Sugar Creek EAP and Ramsay Point Engagement

Date/Time of Meeting: April 15, 2024 – 5:00 – 7:00 PM
Location: Pine Dock Community Hall
Format: In-person Community Meeting

Project Team in Attendance	**Representing:**
Shaun Moffatt (KGS)	*Senior Environmental Scientist*, KGS Group (KGS)
Brad Keller (BK)	*Northern Bog Operations Manager*, Sun Gro Horticulture Canada Ltd. (Sun Gro)
Tim North (TN)	*West/Central Bog Operations Manager*, Sun Gro
Sanjana Mada (BJ)	*Planner & Engagement Specialist*, Scatliff + Miller + Murray (SMM)
Jane Hilder (JH)	*Engagement Specialist & Landscape Designer*, SMM

Total Attendees: *46*

Total Comment Forms Received: *12 Forms (Online + In-Person)*

Distribution: *Project team, community leadership & attendees*

Item	Description	Action
1.0	Meeting Opening 1.1. SMM opened meeting at 5:05 p.m. 1.2. SMM asked attendees if they consent to voice recording the meeting for note-taking purposes and a recording of the presentation to accompany the online survey. There were no objections. 1.3. Project overview and meeting objectives provided by SMM. 1.4. Introductions	INFO
2.0	PowerPoint Presentation – *Note: a link to the recording of the presentation has been included in the post-meeting online survey.* 2.1 Presentation opened by SMM. 2.2 KGS spoke to the presentation slides.	INFO

Item	Description	Action
3.0	Key Topics Discussed 3.1 Water Quality 3.1.1 What is the frequency, type, and location of water quality testing? • *Under the Manitoba Environment Act license, regular water quality testing is mandated.* • *Currently, at Ramsay Point Bog, water is tested at two locations: (i) weekly at the sedimentation pond outlet, (ii) two times a year at a creek/stream approximately 5km south of the site, where the ditch crosses the road, entering Lake Winnipeg, and (iii) a full parameter water test three times a year at the sedimentation outlets.* • *Water testing monitors (i) pH, (ii) water hardness, (iii) conductivity, (iv) Total Suspended Sediments (TSS), which includes peat, and (v) dissolved metals, like lead and aluminium.* • *The baseline TSS, against which the sample water is compared, is established from water quality samples taken from water pockets in the peat, and from downstream receiving water bodies prior to any disturbance. As per current regulation, TSS is currently allowed an increase of 25mg/L over the baseline conditions which is set by the Canadian Council Ministry of Environment as a national standard of increase in suspended sediments. This is determined via scientific studies that consider toxicity and habitat effects. In Sun Gro's experience, It is rare for the discharge water from outlets to go above this set level.* • *Water in Bogs is naturally acidic, with a range of acceptable pH. Sun Gro remediates acidic water using limestone which will help raise the pH of the water being discharged from the bogs.* • *Due to excessive flooding, an emergency outlet channel was constructed in 2021 by the Province to manage floodwater. This channel drained through a peat bog, eventually introducing a large quantity of peat into Lake Winnipeg. Shorelines along Washow Bay are experiencing increased levels of peat extending to Fisher River.* • *Results of monitoring are submitted to the Province's Environment and Climate Change department and can be accessed by contacting the Province's local Environment Officer (Kim Kmet). In addition, the licence requirements can be accessed by visiting the online Manitoba Public Registry to view Environment Act Licenses for all of Manitoba (https://www.gov.mb.ca/sd/eal/registries/index.html). Schedule B of the Environment Act Licence provides the full list of parameters that are required to be monitored three times per year, which can be found at the following link;* 2964er.pdf (gov.mb.ca).	INFO

Item	Description	Action
	3.1.2 Hydrology and drainage concerns: • *In-depth hydrology studies are being conducted to understand effects of water drainage on the larger watershed surrounding the sub areas for Sugar Creek. The water will drain south and east from the sub-areas towards Sugar Creek which then flows to Washow Bay. For this study, LiDAR imagery will be used along with watershed boundaries and topography studies.* • *In the first year of harvesting, as the water levels in the sub-areas are reduced for harvesting over the course of approximately three weeks in the spring (during initial drainage construction), the rate of water discharged from the harvesting site will be temporarily increased. However, after the initial drainage construction, no additional volume of water will be discharged with the snow melt and rain run-off from the developed site being the same volume that would have runoff if the site were not developed/disturbed. Therefore, the local hydrology will be minimally affected after the first year of peat harvesting both in water quantity and direction of flow.* • *Within the harvesting site, the water will flow through the sedimentation ponds to reduce total TTS before being discharged into the surrounding bogs via the outlet. At Sugar Creek, this water will naturally continue to filter through the peat bog to 2-mile drain to the south of the site to reach Sugar Creek, eventually reaching Lake Winnipeg at Washow Bay.* 3.1.3 Concern of cumulative effect of all peat sediment coming out of all bogs into the lake. • *Assessment of cumulative effects has not been done by Manitoba Environment and Climate Change and will be outside of the scope of Sun Gro's work as multiple peat harvesting sites operate in this area. Sun Gro and KGS can present the suggestion.* 3.2 Air Quality 3.2.1 Does Sun Gro do base level monitoring of air quality? • *No, as this is not currently mandated by the Province as per the licence and regulatory requirements.* • *However, Sun Gro is proactively looking to reduce peat dust from rising in the air to maximize product volume being harvested. Sun Gro is currently adding cyclones to harvesters to prevent dust pollution in the air, allowing it to be held and then dropped back on the field for harvesting.*	

Item	Description	Action
	3.2.2 Issue with sweeping peat dust/sediment out of cottages and from shores, especially where Beaver Creek meets Lake Winnipeg. • *Sunterra drains at the location mentioned. Sun Gro drains further south, not at this location.* 3.2.3 How will Sun Gro address the issues residents of Beaver Creek are having with dust coming from the highway. • *From Sugar Creek, the trucks will use the access road highlighted in the presentation to reach PR 325. The trucks will take PR 325 east to reach PR 234, and then head south towards Winnipeg, not passing by the Beaver Creek cottage area.* • *Currently at Ramsay Point, from May long weekend to September long weekend, the licence requires all hauling operations and traffic along PR 234 to cease by 3:00 pm on Friday and throughout the weekend. Past these dates and times, hauling is allowed 24/7. Sun Gro typically ceases all hauling by 2:30 pm on Fridays both during the summer restrictions and outside of the summer dates. This is done to limit disturbance to the local traffic, reduce dust in local communities, and reduce impact on road infrastructure. Similar operations will be implemented in Sugar Creek, as well.* • *To reduce dust on the roads, improvements to the highway infrastructure is critical. However, any road improvement work on Provincial Highways is within the jurisdiction of the Province and needs to be initiated, approved and funded by them. Sun Gro has no influence on how the royalties paid to the Province is used.* 3.3 Climate Change 3.3.1 Does peat harvesting release CO_2? If so, how much? How does Sun Gro estimate its total CO_2 emissions for the lifespan of the Sugar Creek Project? • *Yes, CO_2 is released during the entire life cycle of the peat which includes harvesting, transportation, and methods of end use. Harvesting peat, which Sun Gro is involved in, accounts for 7% of CO_2 released during its entire life cycle.* • *CO_2 emissions and carbon impacts are estimated as part of the EAP and will be available as a part of that documentation submitted to the Province. The provincial government has scientifically developed equations to calculate carbon impacts that Sun Gro is mandated to use in the final report. These calculations are based on the area that is being cleared and harvested and will be vetted by the Province. Using these numbers, the Province reviews what Sun Gro is proposing to develop. The calculations will be in the final EAP submission and this*	

Item	Description	Action
	document will be made available to the public as a part of this process by the Province. • *The IISD completed a cumulative impacts analysis that looks at nutrient loading and greenhouse gas emissions from peatland harvesting in the Interlake area. The report can be found at the following link:* Peatland Mining in Manitoba's Interlake. 3.4 Royalties 3.4.1 How are royalties paid? • *On crown land, the royalties are paid directly to the Province, per cubic meter of peat harvested, and Sun Gro has no say in how this money is distributed. On private land, the royalties are paid directly to the private owner.* 3.4.2 Is Sun Gro a publicly traded company? • *No.* 3.5 Emergency Response 3.5.1 How are operations managed when it is overly hot and dry? • *Sun Gro does not operate in these conditions, as per provincial requirements. Since 2021, the Province provides detailed real-time weather information four days in advance, allowing peat harvesting operators to better plan operations. This was not the case in the 2021 fire at Beaver Creek. In addition, Sun Gro also has internal restrictions to prevent any emergencies during these conditions which is noted in Sun Gro's Emergency Response Plan (See Q.3.5.3)* 3.5.2 In case of a fire emergency, how will Sun Gro get water to dissipate any fires on site. • *Sediment ponds and the ditches hold sufficient water to deal with any on-site emergencies.* 3.5.3 Does Sun Gro have an emergency response plan? • *Yes, created by Sun Gro and submitted to the Province's local Conservation Officer.* 3.6 Highway Infrastructure 3.6.1 How many trucks are currently entering and exiting the site on a daily/weekly/monthly basis? What would be the additional load as part of the expansion? • *At peak, there are currently 12 to 15 truck loads per day, Monday-Friday at the existing Ramsay site. With the proposed Sugar Creek area initially, there would be an additional 2 to 3 truck loads per day on PR*	

Item	Description	Action
	234 heading south from PR 325 with up to 12 to 15 truck loads per day eventually at the peak. 3.7 Flora / Fauna 3.7.1 Concern about blocking informal trails and access to trap lines in the Sugar Creek site. • *No participant, up to this point, has indicated any trapping in the Sugar Creek area. Sun Gro acknowledges that the existing trail into Sugar Creek will be affected by the access road upgrades.* 3.7.2 How will this affect the moose population? • *Harvesting work will clear some moose habitat but compared to the availability of habitat in the larger Interlake area, it is a small percentage. In addition, the restored peat bogs will provide young forests, which provide an ideal food source for moose.* • *Additionally, decline in moose population has been noted by the Province throughout Manitoba, including areas without peat harvesting. The Province has attributed the moose population decline more to disease, increased predation, and hunting pressures.* 3.8 Opportunities for input within the EAP Process 3.8.1 What is the review and input process for the EAP? • *We are currently in the first stage of this process where Sun Gro is preparing the EAP. Engagement at this stage is not required by the Province, however, Sun Gro is pre-emptively engaging with impacted communities to mitigate concerns where possible. This meeting is a part of this process by Sun Gro. These responses will be included in the engagement report developed by SMM, and the EAP document will have a section referencing results of Indigenous, public, and stakeholder engagement.* • *Once the EAP is submitted to the province and determined as complete the final report will be posted to the public registry, and available for download. This begins a 30-day review period during which anyone, including the public, can review the document and provide further comments directly to the province.* 3.9 Sun Gro Operations 3.9.1 What is the average rate of pay of a Sun Gro employee? • *Just under $24/hr.* 3.9.2 How many people do you employ, and how many people will potentially be employed at Sugar Creek? • *86 people are employed in total across Manitoba in all Sun Gro facilities.*	

Item	Description	Action
4.0	Meeting Close 4.1 Online survey with presentation recording to be shared following the meeting, to be open for 30 days (until May 18, 2024). 4.2 Meeting notes will be sent as soon as possible. 4.3 SMM closed the meeting. SMM confirmed that presentation has been shared with the CAO. SMM to send meeting notes and recording in the upcoming weeks.	SMM

For the sake of clarity, discussion items shown above have been organized and therefore may not reflect the order in which they actually occurred.

Per: **SCATLIFF + MILLER + MURRAY**
Sanjana Mada, MPL, B.Arch

APPENDIX L

Survey for Pine Dock Community Meeting Participants

Monday April 15, 2024

1. **Was the information presented during the meeting helpful to understanding the Sugar Creek Project?**

   - o Strongly Agree
   - o Agree
   - o Neutral
   - o Disagree
   - o Strongly Disagree

2. **If you had any concerns about the Sugar Creek Project, did the information presented help to address them?**

   - o Yes
   - o No
   - o Undecided (need more information)

3. **Which assessments that KGS Group is completing are most critical for your community? (Select all that apply)**

   - o Hydraulic Assessment (surface water flow and drainage)
   - o Water Quality Assessment
   - o Biological Surveys – Fish Habitat
   - o Biological Surveys – Bird Habitat
   - o Biological Surveys – Mammal Habitat
   - o Biological Surveys – Amphibian and Reptile Habitat
   - o Biological Surveys – Vegetation and Plant Communities

   Additional comment if any:
   _____

4. **What aspects of the project are most important to you and your community? (Select all that apply)**

   - o Site preparation and access
   - o Water management
   - o Harvesting and shipping
   - o Restoration

5. **Please provide any additional comments you may have regarding the Sugar Creek project.**

_____

_____

_____

6. **What are the first 3 digits of your postal code? _____**

KGS GROUP & SCATLIFF + MILLER + MURRAY

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APPENDIX M

Sun Gro Sugar Creek EAP

Pine Dock Community Meeting Survey Results

#	Type	Complete 1- Yes 0- No	Q0 (Online Only	Q1 2 : Strongly Agree 1 : Agree 0 : Neutral -1:Disagree -2: Strongly Disagree	Q2 1: Yes -1; No 0: Undecided	Q3	Q3 (Additional Comments)	Q4	Q5	Q6
1	Online	0	Yes, I attended in	Agree						
2	Online	0	Yes, I attended in person							
3	Online	1	Yes, I attended in person	1	-1		Ongoing assessment & mitigation of environmental harms once the peat mine is operational, startup assessments are fine, but these need to be constantly monitored and measured. Also air quality and fugitive peat dust needs to be included		None of the above items in question 5 are most important to me and my community. The primary concerns are: - Visible peat mine effluent washing up on the beaches of Lake Winnipeg - Peat dust and breathable air quality concerns - Wildfire and resident safety concerns - Highway conditions and impacts on resident safety - Long-term environmental concerns that conflict with provincial and national measures to protect the environment o Moose habitat destruction o Lake Winnipeg fisheries destruction o CO2 reduction targets - Indigenous people's concerns that conflict with provincial and national reconciliation goals	[redacted]

4	Online	1	Yes, I watched it online	0	-1	Hydraulic Assessment (surface water flow and drainage) Water Quality Assessment, Biological Surveys – Fish Habitat, Biological Surveys – Bird Habitat, Biological Surveys – Mammal Habitat, Biological Surveys – Amphibian and Reptile Habitat, Biological Surveys – Vegetation and Plant Communities	Destruction of roads due to heavy traffic	Site preparation and access	I am concerned about: 1. Heavy truck traffic (semi trucks) driving shipped peat- road repair should done often on the dime of sun gro and sunterra 2. The noise pollution will increase/ we can hear the trucks and beeping of trailers everyday at our cottage lot. We come to lake for peace and quiet and are upset that the noise will increase 3. In a time of climate change - starting a project that removes carbon (destroying natural carbon sink habitat) and engaging in a large expansion of a project that increases CO2 is very disappointing 4. We see the peat wash up on the shore on our beach front more than anywhere else in lake Winnipeg. Not enough has been done to prevent washout and damage to lake 5. Loss of animal habitat- we are seeing less and less wildlife every year as the area is turning into a construction zone 6. The restoration process starting in 2060 something is way too far away. This should be within 20 years and I'd like to know when they plan to restore the current sites. In my opinion, this project should not be approved until restoration has been completed at their current site. Overall extremely unhappy hearing that this peat expansion is submitted. I hope the government officials do what's right for the community and our environment and do NOT approve this. [redacted]	[redacted]
5	Online	1	Yes, I watched it online	1	-1	Hydraulic Assessment (surface water flow and drainage) Water Quality Assessment, Biological Surveys – Fish Habitat, Biological Surveys – Bird Habitat, Biological Surveys – Mammal Habitat, Biological Surveys – Amphibian and Reptile Habitat, Biological Surveys – Vegetation and Plant Communities		Water management		[redacted]
6	Online	0	Yes, I watched it online							
7	Online	0	Yes, I watched it online							

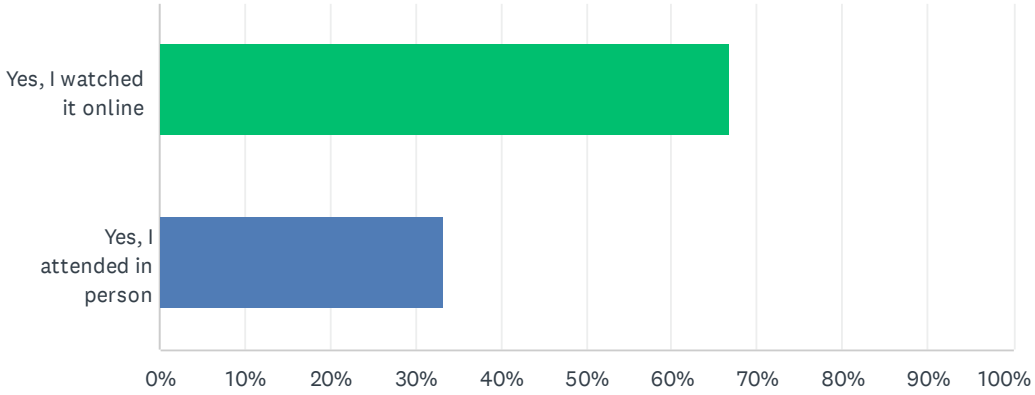
8	Online	1	Yes, I watched it online	-1	-1	Hydraulic Assessment (surface water flow and drainage) Water Quality Assessment, Biological Surveys – Fish Habitat, Biological Surveys – Bird Habitat, Biological Surveys – Mammal Habitat, Biological Surveys – Amphibian and Reptile Habitat, Biological Surveys – Vegetation and Plant Communities		Water management	Fire hazardous. Hwy 234 is a mess with the semis going up and down everyday all day	[redacted]
9	Online	0	Yes, I watched it online							
10	Online	1	Yes, I attended in person	-1	-1	Hydraulic Assessment (surface water flow and drainage) Water Quality Assessment, Biological Surveys – Fish Habitat, Biological Surveys – Bird Habitat, Biological Surveys – Mammal Habitat, Biological Surveys – Amphibian and Reptile Habitat, Biological Surveys – Vegetation and Plant Communities		Water management	over the past couple of years there has been a large accummulation of peat moss on the shorelines from South at Pebblestone all the way to north at Lea Side Beach, this has never happened prior to the harvesting operations	
11	Online	0	Yes, I watched it online							
12	Online	1	Yes, I watched it online	1	0	Hydraulic Assessment (surface water flow and drainage) Water Quality Assessment Biological Surveys – Fish Habitat		Water management	Road degradation is also important	
13	Online	1	Yes, I attended in person	-2	-1	Hydraulic Assessment (surface water flow and drainage) Water Quality Assessment,	We are currently experienced and continue to experience local environment impacts caused by the Washow Bay peat mines including Ramsey Point. Some examples of existing local environmental impact include peat sediment on the beach, 2020 wildfire and dust/noise/road degradation from trucks hauling peat. These existing impacts need to be eliminated before new or expanded peat mines are allowed or the problems will only get worse.	Water management	Oppose any new or expanded peat mine until the existing local impacts form existing peat operations stated in response 4 are eliminated. Also very disappointed that the Q&A recording that was requested was not provided. It would have allowed us to be confirm the meeting summary. As it stands the meeting summary seems to be focused more a response to our concerns rather that clear articulation of the concerns. I assume the purpose of the meeting was to document concerns raised by local resident. A copy of the Q&A would allow attendees to confirm that all the concerns raised where captured. These questions were asked and answered in a public forum and agreed for them to be recorded. So I am not sure that should be an issue releasing them.	
14	In-Person	1	n/a	0	-1	Water Quality Assessment Biological Surveys – Fish Habitat	Air quality should be checked throughout as should water by third party, not in-house.	Water management Harvesting and shipping Restoration	We have significant concerns of the impact of these mines are having on the water, air, and wildlife. The trucks are destroying the roads.	
15	In-Person	1	n/a	0	0	Water Quality Assessment Biological Surveys – Fish Habitat Biological Surveys – Bird Habitat		Site preperation and access Water management Harvesting and shipping Restoration	Don't need it. Don't want it. Burned my cottage down.	

16	In-Person	1	n/a	1	1	Water Quality Assessment,	Suspended peat particles in the lake	Water management	Concerns regarding fire and fire mitigation.
17	In-Person	1	n/a	1	0		kgs is enabling a strip mine - I would like to see a non-conflict party doing this testing.		Important: - Water quality - Wildfire risk - Road safety
18	In-Person	1	n/a	-1	0	Water Quality Assessment,	Sediment in lake, fire prevention, cumalative effect of sediment from all peat mines, traffic increase	Site preperation and access (access road) Water management (increase sediment level in lake) Harvesting and shipping (traffic increase)	Biggest concerns are: - increased sediment in lake - clear evidence of sediment in areas on beach.
19	In-Person	1	n/a	-1	-1	Hydraulic Assessment (surface water flow and drainage) Water Quality Assessment, Biological Surveys – Fish Habitat, Biological Surveys – Bird Habitat, Biological Surveys – Mammal Habitat, Biological Surveys – Amphibian and Reptile Habitat, Biological Surveys – Vegetation and Plant Communities		Water management Restoration	- What is the plan for fire supression - What is the plan to restore mines out
20	In-Person	1	n/a	1	1	Hydraulic Assessment (surface water flow and drainage) Water Quality Assessment, Biological Surveys – Fish Habitat, Biological Surveys – Bird Habitat, Biological Surveys – Mammal Habitat, Biological Surveys – Amphibian and Reptile Habitat, Biological Surveys – Vegetation and Plant Communities	Air quality would be good to know.	Water management Harvesting and shipping	Would you be helping with roads, dust control, road maintainance as well as deal with influx in ditches, creeks and lakes
21	In-Person	1	n/a	-2	0	Hydraulic Assessment (surface water flow and drainage) Water Quality Assessment, Biological Surveys – Fish Habitat, Biological Surveys – Bird Habitat, Biological Surveys – Mammal Habitat, Biological Surveys – Amphibian and Reptile Habitat, Biological Surveys – Vegetation and Plant Communities	CO_2 emmisions and air quality.	Water management Restoration	More water quality testing, especially in river and CO2 testing.

22	In-Person	1	n/a	1	-1	Hydraulic Assessment (surface water flow and drainage) Water Quality Assessment, Biological Surveys – Fish Habitat, Biological Surveys – Bird Habitat, Biological Surveys – Mammal Habitat, Biological Surveys – Amphibian and Reptile Habitat, Biological Surveys – Vegetation and Plant Communities	Effects negetively all areas	Water management Harvesting and shipping Restoration	Should not be expanding especially with all the negetive affects of the current peat moss plants.
23	In-Person	1	n/a	2	1		Highway 234 safety	Harvesting and Shipping	Highway safety Wildfire safety
24	In-Person	1	n/a	1	1	Hydraulic Assessment (surface water flow and drainage) Water Quality Assessment, Biological Surveys – Fish Habitat, Biological Surveys – Bird Habitat, Biological Surveys – Mammal Habitat, Biological Surveys – Amphibian and Reptile Habitat, Biological Surveys – Vegetation and Plant Communities	Air quality	Water management Harvesting and shipping Restoration	My major concern I sthe trffic and accidents. My environmental have been answered.
25	In-Person	1	n/a	0	-1	Hydraulic Assessment (surface water flow and drainage) Water Quality Assessment, Biological Surveys – Fish Habitat, Biological Surveys – Bird Habitat, Biological Surveys – Mammal Habitat, Biological Surveys – Amphibian and Reptile Habitat, Biological Surveys – Vegetation and Plant Communities	It all important as well as risk of fire. Implications of health to everything.	Site preperation and access Water management Harvesting and shipping Restoration	Air, environment, community safety (air/fire/increase transport trucks which at times drive crazy plus the dust) wildfire/forestry management

Q1 Did you watch the presentation?

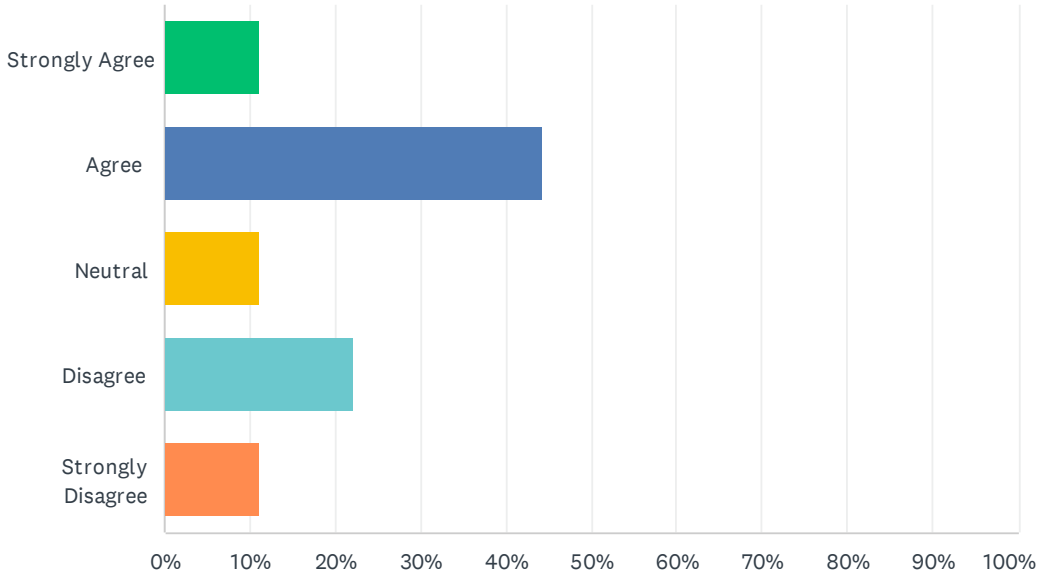
Answered: 15 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes, I watched it online	66.67%	10
Yes, I attended in person	33.33%	5
TOTAL		15

Q2 Was the information presented during the meeting helpful to understanding the Sugar Creek Project?

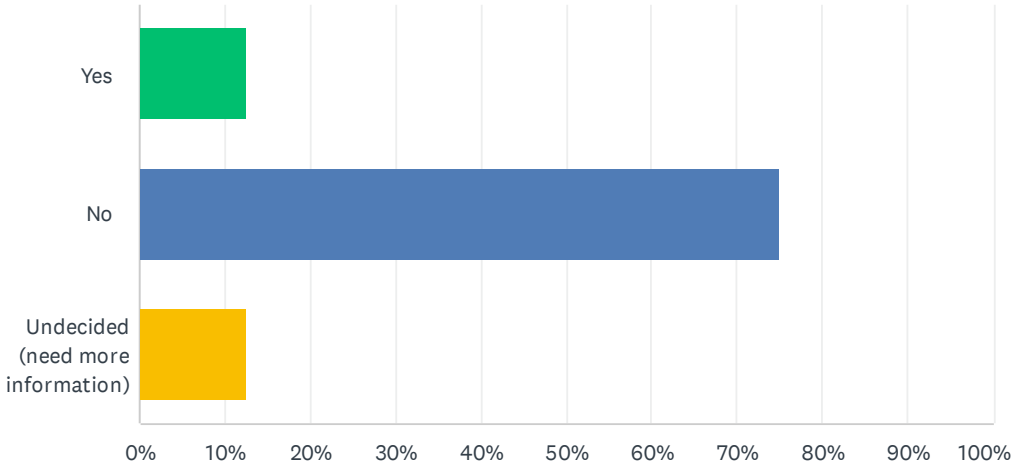
Answered: 9 Skipped: 6



ANSWER CHOICES	RESPONSES	
Strongly Agree	11.11%	1
Agree	44.44%	4
Neutral	11.11%	1
Disagree	22.22%	2
Strongly Disagree	11.11%	1
TOTAL		9

Q3 If you had any concerns about the Sugar Creek Bog Project, did the information presented help to address them?

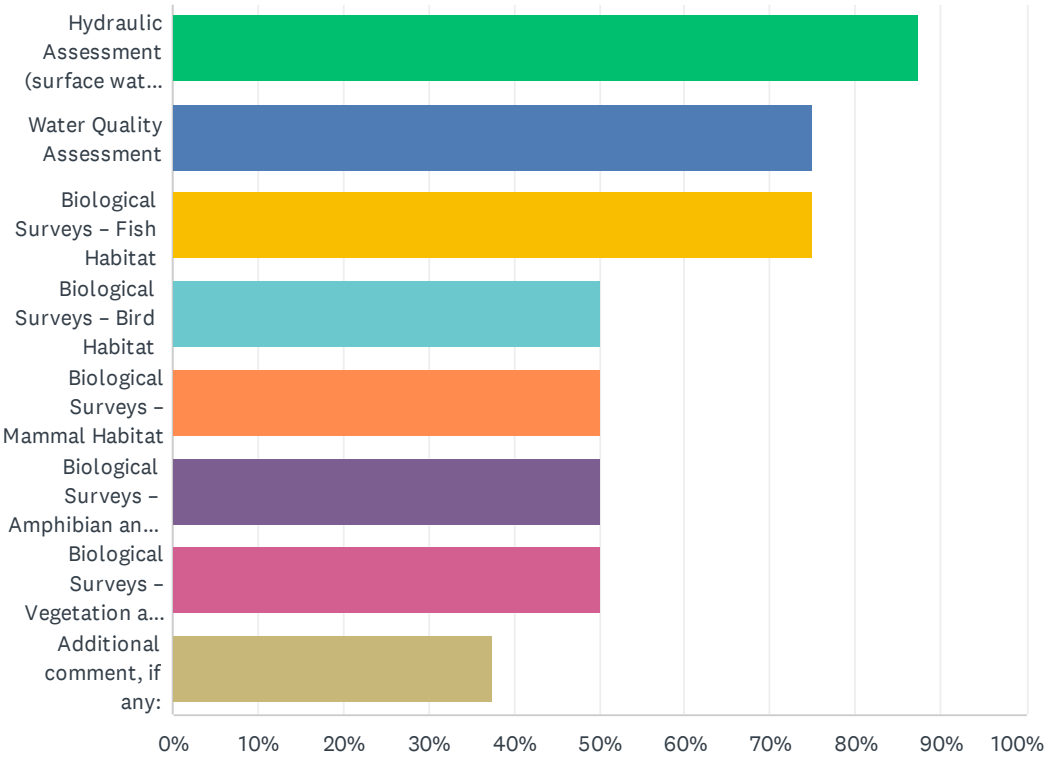
Answered: 8 Skipped: 7



ANSWER CHOICES	RESPONSES	
Yes	12.50%	1
No	75.00%	6
Undecided (need more information)	12.50%	1
TOTAL		8

Q4 Which assessments that KGS Group is completing are most critical for your community? (Select all that apply)

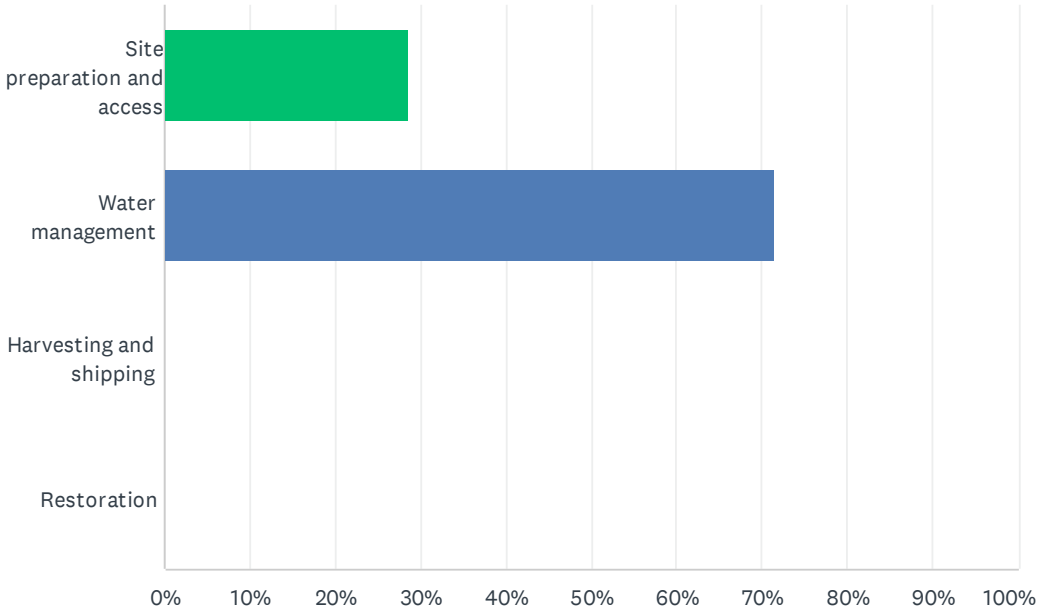
Answered: 8 Skipped: 7



ANSWER CHOICES	RESPONSES	
Hydraulic Assessment (surface water flow and drainage)	87.50%	7
Water Quality Assessment	75.00%	6
Biological Surveys – Fish Habitat	75.00%	6
Biological Surveys – Bird Habitat	50.00%	4
Biological Surveys – Mammal Habitat	50.00%	4
Biological Surveys – Amphibian and Reptile Habitat	50.00%	4
Biological Surveys – Vegetation and Plant Communities	50.00%	4
Additional comment, if any:	37.50%	3
Total Respondents: 8		

Q5 What aspects of the project are most important to you and your community? (Select all that apply)

Answered: 7 Skipped: 8



ANSWER CHOICES	RESPONSES	
Site preparation and access	28.57%	2
Water management	71.43%	5
Harvesting and shipping	0.00%	0
Restoration	0.00%	0
TOTAL		7

Q6 Please provide any additional comments you may have regarding the Sugar Creek project.

Answered: 8 Skipped: 7

Q7 What are the first 3 digits of your postal code?

Answered: 9 Skipped: 6

#0

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Last Modified: Thursday, April 18, 2024 2:01:42 PM
Time Spent: 00:08:47
IP Address: [redacted]

Page 2: Welcome

Q1

Did you watch the presentation?

Yes, I watched it online

Page 3

Q2

Was the information presented during the meeting helpful to understanding the Sugar Creek Project?

Strongly Agree

Q3

If you had any concerns about the Sugar Creek Bog Project, did the information presented help to address them?

Yes

Q4

Which assessments that KGS Group is completing are most critical for your community? (Select all that apply)

Hydraulic Assessment (surface water flow and drainage)

,

Biological Surveys – Fish Habitat

Q5

What aspects of the project are most important to you and your community? (Select all that apply)

Site preparation and access

Q6

Please provide any additional comments you may have regarding the Sugar Creek project.

Test

Q7

What are the first 3 digits of your postal code?

Test

#0

TEST

Collector: Web Link 1 (Web Link)
Started: Wednesday, April 17, 2024 11:48:23 AM
Last Modified: Thursday, April 18, 2024 2:24:08 PM
Time Spent: Over a day
IP Address: [redacted]

Page 2: Welcome

Q1

Did you watch the presentation?

Yes, I watched it online

Page 3

Q2

Was the information presented during the meeting helpful to understanding the Sugar Creek Project?

Respondent skipped this question

Q3

If you had any concerns about the Sugar Creek Bog Project, did the information presented help to address them?

Respondent skipped this question

Q4

Which assessments that KGS Group is completing are most critical for your community? (Select all that apply)

Respondent skipped this question

Q5

What aspects of the project are most important to you and your community? (Select all that apply)

Respondent skipped this question

Q6

Please provide any additional comments you may have regarding the Sugar Creek project.

test

Q7

What are the first 3 digits of your postal code?

test

#1

INCOMPLETE

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Started: Thursday, April 18, 2024 11:46:42 AM
Last Modified: Thursday, April 18, 2024 3:01:49 PM
Time Spent: 03:15:07
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Page 2: Welcome

Q1

Did you watch the presentation?

Yes, I attended in person

Page 3

Q2

Was the information presented during the meeting helpful to understanding the Sugar Creek Project?

Agree

Q3

If you had any concerns about the Sugar Creek Bog Project, did the information presented help to address them?

Respondent skipped this question

Q4

Which assessments that KGS Group is completing are most critical for your community? (Select all that apply)

Respondent skipped this question

Q5

What aspects of the project are most important to you and your community? (Select all that apply)

Respondent skipped this question

Q6

Please provide any additional comments you may have regarding the Sugar Creek project.

Respondent skipped this question

Q7

What are the first 3 digits of your postal code?

Respondent skipped this question

#2

INCOMPLETE

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Last Modified: Thursday, April 18, 2024 4:05:12 PM
Time Spent: 00:00:40
IP Address: [redacted]

Page 2: Welcome

Q1

Did you watch the presentation?

Yes, I attended in person

Page 3

Q2

Was the information presented during the meeting helpful to understanding the Sugar Creek Project?

Respondent skipped this question

Q3

If you had any concerns about the Sugar Creek Bog Project, did the information presented help to address them?

Respondent skipped this question

Q4

Which assessments that KGS Group is completing are most critical for your community? (Select all that apply)

Respondent skipped this question

Q5

What aspects of the project are most important to you and your community? (Select all that apply)

Respondent skipped this question

Q6

Please provide any additional comments you may have regarding the Sugar Creek project.

Respondent skipped this question

Q7

What are the first 3 digits of your postal code?

Respondent skipped this question

#3

COMPLETE

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Last Modified: Thursday, April 18, 2024 5:49:05 PM
Time Spent: 00:09:46
IP Address: [redacted]

Page 2: Welcome

Q1

Did you watch the presentation?

Yes, I attended in person

Page 3

Q2

Was the information presented during the meeting helpful to understanding the Sugar Creek Project?

Agree

Q3

If you had any concerns about the Sugar Creek Bog Project, did the information presented help to address them?

No

Q4

Which assessments that KGS Group is completing are most critical for your community? (Select all that apply)

Additional comment, if any::

Ongoing assessment & mitigation of environmental harms once the peat mine is operational, startup assessments are fine, but these need to be constantly monitored and measured. Also air quality and fugitive peat dust needs to be included

Q5

What aspects of the project are most important to you and your community? (Select all that apply)

Respondent skipped this question

Q6

Please provide any additional comments you may have regarding the Sugar Creek project.

None of the above items in question 5 are most important to me and my community. The primary concerns are:
- Visible peat mine effluent washing up on the beaches of Lake Winnipeg
- Peat dust and breathable air quality concerns
- Wildfire and resident safety concerns
- Highway conditions and impacts on resident safety
- Long-term environmental concerns that conflict with provincial and national measures to protect the environment
o Moose habitat destruction
o Lake Winnipeg fisheries destruction
o CO2 reduction targets
- Indigenous people's concerns that conflict with provincial and national reconciliation goals

Q7

What are the first 3 digits of your postal code?

[redacted]

#4

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Thursday, April 18, 2024 6:13:31 PM
Last Modified: Thursday, April 18, 2024 6:29:48 PM
Time Spent: 00:16:17
IP Address: [redacted]

Page 2: Welcome

Q1

Did you watch the presentation?

Yes, I watched it online

Page 3

Q2

Was the information presented during the meeting helpful to understanding the Sugar Creek Project?

Neutral

Q3

If you had any concerns about the Sugar Creek Bog Project, did the information presented help to address them?

No

Q4

Which assessments that KGS Group is completing are most critical for your community? (Select all that apply)

Hydraulic Assessment (surface water flow and drainage)

,

Water Quality Assessment,

Biological Surveys – Fish Habitat,

Biological Surveys – Bird Habitat,

Biological Surveys – Mammal Habitat,

Biological Surveys – Amphibian and Reptile Habitat,

Biological Surveys – Vegetation and Plant Communities

,

Additional comment, if any::

Destruction of roads due to heavy traffic

Q5

What aspects of the project are most important to you and your community? (Select all that apply)

Site preparation and access

Q6

Please provide any additional comments you may have regarding the Sugar Creek project.

I am concerned about:
1. Heavy truck traffic (semi trucks) driving shipped peat- road repair should done often on the dime of sun gro and sunterra
2. The noise pollution will increase/ we can hear the trucks and beeping of trailers everyday at our cottage lot. We come to lake for peace and quiet and are upset that the noise will increase
3. In a time of climate change - starting a project that removes carbon (destroying natural carbon sink habitat) and engaging in a large expansion of a project that increases CO2 is very disappointing
4. We see the peat wash up on the shore on our beach front more than anywhere else in lake Winnipeg. Not enough has been done to prevent washout and damage to lake
5. Loss of animal habitat- we are seeing less and less wildlife every year as the area is turning into a construction zone
6. The restoration process starting in 2060 something is way too far away. This should be within 20 years and I'd like to know when they plan to restore the current sites. In my opinion, this project should not be approved until restoration has been completed at their current site.
Overall extremely unhappy hearing that this peat expansion is submitted. I hope the government officials do what's right for the community and our environment and do NOT approve this.

[redacted]

Q7

What are the first 3 digits of your postal code?

[redacted]

#5

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Friday, April 19, 2024 9:02:54 AM
Last Modified: Friday, April 19, 2024 9:04:49 AM
Time Spent: 00:01:55
IP Address: [redacted]

Page 2: Welcome

Q1

Did you watch the presentation?

Yes, I watched it online

Page 3

Q2

Was the information presented during the meeting helpful to understanding the Sugar Creek Project?

Agree

Q3

If you had any concerns about the Sugar Creek Bog Project, did the information presented help to address them?

No

Q4

Which assessments that KGS Group is completing are most critical for your community? (Select all that apply)

Hydraulic Assessment (surface water flow and drainage)

,

Water Quality Assessment,

Biological Surveys – Fish Habitat,

Biological Surveys – Bird Habitat,

Biological Surveys – Mammal Habitat,

Biological Surveys – Amphibian and Reptile Habitat,

Biological Surveys – Vegetation and Plant Communities

Q5

What aspects of the project are most important to you and your community? (Select all that apply)

Water management

Q6

Please provide any additional comments you may have regarding the Sugar Creek project.

Respondent skipped this question

Q7

What are the first 3 digits of your postal code?

[redacted]

#6

INCOMPLETE

Collector: Web Link 1 (Web Link)
Started: Friday, April 19, 2024 9:11:54 AM
Last Modified: Friday, April 19, 2024 9:12:09 AM
Time Spent: 00:00:15
IP Address: [redacted]

Page 2: Welcome

Q1

Did you watch the presentation?

Yes, I watched it online

Page 3

Q2

Was the information presented during the meeting helpful to understanding the Sugar Creek Project?

Respondent skipped this question

Q3

If you had any concerns about the Sugar Creek Bog Project, did the information presented help to address them?

Respondent skipped this question

Q4

Which assessments that KGS Group is completing are most critical for your community? (Select all that apply)

Respondent skipped this question

Q5

What aspects of the project are most important to you and your community? (Select all that apply)

Respondent skipped this question

Q6

Please provide any additional comments you may have regarding the Sugar Creek project.

Respondent skipped this question

Q7

What are the first 3 digits of your postal code?

Respondent skipped this question

#7

INCOMPLETE

Collector: Web Link 1 (Web Link)
Started: Friday, April 19, 2024 10:30:18 AM
Last Modified: Friday, April 19, 2024 10:30:37 AM
Time Spent: 00:00:18
IP Address: [redacted]

Page 2: Welcome

Q1

Did you watch the presentation?

Yes, I watched it online

Page 3

Q2

Was the information presented during the meeting helpful to understanding the Sugar Creek Project?

Respondent skipped this question

Q3

If you had any concerns about the Sugar Creek Bog Project, did the information presented help to address them?

Respondent skipped this question

Q4

Which assessments that KGS Group is completing are most critical for your community? (Select all that apply)

Respondent skipped this question

Q5

What aspects of the project are most important to you and your community? (Select all that apply)

Respondent skipped this question

Q6

Please provide any additional comments you may have regarding the Sugar Creek project.

Respondent skipped this question

Q7

What are the first 3 digits of your postal code?

Respondent skipped this question

#8

COMPLETE

Collector:	Web Link 1 (Web Link)
Started:	Friday, April 19, 2024 10:28:58 AM
Last Modified:	Friday, April 19, 2024 10:30:50 AM
Time Spent:	00:01:51
IP Address:	[redacted]

Page 2: Welcome

Q1

Did you watch the presentation?

Yes, I watched it online

Page 3

Q2

Was the information presented during the meeting helpful to understanding the Sugar Creek Project?

Disagree

Q3

If you had any concerns about the Sugar Creek Bog Project, did the information presented help to address them?

No

Q4

Which assessments that KGS Group is completing are most critical for your community? (Select all that apply)

Hydraulic Assessment (surface water flow and drainage)

,

Water Quality Assessment,

Biological Surveys – Fish Habitat,

Biological Surveys – Bird Habitat,

Biological Surveys – Mammal Habitat,

Biological Surveys – Amphibian and Reptile Habitat,

Biological Surveys – Vegetation and Plant Communities

Q5

What aspects of the project are most important to you and your community? (Select all that apply)

Water management

Q6

Please provide any additional comments you may have regarding the Sugar Creek project.

Fire hazardous.
Hwy 234 is a mess with the semis going up and down everyday all day

Q7

What are the first 3 digits of your postal code?

[redacted]

#9

INCOMPLETE

Collector: Web Link 1 (Web Link)
Started: Tuesday, April 23, 2024 9:14:23 AM
Last Modified: Tuesday, April 23, 2024 9:14:56 AM
Time Spent: 00:00:33
IP Address: [redacted]

Page 2: Welcome

Q1

Did you watch the presentation?

Yes, I watched it online

Page 3

Q2

Was the information presented during the meeting helpful to understanding the Sugar Creek Project?

Respondent skipped this question

Q3

If you had any concerns about the Sugar Creek Bog Project, did the information presented help to address them?

Respondent skipped this question

Q4

Which assessments that KGS Group is completing are most critical for your community? (Select all that apply)

Respondent skipped this question

Q5

What aspects of the project are most important to you and your community? (Select all that apply)

Respondent skipped this question

Q6

Please provide any additional comments you may have regarding the Sugar Creek project.

Respondent skipped this question

Q7

What are the first 3 digits of your postal code?

Respondent skipped this question

#1 0

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Friday, April 26, 2024 12:46:53 PM
Last Modified: Friday, April 26, 2024 12:54:05 PM
Time Spent: 00:07:11
IP Address: [redacted]

Page 2: Welcome

Q1

Did you watch the presentation?

Yes, I attended in person

Page 3

Q2

Was the information presented during the meeting helpful to understanding the Sugar Creek Project?

Disagree

Q3

If you had any concerns about the Sugar Creek Bog Project, did the information presented help to address them?

No

Q4

Which assessments that KGS Group is completing are most critical for your community? (Select all that apply)

Hydraulic Assessment (surface water flow and drainage)

,

Water Quality Assessment,

Biological Surveys – Fish Habitat,

Biological Surveys – Bird Habitat,

Biological Surveys – Mammal Habitat,

Biological Surveys – Amphibian and Reptile Habitat,

Biological Surveys – Vegetation and Plant Communities

Q5

What aspects of the project are most important to you and your community? (Select all that apply)

Water management

Q6

Please provide any additional comments you may have regarding the Sugar Creek project.

over the past couple of years there has been a large accummulation of peat moss on the shorelines from South at Pebblestone all the way to north at Lea Side Beach, this has never happened prior to the harvesting operations

Q7

What are the first 3 digits of your postal code?

[redacted]

#11

INCOMPLETE

Collector: Web Link 1 (Web Link)
Started: Tuesday, May 07, 2024 7:04:57 PM
Last Modified: Tuesday, May 07, 2024 7:05:14 PM
Time Spent: 00:00:17
IP Address: [redacted]

Page 2: Welcome

Q1

Did you watch the presentation?

Yes, I watched it online

Page 3

Q2

Was the information presented during the meeting helpful to understanding the Sugar Creek Project?

Respondent skipped this question

Q3

If you had any concerns about the Sugar Creek Bog Project, did the information presented help to address them?

Respondent skipped this question

Q4

Which assessments that KGS Group is completing are most critical for your community? (Select all that apply)

Respondent skipped this question

Q5

What aspects of the project are most important to you and your community? (Select all that apply)

Respondent skipped this question

Q6

Please provide any additional comments you may have regarding the Sugar Creek project.

Respondent skipped this question

Q7

What are the first 3 digits of your postal code?

Respondent skipped this question

#12

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Wednesday, May 08, 2024 11:02:53 PM
Last Modified: Wednesday, May 08, 2024 11:07:09 PM
Time Spent: 00:04:16
IP Address: [redacted]

Page 2: Welcome

Q1

Did you watch the presentation?

Yes, I watched it online

Page 3

Q2

Was the information presented during the meeting helpful to understanding the Sugar Creek Project?

Agree

Q3

If you had any concerns about the Sugar Creek Bog Project, did the information presented help to address them?

Undecided (need more information)

Q4

Which assessments that KGS Group is completing are most critical for your community? (Select all that apply)

Hydraulic Assessment (surface water flow and drainage)

,

Water Quality Assessment,

Biological Surveys – Fish Habitat

Q5

What aspects of the project are most important to you and your community? (Select all that apply)

Water management

Q6

Please provide any additional comments you may have regarding the Sugar Creek project.

Road degradation is also important

Q7

What are the first 3 digits of your postal code?

[redacted]

#13

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Saturday, May 18, 2024 4:40:13 PM
Last Modified: Saturday, May 18, 2024 5:25:56 PM
Time Spent: 00:45:42
IP Address: [redacted]

Page 2: Welcome

Q1

Did you watch the presentation?

Yes, I attended in person

Page 3

Q2

Was the information presented during the meeting helpful to understanding the Sugar Creek Project?

Strongly Disagree

Q3

If you had any concerns about the Sugar Creek Bog Project, did the information presented help to address them?

No

Q4

Which assessments that KGS Group is completing are most critical for your community? (Select all that apply)

Hydraulic Assessment (surface water flow and drainage)

,

Water Quality Assessment,

Additional comment, if any::

We are currently experienced and continue to experience local environment impacts caused by the Washow Bay peat mines including Ramsey Point. Some examples of existing local environmental impact include peat sediment on the beach, 2020 wildfire and dust/noise/road degradation from trucks hauling peat. These existing impacts need to be eliminated before new or expanded peat mines are allowed or the problems will only get worse.

Q5

What aspects of the project are most important to you and your community? (Select all that apply)

Water management

Q6

Please provide any additional comments you may have regarding the Sugar Creek project.

Oppose any new or expanded peat mine until the existing local impacts form existing peat operations stated in response 4 are eliminated. Also very disappointed that the Q&A recording that was requested was not provided. It would have allowed us to be confirm the meeting summary. As it stands the meeting summary seems to be focused more a response to our concerns rather that clear articulation of the concerns. I assume the purpose of the meeting was to document concerns raised by local resident. A copy of the Q&A would allow attendees to confirm that all the concerns raised where captured. These questions were asked and answered in a public forum and agreed for them to be recorded. So I am not sure that should be an issue releasing them.

Q7

What are the first 3 digits of your postal code?

[redacted]

APPENDIX N

From: [redacted]
To: [redacted]
Cc: [redacted]
Subject: Petition against Sungros expansion
Date: May 25, 2024 12:50:27 AM

[redacted]:
Cottage lot owners at Beaver Creek Provincial Park reviewed SunGro's expansion proposal documents distributed . We, the undersigned, oppose the expansion, since the following issues remain unresolved:

- the risk of fire is a constant threat. The fire at Sungro, June 2020 destroyed and damaged several cottages at BCPP. What started as a very small fire on a tractor, got out of hand quickly and was uncontrollable from the peat mining staff resulting in a wildfire. Full-time and seasonal residents were trapped for days while the fire blocked PR. 234, the only road servicing our area.
- SunGro's Safety inspection reports are not publicly available.
- Water testing locations and scheduled described at the stakeholders engagement meeting do not match those described in either license 2964 or the Ramsey point environment act proposal.
- Water testing results are not publicly available.
- Peat is accumulating on the shoreline At Mill Creek Beach, Beaver Creek provincial park, Pebblestone, as well as Leaside cottage areas. Indicating that the existing means to control the runoff from the extraction areas into Lake Winnipeg are insufficient. All Manitobans living around Lake Winnipeg need a clean & healthy lake Winnipeg.
- Existing limitations on truck traffic in and out of extraction areas are destroying our road, especially during spring thaw and rainy seasons
- PR 234, the only road servicing the area was not built for the amount of traffic it receives. Road conditions are often dangerous. Ranging from poor visibility due to dust during dry weather. To rough, slippery and soft conditions in wet weather..
- Peat extracting releases ten of thousands tonnes of CO2 into the atmosphere, turning a natural carbon sink into a source of emissions. Peat Mining in the Interlake has already destroyed a vast boreal forest and turned it into an ecological desert, affecting species of all kind. Fish, amphibians, birds, and mammals.
- It affects an area people use for traditional medicines and livelihoods

Please include our feedback in Sun Gro's Environment Act Proposal.

Signed,
[redacted]

[redacted]

Sent from my iPhone

Petition to sign

[redacted]
Tue 2024-05-21 8:51 PM

[redacted]

Attention Beaver Creek cottage owners,

Other subdivisions around our park, have thought it essential to include our opposition to SunGro's EAP. If you decide you'd like to participate, please copy and paste or forward letter to Elise: eouellette@scatliff.ca

Elise Ouellette
Public Engagement Support Scatliff+Murray+Murray 1120-201 Portage Ave Winnipeg, MB R3B 3K6

Elise Ouellette:
Cottage lot owners at Beaver Creek Provincial Park reviewed SunGro's expansion proposal documents distributed . We, the undersigned, oppose the expansion, since the following issues remain unresolved:

- the risk of fire is a constant threat. The fire at Sungro, June 2020 destroyed and damaged several cottages at BCPP. What started as a very small fire on a tractor, got out of hand quickly and was uncontrollable from the peat mining staff resulting in a wildfire. Full-time and seasonal residents were trapped for days while the fire blocked PR. 234, the only road servicing our area.
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- Water testing locations and scheduled described at the stakeholders engagement meeting do not match those described in either license 2964 or the Ramsey point environment act proposal.
- Water testing results are not publicly available.
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- Existing limitations on truck traffic in and out of extraction areas are destroying our road, especially during spring thaw and rainy seasons
- PR 234, the only road servicing the area was not built for the amount of traffic it receives. Road conditions are often dangerous. Ranging from poor visibility due to dust during dry weather. To rough, slippery and soft conditions in wet weather..
- Peat extracting releases ten of thousands tonnes of CO_2 into the atmosphere, turning a natural carbon sink into a source of emissions. Peat Mining in the Interlake has already destroyed a vast boreal forest and turned it into an ecological desert, affecting species of all kind. Fish, amphibians, birds, and mammals.

- It affects an area people use for traditional medicines and livelihoods

Please include our feedback in Sun Gro's Environment Act Proposal.

Signed,
[redacted]
Name:
Cottage address: (optional)
[redacted]

From: [redacted]
To: [redacted]
Subject: SunGro"s expansion
Date: May 21, 2024 9:02:03 PM

Dear [redacted],

As a cottage owner in Beaver Creek Provincial Park I've been made aware of SunGro's proposed expansion. I vehemently oppose the expansion, since the following issues remain unresolved:

- the risk of fire is a constant threat. The fire at Sungro, June 2020 destroyed and damaged several cottages at BCPP. What started as a very small fire on a tractor, got out of hand quickly and was uncontrollable from the peat mining staff resulting in a wildfire. Full-time and seasonal residents were trapped for days while the fire blocked PR. 234, the only road servicing our area.
- SunGro's Safety inspection reports are not publicly available.
- Water testing locations and scheduled described at the stakeholders engagement meeting do not match those described in either license 2964 or the Ramsey point environment act proposal.
- Water testing results are not publicly available.
- Peat is accumulating on the shoreline At Mill Creek Beach, Beaver Creek provincial park, Pebblestone, as well as Leaside cottage areas. Indicating that the existing means to control the runoff from the extraction areas into Lake Winnipeg are insufficient. All Manitobans living around Lake Winnipeg need a clean & healthy lake Winnipeg.
- Existing limitations on truck traffic in and out of extraction areas are destroying our road, especially during spring thaw and rainy seasons
- PR 234, the only road servicing the area was not built for the amount of traffic it receives. Road conditions are often dangerous. Ranging from poor visibility due to dust during dry weather. To rough, slippery and soft conditions in wet weather..
- Peat extracting releases ten of thousands tonnes of CO2 into the atmosphere, turning a natural carbon sink into a source of emissions. Peat Mining in the Interlake has already destroyed a vast boreal forest and turned it into an ecological desert, affecting species of all kind. Fish, amphibians, birds, and mammals.
-

It affects an area people use for traditional medicines and livelihoods

Please include our feedback in Sun Gro's Environment Act Proposal.

Signed,
[redacted]

From: [redacted]
To: [redacted]
Subject: Beaver creek SunGro expansion
Date: May 22, 2024 8:45:51 AM

[redacted]
Public Engagement Support Scatliff+Murray+Murray 1120-201 Portage Ave Winnipeg, MB R3B 3K6

[redacted]:
Cottage lot owners at Beaver Creek Provincial Park reviewed SunGro's expansion proposal documents distributed . We, the undersigned, oppose the expansion, since the following issues remain unresolved:

•
the risk of fire is a constant threat. The fire at Sungro, June 2020 destroyed and damaged several cottages at BCPP. What started as a very small fire on a tractor, got out of hand quickly and was uncontrollable from the peat mining staff resulting in a wildfire. Full-time and seasonal residents were trapped for days while the fire blocked PR. 234, the only road servicing our area.

•
SunGro's Safety inspection reports are not publicly available.

•
Water testing locations and scheduled described at the stakeholders engagement meeting do not match those described in either license 2964 or the Ramsey point environment act proposal.

•
Water testing results are not publicly available.

•
Peat is accumulating on the shoreline At Mill Creek Beach, Beaver Creek provincial park, Pebblestone, as well as Leaside cottage areas. Indicating that the existing means to control the runoff from the extraction areas into Lake Winnipeg are insufficient. All Manitobans living around Lake Winnipeg need a clean & healthy lake Winnipeg.

•
Existing limitations on truck traffic in and out of extraction areas are destroying our road, especially during spring thaw and rainy seasons • PR 234, the only road servicing the area was not built for the amount of traffic it receives. Road conditions are often dangerous. Ranging from poor visibility due to dust during dry weather. To rough, slippery and soft conditions in wet weather..

•
Peat extracting releases ten of thousands tonnes of CO2 into the atmosphere, turning a natural carbon sink into a source of emissions. Peat Mining in the Interlake has already destroyed a vast boreal forest and turned it into an ecological desert, affecting species of all kind. Fish, amphibians, birds, and mammals.

•
It affects an area people use for traditional medicines and livelihoods

Please include our feedback in Sun Gro's Environment Act Proposal.

[redacted]

Name:
Cottage address: (optional)

From: [redacted]
To: [redacted]
Subject: Fwd: Petition to sign
Date: May 22, 2024 1:17:44 PM

Sent from my iPhone

Begin forwarded message:

From: [redacted]
Date: May 21, 2024 at 8:51:33 PM CDT
[redacted]
Subject: Petition to sign

Attention Beaver Creek cottage owners,

Other subdivisions around our park, have thought it essential to include our opposition to SunGro's EAP.
If you decide you'd like to participate, please copy and paste or forward letter to Elise:
eouellette@scatliff.ca

Elise Ouellette
Public Engagement Support Scatliff+Murray+Murray 1120-201 Portage Ave Winnipeg, MB R3B 3K6

Elise Ouellette:
Cottage lot owners at Beaver Creek Provincial Park reviewed SunGro's expansion proposal documents distributed . We, the undersigned, oppose the expansion, since the following issues remain unresolved:

•
the risk of fire is a constant threat. The fire at Sungro, June 2020 destroyed and damaged several cottages at BCPP. What started as a very small fire on a tractor, got out of hand quickly and was uncontrollable from the peat mining staff resulting in a wildfire. Full-time and seasonal residents were trapped for days while the fire blocked PR. 234, the only road servicing our area.

•
SunGro's Safety inspection reports are not publicly available.

•
Water testing locations and scheduled described at the stakeholders engagement meeting do not match those described in either license 2964 or the Ramsey point environment act proposal.

•
Water testing results are not publicly available.

- Peat is accumulating on the shoreline At Mill Creek Beach, Beaver Creek provincial park, Pebblestone, as well as Leaside cottage areas. Indicating that the existing means to control the runoff from the extraction areas into Lake Winnipeg are insufficient. All Manitobans living around Lake Winnipeg need a clean & healthy lake Winnipeg.
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- Peat extracting releases ten of thousands tonnes of CO2 into the atmosphere, turning a natural carbon sink into a source of emissions. Peat Mining in the Interlake has already destroyed a vast boreal forest and turned it into an ecological desert, affecting species of all kind. Fish, amphibians, birds, and mammals.
- It affects an area people use for traditional medicines and livelihoods

Please include our feedback in Sun Gro's Environment Act Proposal.

Signed,

Name: [redacted]
Cottage address: (optional)

From: [redacted]
To: [redacted]
Subject: Opposition to Sun Gro"s Expansion Proposal
Date: May 22, 2024 6:47:26 PM

I am a cottage owner at Beaver Creek Provincial Park, and I am forwarding this letter to voice my opposition to the expansion proposal from Sun Gro. See letter below.

To: [redacted]
Public Engagement Support
Scatliff + Murray + Murray
1120-201 Portage Ave
Winnipeg, Manitoba
R3B 3K6

Dear [redacted]:

Cottage lot owners at Beaver Creek Provincial Park reviewed SunGro's expansion proposal documents distributed. We, the undersigned, oppose the expansion, since the following issues remain unresolved:

- the risk of fire is a constant threat. The fire at Sungro, June 2020 destroyed and damaged several cottages at BCPP. What started as a very small fire on a tractor, got out of hand quickly and was uncontrollable from the peat mining staff resulting in a wildfire. Full-time and seasonal residents were trapped for days while the fire blocked PR. 234, the only road servicing our area.
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receives. Road conditions are often dangerous. Ranging from poor visibility due to dust during dry weather. To rough, slippery and soft conditions in wet weather..

- Peat extracting releases ten of thousands tonnes of CO2 into the atmosphere, turning a natural carbon sink into a source of emissions. Peat Mining in the Interlake has already destroyed a vast boreal forest and turned it into an ecological desert, affecting species of all kind. Fish, amphibians, birds, and mammals.
- It affects an area people use for traditional medicines and livelihoods

Please include our feedback in Sun Gro's Environment Act Proposal.

Signed,

[redacted]

From: [redacted]
To: [redacted]
Subject: Opposition to Sungro"s EAP
Date: May 22, 2024 1:07:34 PM

To:
[redacted]
Public Engagement Support Scatliff+Murray+Murray 1120-201 Portage Ave Winnipeg, MB R3B 3K6

[redacted]:
I am personally affected as a cottage owner at Beaver Creek, [redacted]
I understand Sungro caused devastation in Giroux, Manitoba and then established their operations in Beaver creek and that should never have been allowed. I have seen the environment, roads, wildlife, semi traffic, lake and cottage life deteriorate not to mention the four years to date to deal with the aftermath of the 2020 fire and the negligence of Sungro from this and the ongoing deterioration and devaluation of what was once a beautiful cottage/ lake environment.

Cottage lot owners at Beaver Creek Provincial Park reviewed SunGro's expansion proposal documents distributed . We, the undersigned, oppose the expansion, since the following issues remain unresolved:

- the risk of fire is a constant threat. The fire at Sungro, June 2020 destroyed and damaged several cottages at BCPP. What started as a very small fire on a tractor, got out of hand quickly and was uncontrollable from the peat mining staff resulting in a wildfire. Full-time and seasonal residents were trapped for days while the fire blocked PR. 234, the only road servicing our area.
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- Existing limitations on truck traffic in and out of extraction areas are destroying our road, especially during spring thaw and rainy seasons
- PR 234, the only road servicing the area was not built for the amount of traffic it receives. Road conditions are often dangerous. Ranging from poor visibility due to dust during dry weather. To rough, slippery and soft conditions in wet weather..

- Peat extracting releases ten of thousands tonnes of CO2 into the atmosphere, turning a natural carbon sink into a source of emissions. Peat Mining in the Interlake has already destroyed a vast boreal forest and turned it into an ecological desert, affecting species of all kind. Fish, amphibians, birds, and mammals.
- It affects an area people use for traditional medicines and livelihoods

Please include our feedback in Sun Gro's Environment Act Proposal.

Signed,

Name: [redacted]

From: [redacted]
To: [redacted]
Subject: SunGro expansion public consultation
Date: May 21, 2024 9:30:21 PM

[redacted]
Public Engagement Support Scatliff+Murray+Murray 1120-201 Portage Ave Winnipeg, MB R3B 3K6

[redacted]:
Cottage lot owners at Beaver Creek Provincial Park reviewed SunGro's expansion proposal documents distributed . We, the undersigned, oppose the expansion, since the following issues remain unresolved:

•
the risk of fire is a constant threat. The fire at Sungro, June 2020 destroyed and damaged several cottages at BCPP. What started as a very small fire on a tractor, got out of hand quickly and was uncontrollable from the peat mining staff resulting in a wildfire. Full-time and seasonal residents were trapped for days while the fire blocked PR. 234, the only road servicing our area.

•
SunGro's Safety inspection reports are not publicly available.

•
Water testing locations and scheduled described at the stakeholders engagement meeting do not match those described in either license 2964 or the Ramsey point environment act proposal.

•
Water testing results are not publicly available.

•
Peat is accumulating on the shoreline At Mill Creek Beach, Beaver Creek provincial park, Pebblestone, as well as Leaside cottage areas. Indicating that the existing means to control the runoff from the extraction areas into Lake Winnipeg are insufficient. All Manitobans living around Lake Winnipeg need a clean & healthy lake Winnipeg.

•
Existing limitations on truck traffic in and out of extraction areas are destroying our road, especially during spring thaw and rainy seasons

•
PR 234, the only road servicing the area was not built for the amount of traffic it receives. Road conditions are often dangerous. Ranging from poor visibility due to dust during dry weather. To rough, slippery and soft conditions in wet weather..

•
Peat extracting releases ten of thousands tonnes of CO2 into the atmosphere, turning a natural carbon sink into a source of emissions. Peat Mining in the Interlake has already destroyed a vast boreal forest and turned it into an ecological desert, affecting species of all kind. Fish, amphibians, birds, and mammals.

•
It affects an area people use for traditional medicines and livelihoods

Please include our feedback in Sun Gro's Environment Act Proposal.

Signed,

[redacted]

From: [redacted]
To: [redacted]
Subject: Sungro Peatmine expansion
Date: May 22, 2024 2:52:45 PM

[redacted]
Public Engagement Support
Scatliff+Murray+Murray
1120-201 Portage Ave Winnipeg, MB R3B 3K6

Dear [redacted]:
Cottage lot owners at Beaver Creek Provincial Park reviewed SunGro's expansion proposal documents distributed . We, the undersigned, oppose the expansion, since the following issues remain unresolved:

- the risk of fire is a constant threat. The fire at Sungro, June 2020 destroyed and damaged several cottages at BCPP. What started as a very small fire on a tractor, got out of hand quickly and was uncontrollable from the peat mining staff resulting in a wildfire. Full-time and seasonal residents were trapped for days while the fire blocked PR. 234, the only road servicing our area.
- SunGro's Safety inspection reports are not publicly available.
- Water testing locations and scheduled described at the stakeholders engagement meeting do not match those described in either license 2964 or the Ramsey point environment act proposal.
- Water testing results are not publicly available.
- Peat is accumulating on the shoreline At Mill Creek Beach, Beaver Creek provincial park, Pebblestone, as well as Leaside cottage areas. Indicating that the existing means to control the runoff from the extraction areas into Lake Winnipeg are insufficient. All Manitobans living around Lake Winnipeg need a clean & healthy lake Winnipeg.
- Existing limitations on truck traffic in and out of extraction areas are destroying our road, especially during spring thaw and rainy seasons
- PR 234, the only road servicing the area was not built for the amount of traffic it receives. Road conditions are often dangerous. Ranging from poor visibility due to dust during dry weather. To rough, slippery and soft conditions in wet weather..
- Peat extracting releases ten of thousands tonnes of CO2 into the atmosphere, turning a natural carbon sink into a source of emissions. Peat Mining in the Interlake has already destroyed a vast boreal forest and turned it into an ecological desert, affecting species of all kind. Fish, amphibians, birds, and mammals.
- It affects an area people use for traditional medicines and livelihoods

Please include our feedback in Sun Gro's Environment Act Proposal.

Signed,
[redacted]

From: [redacted]
To: [redacted]
Subject: SunGro"s expansion
Date: May 21, 2024 9:02:03 PM

Dear [redacted],

As a cottage owner in Beaver Creek Provincial Park I've been made aware of SunGro's proposed expansion. I vehemently oppose the expansion, since the following issues remain unresolved:

- the risk of fire is a constant threat. The fire at Sungro, June 2020 destroyed and damaged several cottages at BCPP. What started as a very small fire on a tractor, got out of hand quickly and was uncontrollable from the peat mining staff resulting in a wildfire. Full-time and seasonal residents were trapped for days while the fire blocked PR. 234, the only road servicing our area.
- SunGro's Safety inspection reports are not publicly available.
- Water testing locations and scheduled described at the stakeholders engagement meeting do not match those described in either license 2964 or the Ramsey point environment act proposal.
- Water testing results are not publicly available.
- Peat is accumulating on the shoreline At Mill Creek Beach, Beaver Creek provincial park, Pebblestone, as well as Leaside cottage areas. Indicating that the existing means to control the runoff from the extraction areas into Lake Winnipeg are insufficient. All Manitobans living around Lake Winnipeg need a clean & healthy lake Winnipeg.
- Existing limitations on truck traffic in and out of extraction areas are destroying our road, especially during spring thaw and rainy seasons
- PR 234, the only road servicing the area was not built for the amount of traffic it receives. Road conditions are often dangerous. Ranging from poor visibility due to dust during dry weather. To rough, slippery and soft conditions in wet weather..
- Peat extracting releases ten of thousands tonnes of CO2 into the atmosphere, turning a natural carbon sink into a source of emissions. Peat Mining in the Interlake has already destroyed a vast boreal forest and turned it into an ecological desert, affecting species of all kind. Fish, amphibians, birds, and mammals.
-

It affects an area people use for traditional medicines and livelihoods

Please include our feedback in Sun Gro's Environment Act Proposal.

Signed,
[redacted]

Emailed

May 18, 2024

[redacted]
Public Engagement Support
Scatliff+Murray+Murray
1120-201 Portage Ave
Winnipeg, MB R3B 3K6
[redacted]

[redacted]:

Cottage lot owners at Little Deer Cottage Subdivision, Mill Creek Beaches Cottage Subdivision, and Beaver Creek Provincial Park attended Sun Gro's stakeholder engagement meeting (April 15th at Pine Dock) and reviewed the documents distributed thereafter. We, the undersigned, oppose the expansion since the following issues remain unresolved:

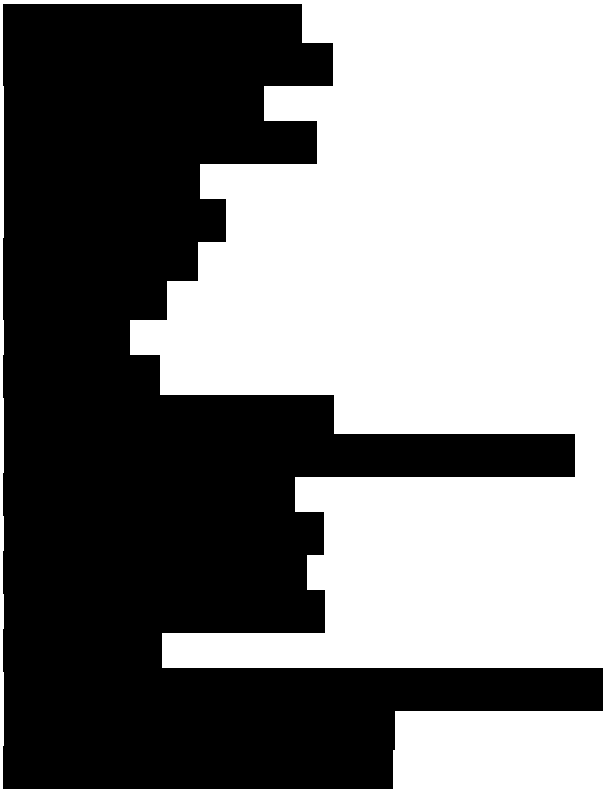
- The risk of fire is a constant threat. The fire at Sun Gro in June 2020 destroyed several cottages in Beaver Creek Provincial Park, which is only 7 km south of Mill Creek Beaches and 14 kilometers south of Little Deer. Full-time and seasonal residents were trapped for days while the fire blocked P. R. 234, the only road servicing our area.
- Sun Gro's safety inspection reports are not publicly available.
- Water testing locations and schedules described at the stakeholder engagement meeting do not match those described in either Licence 2964ER or the Ramsay Point Environment Act Proposal.
- Water testing results are not publicly available.
- Peat is accumulating on the shoreline at Mill Creek Beaches as well as Leaside Beach, Beaver Creek and Pebblestone cottage areas, indicating that the existing means to control the output from peat extraction areas into Lake Winnipeg are insufficient. Manitobans need a clean, healthy Lake Winnipeg.
- Peat is accumulating in cottagers' lots in Mill Creek Beaches, indicating that the existing means to control fugitive peat are insufficient.
- Existing limitations on truck traffic in and out of the peat extraction areas are insufficient to prevent fugitive dust settling on cottagers' properties.
- P. R. 234, the only road servicing the area, cannot withstand the amount of traffic it receives. Road conditions are often dangerous, ranging from poor visibility due to dust in dry weather to rough surface conditions in wet weather.

- A peat mine releases thousands of tonnes of carbon dioxide into the atmosphere, by turning a natural carbon sink into a net source of emissions. Peat mining in the Interlake has already destroyed a vast area of ancient boreal forest and turned it into an ecological desert.

Please include our feedback in Sun Gro's Environment Act Proposal.

Sincerely,

Little Deer Cottage Subdivision



Mill Creek Beaches Cottage Subdivision

Beaver Creek Provincial Park

May 17, 2024 Emailed to: [redacted]

[redacted]
Scatliff+Murray+Murray
1120-201 Portage Avenue
Winnipeg, MB R3B 3K6

Subject: Sun Gro Sugar Creek EAP and Ramsay Point Engagement Comments and Opposition from Pebblestone Beach Residents

References: A) Summary of April 15, 2024 Pine Dock In-Person Community Meeting - Sun Gro Sugar Creek EAP and Ramsay Point Engagement
B) Presentation titled: Environment Act Proposal for a peatland development at Sugar Creek sub-areas B, C, D, and E + Engagement for two additional harvesting areas associated with Ramsay Point Bog, dated April 2024

Dear[redacted],

We are a group of local residents at Pebblestone Beach along PR234, that are currently being impacted by the peat mining operations in the Washow Bay area. We oppose any existing, new or expanded peat operations. We don't believe any new or expanded peat operations should be contemplated until the local impacts from the existing peat operations are scientifically investigated and adequately addressed. There is clear measurable and observable evidence that the peat operations mitigation efforts are inadequate and they have and will continue to negatively impact the local environment.

Some examples of local environment impact from the existing Sungro peat operations, experienced first-hand by the Pebblestone Beach lot owners include:

- **Wildfire Hazard**: In June 2020 a wildfire was caused by the Sungro Peat operations. Several cottages at Beaver Creek were destroyed in a matter of hours. Pebblestone Beach is only 1 km south of Beaver Creek and narrowly missed also being overtaken by the wild fire. It was sheer luck that more property was not destroyed and lives weren't lost. (See Figure 1)

- **Peat Sediment on Beaches**: Baseline surface water samples collected from the water bodies/water courses from within the peat mine area generally had total suspended solids (including peat) below detection limits (< 5 mg/L) according to Sungro's initial tests. Since the peat operations began in 2012, peat has progressively been accumulating on the beaches along PR234. Sungro indicates they use sedimentation ponds to prevent this, but based on comments in the Reference A meeting summary ("... allowed an increase of 25mg/L over the baseline conditions…"), it is clear that Sungro is releasing peat into the lake. Therefore, it is likely that the peat released into the lake by Sungro is contributing to the peat accumulation on the beach. (See Figure 2)

- **Traffic on PR234:** The existing Sungro peat operations increased heavy truck traffic by 30 trips/day (60 trips/day at peak operations). This increase in traffic has contributed to excessive dust and noise. The size and volume of trucks degrade the condition of the gravel highway and increase the danger of serious accidents, impacting cottager safety.

Proceeding with any expansion or new peat operations will only serve to worsen these local environmental impacts on Pebblestone Beach and all strain residents along PR234.

As stated previously, we oppose any new or expanded peat mines, including those proposed in Reference B, and believe the existing local environmental impacts from the existing peat operations need to be scientifically investigated (for cause and effect) and adequately addressed to eliminate their impact before expanding or opening any new peat operations in the Washow Bay area.

We thank you in advance for your time and attention regarding this serious matter and request that you include this letter in your proposal as our concerns and formal opposition if you decide to proceed.

Respectfully yours,

[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	

Figure 1 – Wildfire Location Caused the Sun Gro Peat Operations in 2012

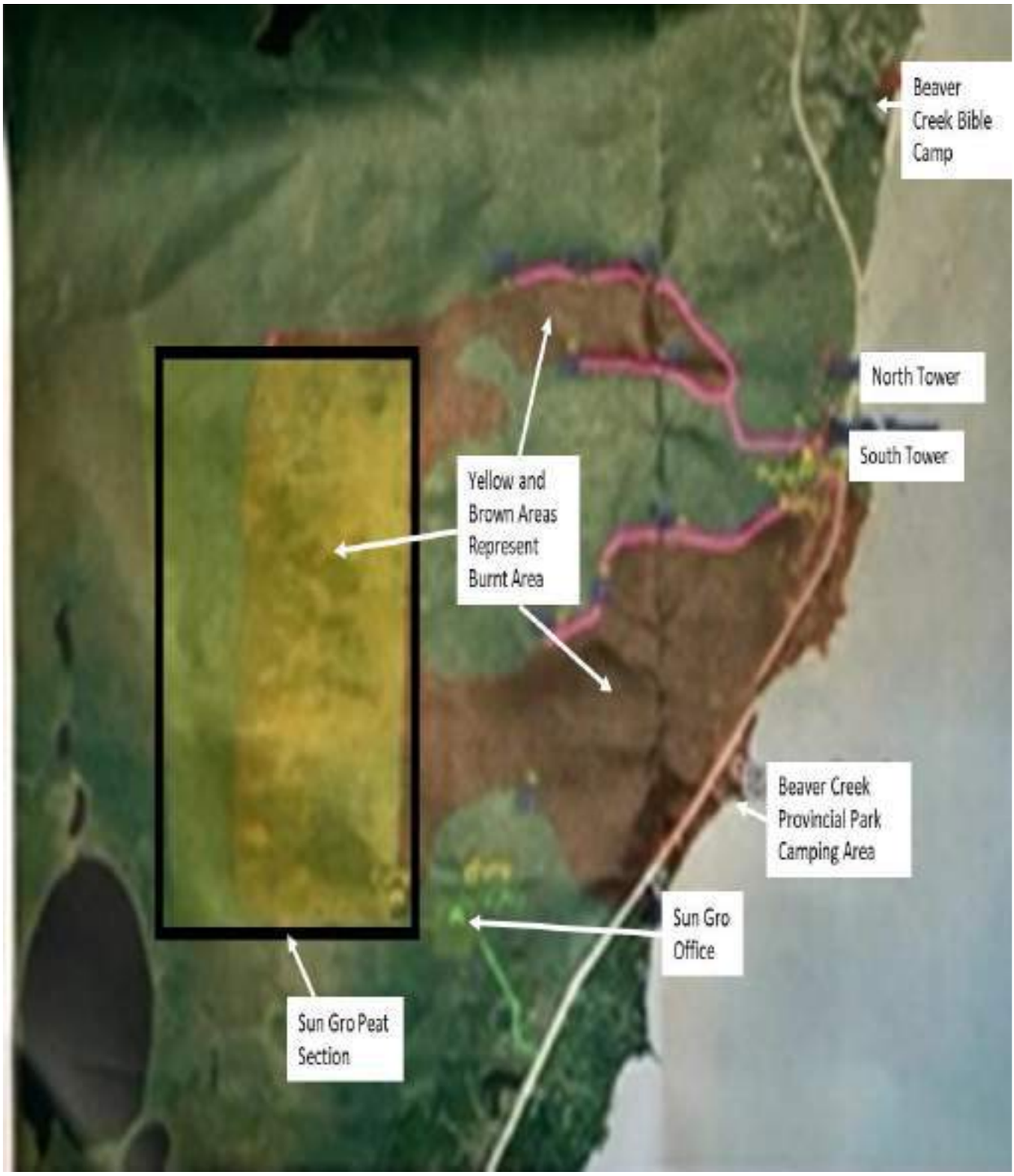


Figure 2 – Example Peat Sediment on Pebblestone Beach

Meeting at pine Dock

[redacted]

Wed 5/15/2024 9:37 PM

To:[redacted]>

Hello. My name is[redacted]. I live at [REDACTED] full time. There is a letter circulating by[redacted] stating Little Deer residents oppose the expansion of the peat moss operations. I do not oppose the expansion. [redacted] does not speak for Little Deer property owners or for me. She has know right to say she represents Littlle Deer. Thankyou for letting me express my opinion.

Sungro Meeting Pine Dock

[redacted]

Sun 3/31/2024 8:38 PM

To:Elise Ouellette <EOuellette@scatliff.ca>

Hello, I would like to have a chance to speak as to my support and appreciation of the economic benefits, employment and economic spin-offs that our community has seen since peat industry has been in our area.
I want to be sure representation is made for the positives of the industry.

Thanks, [redacted]

Sent from my iPad

APPENDIX F

Aquatic Habitat Assessment

SUGAR CREEK PEAT HARVESTING DEVELOPMENT

AQUATIC HABITAT ASSESSMENT OF SUB-AREA "C"

July 2022

Prepared for

KGS Group

by

North/South Consultants Inc.
Aquatic Environment Specialists

83 Scurfield Blvd.
Winnipeg, Manitoba, R3Y 1G4
Website: www.nscons.ca

Tel.: (204) 284-3366
Fax: (204) 477-4173
E-mail: nscons@nscons.ca

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ACKNOWLEDGEMENTS

KGS Group is thanked for the opportunity to conduct this study.

STUDY TEAM

Data Collection

Duncan Burnett

Ian Young

Data Analysis, Report Preparation, and Report Review

Duncan Burnett

Thomas Sutton

Craig McDougall

1.0 INTRODUCTION

KGS Group is preparing an Environment Act Proposal (EAP) on behalf of Sun Gro Horticulture for the development of the Sugar Creek Peat Harvesting Project northwest of Riverton, Manitoba. North/South Consultants Inc. (NSC) was contracted to provide aquatic environmental services related to the proposed peat harvesting development.

In support of the Project, NSC conducted an aquatic habitat assessment of the Sugar Creek sub-area "C" (hereafter Sugar Creek C). This report describes results of that assessment, including *in situ* water quality measurements, representative site photos, and a brief description of fish habitat and potential fish use of the project area. Sugar Creek sub-areas B, D, and E are part of the broader Sugar Creek Peat Harvesting Project, but no aquatic assessment was conducted at these sites because of the lack of open-water to provide fish habitat.

2.0 METHODS

2.1 FISH AND HABITAT

The wetted area in the northeast corner of Sugar Creek C was accessed using an Argo amphibious vehicle. The area was assessed by an NSC biologist in relation to fish habitat characteristics, including flow pattern, cover and bank condition. Digital photos were captured to provide visual references. Minnow traps baited with dog food and dip nets were used to sample for small-bodied fish at the unnamed drain site. *In situ* water quality was measured at Sugar Creek C and at the unnamed drain site located south and southeast of the Sugar Creek Project. This unnamed drain was sampled as it is ultimately the downstream receiving waterbody towards which site drainage will be directed. Water quality parameters included: temperature (°C); dissolved oxygen (DO; mg/L); turbidity (NTU); and specific conductance (µS/cm). Turbidity was measured using an Analite NEP-160 (McVan Instruments Pty Ltd. Scoresby, Australia). Dissolved oxygen, temperature and conductivity were measured using a YSI-85 (YSI Inc., Yellow Springs, OH).

3.0 RESULTS

The fish and fish habitat assessment of the Sugar Creek C site was conducted on July 4, 2022.

3.1 PHYSICAL ENVIRONMENT

3.1.1 Sugar Creek C

The frequently wetted area in the northeast corner of Sugar Creek C was dominated by low-lying fen habitat, sphagnum moss and flooded grassland (Photos 1-2). The wetted area was surrounded by, and interspersed with, stands of black spruce, tamarack, small shrubs and grasses (Photo 3-4). Water depths at the site ranged from 0.0 to 0.3 m at the time of the survey. The substrate consisted entirely of organic material and sphagnum moss.

3.1.2 Unnamed Drain

The banks of the unnamed drain south and southeast of the Sugar Creek C peat complex were sloped and covered in organic material. The riparian area consisted of thick shrubs, deciduous trees, and grasses (Photos 6-7). Water levels were high at the time of sampling, and the drain was essentially full to the top of the banks; depths greater than 1.5 m were observed in some areas (Photo 8). Substrate consisted primarily of organic material, although some areas were overlaid by soft silt/mud.

3.2 FISH AND FISH HABITAT

3.2.1 Sugar Creek C

The wetted area in the northeast corner of Sugar Creek C would not be considered suitable habitat for small- or large-bodied fish species (Figure 2). At the time of the survey, the area consisted of shallow, stagnant water over a thick layer of organic material and sphagnum. There was no observable channel or connectivity to fish bearing waterbodies upstream or downstream of the site. The recorded water temperature at the site was 21.0^{o}C (Table 1). Water colour was brown, and turbidity measured 78.0 NTU (Table 1). The water at the site was poorly oxygenated (4.31mg/L; Table 1), below the range of the Manitoba Water Quality Standards, Objectives, and Guidelines (MWQSOGs) for the protection of early life stages of cool-water species (6.0 mg/L; MWS 2011). No fish were captured in dip netting efforts (Photo 9).

3.2.2 Unnamed Drain

The field crew was unable to access the portion of the unnamed drain at its closest point to Sugar Creek C as initially planned. As such, sampling was conducted at a portion of the drain proximal to the access road (Figure 2). Instream cover for fish was abundant, consisting primarily of fallen

trees and aquatic vegetation (Photo 10). Although the drain flows into Lake Winnipeg, fish passage of large-bodied species is likely restricted by several beaver dam blockages identified through Google Earth satellite imagery. The recorded water temperature at the site was 21.0^{o}C and was clear with turbidity measured at 0.11 NTU (Table 1). The water at the site was poorly oxygenated (3.50 mg/L; Table 1), below the range of the Manitoba Water Quality Standards, Objectives, and Guidelines (MWQSOGs) for the protection of early life stages of cool-water species (6.0 mg/L; MWS 2011). No fish were captured in four minnow traps set from ~11:00 to 18:00, July 4, 2022, or in opportunistic dip netting along the shoreline (Figure 2).

Despite no fish being visually observed or captured by sampling efforts, the unnamed drain appeared to be suitable for small-bodied fish capable of tolerating low oxygen environments (Figure 2). A list of the small-bodied fish species that may be present in the unnamed drain is provided in Table 3 and includes common forage fish species such as Fathead Minnow, Brook Stickleback and Central Mudminnow (Stewart and Watkinson 2004).

4.0 REFERENCES

MANITOBA WATER STEWARDSHIP (MWS). 2011. Manitoba Water Quality Standards, Objectives, and Guidelines. Water Science and Management Branch. Manitoba Water Stewardship. Report 2011-01.

STEWART, K.W., and D.A. WATKINSON. 2004. The freshwater fishes of Manitoba. University of Manitoba Press. Winnipeg, Manitoba. 278 pp.

Table 1. *In Situ* water quality measurements taken during the Sugar Creek peat harvesting development aquatic habitat assessment.

Site ID	UTM (14U)		Water Temperature (ºC)	Turbidity (NTU)	Dissolved Oxygen (%)	Dissolved Oxygen (mg/L)	Specific Conductivity (µS)
	Easting	Northing					
Sugar Creek C	627968	5687250	21.0	78.0	50.2	4.31	38.9
Unnamed Drain	627188	5676982	18.6	0.11	44.1	3.50	274.1

Table 2. Site information for minnow traps set at the unnamed drain south of the Sugar Creek peat harvesting development.

Field ID	Set Time	Pull Time	Set Duration (h:mm)	UTM (Zone 14U)		Catch
				Easting	Northing	
MT-01	11:08	17:52	6:44	627176	5676962	0
MT-02	11:14	17:54	6:40	627188	5676982	0
MT-03	11:15	17:55	6:40	627201	5676989	0
MT-04	11:16	17:57	6:41	627217	5676997	0

Table 3. Potential small-bodied fish species occurrence at the site of the unnamed drain south of the Sugar Creek peat harvesting development.

Family	Scientific Name	Common Name
Cyprinidae	*Notemigonus crysoleucas*	Golden Shiner
	Notropis atherinoides	Emerald Shiner
	Notropis blennius	River Shiner
	Notropis heterolepsis	Blacknose Shiner
	Notropis hudsonius	Spottail Shiner
	Notropis texanus	Weed Shiner
	Notropis volucellus	Mimic Shiner
	Pimephales promelas	Fathead Minnow
	Platygobio gracilis	Flathead Chub
	Rhinichthys cataractae	Longnose Dace
	Rhinichthys obtusus	Western Blacknose Dace
Umbridae	*Umbra limi*	Central Mudminnow
Gasterosteidae	*Culaea inconstans*	Brook Stickleback
Percopsidae	*Percopsis omiscomaycus*	Trout-perch
Percidae	*Etheostoma exile*	Iowa Darter
	Etheostoma nigrum	Johnny Darter

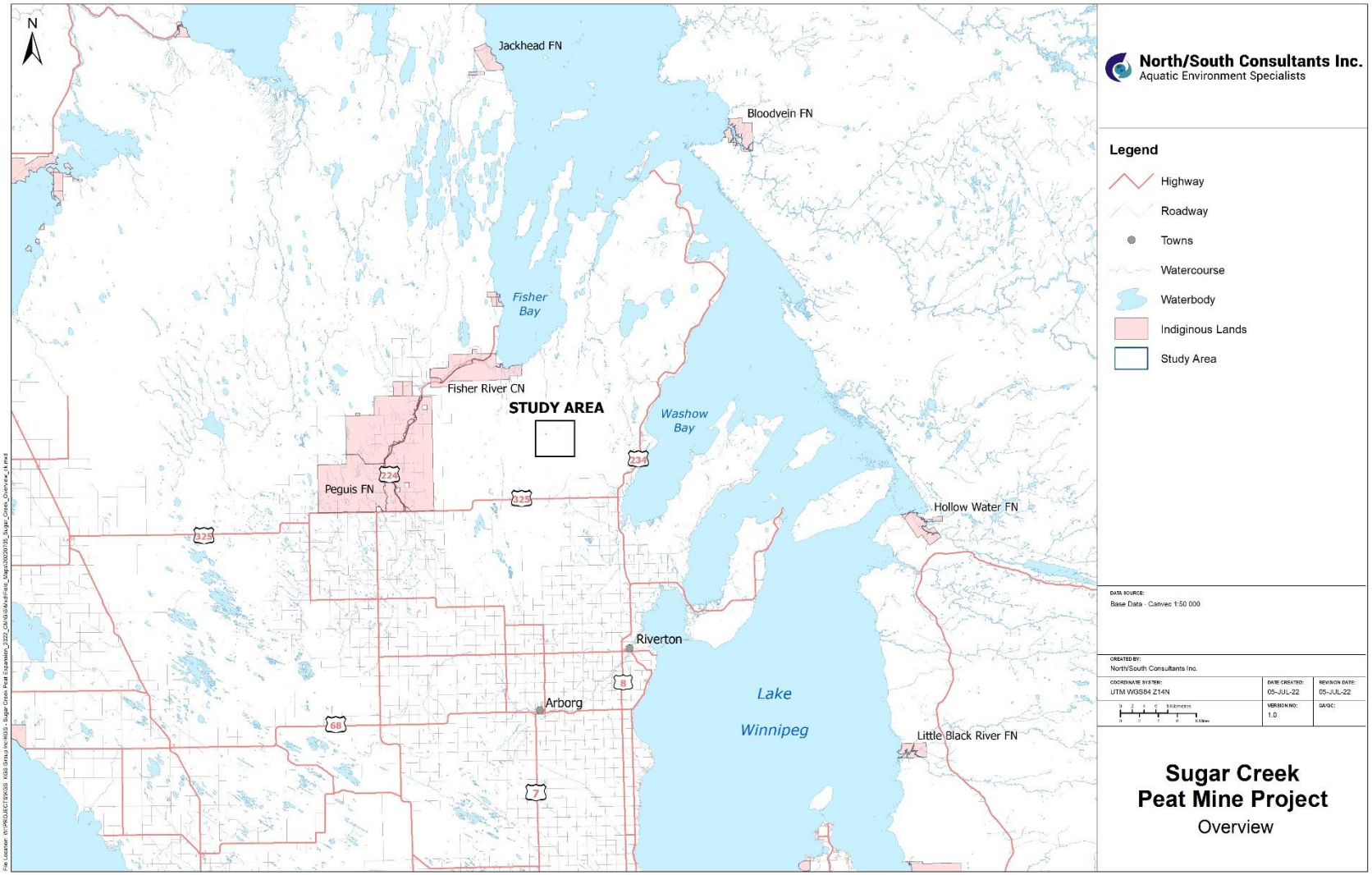

Figure 1. Sugar Creek peat harvesting development aquatic habitat assessment study area, Manitoba.

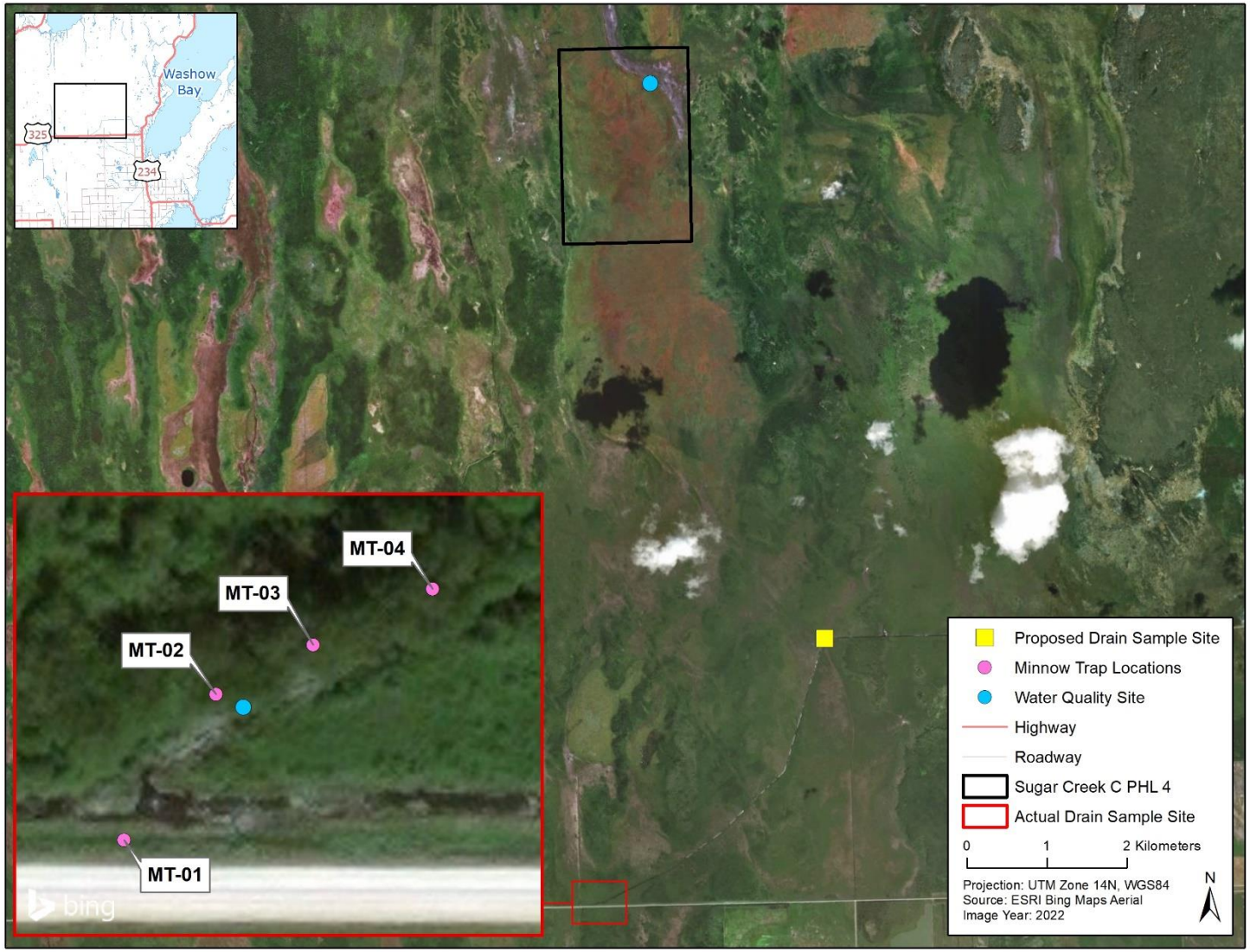

Figure 2. Water quality and aquatic habitat assessment locations at the Sugar Creek peat harvesting development, Manitoba.

Photo 1. Site photo of the frequently wetted area at Sugar Creek C.

Photo 2. Site photo of the frequently wetted area at Sugar Creek C showing standing water.

Photo 3. Site photo of the frequently wetted area at Sugar Creek C showing black spruce, shrubs, and grasses.

Photo 4. Site photo of the frequently wetted area at Sugar Creek C showing sphagnum moss.

Photo 5. Site photo of the frequently wetted area at Sugar Creek C showing the surrounding riparian area consisting of black spruce, tamarack, shrubs and grasses.

Photo 6. Right bank of the unnamed drain south of the Sugar Creek peat complex.

Photo 7. Left bank of the unnamed drain south of the Sugar Creek peat complex.

Photo 8. Site photo of the unnamed drain south of the Sugar Creek peat harvesting development showing high water.

Photo 9. Dip net used to sample the wetted area in the northeast corner of Sugar Creek C, Manitoba.

Photo 10. Woody instream debris in the unnamed drain south of the Sugar Creek peat harvesting development, Manitoba.

APPENDIX G

Manitoba Conservation Data Centre Tracked Species within the Mid-Boreal Lowland Ecoregion

ECOREGION	GROUP_TAXON	FAMILY	SCINAME	COMNAME	S_RANK	N_RANK	G_RANK	ESEA	SARA	COSEWIC	TRACK_STATUS
Mid-Boreal Lowland	Adder's-tongues, Grapeferns, and Moonworts	Ophioglossaceae	*Sceptridium multifidum*	Leathery Grapefern	S3	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Amphibians	Ambystomatidae	*Ambystoma laterale*	Blue-spotted Salamander	S3S4	N5	G5	NL	NL	NL	W
Mid-Boreal Lowland	Amphibians	Ranidae	*Lithobates pipiens*	Northern Leopard Frog	S4	N5	G5	NL	SC	SC	Y
Mid-Boreal Lowland	Amphibians	Scaphiopodidae	*Spea bombifrons*	Plains Spadefoot	S2S3	N3N4	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Birds	Podicipedidae	*Aechmophorus occidentalis*	Western Grebe	S3S4B	N3N4B,N2N	G5	NL	SC	SC	Y
Mid-Boreal Lowland	Birds	Caprimulgidae	*Antrostomus vociferus*	Eastern Whip-poor-will	S2S3B	N4B,N3M	G5	T	T	SC	Y
Mid-Boreal Lowland	Birds	Ardeidae	*Ardea herodias*	Great Blue Heron	S5B	N5B,N4N	G5	NL	NL	NL	P
Mid-Boreal Lowland	Birds	Strigidae	*Asio flammeus*	Short-eared Owl	S2S3B	N4B,N3N,N4M	G5	T	SC	T	Y
Mid-Boreal Lowland	Birds	Anatidae	*Aythya marila*	Greater Scaup	S4B	N5B,N5N	G5	NL	NL	NL	P
Mid-Boreal Lowland	Birds	Accipitridae	*Buteo lagopus*	Rough-legged Hawk	S2S3B,S4M	N5B,N5N	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Birds	Parulidae	*Cardellina canadensis*	Canada Warbler	S3B	N4B,N3M	G5	T	T	SC	Y
Mid-Boreal Lowland	Birds	Apodidae	*Chaetura pelagica*	Chimney Swift	S2B	N3B,N4M	G4G5	T	T	T	Y
Mid-Boreal Lowland	Birds	Charadriidae	*Charadrius melodus circumcinctus*	Piping Plover	S1B	N3B	G3T3	E	E	E	Y
Mid-Boreal Lowland	Birds	Caprimulgidae	*Chordeiles minor*	Common Nighthawk	S2S3B	N4N5B,N5M	G5	T	SC	SC	Y
Mid-Boreal Lowland	Birds	Fringillidae	*Coccothraustes vespertinus*	Evening Grosbeak	S2S3	N4N5	G5	NL	SC	SC	Y
Mid-Boreal Lowland	Birds	Tyrannidae	*Contopus cooperi*	Olive-sided Flycatcher	S2S3B	N4B	G4	T	T	SC	Y
Mid-Boreal Lowland	Birds	Tyrannidae	*Contopus virens*	Eastern Wood-pewee	S3B	N4B	G5	NL	SC	SC	Y
Mid-Boreal Lowland	Birds	Rallidae	*Coturnicops noveboracensis*	Yellow Rail	S3B	N3N4B,NUM	G4	NL	SC	SC	Y
Mid-Boreal Lowland	Birds	Anatidae	*Cygnus buccinator*	Trumpeter Swan	S2B	N4N5B,N5N	G4	E	NL	NL	Y
Mid-Boreal Lowland	Birds	Icteridae	*Dolichonyx oryzivorus*	Bobolink	S3S4B	N5B,N4N5M	G5	NL	T	SC	Y
Mid-Boreal Lowland	Birds	Icteridae	*Euphagus carolinus*	Rusty Blackbird	S3S4B,S2N	N4B,NUN	G4	NL	SC	SC	P
Mid-Boreal Lowland	Birds	Falconidae	*Falco peregrinus*	Peregrine Falcon	S2B,S3M	N3N4B,N2N,N3N4M	G4	E	SC	NL	Y
Mid-Boreal Lowland	Birds	Accipitridae	*Haliaeetus leucocephalus*	Bald Eagle	S5B,S3N	N5B,N5N	G5	NL	NL	NL	N
Mid-Boreal Lowland	Birds	Hirundinidae	*Hirundo rustica*	Barn Swallow	S4B	N4N5B	G5	NL	T	SC	Y
Mid-Boreal Lowland	Birds	Laridae	*Hydroprogne caspia*	Caspian Tern	S3S4B	N3N4B,N5M	G5	NL	NL	NL	P
Mid-Boreal Lowland	Birds	Laridae	*Larus argentatus*	Herring Gull	S5B	N5B,N5N	G5	NL	NL	NL	P
Mid-Boreal Lowland	Birds	Laridae	*Larus californicus*	California Gull	S3B	N5B,NUN	G5	NL	NL	NL	P
Mid-Boreal Lowland	Birds	Laridae	*Larus delawarensis*	Ring-billed Gull	S5B	N5B,N5N	G5	NL	NL	NL	P
Mid-Boreal Lowland	Birds	Laridae	*Leucophaeus pipixcan*	Franklin's Gull	S4B	N4N5B,NUN	G5	NL	NL	NL	P
Mid-Boreal Lowland	Birds	Picidae	*Melanerpes erythrocephalus*	Red-headed Woodpecker	S3B	N3B,N3N	G5	T	E	E	Y
Mid-Boreal Lowland	Birds	Ardeidae	*Nycticorax nycticorax*	Black-crowned Night-heron	S4B	N4B,N2N	G5	NL	NL	NL	P
Mid-Boreal Lowland	Birds	Pelecanidae	*Pelecanus erythrorhynchos*	American White Pelican	S4B	N5B,N3N	G4	NL	NL	NL	P
Mid-Boreal Lowland	Birds	Phalacrocoracidae	*Phalacrocorax auritus*	Double-crested Cormorant	S5B	N5B,N3N4N,N5M	G5	NL	NL	NL	P
Mid-Boreal Lowland	Birds	Podicipedidae	*Podiceps auritus*	Horned Grebe	S3B	N5B,N4N5N	G5	NL	SC	SC	Y
Mid-Boreal Lowland	Birds	Podicipedidae	*Podiceps nigricollis*	Eared Grebe	S3S4B	N5B,N3N	G5	NL	NL	NL	P
Mid-Boreal Lowland	Birds	Hirundinidae	*Riparia riparia*	Bank Swallow	S4B	N4N5B,N5M	G5	NL	T	T	Y
Mid-Boreal Lowland	Birds	Parulidae	*Setophaga americana*	Northern Parula	S4B	N5B	G5	NL	NL	NL	N
Mid-Boreal Lowland	Birds	Laridae	*Sterna forsteri*	Forster's Tern	S4B	N5B	G5	NL	NL	NL	P
Mid-Boreal Lowland	Birds	Laridae	*Sterna hirundo*	Common Tern	S5B	N5B,NUN	G5	NL	NL	NL	P
Mid-Boreal Lowland	Birds	Strigidae	*Strix nebulosa*	Great Gray Owl	S3S4	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Birds	Strigidae	*Strix varia*	Barred Owl	S3S4	N5	G5	NL	NL	NL	W
Mid-Boreal Lowland	Birds	Phasianidae	*Tympanuchus phasianellus*	Sharp-tailed Grouse	S5	N5	G5	NL	NL	NL	P

NL = Not Listed, SC = Special Concern, Threatened = T, Endangered = E, Extirpated = EX
Track_Status: Y = Yes, N = No, P = Partial, W = Watchlist

Mid-Boreal Lowland	Birds	Parulidae	*Vermivora chrysoptera*	Golden-winged Warbler	S2S3B	N3B	G4	T	T	T	Y
Mid-Boreal Lowland	Bumble Bees	Apidae	*Bombus bohemicus*	Ashton Cuckoo Bumble Bee	S1	N2N3	G3G5	NL	E	E	Y
Mid-Boreal Lowland	Bumble Bees	Apidae	*Bombus terricola*	Yellow-banded Bumble Bee	S3S5	N4?	G3G4	NL	SC	SC	Y
Mid-Boreal Lowland	Butterflies and Skippers	Nymphalidae	*Danaus plexippus*	Monarch	S3S4B	N3B,NUM	G4	NL	E	E	Y
Mid-Boreal Lowland	Conifers	Pinaceae	*Pinus resinosa*	Red Pine	S2S3	N5	G5	NL	NL	NL	P
Mid-Boreal Lowland	Conifers	Taxaceae	*Taxus canadensis*	Canada Yew	S3	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Dicots	Asteraceae	*Almutaster pauciflorus*	Few-flowered Aster	S1	N3	G4	NL	NL	NL	Y
Mid-Boreal Lowland	Dicots	Araliaceae	*Aralia racemosa*	Spikenard	S2	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Dicots	Ranunculaceae	*Caltha natans*	Floating Marsh-marigold	S2S4	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Dicots	Droseraceae	*Drosera anglica*	Oblong-leaved Sundew	S3S4	N5	G5	NL	NL	NL	W
Mid-Boreal Lowland	Dicots	Droseraceae	*Drosera linearis*	Slender-leaved Sundew	S2?	N4	G4G5	NL	NL	NL	Y
Mid-Boreal Lowland	Dicots	Rubiaceae	*Galium aparine*	Cleavers	S3	N5	G5	NL	NL	NL	P
Mid-Boreal Lowland	Dicots	Solanaceae	*Leucophysalis grandiflora*	Large White-flowered Ground-cherry	S3S4	N3N4	G4?	NL	NL	NL	W
Mid-Boreal Lowland	Dicots	Nymphaeaceae	*Nymphaea odorata ssp. odorata*	Fragrant Water-lily	S2	N5	G5T5	NL	NL	NL	Y
Mid-Boreal Lowland	Dicots	Plantaginaceae	*Plantago maritima*	Seaside Plantain	S2	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Dicots	Ericaceae	*Pyrola americana*	Round-leaved Pyrola	S2?	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Dicots	Ranunculaceae	*Thalictrum sparsiflorum*	Few-flowered Meadow-rue	S1S3	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Dicots	Ericaceae	*Vaccinium cespitosum*	Dwarf Bilberry	S3	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Dicots	Violaceae	*Viola labradorica*	Early Blue Violet	S3	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Dicots	Violaceae	*Viola selkirkii*	Long-spurred Violet	S2	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Fishes - Freshwater and Anadromous Bony, Cartilaginous; Lampreys	Salmonidae	*Coregonus zenithicus*	Shortjaw Cisco	S2	N2	G3	NL	NL	T	Y
Mid-Boreal Lowland	Fishes - Freshwater and Anadromous Bony, Cartilaginous; Lampreys	Petromyzontidae	*Ichthyomyzon castaneus*	Chestnut Lamprey	SU	NU	G4	NL	NL	NL	Y
Mid-Boreal Lowland	Fishes - Freshwater and Anadromous Bony, Cartilaginous; Lampreys	Cyprinidae	*Macrhybopsis storeriana*	Silver Chub	S5	N5	G5	NL	NL	NL	N
Mid-Boreal Lowland	Leptosporangiate Ferns	Osmundaceae	*Claytosmunda claytoniana*	Interrupted Fern	S2S3	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Leptosporangiate Ferns	Cystopteridaceae	*Gymnocarpium continentale*	Nahanni Oak Fern	S3S4	N5	G5T4T5	NL	NL	NL	W
Mid-Boreal Lowland	Leptosporangiate Ferns	Cystopteridaceae	*Gymnocarpium robertianum*	Limestone Oak Fern	S1	N3	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Leptosporangiate Ferns	Onocleaceae	*Onoclea sensibilis*	Sensitive Fern	S3?	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Leptosporangiate Ferns	Pteridaceae	*Pellaea gastonyi*	Gastony's Cliffbrake	S1	N3N4	G3	E	NL	NL	Y
Mid-Boreal Lowland	Leptosporangiate Ferns	Pteridaceae	*Pellaea glabella ssp. occidentalis*	Western Dwarf Cliffbrake	S2	N3	G5T4	NL	NL	NL	Y
Mid-Boreal Lowland	Leptosporangiate Ferns	Polypodiaceae	*Polypodium sibiricum*	Siberian Polypody	S3	N4	G5?	NL	NL	NL	Y
Mid-Boreal Lowland	Leptosporangiate Ferns	Woodsiaceae	*Woodsia glabella*	Smooth Woodsia	S2	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Mammals	Bovidae	*Bison bison athabascae*	Wood Bison	SNA	N3	G4T3Q	NL	T	SC	N
Mid-Boreal Lowland	Mammals	Mustelidae	*Gulo gulo*	Wolverine	S3S4	N3	G4	NL	SC	SC	Y
Mid-Boreal Lowland	Mammals	Vespertilionidae	*Myotis lucifugus*	Little Brown Myotis	S2N,S5B	N2N4B,NNRN,NNRM	G3G4	E	E	E	Y
Mid-Boreal Lowland	Mammals	Vespertilionidae	*Myotis septentrionalis*	Northern Myotis	S3S4N,S4B	N2N4B,NNRN,NNRM	G2G3	E	E	E	P
Mid-Boreal Lowland	Mammals	Cervidae	*Rangifer tarandus caribou*	Woodland Caribou	S2S3	N4N5	G5T5	T	T	T	Y
Mid-Boreal Lowland	Mammals	Soricidae	*Sorex obscurus*	a dusky shrew	S3	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Monocots	Orchidaceae	*Arethusa bulbosa*	Dragon's-mouth Orchid	S2	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Monocots	Orchidaceae	*Calopogon tuberosus var. tuberosus*	Tuberous Grass-pink	S2	N5	G5T5	NL	NL	NL	Y
Mid-Boreal Lowland	Monocots	Cyperaceae	*Carex flava*	Yellow Sedge	S2	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Monocots	Cyperaceae	*Carex garberi*	Garber's Sedge	S1?	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Monocots	Cyperaceae	*Carex hystericina*	Porcupine Sedge	S3	N5	G5	NL	NL	NL	Y

NL = Not Listed, SC = Special Concern, Threatened = T, Endangered = E, Extirpated = EX
Track_Status: Y = Yes, N = No, P = Partial, W = Watchlist

Mid-Boreal Lowland	Monocots	Cyperaceae	*Carex pedunculata*	Long-stalked Sedge	S3	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Monocots	Cyperaceae	*Carex projecta*	Necklace Sedge	S3?	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Monocots	Cyperaceae	*Carex vulpinoidea*	Fox Sedge	S3	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Monocots	Cyperaceae	*Cyperus houghtonii*	Houghton's Flatsedge	S2S3	N3	G4?	NL	NL	NL	Y
Mid-Boreal Lowland	Monocots	Orchidaceae	*Cypripedium arietinum*	Ram's-head Lady's-slipper	S2S3	N3	G3	NL	NL	NL	Y
Mid-Boreal Lowland	Monocots	Cyperaceae	*Dulichium arundinaceum var. arundinaceum*	Three-way Sedge	S2	N5	G5T5	NL	NL	NL	Y
Mid-Boreal Lowland	Monocots	Cyperaceae	*Eleocharis engelmannii*	Engelmann's Spikerush	S1S2	N3	G4G5	NL	NL	NL	Y
Mid-Boreal Lowland	Monocots	Cyperaceae	*Eriophorum callitrix*	Beautiful Cottongrass	S2	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Monocots	Orchidaceae	*Goodyera tesselata*	Checkered Rattlesnake-plantain	S2	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Monocots	Pontederiaceae	*Heteranthera dubia*	Water Star-grass	S2S3	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Monocots	Orchidaceae	*Liparis loeselii*	Loesel's Twayblade	S3S4	N4N5	G5	NL	NL	NL	W
Mid-Boreal Lowland	Monocots	Orchidaceae	*Malaxis monophyllos var. brachypoda*	White Adder's-mouth	S2?	N4	G5T4T5	NL	NL	NL	Y
Mid-Boreal Lowland	Monocots	Orchidaceae	*Malaxis unifolia*	Green Adder's-mouth	S2?	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Monocots	Orchidaceae	*Neottia auriculata*	Auricled Twayblade	S1	N4	G3G4	NL	NL	NL	Y
Mid-Boreal Lowland	Monocots	Orchidaceae	*Platanthera lacera*	Ragged Fringed Orchid	S1S2	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Monocots	Orchidaceae	*Platanthera orbiculata*	Round-leaved Bog Orchid	S3S4	N5	G5T5	NL	NL	NL	W
Mid-Boreal Lowland	Monocots	Orchidaceae	*Pogonia ophioglossoides*	Rose Pogonia	S1	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Monocots	Potamogetonaceae	*Potamogeton strictifolius*	Straightleaf Pondweed	S2S3	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Monocots	Cyperaceae	*Rhynchospora alba*	White Beakrush	S3	N5	G5	NL	NL	NL	Y
Mid-Boreal Lowland	Monocots	Cyperaceae	*Rhynchospora capillacea*	Horned Beakrush	S2S3	N4	G4G5	NL	NL	NL	Y
Mid-Boreal Lowland	Papaipema Moths	Noctuidae	*Papaipema aweme*	Aweme Borer Moth	SU	NU	G3G4	NL	E	NL	Y
Mid-Boreal Lowland	Reptiles	Colubridae	*Thamnophis sirtalis parietalis*	Red-sided Gartersnake	S4	N5	G5T5	NL	NL	NL	P

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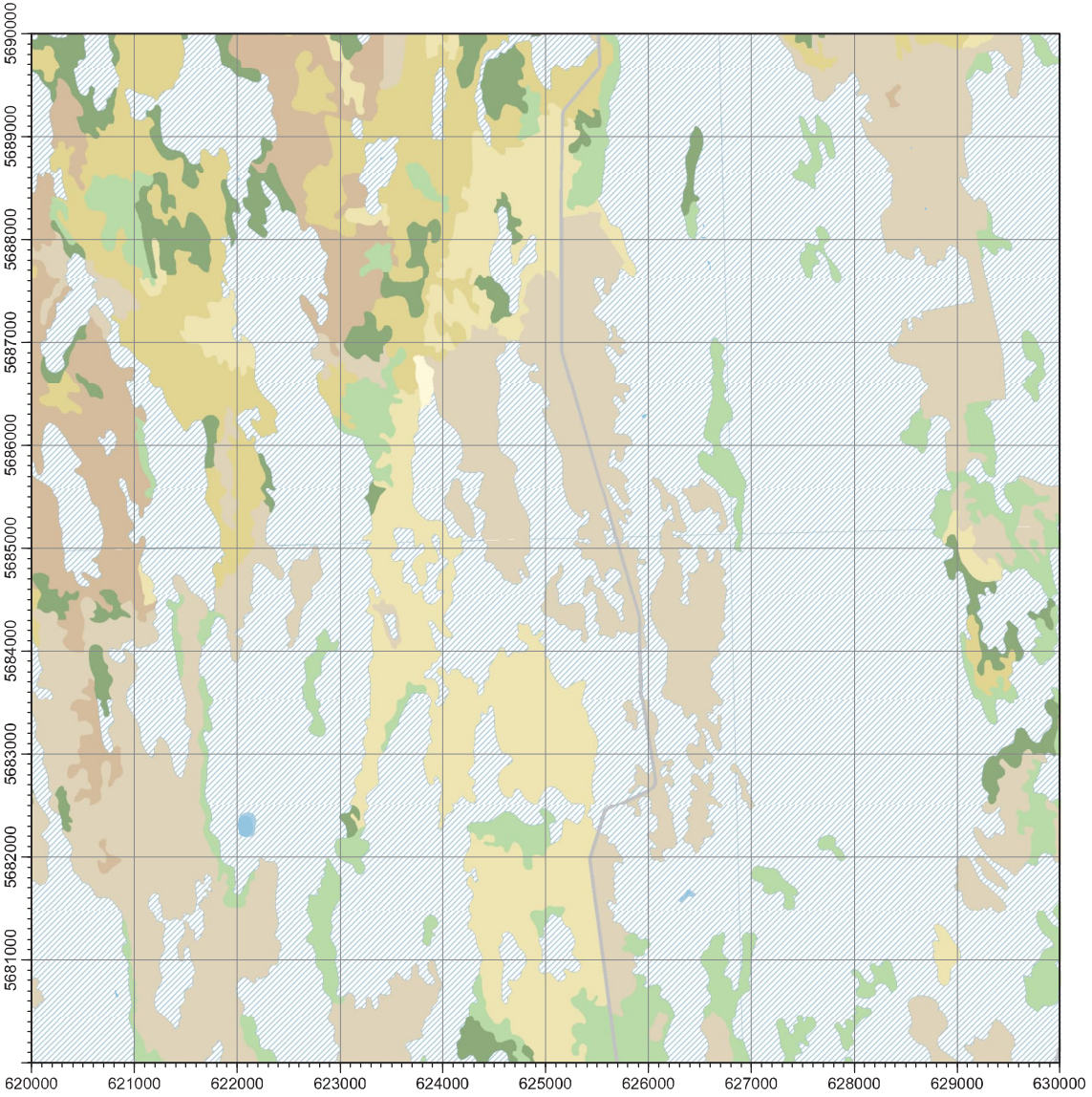
Track_Status: Y = Yes, N = No, P = Partial, W = Watchlist

APPENDIX H

Manitoba Breeding Bird Atlas

Region / Région: 6

Square / Parcelle: 14PB28



MANITOBA
BREEDING BIRD ATLAS

Predefined point count coordinates
Coordonnées des points d'écoute prédéterminés

POINT	EASTING UTM Est	NORTHING UTM Nord
1		
2		
3		
4		
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30		

6° Universal Transverse Mercator (UTM) Projection; Zone 14, Central Meridian -99°; North American Datum 1983 (NAD 83)
Projection universelle transverse de Mercator (UTM) 6° Zone 14, méridien central -99°; Système de référence géodésique nord-américain 1983 (NAD 83)

0 1 km

Legend / **Légende**

Expressway or highway	Autoroute ou route nationale (asphaltée)
Regional or local road	Route régionale ou locale (asphaltée ou non)
Rail line	Chemin de fer
Utility corridor	Ligne de transport d'énergie
Watercourse	Rivière ou ruisseau
Mature broadleaf forest	Forêt de feuillus (mature)
Young broadleaf forest	Forêt de feuillus (jeune)
Mature coniferous forest	Forêt de conifères (mature)
Young coniferous forest	Forêt de conifères (jeune)
Mature mixed forest	Forêt mixte (mature)
Young mixed forest	Forêt mixte (jeune)
Shrubland / other	Milieu arbustif / autre
Open wetland	Milieu humide (marais)
Agriculture / open country	Milieu agricole
Urban / unclassified	Mileu urbanisé / non classifié
Water	Eau

Cartographic production by Bird Studies Canada
Production cartographique par Études d'oiseaux Canada

Note: This map is only for use by atlas participants in the context of the project. The project partners are in no way responsible for any inaccuracies, mistakes or omissions in the information that appears on this map.

Avis : cette carte ne doit être utilisée que par les participants au projet de l'Atlas des oiseaux nicheurs du Manitoba, et uniquement dans le cadre du projet. Les responsables du projet d'atlas ne peuvent être tenus responsables de toute inexactitude, erreur ou omission concernant les informations apparaissant sur cette carte.

April 2010 / Avril 2010

http://www.birdatlas.mb.ca/

14PB28

Southern Interlake

Region / Région: 6

Atlas des oiseaux nicheurs du MANITOBA Breeding Bird Atlas

Square Summary (14PB28)

#species				#hours	#pc done	
poss	prob	conf	total		road	offrd
0	0	0	0	0	0	0

Region summary (#6: Southern Interlake)

#squares	#sq with data	#species	#pc done	target #pc
280	208	210	2932	1050

Target number of point counts in this square: 0 road side, 15 off road (Young broadleaf forest: 3, Mature broadleaf forest: 1, Young coniferous forest: 1, Young mixed forest: 1, Mature mixed forest: 1, Open Wetland: 8)**.** Please try to ensure that each off-road station is located such that the entire 100m radius circle is within the prescribed habitat**.**
Approximate time allocation for general atlassing:: Young broadleaf forest: 17%, Mature broadleaf forest: 4%, Young coniferous forest: 6%, Mature coniferous forest: 3%, Young mixed forest: 7%, Mature mixed forest: 6%, Open Wetland: 54%**.** Refer to the atlas PDF maps and online resources to locate habitats**.**

SPECIES	Code	%	SPECIES	Code	%	SPECIES	Code	%
Canada Goose		79	American White Pelican §		21	Solitary Sandpiper ‡		2
Trumpeter Swan †		1	Double-cr. Cormorant §		19	Greater Yellowlegs ‡¤		4
Wood Duck		30	American Bittern		55	Willet		15
Gadwall		24	Least Bittern †		6	Lesser Yellowlegs ‡¤		1
American Wigeon		17	Great Blue Heron §		47	Upland Sandpiper		10
Mallard		84	Great Egret ‡¤		6	Marbled Godwit		56
Blue-winged Teal		67	Black-crown. N.-Heron §		4	Sanderling ‡		0
Northern Shoveler		43	Turkey Vulture		31	Wilson's Snipe		84
Northern Pintail		12	Osprey		11	American Woodcock		23
Green-winged Teal		46	Bald Eagle		50	Wilson's Phalarope		14
Canvasback		15	Northern Harrier		60	Bonaparte's Gull ‡		<1
Redhead ‡		13	Sharp-shinned Hawk ‡		13	Franklin's Gull §		12
Ring-necked Duck		53	Cooper's Hawk		12	Ring-billed Gull §		32
Lesser Scaup		17	Northern Goshawk ‡		2	California Gull †		<1
Bufflehead		22	Broad-winged Hawk		31	Herring Gull §		19
Common Goldeneye		36	Swainson's Hawk		4	Caspian Tern §		8
Hooded Merganser		23	Red-tailed Hawk		70	Black Tern §		33
Common Merganser		18	American Kestrel		63	Common Tern §		18
Ruddy Duck		4	Merlin		46	Forster's Tern §		16
Gray Partridge		2	Peregrine Falcon ¤		1	Rock Pigeon		26
Ruffed Grouse		56	Yellow Rail ¤		15	Eurasian Collared-Dove †		0
Spruce Grouse		5	Virginia Rail		22	Mourning Dove		62
Sharp-tailed Grouse		31	Sora		66	Black-billed Cuckoo		60
Common Loon		27	American Coot		19	Eastern Screech-Owl		0
Pied-billed Grebe		31	Sandhill Crane		73	Great Horned Owl		25
Horned Grebe ¤		7	Piping Plover †		<1	Northern Hawk Owl ¤		7
Red-necked Grebe §		14	Killdeer		77	Barred Owl ¤		6
Eared Grebe ‡§		2	American Avocet		2	Great Gray Owl ¤		7
Western Grebe ‡§		8	Spotted Sandpiper		24	Long-eared Owl ¤		11

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Manitoba Breeding Bird Atlas - Summary Sheet for Square 14PB28 (page 2 of 3)

SPECIES	Code	%	SPECIES	Code	%	SPECIES	Code	%
Short-eared Owl ¤		5	Red-eyed Vireo		90	American Robin		88
Boreal Owl ¤		11	Gray Jay		22	Gray Catbird		74
Northern Saw-whet Owl		19	Blue Jay		77	Brown Thrasher		33
Common Nighthawk ¤		9	Black-billed Magpie		70	European Starling		57
Whip-poor-will ¤		23	American Crow		86	Sprague's Pipit ‡¤		0
Chimney Swift ¤		<1	Common Raven		83	Cedar Waxwing		79
Ruby-throated Hummingbird		41	Horned Lark		3	Golden-winged Warbler ‡¤		6
Belted Kingfisher		31	Purple Martin §		28	Tennessee Warbler		44
Red-headed Woodpecker ¤		36	Tree Swallow		70	Orange-crowned Warbler		19
Yellow-bellied Sapsucker		68	North. Rgh-wing Swallow		<1	Nashville Warbler		60
Downy Woodpecker		52	Bank Swallow §		12	Northern Parula ¤		7
Hairy Woodpecker		65	Cliff Swallow §		23	Yellow Warbler		89
Am. Three-toed Woodp.		2	Barn Swallow		76	Chestnut-sided Warbler		69
Black-backed Woodpecker		8	Black-capped Chickadee		77	Magnolia Warbler		25
Northern Flicker		80	Boreal Chickadee		6	Cape May Warbler		10
Pileated Woodpecker		52	Red-breasted Nuthatch		33	Black-throated Blue Warbler ‡		0
Olive-sided Flycatcher ¤		8	White-breasted Nuthatch		20	Yellow-rumped Warbler		36
Eastern Wood-Pewee		24	Brown Creeper		7	Black-thr. Green Warbler		10
Yellow-bellied Flycatcher		16	House Wren		65	Blackburnian Warbler		25
Alder Flycatcher		81	Winter Wren		13	Pine Warbler †		<1
Least Flycatcher		87	Sedge Wren		70	Palm Warbler		9
Eastern Phoebe		57	Marsh Wren		52	Bay-breasted Warbler		6
Great Crested Flycatcher		57	Golden-crowned Kinglet		7	Blackpoll Warbler ‡		0
Western Kingbird		26	Ruby-crowned Kinglet		29	Black-and-white Warbler		64
Eastern Kingbird		68	Eastern Bluebird		26	American Redstart		71
Yellow-throated Vireo		8	Mountain Bluebird		<1	Ovenbird		76
Blue-headed Vireo		16	Veery		59	Northern Waterthrush		20
Warbling Vireo		62	Swainson's Thrush		32	Connecticut Warbler		26
Philadelphia Vireo		19	Hermit Thrush		59	Mourning Warbler		46

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Manitoba Breeding Bird Atlas - Summary Sheet for Square 14PB28 (page 3 of 3)

SPECIES	Code	%	SPECIES	Code	%
Common Yellowthroat		90	Baltimore Oriole		69
Wilson's Warbler		<1	Purple Finch		32
Canada Warbler ¤		10	House Finch		3
Eastern Towhee		19	Red Crossbill †		<1
Chipping Sparrow		76	White-winged Crossbill ¤		7
Clay-colored Sparrow		81	Pine Siskin		22
Vesper Sparrow		41	American Goldfinch		87
Lark Sparrow		3	Evening Grosbeak		12
Savannah Sparrow		70	House Sparrow		40
Le Conte's Sparrow		53			
Nelson's Sparrow		23			
Song Sparrow		87			
Lincoln's Sparrow		16			
Swamp Sparrow		76			
White-throated Sparrow		84			
Dark-eyed Junco		7			
Chestnut-collared Longspur ‡¤		0			
Scarlet Tanager ¤		<1			
Rose-breasted Grosbeak		75			
Indigo Bunting		5			
Bobolink		52			
Red-winged Blackbird		87			
Western Meadowlark		59			
Yellow-headed Blackbird		28			
Rusty Blackbird ‡¤		3			
Brewer's Blackbird		63			
Common Grackle		70			
Brown-headed Cowbird		70			
Orchard Oriole		9			

This list includes all species found during the Manitoba Breeding Bird Atlas (2010-2014) in the region #6 (Southern Interlake). Underlined species are those that you should try to add to this square (14PB28). They have not yet been reported during the atlas, but were reported in more than 50% of the squares in this region during the project so far. "Code" is the code for the highest breeding evidence for that species in square 14PB28 during the project so far. The % columns give the percentage of squares in that region where that species was reported during the project (this gives an idea of the expected chance of finding that species in region #6). Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), ‡ (regionally rare), † (rare in Manitoba) or ¤ (rare in Manitoba, documentation only required for confirmed records). Current as of 16/07/2024. An up-to-date version of this sheet is available from http://www.birdatlas.mb.ca/mbdata/summaryform.jsp?squareID=14PB28?lang=en

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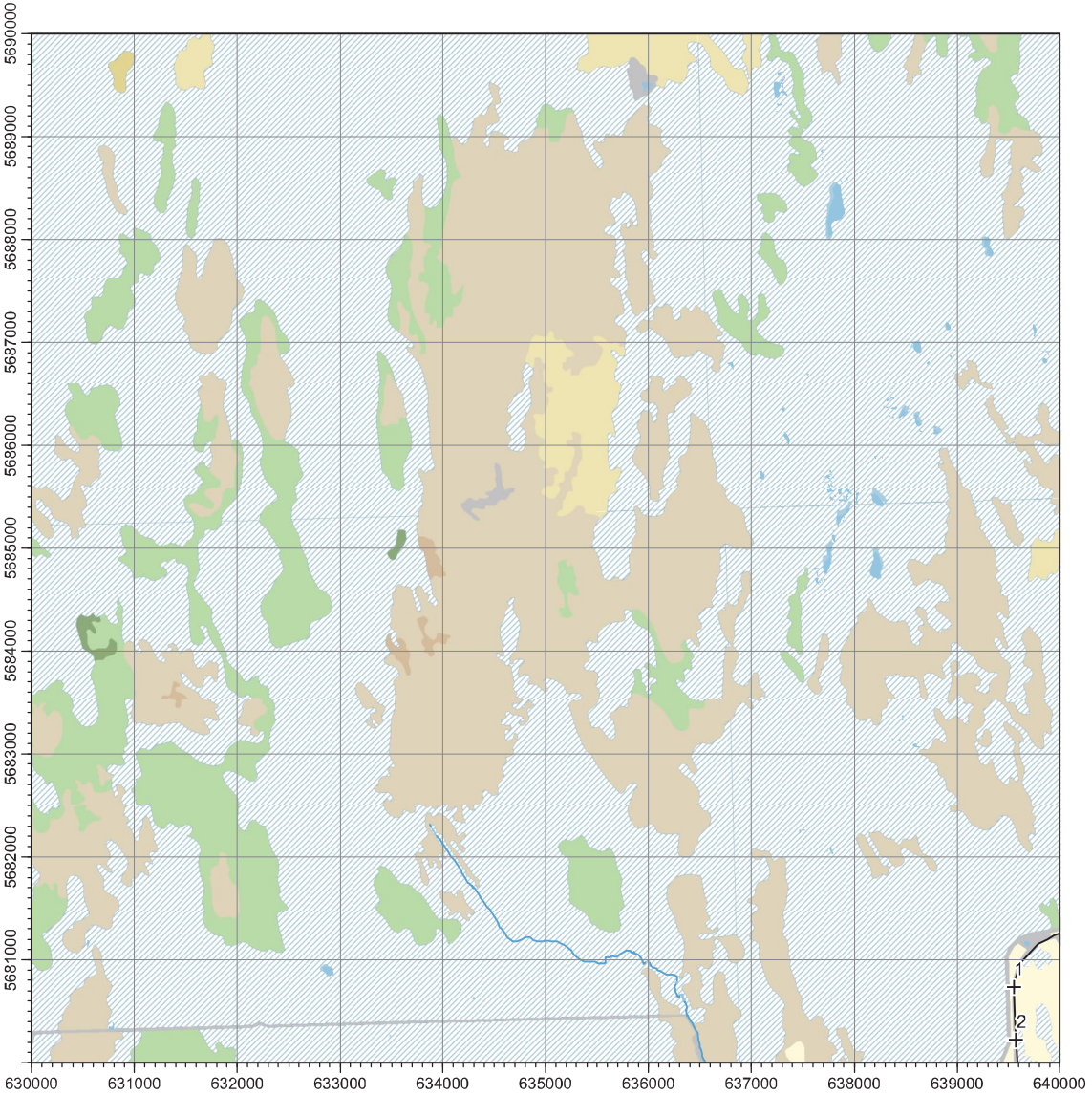
Region / Région: 6

Square / Parcelle: 14PB38



MANITOBA
BREEDING BIRD ATLAS

Predefined point count coordinates
Coordonnées des points d'écoute prédéterminés

POINT	EASTING UTM Est	NORTHING UTM Nord
1	639556	5680736
2	639576	5680224
3		
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6° Universal Transverse Mercator (UTM) Projection; Zone 14, Central Meridian -99°; North American Datum 1983 (NAD 83)
Projection universelle transverse de Mercator (UTM) 6° Zone 14, méridien central -99°; Système de référence géodésique nord-américain 1983 (NAD 83)

0 1 km

Legend	Légende
Expressway or highway	Autoroute ou route nationale (asphaltée)
Regional or local road	Route régionale ou locale (asphaltée ou non)
Rail line	Chemin de fer
Utility corridor	Ligne de transport d'énergie
Watercourse	Rivière ou ruisseau
Mature broadleaf forest	Forêt de feuillus (mature)
Young broadleaf forest	Forêt de feuillus (jeune)
Mature coniferous forest	Forêt de conifères (mature)
Young coniferous forest	Forêt de conifères (jeune)
Mature mixed forest	Forêt mixte (mature)
Young mixed forest	Forêt mixte (jeune)
Shrubland / other	Milieu arbustif / autre
Open wetland	Milieu humide (marais)
Agriculture / open country	Milieu agricole
Urban / unclassified	Mileu urbanisé / non classifié
Water	Eau

Cartographic production by Bird Studies Canada
Production cartographique par Études d'oiseaux Canada

April 2010 / Avril 2010
http://www.birdatlas.mb.ca/

14PB38

Southern Interlake

Region / Région: 6

Atlas des oiseaux nicheurs du MANITOBA Breeding Bird Atlas

Square Summary (14PB38)

#species				#hours	#pc done	
poss	prob	conf	total		road	offrd
4	0	1	5	0.7	0	0

Region summary (#6: Southern Interlake)

#squares	#sq with data	#species	#pc done	target #pc
280	208	210	2932	1050

Target number of point counts in this square: 2 road side, 13 off road (Young broadleaf forest: 4, Young coniferous forest: 1, Open Wetland: 8). Please try to ensure that each off-road station is located such that the entire 100m radius circle is within the prescribed habitat.
Approximate time allocation for general atlassing:: Young broadleaf forest: 22%, Young coniferous forest: 8%, Young mixed forest: 1%, Open Wetland: 66%. Refer to the atlas PDF maps and online resources to locate habitats.

SPECIES	Code	%	SPECIES	Code	%	SPECIES	Code	%
Canada Goose		79	American White Pelican §		21	Solitary Sandpiper ‡		2
Trumpeter Swan †		1	Double-cr. Cormorant §		19	Greater Yellowlegs ‡¤		4
Wood Duck		30	American Bittern		55	Willet		15
Gadwall		24	Least Bittern †		6	Lesser Yellowlegs ‡¤		1
American Wigeon		17	Great Blue Heron §		47	Upland Sandpiper		10
Mallard		84	Great Egret ‡¤		6	Marbled Godwit		56
Blue-winged Teal		67	Black-crown. N.-Heron §		4	Sanderling ‡		0
Northern Shoveler		43	Turkey Vulture		31	Wilson's Snipe		84
Northern Pintail		12	Osprey		11	American Woodcock		23
Green-winged Teal		46	Bald Eagle		50	Wilson's Phalarope		14
Canvasback		15	Northern Harrier		60	Bonaparte's Gull ‡		<1
Redhead ‡		13	Sharp-shinned Hawk ‡		13	Franklin's Gull §		12
Ring-necked Duck		53	Cooper's Hawk		12	Ring-billed Gull §		32
Lesser Scaup		17	Northern Goshawk ‡		2	California Gull †		<1
Bufflehead		22	Broad-winged Hawk		31	Herring Gull §		19
Common Goldeneye		36	Swainson's Hawk		4	Caspian Tern §		8
Hooded Merganser		23	Red-tailed Hawk		70	Black Tern §		33
Common Merganser		18	American Kestrel		63	Common Tern §		18
Ruddy Duck		4	Merlin		46	Forster's Tern §		16
Gray Partridge		2	Peregrine Falcon ¤		1	Rock Pigeon	H	26
Ruffed Grouse		56	Yellow Rail ¤		15	Eurasian Collared-Dove †		0
Spruce Grouse		5	Virginia Rail		22	Mourning Dove		62
Sharp-tailed Grouse		31	Sora		66	Black-billed Cuckoo		60
Common Loon		27	American Coot		19	Eastern Screech-Owl		0
Pied-billed Grebe		31	Sandhill Crane		73	Great Horned Owl		25
Horned Grebe ¤		7	Piping Plover †		<1	Northern Hawk Owl ¤		7
Red-necked Grebe §		14	Killdeer		77	Barred Owl ¤		6
Eared Grebe ‡§		2	American Avocet		2	Great Gray Owl ¤		7
Western Grebe ‡§		8	Spotted Sandpiper		24	Long-eared Owl ¤		11

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Manitoba Breeding Bird Atlas - Summary Sheet for Square 14PB38 (page 2 of 3)

SPECIES	Code	%	SPECIES	Code	%	SPECIES	Code	%
Short-eared Owl ¤		5	Red-eyed Vireo		90	American Robin	S	88
Boreal Owl ¤		11	Gray Jay		22	Gray Catbird		74
Northern Saw-whet Owl		19	Blue Jay		77	Brown Thrasher		33
Common Nighthawk ¤		9	Black-billed Magpie		70	European Starling		57
Whip-poor-will ¤		23	American Crow	H	86	Sprague's Pipit ‡¤		0
Chimney Swift ¤		<1	Common Raven		83	Cedar Waxwing		79
Ruby-throated Hummingbird		41	Horned Lark		3	Golden-winged Warbler ‡¤		6
Belted Kingfisher		31	Purple Martin §		28	Tennessee Warbler		44
Red-headed Woodpecker ¤		36	Tree Swallow		70	Orange-crowned Warbler		19
Yellow-bellied Sapsucker		68	North. Rgh-wing Swallow		<1	Nashville Warbler		60
Downy Woodpecker		52	Bank Swallow §		12	Northern Parula ¤		7
Hairy Woodpecker		65	Cliff Swallow §		23	Yellow Warbler		89
Am. Three-toed Woodp.		2	Barn Swallow		76	Chestnut-sided Warbler		69
Black-backed Woodpecker		8	Black-capped Chickadee	S	77	Magnolia Warbler		25
Northern Flicker		80	Boreal Chickadee		6	Cape May Warbler		10
Pileated Woodpecker		52	Red-breasted Nuthatch		33	Black-throated Blue Warbler ‡		0
Olive-sided Flycatcher ¤		8	White-breasted Nuthatch		20	Yellow-rumped Warbler		36
Eastern Wood-Pewee		24	Brown Creeper		7	Black-thr. Green Warbler		10
Yellow-bellied Flycatcher		16	House Wren		65	Blackburnian Warbler		25
Alder Flycatcher		81	Winter Wren		13	Pine Warbler †		<1
Least Flycatcher		87	Sedge Wren		70	Palm Warbler		9
Eastern Phoebe		57	Marsh Wren		52	Bay-breasted Warbler		6
Great Crested Flycatcher		57	Golden-crowned Kinglet		7	Blackpoll Warbler ‡		0
Western Kingbird		26	Ruby-crowned Kinglet		29	Black-and-white Warbler		64
Eastern Kingbird		68	Eastern Bluebird		26	American Redstart		71
Yellow-throated Vireo		8	Mountain Bluebird		<1	Ovenbird		76
Blue-headed Vireo		16	Veery		59	Northern Waterthrush		20
Warbling Vireo		62	Swainson's Thrush		32	Connecticut Warbler		26
Philadelphia Vireo		19	Hermit Thrush		59	Mourning Warbler		46

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Manitoba Breeding Bird Atlas - Summary Sheet for Square 14PB38 (page 3 of 3)

SPECIES	Code	%	SPECIES	Code	%
Common Yellowthroat		90	Baltimore Oriole		69
Wilson's Warbler		<1	Purple Finch		32
Canada Warbler ¤		10	House Finch		3
Eastern Towhee		19	Red Crossbill †		<1
Chipping Sparrow		76	White-winged Crossbill ¤		7
Clay-colored Sparrow		81	Pine Siskin		22
Vesper Sparrow		41	American Goldfinch		87
Lark Sparrow		3	Evening Grosbeak		12
Savannah Sparrow	CF	70	House Sparrow		40
Le Conte's Sparrow		53			
Nelson's Sparrow		23			
Song Sparrow		87			
Lincoln's Sparrow		16			
Swamp Sparrow		76			
White-throated Sparrow		84			
Dark-eyed Junco		7			
Chestnut-collared Longspur ‡¤		0			
Scarlet Tanager ¤		<1			
Rose-breasted Grosbeak		75			
Indigo Bunting		5			
Bobolink		52			
Red-winged Blackbird		87			
Western Meadowlark		59			
Yellow-headed Blackbird		28			
Rusty Blackbird ‡¤		3			
Brewer's Blackbird		63			
Common Grackle		70			
Brown-headed Cowbird		70			
Orchard Oriole		9			

This list includes all species found during the Manitoba Breeding Bird Atlas (2010-2014) in the region #6 (Southern Interlake). Underlined species are those that you should try to add to this square (14PB38). They have not yet been reported during the atlas, but were reported in more than 50% of the squares in this region during the project so far. "Code" is the code for the highest breeding evidence for that species in square 14PB38 during the project so far. The % columns give the percentage of squares in that region where that species was reported during the project (this gives an idea of the expected chance of finding that species in region #6). Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), ‡ (regionally rare), † (rare in Manitoba) or ¤ (rare in Manitoba, documentation only required for confirmed records). Current as of 16/07/2024. An up-to-date version of this sheet is available from http://www.birdatlas.mb.ca/mbdata/summaryform.jsp?squareID=14PB38?lang=en

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