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November 14, 2022

Impact Assessment Agency of Canada
Prairie and Northern Region
Suite 1145, 9700 Jasper Avenue
Edmonton, Alberta T5J 4C3

Attention: Jennifer Dallaire
Project Manager

**Re: Response to IAAC Information Request**
**Sun Gro Sugar Creek Peat Harvesting Project**

Dear Jennifer Dallaire:

Kontzamanis Graumann Smith MacMillan Inc. (KGS Group) is submitting this letter on behalf of Sun Gro Horticulture Canada Ltd. (Sun Gro) in response to the Impact Assessment Agency of Canada's (IAAC) request for additional information regarding the proposed Sugar Creek Peat Harvesting Project (the Project). The information provided in this letter is in response to your letter dated October 25, 2022. In particular, the information addresses the comments and questions submitted to IAAC in the October 14, 2022, letter from Fisher River Cree Nation (FRCN).

# 1.0 IAAC INFORMATION REQUEST 1

Details about the proposed Project components, activities and timelines are still being developed along with collecting information on land tenure and zoning. This information will be provided in the Environment Act Proposal (EAP) required to obtain the Environment Act Licence (EAL) for the Project. The EAP is in the process of being prepared to be submitted to Manitoba Environment, Climate and Parks (MECP). A copy of the EAP once completed and submitted will be available for download from the Environmental Assessment and Licensing Public Registry (Environmental Assessment and Licensing Branch | Environment, Climate and Parks | Province of Manitoba (gov.mb.ca)). A summary of the key items, based on what has been preliminarily developed, along with clarifications relative to the comments and description in the letter from FRCN is provided as follows.

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The Sugar Creek sub-areas are located on Provincial Crown Land. Sun Gro holds the peat harvesting rights for the proposed harvest areas under Manitoba Peat Harvest Licence (PHL) No. 4 - South Washow. PHL 4 consists of Ramsay Point sub-area and Sugar Creek sub-areas A through E.

The FRCN letter states there are 31,438 acres (12,722.5 ha) total peat lease areas located within the Fisher River Cree Nation Traditional Territory Interim Notice Area (FRCNTT). The Sugar Creek sub-areas (A through E) cover a total 1,810 ha, however, there are no plans to harvest at sub-area A and there is only an estimated 750 ha of total harvestable areas within sub-areas B through E. Therefore, approximately 41% of the Sugar Creek sub-areas would be harvested, accounting for only 6% of the peat lease areas within the FRCNTT.

Development is expected to begin once the necessary approvals have been received following completion of the EAP and associated engagement that are anticipated to be complete in spring 2023. Once necessary approvals have been obtained, initial work would consist of developing the access road and site preparation, followed by construction of the drainage network and then harvesting. The proposed development consists of several components and activities that are shown in the Figures provided in Appendix A and described as follows.

- **Access Road** – An access road would be constructed from Provincial Road (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 would follow an existing trail that 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) 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. 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.
- **Site Preparation** – Surface vegetation would be cleared within the proposed harvest areas during the winter and prior to the development of site drainage. Merchantable timber would be extracted (as authorized by the province) during the winter months when the ground is frozen and can support heavy equipment. A 100 m buffer zone will be identified and protected between the sub-area boundaries and the area to be developed. The buffer zone will be maintained to prevent potential damage and disturbance to the surrounding environment. Based on the small size of trees typically found within peat bogs, it is likely that limited amounts of merchantable timber would be present. Approximately 80 ha of trees would be cleared annually until the entire 750 ha harvesting area is clear.
- **Field Drainage Ditches** – Field drainage ditches are used to remove interstitial water in the upper layer of peat to 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. 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. 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.

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- **Main Drainage Ditches** – Main drainage ditches are constructed at the end of the field drainage ditches and around the perimeter of the harvesting area. 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.
- **Sedimentation Ponds** – Sedimentation ponds will be constructed at the end of the main drainage ditches and will discharge drainage from the site through an outlet ditch. Sedimentation ponds treat peatland drainage water by slowing down the water flow to maximize the settlement of suspended peat particles prior to discharge to the surrounding natural drainage system. Typical design criteria include a basin volume of 25 $m^3$ per ha of peatland area, a minimum depth at outlet of 1.5 m, a length to width ratio of 6.5:1 to 12:1, a minimum retention time of two hours, a boom upstream of the pond outlet to contain floating debris, and a 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 area being harvested will determine the total number of sedimentation ponds required to provide sufficient capacity based on the criteria. Sedimentation ponds will be constructed to ensure efficiency during cleaning and maintenance.

  A control culvert with a sliding gate will be placed in the inlet ditch upstream of the pond to regulate water levels in the peat layer within the harvesting area. The gate can also be used to reduce or stop inflow to the sedimentation pond in the event of a major precipitation event which exceeds the design flow criteria. The gate is also used to limit the flow of water toward the pond during construction and deepening of the drainage ditches. 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.

  Sedimentation ponds will be cleaned periodically to ensure that the accumulated sediment volume does not exceed 25% of the total basin volume. Cleaning will also take place before and after any significant ditch cleaning or cutting takes place within the upstream catchment area. During pond cleaning operations, the water level in the pond will be maintained below the bottom of the outlet culvert to ensure that sediment is not released into the outlet ditch. If required, the control gate on the inlet ditch will be closed before cleaning operations to ensure that additional flow does not raise the water level. The control gate would remain closed until the cleaning operation is complete and remaining disturbed sediment has an opportunity to settle. Water quality will be monitored immediately downstream of the outlet culvert. Water samples will be taken monthly for analysis of total suspended solids and pH. Additional samples may be taken on an as required basis.
- **Outlet Ditches** – Outlet ditches convey the discharge from the sedimentation ponds for outlet to the surrounding environment. The flow will be directed by the ditches to natural discharge points to best integrate the drainage into the existing natural drainage system and cause minimal change to the water regime. Two outlets are proposed, with one conveying discharge from sub-areas C, D and E and the second conveying discharge from sub-area B. 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 Figure 6 in Appendix A.

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- **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.
- **Staging Area** – A staging area will be constructed at the south-west corner of sub-area E to provide on-site facilities and equipment storage (see Figure 2 in Appendix A). The staging area will be approximately 4 ha in size and will connect to the proposed access road, as well as bog roads within the harvest area. This area will be cleared, graded for drainage to match the surrounding topography and will have gravel placed over top of the existing materials. Peat may be temporarily stockpiled in this staging area before it is hauled to the existing Sun Gro processing and packaging facility near Elma, Manitoba. 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, dozers and excavators to maintain bog operations. Facilities at the staging area will include:
  - A construction trailer for an employee lunchroom with a washroom equipped with a septic tank.
  - A steel shipping container to be used as an equipment repair and maintenance garage. Small amounts of gasoline and other petroleum products, such as hydraulic oil, motor oil, and lubricants will be stored in a designated storage area with containment within this maintenance garage.
  - A Quonset hut or wood framed building with a concrete foundation constructed to serve as a general repair facility.
  - Domestic water for use in the washrooms and for washing equipment will be trucked to the site and stored in a holding tank, although a groundwater well may be installed in the overburden till material at some point in the future.
  - A generator will be used to supply electricity.
  - Accredited (CAN/ULC S601) steel double walled diesel fuel aboveground storage tanks (ASTs). The ASTs will be installed on a concrete platform surrounded by posts for protection and 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 observed and followed for the installation and operation of all ASTs.
- **Harvesting** – Harvesting would begin once all site preparation and drainage has been constructed within a given area. Each year 80 ha will be prepared for harvesting therefore, it will take approximately 10 years to open the full 750 ha for peat harvesting. Harvesting within each 80 ha area will continue until the bog area is harvested down to the final planned depth of harvesting. A minimum of 0.5 m of peat will remain in place after harvesting. As harvesting is complete within a given area, harvest areas would be progressively restored. The estimated Project lifespan is 37 years, based on an estimate average peat production rate of 850 $m^3$/ha/year and an estimated total of 17,200,000 $m^3$ of horticultural grade peat
- **Restoration** – The Peatland Recovery Plan previously developed for Sun Gro's PHL 4 will be updated and submitted in accordance with requirements of *The Peatlands Stewardship Act* of the Forestry and Peatlands Branch of Manitoba Conservation and Climate. The recovery plan outlines the restoration process of harvest areas when harvesting is complete. Restoration typically consists of surface preparation to increase

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water availability on site, donor plant material collection and spreading, straw spreading, fertilization, drainage blocking, and monitoring.

## 2.0 IAAC INFORMATION REQUEST 2

There is no federal financial assistance being provided for the proposed Project. Considering the proposed Project components and activities and based on requirements for other peat harvesting operations in Manitoba it is anticipated the there will be no federal or municipal regulatory approvals. The list of provincial regulatory approvals anticipated to be required is as follows:

- An EAL from MECP is required under *The Environment Act* (Manitoba) for the proposed Project.
- A General Permit from Manitoba Natural Resources and Northern Development is required under *The Crown Lands Act* for the access road construction on provincial crown land.
- A Work Permit from Manitoba Natural Resources and Northern Development is required under *The Crown Lands Act* to authorize work on provincial crown land.
- A Licence to Construct Water Control Works from MECP is required under *The Water Rights Act* to authorize drainage, water flow, and level alteration.
- A Timber Permit from Manitoba Natural Resources and Northern Development, Forestry and Peatlands Branch is required under *The Forest Act* to authorize removal of timber from Crown forests, including those within a Peat Harvest Licence area.

The proposed Project will not require any near or in-water work and therefore there are no regulatory approval requirements under the *Fisheries Act* or the *Canadian Navigable Waters Act*. Considering the remote location of the Project site and the distance from navigable waterways that would have been historically used it is anticipated that there will be no heritage concerns at the site. Regardless, KGS Group submitted a Screening Request Form to the Historic Resource Branch on October 21, 2022 to assess the potential to impact heritage resources and determine the need to complete a Heritage Resource Impact Assessment and obtain the associated permit in accordance with *The Heritage Resource Act* (Manitoba). Tree clearing required for the Project will be completed during the winter to avoid disturbance of migratory birds during the nesting and rearing periods of April 14 to August 28 in accordance with the *Migratory Birds Convention Act* so no permits or approvals are required under this Act. Likewise, by completing the tree clearing in the winter there are no anticipated regulatory approval requirements under the *Species at Risk Act* or *The Endangered Species and Ecosystem Act* (Manitoba) based on the absence of critical habitat for the avian species at risk identified at the Project site and surrounding general area.

## 3.0 IAAC INFORMATION REQUEST 3

A description of each regulatory approval required for the Project, as identified in Section 2.0 is provided in the following sections.

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## 3.1 The Environment Act

The proposed Project will require an EAL issued by MECP under *The Environment Act*. As previously noted, the EAP is in the process of being prepared to be submitted to MECP and therefore the required EAL has not been issued to date. The EAP will provide a description of the proposed Project and existing environment conditions, a summary of the indigenous and public engagement that will be completed (see Section 5.0 and 6.0 for details), as well as an assessment of potential biophysical (air quality, soils, groundwater, surface water, vegetation and aquatic and terrestrial biota and habitat) and socioeconomic (economic, traffic, noise, human health, aesthetics, recreation, areas of interest, heritage resources and Aboriginal and Treaty Rights) effects of the Project.

Once the EAP and application are submitted to MECP, the EAP will be posted to the public registry and a Notice of Environment Act Proposal will be published inviting participation in the review process. In addition to a public review period of the EAP, MECP distributes the EAP to a Technical Advisory Committee (TAC), which consists of provincial and federal government specialists who can provide technical expertise. Following the public and TAC review period MECP will review the comments provided and determine whether additional information is required from the proponent. Additionally, MECP will determine whether there is sufficient public concern to warrant a public hearing and whether the province has a legal Duty to Consult (DTC) with Indigenous communities. It is anticipated that Manitoba will complete Crown consultation prior to issuing an EAL for the Project. The EAL when issued will include clauses and conditions to address adverse effects and applicable public, TAC or Indigenous concerns.

## 3.2 The Crown Lands Act

The proposed Project is located on provincial crown lands and therefore a General Permit will be required to construct the access road and a Work Permit will be required for the works within the sub-areas. These permits will be obtained from Manitoba Natural Resources and Northern Development under *The Crown Lands Act*. These applications do not require public and/or Indigenous consultation or a comprehensive effects assessment. The requirements for these permits are described in the following paragraphs.

The General Permit application requires a legal description of the land where the access road will be located along with any details of existing land use. The details required include the purpose of the access road, when and how it will be built, a description of any existing trail/road access and details (size, construction type, value, etc.) of any existing or proposed buildings and structures.

The Work Permit application requires a description of the Project with information on type and purpose, legal location, start and end dates, how the site is accessed, type of equipment used and other permits and approvals. A detailed description of the work is required with maps describing and showing the location of access roads, camps and areas that will be cleared, describing the type of habitat that will be cleared and equipment that will be used. A description of the Project operation needs to be provided, with information on different Project stages if there are any. Additionally, the potential impacts of Project operation need to be described along with any measures to mitigate these potential impacts. The information required for the Work Permit will be addressed by enclosing a copy of the EAP as described in Section 3.1.

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## 3.3 The Water Rights Act

The proposed construction of field, main and outlet drains will require a Licence to Construct Water Control Works from MECP under *The Water Rights Act*. To apply for authorization to construct Water Control Works, an application including all required documentation must be completed and submitted using the online Water Licensing Portal (https://www.gov.mb.ca/sd/water/water-rights/drainage-and-water-control/index.html). Because these drainage works are located within and outlet to crown lands, written approval from the MECP Crown Lands Manager needs to be provided with the drainage application. Additionally, the application cannot be submitted until the EAL has been issued for the Project. The application requires providing details about the drainage network, such as depth and number of drains, providing the location and a plan of the drainage, as well as indicating the type of wetland affected by the drainage. The application does not require public and/or Indigenous consultation or an effects assessment, however, there are a serious of yes/no questions to be answered regarding potential impacts to watershed plans, conservation agreements, water levels and fish habitat.

## 3.4 Timber Appraisal

Timber harvesting activities in Manitoba is regulated under *The Forest Act*, as administered by the Forestry and Peatlands Branch in the Department of Natural Resources and Northern Development. A Timber Permit is required to authorize removal of timber from Crown forests, which includes forests within Peat Harvest Licences. The regional forester is contacted to obtain a Timber Permit, with this Project located in the Central region. A timber appraisal (also called a timber assessment) is required to determine the expected volume of hardwood and softwood trees that will be removed, which also informs the Crown dues owed on a per volume basis. The regional forester must sign off on the timber appraisal and all dues must be paid to the Crown for the timber removed before the Timber Permit is issued. The Timber Permit does not have a separate assessment of effects but relies on the EAP submitted for the entire development which would include timber harvesting, in addition to peat harvesting. Crown consultation on the timber permit itself is not required. However, the Project area is covered under a regional timber sale plan which covers timber harvest activities for the region and Crown consultation is required for the timber sale plan. Further, Crown consultation is required prior to issuing an EAL for the Project, as described in Section 3.1, and this process includes the timber harvesting, in addition to peat harvesting.

# 4.0 IAAC INFORMATION REQUEST 4

As described in Section 2.0 there is no federal financial assistance being provided for the proposed Project and no federal licences, permits, authorization or approvals required. As such there are no anticipated adverse direct or incidental effects that may occur as a result of federal financial assistance or approvals.

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# 5.0 IAAC INFORMATION REQUEST 5

The EAP, as previously noted is still on-going and as such public engagement activities have not yet started. However, engagement specialists Scatliff+Miller+Murray (SMM) have been retained to consult with the public and stakeholders with vested interest in peatland harvesting at Sugar Creek as part of the EAP. SMM is committed to the core values and practices of public engagement as outlined in the International Association of Public Participation (IAP2) Code of Ethics. As identified as IAP2's core values, the team of engagement specialists has developed a preliminary engagement plan that will create opportunities for stakeholders, rightsholders, and First Nation communities to inform how they would like to be engaged by providing two options to engage (Appendix B). The plan outlines the goals, objectives, and methods that will be employed to deliver outcomes. The overall engagement goals of the strategy are to ensure there is an open and transparent process, build trust with stakeholders, rightsholders, and the public-at-large, provide clear and consistent information, and to understand and address local community concerns and needs.

The Participant Profile identifies the following as key stakeholders to be engaged in the process, in addition to the public-at-large:

- Municipality of Bifrost-Riverton
- Dallas/Red Rose-Northern Affairs Act
- Fisher Bay-Northern Affairs Act
- Manitoba Trapper's Association
- Snowman Inc. (the snowmobilers of Manitoba)
- All Terrain Vehicle Association of Manitoba

Round 1 of engagement will introduce the Project to all participants listed in the participant profile with an invitation for further engagement. A Project fact sheet and letter will be distributed to all participants listed in the profile, including the RM of Bifrost-Riverton and will introduce the EAP, Sun Gro's process and history in the province, and invite them to engage in the consultation process. Round 2 will provide an option for all community members of the RM and key stakeholders to participate in a public community meeting. At this meeting we will gather input from the public and stakeholders on how they anticipate being impacted. KGS Group and SMM team members, with Sun Gro personnel, will respond to potential concerns expressed and answer question regarding the proposed development. Following the meeting, participants will be invited to complete a comment form to share any additional feedback they have regarding the Project.

SMM will summarize the engagement process with representatives of the RM of Bifrost-Riverton, all stakeholders and the public in a final Engagement and Consultation Report. All feedback and input received will be included in the EAP, including how accommodations were made to respond to concerns and issues raised.

As FRCN indicated in their letter there was opposition from cottage owners' associations, non-government organizations and individuals to the previously licenced Ramsay Point Bog. While public consultation has not yet occurred for the proposed Project, it is anticipated that concerns previously expressed during licencing of Ramsay Point Bog will be raised again for this Project.

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Public stakeholders identified and contacted during preparation of the Ramsay Point Bog EAP included the Beaver Creek Bible Camp, located near the confluence of Beaver Creek and Lake Winnipeg, the Beaver Creek Cottager's Association, located within the Beaver Creek Provincial Park east of PR 234 and the RM of Bifrost. The Beaver Creek Bible Camp expressed concern about increased sediment in Beaver Creek and changes in water elevations as this is the main waterway utilized by the campers. The Beaver Creek Cottage Association expressed concerns related to environmental impacts on water (drainage) and wildlife, as well as increased traffic, road maintenance and dust control and safety along PR 234 as it is the only access for the cottagers and residents of Pine Dock and Matheson Island. The Village of Riverton within the RM of Bifrost indicated they were in full support of the Ramsay Point Bog project as it will provide new economic opportunity in the region in the form of direct and indirect employment opportunities. While the bible camp and cottage association are outside of the Sugar Creek regional assessment area the effects of the proposed Sugar Creek Project on these components will be assessed within the EAP to be completed. Typical mitigation measures that will be implemented to address these types of concerns are summarized as follows.

- Measures to mitigate potential effects on surface water generally include minimizing the surface area being drained or disturbed; avoid the destruction of water bodies by maintain a 100 m buffer; maintaining water levels on undisturbed lands; directing drainage to settling ponds prior to discharging to the natural drainage system; preventing leaks, spills and releases of contaminants such as fuels; providing spill clean-up equipment and materials; preparing an emergency spill response plan and implementing a mine closure plan to restore predevelopment water levels.
- Measure to mitigate potential effects on wildlife and their habitat generally include minimizing loss and disturbance of vegetation by limiting construction activities to designated areas; conducting clearing during the winter outside of the critical nesting and rearing periods; limit operation activities to areas disturbed during construction; maintaining habitat around the quarry leases and re-vegetating disturbed or reclaimed areas during and after operation.
- Measures to mitigate potential effects associated with increased traffic along the gravel PR 234, such as road quality deterioration, increased dust, and safety concerns generally include discussing concerns with Manitoba Transportation and Infrastructure (who maintains the PR); using an approved dust suppressant such as water on Sun Gro access roads; and directing all traffic associated with the development to drive according to road conditions and adhere to the posted speed limits.

Further to the public concerns raised and addressed during the EAP process, Manitoba received an appeal on their issuance of the EAL for the Ramsay Point Bog project combined with an appeal on their issuance of the EAL for the Berger Deer Lake project and the proposed Sunterra peat harvesting expansion. In response to the appeals Manitoba completed their own consultation process to review and address public and Indigenous concerns. The appeal of the Sun Gro and Berger EALs was overturned, and Manitoba issued the EAL for the Sunterra expansion, incorporating clauses into each EAL to address the concerns expressed.

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# 6.0 IAAC INFORMATION REQUEST 6

The EAP, as previously noted is still on-going and as such Indigenous engagement activities have not yet started. As described in Section 5, however, engagement specialists SMM have been retained an engagement plan developed (Appendix B). Engagement and consultation with Indigenous communities will build on the Public and Stakeholder Plan described in Section 5. The overall engagement goals of the plan are to ensure there is an open and transparent process, build trust with rightsholder, provide clear and consistent information, and to understand and address Indigenous community concerns and needs. In particular, the goals of the plan are to engage with Indigenous communities to understand the impact to their Aboriginal Treaty Rights for hunting, fishing, trapping, and gathering, as well as significant cultural or spiritual areas. All Indigenous communities located within 100 km of the proposed site at Sugar Creek will be contacted, which have been identified as the following:

- 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 / Fort Alexander First Nation
- Manitoba Metis Federation

Round 1 of engagement will introduce the Project to all participants listed in the participant profile with an invitation for further engagement. A Project fact sheet and letter will be distributed to all First Nations identified above and in the Participant Profile and will introduce the EAP, Sun Gro's process and history in the province, and invite them to engage in the consultation process. Round 2 will provide all interested First Nations with two options to participate: a meeting with Chief and Council and key members of leadership, or a community meeting with all band members invited to participate. At this meeting we will gather input from Indigenous communities on how they anticipate being impacted, including their Traditional Territory and culturally significant areas. We will respond to concerns previously expressed by various First Nations and facilitate an open and transparent discussion about the proposed Project. Following the meeting, participants will be invited to complete a comment form to share any additional feedback they have regarding the Project.

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SMM will summarize the engagement process with all Indigenous communities in a final Engagement and Consultation Report. All feedback and input received will be included in the EAP including how accommodations were made to respond to concerns and issues raised and impacts to Indigenous communities.

While Indigenous engagement has not yet occurred for the proposed Project the FRCN has indicated several concerns with impacts on the environment and infringement on their Aboriginal and Treaty Rights, social and economic conditions, as provided in the October 14 letter. An overview discussion and response to these concerns is provided in the following subsections.

## 6.1 Federal Policy on Wetland Conservation

FRCN has suggested that the proposed Project is in contravention of the Federal Policy on Wetland Conservation (The Policy) (Government of Canada, 1991). It is of Sun Gro's opinion that the Project is aligned with The Policy as intended and applied by regulatory agencies since The Policy inception in 1991. As stated in the Policy the objective of the Federal Government with respect to wetland conservation is to: promote the conservation of Canada's wetlands to sustain their ecological and socio-economic functions, now and in the future. Objective and subsequent goals are to be met through the application of guiding principles and strategies outlined in The Policy.

Goals Include:

- maintenance of the functions and values derived from wetlands throughout Canada
- no net loss of wetland functions on all federal lands and waters
- enhancement and rehabilitation of wetlands in areas where the continuing loss or degradation of wetlands or their functions have reached critical levels
- recognition of wetland functions in resource planning, management and economic decision-making with regard to all federal programs, policies and activities
- securement of wetlands of significance to Canadians
- recognition of sound, sustainable management practices in sectors such as forestry and agriculture that make a positive contribution to wetland conservation while also achieving wise use of wetland resources
- utilization of wetlands in a manner that enhances prospects for their sustained and productive use by future generations

In pursuing the above goals, the Federal Government will respect critical guiding principles as follows.

- Wetlands and their functions contribute significantly to the health and well-being of Canadians and are a desirable element of Canada's natural diversity; as such, they are a priority requirement of environmental conservation and sustainable development efforts.
- Wetland conservation is dependent on the incorporation of environmental objectives into the economic decision-making process, as recommended by the (Brundtland) World Commission on Environment and Development, the CCREM National Task Force on Environment and Economy, the Federal-Provincial Agriculture Committee on Environmental Sustainability, and the Sustaining Wetlands Forum.

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- Wetlands and wetland functions are inextricably linked to their surroundings, particularly aquatic ecosystems, and therefore wetland conservation must be pursued in the context of an integrated systems approach to environmental conservation and sustainable development.
- On-going development and refinement of scientific knowledge and expertise in Canada is fundamental to the achievement of wetland conservation.
- Wetland conservation can only be achieved through a coordinated, cooperative approach involving all levels of government and the public, including landowners, non-government organizations, and the private sector.
- The Federal Government will play a major role in advocating and achieving wetland conservation, while respecting the jurisdiction of the provinces and territories and the rights of individual landowners.
- In consultation and cooperation with native institutions and representatives in Canada, the Federal Government will promote a cooperative approach to wetland conservation for lands and waters held by the Federal Government for native peoples.
- A basic change in the attitude and perceptions of Canadians regarding wetlands, through communication and education programs, is a vital prerequisite of wetland conservation.
- Canada has a special responsibility to provide leadership in international wetland conservation efforts, through the management of transboundary resources such as water and wildlife in North America, encouragement of global wetland conservation, and active participation in international treaties, conventions and forums.

Sun Gro does not dispute the various functions, and values that wetlands perform locally, regionally and globally. Sun Gro is a member of the Canadian Sphagnum Peat Moss Association (CSPMA) and participates with Industry Partners, Scientists, government agencies, and stakeholders to develop industry and regulatory accepted standards for site selection, operations, decommissioning and reclamation, and supports ongoing studies to enhance and advance these technical areas. Sun Gro employs industry standards for operations that includes using mitigative measures to protect and minimize negative effects to the surrounding ecosystems and downstream water receptors. Harvested sites are reclaimed after use to a functioning peatland that restores wetland hydrology, vegetation, functions, and values over time.

The CSPMA estimates that 34,000 ha of peatland were under harvest in Canada in 2020 (CSPMA, 2020). This accounts for 0.03% of the total 113,600,000 ha area of peatland in Canada (Tarnocai, et al., 2011). Within Manitoba, the CSPMA estimates 3,801 ha were under harvest in 2017 (12% of Canadian total; CSPMA, 2017). This accounts for 0.02% of the total area of 19,200,000 ha of peatland in Manitoba (Daigle and Gautreau-Daigle, 2001). The proposed Project consists of harvesting up to 750 ha, which is an increase of 2.2% of the total area under harvest in Canada and 19.7% of the total area under harvest in Manitoba, although this increase will be offset by areas being removed from harvesting as restoration begins. Relative to the overall peatland areas, the proposed Project accounts for 0.0007% of peatland areas in Canada and 0.0039% of peatland areas in Manitoba. Given the relatively small percentage the proposed Project represents relative to both provincial and national areas of wetlands and peat harvesting areas and considering the disturbance will be temporary with areas restored once harvesting is completed the Project is not anticipated to have a significant adverse effect on wetland ecological functioning.

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It is Sun Gro's opinion that the proposed Project is compliant with the intent and application of Federal Policy on Wetland Conservation as supported by the following statements.

- These wetlands are located on Provincial Crown Land and under the jurisdiction of provincial regulatory bodies.
- Regulatory approvals have been granted and will be obtained under provincial regulatory authorities.
- Sun Gro will be engaging Indigenous communities and will actively partake in Indigenous Consultation processes as required by Provincial regulatory agencies.
- The wetlands affected have not been designated as a "Wetland of Significance to Canadians".
- These wetland types are abundant locally, regionally, and nationally.
- The peat will be harvested in an environmentally sustainable fashion that minimizes local, regional, and national effects on the environment, using industry accepted practices with impacts mitigated, and negative impacts are considered short in duration, limited in scope, and reversable.
- Peat harvesting is an important source of revenue for the local and regional economy and the proposed peatlands will continue to contribute towards this.
- The peatland will be reclaimed after harvesting, including reestablishing the hydrology and returning it to a functioning wetland ecosystem.
- The Project will result in no net loss of wetland functions or values for future generations once reclamation is complete.
- Sun Gro actively participates in the advancement of wetland and peat sciences and peat harvest practices regionally, nationally, and internationally.

## 6.2 Groundwater, Surface Water and Wetlands

FRCN stated that peat extraction significantly alters hydrological and ecological function with many irreversible changes. They also stated the peat bogs in their Traditional Territory are unique, ecologically fragile and sensitive areas and therefore require exhaustive studies to understand the linkages between the eco-systems as many wildlife and plant species, some of which are protected under federal legislation, depend on and in some cases are only found in these wetland peat bog areas. The potential effects on hydrologic and ecological conditions will be assessed as part of the EAP being completed for the Project. To support the assessment of potential effects several field investigations have been completed at the Project site, including the following.

- A hydrologic assessment of the existing natural drainage within the bounds defined for the Project area and adjacent areas that contribute to basin runoff in the region.
- A hydraulic analysis to assess the potential impacts of the proposed peat development to the hydraulic capacity of existing water crossings identified during the site reconnaissance survey.
- An aquatic assessment of water courses within or immediately adjacent to the Sugar Creek sub-areas to determine the presence of fish and fish habitat as well as aquatic species at risk.
- Vegetation and mammal surveys completed along a series of transect lines, established in the various plant communities, to develop a list of species present in the Project area, including species at risk.

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- A bird and amphibian survey using 8 automated bio-acoustic call recorders (ARUs) to record bird and amphibian activity at the appropriate time of day during the spring breeding season when they are most active to develop a list of species present in the Project area, including species at risk.
- A baseline surface water quality sampling program with samples collected at five (5) locations within the proposed harvest areas and nearby water bodies, to assess how future drainage water will potentially impact downstream receiving water.

Research has shown that ditches created in organic soils can result in localized 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 (63% of the sub-area) of land will be cleared and drained within the Sugar Creek sub-areas B, C, D and E, which will temporarily result in the loss of wetlands and affect the local perched water within the peat. A 100 m buffer with no development will remain within the sub-area boundaries so effects will not extend beyond the sub-areas. Additionally, 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 and wetlands lost during Project construction.

Constructed drainage at the harvesting areas will follow existing drainage patterns. Assessments completed for other peat harvesting operations in Manitoba and operational follow-up monitoring have shown that 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). This appears to be due to the storage capacity of the constructed drainage and the increased absorption created by the drained peat.

FRCN also stated that an existing peat harvesting operation that began in 1997 still has not begun any restoration and that none of the peat companies that are actively harvesting within FRCN's territory have begun restoration. They also stated that even assuming restoration efforts are successful, it will be 100 years or more before the mined areas provide any of the wetland ecological values and resources that have supported the FRCN. Based on an estimated average peat production rate of approximately 850 $m^3$/ha/year the depth of peat harvested each year is only 0.085 m (8.5 cm) and therefore if there is 1.5 m depth of harvestable peat a project lifespan would be approximately 18 years. As such peat harvesting is still on-going at the harvesting areas within FRCN's territory which is why restoration activities have not started. In comparison, Sun Gro has successfully implemented peat restoration activities at some of their bogs in southeastern Manitoba near Elma where peat harvesting first began in the 1940's. 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. Sun Gro will restore the fully harvested Sugar Creek areas to pre-disturbance conditions, as Sphagnum peat bogs based on their restoration experience at other peat bogs such as Elma bog, and in accordance with the peatland restoration methods described in CSPMA Peatland Restoration Guide (Quinty and Rochefort, 2003). Additionally, Sun Gro has developed and will update the Peatland Recovery Plan for PHL 4 following Manitoba's Submission Guidelines for Peatland Recovery Plans - Peatland Management Guidebook (Manitoba Sustainable Development, 2017) 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

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continues to work with the Peatland Ecology Research Group (PERG) to study peat recovery as several Sun Gro sites and the research results will help inform future recovery approaches at Sun Gro sites.

## 6.3 Fish and Fish Habitat

FRCN stated that the proposed harvesting areas are in the midst of the Sugar Creek watershed system, which is a major spawning area connected to Lake Winnipeg, and as such the Project will have significant adverse effects on fish habitat and spawning. They also noted that the FRCN community has always been heavily reliant on a health and sustainable fishery for both sustenance and income as fishing is the community's main industry.

To support preparation of the EAP an aquatic assessment was completed, a copy of which is provided in Appendix C. The aquatic assessment focused on sub-area C and the unnamed drain downstream of the harvesting areas, with no work done in sub-areas B, D and E because there was no open-water to provide fish habitat. The aquatic assessment concluded that the wetted area in the northeast corner of sub-area C would not be considered suitable habitat for small or large-bodied fish species and there was no observable channel or connectivity to fish bearing waterbodies upstream or downstream of the site. While the unnamed drain appeared to be suitable for small-bodied fish capable of tolerating low oxygen environments, there were no fish observed or captured during the assessment and although the drain flows into Lake Winnipeg, fish passage of large-bodied species is likely restricted by several beaver dam blockages observed through satellite imagery.

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. However, the drainage plan for Sugar Creek, as previously discussed, is not anticipated to discharge any drainage water directly to the unnamed drain and there are no in-water construction works required. The unnamed drain is located approximately 2.5 km south of sub-area E so it is anticipated that the bottom of the outlet ditch would daylight and discharge to the surrounding peat bog before reaching the unnamed drain. Additionally, the drainage system will include sedimentation ponds, which are a proven method to mitigate sediments, and a control culvert with a sliding gate 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. In the unlikely event that sediment reached the unnamed drain, Sugar Creek is still located 6 km further east with several beaver ponds with calm water environments for sediment to further settle. As such it is anticipated that the Project will have no measurable effect on fish or fish habitat.

## 6.4 Wildlife

FRCN stated that significant adverse impacts of peat harvesting on moose migration patterns, populations and habitat became apparent in the Washow-Fisher peninsula region after peat harvesting operations opened in the area. They noted that in addition to avoiding peat harvesting sites during the operations, moose will not return until the harvested sites are in an advanced stage of restoration such that their habitat is essentially destroyed for up to 100 years.

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The presence of moose in the Project area was confirmed during the baseline biological surveys completed for the Project. Provincially, moose are considered abundant and secure (S5) and they are not protected under ESEA or federally under SARA, as such no specific studies were conducted regarding moose beyond recording their presence. It is acknowledged that moose utilize peatland habitat and that the clearing and peat harvesting will result in the disturbance and loss of this habitat until the peat areas are restored. However, the total 750 ha that are proposed to be harvested accounts for approximately 7% of the Project study area and 1.4% of the regional study area, in which there is abundant habitat, as this is a relatively undeveloped region. Even accounting for the cumulative habitat loss associated with future peat harvesting at the existing Ramsay Point Bog that is located within the regional study area only 1.7% of the available habitat would be affected by peat harvesting. In an evaluation of ecological constraints on peat mining in New Brunswick Helene Gautreau-Daigle (1990) observed that moose populations use bog areas but no population differences were observed between developed and undeveloped bogs.

FRCN stated that Manitoba has provisions under *The Water Rights Act* and Regulation that prohibit the drainage of certain classes of wetland and imposes penalties and compensation requirements for loss or alteration of other wetland classes, yet the peat companies are not being required to comply with these rules. By definition, peatlands are not Class III, IV or V wetlands which are afforded protection under the Act. Schedule C of *The Water Rights Act* defines Class III wetlands as those holding surface water for a period between one month and three months (in average years). Although peatlands have high water tables, this is not in the form of surface water, and they do not have high water tables for only 3 months. Peatlands are typically not dry at any time of the year. Class III wetlands are also defined as those wetlands with gleysolic soils. Peatlands do not have gleysolic soils. Finally, Class III wetlands frequently have shallow marsh vegetation, such as emergent wetland grasses, sedges and rushes. Peatlands do not have shallow marsh vegetation; they have black spruce, tamarack, shrubs, sphagnum moss – vegetation typical of bogs or fens. Although peatlands are not protected under *The Water Rights Act* the peat harvesting companies are required to restore the peatlands following harvesting in accordance with *The Peatlands Stewardship Act*.

FRCN also noted several other wildlife species such as predatory birds, waterfowl, amphibians and other fur bearing mammals of interest to local trappers also use the wetlands, which will be affected by the Project. 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). Likewise, while 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). 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. There are no open water areas within the Sugar Creek sub-

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areas proposed to be harvested. Tables summarizing the bird, amphibian and mammal wildlife observed during the baseline biological surveys are provided in Appendix D.

FRCN noted that wetlands, including peat bogs, are a traditional source of many medicine plants and berries that are used by FRCN members. A summary of the vegetation observed during the baseline biological surveys is provided in Appendix D. Species observed include Labrador tea and blueberries that are known to be collected and gathered. These species, however, are very common and abundantly available throughout the regional study area and as previously noted the proposed 750 ha harvesting area where vegetation will be cleared represents only approximately 1.4% of the regional study area. Additionally, the site is remotely located with no current road access and FRCN is over 50 km by road away from the Project area with many similar peat bog areas much closer to the community where similar plants could be collected.

## 6.5 Economics

FRCN stated that peat harvesting within their Traditional Territory Notice Area will adversely affect their current economic programs and plans for new initiatives as the community development strategy relies heavily on ecotourism potential and pristine environmental conditions of the region. They made specific reference to the designation of the Fisher Bay Provincial Park, development of the Bay River Cottage Subdivision, commercial timber harvesting allocations, resource tourism/outfitting and the planned development of a campground on FRCN lakefront property.

It is anticipated that the proposed Project will not adversely affect these FRCN economic developments. The Fisher Bay Provincial Park and the Fisher Bay lakeshore are over 8 km directly north and 11.5 km north-northwest of sub-area B, respectively, with no direct connection between these areas. As previously noted, the Project area is remotely located with no current road access and FRCN is over 50 km by road away with many similar undeveloped pristine peat bog areas much closer to the community that could be used for ecotourism and outfitting activities and collecting traditional plants and medicines. Additionally, drainage from the peat harvesting fields flows to the southeast away from the FRCN community, the park and Fisher Bay. Regarding timber harvesting allocations, as previously described, a timber appraisal is required to determine the expected volume of hardwood and softwood trees that will be removed. A contract will be issued for the timber harvesting, however, that process is regulated by Manitoba through timber quota holders for the area. If FRCN has the timber allocation for the Project area, then they would be awarded the contract for tree clearing. In addition to not adversely affecting the FRCN economic developments it is anticipated that the proposed Project will create employment and business opportunities for FRCN.

## 6.6 Social and Cultural Conditions

FRCN provided a brief history of John Ramsay, after who Ramsay Point is named for, to show that the area has important historical and cultural values to the Icelandic settlers and other Indigenous communities in the area in addition to FRCN. The EAP will be assessing the potential effects of the Project on social and cultural conditions. The closest of the landmarks identified by FRCN is Ramsay Point, located 15 km east of the Project with no river or road access to the Project site. Based on the historical use of rivers and lakes as a mode of travel in these

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remote areas most cultural areas are located near the shorelines of water bodies, whereas the Project is located more than 8 km away from the nearest navigable waterway. As described in Section 2.0 considering the remote location of the Project site and the distance from navigable waterways that would have been historically used it is anticipated that there will be no cultural and heritage concerns at the site. Regardless, KGS Group submitted a Screening Request Form to the Historic Resource Branch on October 21, 2022 to assess the potential to impact heritage resources.

FRCN also expressed concerns related to impact on the Fisher Bay Provincial Park and the proposed expansion being developed through the FRCN Conservation Areas Initiative. Fisher Bay Provincial Park is over 8 km directly north of sub-area B with no direct connection between these areas, with drainage from the Project flowing southeast. As such it is not anticipated that the Project will adversely affect the park. The various PHLs and peat harvesting has already been identified as one of the land use designations within each zone and therefore is already being considered as part of the FRCN Conservation Areas Initiative being developed.

## 6.7 Infrastructure

FRCN stated that the access roads that will need to be constructed to the sub-areas will result in further degradation of the lands, wetlands, and fish and wildlife habitat. As described in Section 1.0 an approximately 7.8 km access road will be constructed from PR 325 to sub-area E with the first 6 km following an existing developed trail that would be upgraded with only 1.8 km of newly constructed access road. The access road does not cross any creeks or rivers so there will be no impacts to fish and fish habitat. Ditches will be constructed on both sides of the road and a culvert installed, if required, to equalize drainage on either side of the road. It is anticipated that the small amount of additional tree clearing required for the 1.8 km of newly constructed access road will not measurably increase the potential adverse effects on lands, wetlands and wildlife habitat associated with the clearing for the required harvesting areas as previously discussed.

## 6.8 Greenhouse Gas and Climate Change

FRCN provided a table as an example of the estimated ecological goods and services value for peatlands and also indicated the estimated soil organic carbon contained within the FRCN Notice Area. It is acknowledged that peatlands provide ecological value and that the release of greenhouse gas (GHG) emissions associated with peat harvesting is an environmental concern. It is important to note however that the loss of carbon sequestration and storage and the flood control and filtering will be restored once harvesting is completed and Sun Gro begins restoration activities. The proposed Project is located within Watershed Comment Zone 10 as shown in Table 2: Watershed Soil Organic Carbon and Equivalents provided by FRCN. Based on the Soil Organic Carbon Density of 233 tonnes/ha the proposed 750 ha to be harvested within the Sugar Creek sub-areas would hold an estimated 174,750 tonnes (t) in $CO_2$-equivalent ($CO_2$ eq.).

KGS Group will be estimating the GHG emissions for this Project, as part of the EAP, based on the research and formulas developed by Cleary et al. (2005). While completing EAP for similar peat harvesting projects other literature has also been reviewed, which cited similar GHG flux rates, however the formulas developed by Cleary

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et al. were used to estimate GHG emissions as they are from Canadian peatlands and because MECP had previously recommended the use of these formulas.

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). Waddington et al. (2010) states that harvested peatlands will likely return to a net carbon sink (on an annual basis) in 6 to 10 years post-restoration. Environment Canada UNFCCC shows that harvested peatlands return to being a carbon sink 5 years post-restoration (Environment Canada, 2015). 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, a preliminary estimate of 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. Cleary et al. also 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). GHG emissions from decomposition are however associated with the end use and should not be attributed to the producer in part because the producer does not know what is being grown with the peat and therefore cannot calculate GHG sequestration to offset emissions.

Therefore, after 37 years of operation and 5 years post restoration of the proposed harvest areas, in addition to the 265,062 t - $CO_2$ eq. emitted from land use change, 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 2020, which had a total value of 6.72 x $10^8$ t - $CO_2$ eq (672 Mt) (Environment and Climate Change Canada, 2022). Therefore, an average year of production at the proposed Project will account for approximately 0.0018% 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.

## 6.9 Cumulative Effects

FRCN stated that the cumulative effects of existing peat harvesting operations, combined with future developments of existing peat licence areas in the Washow-Fisher Peninsula would be significant and likely irreversible, or at the very least not restorable for well over 100 years. They also state that peat harvesting is not a truly sustainable use of natural resources.

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While FRCN noted that 12,700 ha of peatland are covered under PHLs within the FRCNTT, it is important to remember that not every sub-area within a PHL or the entire area within each sub-area is harvested. Harvesting operations are required to maintain a 100 m buffer around any water bodies and within the sub-area boundaries, as well, areas either with insufficient depth or quality of peat are not harvested. For example, of the total 1,810 ha within Sugar Creek sub-areas only 750 ha (41%) is proposed to be harvested. Likewise at the nearest peat harvesting operation, which is Sun Gro's Ramsay Point operation, of the total 1,790 ha within the Ramsay Point sub-areas only 1,170 ha (65%) is proposed to be harvested. The Sun Gro Ramsay Point operation is the only other PHL that partially overlaps with the regional study area for the proposed Project, with only approximately 150 ha of the Ramsay Point sub-areas within the regional study area. While it will take over 100 years to regrow the full depth of peat harvested the CSPMA has research from peatland restoration activities showing that a functioning peat producing wetland ecosystem can be restored within 5 to 7 years.

Reviewing the expected cumulative effects on the landscape is done by Manitoba's Technical Advisory Committee, although the EAP will provide information on potential cumulative effects to facilitate Manitoba's assessment. For example, the EAP will take into account other projects that may discharge to the same watershed sub-basin or projects that may also result in tree clearing. The International Institute for Sustainable Development (IISD) completed a cumulative impacts analysis of peat harvesting in Manitoba's Interlake area, focusing on potential nutrient loading to Lake Winnipeg and GHG emissions. The IISD concluded that the potential phosphorus and nitrogen nutrient loads to Lake Winnipeg from peat harvesting operations represent a small proportion (0.02 to 0.87%) of the yearly loads to Lake Winnipeg (IISD, 2015). Likewise total GHG emissions from land-use change if all existing peat lease holdings within Manitoba were to be developed would not exceed 0.4 million t - $CO_2$ eq, only approximately 2% of Manitoba's 19.8 million t - $CO_2$ eq 2010 emissions from all sectors (IISD, 2015).

One measure of sustainability is ensuring that more of a resource is being created than is being restored in the same area. The forest industry uses Annual Allowable Cut, and this concept can also be applied to peat. Ensuring that more wood volume is being grown in an area than is being removed from that same area means the industry is, at a landscape level, operating sustainably; likewise, ensuring that more peat is being produced in an area than is being removed from that same area implies that the industry is operating sustainably. Manitoba Forestry and Peatlands Branch maintains an inventory on peatlands, which includes datasets on peat depth and peat age. Using these datasets, they have inferred historical annual rates of peat accumulation and compared them to harvesting rates and concluded that the peat industry is operating sustainably. Additionally, it appears that peat accumulation rates in restored areas are often much higher than historical annual rates of peat accumulation.

## 7.0 IAAC INFORMATION REQUEST 7

While the environmental assessment for this Project is still ongoing, based on the EAPs completed for other similar peat harvesting operations in Manitoba (including this area) and with implementation of the peat industry standard mitigation measures that have been established and proven to be effective for over 80 years it

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is anticipated that the Project will not have any adverse environmental effects. Likewise, there are no anticipated significant adverse effects to the public or Indigenous peoples because the Project is located in a remote and sparsely populated area, and with the exception of increased traffic along provincial roadways, potential Project effects will be localized to the development area.

In comparison the peat harvesting industry currently has a positive impact 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 continue to provide definite and measurable public and Indigenous benefits in the form of local contract services and employment, in addition to payments to Manitoba. 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.

# 8.0 IAAC INFORMATION REQUEST 8

There are numerous reasons, as discussed in the previous Sections, to indicate why the Project should not be designated under the *Impact Assessment Act*. These are summarized as follows:

- There are no in-water construction activities proposed and no anticipated direct discharge of drainage to a natural waterbody and therefore no potential concern to impact fish and fish habitat.
- Based on the biological surveys completed there are no vegetation, amphibian and mammal species federally protected under SARA within the development area. While three bird species listed as Threatened under SARA were identified within the development area there is no critical habitat identified for these species in the area, the Project is not located within federal land and the tree clearing will be completed during the winter in accordance with the *Migratory Birds Convention Act*.
- There is no federal financial assistance being provided for the proposed Project and no federal licenses, permits, authorization or approvals are required.
- There are no anticipated adverse changes to the environment that will occur on federal lands or lands outside of Manitoba or Canada.
- While 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 this will need to be confirmed as part of the proposed Indigenous engagement program, or subsequent Manitoba led consultation. Additionally, the potential effects are anticipated to be minimal because the proposed harvest area is very small relative to the surrounding regional study area, and the harvest area is not unique in the area as peat bogs are regionally abundant. There will also be clear and measurable socioeconomic benefits for the local Indigenous communities in the form of employment and business opportunities.

In addition to the above noted reasons, not a single peat harvesting operation that has been licenced to date in Manitoba under *The Environment Act* has been designated or assessed under the *Impact Assessment Act* or the equivalent previous federal environmental assessment acts.

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Approved By:

<Original signed by>

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Principal & Environmental Department Head

SFM/jr
Enclosure

cc: Tim North, Sun Gro

# 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.

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## 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.

# APPENDIX A

Project Figures

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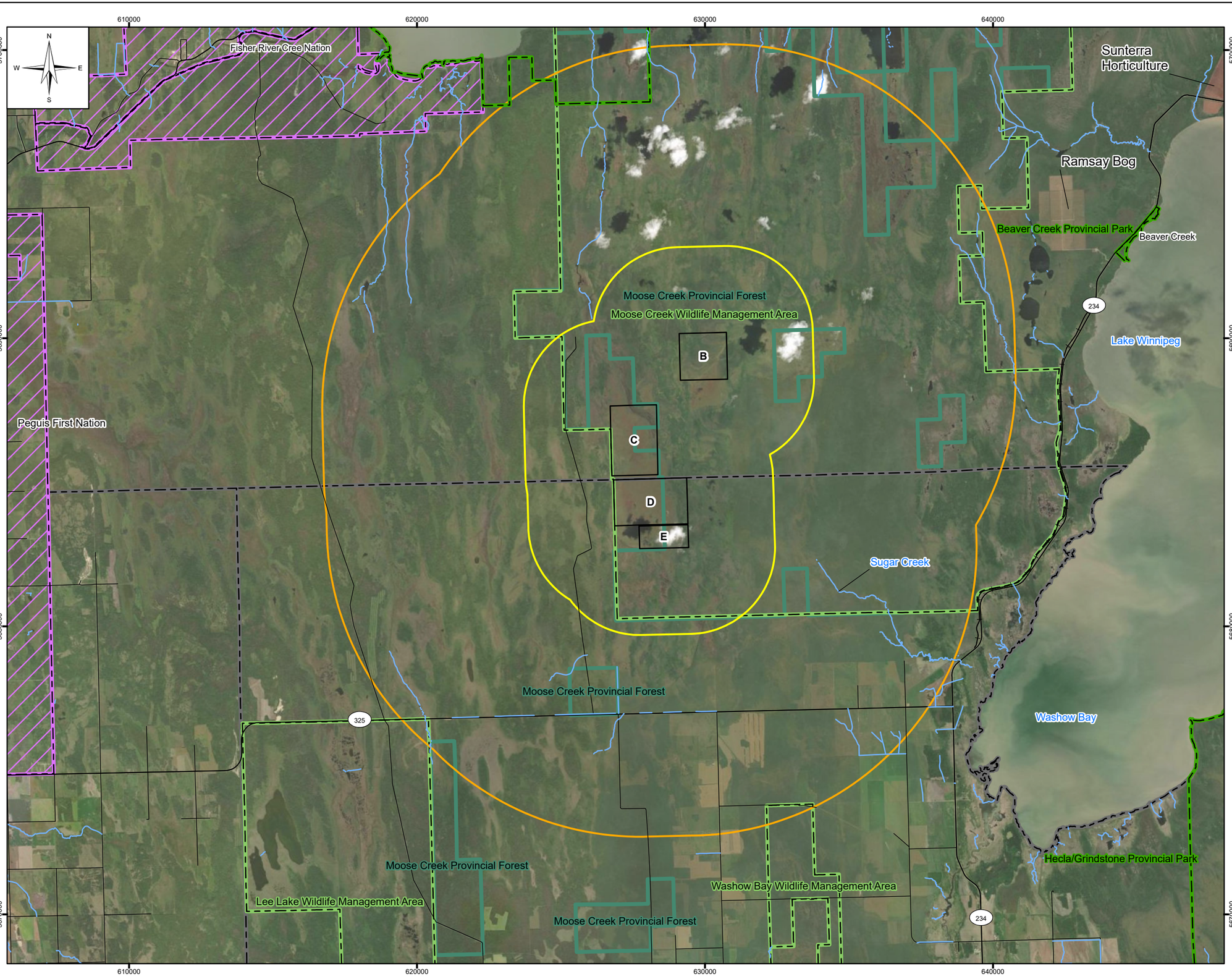



LEGEND:

- 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:

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

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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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SUGAR CREEK
ENVIRONMENT ACT PROPOSAL

REGIONAL SITE LOCATION

NOVEMBER 2022 | FIGURE 01 | REV: A

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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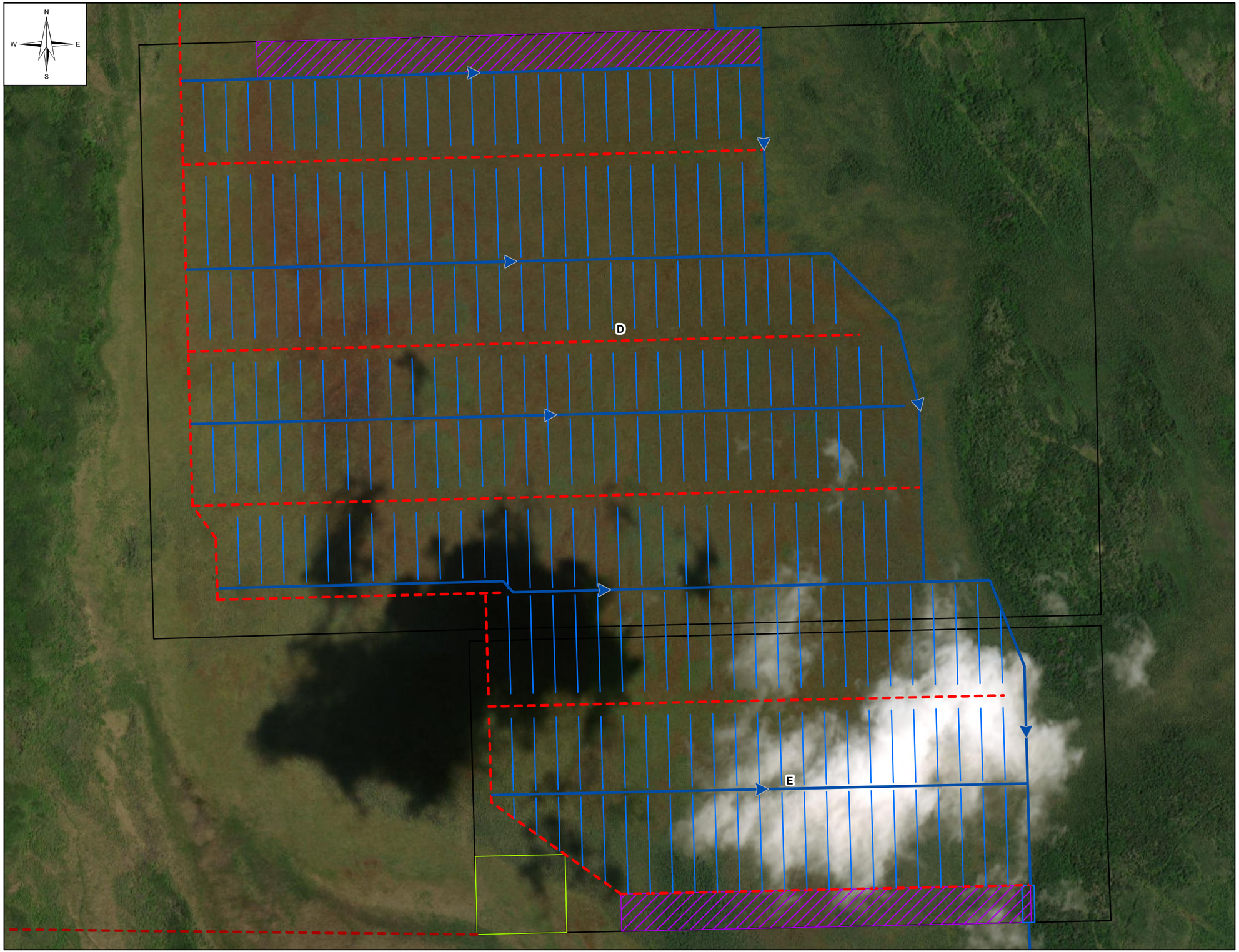



LEGEND:

- 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).

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Kilometres

SCALE: 1:10,000 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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SUGAR CREEK
ENVIRONMENT ACT PROPOSAL

GENERAL SITE LAYOUT
SUB-AREA E/D

| OCTOBER 2022 | FIGURE 02 | REV: A |
|---|---|---|

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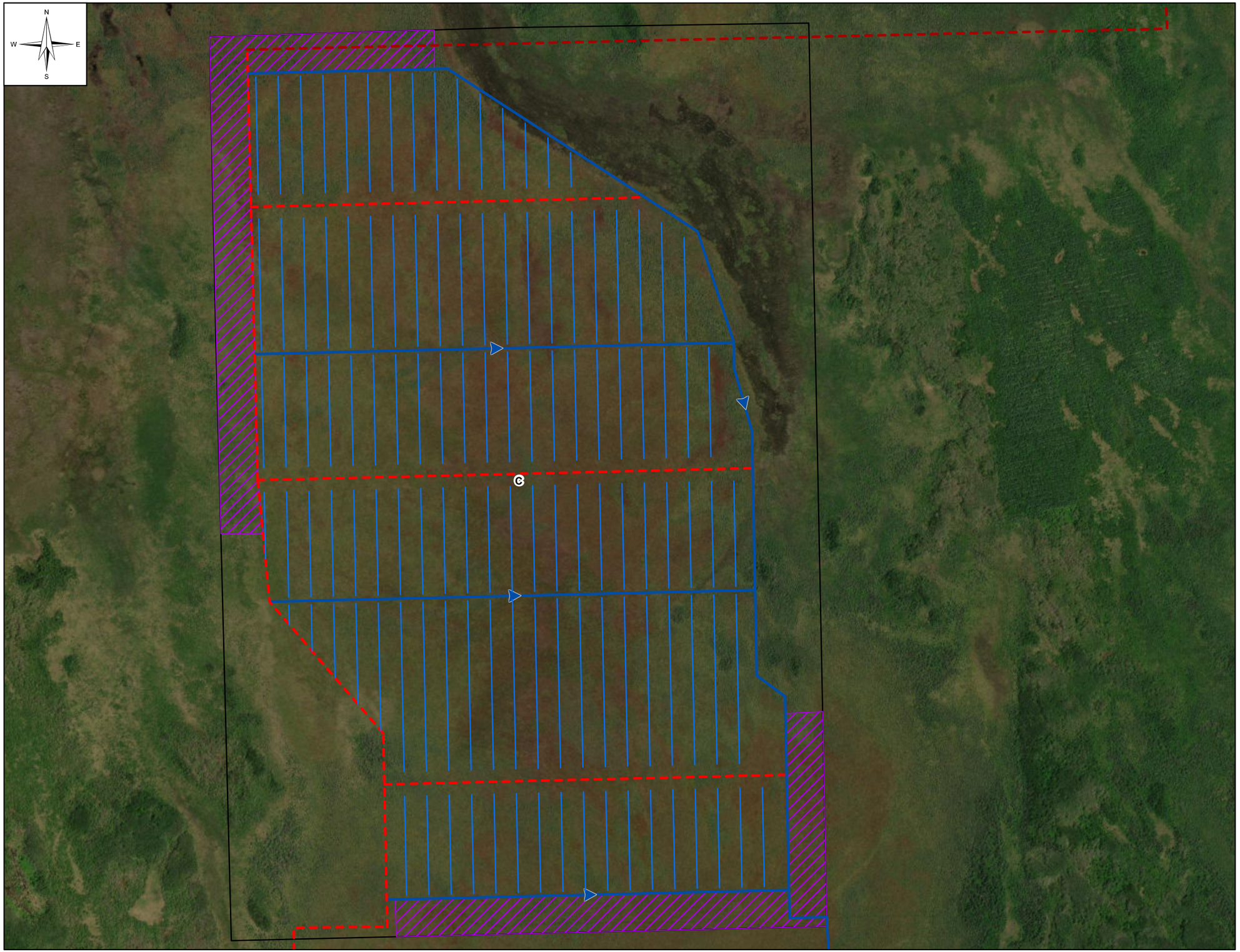



LEGEND:

- Main Drain Direction
- Bog Road
- Finger Drains
- Access Road
- Donar Area
- 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).

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Kilometres

SCALE: 1:10,000 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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SUGAR CREEK
ENVIRONMENT ACT PROPOSAL

GENERAL SITE LAYOUT
SUB-AREA C

| OCTOBER 2022 | FIGURE 03 | REV: A |
|---|---|---|

FileName: R:\Projects\2022\22-0293-003\Dwg\GIS\ArcPro\Sugar_Creek_Environment_Act\Sugar_Creek_Environment_Act.aprx 22-0293-003_Fig03
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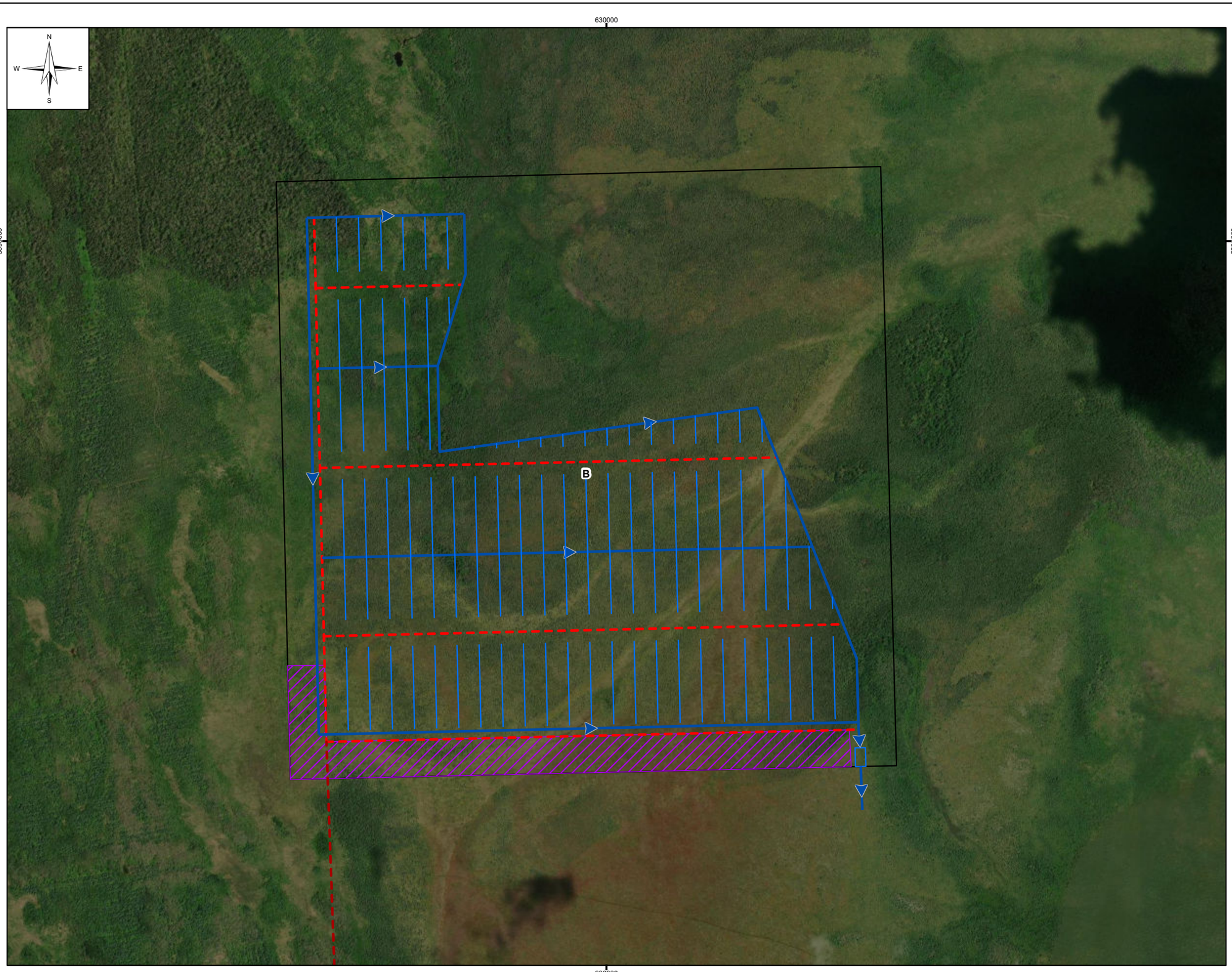



LEGEND:

- Main Drain Direction
- Bog Road
- Finger Drains
- Access Road
- Donar 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).

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SCALE: 1:10,000 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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SUGAR CREEK
ENVIRONMENT ACT PROPOSAL

GENERAL SITE LAYOUT
SUB-AREA B

| OCTOBER 2022 | FIGURE 04 | REV: A |
|---|---|---|

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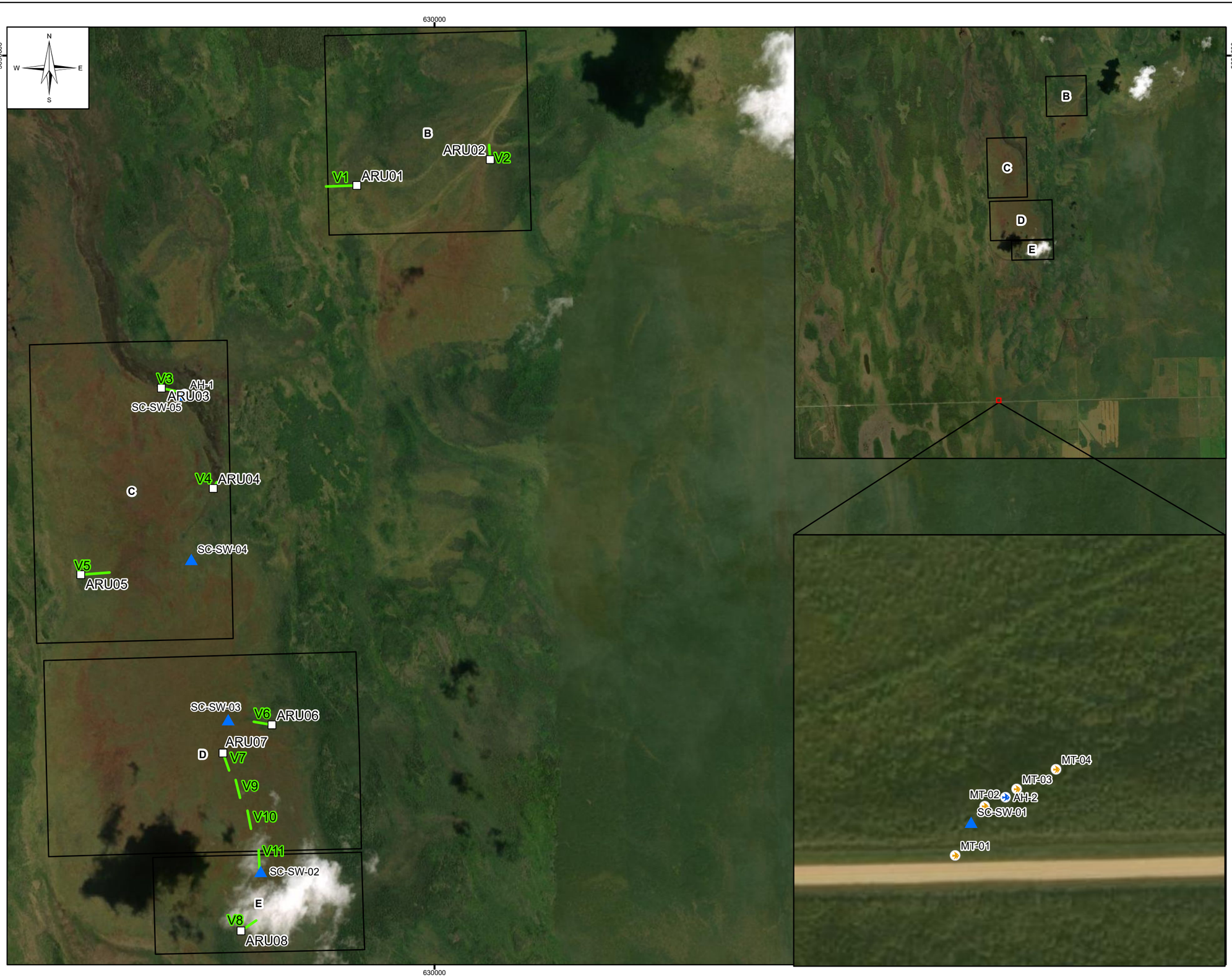



LEGEND:

- SugarCreek Sample Locations
- Vegitaion 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. ARU locations used for bird and amphibian surveys
3. Wildlife surveys were also conducted incidentally at ARU survey stations and vegetation transects

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Kilometres

SCALE: 1:30,000 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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SUGAR CREEK
ENVIRONMENT ACT PROPOSAL

BASELINE SAMPLING PROGRAM

| NOVEMBER 2022 | FIGURE 05 | REV: A |
|---|---|---|

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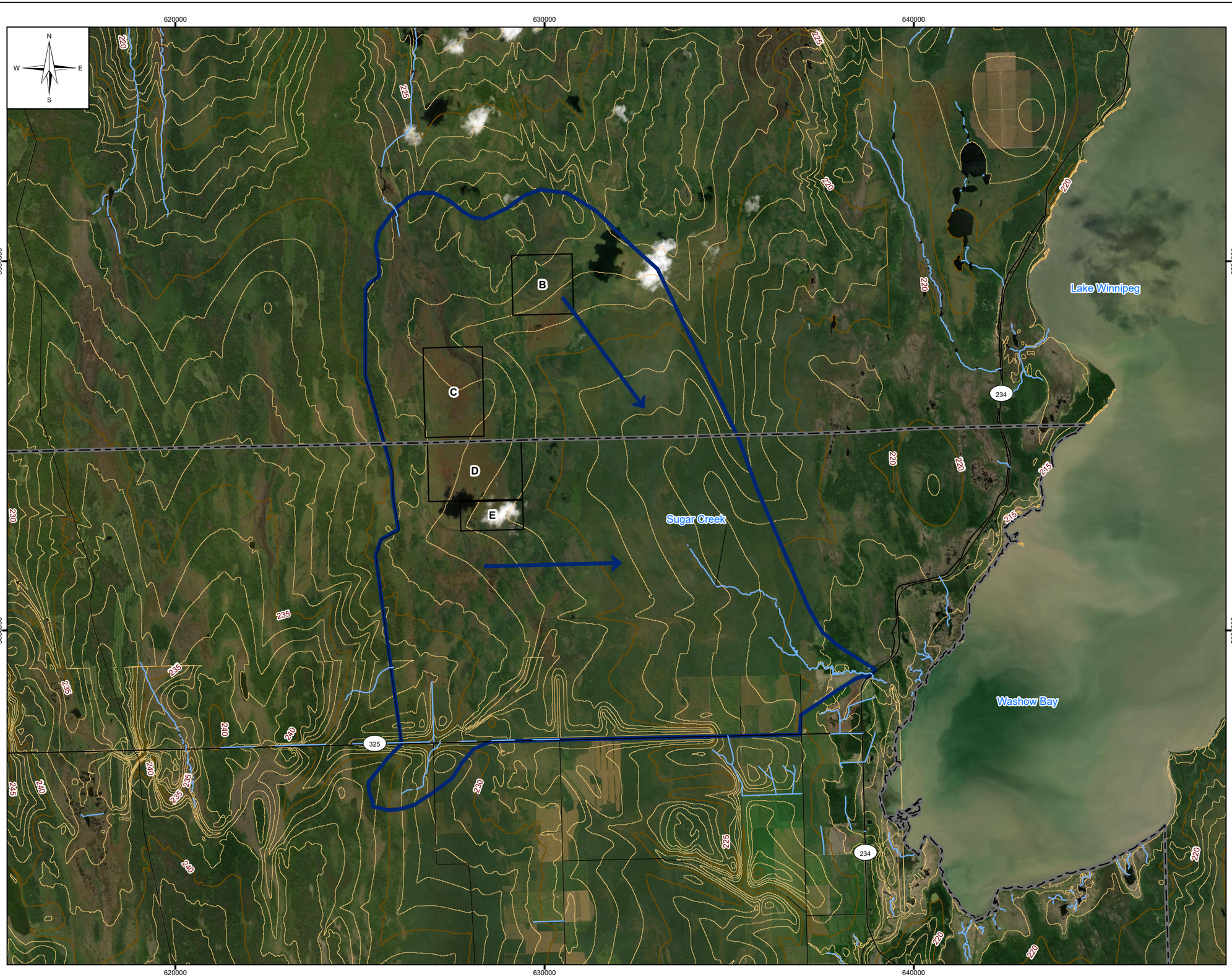



LEGEND:

- River
- Provincial Road
- Road
- Railway
- Sugar Creek Sub-Area Boundary
- Watershed Sub-Basin
- 1m CDEM Contour
- 5m CDEM Index Contour
- Rural Municipality Boundary
- Flow Direction

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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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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SUGAR CREEK
ENVIRONMENT ACT PROPOSAL

SURFACE WATER FLOW PATTERN

NOVEMBER 2022 | FIGURE 06 | REV: A

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11"x17" PLOT SCALE 1:1

# APPENDIX B

Public and Stakeholder Engagement Plan

KGS GROUP

# PUBLIC AND STAKEHOLDER 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 and stakeholder 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 and stakeholder 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.

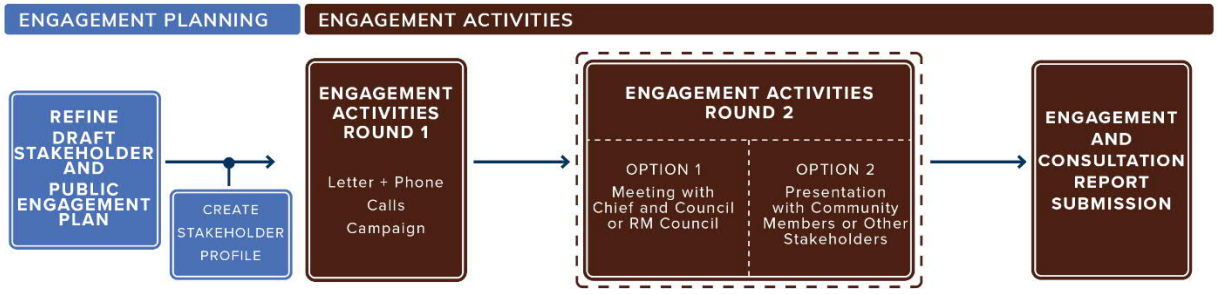
## OVERALL ENGAGEMENT OBJECTIVES

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 and Stakeholder 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 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<br>• Brokenhead Ojibway Nation<br>• Peguis First Nation<br>• Fisher River Cree Nation<br>• Lake St. Martin First Nation<br>• Little Saskatchewan First Nation<br>• Pinaymootang First Nation<br>• Dauphin River First Nation<br>• Berens River First Nation<br>• Kinonjeoshtegon First Nation<br>• Bloodvein First Nation<br>• Hollow Water First Nation<br>• Sagkeeng / Fort Alexander First Nation<br>• Manitoba Metis Federation |
| Communities and Municipalities: | • Municipality of Bifrost-Riverton<br>• Dallas/Red Rose-Northern Affairs Act<br>• Fisher Bay-Northern Affairs Act |

Other local organization:

- Manitoba Trapper's Association
- Snowman Inc. - the Snowmobilers of Manitoba
- All Terrain Vehicle Association of Manitoba

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

## 4. STAKEHOLDER 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 as identified in the stakeholder 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 Indigenous communities 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 Indigenous and non-Indigenous community stakeholders, with approval from Sun Gro.

Option 2: Community Meeting with the public and stakeholders

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 C

Aquatic Habitat Assessment

KGS GROUP

# 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

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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 |

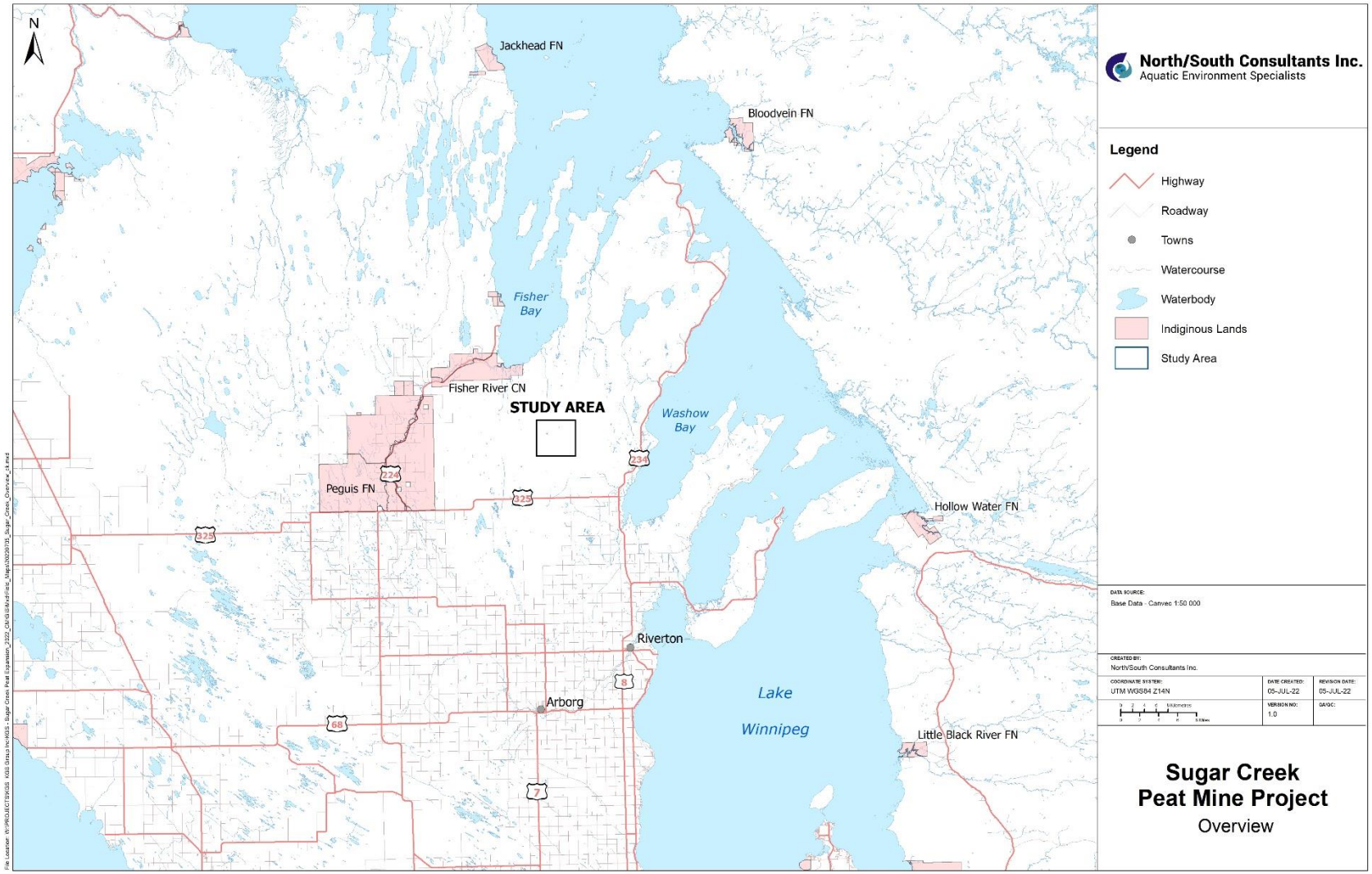


Figure 1. Sugar Creek peat harvesting development aquatic habitat assessment study area, Manitoba.

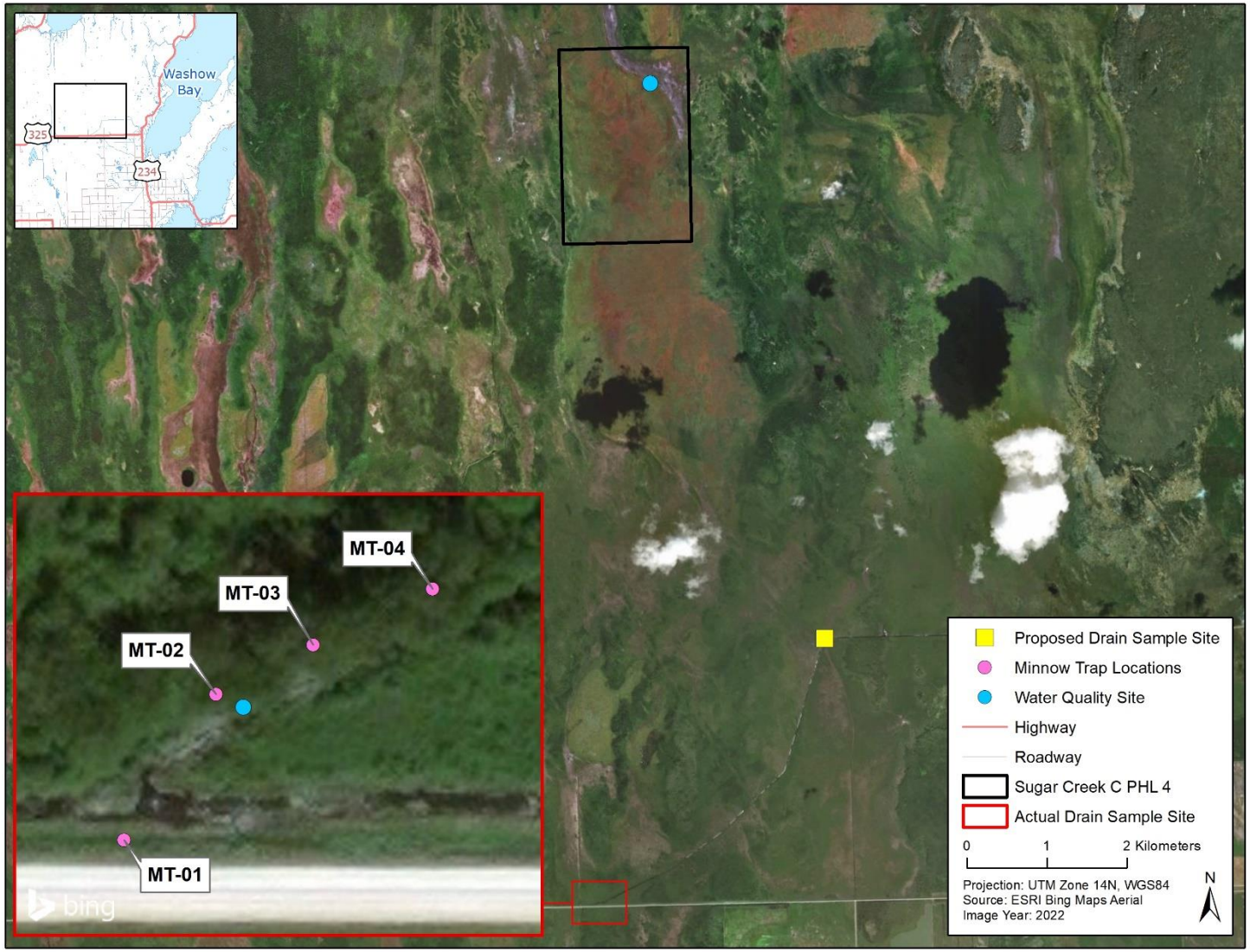


Figure 2. Water quality and aquatic habitat assessment locations at the Sugar Creek peat harvesting development, Manitoba.

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 D

Biological Surveys Species Tables

KGS GROUP

## TABLE 1
## VEGETATION SPECIES LIST

| Species | | Recording Location | | | | | | | | | | | | Ranking | | | Protection | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common Name | Latin Name | V1 | V2 | V3 | V4 | V5 | V6 | V7 | V8 | V9 | V10 | V11 | Incidental | Provincial | National | Global | The Endangered Species and Ecosystems Act | Species At Risk Act | COSEWIC |
| Trees | | | | | | | | | | | | | | | | | | | |
| Balsam fir | Abies balsamea | | | | | | | | | | | | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Balsam poplar | Populus balsamifera | | | | | | | | | | | | x | G5T5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Black spruce | Picea mariana | x | x | x | x | x | x | x | x | x | x | x | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Paper (white) birch | Betula papyrifera | | | | | | | | | | | | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Tamarak (American larch) | Larix laricina | | x | x | x | x | x | | | | | | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Trembling aspen | Populus tremuloides | | | | | | | | | | | | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Shrubs | | | | | | | | | | | | | | | | | | | |
| Bog birch | Betula glandulosa | x | | | | x | | | | | | | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Bog rosemary | Andromeda polifolia | x | x | x | x | x | x | x | x | x | x | x | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Common Labrador tea | Rhododendron groenlandicum | x | x | x | x | x | x | x | x | x | x | x | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Creeping snowberry | Gaultheria hispidula | x | x | x | | x | x | x | x | x | x | x | x | G5 | N5 | S4S5 | Not Listed | Not Listed | Not Listed |
| Green alder | Alnus viridis | | | | | x | | | | | | | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Late lowbush blueberry | Vaccinium angustifolium | x | | | | | | | | | | | x | G5 | N5 | S4 | Not Listed | Not Listed | Not Listed |
| Leather leaf | Chamaedaphne calyculata | x | x | x | x | x | x | x | x | x | x | x | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Mountain cranberry (lignonberry) | Vaccinium vitis-idaea | x | x | x | x | x | x | x | x | x | x | x | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Pale (Bog) laurel | Kalmia polifolia | x | | | | x | | | | x | | | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Red-osier dogwood | Cornus sericea | | | | | | | | | | | | x | G5T5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Velvetleaf blueberry | Vaccinium myrtilloides | | | | | | | | | | | | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Herbaceous | | | | | | | | | | | | | | | | | | | |
| Bogbean | Menyanthes trifoliata | | | x | x | | | | | | | | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Cloudberry | Rubus chamaemorus | x | x | | | x | | x | | x | x | x | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Common horsetail | Equisetum arvense | | | | x | | | | | | | | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Marsh cinquefoil | Potentilla palustris | | | x | x | | | | | | | | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Northern pitcher plant | Sarracenia purpurea | | | x | x | x | x | | | | | | x | G5 | N5 | S4S5 | Not Listed | Not Listed | Not Listed |
| Small cranberry | Vaccinium oxycoccos | x | x | x | x | x | | | | | | | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Spiked water-milfoil | Myriophyllum sibiricum | | x | x | | | | | | | | | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Three-leaved false Solomon's seal | Maianthemum trifolium | | | | | x | | x | x | x | x | x | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Tuberous grass-pink | Calopogon tuberosus | | | | | | | | | | | | x | G5 | N4N5 | S2 | Not Listed | Not Listed | Not Listed |
| Graminoid | | | | | | | | | | | | | | | | | | | |
| Beaked sedge | Carex rostrata | | | | | x | | | x | | | | x | G5 | N5 | S4 | Not Listed | Not Listed | Not Listed |
| Bluejoint | Calamagrostis canadensis | | | | | | | | | | | | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Broad-leaved cattail | Typha latifolia | | | | | | | | | | | | x | G5 | N5 | S4S5 | Not Listed | Not Listed | Not Listed |
| Mud sedge | Carex limosa | | | | | | | | | | | | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Narrowleaf cotton-grass | Eriophorum angustifolium | | | x | x | x | | | x | | | | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Northern bog sedge | Carex gynocrates | x | x | | x | x | | x | | | | | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Tall cotton-grass | Eriophorum angustifolium | | | | | | | | | | | | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Three-seeded Sedge | Carex trisperma | | x | x | x | x | | | | | | | x | G5T5 | N5 | S4S5 | Not Listed | Not Listed | Not Listed |
| Water sedge | Carex aquatilis | | | x | | | | | | | | | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Woolgrass bulrush | Scirpus atrovirens | | | | | | | | | | | | x | G5 | N5 | SU | Not Listed | Not Listed | Not Listed |
| Non-Vascular Plant Species | | | | | | | | | | | | | | | | | | | |
| Beard lichen | Usnea spp. | | x | x | | | x | | x | x | x | x | x | G5 | N5 | SNR | Not Listed | Not Listed | Not Listed |
| Gray reindeer lichen | Cladonia rangiferina | | x | x | x | | x | x | x | x | | | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Knight's-plume moss | Ptilium crista-castrensis | | | | | | | | | | | | x | G5 | N5 | S4S5 | Not Listed | Not Listed | Not Listed |

| Species | | Recording Location | | | | | | | | | | | | Ranking | | | Protection | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common Name | Latin Name | V1 | V2 | V3 | V4 | V5 | V6 | V7 | V8 | V9 | V10 | V11 | Incidental | Provincial | National | Global | The Endangered Species and Ecosystems Act | Species At Risk Act | COSEWIC |
| Peat moss | Sphagnum sp. | x | x | x | x | x | x | x | x | x | x | x | x | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Red-stemmed feather moss | Pleurozium schreberi | | | | | | | | | | | | x | G5 | N5 | S4S5 | Not Listed | Not Listed | Not Listed |

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

## TABLE 2
## WILDLIFE SPECIES LIST

| Species | | Recording Location | | | | | | | | | Ranking | | | Protection | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common Name | Latin Name | ARU 1 | ARU 2 | ARU 3 | ARU 4 | ARU 5 | ARU 6 | ARU 7 | ARU 8 | Incidental | Provincial | National | Global | The Endangered Species and Ecosystems Act | Species At Risk Act | COSEWIC |
| Amphibians | | | | | | | | | | | | | | | | |
| Boreal Chorus Frog | Pseudacris maculata | x | x | x | x | x | x | x | x | | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Gray Treefrog | Hyla versicolor | x | x | x | x | x | x | x | x | | G5 | N5 | S4S5 | Not Listed | Not Listed | Not Listed |
| Spring Peeper | Pseudacris crucifer | x | x | x | x | x | x | x | x | | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Mammals | | | | | | | | | | | | | | | | |
| American Beaver | Castor canadensis | | | | | | | | | Vi, Bd | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| American Black Bear | Ursus americanus | | Tr | | | | Tr | Tr | Tr | | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Bobcat | Lynx rufus | | | | | | | | | Vi | G5 | N5 | S3 | Not Listed | Not Listed | Not Listed |
| Common Muskrat | Ondatra zibethicus | | | | | | | | | Vi | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Gray Wolf | Canus lupus | | | | | | | | | Sc, Tr | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Moose | Alces americanus | | | | | | | | | Br | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Red Squirrel | Tamiasciurus hudsonicus | Vi | Vi | | | Vi | Vi | | | | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| White-tailed deer | Odocoileus virginianus | | | | | | | | | Vi | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Avian | | | | | | | | | | | | | | | | |
| Alder Flycatcher | Empidonax alnorum | | | | x | | x | x | x | | G5 | N5B,N5M | S5B | Not Listed | Not Listed | Not Listed |
| American Crow | Corvus brachyrhynchos | | | | | | | x | | | G5 | N5B,N5N,N5M | S5B,SUN | Not Listed | Not Listed | Not Listed |
| American Goldfinch | Spinus tristis | | | | | | | x | | | G5 | N5B,N5N,N5M | S5B | Not Listed | Not Listed | Not Listed |
| American Redstart | Setophaga ruticilla | | | | | | x | | | | G5 | N5B,N5M | S5B | Not Listed | Not Listed | Not Listed |
| American Robin | Turdus migratorius | | | | x | | | | x | | G5 | N5B,N4N5N,N5M | S5B | Not Listed | Not Listed | Not Listed |
| American Woodcock | Scolopax minor | | | | | | | | | x | G5 | N5B,N5M | S4B | Not Listed | Not Listed | Not Listed |
| Black and White Warbler | Mniotilta varia | | | | | | | | | x | G5 | N5B,N5M | S5B | Not Listed | Not Listed | Not Listed |
| Blue Jay | Cyanocitta cristata | | | | | | | | x | | G5 | N5B,N5N,NNRM | S5 | Not Listed | Not Listed | Not Listed |
| Boreal Owl | Aegolius funereus | | | | x | | x | | | | G5 | N5B,N5N,NUM | S4 | Not Listed | Not Listed | Not Listed |
| Broad-winged Hawk | Buteo platypterus | | | | | | | | | x | G5 | N5B,N5M | S5B | Not Listed | Not Listed | Not Listed |
| Canada Goose | Branta canadensis | | x | x | x | x | x | x | x | | G5 | N5B,N5N,N5M | S5B | Not Listed | Not Listed | Not Listed |
| Cedar Waxwing | Bombycilla cedrorum | | | | | | | | | x | G5 | N5B,N5N,N5M | S5B,SUN | Not Listed | Not Listed | Not Listed |
| Chestnut-sided Warbler | Setophaga pensylvanica | | | | | | | | | x | G5 | N5B,N5M | S5B | Not Listed | Not Listed | Not Listed |
| Chipping Sparrow | Spizella passerina | | | | | | | x | | | G5 | N5B,N5M | S5B | Not Listed | Not Listed | Not Listed |
| Clay-colored Sparrow | Spizella pallida | | x | | x | | | x | | | G5 | N5B,N5M | S5B | Not Listed | Not Listed | Not Listed |
| Common Nighthawk | Chordeiles minor | x | | | | | | | | | G5 | N4B,N3M | S3B | Threatened | Threatened | Threatened |
| Common Raven | Corvus corax | | x | x | x | | | x | | | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Common Yellowthroat | Geothlypis trichas | | | | x | x | | x | | | G5 | N5B,N5M | S5B | Not Listed | Not Listed | Not Listed |
| Connecticut Warbler | Oporornis agilis | | | | | | x | x | | | G4G5 | N5B,N4N5M | S4B | Not Listed | Not Listed | Not Listed |
| Dark-eyed Junco | Junco hyemalis | | | | | | | x | | | G5 | N5B,N5N,N5M | S5B,SUN | Not Listed | Not Listed | Not Listed |
| Eastern Whip-poor-will | Antrostomus vociferus | x | | | | | | | | | G5 | N4B,N3M | S3B | Threatened | Threatened | Threatened |
| Gray Jay | Perisoreus canadensis | x | | | x | x | | | | | G5 | N5B,N5N,NUM | S5 | Not Listed | Not Listed | Not Listed |
| Great Blue Heron | Ardea herodias | | | | | | | | | x | G5 | N5B,N3N,N5M | S5B | Not Listed | Not Listed | Not Listed |
| Greater Yellowlegs | Tringa melanoleuca | | | x | | | x | x | | | G5 | N5B,N4N,N5M | S5B,SUM | Not Listed | Not Listed | Not Listed |
| Golden-crowned Kinglet | Regulus satrapa | | | x | | | | | | | G5 | N5B,N5N,N5M | S4B | Not Listed | Not Listed | Not Listed |
| Hairy Woodpecker | Picoides villosus | | | | | | | | | x | G5 | N5B,N5N,NUM | S5 | Not Listed | Not Listed | Not Listed |
| Hermit Thrush | Catharus guttatus | x | x | x | x | x | x | x | x | | G5 | N5B,NUN,N5M | S5B | Not Listed | Not Listed | Not Listed |
| House Wren | Troglodytes aedon | | | | | | | x | | | G5 | N5B,N5M | S5B | Not Listed | Not Listed | Not Listed |
| Lincoln's Sparrow | Melospiza lincolnii | | | x | x | x | | | | | G5 | N5B,N5N,N5M | S5B | Not Listed | Not Listed | Not Listed |

| Species | | Recording Location | | | | | | | | | Ranking | | | Protection | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Common Name | Latin Name | ARU 1 | ARU 2 | ARU 3 | ARU 4 | ARU 5 | ARU 6 | ARU 7 | ARU 8 | Incidental | Provincial | National | Global | The Endangered Species and Ecosystems Act | Species At Risk Act | COSEWIC |
| Mallard | Anas platyrhynchos | | | | x | x | | | | | G5 | N5B,N5N,N5M | S5B | Not Listed | Not Listed | Not Listed |
| Marsh Wren | Cistothorus palustris | | | | | | | | x | | G5 | N5B,N5N,N5M | S5B | Not Listed | Not Listed | Not Listed |
| Mourning Dove | Zenaida macroura | | | | x | x | | x | x | | G5 | N5B,N5N,N5M | S4B | Not Listed | Not Listed | Not Listed |
| Nashville Warbler | Oreothlypis ruficapilla | | | | | x | x | x | x | | G5 | N5B,N5M | S5B | Not Listed | Not Listed | Not Listed |
| Olive-sided Flycatcher | Contopus cooperi | | | | | | x | x | | | G4 | N4B,N3M | S3B | Threatened | Threatened | Threatened |
| Ovenbird | Seiurus aurocapilla | x | | | | | | | x | | G5 | N5B,N5M | S5B | Not Listed | Not Listed | Not Listed |
| Pileated Woodpecker | Dryocopus pileatus | | | | | | x | | | | G5 | N5 | S5 | Not Listed | Not Listed | Not Listed |
| Red-eyed Vireo | Vireo olivaceus | | | | | x | | | x | | G5 | N5B,N5N,N5M | S5B | Not Listed | Not Listed | Not Listed |
| Ruby-crowned Kinglet | Regulus calendula | x | x | x | | x | x | x | x | | G5 | N5B,N5N,N5M | S5B | Not Listed | Not Listed | Not Listed |
| Sandhill Crane | Grus canadensis | x | x | x | x | x | x | x | x | | G5 | N5B,N1N,N5M | S5B | Not Listed | Not Listed | Not Listed |
| Song Sparrow | Melospiza melodia | | | x | x | x | | x | x | | G5 | N5B,N5N,N5M | S5B | Not Listed | Not Listed | Not Listed |
| Spruce Grouse | Falcipennis canadensis | | | | | | | | x | | G5 | N5 | S4 | Not Listed | Not Listed | Not Listed |
| Swamp Sparrow | Melospiza georgiana | x | x | x | x | x | x | | x | | G5 | N5B,NUN,N5M | S5B | Not Listed | Not Listed | Not Listed |
| Veery | Catharus fuscescens | | | | x | x | | | | | G5 | N5B,N5M | S5B | Not Listed | Not Listed | Not Listed |
| White-throated Sparrow | Zonotrichia albicollis | x | x | x | x | x | x | x | x | | G5 | N5B,N5N,N5M | S5B | Not Listed | Not Listed | Not Listed |
| Winter Wren | Troglodytes hiemalis | | x | | | | | | | | G5 | N5B,N5M | S5B | Not Listed | Not Listed | Not Listed |
| Wilson's Snipe | Gallinago delicata | x | x | x | x | x | x | x | x | | G5 | N5B,N5M | S5B | Not Listed | Not Listed | Not Listed |
| Yellow Warbler | Setoophaga petechia | | | | | | | | x | | G5 | N5B,N5M | S5B | Not Listed | Not Listed | Not Listed |
| Yellow-rumped Warbler | Setophaga coronata | x | x | x | x | x | x | x | x | | G5 | N5B,N4N,N5M | S5B | Not Listed | Not Listed | Not Listed |

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