ENVIRONMENTAL ASSESSMENT WORKSHEET

This Environmental Assessment Worksheet (EAW) form and EAW Guidelines are available at the Environmental Quality Board's website at:
Environmental Quality Board **EAW Guidance for Practioners and Proposers**

The EAW form provides information about a project that may have the potential for significant environmental effects. The EAW Guidelines provide additional detail and resources for completing the EAW form.
Cumulative potential effects can either be addressed under each applicable EAW Item, or can be addresses collectively under EAW Item 19.
Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

1. **Project title:** Star of the North Walking Trail Project

2. **Proposer:**
   Minnesota Department of Natural Resources
   Contact person: Charlie Tucker
   Title: Red Lake WMA Assistant Manager
   Address: P.O. Box 100
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   Phone: (218) 783-6861
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   Email: charles.tucker@state.mn.us

3. **RGU:**
   Minnesota Department of Natural Resources
   Contact person: Cynthia Novak-Krebs
   Title: Intermediate Planner
   Address: 500 Lafayette Road, Box 25
   Division of Ecological & Water Resources
   City, State, ZIP: St. Paul, MN 55155
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4. **Reason for EAW Preparation:** (check one)

Required:	Discretionary:
☐EIS Scoping	☐ Citizen petition
☑ Mandatory EAW	☐ RGU discretion
	☐ Proposer initiated

   If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s): Recreational Trails, Minnesota Rules part 4410.4300, subpart 37A: Constructing a trail at least ten miles long on naturally vegetated land for a recreational use other than snowmobiling or cross-country skiing.

5. **Project Location:**
   County: Lake of the Woods and Roseau Counties
   City/Township: No Cities/The project area falls within 7 townships that are listed below.
   PLS Location (¼, ¼, Section, Township, Range):

County	Township	Range	Section	Quarter
39	159	35	7	NWSE, SESW,SWSE,NESE
			8	NENW,NESW,NWNW,SENW,SESW,SWNW
			17	NENW,NWNW,NWSW,SWNW,SWSW
			18	NWSW,NESW,NWSE,SWNE,NWNE
			19	NENE,NENW,NWNE, NWNW
			20	NWNW
39	159	36	9	SESE,SWSE
			10	SWSW
			13	NESE,NWSE,SWSE
			15	NENW,NWNE,NWNW,NWSE,SESE,SWNE,SWSE
			16	NENW,NWNE,NWNW,NWSE,SESE,SWNE,SWSE
			17	NENE,NENW,NWNE,NWNW
			18	NENE,NWNE,SENW,SWNE
			19	NENW,NWNE,NWNW,SENE,SWNE,SWNW
			20	NESE,NESW,NWSE,SENW,SWNW
			21	NESE,NESW,NWSE,NWSW
			22	NENE,NESE,NESW,NWSE,NWSW,SENE
			23	NENE,NESW,NWNE,NWSW,SENW,SESE,SESW,SWNE,SWNW, SWSE
			24	NENE,NESW,NWNW,NWSE,SENE,SESW,SWNE,SWSW,SWNW, SENW,NWNE
39	160	36	5	NWSW,SWNW,SWSW
			6	NENE,NESE,NWNE,NWSW,SENE,SENW,SWNE,SWNW
			8	NENW,NESE,NESW,NWNW,NWSE,NWSW,SENW,SESE,SENE, SWNW,SWSE
			17	NENE,NENW,NESW,NWNE,NWNW,NWSE,SENW,SESW,SWNE, SWNW,SWSW
			18	NESW,NWSE,NWSW,SESE,SESW,SWNW,SWSE
			19	NENE,SENE
			20	NENW,NWNW,SWNW
68	159	37	1	NENW,NESW,NWNE,NWSW,SENW,SWNE
			2	NESE,SESE,SWSE
			6	NENW,NESW,NWSE,SENW,SESW,SWSE
			7	NENE,NENW,NWNE,NWSE,SENE,SENW,SWNE,SWSE
			11	NESE,NWNE,SENE,SWNE,NWSW,SWSW
			12	NWSW,SWSW
			13	NWNW,SENE,SENW,SWNE,SWNW
			17	SWSW
			18	NESE,NWNE,SENE,SESE,SWNE
			20	NENW,NWNE,NWNW,NWSE,SENE,SESW,SWNE,SWSE
			24	NESE,NWSE,SENE,SESE,SWNE,SWSE
			25	NESW,NWNE,NWSE,NWSW,SWNE,SWSW

County	Township	Range	Section	Quarter
			26	SESE,SESW,SWSE,SWSW
			27	SESE,SESW,SWSE,SWSW
			28	SWSW
			29	NWNE,NWSE,SESE,SWNE,SWSE
			33	NENE,NWNW,SENE,SENW,SWNE,SWNW
			34	NENW,NWNW,SENW,SWNW
68	160	37	1	NESE,NESW,NWSE,NWSW,SENW,SESW,SWNW,SWSE
			2	NENW,SENE,SENW,SWNE
			3	NENW,NESW,NWNW,NWSW,SWNW,SWSW
			8	SESW,SWSE
			9	NESE,SESE,SESW,SWSE,SWSW
			10	NWNW,NWSW,SWNW
			12	NENW,NWNE
			13	NESE,SENE,SESE
			16	NWNW
			17	NENE,NENW,NWNE,NWNW,SWNW
			18	SWNE,NESW,NWSE,NWSW,SENE,SESW,SWSW
			19	NWNW,NWSW,SWNW,SWSW
			24	NENE,NENW,NESW,NWNE,NWSE,NWSW,SENW,SESW,SWNE, SWSE
			25	NENW,NESW,NWNE,NWSE,SENW,SESE,SWSE
			30	NENW,NESW,NWNW,NWSW,SENW,SESW,SWNW
			31	NENW,NESW,SENW,SESW
			36	NENE,NESW,NWNE,SENW,SESW,SWNE
68	161	36	32	SESW,SWSW
68	161	37	34	NESE,SESE
			35	NESW,NWSW,SESE,SESW,SWSE

Watershed (81 major watershed scale): Roseau River; Lake of the Woods
GPS Coordinates: Approximately 322819N, 5388611W Zone 15N
Tax Parcel Number: Multiple

077-331911000	077-332011000	077-321911000	077-321921000
077-322021000	077-322011000	077-322032000	077-322121000
077-322211000	077-322221000	077-322311000	077-322323000
077-322333000	077-322311000	077-322411000	077-322421000
077-322422000	077-322411000	077-322422000	135-34.3000400
135-34.3000400	135-34.3000400	077-330713000	077-330711000
077-330741000	077-330821000	077-330811000	077-330831000
077-331711000	077-331731000	077-331821000	077-320933000
077-321033000	077-321313000	077-321313000	077-321341000
077-321511000	077-321522000	077-321531000	077-321612000
077-321622000	077-321711000	077-251711000	077-252011000

077-331822000	077-321811000	077-321821000	077-251811000
077-251911000	135-34.3001000	135-36.3000400	135-36.3001000
135-36.3000400	135-34.3000400	135-34.3000400	135-34.3000400
077-250811000	077-251721000	077-251821000	135-40.3000801
135-36.3000401			

At a minimum attach each of the following to the EAW:

- **County map showing the general location of the project;**
- **U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable); and**
- **Site plans showing all significant project and natural features. Pre-construction site plan and post-construction site plan.**

See Table 1: Listing of Figures and Attachments.

Table 1: Listing of Figures and Attachments

Figure/Attachment	Description
Figure 1	County Map
Figure 2	USGS Topographic Map
Figure 3	Site Plan Map with Possible Gate Sites and Possible Parking (1-2 vehicles) Sites
Figure 4	Existing Trails and News Construction
Figure 5	Existing Trails and New Construction in Township 159 Range 35
Figure 6	Existing Trails and New Construction in Township 159 Range 36
Figure 7	Existing Trails and New Construction in Township 159 Range 37
Figure 8	Existing Trails and New Construction in Township 160 Range 36
Figure 9	Existing Trails and New Construction in Township 160 Range 37
Figure 10	Existing Trails and New Construction in Township 161 Range 36
Figure 11	Existing Trails and New Construction in Township 161 Range 37
Figure 12	Existing Trails and New Construction in Red Lake WMA
Figure 13	Trail Segments with Area with Limitations
Figure 14	Draft Trail Corridor and NRCS Soils Types
Figure 15	Public Waters
Figure 16	Draft Trail Corridor and Sites of Biodiversity Significance
Figure 17	High Conservation Value Forest
Attachment 1	Natural Heritage Program Letter
Attachment 2	SHPO Letter
Attachment 3	Sites of Outstanding & Moderate Biodiversity Significance

6. Project Description:

a. **Provide the brief project summary to be published in the *EQB Monitor*, (approximately 50 words).**

DNR proposes the Star of the North Walking Trail in Roseau and Lake of the Woods Counties. Trail designation includes approximately 29.5 miles of existing routes with 27.5 miles of new trail

development. This is a loop system totaling 57 miles of signed and maintained natural surface, walking trail corridor.

b. **Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize: 1) construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes, 2) modifications to existing equipment or industrial processes, 3) significant demolition, removal or remodeling of existing structures, and 4) timing and duration of construction activities.**

The proposed project would be a hunter walking trail with a naturally vegetated surface with mowing once per year. Approximately 57 miles long, both existing roads and trails as well as newly constructed trails comprise the project. As of January 1, 2017 approximately 8 miles have been completed. The Draft Trail corridor on Figure 4 shows the currently identified trail route proposal. This trail would include development of approximately 57 miles of vegetated pathways. Approximately 27.5 miles of this trail would consist of new trail construction. See Figure 4: Existing Trails and New Trail Construction. The remaining portions would follow existing Minimum Maintenance and State Forest Roads, as well as existing access routes and unmapped logging trails. The only permanent infrastructure would include signs and small gates with wooden posts and a cross bar identifying portions of the trail that are walking-only. See Figures 5 – 13 for proposed use of existing trails and new construction by affected townships, the Red Lake Wildlife Management Area (WMA), and an Area with Limitations on Off-Trail and Non-Designated Trail Use (i.e., Area with Limitations).

New construction would include trail mowing and limited gate installation, the latter consisting of wooden posts and a cross bar. If needed, some popular access points may include parking areas for 1-2 vehicles; parking would be created during maintenance mowing as ground conditions allow (i.e., no parking-related mowing in wet areas). Trail development would occur during the winter on frozen ground and annual mowing will be conducted in late summer. Development would include tree removal by chainsaw where necessary and subsequent brush and small tree clearing with a skid steer. Biomass removed from clearing would be left onsite. Gates would be installed the following summer. Annual maintenance mowing would be conducted in late summer.

c. **Project magnitude:**

Description	**Quantity**
Total Project Acreage	57 miles x 8 ft. wide = 55.3 acres
Linear project length (Trails)	Approximately 57 miles
Total Acreage of New Construction	27.5 miles x 8ft wide = 26.7 acres
Total Acreage of Existing Trails	29.5 miles x 8 feet wide = 28.6 acres
Number and type of residential units	0
Commercial building area (in square feet)	0
Industrial building area (in square feet)	0
Institutional building area (in square feet)	0
Other uses – specify (in square feet)	0
Structure height(s)	NOT APPLICABLE

d. **Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.**

The project is proposed and being developed by the Lake of the Woods Chapter of the Ruffed Grouse Society. This group is scouting the proposed trail areas, physically developing the trail after DNR review, and posting gates and signs at access points. After initial construction, maintenance would consist of annual mowing in late summer to be conducted by DNR Division of Fish and Wildlife.

There has been a long-standing need for additional, managed non-motorized access in the Beltrami Island State Forest. The need for additional non-motorized hunter access was expressed by this volunteer group when they proposed the project. This project is located within the Beltrami Island State Forest. This State Forest is classified as "Managed" for OHV use. This means that ATVs and highway licensed vehicles can travel on any existing forest trail unless there is a sign explicitly forbidding vehicle access. Motorized vehicle use of the forest is extensive and some hunters (and other recreationists) prefer areas where they can get away from motorized vehicles. This trail would provide additional recreational opportunities for non-motorized users. The Ruffed Grouse Society would be responsible for placing gates at locations determined by the DNR where ATV access would not be allowed. ATV users comply well with signs and gates on walking trails already established in the area and the expectation is that compliance on this trail would be similar.

The beneficiaries of this project include current and future forest recreationists. Lake of the Woods and Roseau Counties depend highly on consumptive recreation to drive the local tourism-based economy. This trail, when completed, would be a draw for hunters and non-consumptive recreationists alike.

e. **Are future stages of this development including development on any other property planned or likely to happen?** ☑ Yes ☐ No
If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

The project would likely be implemented over a course of several years. Although the exact physical location of the complete trail route has yet to be identified, the corridors evaluated in the EAW are a reasonable approximation to assess potential environmental effects.

f. **Is this project a subsequent stage of an earlier project?** ☑ Yes ☐ No
If yes, briefly describe the past development, timeline and any past environmental review.

The DNR Division of Fish and Wildlife routinely constructs and maintains hunter walking trails that are usually less than 2 miles in length. Approximately 8 miles of this trail were developed on State Forest and Land Utilization Project (LUP) lands without considering the total, end-project mileage that could be subject to the recreational trails mandatory EAW category. The first 8 miles of trail were developed during late winter in 2016 and 2017; this mileage is already constructed and is not represented in project mileages. The balance of trail remaining proposed for implementation is approximately 57 miles and the subject of this EAW.

7. **Cover types: Estimate the acreage of the site with each of the following cover types before and after development:**

	Before	After		Before	After
Wetlands	0	0	Lawn / landscaping	0	0
Deep water/streams	0	0	Impervious surface	0	0
Wooded/forest	51	51	Stormwater pond	0	0
Brush/Grassland	4.3	4.3	Other (describe)	0	0
Cropland	0	0			
			TOTAL	55.3	55.3

8. **Permits and approvals required: List all known local, state and federal permits, approvals, certifications and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure.** ***All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.***

Unit of government	Type of application	Status
DNR	Trail Designation Order	Not started

No special public funding would be used for this project. The trail is being financed by a non-profit group and subsequent maintenance would be furnished by normal operating budgets of the DNR. The Ruffed Grouse Society would not expend public funding or grant monies on this project. It is being funded by private donations.

Cumulative potential effects may be considered and addressed in response to individual EAW Item Nos. 9-18, or the RGU can address all cumulative potential effects in response to EAW Item No. 19. If addressing cumulative effect under individual items, make sure to include information requested in EAW Item No. 19

9. **Land use:**
   a. **Describe:**
      i. **Existing land use of the site as well as areas adjacent to and near the site, including parks, trails, prime or unique farmlands.**

The trail site is within Beltrami Island State Forest that is managed for multiple use and fiber production according to state statute. Portions of the trail would also enter Red Lake WMA, which is managed according to state statute for recreation and wildlife resources. Of the 57 miles of proposed trail, 9 miles would be within Red Lake WMA and the remaining 48 miles would be on State Forest land within Beltrami Island State Forest; see Table 2: Trail Mileage by Management Unit. Within the WMA, there would be 5.7 miles of new trail construction. Within the State Forest there would be 21.8 miles of new trail construction. See Figure 12 for a map of the portion of the trail within Red Lake WMA.

Table 2: Trail Mileage by Management Unit			
Miles of Trail*			
Management Unit	**Existing Trail**	**New Trail**	**Total**
State Forest	26.2	21.8	48.0
WMA	3.3	5.7	9.0
Total	29.5	27.5	57.0

*Does not include 8 miles of trail already constructed

The trail would not affect normal silvicultural practices. Walking trails are always open for timber access when appropriate. Typically, the walking trails are winter access trails. New portions of trail would also be open for timber access when appropriate, (i.e., when the trail is not too wet to support heavy equipment or similar).

ii. Plans. Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.

State forest planning is done through the Section Forest Resource Management Plan (SFRMP). Planning for the project area is under the Northern Minnesota and Ontario Peatlands Section. The SFRMP is now underway and is expected to be completed in 2018.

Ruffed grouse management in Minnesota is addressed in the plan "Ruffed Grouse in Minnesota: A Long-Range Plan for Management (April 2012). A goal of the plan is to establish new hunter walking trails that pass through mixed forest types where motorized vehicles are not permitted.

Portions of the planned trail cross federal Beltrami Island Land Utilization Project (LUP) lands which are managed according to a Comprehensive Conservation Management Plan (2013). The plan identifies appropriate wildlife and ecosystem management techniques as well as recreational opportunities for ownerships within the planning unit.

Portions of the proposed trail would enter Red Lake WMA. Red Lake WMA is managed according to a WMA Management Plan 1980-89 that identifies wildlife resources and recreational opportunities for the area.

The DNR's Conservation Agenda 2015-2025 outlines a 10-year strategic plan for natural resource management, including goals for outdoor recreation. This trail will help accomplish several outdoor recreation goals outlined in the agenda including: "expanding hunter recruitment and retention" by providing increased access to hunting areas, meeting "modern standards and preferences for trails", and "providing high-quality visitor experiences by investing in innovative facility designs, new technologies and improvements to existing buildings and trails."

<u>Forest Classification for Motorized Use</u>

Beltrami Island State Forest is classified as a managed forest with regards to ATV/OHV access. This means that ATV/OHVs can travel on existing roads and trails unless they are posted closed. Portions of this trail where new trail is constructed would be closed to ATV/OHVs. Other trail sections would be

evaluated independently. If unsustainable ATV use is occurring, then these sections may be walking only. Other sections would remain open to ATV/OHVs as shared sections of trail.

The Phase II Forest Road and Trail Designation process for the Beltrami Island State Forest is underway. Management options not implemented during the Phase I process (2003-2008) would be implemented, including identification and designation of hunter/walking trail opportunities.

Portions of the trail in Township 159N, Range 37W fall within an Area with Limitations. These areas are closed to ATV use by eliminating hunter/trapper exceptions in a state forest classified as "managed" for OHV use. This area is displayed in Figure 13.

iii. Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc.

NOT APPLICABLE

b. Discuss the project's compatibility with nearby land uses, zoning, and plans listed in Item 9a above, concentrating on implications for environmental effects.

Regarding the ongoing Northern Minnesota and Ontario Peatlands SFRMP, the Preliminary Issues and Assessment (2014) indicates the SFRMP does not address trails systems or planning. It does however establish wildlife habitat goals but does not address goals for wildlife population levels. Because no changes in forest condition are proposed with the project, it is compatible with the objectives of the SFRMP, especially project objectives to avoid tree removal wherever possible.

The proposed project is consistent with the objectives of the long-range management plan for ruffed grouse because it involves the construction and/or designation of additional hunter walking trail. The type and degree of impacts aligns with that envisioned in the plan.

The project aligns with the management goals and objectives for the federally-managed LUP lands in the Beltrami Island Comprehensive Conservation Management Plan.

The project is compatible with DNR's Conservation Agenda by providing opportunities for increased managed access for hunters into the Beltrami Island State Forest and Red Lake WMA.

One objective of the Red Lake WMA Master Plan is for management to provide quality hunting, trapping, fishing, and other compatible fish and wildlife-related recreation. That portion of the project that crosses the WMA is consistent with this plan objective.

The project is compatible with the ongoing Phase II Forest Road and Trail Designation process for the Beltrami Island State Forest.

c. Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 9b above.

NOT APPLICABLE. The project is compatible with relevant plans and land use prescriptions.

10. Geology, soils and topography/land forms:

a. **Geology - Describe the geology underlying the project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.**

The project area is within Beltrami Island State Forest. This state forest is entirely within the former Glacial Lake Agassiz. The area is comprised of extensive peatlands interwoven with sand ridges that were formed on the former lake bed. Most upland areas are contained on these sand ridges, which is where one can find deciduous and coniferous forests. The peatlands would be avoided by this project because they do not contain suitable terrain for walking trails. The trail would stay within upland forest whenever possible, however short wet areas are likely to be crossed by the trail. These areas would not be mowed because it may be physically impossible and because of potential adverse impacts to the resource. No cover type changes and no management would occur in wet areas. Current access trails that are open to ATVs, but contain wetland vegetation and wet soils where unsustainable vehicle use is currently occurring, may be closed where practical as part of this project. Because of this, wetland impacts in the Beltrami Island area caused by recreational activities may decrease as a result of this project.

b. **Soils and topography - Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 11.b.ii.**

Because the project area is a former lake bottom, it is very flat and erosion from topography is uncommon in the area. Soils in the upland portion of the project area are typically very sandy. Wet areas can be comprised of peat soils.

There would be no soil excavation as part of this project and no impacts to soil from project construction or operation. Trails would be developed in the winter on frozen ground to minimize soil compaction. Mowing activities would occur in late summer. Project-related erosion and stormwater runoff are not anticipated.

Table 3: Trail Mileage by Soil Types	
Soil Type	**Length (miles)**
Cathro-Seelyeville-Markey (MN065)	7.1
Cormant-Meehan-Epoufette (MN023)	46.9
Rifle-Tacoosh-Seelyeville (MN066)	1.9

See Figure 14 for a map of the trail with NRCS soil types labeled.

NOTE: For silica sand projects, the EAW must include a hydrogeologic investigation assessing the potential groundwater and surface water effects and geologic conditions that could create an increased risk of potentially significant effects on groundwater and surface water. Descriptions of water resources and potential effects from the project in EAW Item 11 must be consistent with the geology, soils and topography/land forms and potential effects described in EAW Item 10.

11. Water resources:

a. **Describe surface water and groundwater features on or near the site in a.i. and a.ii. below.**

i. **Surface water - lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s), if any.**

The trail route is designed to avoid surface water. No public waters basins would be crossed. Refer to Table 4: Public Waters within Project Vicinity for a listing of public waters occurring within one mile of the project. See Figure 15 for a map of public water courses near the project area.

Table 4: Public Waters within Project Vicinity

Inventory Number	Name
20085	Red WMA Dam #3
19767	Unnamed
19915	Mud
19766	Unnamed
19768	Unnamed
16158	Unnamed
16156	Unnamed
20084	Red WMA Dam #4
16157	Red WMA Dam #1
4279	Unnamed
4278	Unnamed
20086	Unnamed
39042	Unnamed stream
39041	Warroad River, West Branch
39050	Hansen Creek
4001	Roseau River

Public waters and public watercourses would be avoided or crossed at locations of pre-existing infrastructure such as State Forest road crossings; see Table 5: Public Water Crossings. Other wetlands such as small sedge meadows within the forest would also be avoided. More generally, a project goal is to avoid wet areas and route the trail into adjacent uplands whenever possible. However, when avoidance of small wet areas is not possible, these sections of trail would not be cleared of trees or maintained (i.e., no mowing). Foot traffic would tend to go around these areas through taller vegetation to follow the trail.

Table 5: Public Water Crossings					
Waterbody	**Township**	**Range**	**Section(s)**	**Road Name**	**Existing Crossing Type**
Hansen Creek	159	37	16/17	Neheim	culvert
Hansen Creek	159	37	17/18	Stotts	culvert
Hansen Creek	159	37	10/15	Winner	culvert
Hansen Creek	159	37	11/12	snowmobile trail	snowmobile bridge
Unnamed Warroad River Tributary	160	36	6	Smith & Stacy	culvert

ii. **Groundwater – aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine this.**

Groundwater is usually close to the surface in the Beltrami Island State Forest area. There are no wells in the project area. It is known that there are no wells in the project area because the project area is on public land. Any wells in these areas would be wells existing from the homestead era in the early 1900s. These wells were systematically closed when the land was turned back over to the State. Although uncommon, if existing wells are found on State land they are immediately sealed.

b. **Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.**

i. **Wastewater - For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.**

1) If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.

NOT APPLICABLE

2) If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system.

NOT APPLICABLE

3) If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges.

NOT APPLICABLE

ii. **Stormwater - Describe the quantity and quality of stormwater runoff at the site prior to and post construction. Include the routes and receiving water bodies for runoff from the site (major downstream water bodies as well as the immediate receiving waters). Discuss any environmental effects from stormwater discharges. Describe stormwater pollution prevention plans including temporary and permanent runoff controls and potential BMP site locations to manage or treat stormwater runoff. Identify specific erosion control, sedimentation control or stabilization measures to address soil limitations during and after project construction.**

No measurable effects to stormwater runoff leaving the state forest are anticipated as a result of this project. The entire project area will remain vegetated before, during, and after project implementation. Although soil disturbance is not anticipated (as also noted in EAW Item 10b), if initial construction-related clearing activity results in one or more acres of soils disturbance, then an MPCA National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Permit would be required. MPCA advises the entire plan of both past and future trail development should be considered in determining whether an acre or more of soil disturbance would occur with the project. If the project is implemented, the Proposer will monitor future activity and if soil disturbance is occurring, MPCA would be contacted under the appropriate permit application procedures.

iii. **Water appropriation - Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use and purpose of the water use and if a DNR water appropriation permit is required. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation.**

The project does not propose any appropriation of surface or groundwater resources.

iv. **Surface Waters**

a) **Wetlands – Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed, and identify those probable locations.**

The project would not affect or alter wetland features. There would be no draining, filling, inundation, dredging, or wetland vegetation removal as a result of this project. Major wetlands and water courses would be crossed using existing infrastructure such as State Forest Road crossings. Smaller wetlands would be avoided because they do not make for desirable walking conditions. When the trail crosses

small areas of sedge meadow (e.g., one acre or less), these portions of the trail would not be maintained or cleared of trees. Because trail maintenance would only occur during the summer, and equipment is not able to cross wet areas without getting stuck, wetland areas would be avoided thus avoiding impacts.

b) **Other surface waters- Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and riparian alteration. Discuss direct and indirect environmental effects from physical modification of water features. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering the water features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage.**

No effect or alterations to surface water features are anticipated as a result of this project.

12. Contamination/Hazardous Materials/Wastes:

a. **Pre-project site conditions – Describe existing contamination or potential environmental hazards on or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.**

No contamination risks are associated with project implementation. The whole project is located within a state forest and wildlife management area. No underground infrastructure is located within the project area.

b. **Project related generation/storage of solid wastes – Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solid waste including source reduction and recycling.**

No solid waste would be generated by this project.

c. **Project related use/storage of hazardous materials – Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any above or below ground tanks to store petroleum or other materials. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverse effects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.**

The proposed project is a small operation. No hazardous materials would be used in construction or maintenance of this project. Diesel fuel would be used to run a skidsteer, but no above-ground or below-ground storage tanks are required. A spill clean-up kit would be available on-site in case of a diesel fuel spill.

d. **Project related generation/storage of hazardous wastes – Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling.**

Potential hazardous waste includes generation of standard waste products associated with operating a skidsteer. Hydraulic fluid and engine oil would be properly disposed of off of the project site.

13. Fish, wildlife, plant communities, and sensitive ecological resources (rare features):

a. Describe fish and wildlife resources as well as habitats and vegetation on or in near the site.

General Landscape Characteristics

The proposed project site is located within a subsection of the Ecological Classification System (ECS) called the Agassiz Lowlands. Peatlands are dominant with the subsection characterized by a flat, poorly drained lake plain. Local topographic relief is less than 50 feet on most of the plain. The peatlands are dominated by bog forest species (black spruce and tamarack). Upland sites are commonly vegetated by aspen-birch and jack pine. Forestry, tourism, and hunting are the major land uses.

Much of this forest area was once an island in glacial Lake Agassiz. The shorelines of this ancient glacial lake created several low sandy ridges that extend in a general northwest-southeast direction in the forest. The ridges today are primarily covered with pine. These better drained soils support species such as red pine, aspen, and jack pine. They are surrounded by large areas of low flatlands and peat bogs. Lower areas are dominated by lowland conifers such as spruce, tamarack, and cedar. Small areas of birch, white pine, and some hardwoods such as ash, elm, and oak are interspersed.

Fish and Wildlife Resources

Fish and wildlife resources associated with this project area are the plants and animals associated with upland and bog forests and peatlands in the Agassiz Lowlands subsection.

Waterbodies and streams in the project area provide a variety of habitats for aquatic organisms. Typical fish species in water bodies crossed by the planned trail include northern redbelly dace (*Phoxinus eos*), brook stickleback (*Culaea inconstans*), and central mudminnow (*Umbra limi*).

The project is proposed to traverse large tracts of public lands that provide for the conservation of wildlife habitats, the promotion of outdoor recreation, and the production of wood products. The forest and wetlands provide moderate to highly valuable habitat for wildlife. Typical mammals include white tailed deer, coyote, red squirrel, and beaver. Bird species include spruce grouse, ruffed grouse, various breeding warblers and migratory songbirds, great gray owl, black-backed woodpecker, and raven.

b. Describe rare features such as state-listed (endangered, threatened or special concern) species, native plant communities, Minnesota County Biological Survey Sites of Biodiversity Significance, and other sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-____) and/or correspondence number (ERDB 20180094-0001) from which the data were obtained and attach the Natural Heritage letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.

The DNR Natural Heritage Information System (NHIS) rare features database was queried to identify rare features within a one mile radius of the proposed trail corridor. The following text addresses each natural heritage element identified in the database query. See Attachment 1 – Natural Heritage Program Letter.

Sites of Biodiversity Significance. The Minnesota Biological Survey (MBS) assigns biodiversity significance ranks to each survey site at the conclusion of work in a geographic region. These ranks are used to communicate the statewide native biological diversity importance of each site to natural resource managers, state and local officials, and the public. The intent of the rankings is to inform and guide future land management and resource conservation efforts. MBS assignments have been completed for Roseau County; preliminary assignments have been proposed for Lake of the Woods County. See Figure 16 for a depiction of Sites of Biodiversity Significance that occur along the proposed trail corridor in Roseau County.

The project area crosses the edge of one site of Outstanding Biodiversity Significance identified as the Luxemberg Peatland Main. This outstanding site is over 6500 acres in size and has this ranking due to the high integrity of the native plant communities. Communities found here are some of the best examples found across Minnesota and include the State-ranked imperiled water track rich fens and the more common, but extremely high quality spruce bogs, tamarack swamps, tamarack and spruce swamps, and low shrub poor fens. This patterned peatland lies at the western edge of its range and the western edge of the Agassiz Lowlands. It is dominated by rich ribbed fens with flark and featureless water track patterns. Wildlife found there include the least weasel, sandhill cranes, yellow rails, short-eared owls, and two darter species of special concern. Notable plants there include dragons-mouth orchids, the English sundew, small white waterlilies, rock sandwort, and blanketflower may be found.

The project area also crosses 14 sites of Moderate Biodiversity Significance, including: Elkwood 18; Elkwood 28; Elkwood 14; Elkwood 11; Elkwood 7; Bemis Ridge Main; Norris Camp Peatland West; Luxemberg Southeast; Luxemberg East; Luxemberg West; Luxemberg Peatland North; Hansen Creek; Elkwood 36; and Elkwood 17. “Moderate” sites contain occurrences of rare species, moderately disturbed native plant communities, and/or landscapes that have strong potential for recovery of native plant communities and characteristic ecological processes. The majority of these sites are located on or around the Beltrami-Pine Island Beach Ridge complex with large sections occurring on or along the Bemis Ridge. Upland plant communities include jack pine and aspen on dry sandy beach ridges, and mesic hardwood-conifer forests. Wetland communities interspersed between uplands include alder, tamarack, and conifer swamps in addition to wet meadow and poor fens between ridges. In addition to the least weasel and short-eared owl, wildlife found there includes the northern long-eared bat, little brown myotis, and northern goshawk. Notable plants include common mingan, least prairie and pale moonworts, as well as white waterlilies, rock sandwort, and St. Lawrence grapefern. See Attachment 3 for more

information on the Sites of Biodiversity Significance that occur along the proposed project corridor.

Old Growth Forest. The proposed project occurs in the vicinity of a stand of designated old growth forest. It is a cedar-type stand where the NHIS notes its ecological significance is such that disturbance should be avoided or minimized to the extent feasible. Trail development should stay out of the old growth stand if at all possible. If it must cross into the designated stand or the stand management zone (SMZ), then no old growth trees should be cut (only cut early successional species) and an interpretive sign would be provided as required under the DNR Old Growth Forest Guidelines.

State-listed Protected Species. The NHIS review identified the following state-listed plant species with known records in the project vicinity:

- The small-leaved pussytoe (Antennaria parivifolia) is a state-listed species of special concern. It is an open canopy plant typically associated with prairie or savanna. Given that almost all pre-settlement habitat has been lost, there is a limited amount of potential habitat remaining.
- Several species of ferns in the genus Botrychium occur in Beltrami Island State Forest, including in the project area. These state-listed species of special concern are in the group called grapeferns and moonworts. They can occur in a variety of habitats, ranging from open, grassy meadows to closed-canopy, older forests.
- The ram's head ladyslipper (*Cypripedium arietinum*) is state-listed threatened species documented within ¼ of the proposed corridor. A type of orchid, this species occurs in a variety of coniferous forest habitats. The species has always been considered biologically rare in Minnesota, but the reasons for this rarity are not entirely known.
- The small white waterlily (*Nymphaea leibergii)* is one of two species of white-flowered waterlily that occurs in Minnesota. It is a state-listed threatened species with documented occurrences in slow-moving streams, including Hansen Creek.
- The purse casemaker caddisfly (Hydroptila waskesia) is a state-listed endangered species. Its only known occurrence is Hansen Creek, which is a low gradient, silt-bottomed second order tributary of the Roseau River in the Beltrami Island State Forest. Little is known about the species.

Federally-listed Species. The NHIS review identified the following federal-listed animal species known within the project vicinity:

- Northern long-eared bats have been captured in the vicinity of this project. This species roosts and broods young in large trees that have shaggy bark, cavities, or otherwise exhibit signs of decay, particularly aspen.

Although not identified in the Natural Heritage Program's correspondence, both the Canada lynx and gray wolf are federally-listed species that occur in the project area.

- The historic range of the Canada lynx includes the project area. A USFWS survey conducted between the years 2000-2006 identified 6 "probable sightings" across Lake of the Woods and Roseau Counties. It is listed as a threatened species. Lynx population

cycles are related to snowshoe hare populations, which is typically associated with spruce and fir boreal forests.

- The project area is within the range of the gray wolf with both Roseau and Lake of the Woods counties identified as critical habitat by the USFWS. Collared-wolf packs were documented in the general area during the DNR 2016-17 Wolf Survey. It is listed as a threatened species. Principal prey include white-tailed deer, moose, beaver, snowshoe hare, and muskrat. Most wolves live in 2 to 11-member family packs and defend territories as small as 10 square miles to greater than 100 square miles.

Other rare natural resources or important habitat potentially affected by the project include:

Species of Greatest Conservation Need. The Minnesota Wildlife Action Plan 2015-2025 is a partnership-based conservation plan to ensure the long-term health and viability of Minnesota's wildlife with a focus on species that are rare, declining, or vulnerable to decline. Animals that meet this criteria occur in the Beltrami Island State Forest (where the project is proposed) and are known as Species of Greatest Conservation Need, or SGCN. Non-listed SGCNs include: hoary bat; silver-haired bat; large marble (butterfly); monarch butterfly; American kestrel; black-backed woodpecker; black-billed cuckoo; black tern; brown thrasher; Cape May warbler; common loon; common nighthawk; eastern whip-poor-will; golden-winged warbler; Le Conte's sparrow; olive-sided flycatcher; sedge wren; sharp-tailed grouse; and veery and western meadowlark. State-listed special concern species are little brown bat and short-eared owl, while the purse casemaker caddisfly is a state-listed endangered species, all of which are Minnesota SGCNs.

High Conservation Value Forest – Luxemberg Peatland. A High Conservation Value Forest (HCVF) is an area of outstanding biological or cultural significance where the DNR has committed to manage the site to maintain or enhance the identified high conservation values. The proposed project occurs in the vicinity of a DNR designated HCVF that surrounds most of the Luxemberg Peatland Scientific and Natural Area. The HCVF has the following high conservation values: patterned peatlands including extensive water tracks and well-defined ribbed fen patterns; multiple rare, imperiled and threatened plant communities; multiple rare threatened and special concern species; and many animal species of greatest conservation need. See Figure 17: High Conservation Value Forest.

Important Bird Areas. The DNR and Audubon Minnesota are jointly participating in the Important Bird Area (IBA) program, which is a voluntary, non-regulatory international effort to conserve critical bird habitats. The Big Bog IBA includes all of the Red Lake WMA and part of the Beltrami Island State Forest north of the WMA. For the proposed project, this includes proposed trail occurring in: T159N, R35W; T159N, R36W. The Audubon Society reports that at least 289 species of birds are found in the IBA, including at least 12 species of breeding warblers.

c. Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separately discuss effects to known threatened and endangered species.

Fisheries Resources. No impacts to fisheries resources are anticipated with the project.

Wildlife Resources, including SCGNs. Wildlife and their habitats, including SGCNs, would be affected by activities related to trail development and usage. The types of environmental effects potentially generated from project developments include: limited removal (i.e., mowing) of understory vegetation along the trail route; accidental introduction of invasive species such as reed canary grass, Kentucky bluegrass and smooth brome; and disturbance and alteration of use patterns of wildlife species, including avoidance of the trail area especially for those species that are sensitive to human intrusion. Project planners expect impacts due to habitat fragmentation to be minimal because the path will be naturally vegetated, only 8 feet wide, and will retain canopy coverage. Construction and maintenance related effects would be temporary, while species sensitive to human intrusion may show long-term responses, for example abandonment of preferred foraging areas. Disturbance that alters behaviors within a local population, which then results in displacement effects, may ultimately affect the health and status of some local populations, including local reductions. Species predisposed to use manmade trails as part of their life histories, such as northern goshawk and white-tailed deer, could likely benefit from the trail. No regional consequences are anticipated.

Vegetation. No changes to vegetation are projected for trail designation on existing routes. For new trail construction, the dominant overstory vegetation, adjacent subcanopy, and ground layer vegetation would typically remain intact. Over time grasses, which are the most tolerant of trampling and maintenance clipping, would tend to gradually occupy the managed trail corridor. Currently closed canopy areas are will likely remain so before, during, and after construction. Little tree removal will be necessary. An eight-foot wide trail is generally considered a minimum width to provide for ease of foot travel through some vegetation types and to allow equipment to enter for maintenance. Maintenance with an 8 foot wide mower deck is often barely wide enough (or not wide enough) to allow easy walking access because the mower cuts at ground level, but trees and shrubs overhang the trail.

Sites of Biodiversity Significance. No trail routing is proposed within the Outstanding Biodiversity Site Luxemberg Peatland Main because peatlands do not make suitable walking trail substrate. Since many parts of the northwest portion of this area are also adjacent to upland forest types, opportunities are present to route the walking trail into the upland forest types, thus avoiding adverse environmental effects to peatland areas. Opportunities for interpretation would be considered once the final on-the-ground corridor is established; this could involve installing a sign explaining to trail users the peatland's importance to biodiversity.

New trail construction through Moderate Sites of Biodiversity Significance would have the same types of impacts to wildlife and vegetation typical to the project. Habitat suitability would remain mostly unchanged because the dominant overstory vegetation, adjacent subcanopy, and ground layer vegetation would typically remain intact. The trail will continue through these areas as described throughout this document with an 8-10 foot wide path that will be naturally vegetated and avoid wet areas when possible. Still, alteration of wildlife use patterns in the project vicinity is likely. Including the potential abandonment of the area altogether. Accidental introduction of invasive species has greater importance in rare native plant communities than in typical managed forest settings. Similar effects would be expected for trail routes proposed in Lake of the Woods County that may be designated as Sites of Biodiversity Significance.

State-listed Protected Species. Potential project effects on these species are provided below.

- The small-leaved pussytoe is susceptible to invasion by non-native species (given the fragmented nature of available habitat) if introduced or spread by trail construction. It is also susceptible to trampling and ground disturbance.

- *There are several species of Botrychiums* in the proposed trail corridor. Each species should be evaluated to determine if it might benefit from project-related canopy removal or other project-related activities.

- The ram's head ladyslipper is susceptible to heavy equipment impacts and canopy openings. Although use of heavy equipment is not proposed for the project, some canopy clearing along the proposed trail corridor might result in impact. Canopy removal, if any with the project, may be detrimental.

- As a water dwelling species, the lily *Nymphaea leibergii* is potentially susceptible to project-related changes in stream quality, quantity, bounce, or flows. Introduction of aquatic exotic species could also adversely impact the species.

- The larval stage of the purse casemaker caddisfly appears to use both lotic (i.e., flowing) and lentic (i.e., still) waters as habitat. Because the project avoids soil-disturbing activities during construction, and trail use is by walking over existing water crossings, no adverse impacts to the species from sedimentation or changes to water quality are anticipated.

Old Growth. The Proposer commits to have the proposed trail project completely avoid the designated old growth cedar stand, including the SMZ. No adverse effects are anticipated.

Northern Long-eared Bats. For northern long-eared bats, any project-related removal of large trees with suitable bark, cavities, or degree of decay would diminish available roosting and rearing habitat. Tree removal during the summer months could dislocate and thus directly affect nursing females with pups.

Canada Lynx. Project-related clearing could reduce the value of lynx habitat along the trail corridor, especially if it affects availability of prey or introduces opportunities for predation (e.g., coyote). Existing denning sites could be abandoned by the introduction of new or increased human activity. Tolerance of humans is likely to vary across individuals.

Gray Wolf. Trail development provides increased access to areas where wolves may otherwise be relatively free of human interaction. Project-related clearing could provide corridors for winter travel. Introduction of direct human disturbance to a den or rendezvous sites can result in stress and abandonment. Tolerance to humans is likely to vary across individuals.

High Conservation Value Forests. Because peatlands do not make suitable walking trail substrate, no trail routing is proposed within the HCVF - Luxemberg Peatland. Since many parts of the northwest portion of this area are also adjacent to upland forest types, opportunities are present to route the walking trail into the upland forest types, thus avoiding adverse environmental effects to peatland areas. New trail construction through the HCVF would have the same types of impacts to wildlife and vegetation typical to the project. Habitat suitability would remain mostly unchanged because the

dominant overstory vegetation, adjacent subcanopy, and ground layer vegetation would typically remain intact. The trail will continue through these areas as described throughout this document with an 8-10 foot wide path that will be naturally vegetated and avoid wet areas when possible. Still, alteration of wildlife use patterns in the project vicinity is likely, including potential abandonment of the area altogether is also possible.

Big Bog IBA. Portions of the project enter the Big Bog IBA, including proposed trail occurring in these townships: T159N, R35W; T159N, R36W. Similar to other wildlife, bird species would be affected by trail development from initial and annual trail mowing, as well as disturbance effects associated with trail usage. The latter may lead to alteration of use patterns for nesting and foraging in the immediate area, and could even lead to local abandonment near the trail for species more sensitive to human disturbance. At the local population level, if disturbance results in displacement effects these may ultimately result in local reductions.

Invasive Plants. Hiking and walking trails can be a pathway for the spread of invasive plants. Seeds are inadvertently carried on boots, clothing, and maintenance equipment. Disturbance of native vegetative cover and exposure of soils surfaces enable to establish in new areas. The movement of improperly cleaned maintenance equipment between work sites is a potential vector for spreading invasive species. Opportunities with the project include introduction of seeds on boots and clothing of trail users or during annual maintenance activities.

d. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to fish, wildlife, plant communities, and sensitive ecological resources.

Wildlife Resources, including SGCNs & Big Bog IBA Species. There are project measures available to minimize impacts to wildlife. These include: controlling the potential introduction and spread of invasive plant species; maintaining the minimum corridor width to meet project objectives; and limiting impacts to adjacent vegetation. The trail will be developed primarily during frozen soil conditions, but may also occur during dry portions of the growing season. After development, maintenance activities will be limited to late summer. For disturbance-related effects to sensitive wildlife, this is partially mitigated by the reliance on existing routes (e.g. forest roads) for much of the project mileage, conducting new construction in winter, and limiting maintenance mowing to once per year. The peak season of use for the trail after development will likely be October. The trail will be open to non-motorized use year-round. Portions of the trail that follow State Forest and Minimum Maintenance Roads will be closed to vehicle use when road restrictions occur in the spring.

Sites of Biodiversity Significance. To avoid impacts to rare natural features and communities, the Proposer commits to review the DNR's rare features database throughout the development period to ensure that rare species are not located within the project area. If rare features are identified in the path of the proposed trail, then the trail would be re-routed. No rare natural features have been found along the path of the proposed route within the project area. No trail routing is proposed within the designated HCVF thus no adverse environmental effects are anticipated Luxemburg Peatland because peatlands do not make suitable walking trail substrate.

For areas of Moderate Biodiversity Significance crossed by the planned trail, or trail routed in Lake of the Woods County portion of the project that may be designated as Sites of Biodiversity Significance, the Proposer commits to employ the following measures to mitigate potential impacts, including:

- Minimize width of trail. The Proposer reports an eight-foot wide trail is generally considered a minimum width to provide for ease of foot travel through some vegetation types and to allow equipment to enter for maintenance.

- Site trail within already disturbed areas. This is achieved by use of existing corridors when possible. For the proposed project, approximately 58 percent of the project is on existing routes.

- Do not route trails through wet swales or depressions. The Proposer indicates maintenance causing rutting would not occur. Measures such as installing an elevated walking bridge over wet areas are not proposed; the proposer will monitor conditions and employ if required.

- Bridge all stream and wetland crossings-the proposal is utilizing existing crossings.

- Inspect and clean equipment during both construction and maintenance to prevent invasive species. This includes adherence to DNR Operational Order 113 regarding prevention of the spread of invasive species at all stages of project implementation.

- Minimize new trail construction. This is achieved by using of existing corridors when possible and following impact avoidance and minimization measures being applied throughout the proposed trail corridor. Approximately 58 percent of the project is proposed on existing routes.

- Minimize trail construction within rare plant communities

- Exploring opportunities to provide natural resource interpretation (i.e., signs) of rare natural features and communities. Interpretive signage would be placed along the trail where educational opportunities are present.

State-listed Protected Species. The Proposer commits to consult with the DNR Regional Plant Ecologist to identify impact avoidance and/or minimization measures for the small-leaved pussytoe, and various Botrychium species; measures now known include limited canopy opening as well as control of invasive plant species. Similar consultation would occur for the ram's head ladyslipper, where control of invasive plant species would be warranted but not canopy clearing.

For potential impacts to the small white waterlily and purse casemaker's caddisfly, the project would avoid changes in water quality and quantity to Hansen Creek. This is primarily accomplished by utilizing existing crossings and avoiding soil disturbing activities. If there would be any disturbance to Hansen Creek, then the Proposer would coordinate with the DNR Natural Heritage Program on need for plant and/or insect surveys and other avoidance measures.

Northern Long-eared Bat. Potential impacts to northern long-eared bats would be minimized by Proposer commitments to avoid cutting large trees, especially large aspen when clearing areas for trail development. The trail would be routed around trees and designed to cross areas of younger trees. Another impact avoidance measure would be removing trees in winter when bats have migrated out of the area. These activities are considered "incidental take" by the US Fish and Wildlife Service, and are allowed per the 4(d) key because there are not any known maternity roost trees

within 150 feet of the proposed trail nor are there any known hibernacula within ¼ mile of the proposed trail.

Canada Lynx and Gray Wolf. There are project measures available to minimize impacts to lynx and wolves. These include: controlling the potential introduction and spread of invasive plant species; maintaining the minimum corridor width to meet project objectives; and limiting impacts to adjacent vegetation. The Proposer commits to avoid denning sites. Human disturbance effects are partially mitigated by reliance on existing routes (e.g. forest roads) for much of the project mileage, constructing new trails in winter, and limiting maintenance mowing to once per year.

Invasive Species. For invasive species control in general, equipment brought onsite would be cleaned to remove residual plant material and soil and that could become the sources of invasive species colonization. Equipment would also be cleaned when mowing from site to site when working on project development. Once the trail is developed, annual mowing maintenance would be conducted by DNR staff trained in agency policy to prevent the spread of invasive species. Any invasive plants found along the trail will be subsequently treated in the same manner as infestations found in the State Forest, on the WMA, or on LUP lands. They will likely be treated via spot-spraying with appropriate herbicide following label instructions.

14. Historic properties:

Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include: 1) historic designations, 2) known artifact areas, and 3) architectural features. Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.

As currently envisioned the project may pass near as many as 42 settlement-era cultural properties, many of which are homestead sites dating from the first decades of the 20th Century but also includes cemeteries, logging properties, and an airstrip. Most of the homestead sites in the Red Lake WMA were razed and reclaimed by the Resettlement Administration prior to WW II, leaving behind minimal physical remains.

SHPO was contacted to review the project for potential impacts to cultural resources; see Attachment 2 – SHPO Correspondence. SHPO reviewed the project and agreed with the proposed methodology that would be used to assess and survey each proposed trail segment for cultural resources once the trail corridor is finalized.

In particular, SHPO identified the presence of several cultural resources located within close proximity to the project, including the Norris Camp, which is on the National Registry of Historic Sites and may become an access point for the trail. It is one of two surviving Civilian Conservation Corps (CCC) work camps in Minnesota. Built in 1935 to house workers for the pioneering federal resettlement effort known as the Beltrami Island Project, it was added to the National Register of Historic Places on September 19, 1994. The camp is also a DNR wildlife management station. There would be no impacts to the architectural features at the site as a result of this project. This site is already developed and intended for visitor use. Connecting the site to a walking trail would not impact the historic character or other site features.

Trail segments would be assessed by an archaeologist as they are proposed, and reviewed by the SHPO as mandated in Section 106 of the National Historic Preservation Act and Minnesota Statute 138. It is anticipated that trail development would not adversely impact these Post-Contact heritage sites, in particular by avoiding cellar holes or other homestead remnants. Because these areas are generally located adjacent to roads and trails subject to motorized uses, trail development is unlikely to expose heretofore inaccessible heritage sites to potential vandalism. Further, all development work necessary for construction would be completed in the winter with frozen ground conditions. This would afford additional protection to any unanticipated archaeological deposits. Maintenance mowing would be conducted annually during the summer but would not overturn any soil, further minimizing potential adverse impacts to cultural resources.

15. **Visual:**

Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.

The landscape in this area is exceedingly flat. There are no designated scenic vistas or views. The project would not influence line of sight from anywhere.

16. **Air:**

a. **Stationary source emissions - Describe the type, sources, quantities and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants, and any greenhouse gases. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effects from stationary source emissions.**

NOT APPLICABLE

b. **Vehicle emissions - Describe the effect of the project's traffic generation on air emissions. Discuss the project's vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimize or mitigate vehicle-related emissions.**

Vehicle emissions from the construction, maintenance and public use of this project after completion would have no measurable impact on air quality.

c. **Dust and odors - Describe sources, characteristics, duration, quantities, and intensity of dust and odors generated during project construction and operation. (Fugitive dust may be discussed under item 16a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize or mitigate the effects of dust and odors.**

NOT APPLICABLE

17. **Noise:**

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures that will be taken to minimize or mitigate the effects of noise.

During construction, there would be noise associated with operating a single skid steer and chainsaws. This would be less noise than is associated with commonplace logging operations within the state forest. There are no nearby sensitive receptors and quality of life would not be affected; there are no residences near this project.

18. **Transportation:**

a. **Describe traffic-related aspects of project construction and operation. Include: 1) existing and proposed additional parking spaces, 2) estimated total average daily traffic generated, 3) estimated maximum peak hour traffic generated and time of occurrence, 4) indicate source of trip generation rates used in the estimates, and 5) availability of transit and/or other alternative transportation modes.**

Traffic in the project area consists of public use of gravel-surface state forest roads. Additional parking spaces at some trail access points would include advantageous mowing of open areas sufficient to accommodate one or two vehicles. Some access points may not have a parking space, vehicles would simply pull off the road/trail near the trailhead in a suitable location as is currently common for forest recreationists. The maximum amount of public use of this trail would likely be during the small game hunting season, specifically during the ruffed grouse season in September and October. Peak hourly additional traffic would occur on Saturdays in September and October and would consist of several vehicles per hour. Average daily traffic would be lower as the trail would get almost no use in the spring and winter. This is based on current observations of public use of other walking trails in the area during the same time period. Use of personal vehicles is the only practical method of reaching the project area.

b. **Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system. *If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW.* Use the format and procedures described in the Minnesota Department of Transportation's Access Management Manual, Chapter 5 or a similar local guidance.**

There would be no traffic congestion associated with this project. No road improvements are necessary.

c. **Identify measures that will be taken to minimize or mitigate project related transportation effects.**

There would be no noticeable project-related transportation effects.

19. **Cumulative potential effects: (Preparers can leave this item blank if cumulative potential effects are addressed under the applicable EAW Items)**

a. Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.

For noise related effects, the geographic scale of project-related environmental effects to interact with other projects would be different during project construction and maintenance versus regular trail usage. During construction and maintenance, 1,500 feet on either side of the entire length of the final project corridor on the ground is proposed as the geographic scale for consideration; given that hiking and hunting are essentially quiet activities, no geographic scale is proposed for considering noise for regular trail usage. The timeframe for considering noise-related effects is the initial period of trail development, which is followed by annual mowing in late summer into the indefinite future.

For habitat fragmentation effects and interactions with forest management activities, those sections listed in EAW Item 5 are proposed as the geographically relevant area to consider potential cumulative effects. The timeframe for considering these potential impacts is the initial period of trail development followed by annual maintenance and anticipated use over the summer/fall seasons into the indefinite future.

b. Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographic scales and timeframes identified above.

Beltrami Island State Forest is part of the State Forest system that is subject to ongoing forest management, including timber harvest. Potential disturbances associated with timber harvest and forest management that generate noise include road construction, transport, planting, felling, skidding, timber hauling, and other operations associated with the forestry industry.

New corridor development across existing vegetation results in some degree of habitat fragmentation that could interact with covertype changes associated with other past, present, or future management activity in the state forest. The principal interactions are the addition of new corridor to existing corridors (e.g., forest roads; OHV trails; skid trails) and/or new corridors offering new connections across contiguous habitat types.

c. Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.

Although no future harvest is specified, timber sales are constant and ongoing and will continue to be appraised, sold and harvested before, during, and after project implementation within and around the project area. Because timber harvest typically occurs during frozen soil conditions (i.e., very late fall into early spring), there would likely be cumulative noise effects during winter project construction along any segments where harvest activity is present. In this context, any cumulative noise effects would be minor and limited to the vicinity of the project corridor. Because maintenance mowing is a late-summer activity, little or no cumulative effects is expected from forest management interacting with the project.

For potential habitat fragmentation, cumulative effects would be tied to potential changes in animal movement across the landscape as well as increased predation pressures for certain species. Both of

these could change as a result of corridor development interacting with past, present, or future forest management that itself involves covertype conversion. The degree of any cumulative fragmentation effect could also be tied to future harvest activity next to the trail, which typically results in an early-successional forest type and associated changes in flora and fauna. The Section Forest Resource Management Plan considers how the distribution of forest patches may result in forest fragmentation effects, with the goal of minimizing them. Any cumulative effects would tend to persist on the landscape as long as the trail is maintained.

20. Other potential environmental effects: If the project may cause any additional environmental effects not addressed by items 1 to 19, describe the effects here, discuss the how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.

There are no other known or potential environmental effects that were not discussed in EAW items 1 to 19.

RGU CERTIFICATION. *(The Environmental Quality Board will only accept **SIGNED** Environmental Assessment Worksheets for public notice in the EQB Monitor.)*

I hereby certify that:

- The information contained in this document is accurate and complete to the best of my knowledge.

- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9c and 60, respectively.

- Copies of this EAW are being sent to the entire EQB distribution list.

Signature _____ Date _____

Title _____