EQB Form: July 2013 version

Environmental Assessment Worksheet

This Environmental Assessment Worksheet (EAW) form and EAW Guidelines are available at the Environmental Quality Board's website at:
http://www.eqb.state.mn.us/EnvRevGuidanceDocuments.htm. 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: Cuyuna Country State Recreation Area Trail Development

2. Proposer: MN DNR, Parks and Trails
Contact person: Steve Hennessy
Title: MN DNR, Development Consultant
Address: 500 Lafayette Road
City, State, ZIP: St. Paul, MN 55155
Phone: 651-259-5633
Fax:
Email: steve.hennessy@state.mn.us

3. RGU: MN DNR, Environmental Review
Contact person: Kathy Metzker
Title: EAW Project Manager
Address: 500 Lafayette Road
City, State, ZIP: St. Paul, MN 55155
Phone: 651-259-5694
Fax: 651-296-1811
Email: Environmentalrev.dnr@state.mn.us

4. Reason for EAW Preparation: (check one)

Required:
☐ EIS Scoping
X Mandatory EAW

Discretionary:
☐ Citizen petition
☐ RGU discretion
☐ Proposer initiated

If EAW or EIS is mandatory give EQB rule category subpart number(s) and name(s):
MN Rules 4410.4300, Subp. 37. Recreational Trails, Part A. EAW required to construct trails on forested or other naturally vegetated land that will exceed ten miles.

5. Project Location:
County: Crow Wing
City/Township: Cities of Crosby, Cuyuna, Trommald, Ironton, and Riverton / Irondale Township

Table 1. PLS Location (¼, ¼, Section, Township, Range)

¼, ¼	Section	Township	Range
NENE, NENW, NESE, NESW, NWNE, NWSE, NWSW, SENE, SENW, SESW, SWNE, SWSW	1	46N	29W
NESE, NWNW, NWSE, NWSW, SESE, SESW, SWNW, SWSE, SWSW	2	46N	29W
Meandered water body, NENE, NENW, NESE, NESW, NWNE, NWNW, NWSE, SENE, SENW, SESE, SESW, SWNE, SWSE, SWSW	3	46N	29W
Meandered water body, NENW, NESW, NWNW, NWSW, SENW, SESE, SESW, SWNW, SWSE, SWSW	4	46N	29W
Meandered water body, NENE, NESE, NESW, NWSE, SENE, SESE, SESW, SWNE	5	46N	29W
Meandered water body, NENE, NENW, NESE, NWSE, SENE, SESE, SWNE, SWSE	8	46N	29W
Meandered water body, NENE, NESE, NESW, NWNE, NWNW, NWSE, NWSW, SENE, SENW, SESE, SESW, SWNE, SWNW, SWSW	9	46N	29W
NENE, NENW, NESW, NWNE, NWNW, NWSE, NWSW, SENE, SENW, SWNE, SWNW, SWSW	10	46N	29W
NENE, NENW, NWNE, NWNW, SWNW	11	46N	29W
NWNW	16	46N	29W
NENE, NENW, NESE, NESW, NWNE, NWNW, NWSE, NWSW, SENE, SENW, SESE, SESW, SWNE, SWNW, SWSE, SWSW	19	46N	29W
NESE, NESW, NWSE, NWSW, SESE, SESW, SWSE, SWSW	34	47N	29W

Watershed (81 major watershed scale): **Mississippi River - Brainerd**
GPS Coordinates: Lat:46.481766, Long: -93.983762
Tax Parcel Number: (multiple parcels; see Attachment 1)

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.

Figure 1. Cuyuna Country State Recreation Area, Proposed Trail Development Projects, 2019
Figure 2. Cuyuna Country State Recreation Area, USGS Map 1:24,000
Figure 3. Cuyuna Country State Recreation Area Map (Visitor Map)
Figure 4. Cuyuna Country State Recreation Area, Mahnomen Unit Concept Plans
Figure 5. Cuyuna Country State Recreation Area, Sagamore Unit Concept Plans
Figure 6. Cuyuna Country State Recreation Area, Portsmouth Unit Proposed Development Area
Figure 7. Cuyuna Country State Recreation Area, Yawkey Unit Concept Plans
Figure 8. Cuyuna Country State Recreation Area, Native Plant Communities Land Cover
Figure 9. Cuyuna Country State Recreation Area, Mine Features
Figure 10. Cuyuna Country State Recreation Area, NRCS Soil Units
Figure 11. Natural Surface Trail Typical

6. Project Description:

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

The Minnesota Department of Natural Resources is proposing to expand recreational opportunities within the Cuyuna Country State Recreation Area, in Crow Wing County, by developing up to 50 miles of new trails in the Yawkey, Mahnomen and Portsmouth Units, and adding a trailhead and an outdoor event space in the Sagamore Unit.

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 Minnesota Department of Natural Resources is proposing to expand recreational opportunities within the Cuyuna Country State Recreation Area (CCSRA), in Crow Wing County, by developing up to 50 miles of new trails and an outdoor event space. The CCSRA is located in Crow Wing County, Minnesota, approximately 14 miles northeast of Brainerd via State Highway 210. The CCSRA is adjacent to the cities of Crosby, Ironton, Trommald and Riverton (See Figures 1, 2).

The Cuyuna range, which extends almost 70 miles, was the last of Minnesota's three major iron ranges to be discovered and mined. The CCSRA currently covers an area of nearly 5,000 acres and is mostly a mix of undeveloped land and inactive mining areas. This area includes both natural lakes and deep mine pit lakes. An extensive informal trail system covered the entire state recreation area prior to the development of mountain bike trails starting in 2010. Past mining activities have significantly altered the natural environment that existed prior to mining. However, natural and planted regeneration has occurred following the cessation of mining in the 1970s. Aspen, birch, goldenrod, asters and various grass species now dominate the landscape.

Existing recreational activities within the CCSRA include camping, trout fishing, canoeing/paddling, mountain biking (typically riding bicycles over natural surfaces and varied terrain) and biking (typically riding a bicycle on paved or hardened, relatively level surfaces), scuba diving, swimming, and winter fat-tire biking. Hunting is allowed within the CCSRA during normal hunting seasons. Trails are closed to biking during fire arms deer season.

The existing mountain bike system includes approximately 40 miles of natural-surfaced trails, ranging from 12 to 60 inches in width, and accommodating beginner, intermediate and advanced skill levels. The CCSRA includes four different management units, referred to as the Mahnomen, Sagamore, Portsmouth and Yawkey units. Land ownership varies across the CCSRA, with a mix of public, private, and undivided interests. Current and proposed development is located only on DNR owned and administered lands as well as School Trust owned lands. Any development on School Trust lands will require a lease agreement with the Trust.

The **Mahnomen Unit** is the largest unit and is centrally located within the CCSRA (See Figures 3, 4). The unit extends from County Road 30 (east end) to Iverson Road (west end) and County Road 34 on the north end to Blackhoof Lake on the south.

The Mahnomen Unit includes the existing Rally Center, which includes a parking lot accommodating about 120 vehicles; a paved path to Huntington Mine Lake; changing rooms; two vault toilets; a drinking water fountain; a bike wash station, and a covered picnic shelter. Approximately 19 miles of naturally surfaced (unpaved) mountain bike trails, designed for all skill levels, were constructed in 2010 (and opened in 2011) in the Mahnomen Unit. Approximately 10 miles of these trails are groomed by snowmobiles in the winter for fat-tire biking. The Cuyuna Lakes State Trail, both paved and unpaved portions, travels east/west through this unit. At the northwest end of the Rally Center is the Skills Development Area, which includes beginner- to expert- level development loop trails.

A public water access site on Pennington Mine Lake is located adjacent to the Rally Center and includes a vault toilet, an Americans with Disabilities Act (ADA)-compliant parking lot for up to 16 vehicles near the lake, and a shore fishing station. West of the Rally Center is the Mahnomen Overlook, which is 200 feet above the surrounding area and provides panoramic views. An unimproved road provides access to the overlook.

Several lakes within the Mahnomen Unit are designated trout lakes and stocked annually with rainbow trout by MN DNR-Fisheries. Several unimproved boat access sites are also available throughout the Unit. Rabbit River flows through the natural lakes on the north side of the unit, and Serpent Creek, an outlet from Serpent Lake, flows into this unit.

The **Sagamore Unit** is located approximately 1.5 miles southwest of the main unit and is not physically connected to or adjacent to other CCSRA units (See Figures 3,5.). The northern half of the unit is located within the city limits of Riverton and the southern half is located within Irondale Township. The northern boundary abuts private property (residential housing) in Riverton. MN DNR stocks Sagamore Mine Lake annually with rainbow trout. A public water access is located on the south side of the lake and includes a vault toilet and an asphalt parking lot for 10 vehicles with trailers.

The Sagamore Unit currently includes approximately 9 miles of natural surfaced trails. Most of these routes follow former railroad grades, mining roads, or other user-built recreational trails prior to the designation of the CCSRA. Summer use of these trails includes hiking and mountain biking. Winter uses include fat-tire biking, snowshoeing and cross country skiing as signed for each trail. A Grant-in-Aid (GIA) snowmobile trail crosses the northern part of the Unit and does not intersect with the other trails. Two open pit mines and remnants of former railroads, mining roads, and mining infrastructure are visible within the Sagamore Unit.

The Portsmouth Unit is located to the east of the Mahnomen Unit and spans from County Road 30 as its western boundary to State Highway 6 as the eastern boundary (See Figures 3, 6). Several lakes and a stream are located within the unit including Portsmouth Mine, Armour #2 Mine, and Thompson Cave lakes and Serpent Creek. Portsmouth Mine Lake is annually stocked with rainbow trout. A public water access is located on the western shoreline and includes an asphalt parking lot for 12 vehicles.

The Portsmouth Unit accommodates a variety of recreational opportunities including approximately 5.7 miles of natural surfaced trails primarily used for mountain biking during the summer and fat tire biking in the winter. The trails connect to the Portsmouth campground. The Portsmouth campground includes 18 electric sites and 15 non-electric sites, a large group camp on the northwest shore of Portsmouth Mine Lake (accommodates up to 25 people) and a beach area. The Cuyuna Lakes State Trail crosses the unit just south of Portsmouth Mine Lake. A portion of the state trail is paved for bicycling and an unpaved segment is open to snowmobiling in the winter.

The **Yawkey Unit** is located in the northeast corner of the CCSRA and is within both Cuyuna and Crosby city limits (See Figures 3, 7). The Yawkey Unit includes approximately 6.4 miles of one-way single track mountain bike trails that were developed in 2010 and rated as "more difficult", "most difficult", and "extremely difficult (experts only)". Additionally, a paved portion of the Cuyuna Lakes State Trail and GIA Snowmobile trails are located within this Unit.

Three seven-person occupancy yurts are available for camping in the Yawkey Unit, on the west side of Yawkey Mine Lake. Other recreational facilities in the Yawkey Unit include two picnic areas, a swimming beach, shore fishing, and two carry-in boat accesses on Yawkey Mine and Manuel Mine lakes.

Croft Mine Historical Park is located within the Yawkey Unit and consists of 18 acres. This historical park includes the foundation from the Croft Mine, former mining offices, a log house from early settlers, a capped mine, and a dry house, which now serves as a museum. The museum is open to the public and includes simulated mine tours and self-guided tours from Memorial Day to Labor Day. The Croft Mine Historical Park parking lot also serves as a trailhead location.

Proposed Development and Construction Methods

The proposed project consists of new trail construction, a new trailhead facility, and an outdoor event space geared primarily toward hosting mountain bike race events. In total, approximately 50 miles of trail, including a combination of new construction and use of existing corridors where appropriate, are planned. The trails will primarily be for singletrack mountain bike with a few miles of two track. An adaptive singletrack mountain bike trail, accessible hiking trail, and multi-use trails are also proposed. Singletrack trails will be up to 3 feet wide, two track trails will be up to 8 feet wide, the adaptive trail will be 5 feet wide, the accessible hiking trail will be 6 feet wide, and the multi-use trails will be 10 feet wide.

In 2014, International Mountain Bicycling Association's (IMBA) Trail Solutions Program prepared a system expansion concept plan to help guide the physical development of this mountain bike trail system. The proposed trails will be built to the IMBA standards to accommodate beginner, intermediate and advanced levels for year-round recreation riding and events.

Mountain bike trails will be built using existing soils within the CCSRA. Desirable soil characteristics include compactability, fast drainage rate, low water holding capacity, and low susceptibility to water erosion. Appropriate soil selection in the development and maintenance of the trails is critical to the overall sustainability of the project (See Item 10.b for more information.). Multi-use trails will have an aggregate surface and may require imported material. All imported material will be inspected by DNR Parks and Trails staff prior to arriving at the CCSRA to ensure that it is weed free.

Development of sustainable trails will include construction on a side slope to effectively manage water and minimize embankment and fill. A technique called 'bench cutting' is used to create a slightly out-sloped trail tread that effectively sheds water. The spoil material from the backslope is cast to the frontslope and dispersed evenly. Berms are constructed at sharp corners to guide riders. Jumps are built with excess embankment. Small, shallow borrow pits are excavated along the trail to manage water and provide embankment. Culverts and wood boardwalks are sparingly used when small drainage ways need to be crossed. Occasionally, salvaged boulder retaining walls are required for cuts along steep banks, but are avoided whenever possible.

The mountain bike trails are built at a rate of about 0.5 mile per week. Trail construction will include the use of a small walk-behind dozer, mini-excavator, and motorized wheelbarrow for narrow mountain bike and hiking trails. Larger equipment will be used for the multi-use trails.

Daily mountain bike trail construction normally begins with mechanically clearing a narrow corridor and excavating a bench for the trail with a mini, tracked excavator. A small team of laborers immediately follows the tracked excavator installing perimeter erosion control; fine grading the back slope, front slope, and trail tread; pruning the clear zone; compacting the trail tread with a walk behind plate compactor; and seeding and mulching with straw and erosion control blanket on steep slopes. The entire process moves forward incrementally each day until the trail is complete. Work is typically suspended when the soil is too wet. Non-biodegradable erosion control materials will be removed after vegetation has been established.

Trailhead and outdoor event center development in the Sagamore Unit will cover approximately 15 acres. This area will include a trailhead facility with vault toilets, kiosks, a picnic shelter, and direct access to mountain bike trails. An outdoor event center intended to host mountain bike racing events and large groups will be constructed beyond the trailhead. A parking area for up to 80 vehicles will be provided for day to day use. For special events, additional parking will be provided to accommodate up to 350 more vehicles (total parking capacity will be approximately 430 vehicles). Mountain biking and race-related amenities may include: open space for gathering and spectators; a starting area for racers; an area for racers to be handed food and beverages from assistants; additional vault toilets or portable toilets; potable water, either from an onsite well or via connection to a municipal system; electricity; an equipment storage building or shipping container; and picnic tables or shelters.

Construction activity is anticipated to begin in 2019 and end in late 2021, but may extend beyond if needed.

Table 2. Proposed Project Developments (estimates in parentheses)

Proposed Construction Timing	Estimated Length or Area	Location
Beginning in 2019	15 miles of single track (up to 3 ft. wide)	Mahnomen Unit, Maroco area trails & Alstead Peninsula
Beginning in 2019	1 mile of multi use (10 ft. wide)	Connect Portsmouth Campground to Cuyuna Lakes State Trail
Beginning in 2019	2 miles of singletrack (up to 3 ft. wide)	Yawkey Unit trail connection to proposed club trail in adjacent Crow Wing State Forest; Yawkey Unit, trail on Hill 3
Beginning in 2020	(15 Acres – event space area) 17 miles of singletrack (up to 3 ft. wide) 1 mile two track (up to 8 ft. wide) 5 miles adaptive singletrack (5 ft. wide) 2 miles accessible hiking (6 ft. wide)	Sagamore Unit: event space infrastructure and support amenities development (includes but not limited to access roads, parking lots, and event space) Sagamore Unit: trails

Proposed Construction Timing	Estimated Length or Area	Location
	1 mile multi-use (10 ft. wide)	
To Be Determined (TBD)	6 miles of single track (up to 3 ft. wide)	Mahnomen Unit, trails near Blackhoof Lake

Trails within the CCSRA will be managed and operated by MN DNR staff. The local mountain bike club, under a Memorandum of Understanding with the MN DNR, will provide volunteers to conduct year round maintenance of the new trails. Trails will be open to biking and hiking in the summer, and fat-tire biking, cross-country skiing, and snowshoeing during the winter.

Routine trail management and maintenance includes the following:

- Actively manage trails during soft and wet conditions to prevent rutting in the treadway. Ruts can channelize the water and cause erosion.
- Continually clean out trail drains located at the bottom of rolling grade dips to maintain proper drainage.
- Remove berms (de-berm) on the treadway created by compaction and soil displacement to maintain or reestablish sheet drainage.
- In the fall, remove fallen leaves off the trail to maintain natural drainage of the water.
- Actively address natural compaction and displacement of soil to sustain and restore original designs of the trails as they age.
- Inspect trails for introduction of invasive species. If invasive species are detected, mitigate them according to the protocols discussed in Item 13, below.

Table 3. Trail Difficulty Rating System (Source: *Trail Solutions: IMBA's Guide to Building Sweet Singletrack*, Page 75.)

	Easiest (White Circle)	Easy (Green Circle)	More Difficult Intermediate (Blue Square)	Very Difficult (Black Diamond)	Extremely Difficult (Double Black Diamond)
Trail Width	72" or more	36" or more	24" or more	12" or more	6" or more
Tread Surface	Hardened or surfaced	Firm and stable.	Mostly stable with some variability	Widely variable	Widely variable and unpredictable
Average Trail	Less than 5%	5% of less	10% or less	15% or less	20% or more
Maximum Trail Grade	Max 10%	Max 15%	Max 15% or greater	Max 15% or geater	Max 15% or greater
Natural Obstacles and Technical Trail Features (TTF)	None	Unavoidable obstacles 2" tall or less	Unavoidable obstacles 8" tall or less	Unavoidable obstacles 15" tall or less	Unavoidable obstacles 15" tall or greater
		Avoidable obstacles may be present	Avoidable obstacles may be present	Avoidable obstacles may be present	Avoidable obstacles may be present
		Unavoidable bridges 36" or wider	Unavoidable bridges 24" or wider	May include loose rocks	May include loose rocks
			TTF's 2'high or less, width of deck is greater than ½ the height	TTF's 4' high or less, width of deck is less than ½ the height	TTF's 4' high or less, ',width of deck is unpredictable
				Short sections may exceed criteria	Many sections may exceed criteria

c. Project magnitude:

Table 4. Project Magnitude

Total Project Acreage	CCSRA Boundary: 4,628 Acres; Proposed project footprint: Approximately 36 Acres (within CCSRA)
Linear project length	Up to 50 Miles of trails
Number and type of residential units	N/A
Commercial building area (in square feet)	N/A
Industrial building area (in square feet)	N/A
Institutional building area (in square feet)	N/A
Other uses – specify (in square feet)	Outdoor Event space: Approx. 15 acres (included within project area total above)
Structure height(s)	Vault Toilets up to 15 feet; Picnic shelters up to 20 feet (typically)

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.

In 2017, the MN Legislature authorized $3.6 million dollars for recreational development in the CCSRA at the urging of the local communities and biking clubs. These projects will be carried out by the MN DNR, Parks and Trails Division.

Primary beneficiaries of the proposed project include mountain bike users, mountain bike racing participants, and visitors to the CCSRA. Additional beneficiaries include other recreational users, including hikers, skiers, boaters and anglers. The CCSRA offers a variety of recreation opportunities to the public and has had over 180,000 annual visits in recent years. Surrounding communities may also see an economic benefit from the increased number of visitors to the CCSRA.

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

The CCSRA is a relatively new unit of the Minnesota State Outdoor Recreation System and with that, future development may continue according to the following list of applicable management and recreation plans:

- *Cuyuna Country State Recreation Area Management Plan* (MN DNR, 1995)
- *Cuyuna Country State Recreation Area Management Plan Amendment* (MN DNR, 2005)
- *Cuyuna Country State Recreation Area, Recreation Implementation Plan* (MN DNR, 2008)
- *Cuyuna Lakes Mountain Bike Trails, System Expansion Concepts* (IMBA, Trail Solutions Program, 2014)
- *Cuyuna Country State Recreation Area Management Plan and Recreation Implementation Plan Amendment, Trail System Expansion, Support Feature Development* (MN DNR, 2016)
- *Cuyuna Lakes State Trail Master Plan* (MN DNR, 2004)

Future Developments in the CCSRA
Other developments expected to occur within the CCSRA in the coming years include a variety of infrastructure and facility improvements. These new facilities will be managed by DNR and CCSRA staff and are independent of the proposed trail projects. Timing and duration of activities known or anticipated to date include the following:

Miner's Mountain Road Rehabilitation, 2019: Miner's Mountain road begins at Crow Wing County Road 30 (CR 30) and provides access to the CCSRA Mountain Bike Rally Center and Miner's Mountain Overlook. The road is approximately 1.75 miles long. The first mile of the road is bituminous surface from CR 30 to the Rally Center; this segment is in good condition and no work is currently planned on it. The remaining 0.75 mile climbs "Miner's Mountain", a geographic feature created by mine overburden during the excavation of the surrounding mine pits. This 0.75 mile segment has a gravel surface that is in deteriorating condition. Restoration of this segment will improve the road surface and reduce future maintenance needs. Required improvements will be determined by a licensed engineer and may include: reconstructing the roadbed; installing culverts and other measures to manage water runoff and prevent erosion; and possibly installing retaining walls and guard rails. This road also serves as a snowmobile trail in the winter.

June Lake Public Water Access: June Lake is a natural lake approximately 100 acres in size. A small, user developed earthen surface ramp on the northeast shore, with no parking facilities, allows for limited public water access. Proposed development of a new public water access would include a concrete plank ramp and small parking area designed to meet current best management practices for stormwater management and prevention of aquatic invasive species. A potential new location for the public access is being considered on the lake's southeast shore, but the final location has not been determined. The southeast shore location would reduce the length of road needed to access the lake as compared to the existing, northeast shore location. As part of this project, the access road would also be redeveloped through road grading and placement of gravel, as needed. Construction and development timing is currently unknown.

Mahnomen Lake and Little Mahnomen Lake Public Water Access: Prior to MN DNR ownership, a private railroad grade was built upon fill material, which effectively split Mahnomen Lake into two water bodies, now known as Mahnomen and Little Mahnomen lakes (visible in 1939 aerial photograph). Three culverts under the railroad grade connect the two lakes, allowing water to flow freely from Mahnomen to Little Mahnomen and allowing fish and other aquatic species to move between the two lakes. Mahnomen Lake is approximately 238 acres and Little Mahnomen Lake is about 43 acres. Both are natural lakes, although they have been altered by the railroad grade and mining prior to the designation of the CCSRA. The railroad tracks were removed prior to DNR ownership. A small, user-developed earthen surface ramp, with no parking facilities, located on the south shore of Little Mahnomen Lake allows for limited public water access. Currently, there is no developed public water access (PWA) to Mahnomen Lake.

Replacing the three culverts with a short navigable channel, approximately 125 feet long, between Little Mahnomen and Mahnomen lakes is being considered. The channel would be sized to meet hydrologic needs and allow for boat passage. A bridge would be constructed over the channel to continue to allow non-motor access to the portion of the CCSRA to the northwest of Little Mahnomen Lake. This project will allow public access to both lakes and would be undertaken in conjunction with development of a new PWA to replace the existing user made access on Little Mahnomen Lake. The new PWA would include a concrete plank ramp and small parking area designed to meet current best management practices for stormwater management and prevention of aquatic invasive species. MN DNR is in the process of acquiring a suitable property for the PWA on the northerly shore of Mahnomen Lake.

Sagamore Unit Camping and State Trail: Currently, camping facilities are not provided or allowed in the Sagamore Unit. However, the management plan includes recommendations for camping facilities in the future. There are no current plans for developing a campground or campsites at this time or in the foreseeable future within the Sagamore Unit.

Cuyuna Lakes State Trail: As currently developed, the Cuyuna Lakes State Trail is approximately nine miles long, from Crosby to Riverton. Future development is proposed to continue the paved trail from Riverton to or through the Sagamore Unit to the Brainerd/Baxter Area. The master plan for the state trail discusses the conceptual alignment from the Paul Bunyan State Trail in Baxter/Brainerd to Aitkin, providing connections to Brainerd and the CCSRA along the way. The proposed outdoor event space and mountain bike trails in the Sagamore Unit will be designed to allow for the future extension of the Cuyuna Lakes State Trail.

Access to funding and support will ultimately determine the viability and timing of future developments and projects. The need for environmental review will be reviewed and assessed as specific projects are able to be defined.

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

In 2008, an EAW was completed for proposed development of the CCSRA, which included: 1.5 miles of trail in the Sagamore Unit; 24 miles in the Mahnomen Unit; 2 miles in the Portsmouth Unit; and 10 miles in the Yawkey Unit, for a total of approximately 37.5 miles of trail within 22.7 acres. A negative declaration was issued on December 11, 2008.

From 2008 to present, development has focused on recreational facilities, including mountain bike trails designed for a variety of skill levels and camping opportunities.

Past development of the Cuyuna Country State Recreation Area has included approximately 40 miles of mountain bike trails, a rally center, parking and trailhead facilities, and a public water access. The campground and some water accesses existed prior to the authorization of the SRA.

By end of 2010, approximately 24 miles of trail had been developed. In 2011, an additional nine miles of trail were added to the Sagamore Unit, with the majority of these trails using existing former road and railroad grades. In 2015, 2.7 miles were added to the Portsmouth Unit.

In 2010, when the original mountain bike trail project was envisioned and developed, there were no further plans to expand beyond the original project. However, due to its high popularity, there is an effort to continue to develop this trail system and other recreation facilities within the CCSRA.

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

Table 5. Cover types

	Before	After		Before	After
Wetlands	298.6	298.6	Lawn/landscaping	0	7.0
Deep water/streams	1,523.0	1,523.0	Impervious surface	195.4	203.4
Wooded/forest	346.1	*346.1*	Stormwater Pond	0	0.5
Brush/Grassland	4.2	4.2	Other (describe) Utility Corridor	34.1	34.1
Cropland	9.9	9.9	Unclassified/non-natural systems	2,216.7	2201.2
			TOTAL	**4,628**	**4,628**

Land cover types are included in Figure 8.

The total proposed project is anticipated to impact 36 acres within the CCSRA, 15 of which will result in a cover type conversion as shown in Figure 8. An additional 21 acres of wooded/forested and unclassified/non-natural system cover types will be impacted by trail construction; however, the narrow

width of the trails will allow retention of overstory trees and will not result in a cover type conversion. All trails subject to this EAW will be designed by a licensed landscape architect or engineer on appropriate slopes.

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.*

Table 6. Project Permits

Unit of Government	Type of Application	Status
US Army Corps of Engineers	Section 404 Permit, Clean Waters Act	To be obtained, as needed
MN DNR	Wetland Conservation Act (WCA) Permit	To be obtained, as needed
MN DNR	Work in Public Waters Permit	To be obtained
MN DNR	Lease: School Trust Lands	To be obtained, as needed
MN Pollution Control Agency	NPDES/SDS Construction General / NPDES Construction Stormwater Permit	to be obtained
MN Pollution Control Agency	CWA 401 Certification	to be obtained as needed
Crow Wing County	Highway Dept. Permit	To be obtained, as needed
Crow Wing County	Well Permit (contractor)	To be obtained, as needed
Crow Wing County	Building Permit (contractor)	To be obtained, as needed

Table 7. Project Public Funding

Source	Type of Funding	Status/Amount
MN DNR	Parks and Trails Legacy Funds	$500,000
MN State Legislature	State Bonding (Funding)	$3.6 Million (2017)
Cuyuna Lakes Mountain Bike Crew	Private Donations/Funds	TBD; $111,000 to date

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 CCSRA is a large, multi-use recreation area. Creation of the CCSRA was a collaborative effort between the Iron Range Resources Rehabilitation Board (IRRRB), volunteer groups, local governments, and MN DNR, with the State Legislature authorizing the CCSRA in 1993.

The legislature established the CCSRA as a recreational area while recognizing and preserving the area's continuing value as a mineral resource. The possibility of future mining is recognized in Laws of Minnesota 1993, Chapter 172, Section 34, subdivision 3, which states:

> The commissioner shall recognize the possibility that mining may be conducted in the future within the Cuyuna country state recreation area, and that use of portions of the surface estate and control of the flowage of water may be necessary for future mining operations.

The CCSRA was established to provide outdoor recreation opportunity to the local area. While the primary management objective of the CCSRA is to provide for multiple recreational uses, statute also states that the commissioner must recognize the possibility that mining may be conducted in the future within the SRA. Parks and Trails and Lands and Minerals will work together to ensure that additional trail development within the SRA boundaries would not preclude mining if and when it becomes economically advantageous to pursue. As a state-owned resource under the authority of the commissioner, decisions about whether mineral extraction will occur within the SRA will ultimately be decided by weighing all state and public interests in the SRA-- recreation, conservation, and economic.

Land cover within the CCSRA is primarily deciduous forest, open water, and land displaying various types of development. Most of the land in the CCSRA itself is publicly owned, although there are several privately owned parcels within it, as well as both tax-forfeited land administered by Crow Wing County and School Trust land administered by MN DNR. The vast majority of the privately owned parcels are seasonal or year round residences, or vacant rural land. None of the privately owned parcels are intended for industrial use. The proposed trails will all be developed on public land.

In addition to the surface estate and mineral estate, there most likely is "personal property" ownership on lands located within the CCSRA in the form of stockpiled mine material. Much of the visible terrain in the CCSRA is actually stockpiles of mined material. These stockpiles may have ownership connected to the underlying surface estate or may be personal property owned separate from the surface estate. The ownership of stockpiled material is difficult to determine since ownership depends upon the intent of the parties involved at the time the stockpile was created. Stockpiles of surface material, or overburden, is generally thought to have the same ownership as that of the surface estate on which it is located. Iron-bearing materials stockpiled for possible future use generally are considered personal property. Ownership of these personal property stockpiles does not follow with the ownership of the underlying real estate, unless the personal property is specifically included in a conveyance or the owners of the personal property take some action to convert the stockpile into real property. Stockpile ownership within the CCSRA is largely unknown. Known iron bearing and surface overburden stockpiles, as well as iron formation subcrops, are shown on Figure 9, Cuyuna Country State Recreation Area, Mine Features.

Existing land use within the CCSRA is largely recreation-based, including camping, trout fishing, boating, canoeing/paddling, mountain biking and biking, scuba diving, swimming, birding, hiking, and winter fat-tire biking. There are three carry-in and three boat trailer public water accesses, and several camp sites in the CCSRA. Hunting is allowed within the CCSRA during normal hunting seasons, and trails are closed to biking during fire arms deer season. The existing mountain bike system includes approximately 40 miles of natural-surfaced trails, ranging from 12 to 60 inches wide and accommodating various skill levels. In 2016,

the CCSRA had over 180,000 annual visitors and over 10,000 overnight (camping) visitors. Recreational use areas are identified through signage and wayfinding maps and kiosks throughout the CCSRA. The area immediately surrounding the CCSRA contains several additional outdoor recreational areas, including state forests and the Cuyuna Lakes State Trail, a paved regional biking trail that runs along the southern boundary of the CCSRA Mahnomen and Portsmouth Units, and connects these with the City of Riverton, immediately north of the Sagamore Unit (See Figures 1,2,4,6, 7).

Prior to the project area being designated as a state recreation area, much of the land within the statutory boundary of the CCSRA was mined over a period of 70 years. It is assumed that there are abandoned mine shafts (hoist, timber, and air) located throughout the area. These features are detected through review of historical records and mine drawings, and on-the-ground reconnaissance. Abandoned shafts that pose a hazard will be fenced off, as appropriate, and trail development will be routed to avoid them.

Two former municipal dumps are partially located within the CCSRA. One has been sealed by the Minnesota Pollution Control Agency (MPCA) and groundwater monitoring continues to occur through test wells. Proposed developments are not located near these sites.

The Serpent Lake Sewer District runs its main line through the north side of the Portsmouth Unit in the CCSRA. The sewer ponds are located adjacent to the Portsmouth Unit. MN DNR is not aware of any liquid or gas pipelines in the area.

Lands adjacent to the CCSRA include public lands managed by MN DNR and Crow Wing County and include Crow Wing State Forest and Crow Wing County Forest, as well as private lands. Also nearby or adjacent to the CCRSA are the cities of Crosby, Cuyuna, Ironton, Trommald and Riverton, which include municipal city limits and residential areas.

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.

The CCSRA is a relatively new unit of the Minnesota State Outdoor Recreation System and with that, development will continue consistent with recommendations provided in the following list of applicable or associated management plans, amendment and guidance documents:

- *Cuyuna Country State Recreation Area Management Plan* (MN DNR, 1995)
- *Cuyuna Country State Trail Master Plan (MN DNR, 2004)*
- *Cuyuna Country State Recreation Area Management Plan Amendment* (MN DNR, 2005)
- *Cuyuna Country State Recreation Area, Recreation Implementation Plan* (MN DNR, 2008)
- *Cuyuna Lakes Mountain Bike Trails, System Expansion Concepts* (IMBA, Trail Solutions Program, 2014)
- *Cuyuna Country State Recreation Area Management Plan and Recreation Implementation Plan Amendment, Trail System Expansion, Support Feature Development* (MN DNR, 2016)

The *Crow Wing County Parks, Trails and Open Space Plan (Crow Wing County, 2005)* includes acknowledgement, discussion and support for planned developments for the CCSRA and Cuyuna Lakes State Trail and their proximity to and relationship to the local communities.

Cuyuna Lakes State Trail: In 2002, the Cuyuna Lakes State Trail was authorized in Minnesota Statutes 85.015, subdivision 24, which includes direction to connect to the CCSRA and the Croft Mine Historical

Park. As currently developed, the Cuyuna Lakes State Trail is approximately nine miles long, from Crosby to Riverton. Future development is proposed to continue the paved trail from Riverton to or through the Sagamore Unit to the Brainerd/Baxter Area. The master plan for the state trail discusses the conceptual alignment from the Paul Bunyan State Trail in Baxter/Brainerd to Aitkin, providing connections to Brainerd and the CCSRA along the way. The proposed outdoor event space and mountain bike trails in the Sagamore Unit will be designed to allow for the future extension of the Cuyuna Lakes State Trail, consistent with the recommendations and guidance provided in the master plan.

The land use described in each of these plans is consistent with one another and the existing and proposed recreational opportunities provided and proposed at the CCSRA and the Cuyuna Country State Trail.

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

The proposed project is located entirely within the CCSRA. The CCSRA is located in Crow Wing County and includes a portion of Irondale Township, a small part of Wolford Township, and the cities of Crosby, Cuyuna, Ironton, Riverton, and Trommald.

No other special districts or zones intersect with the project area. The proposed project will be in compliance with the state of Minnesota buffer law (MS 103F.48).

The CCSRA is on FEMA FIRM panels 27035C0338C, 27035C0339C, 27035C0433C (Riverton), 27035C0435C, 27035C0451C, and 27035C0452C (Ironton) (all panels effective 8/15/2017). Some areas within the CCSRA along the Rabbit River, Ironton Creek, and around several lakes are in the 1% annual chance floodplain and are mapped as Approximate Zone A; however, the proposed trails are largely outside of these areas. If the project results in a decrease in water surface elevation during the 1-percent-annual-chance event a Letter of Map Revision (LOMR) or Conditional Letter of Map Revision (CLOMR) will not be required. A flood event that affected any of the proposed trails may require temporary closure of the trail and could result in minor damages requiring repair.

(*Note: State lands are not subject to local controls or ordinances in accordance with Minnesota Statutes 394.24.)*

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

The proposed project is compatible with all management plans and strategic plans applicable to the CCSRA, as well as adjacent and nearby land uses. The mountain bike system will be expanded with proposed developments in each of the four management units. Many recreational opportunities are offered to the public within the CCSRA. Some of the most popular activities among CCSRA visitors are mountain biking, scuba diving, and hiking.

The 1995 management plan and the 2008 recreation plan discuss the future mining potential of the Cuyuna Range in detail and provide maps showing existing resources and possible mining sites within the CCSRA. MN DNR will coordinate among management disciplines and will follow a process to avoid potential impacts to mining resources. The 2016 CCSRA Management Plan Amendment indicates project design will also help minimize potential impacts to water resources and water recreation opportunities at the CCSRA.

The proposed CCSRA projects are compatible with the legislation establishing the recreation area including the provision to recognize the possibility that mining may be conducted in the future within the CCSRA, and that use of portions of the surface estate and control of the flowage of water may be necessary for future mining operations. The proposed trails are not a large encumbrance, and can be relocated for mining activities. As a state owned resource under the authority of the commissioner, decisions about whether mineral extraction will occur within the CCSRA will ultimately be decided by weighing all state and public interests in the CCSRA – recreation, conservation, and economic.

New development will avoid high-value iron-bearing stockpiles and tailings basins to the extent possible and will not involve the removal or mixing of iron-bearing stockpiles or tailings. Locating trails and other developments on surface overburden stockpiles is preferred, since overburden stockpile ownership is connected to the underlying surface ownership, and high-value mineral resources in iron-bearing stockpiles will not be encumbered. However, both the iron-bearing stockpiles and surface overburden stockpiles are conducive to enjoyable trail experiences. The proposed trails are not a large encumbrance on the iron-bearing stockpiles and can be relocated due to mining activities or assertion of ownership by a third party. Where trails are built on iron-bearing stockpiles, it is understood that the State may not own the stockpile. Assertion of ownership by a third party or future mineral extraction may result in the permanent or temporary closure of trails. Iron-bearing stockpiles, surface overburden stockpiles, and iron formation subcrops are shown on Figure 9.

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

No measures were identified as the proposed project is consistent with the CCSRA Management Plans and Amendment.

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 CCSRA is primarily located in the St. Louis Moraines Subsection, with the Mahnomen, Portsmouth and Yawkey units in this subsection. This subsection was formed at the leading edge of repeating glacial advances. Its range of hills contain coarse gravel-like materials and boulders and are pockmarked with countless lakes, ponds, and bogs. Glacial drift ranges from 100 to 300 feet in depth over bedrock. Bedrock is locally exposed throughout the northern portion of the subsection, where depths are typically 100 feet or less. Bedrock consists of Middle to Late Archean and Early Proterozoic gneiss, amphibolite, undifferentiated granite, and metamorphosed mafic rocks.

The Sagamore Unit is located within the Mille Lacs Uplands Subsection, which consists primarily of Superior Lobe ground moraine and includes the Brainerd-Pierz and Automba Drumlin Fields. The depressions between drumlin ridges contain peatlands with shallow organic material. A large end moraine in the center of the subsection forms the dam that created Mille Lacs Lake. In the northeast part of the subsection is another series of end moraines, which marked later advances and retreats of the Superior Lobe. Glacial drift ranges from 100 to 300 feet in depth over bedrock.

No geologic hazards such as sinkholes or karst are known to occur within the CCSRA.

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.

A majority of the project area includes soils classified as "Mines and dumps" according to the Crow Wing County Soil Survey (April, 1965). Detailed information is not available for areas defined as Mines and dumps in the soil survey, but it is assumed that these areas include an assortment of overburden piles, waste rock, low grade ore/reject piles, and other waste rock associated with open pit iron ore mining operations. Soil units are included in Figure 10.

The soils in the CCSRA, particularly those left by mining activity, are well suited to use as a trail surface as they compact very well and result in a durable, sustainable surface resistant to erosion. Routine trail maintenance will be conducted on a schedule that allows correction of any erosion before it develops into a problem. Trails would be closed during wet conditions to further limit the potential for erosion to become an issue. Trail construction techniques are described in Item 6.b; these techniques greatly reduce the potential for erosion issues. Any trails that are constructed across soils that are susceptible to erosion will be amended with more suitable soil from elsewhere in the CCSRA. Trail construction will result in the manipulation of approximately 21 acres of soil into a compacted trail surface.

The proposed event space and trailhead in the Sagamore Unit will require grading of approximately 15 acres. A relatively flat area located north of the Sagamore mine pit is the preferred location for the event space. The gentle terrain will lend itself well to roads, parking, and gathering spaces. The development will include both bituminous and aggregate surface to harden high traffic areas; other areas will be seeded with turf grasses. The project will not leave any exposed soil vulnerable to erosion.

Perimeter erosion control will be installed where needed for erosion control, particularly in sensitive areas, prior to construction. Erosion control measures are described in Item 11.b. ii.

Stormwater Control Measures, including vegetative buffers and other best management practices (BMPs), will be incorporated into the project design and development of mountain bike trails and are described in Item 11.b. ii.

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.

Table 8. NRCS Soil Map Units, CCSRA Project Area 2018

*NRCS definition: "***Paths and trails*** for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer."

Map Unit	Soil Unit Name	Slopes	Drainage	Depth to restrictive feature	Limitations for "Paths and Trails"*
1043	Udorthents, loamy (cut and fill land)	0 to 80 percent	Well drained	More than 80 inches	Not rated
1048	Udorthents, iron mine	2 to 120 percent	-	-	Not rated
1050	Udorthents, tailings basin	variable	-	-	Not rated
2-11D	Graycalm-Totagatic, frequently flooded complex	0 to 35 percent	*frequently flooded, very poorly drained*	More than 80 inches	Very limited;
2-32A	Minocqua-Wabuse complex	0 to 2 percent	Poorly drained	More than 80 inches	Very limited;
3-10A	Uskabwanka-Seelyeville-Cathro complex	0 to 1 percent	Very poorly drained	More than 80 inches	Uskabwanka - not rated; Seelyeville – very limited; Cathro – very limited
5-10A	Uskabwanka-Seelyeville-Markey complex	0 to 1 percent	Very poorly drained	More than 80 inches	Uskabwanka – not rated; Seelyeville – not rated; Markey – very limited
6-13D	Gerrish-Hapludalfs-Hegberg-Eutrudepts complex	10 to 20 percent	Somewhat excessively drained	More than 80 inches	Gerrish – somewhat limited; Hapludalfs – not limited; Hegberg – n/a; Eutrudepts – Somewhat limited
6-5B	Gerrish-Hapludalfs-Hegberg-Eutrudepts complex, pitted	2 to 10 percent	Somewhat excessively drained	More than 80 inches	Gerrish – somewhat limited; Hapludalfs – not limited; Hegberg – n/a; Eutrudepts – somewhat limited
6-5D	Gerrish-Hapludalfs-Hegberg-Eutrudepts complex, pitted	10 to 20 percent	Somewhat excessively drained	More than 80 inches	Gerrish – somewhat limited; Hapludalfs – not limited; Hegberg – n/a; Eutrudepts – somewhat limited
C17A	Rosholt-Chetek complex	0 to 2 percent	Well drained	More than 80 inches	Not limited
C17B	Rosholt-Chetek complex	2 to 8 percent	Well drained	More than 80 inches	Not limited
C17C	Rosholt-Chetek complex	8 to 15 percent	Well drained	More than 80 inches	Rosholt – very limited; Chetek – not limited
C50B	Augustana-Hegberg complex	1 to 8 percent	Moderately well drained	60 to 79 inches to densic material	Augustana – somewhat limited; Hegberg – very limited
D49A	Graycalm loamy sand	0 to 2 percent	Somewhat excessively drained	More than 80 inches	Somewhat limited
D57A	Madaus-Madaus, ponded complex	0 to 2 percent	Very poorly drained	More than 80 inches	Very limited
D58B	Roscommon-Gnesen-Meehan complex	0 to 3 percent	Poorly drained	More than 80 inches	Roscommon – very limited; Gnesen – somewhat limited; Meehan –somewhat limited
D77D	Graycalm-Grayling complex	12 to 25 percent	Somewhat excessively drained	More than 80 inches	Somewhat limited

Map Unit	Soil Unit Name	Slopes	Drainage	Depth to restrictive feature	Limitations for "Paths and Trails"*
D79C	Graycalm-Rifle complex	0 to 10 percent	Somewhat excessively drained	More than 80 inches	Graycalm – somewhat limited; Rifle – very limited
D80D	Graycalm-Grayling-Rifle complex	0 to 25 percent	Excessively drained	More than 80 inches	Graycalm – somewhat limited; Grayling – somewhat limited; Rifle – very limited
D84F	Eutrudepts-Graycalm-Rollins complex	20 to 45 percent	Moderately well drained	More than 80 inches	Very limited
D85D	Emmert-Gerrish complex	12 to 25 percent	Excessively drained	More than 80 inches	Somewhat limited
D85F	Emmert-Gerrish complex	25 to 50 percent	Excessively drained	More than 80 inches	Very limited
D89A	Lougee-Totagatic-Bowstring complex	0 to 1 percent, frequently flooded	Very poorly drained	More than 80 inches	Very limited
GP	Pits, gravel-Udipsamments complex	1 - 50 percent	Excessively drained	More than 80 inches	Not rated
M-W	Water, miscellaneous	-	-	-	Not rated
W	Water	-	-	-	Not rated

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.

Table 9. Surface waters within the CCSRA (* indicates Special Waters List, MPCA (2013))

Basin/Lake Name	DOW Lake #	Acres	DNR Shoreland Classification	Aquatic Invasive Species Infestation	MPCA Special Waters or Impairments
Alstead Mine	18044006	49.6	Natural Environment	*Dreissena polymorpha* (zebra mussel)	Mercury in fish tissue
Arco Mine	18044007	48.4	Natural Environment	*Dreissena polymorpha* (zebra mussel)	Mercury in fish tissue
Armour #2 Mine (mine pit feature)	18043800	30.3	none	none	none
Blackhoof	18011700	202.8	Recreational Development	none	Mercury in fish tissue
East Mahnomen	18012601	256.3	General Development	none	none
Huntington Mine (mine pit feature)*	18044100	93.6	none	*Dreissena polymorpha* (zebra mussel)	Trout Lake
June	18011600	103.1	General Development	none	none

Basin/Lake Name	DOW Lake #	Acres	DNR Shoreland Classification	Aquatic Invasive Species Infestation	MPCA Special Waters or Impairments
Louise Mine	18044004	32.9	Natural Environment	*Myriophyllum spicatum* (Eurasian watermilfoil)	Mercury in fish tissue
Mahnomen Mine #1	18044001	98.0	Natural Environment	*Dreissena polymorpha* (zebra mussel)	Mercury in fish tissue
Mahnomen Mine #2	18044002	22.6	Natural Environment	*Dreissena polymorpha* (zebra mussel)	Mercury in fish tissue
Mahnomen Mine #3	18044003	17.9	Natural Environment	*Dreissena polymorpha* (zebra mussel)	Mercury in fish tissue
Manuel Mine (mine pit feature)*	18043500	36.7	none	none	Trout Lake
Middle Mahnomen	18012602	166.0	General Development	none	none
Morroco Mine (mine pit feature)	18052000	78.1	none	none	none
Pascoe	18011400	112.0	General Development	none	none
Pennington Mine*	18043900	46.7	none	*Dreissena polymorpha* (zebra mussel)	Trout Lake
Portage	18011500	78.3	Natural Environment	none	none
Portsmouth Mine (mine pit feature)*	18043700	146.0	none	none	Trout Lake; impairment for Mercury in fish tissue
Sagamore Mine (mine pit feature)*	18052300	124.4	Natural Environment	none	Trout Lake
Unnamed (AKA: Little Mahnomen)	18041800	76.3	Natural Environment; Public Water Wetland	none	none
Unnamed Mine (Alstead & Arco)	18044005	12.6	Natural Environment	none	none
Virginia Mine (mine pit feature)	18052100	20.6	Natural Environment	none	none
Yawkey Mine (mine pit feature)*	18043400	13.3	none	none	Trout Lake

Streams that intersect or are within the CCSRA include:

- Rabbit River (Kittle number: M-103)
- Ironton Creek (Kittle number: M-103-001)
- Serpent Creek (Kittle number: M-103-002)
- Unnamed stream (Kittle number: M-103-001-003)
- Unnamed stream (Kittle number: MAJ-070113260_A)
- Unnamed stream (Kittle number: MAJ-07019868_A)

- Unnamed stream (Kittle number: MAJ-070113694_A)

Blackhoof Creek* (Kittle Number M-103-001-002) is a designated Trout Stream, located south of Blackhoof Lake and outside but within one mile of the CCSRA Boundary.

(These hydrological features are referenced in Figures 4,5,6,7)

Water Quality Impairments
According to the Minnesota Pollution Control Agency (MPCA) Proposed 2018 303d Impaired Waters List, nine lakes and one river within one mile of the CCSRA have been identified as impaired for one or more pollutants. All nine lakes are listed with impairments due to mercury in fish tissue (Serpent; Blackhoof; Portsmouth Mine; Mahnomen Mine #1; Mahnomen Mine #2; Mahnomen Mine #3; Louise Mine; Alstead Mine; and Arco Mine). The listed river segment is the 33.2-mile Pine River to Crow Wing River segment of the Mississippi River, which is located outside the CCSRA boundary: it is impaired for mercury in fish tissue and total suspended solids (TMDL approved for Mercury in Fish tissue).

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.

1. Depth to groundwater: Based on the NRCS soil units, the depth to groundwater varies within the CCSRA based on the soil types and among the mines and dumps areas. Ground water levels in native soils in the area range from 0 to greater than 6 feet, and is undetermined in the mines and dumps areas. There may be local surface ponding.
2. Two wellhead protection areas intersect with the CCSRA statutory boundary. Riverton Wellhead Protection Area is listed as Type A, with 37.75 acres of the area overlapping the CCSRA. Crosby Wellhead Protection Area is listed as Type C, with an area of 3,308.72 acres overlapping the CCSRA (this Protection Area encircles Serpent Lake). Other wellhead protection areas identified in the vicinity of the CCSRA but outside the project boundary include Trommald, Ironton, Deerwood, and Cuyuna. The project proposes development within the Riverton Wellhead Protection Area.
3. The County Well Inventory (GIS Database) was searched for existing wells within the proposed project area. Three wells are known to serve the CCSRA, and a total of eight (8) wells were identified within the CCSRA. Data also indicate there are 712 exploration borings within the CCSRA.

Table 10. Wells within the CCSRA

Well ID	Name	Location (Twp, Range, Section)	Depth (feet)	Type	General Location
518898	Hagberg	T46, R29W, Sec. 4	65	Domestic	Mahnomen Unit
591065	Olander	T47, R29W, Sec. 34	69	Domestic	Mahnomen Unit
491851	Sheppard	T46, R29W, Sec. 4	84	Domestic	Mahnomen Unit
803093	DNR Yawkey Park	T46, R29W, Sec. 1	178	Community supply (municipal)	Yawkey Unit
460279	Ashland	T46, R29W, Sec. 2	73	Public supply – non-community, transient	Portsmouth Unit

Well ID	Name	Location (Twp, Range, Section)	Depth (feet)	Type	General Location
424795	Croft Mine Bd.	T46, R29W, Sec. 1	78	Public supply – non-community, transient	Portsmouth Unit
797087	MN DNR	T46, R29W, Sec. 10	100	Public supply, non-community	Mahnomen Unit
516337	Hagberg	T46, R29W, Sec. 4	47	Test well	Mahnomen Unit

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.
   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.
   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.

The proposed project includes adding vault toilets to the Sagamore Unit trail head and event space location. No discharge facilities are necessary for the proposed project.

Existing vault toilets within the CCSRA are located at Yawkey trailhead, Sagamore Unit, Miners Mountain Rally Center. An existing sanitation building is located at the Portsmouth Campground.

No additional wastewater is expected to be produced during construction or use. Waste from the vault toilets is stored in tanks, which are pumped out and the waste hauled off site. Portable handwashing stations may be brought in for large events, but those will be self-contained and the wastewater hauled offsite.

No wastes will be discharged by the proposed project.

The Serpent Lake Sewer District discharges their stabilization ponds into Mahnomen Lake in the spring and fall. This will not impact the proposed project, nor will the proposed project have any effect on this existing system.

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.

The rolling topography of the project area makes it likely that much of the surface water runoff would end up in adjacent lakes. Therefore, it is critical to preserve and establish vegetative buffers between the lakes and trails, both during and after construction to prevent any sediment from entering these lakes.

Development will embrace best management practices (BMPs) for shoreland management—avoiding, minimizing and mitigating impacts to waterways. Development will meet or exceed setback standards; strive to minimize impervious surfaces; treat stormwater runoff on site; use natural vegetative buffers to infiltrate runoff and screen much of the development from lakes; and minimize disturbance and fragmenting of riparian and aquatic habitats.

The BMPs and development guidelines provide a number of techniques and tools that will be used to ensure sustainable design and facility use over time. During construction erodible soil stockpile will have perimeter sediment controls such as silt fence or bio-logs; a 50 foot natural buffer consisting of habitat-appropriate native vegetation will be maintained from surface waters or, if a buffer is not feasible, redundant sediment controls will be provided; where the receiving body is a special water, a 100-foot natural buffer will be maintained from surface waters or, if a buffer is not feasible, redundant sediment controls will be provided; on slopes 3:1 or steeper, perimeter erosion BMP's will be installed prior to construction.

Permanent stormwater management will be implemented during construction. Along trails, stormwater management will be achieved with the existing system of vegetated natural depressions; this method is most appropriate for narrow, natural surfaced trails. In the Sagamore unit trailhead and event space area, stormwater from proposed roadways and parking areas will be routed through swales seeded with deep-rooted native vegetation. Ditch blocks may be used to provide additional treatment within the constructed swales. Infiltration BMPs will be utilized where soil conditions allow. In general, impervious areas will be disconnected from conveyance systems. Where larger impervious areas are proposed, treatment swales and bio-retention areas will be utilized to remove sediment from runoff prior to entering waterways. Soil amendments and/or deep tillage may be incorporated into pervious areas to promote infiltration of stormwater. A Stormwater Pollution Prevention Plan (SWPPP) will be prepared prior to development.

Construction and maintenance of the existing and proposed trails follows sustainable building techniques found in the DNR Trail Planning, Design and Development Guideline, Section 6. Most trails will be contour trails benched into the hillside. Contour trails are paths that gently traverse the hill or side-slope. A bench is a section of tread cut across the side, or contour, of a hill, and a full bench trail is constructed by cutting the full width of the tread into the hillside. This design element creates a consistent and stable tread. All edges are rounded and the tread has a 5% outslope to encourage sheet drainage off the trail. This design does not allow water to stand on the trail or run down the trail. Where trails are on flatter terrain, the tread is crowned to allow water to roll off both sides of the trail (See Figure 11).

When the trail is initially built and during subsequent maintenance, the tread is mechanically compacted to help lock in these critical design features and promote water sheeting off the trail. Routine annual maintenance maintains the original trail shape to prevent erosion from becoming a problem.

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 proposed project includes adding a new well in the northern portion of the Sagamore Unit. Volume and pumping rate for the well will be less than 10,000 gallons per day or 1 million gallons per year and will not require a DNR water appropriations permit.

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.

According to the National Wetlands Inventory (NWI) map, wetlands are scattered throughout the CCSRA. Proposed development is expected to be able to avoid wetland impacts with rare exception. The two stream crossings described in Item 11.b.iv.b may have wetlands adjacent to them; if wetland impacts cannot be avoided in these locations, the impacts will be minimized and mitigated as required by the Wetland Conservation Act and USACE requirements. All proposed developments will be reviewed by resource specialists with expertise in wetland identification.

Actions to minimize disturbance to wetlands may include, but are not limited to, the following:

- Minimizing the width of trail;
- Operating within previously disturbed areas;
- Using bridges, boardwalks, or open bottom culverts for stream and wetland crossings where feasible;
- Minimizing vehicular disturbance in the area (allow only vehicles/equipment necessary for construction activities);
- Refraining from parking equipment or stockpiling supplies in the areas;
- Refraining from placing soil within these areas;
- Using effective erosion prevention and sediment control measures, as discussed in 11.b.2;
- Inspecting and cleaning all equipment prior to bringing it to the site to prevent the introduction and spread of invasive species;
- Using signage to encourage visitors to stay on designated trails;
- Revegetating disturbed soil with native species suitable to the local habitat as soon after construction as possible;
- Using only weed-free mulches, topsoils, and habitat-appropriate native seed mixes.

Known wetlands located within the CCSRA are shown on Figures 3 through 7.

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.

Trail layout will seek to avoid stream crossings where possible. At two locations within the Sagamore Unit singletrack trail is proposed to cross an unnamed tributary to the Rabbit River at a location south of Sagamore Mine Pit. The stream crossing will be located and designed to minimize impacts to the course, current, and cross-section of the stream. It has not been determined if bridges or culverts will be used for the stream crossing. The stream is not a navigable water; therefore there will be no impact to boaters.

In the Mahnomen Unit the trail will cross the connecting channel between Mahnomen and Little Mahnomen Lakes by utilizing the existing in place culverts from the former railroad grade that separated these lakes.

Installation of bridges and culverts will be in compliance with regulatory requirements and permits will be obtained as needed. Enhancements for fish and wildlife such as open bottomed culverts or inclusion of wildlife passage benches will be evaluated for inclusion during planning and design. Best management practices during construction will include stabilization of exposed soils, silt fence, bio-logs, and instream silt curtains as appropriate. The proposed project will not change the number or type of watercraft used in the CCSRA.

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.

Potential environmental hazard sites have been identified within the proposed project area, as reported in MPCA's "What's in My Neighborhood" data base (WIMN). According to MPCA records, Armour Mine #1 site was listed in the federal Comprehensive Environmental Response, Compensation and Liability Information System in 1987 and removed or expired in 1994. The northeast part of Portsmouth Unit was part of the old Crosby landfill/dump that was sealed by MPCA. Ongoing groundwater monitoring is being conducted using test wells. Two other sites included notification of regulated wastes, both of which are currently inactive (Holmvig Excavating and Al's Painting).

The Serpent Lake Sewer District runs its main line through the north side of the Portsmouth Unit in the CCSRA. The sewer ponds are located adjacent to the Portsmouth Unit, but are not within the project area or within the CCSRA statutory boundary.

The current construction stormwater permit for Cuyuna Mountain Bike Trail – Ironton expires 8/1/2018; Cuyuna Country SRA Huntington Trailhead, construction stormwater permit is inactive and expired 10/2/2014.

No impacts are anticipated from the proposed project or future developments within the CCSRA.

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.

All trash and solid wastes generated during the construction will be carried out by the trail construction crews and volunteers and disposed of off-site.

Existing campground operations generate general municipal solid wastes that require disposal. A local garbage hauler is contracted to move the waste materials to an off-site location. Recycling containers are placed in proximity to the camping locations. A local waste management company collects and hauls recyclable materials to a recycling depot for processing. Recycling is promoted under current SRA operations and signage will be used to further promote recycling within the CCSRA.

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 will not generate any toxic or hazardous materials. However, fuels, antifreeze, and hydraulic oils will be used in some equipment for construction, operations and maintenance activities. Accidental spills of fuel used for motorized tools or equipment during construction and maintenance are possible. Construction and maintenance related fueling will occur away from streams, wetlands and surface waters. Equipment operators perform routine inspections on stock and equipment to ensure proper working order and do not have any leaks or signs of corrosion. DNR staff are trained in emergency spill remediation. Construction and maintenance crews will carry appropriately sized spill kits and immediately contain and clean up all spills. All wastes from spill cleanups will be properly disposed off-site.

No above ground or below ground storage tanks are proposed with this project.

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.

No hazardous wastes will be generated through the use of the mountain bike trail system.

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

Minnesota lies at the center of North America where the prairie, boreal forest, and eastern deciduous forest meet. There are four major ecological provinces in Minnesota: the Eastern Broadleaf Forest, the Laurentian Mixed Forest, the Prairie Parkland and the Tallgrass Aspen Parklands. These ecological provinces are divided into subsections – distinct landscapes of Minnesota, defined by vegetation, geology, and other resource criteria.

The CCSRA is located within two Ecological Subsections. The Mahnomen, Portsmouth and Yawkey Units are located within the St. Louis Moraines Ecological Subsection and the Sagamore Unit is located within the Mille Lacs Uplands subsection.

The St. Louis Moraines Subsection is characterized by rolling hills with steep slopes throughout. The Mississippi River cuts through portions of this area, but mainly small, relatively short rivers are present, including the Prairie, Willow, Hill, and Moose. Lakes are common and many are greater than 160 acres in size. Forestry and outdoor recreation are the predominant land uses in this subsection. Most of the red and white pines were removed by the early 20th century, and quaking aspen is the primary species harvested today. Expanding residential development on lakeshores is a major concern, especially on the steep slopes and wet areas previously considered undesirable for development.

The Mille Lacs Uplands is a large subsection located in east-central Minnesota and includes the St. Croix Moraines, a small area to the southeast along the St. Croix River. The subsection is named after Lake Mille Lacs, well known for its high-quality walleye fishing. Several major rivers run through the area, including the Kettle, Snake, Rum, Ripple, and St. Croix, the latter forming part of the eastern boundary. The subsection contains extensive wetlands and 100 lakes greater than 160 acres in size. Gently rolling hills are the dominant landform.

Agriculture is concentrated in the western and southern portions, and forestry and recreation are more common in the central and eastern portions of the uplands. Large areas in eastern Pine County are still heavily forested, although few significant examples of once common white pine stands are present.

Fisheries

The CCSRA is heavily used by anglers, and trout fishing is especially popular. It includes nine designated trout lakes and one designated trout stream within its boundary: Yawkey, Portsmouth, Huntington, Pennington, Manuel, Mahnomen, Alstead, Arco and Sagamore lakes and Blackhoof Creek. Large trout and northern pike are commonly caught in several of the mine pit lakes and the natural lakes also provide good fishing opportunities for northern pike, walleye, black crappie, perch, and sunfish. A fishing pier is located adjacent to the public water access on Pennington Lake.

Wildlife

Wildlife in the CCSRA includes a variety of animals. Visitors occasionally observe white-tailed deer, cottontail rabbit, snowshoe hare, raccoon, red fox, coyote, mink, muskrat and beaver. Other birds sighted in the recreation area include great blue heron, kingfishers, loons, turkey vultures, ruffed grouse, and red-tailed hawks. This is also a great area for waterfowl, and Cuyuna Country marshes and lakes are host to many species of ducks including redhead, northern shoveler, mallard, ring-necked duck, blue and green-winged teal, wood duck, several types of mergansers, snow geese, Canada geese, and white-fronted geese.

Species of Greatest Conservation Need (SGCN)

These are species identified as rare, declining, or vulnerable in Minnesota and their available habitats are declining in quality or extent. The St. Louis Moraines subsection includes 74 known or predicted Species of Greatest Conservation Need (SGCN). Featured species include bald eagles, wood thrushes, ovenbirds, northern goshawks, red-shouldered hawks, four-toed salamanders, least darters, and Blanding's turtles.

The Mille Lacs Uplands subsection includes 128 known or predicted SGCNs, the third most of all subsections in Minnesota. These SGCN include 57 species that are federal or state endangered, threatened, or of special concern. Because this subsection includes extensive forest lands, riparian forests and open waters, it contains a mix of habitats that support bald eagles, common terns, sandhill cranes, ospreys, wood turtles, trumpeter swans, yellow rails, and sharptailed sparrows, as well as rare mussels like the winged mapleleaf, spike, and round pigtoe.

Vegetation

The native plant communities at the CCSRA are scarce or regenerating due to disturbance from past mining activities in the area. Much of the land cover is classified as non-natural systems, with some remnant fire dependent (Red Pine-White Pine Forest) and wet meadow and wet forest systems (Willow – Dogwood shrub Swamp) and marsh systems (Northern Cattail Mixed Marsh) interspersed. A small area (four acres) is classified as remnant dry barrens Oak Savanna (southern), Jack pine subtype.

The native plant community (NPC) types and subtypes recognized in Minnesota have been assigned conservation status ranks (S-ranks) that reflect the risk of elimination of the community from Minnesota. There are five ranks: S1 = critically imperiled S2 = imperiled S3 = vulnerable to extirpation S4 = apparently secure; uncommon but not rare S5 = secure, common, widespread, and abundant. These ranks are determined using methodology developed by the conservation organization NatureServe and its member natural heritage programs in North America. S-ranks were assigned to Minnesota's NPC types and subtypes based on information compiled by DNR plant ecologists.

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-20180491) 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 Minnesota Natural Heritage Information System (NHIS) database was queried by Natural Heritage Review staff to determine what rare, threatened, or endangered plant or animal species or other significant natural features are known to occur within or near the project area. This query identified multiple rare features near the project area, including federal and state listed species, as identified below and discussed in Item 13c.

Rare Native Plant Communities (NPC)

The CCSRA contains a few occurrences of two rare native plant communities:

- **FDc34a: Central Dry-Mesic Pine Hardwood Forest** (Red-Pine – White Pine Forest) has an **imperiled** rank of S2. This plant community type is primarily located in the western portion of the Mahnomen Unit and southeastern edge of the Sagamore Unit, covering approximately 78 acres (269 acres are covered by fire dependent forest, of which 78 acres is Red-pine-white pine forest). (See Figure 8)
- **Ups14: Southern Dry Savanna** has an S rank of 1, or **critically imperiled**. This plant community is located in the southern portion of the Sagamore Unit and is estimated to cover approximately 4 acres. (See Figure 8)

Although these plant communities are not ranked very high in quality, rare intact natural communities are very uncommon within the CCSRA; therefore, efforts will be made to minimize disturbance in these areas. Large scale development will not occur in these areas and Ups14 will be avoided. FDc34a will have limited development, and any trails will be of minimal width and will be routed to avoid sensitive areas or resources.

In addition, the wetland community WMn82-Northern Wet Meadow/Carr, has been identified in the CCSRA and will be avoided.

Moderate and High biodiversity significance rating

Two sites adjacent to the CCSRA are rated as having moderate and high biodiversity significance: Rabbit Lakes Uplands is a site of moderate biodiversity significance which occurs north of the recreation area, and Mississippi Moraine is a site of high biodiversity significance which occurs to the west of the Sagamore unit. The proposed project will not negatively impact that rating as it occurs outside of the State Recreation Area boundaries.

Federally and State listed threatened, endangered, or otherwise protected species

The following state or federally listed or otherwise protected species may occur within the project area:

Botrychium - Rare and state listed species of these plants occur in many locations at the CCSRA and could feasibly occur within the project boundaries:

- Spatulate Moonwort *(Botrychium spathulatum)* Federal Status: none; Minnesota Status: Endangered. Habitat is known to be sandy roadsides, grassy fields, and wooded sand dunes. In Minnesota, several large populations were reported from a tailings pond of an iron-ore mine. Plants occur in full sun and in partial shade under balsam, poplar, and jack pine.

- Upswept Moonwort *(Botrychium ascendens)* Federal Status: none; Minnesota Status: Endangered. Occurs in open habitats and microsites with evidence of slight to moderate disturbances. Seems to prefer moist, early-successional habitats such as wet meadows, edges of trails, seeps and mossy openings in forests. *B. ascendens* appears to be a successful colonizer of disturbed habitat on old roads and in abandoned fields. Disturbance can occur at many scales and intensities and may serve to create, enhance, destroy, or degrade habitat throughout the landscape.

- Prairie Moonwort *(Botrychium campestre)* Federal Status: none; Minnesota Status: Species of Special Concern. *B. campestre* has been found primarily in native, tall to mid-height grass prairie systems where dead leaf litter from grass is present and in sites with some disturbance, such as grazing. It is also known to occur on dunes, sandy soils, along railroad tracks, and in areas of calcareous soils underlain by limestone.

- Least Moonwort *(Botrychium simplex)* Federal Status: none; Minnesota Status: Species of Special Concern. In Minnesota, *B. simplex* has been reported from both open and closed canopy settings. These include rich black ash and cedar swamps, jack pine woods, prairies, open fields with non-native grasses, stands of northern hardwood forest, and on glacial till and outwash. It is also reported from sites that have been disturbed by humans, including borrow pits, tailings ponds, road shoulders, and old roadbeds.

- Slender Moonwort *(Botrychium campestre var. lineare)* Federal Status: none; Minnesota Status: Endangered. In Minnesota, plants occur among herbaceous and young tree growth on abandoned iron mine tailings and drained settling ponds. In other regions, it has been found primarily in meadows, fen-like seeps and gravelly roadsides. Nearly all *B. campestre var. lineare* are associated with mid-successional meadow vegetation composed of perennial vegetation over calcareous bedrock or soils influenced by calcareous seepage.

- Pale Moonwort *(Botrychium pallidum)* Federal Status: none; Minnesota Status: Species of Special Concern. In Minnesota, reported habitats included maple/basswood forests, red and jack pine forests, sandy ridges, wetlands, ephemeral ponds, pine needles, oak leaves, open fields, and open tailings ponds.

- Blunt-Lobed Grapefern *(Botrychium oneidense)* Federal Status: none; Minnesota Status: Threatened. Across its range, it is most common in low, wet, acidic, second-growth shady woods and swamps. Occurrence records for Minnesota were primarily on level to gently sloping terrain in rich moist soil on the edge of depressions, ephemeral pools/vernal ponds, and

other wetlands. The occurrences were usually in northern hardwood forests dominated by Sugar Maple and American Basswood.

- St. Lawrence Grapefern *(Botrychium rugulosum)* Federal Status: none; Minnesota Status: Species of Special Concern. A Minnesota report listed habitat preferences as dry areas with short grasses, bracken fern, sweet fern, jack pine, red pine, aspen/balsam-fir woods, and openings within these types. Additional habitats listed were described as margins of ephemeral pools in forests dominated by pine, spruce, and paper birch/aspen.

Butternut *(Juglans cinerea*) Federal Status: none; Minnesota Status: Endangered. This species has been documented in the vicinity of the project. *J. cinerea* achieves optimal growth on well-drained soils of bottomland and floodplains. It grows best in riparian sites and well-drained soils, but is seldom found on dry, compact, or infertile soils. Butternut is shade-intolerant, growing best in full sunlight and needs to be in the canopy in order to survive.

Areas with habitat potential for *Botrychium* and *Juglans cinerea* will be further surveyed for these listed species. Midwest Natural Resources, a MN DNR approved surveyor, surveyed over 10 miles of trail corridor and 20 acres of the proposed event center space in June 2018. The survey identified several locations of rare and state listed *Botrychium* and *Juglans cinerea.* Other areas proposed for development will be either reviewed in the field by MN DNR Parks and Trails Resource Management staff or another surveying contractor prior to construction.

Least Darter *(Etheostoma microperca)*: Federal Status: none; Minnesota Status: special concern. This species has been documented in the vicinity of the project but is not in the immediate area, which should reduce any significant impact.

Blanding's Turtle *(Emydoidea blandinii),* Federal Status: Not Listed, Minnesota Status: Threatened. This rare species is not currently known to be present at the CCSRA but has been documented within a mile of the boundary.

Northern long-eared bat *(Myotis septentrionalis),* Federal Status: Endangered, Minnesota Status: Special Concern. There are currently no known Northern Long-eared Bat roost trees or hibernaculum sites in the project area. However, forest habitat does exist that has the potential to provide habitat and/or roost trees.

Bald Eagle (*Haliaeetus leucocephalus*) Federal Status: protected under Migratory Bird Act and The Bald and Golden Eagle Protection Act, Minnesota Status: Not Listed. Bald eagles are not documented within the project area but do occur within a mile of the site.

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.

Vegetation and Native Plant Communities

The trail will result in some further fragmentation of the landscape, however, given the extensive disturbance history in the area this is not expected to cause great ecological impacts.

Trail construction should not appreciably affect the dominant overstory vegetation and adjacent subcanopy if the project goal of minimizing new canopy openings is realized. Ground layer vegetation would typically remain intact except for the six-foot wide treadway itself. Over time grasses, which are the most tolerant of trampling and maintenance clipping, would be the type of vegetation most likely to survive in the managed trail corridor.

Wildlife

The wildlife impacts of mountain bike use are similar to hiking. Wildlife and their habitats would be affected by activities related to trail development and usage, with the magnitude and character of the impacts varying greatly by species. Potential project-related environmental effects to wildlife include: changes in ground habitat resulting from limited removal of understory vegetation along the trail route; accidental introduction of invasive species; and disturbance and alteration of use patterns of wildlife species, especially avoidance of the installed trail network by those species that are sensitive to human intrusion. Some degree of understory habitat fragmentation would occur but overstory habitat integrity should remain with little or no project-related change in canopy coverage. The suitability of existing travel corridors through the area proposed for the trailhead and parking area may be diminished during construction and subsequent recreational uses. 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 or nesting 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 white-tailed deer, could benefit from the trails. No regional consequences are anticipated.

Impacts to wildlife should be reduced near waterbodies since the proposed project will be compliant with the state buffer law.

Bald Eagle (*Haliaeetus leucocephalus*): Suitable habitat for the bald eagle is present within the vicinity of the Project area and construction activities could produce physical, visual, and noise disturbance effects to bald eagles. Because no eagles are known to occur in the project area at present, these disturbances could deter eagles from moving into an otherwise suitable area.

Blunt-lobed Grapefern *(Botrychium oneidense*): This species has been documented in the vicinity of the project but will be avoided by establishing a buffer of 295 feet around any specimens, unless specified otherwise in the *Cuyuna Country Recreation Area Trails and Facilities Rare Species Avoidance Plan*. Threats include drought, fire, timber harvest and associated hydrologic changes in the habitat, herbicides, exotic earthworms, and succession. Any activity that reduces forest cover and alter moisture conditions could adversely affect populations.

Upswept Moonwort *(Botrychium ascendens*): This species has been documented in the vicinity of the project but will be avoided by establishing a buffer of 20 feet around any specimens. Threats include changes to natural disturbance regime, road and trail construction and maintenance, structure construction, herbicide application, recreational activities, grazing and trampling by wildlife, non-native species competition, habitat fragmentation, and timber harvest.

Spatulate Moonwort *(Botrychium spathulatum*): This species has been documented in the vicinity of the project but will be avoided by establishing a buffer of 20 feet around any specimens. Threats may

include natural plant succession toward closed-canopy conditions, exotic plants, and major disturbances.

Slender Moonwort *(Botrychium campestre var. lineare):* This species has been documented in the vicinity of the project but will be avoided by establishing a buffer of 20 feet around any specimens. Threats include herbicide spraying, uncontrolled spread of non-native plants, ground-disturbing activities such as development, timber harvest, road maintenance, various recreational activities, and other human activities.

Prairie Moonwort *(Botrychium campestre):*. This species has been documented in the vicinity of the project but will be avoided by establishing a buffer of 20 feet around any specimens. The primary threat is the loss of habitat due to native grassland conversion to agriculture, succession to closed canopy, fragmentation, and non-native species invasion. It is susceptible to drought and removal of the light cover of thatch that is thought to shade the soils and keep it moist. Any land use activity within an occurrence of *B. campestre* may potentially threaten it.

Least Moonwort *(Botrychium simplex):* This species has been documented in the vicinity of the project but will be avoided by establishing a buffer of 20 feet around any specimens. Primary threats are development and maintenance, road construction and maintenance, timber harvest, recreation, fire, woody plant encroachment, exotic earthworms, invasive plant species, and succession to closed canopy forest.

Pale Moonwort *(Botrychium pallidum):* This species has been documented in the vicinity of the project but will be avoided by establishing a buffer of 20 feet around any specimens. Primary threats appear to be the loss of its typical open, grassy habitat to successional overgrowth. Habitat encroachment due to development, agriculture, and recreation are also threats.

St. Lawrence Grapefern *(Botrychium rugulosum):* This species has been documented in the vicinity of the project but will be avoided by establishing a buffer of 20 feet around any specimens. Threats include succession to closed-canopy forest, and loss or destruction of habitat. It was also noted that aggressive, non-native plants colonize compatible habitats and are especially problematic to *B. rugulosum.*

Butternut *(Juglans cinerea*): This species has been documented in the vicinity of the project but will be avoided by establishing a buffer distance of 30 feet around identified specimens. *J. cinerea* has been seriously devastated by a canker fungus that is spreading rapidly throughout its range, and few stands remain uninfected. Timber harvest can cause harm with log landings, staging areas, or access routes on or near known populations. Broadcast spraying of herbicides can have a negative impact to this species.

Least Darter *(Etheostoma microperca)*: This species has been documented in the vicinity of the project but is not in the immediate area which should reduce any important impacts. The primary concern for least darter is adverse effects to water quality, especially siltation.

Blanding's Turtle *(Emydoidea blandingii)*: This rare species is not currently known to be present at the CCSRA but has been documented within a mile of the boundary. In addition, since some of the proposed trail development may occur within upland habitat adjacent to wetlands where Blanding's turtles could (but are not currently known to) occur, some disturbance may occur if turtles are present.

Potential disturbance may include direct fatalities or habitat disturbance/destruction due to excavation, fill, or other construction activities associated with the project.

Northern Long-eared Bat *(Myotis septentrionalis)*: There are currently no known Northern Long-eared Bat roost trees or hibernaculum sites in the project area. However, forest habitat does exist that has the potential to provide habitat and/or roost trees. 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.

Bald Eagle *(Haliaeetus leucocephalus)*: Bald eagles are not documented within the project area but do occur within a mile of the site, and suitable habitat for them is present in the CCSRA so it is possible for them to colonize the area in the future. Human disturbance, along with damage or removal of nest trees, would be the principle impacts to this species.

Invasive species

Several invasive species have been mapped in the recreation area.

Project-related construction and ongoing visitor use (once operational) can provide opportunities for the introduction and/or spread of invasive plant species. Invasive species can adversely affect wildlife habitat and lessen biodiversity, the latter due to invasive species outcompeting endemic species in disturbed habitats. Soil disturbance due to construction, unmanaged trail development or use, or heavy rains, can provide conditions suitable for establishment of invasive plant species introduced to the site by animals, birds and wind, operator clothing, or via equipment, trucks, or bicycles originating from infested areas, whether outside the CCSRA or from other portions within it. Wetland crossings provide an opportunity for introduction of Reed Canary Grass, and any water crossings can provide an opportunity to introduce aquatic invasive species as well as providing a corridor for the spread of terrestrial invasive species. In addition, materials such as gravel could provide seedstock for the introduction of invasive plant species to the project site.

The Minnesota Department of Agriculture (MDA) designates which species have the greatest potential to be *injurious to public health, the environment, public roads, crops, livestock, or other property*. Designations for the species known to exist at the recreation area are below on Table 11. Species with an MDA ranking of *control* must be controlled, meaning efforts must be made to prevent the spread, maturation and dispersal of any propagating parts. Species with a ranking of restricted may not be sold, transported illegally or intentionally planted in Minnesota.

Table 11. Terrestrial Invasive Plants identified in the CCSRA

Species	MDA Control Ranking
Common Tansy (*Tanacetum vulgare*)	Control
Spotted Knapweed (*Centaurea stoebe*)	Control
Canada Thistle (*Cirsium arvense)*	Control
Plumeless Thistle (*Carduus acanthoides)*	Control
Leafy Spurge (*Uphorbia esula*)	Control
Purple Loosestrife (*Lythrum salicaria*)	Control

Species	MDA Control Ranking
Glossy Buckthorn (*Frangula alnus*)	Restricted
Common Buckthorn (*Rhamnus cathartica*)	Restricted
Honeysuckle Spp. (*Lonicera Spp.*)	Restricted
Crown Vetch (*Securigera varia*)	Restricted
Birdsfoot Trefoil (*Lotus corniculatus*)	Not Rated
Siberian Peashrub (*Caragana arborescens*)	Not Rated

The *MN DNR Operational Order 113* provides guidance and directives applicable to agency staff and contractors for implementing site-level management to prevent or limit the introduction, establishment, spread, and treatment of invasive species. The MN DNR Division of Parks and Trails staff have detailed guidelines specifically for administering their lands and programs.

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

Native Plant Communities: Although these plant communities are not ranked very high in quality and rare intact natural communities are very uncommon within the CCSRA, efforts will be made to minimize disturbance in these areas. Large scale development will not occur in these rare plant communities and Ups14 will be avoided. FDc34a will have limited development and trails will be of minimal width and routed to avoid sensitive areas or resources. In addition, development will be avoided in wetland communities, such as WMn82 (Northern Wet Meadow/Carr).

Actions to minimize disturbance in native plant communities may include, but are not limited to, the following:

- Minimize the width of trail;
- Operate within previously disturbed areas;
- avoid routing trails through wet swales or depressions, or any sensitive rock outcrop areas;
- Use bridges, boardwalks, or open bottom culverts for stream and wetland crossings where feasible;
- Minimize vehicular disturbance in the area (allow only vehicles/equipment necessary for construction activities);
- Do not park equipment or stockpile supplies in the areas;
- Do not place soil within these areas;
- Use effective erosion prevention and sediment control measures as detailed in the SWPP and in Section 11.b.ii;
- Inspect and clean all equipment prior to bringing it to the site to prevent the introduction and spread of invasive species;
- Trail maintenance plans will address erodible soils, especially in areas of steep topography;
- Use signage to encourage visitors to stay on designated trails;
- Revegetate disturbed soil with native species suitable to the local habitat as soon after construction as possible;
- Use only weed-free mulches, topsoils, and seed mixes.

Moderate and High Biodiversity Significance rating: Adjacent NPC landscape, located outside the boundary of the CCSRA, is rated as moderate and high biodiversity significance. DNR will be avoiding development in these areas since they are located outside the CCSRA boundary.

State listed Butternut (*Juglans cinerea*) and Botrychium species occur in many locations at the CCSRA and could feasibly occur within the project boundaries. All known locations and any new locations of species discovered will be avoided by re-routing trails or adjusting the event space location. Areas with habitat potential for these species will be further surveyed for these listed species. Midwest Natural Resources, a MN DNR approved surveyor, surveyed over 10 miles of trail corridor and 20 acres of proposed event space in June 2018. The survey identified several locations of rare and state listed Botrychium and *Juglans cinerea*. Development plans have been revised to avoid impacting Botrychium and *Juglans cinerea.* The NHIS database will be reviewed prior to development for any new occurrences of these species in the project area, and if any are detected development plans will be further revised.

The Cuyuna Country Recreation Area Trails and Facilities Rare Species Avoidance Plan identifies the following measures to be taken to avoid destroying and to minimize disturbance to these known rare species within the project area:

- **Survey Trail or Development Area**.
  Continue to conduct plant surveys in the design phase of trail planning. The design phase includes preliminary desktop design and initial flagging of proposed alignments. Areas with suitable habitat will be more closely examined by a qualified surveyor, which may consist of a contractor or DNR staff. Surveys will follow *Rare Species Survey Process* and *Rare Plant Guidance* and will be submitted to the Endangered Species Review Coordinator. All known locations and any new locations discovered will be avoided by re-routing trails or adjusting locations of planned developments.

- **Adhere to Buffer Distances for Threatened and Endangered Species and Species of Special Concern.**
  Trails will be routed to keep a specified distance from threatened and endangered species and from species of special concern, with one exception as discussed in the Avoidance Plan. Construction activities will also avoid this buffer area. The locations of populations will be communicated, as necessary, to staff designing the trails and other developments at the CCSRA by providing GIS data and by physically flagging buffer boundaries in the field.

  - Blunt-Lobed Grapefern *(Botrychium oneidense)* Buffer: 295 feet
  - Upswept Moonwort *(Botrychium ascendens)* Buffer: 20 feet
  - Spatulate Moonwort *(Botrychium spathulatum)* Buffer: 20 feet
  - Slender Moonwort *(Botrychium lineare)* Buffer: 20 feet
  - Prairie Moonwort *(Botrychium campestre)* Buffer: 20 feet
  - Least Moonwort *(Botrychium simplex)* Buffer: 20 feet
  - Pale Moonwort *(Botrychium pallidum)* Buffer: 20 feet
  - St. Lawrence Grapefern *(Botrychium rugulosum)* Buffer: 20 feet
  - Butternut *(Juglans cinerea)* Buffer: 30 feet

- **Communicate Information on Buffers to Contractors.**
  The engineers will denote buffer limits on plans provided to contractors. Preconstruction meetings will convey the importance of keeping out of the no impact buffer zone. In addition to the flagging, certain areas will be roped off or fenced off to further prevent impacts during construction activities.

Least Darter *(Etheostoma microperca)*: This species has been documented in Blackhoof Lake, which is in the vicinity of the project but is not in the immediate area which should reduce any significant impact. To avoid impact to water quality including siltation, an effective erosion prevention and sediment control plan will be implemented and maintained throughout the duration of the project. Once the project is completed, active maintenance will take place as long as the trail exists. This includes but is not limited to: clearing the trail of leaves; cleaning trail drains; de-berming treadways to re-establish sheet drainage; and repairing any rutting. In addition, buffers of habitat-appropriate native vegetation will be planted and maintained on the shores of the lake.

Blanding's Turtle *(Emydoidea blandingii)*: A Blanding's Turtle informative flyer will be provided to contractors and volunteers that may be working at the CCSRA. Turtles which are in imminent danger will be moved, by hand, out of harm's way. If the turtle is not in imminent danger, it should be left undisturbed. Once the project area has been revegetated with native seed suitable to the local habitat (per DNR Operational Order #124), any silt fencing will be removed immediately. Given the potential for presence of this turtle, the use of erosion control mesh will be limited to wildlife-friendly materials only.

To reduce the potential for direct mortality of Blanding's turtles as a result of the project, we will:

- Use wildlife-friendly erosion control methods;
- Avoid any wetland fill placement during the winter months;
- Implement stringent sediment and erosion control methods;
- Monitor for turtles during construction and report any sightings to the DNR;
- Provide the Blanding's turtle flyer to all contractors working in the area;
- Move turtles by hand out of harm's way if they are in imminent danger, and leave undisturbed otherwise; and
- Avoid constructing trails through wetland habitat that might harbor Blanding's Turtles.

Northern Long-eared Bat *(Myotis septentrionalis)*: There are currently no known Northern Long-eared Bat roost trees or hibernaculum sites in the project area. However, forest habitat does exist that has the potential to provide habitat and/or roost trees. Linear trail development will seek to avoid large trees, however in instances where tree removal must occur MN DNR Parks and Trails will follow best management practices to limit potential impacts to Northern Long-eared Bats. Practices include:

- conducting any contiguous blocks of tree clearing activity greater than 2.5 acres, such as for a building or parking area, in the winter while the bats are hibernating;
- removing potential roost trees during the winter prior to development; and
- refraining from tree removal during the time period between June 1 to August 15, when pups are most vulnerable to disturbance.

Prior to project development on the ground, the Natural Heritage Information System will be queried and if any Northern Long-eared Bat roosts have been identified the federal 4(d) rules will apply.

Bald Eagle *(Haliaeetus leucocephalus)*: Bald eagles are not documented within the project area but do occur within a mile of the site and could move in. If any bald eagles are found within 660 feet of planned project activity, measures will be taken to avoid disturbing them. These include maintaining a buffer of at least 660 feet between the development activity and any existing nest (including active and alternate nests), and maintaining a landscape buffer that will screen the development from the nest.

Trees that will be removed will be inspected for nests prior to removal. No removal of active or alternate bald eagle nest trees are expected as part of this project.

Invasive species prevention measures

Invasive species can be introduced during the project's construction phase and through ordinary use of the trails. Both of these possibilities require prevention, detection, and management protocols specific to them.

Prior to construction, MN DNR Parks and Trails will use the MN DNR standard protocols to map invasive species populations along and in the vicinity of the proposed construction areas. The current mapping protocol being used is the Early Detection and Distribution Mapping System (Eddmaps). The recreation area was last mapped in 2011 using a grant from the DNR Terrestrial Invasive Species Program. New infestations are periodically added to Eddmaps when reported by staff, contractors, and visitors. Invasive species on the Minnesota Department of Agriculture's Eradicate and Control Lists will be treated before work begins.

To reduce the risk of invasive species spread during the construction phase, contract language will require oversight to ensure that all equipment will be cleaned and inspected prior to arriving at the project area, and cleaned and inspected again after work is completed and the equipment is moved from the area. Work will be conducted in uninfested sites before work in infested sites, to minimize the possibility of cross-contamination. Work will not be conducted and sites will not be disturbed during wet conditions to minimize soil disturbance. Workers will avoid parking in or moving equipment through patches of invasive species. To the extent possible work will not be conducted in infested areas when seed-bearing invasive species are present. Additionally, all fill materials, mulch seed mixes, hay, and other similar material brought to the site will be certified clear of invasive species. Soil disturbance will be minimized and will be revegetated as quickly as possible with temporary cover crops, appropriate native plants, and certified weed-free native seed mixes, to avoid the establishment of invasive species.

The risk of introduction and spread of invasive species during the operations and maintenance phases is primarily tied to invasive plant seeds and plant matter being transported to the site by trail users and maintenance equipment and the movement of seeds and plant fragments from one portion of the site to another by way of boots, bike tires, and maintenance equipment. Operational order guidelines will be followed to prevent the spread and introduction of invasive species, and invasive species signage, information, and education will be provided at key points throughout the recreation area, such as at trailheads and parking lots, and in conjunction with special programming and special events. Boot brushes and bike cleaning stations will be available at trail heads, parking lots and the rally center so users can clean their equipment. Wet trails will be temporarily closed until the trail surface dries or is suitable for use. Newly detected species, such as those requiring early detection and rapid response, and those listed on the MDA Eradicate List will be treated. As per Op Order 59 PAT guidelines, any pesticide applications will be preceded by a Natural Heritage information System (NHIS) database review to prevent rare species or significant native plant communities from being harmed.

Invasive species will be treated with chemical or mechanical methods in certain locations, such as high use areas and equipment storage areas. Best management practices for such treatment include the following:

- Follow Operational Order #113;
- Follow Operational Order #59 and Division guidelines when applying herbicides;
- Conduct treatment when effectiveness is maximized for target species;
- Use appropriate chemical application rates for target species;
- Use selective herbicides with the least amount of residual soil activity;
- Keep repeated mowing of native vegetation to a minimum
- Mow areas with invasive species before blooming stage when pl;ants are most vulnerable;
- Mow uninfested areas before mowing infested areas;
- Set mower height sufficient to minimize soil disturbance;
- Minimize soil disturbance when pulling by hand;
- Pull invasive species when the soil is moist so roots can be removed more easily; and
- Bag pulled plants and remove from the site or dispose onsite in an area that does not impact native vegetation.

Users will be alerted about any areas in which such control efforts are underway to prevent or limit the spread of invasive species from these areas.

Unauthorized bike trails have not been a significant issue at the CCSRA. However, MN DNR has protocols in place for corrective actions and enforcement should unauthorized trails be discovered or reported by staff, volunteers, or trail users. Monitoring for unauthorized trails is a part of routine annual maintenance by SRA staff and volunteers performing trail maintenance. Unauthorized bike paths are promptly closed off by vegetation, natural barriers, or signage, and enforced as appropriate.

Several aspects of routine trail management and maintenance also promote invasive species management. See Item 6.b.for more details.

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.

The CCSRA, which is in the heart of the Cuyuna Iron Range, contains the remains of about two dozen iron mines. Iron mining activities started on the Cuyuna Iron Range in 1904 with the discovery of the ore body by Cuyler Adams. Much like on the Mesabi Iron Range, the mines on the Cuyuna Iron Range were mostly operated as large-scale open-pit mines. Mines were at peak production during WWI and WWII. With the increased international and domestic competition after WWII many of the mines were no longer as profitable and mining activities were essentially finished by the 1960s. Much of the land in the CCSRA has been drastically altered by the historic mining activities, with large pits and stockpiles dominating the landscape. Other evidence of mining include railroad and road transportation corridors, drainage ditches, and the ruins of mining buildings and structures. A few areas within the CCSRA have not been altered by mining activities and could still contain intact Pre-contact period and/or pre-mining Historic period archaeological sites. Portions of intact ground around natural lakes (e.g. Blackhoof, June, Portage, Pasco, Little Mahnomen, and Mahnomen) have an especially high Pre-contact period archaeological potential.

The Minnesota State Parks and Trails Cultural Resource Management Program (MSPATCRMP) of the Minnesota Historical Society will complete a cultural resource reconnaissance survey for the proposed project. The MSPATCRMP will identify historic resources within project areas and determine the effects of the proposed project on historic resources. The State Historical Preservation Office (SHPO) will review project-specific findings and recommendations made by the MSPATCRMP and provide guidance for compliance with state and federal historic preservation laws. When feasible, projects will be modified to avoid impacts on identified historic resources. If project modification is not feasible, then steps will be taken to minimize impacts on historic resources, or in some cases, efforts will be made to carefully document resources before they are destroyed.

Cultural resource reconnaissance surveys have been completed for the proposed projects located in the Mahnomen Unit and the Yawkey Unit of the CCSRA. Cultural resource survey reports have been submitted to the SHPO. For both reports the SHPO concluded: *"there are no properties listed in the National or State Registers of Historic Places (NRHP), and no known or suspected archaeological properties in the area that will be affected by this project. However, as noted in the report, this project is located within the boundaries of the Cuyuna Iron Range Historic Mining Landscape District, which has previously been determined eligible for listing in the NRHP. We appreciate your assessment regarding the impacts of this project on the historic district. We agree that through the utilization of low-impact sustainable trail design, that this project will have minimal effects on the intact mining features and that the historic district will not be adversely affected by this project."*

If any historical resources are encountered during construction, appropriate measures will be implemented to evaluate and, if necessary, protect the resources. Immediately upon discovery of potential historical objects of an archeological or paleontological nature, including human remains, within the Project Site, the Contractor shall do the following: (1) Suspend operations in the immediate area of the discovery to preserve the potential historical resources, and (2) Notify the DNR Project Manager of the presence of potential historical resources. The DNR Project Manager will immediately contact the MSPATCRMP Program Manager for guidance on how to address the presence of potential historical resources. The MSPATCRMP Program Manager will act in accordance with the Minnesota Field Archaeology Act and the Minnesota Private Cemeteries Act as appropriate.

Tables 12 and 13 display the recorded archaeological sites and historic properties (respectively) within the CCSRA. Beyond the numerous unrecorded mining-era remains in the CCSRA, there are a number of known, but unrecorded, historic resources including: a WPA-era dam; abandoned railroad right-of-ways; a 1950s manned balloon launch site; and possible Native American habitation, burial, and portage sites.

Table 12. Known archaeological sites within the CCSRA

Site Number	Name	Designation	Period	Description	T/R/S
21CW0223	Little Menomin (AKA Mahnomen) Lake	Archaeological Site	Historic	Artifact Scatter	T46/R29/ Sec. 4
21CW0334	June Lake Road	Archaeological Site	Precontact and Historic	Single Artifact	T46/R29/ Sec. 4

Site Number	Name	Designation	Period	Description	T/R/S
21CW0335	North Little Menomin Lake	Archaeological Site	Precontact and Historic	Single Artifact and Surface Features	T46/R29/ Sec. 4
21CW0336	Little Menomin Lake Pit	Archaeological Site	Precontact and Historic	Surface Feature	T46/R29/ Sec. 4
21CWe	-	Archaeological Site (Unconfirmed)	Precontact	Artifact Scatter	T46/R29/ Sec. 4
21CWy	Rabbit River Mission	Archaeological Site (Unconfirmed)	Precontact & Historic	Artifact Scatter	T46/R29/ Sec. 8

Table 13. Known historic properties within the CCSRA

Inventory Number	Name	Designation	Description	T/R/S
CW-CSC-017	Ironton Sintering Plant	Listed on National Register of Historic Places	Remains Sintering Plant	T46/R29/ Sec. 2, 11
-	Cuyuna Iron Range Historic Mining Landscape District	Recommended Eligible for National Register of Historic Places	Remains of Cuyuna Iron Range Historic Mining Landscape	T46/R29/ Sec. 1, 2, 3, 4, 5, 8, 9, 10, 11, 16, 19 T47/R29/ Sec. 33, 34
CW-CSC-015	Croft Mine	Documented Historic Property (Unevaluated)	Remains of Croft Mine	T46/R29/ Sec. 1
CW-IRN-002	Soo Line/Northern Pacific Railroad Mahnomen Mines Rail Grade Remnant		Railroad Grade Remnant	T46/R29/ Sec. 10

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.

West of the Rally Center is the Mahnomen Overlook, which is 200 feet above the surrounding area, known as Miner's Mountain, and provides panoramic views of the area. Miner's Mountain Road, an unimproved road, provides access to this overlook. Miner's Mountain is a geographic feature composed of mine overburden from the excavation of the surrounding mine pits. Additional scenic views or overlooks are located throughout the CCSRA along the various bike trails.

Proposed developments are not within the viewshed from Mahnomen Overlook. Construction activity may be visible from overlooks along existing mountain bike trails, but will be temporary in duration. Once development of the trail system has been completed, trail users may encounter other trail users while using the trail system. Existing vegetation will continue to be managed and maintained, which provides visual

screening between trail segments and neighboring properties. Vegetative buffers also will remain between the proposed outdoor event space and adjoining properties to minimize adverse visual effects.

The proposed trail project is not anticipated to create any negative, long-term visual impacts.

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.

No stationary source air emissions are part of the proposed project.

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.

Gasoline and diesel powered vehicles will generate air emissions during construction and some maintenance activities. Exhaust emissions from these vehicles contain pollutants such as carbon monoxide, nitrogen oxides, reactive organic gases, sulfur dioxide and suspended particulate matter, all of which may carry associated health risks. Project construction activities will temporarily increase these airborne pollutant levels.

The proposed project may result in a slight increase in vehicle-related air emissions as a result of increased visitation by trail users traveling by vehicle to the CCSRA.

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.

The proposed project may create some temporary odors and dust during construction activities. Construction activities will occur during normal daylight hours. Construction in the Mahnomen, Portsmouth and Yawkey units is anticipated to occur from August 2019 through 2020 and the Sagamore Unit from 2020 to 2021. Minor odors will be generated from motorized equipment used during trail construction. Some fugitive dust will be generated during construction when top soils are dry. Measures, such as watering, will be implemented during grade preparations to limit the generation of fugitive dust. Maintenance activities would be conducted primarily with hand tools. Due to the nature of the trail construction practices, these impacts will be limited in duration and intensity.

Periodic trail maintenance activities throughout the year for trail repairs and fallen tree removal, will occur as needed. Winter trail grooming may include the use of snowmobiles, which also have temporary odors. Grooming is typically conducted on an as-needed basis (sometimes weekly as snow conditions change).

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.

The proposed project will create some temporary noise during construction activities. Noise from construction activities will occur during grade/treadway preparations or operation of motorized construction equipment. Construction activities will occur during normal daylight hours. Operation of motorized construction equipment would be the main source of construction noise. Noise would be controlled by ensuring standard noise arrestors (mufflers) are properly installed on construction and maintenance vehicles (including snowmobiles). Operation of construction equipment will be limited to several weeks at any given location and will occur only during daylight hours. Winter trail grooming may include the use of snowmobiles. Noise impacts are expected to be temporary or in short duration and transitory as the source of the impacts moves along the trail.

Operation of the new trails is not expected to change or increase the existing noise levels within the CCSRA. Dense vegetation within the trail corridor will help limit the amount of sound traveling from the trail corridor. There are no known sensitive noise receptors in the immediate area.

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.

The CCSRA includes a number of existing parking facilities that will continue to provide parking for visitors and trail users. The Mahnomen Unit includes the existing Rally Center, which includes a parking lot accommodating about 120 vehicles; the Croft Mine Historical Park parking lot also serves as a trailhead location.

Trailhead and outdoor event space development in the Sagamore Unit will include an outdoor open area intended to host mountain bike racing events and large groups. A parking area is planned here to accommodate up to 430 vehicles. A parking area for up to 80 vehicles will be provided for day to day use. For special events, additional parking will be provided to accommodate up to 350 vehicles (total parking capacity will be approximately 430 vehicles).

Minnesota Department of Transportation monitors vehicle classification programs to produce average annual daily traffic (AADT) volumes for trunk highways and local roads. According to the 2017 publication of traffic volumes for Crow Wing County, the average daily traffic along Highway 210 near Crosby is estimated to be 5100, and in Ironton it increases to 5600. Average daily traffic along State Highway 6 through the CCSRA is estimated to be 4150, and along County Road 30 it is 640.

Public transit is not currently provided to or from the CCSRA.

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 *(available at: http://www.dot.state.mn.us/accessmanagement/resources.html)* or a similar local guidance.

Traffic to the new event space at the Sagamore Unit is expected to increase for special events, but is not expected to substantially increase the average daily traffic. During special events, traffic increases are expected to be similar to what is currently experienced when events are held at the Mahnomen Unit trailhead where approximately 200 - 250 vehicles arrive for events that are of a similar size to those planned to be hosted at the Sagamore Unit. Experience with these existing events indicates that this will not create a new environmental effect and nothing beyond existing (background) conditions.

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

The proposed project includes road and parking facilities sized to accommodate anticipated use and prevent congestion, traffic backups or cars parking on the highway. Special event organizers will be required to provide temporary traffic controls, such as flaggers or additional signage, as needed.

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.

Potential project-related environmental effects that can interact with other reasonably foreseeable project include noise, traffic, spread of invasive species, erosion, and water quality. The proposed project would temporarily generate noise during the phases of construction, with the potential for noise generation during ongoing maintenance and wintertime trail grooming. The project would increase traffic levels above existing conditions that would vary as a function of total recreational use of the site. Routine use of the trails can result in increased erosion and introduction or spread of invasive species.

The geographic scale of the project-related environmental effects includes the immediate Cuyuna Country State Recreation Area, as defined within the project boundary depicted on Figures 1 and 2. This is the general locale for future activity associated with the project.

The timeframe for considering potential cumulative environmental effects would be approximately the first five years of construction and operation. This time period covers project construction and early operations.

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..

The Cuyuna Lakes Mountain Bike Crew proposes to develop approximately 11.93 miles of new trails in east-central Crow Wing County, within the City of Cuyuna and Rabbit Lake Township, as a designated single track mountain bike recreation trail system. Within areas under Crow Wing County management, 9.33 miles of the 11.93 total miles in this project plan have been submitted for approval by Crow Wing

County. Other parts of the trail system require approval from other jurisdictions, including the Minnesota Department of Natural Resources (MN DNR) which will be formally sought after receiving Crow Wing County approval. The proposed trail will include designated non-motorized uses by mountain bikes (summer), hikers, and fat-tire bicycling (winter, groomed by snowmobile). This project is east/northeast of the proposed project area and, as currently proposed, is adjacent to the Yawkey Unit of the CCSRA at its southwestern boundary.

MN DNR, MN DOT, and the City of Crosby have proposed a joint project to construct an underpass of State Highway 6 on the existing Cuyuna Lakes State Trail to enhance safety. The proposed improvements consist of removing a portion of State Highway 6, installing a 144' long pre-cast concrete box culvert, reconfiguring/reconnecting the existing CLST to the new culvert/tunnel, regrading, providing storm water management, and reconstructing Hwy 6. The preliminary engineering was funded by the City of Crosby and has been completed, MNDOT has secured funding to cover the majority of the project's cost, and DNR Parks and Trails has applied for an FRTP grant to cover its portion of project costs. Project area is entirely on State of Minnesota land (DNR and DOT), and this resource assessment will cover both agencies' ownership. This crossing is less than 200 feet from Portsmouth Mine Lake.

MN DOT is planning to reconstruct and resurface a section of Highway 210, and repair or replace drainage, between Crosby and Ironton. At its closest, Hwy 210 comes within 500 feet of the statutory boundary of the CCSRA. Highway 210 crosses Serpent Creek, which flows approximately 3000 feet into Armour Mine #2.

In 2019, a 0.75-mile segment of Miner's Mountain Road will be rehabilitated. This 0.75 mile segment has a gravel surface that is in deteriorating condition. Required improvements will be determined by a licensed engineer and may include: reconstructing the roadbed; installing culverts and other measures to manage water runoff and prevent erosion; and possibly installing retaining walls and guard rails. This road also serves as a snowmobile trail in the winter.

No mining or timber harvesting activities are planned within the project area for the foreseeable future.

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.

Noise

Cumulative noise effects are possible if any of the additional reasonably foreseeable construction overlaps the planned project construction. This would be expected to occur during daylight hours and would end when construction is complete. At this time, it is not known whether construction on any of the reasonably foreseeable projects will overlap with this project. Localized areas of possible cumulative noise effects include the southern border of the Portsmouth Unit with the State Highway 6 Underpass project and the Highway 210 project, and the Yawkey Unit with the Cuyuna Lakes project. Construction associated with the Miner's Mountain Road project should not have cumulative effects because the Miner's Mountain Road project is not near any work planned for the trail expansion project. State noise standards are not expected to be exceeded in these cases.

Traffic

Temporary localized increases in traffic could occur near the locations of the other reasonably foreseeable projects while construction is occurring. The planned Cuyuna Lakes State Trail underpass could disrupt normal traffic and recreation patterns of the CCSRA's recreational users if that trail becomes temporarily

unavailable for bicycling during construction. The planned Cuyuna Lakes Mountain Bike Crew project could have a similar temporary effect on use in the Yawkey Unit, and Miners Mountain Road rehabilitation could increase traffic pressure in the Sagamore Unit.

Once all site development is complete, cumulative traffic effects would persist over the lifetime of use of the trails proposed for this project, in combination with the other recreation-oriented reasonably foreseeable projects, due to increased use and movement in the area. Traffic effects would likely have seasonal peaks around the three major summer holidays, as well as other peak-use levels around special events (e.g., organized biking events).

Invasive Species

Cumulative invasive species effects are possible, both during construction and use of the trails. Both construction equipment and mountain bikes can transport invasive species from outside the CCSRA or from other areas within the CCSRA, and both can disturb the ground and make bare spots and ruts, creating opportunities for invasive species to become established. Invasive plants are found at the trailhead, and could be spread from this site to the new trails. The reasonably foreseeable bike trail expansions would provide additional possible infestation sources, as would the existing bike trail system. Any invasive species established along these trails could serve as a potential source for additional invasive species spread to any subsequent nearby project. This is a permanent possibility and will require permanent routine monitoring and maintenance of the bike trails to manage the effect.

Water Quality

Cumulative water quality effects are possible but are not expected if both the project and proposed construction work meets the conditions of the MPCA-administered Construction Stormwater General Permit. This is because measures required under the general permit are designed to limit erosion and subsequent offsite transport of sediment and nutrients to adjacent waterbodies. Possible locations where cumulative effects to water quality might occur include Portsmouth Mine Lake (from the proposed State Highway 6 underpass for the Cuyuna Lakes State Trail), and Serpent Creek and Armour Mine #2 (from the proposed reconstruction and resurfacing of a part of Highway 210).

Erosion

Cumulative erosion effects are possible if project construction activities overlap any of the other planned construction activities in the area. Any land alteration activity entails the risk of erosion, so effective site erosion and sedimentation control precautions are essential. Possible locations where this might occur include the Yawkey Unit where it would be impacted by the proposed Cuyuna Lakes Mountain Bike Crew project; the Mahnomen Unit where it would be impacted by the Miner's Road Rehabilitation; and the southern part of the Portsmouth Unit where it may be impacted by the State Highway 6 Underpass project. The magnitude of any cumulative effects is highly variable, and would be minimized by all projects following the erosion precautions stipulated in their workplans and as conditions of their permits. The possibility of cumulative effects from construction activities is also minimized if construction activities do not overlap in time. These effects are also influenced by the locations of any trails constructed in the Mahnomen or Yawkey units; the precise locations have not yet been determined. Cumulative effects will be minimized if the trails are constructed at a sufficient distance from the other proposed projects.

Cumulative erosional effects from use of the trails will be a permanent possibility; this can be minimized by regular proper maintenance of biking trails.

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.

Climate change in Minnesota is linked to an increase in intensity of rainfall events, which increases the severity of erosion caused by rainfall and flooding. Changing climate also disrupts existing patterns in temperature, rainfall, and daylight to which native species are adapted and may change environmental conditions to be more favorable to new, invasive species than they are to native species. In addition, many species have a high potential to become invasive because they are opportunistic, pioneering species that can rapidly colonize disturbed or stressed areas; these conditions are exacerbated by climate change.

Construction and use of the biking trails increases erosion potential and creates additional avenues for invasive species introduction and establishment, and projected consequences of climate change in Minnesota may increase the magnitude of both of these environmental effects. This cumulative effect can be mitigated against by minimizing the possibilities for erosion or invasive species introduction and spreading to occur by following the construction practices described earlier, and by frequently inspecting and performing maintenance on the bike trails once they are in use. Risk of washouts and erosion from more intense flooding will be mitigated by ensuring that any water crossing and culverts be designed with the capacity to convey or withstand anticipated precipitation and flooding changes.

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 4/15/19

Title EAW Project Manager