Cuyuna Connection and Cuyuna Hills Trail Project

ENVIRONMENTAL ASSESSMENT WORKSHEET

ATTACHMENTS 1 - 5

Attachment 1

Minnesota Natural Heritage Information System Review

From:	Bump, Samantha (DNR)
To:	joshua.rebennack@gmail.com; Novak-Krebs, Cynthia (DNR)
Subject:	NHIS Review: Cuyuna Connection & Hills Trail
Date:	Wednesday, August 7, 2019 4:06:42 PM
Attachments:	20190022-1a.pdf image003.png image004.png image005.png image006.png

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Good Afternoon,

I have reviewed the NHIS regarding the Cuyuna Connection & Cuyuna Hills Trail project. There are no new records in the vicinity of the project. As such, the Natural Heritage letter dated August 9, 2018 is valid until August 7, 2020.

Thank you for consulting us on this matter. If you have any further questions, please feel free to contact me.

Have a great day,

Samantha Bump
NHIS Review Specialist | Ecological & Water Resources
Minnesota Department of Natural Resources
500 Lafayette Road
St. Paul, MN 55155
Phone: 651-259-5091
Samantha.Bump@state.mn.us

DEPARTMENT OF NATURAL RESOURCES

Minnesota Department of Natural Resources
Division of Ecological & Water Resources
500 Lafayette Road, Box 25
St. Paul, MN 55155-4025

August 9, 2018
Correspondence # ERDB 20190022

Mr. Joshua Rebennack
Cuyuna Lakes Mountain Bike Crew
PO Box 191
Deerwood, MN 56444

RE: Natural Heritage Review of the proposed Cuyuna Connection & Cuyuna Hills Trail Project,

County	Township (N)	Range (W)	Section(s)
Crow Wing	47	28	31,32,33
Crow Wing	47	29	36

Dear Mr. Rebennack,

As requested, the Minnesota Natural Heritage Information System has been queried to determine if any rare species or other significant natural features are known to occur within an approximate one-mile radius of the proposed project. Based on this query, rare features have been documented within the search area (for details, please visit the Rare Species Guide Website for more information on the biology, habitat use, and conservation measures of these rare species). Please note that the following rare features may be adversely affected by the proposed project:

Ecologically Significant Areas

- The proposed project is within an area the Minnesota Biological Survey (MBS) has identified as a Site of *Moderate* Biodiversity Significance. Sites of Biodiversity Significance have varying levels of native biodiversity and are ranked based on the relative significance of this biodiversity at a statewide level. Sites ranked as *Moderate* contain occurrences of rare species and/or moderately disturbed native plant communities, and/or landscapes that have a strong potential for recovery. This particular Site was noted to have large patches of intact, continuous forest canopy with minimal road and trail development. It was also noted to need further review to confirm its significance as it is likely a mix of *Moderate* and *High*. Given the ecological significance, we recommend minimizing disturbance in this area as much as possible. Actions to minimize disturbance may include, but are not limited to, the following recommendations:
    - Minimize width of trail;
    - As much as possible, operate within already-disturbed areas;

- Do not route trails through wet swales or depressions, or sensitive rock outcrop areas;
- Bridge all stream and wetland crossings;
- Minimize vehicular disturbance in the area (allow only vehicles/equipment necessary for construction activities);
- Do not park equipment or stockpile supplies in the area;
- Do not place spoil within MBS Sites or other sensitive areas;
- Use effective erosion prevention and sediment control measures;
- Inspect and clean all equipment prior to bringing it to the site to prevent the introduction and spread of invasive species;
- Trail maintenance plans should address erodible soils, especially in areas of steep topography;
- Use signage to encourage visitors to stay on designated trails;
- Conduct surveys to better document resource impact and designate areas to avoid;
- Revegetate disturbed soil with native species suitable to the local habitat as soon after construction as possible; and
- Use only weed-free mulches, topsoils, and seed mixes.

State-listed Species

- Blanding's turtles (*Emydoidea blandingii)*, a state-listed threatened species, have been reported in the vicinity of the proposed project and may be encountered on site. For your information, I have attached a Blanding's turtle fact sheet that describes the habitat use and life history of this species. The fact sheet also provides two lists of recommendations for avoiding and minimizing impacts to this rare turtle. **Please refer to the first list of recommendations for your project.** If greater protection for turtles is desired, the second list of additional recommendations can also be implemented. In addition, if erosion control mesh will be used, the DNR recommends that the mesh be limited to wildlife-friendly materials (see enclosed fact sheet).

  The attached flyer should be given to all contractors working in the area. If Blanding's turtles are found on the site, please remember that state law and rules prohibit the destruction of threatened or endangered species, except under certain prescribed conditions. If turtles are in imminent danger they must be moved by hand out of harm's way, otherwise they are to be left undisturbed. For further assistance regarding the Blanding's turtle, please contact the DNR Regional Nongame Specialist, Kevin Woizeschke at 218-203-4371 or kevin.woizeschke@state.mn.us.

- Red-shouldered hawks (*Buteo lineatus*), a state-listed species of special concern, have been documented during the breeding season in the vicinity of the project. This species requires large, contiguous forest tracts interspersed with wetlands and prefers lowland woods and river bottoms. We recommend, to the extent possible, the retention of forest cover to help maintain habitat connectivity to other forest tracts in the area. Check any trees scheduled to be removed from April through July for active nests. If feasible, disturbance near active nests should be avoided during the critical nesting time, April and May. See the attached fact sheet regarding large bird nest identification. Please contact Kevin Woizeschke if any nests are discovered.

Environmental Review and Permitting

- The Environmental Assessment Worksheet should address whether the proposed project has the potential to adversely affect the above rare features and, if so, it should identify specific measures that will be taken to avoid or minimize disturbance. Sufficient information should be provided so the DNR can determine whether a takings permit will be needed for any of the above protected species.

- Please include a copy of this letter in any state or local license or permit application. Please note that measures to avoid or minimize disturbance to the above rare features may be included as restrictions or conditions in any required permits or licenses.

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological and Water Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. However, the NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. Therefore, ecologically significant features for which we have no records may exist within the project area. If additional information becomes available regarding rare features in the vicinity of the project, further review may be necessary.

For environmental review purposes, the results of this Natural Heritage Review are valid for one year; the results are only valid for the project location (noted above) and the project description provided on the NHIS Data Request Form. Please contact me if project details change or for an updated review if construction has not occurred within one year.

The Natural Heritage Review does not constitute review or approval by the Department of Natural Resources as a whole. Instead, it identifies issues regarding known occurrences of rare features and potential effects to these rare features. If needed, please contact your DNR Regional Environmental Assessment Ecologist to determine whether there are other natural resource concerns associated with the proposed project. Please be aware that additional site assessments or review may be required.

Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources. An invoice will be mailed to you under separate cover.

Sincerely,

Samantha Bump
Natural Heritage Review Specialist
Samantha.Bump@state.mn.us

Enc. Blanding's Turtle Fact Sheet & Flyer
Wildlife Friendly Erosion Control
Large Bird Nest Identification

Links: Rare Species Guide
http://www.dnr.state.mn.us/rsg/index.html
DNR Regional Environmental Assessment Ecologist Contact Info
http://www.dnr.state.mn.us/eco/ereview/erp_regioncontacts.html

Cc: Margi Coyle
Kevin Woizeschke

Attachment 2

SHPO Response Letter

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

July 12, 2018

Mr. Joshua Rebennack
Cuyuna Lakes Mountain Bike Crew
PO Box 162
Deerwood, MN 56444

RE: Cuyuna Connection and Cuyuna Hills Trail Project
T47 R28 S31-33; T47 R29 S36
Cuyuna, Crow Wing County
SHPO Number: 2018-2374

Dear Mr. Rebennack:

Thank you for the opportunity to comment on the above project. It is being reviewed pursuant to the responsibilities given the State Historic Preservation Office by the Minnesota Historic Sites Act and the Minnesota Field Archaeology Act.

Due to the nature and location of the proposed project, we recommend that a Phase I archaeological survey be completed. The survey must meet the requirements of the Secretary of the Interior's Standards for Identification and Evaluation, and should include an evaluation of National Register eligibility for any properties that are identified. For a list of consultants who have expressed an interest in undertaking such surveys, please visit the website **preservationdirectory.mnhs.org**, and select "Archaeologists" in the "Search by Specialties" box.

We will reconsider the need for survey if the project area can be documented as previously surveyed or disturbed. Any previous survey work must meet contemporary standards. **Note:** plowed areas and right-of-way are not automatically considered disturbed. Archaeological sites can remain intact beneath the plow zone and in undisturbed portions of the right-of-way.

Please note that this comment letter does not address the requirements of Section 106 of the National Historic Preservation Act of 1966 and 36 CFR § 800. If this project is considered for federal financial assistance, or requires a federal permit or license, then review and consultation with our office will need to be initiated by the lead federal agency. Be advised that comments and recommendations provided by our office for this state-level review may differ from findings and determinations made by the federal agency as part of review and consultation under Section 106.

If you have any questions regarding our review of this project, please contact our archaeologist, David Mather, at (651) 201-3289.

Sincerely,

Sarah J. Beimers
Environmental Review Program Manager

Attachment 3

Terracon Phase 1A Cultural Resources Survey

Phase IA Cultural Resources Survey

Cuyuna Mountain Bike Trail Expansion Project
Cuyuna, Crow Wing County, Minnesota

Terracon Project No. 41187142
June 3, 2019

Prepared for:
Cuyuna Lakes Mountain Bike Crew
Deerwood, Minnesota

Prepared by:
Suzanne Reece, MSc, RPA
Terracon Consultants, Inc.
St. Paul, Minnesota

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EXECUTIVE SUMMARY

A Phase IA Cultural Resources Survey was conducted in Crow Wing County for the Cuyuna Lakes Mountain Bike Crew for a proposed mountain bike trail expansion project. The project consists of expansion of the Cuyuna Lakes Mountain Bike Trails located near the towns of Crosby and Cuyuna, Minnesota. The planned improvements include the creation of a total of approximately 11.5 miles of mountain bike trails. A records search conducted with the Minnesota State Historic Preservation Office (SHPO) did not find any previously recorded cultural resources within the proposed project areas. Principal Investigator Suzanne Reece, MSc, RPA conducted the Phase IA survey of the proposed project areas on September 4, 2018 and April 25 – 27, 2019. One historic dump was identified during the Phase IA survey. A site number is still pending for this location, and an addendum to this report with the approved site form and number will be submitted when available. This site was not evaluated for possible inclusion on the National Register of Historic Places, and avoidance of the site is recommended. If avoidance is not possible, a Phase I investigation with subsurface testing should be carried out prior to construction. If avoidance is possible, a determination of *no historic properties affected* is recommended and Terracon recommends that the project be allowed to proceed as planned.

1.0 INTRODUCTION

The Cuyuna Lakes Mountain Bike Crew is proposing an expansion of the Cuyuna Lakes Mountain Bike Trails located near the towns of Crosby and Cuyuna in Crow Wing County, Minnesota. The proposed project involves the creation of approximately 11.5 miles of mountain bike trail across two project areas. The proposed trail will be approximately 42 inches (3.5 feet) wide, and the contractor on the project will have the option of moving the trail 20 feet on either side of the centerline during construction in order to avoid removal of trees. The Phase IA Cultural Resources Survey was conducted at the request of the Minnesota State Historic Preservation Office (SHPO) after reviewing the Environmental Assessment Worksheet (EAW) for the project.

2.0 PROJECT INFORMATION

2.1 Project Description

The project areas are located approximately 0.5-mile from the town of Cuyuna, Minnesota. The shorter of the two proposed trails, known as the “Cuyuna Connection”, is located to the southwest of Cuyuna, while the longer trail, known as the “Cuyuna Hills” trail, is located to the southeast of Cuyuna. The centerline of the Cuyuna Connection trail is approximately 3.25 miles long, while the Cuyuna Hills trail measures approximately 8.2 miles long. Both trails will be approximately 42 inches (3.5 feet) wide. The contractor selected to complete construction of the trail will have the option to adjust the placement of the centerline by 20 feet in either direction as needed to avoid having to remove trees for the proposed construction, and as such, a 50-foot buffer around the planned centerline was agreed upon for the current survey. The legal location for the Cuyuna Connection trail is the W1/2 of Section 31, Township 47 North, Range 29 West and the E1/2 of Section 36, Township 47 North, Range 28 West in Crow Wing County, Minnesota. The legal location of the Cuyuna Hills trail is the W1/2 and the SE1/4 of Section 32 and the SW1/4 of Section 33 in Township 47 North, Range 28 West, Crow Wing County, Minnesota. The proposed project areas are depicted on an aerial photograph in Appendix A, Exhibit 1. The proposed project areas are shown on United States Geological Survey 7.5’ quadrangle maps in Appendix A, Exhibits 2 and 3.

2.2 Project Area Description

The proposed project areas are located in an upland area with numerous hills and plateaus, and both are located within the Cuyuna Iron Range. Both project areas are located within dense woodland that has seen prior disturbance from mining and logging activities, as well as historic disturbances from a railroad line. The elevation of the Cuyuna Connection trail ranges from a low of 1,272 feet above mean sea level (AMSL) to a high of 1,409 feet AMSL. The elevation of the Cuyuna Hills trail ranges from a low of 1,233 feet AMSL to a high of 1,430 feet AMSL. The closest named lake to the Cuyuna Connection trail is Mud Lake, which is located approximated 0.25-mile to the north of the project area. The closest named lake to the Cuyuna Hills trail is Lost Long Lake, which is located adjacent to the easternmost boundary of the project area. When fieldwork was

first attempted in September 2018, the vegetation within the project area included mixed grasses, forbs, ferns, and a mixture of deciduous and coniferous trees. Given the time of the year, ground surface visibility was somewhat limited by the dense vegetation and ranged from 0 to 30 percent visibility. The second attempt at fieldwork saw similar vegetation; however, ground surface visibility was improved. Ground surface visibility during the second survey ranged from 50 to 100 percent, with an average visibility of 75 percent.

The proposed project areas are within the Central Lakes Coniferous (5c) Archaeological Region of Minnesota (Anfinson 2005). The topography of this region is typified by terminal moraines, outwash plains, and lake plains (Gibbon et al. 2002). The region is also characterized by the large number of lakes found within it. The bedrock in the region is primarily sandstone, siltstone, or a local conglomerate (Jirsa et al. 2011), though it is rarely exposed at the ground surface (Gibbon et al. 2002). Outcrops of chert, jasper, and taconite have been identified within the area, and are sources of lithic materials for stone tool creation (Gibbon et al. 2002). The Natural Resource Conservation Service's (NRCS) Web Soil Survey (2018) maps four specific soils within the Cuyuna Connection project area (Table 1) and six soils within the Cuyuna Hills project area (Table 2).

Table 1. Specific Soils Within the Cuyuna Connection Project Area.

NRCS Map Unit Symbol	Soil Name
6-5B	Gerrish-Hapludalfs-Hegberg-Eutrudepts complex, pitted, 2 to 10 percent slopes
6-5D	Gerrish-Hapludalfs-Hegberg-Eutrudepts complex, pitted, 10 to 20 percent slopes
6-5F	Gerrish-Hapludalfs-Hegberg-Eutrudepts complex, pitted, 20 to 40 percent slopes
C17B	Rosholt-Chetek complex, 2 to 8 percent slopes

Table 2. Specific Soils Within the Cuyuna Hills Project Area.

NRCS Map Unit Symbol	Soil Name
6-5D	Gerrish-Hapludalfs-Hegberg-Eutrudepts complex, pitted, 10 to 20 percent slopes
6-5F	Gerrish-Hapludalfs-Hegberg-Eutrudepts complex, pitted, 20 to 40 percent slopes
6-13D	Gerrish-Hapludalfs-Hegberg-Eutrudepts complex, 10 to 20 percent slopes
6-13F	Gerrish-Hapludalfs-Hegberg-Eutrudepts complex, 20 to 40 percent slopes
540	Seelyeville-Seelyeville, ponded, complex, 0 to 1 percent slopes
C50B	Augustana-Hegberg complex, 1 to 8 percent slopes

The Minnesota Statewide Archaeological Predictive Model (MnModel) depicts the project areas as having archaeological potential ranging from "Unknown" to "High". MnModel also depicts the Landscape Suitability for site preservation within the project areas ranging from "potential for

surface site preservation" to "low potential for shallow site preservation". The predictive model also shows there is "no potential for buried site preservation" at depths of greater than 1 meter below the ground surface.

2.3 Research Design

Objectives: Identify areas of heightened archaeological potential or areas with cultural resources exposed at the ground surface within the proposed project areas.

Methods: Conduct thorough historic and environmental background research of the project area, including a records search, a review of historic maps and aerial photographs, and consultation with NRCS soil databases. Following this, the project areas will be examined using a pedestrian survey to identify if there are any locations where more extensive cultural resources work should be conducted. The collected data will be reviewed and a recommendation of whether or not additional cultural resources work should be conducted prior to construction of the proposed project will be made.

3.0 CULTURAL CHRONOLOGY AND ETHNOHISTORIC CONTEXT

The chronology of Minnesota can be broken down into several temporal and cultural contexts. A general overview of these contexts is presented here.

Precontact Period (circa 11,200 BC to 1650 AD)

The first people to settle in Minnesota were likely Paleoindians, who began to explore the land exposed by the retreating Wisconsin glacier (Gibbon 2012). Not much is currently known about the first settlers in Minnesota, as the archaeological sites connected with Paleoindians tend to be small, deeply buried, and rarely encountered (Gibbon et al. 2002). What has been learned from the small number of Paleoindian sites that have been investigated suggests these groups were primarily hunter gatherers who had the capabilities and technology to effectively hunt large game animals such as bison, caribou, and even mastodon and mammoth (Gibbon et al. 2002). Distinctive, lanceolate projectile points are the most commonly encountered artifacts related to the Paleoindian Period in Minnesota, but again, they are relatively rare.

The Paleoindian Period gave way to the Archaic Period, where communities of hunters and foragers became more common. The end of the last glacial period led to rapid changes in the environment in Minnesota, including changes in the plant and animal life, and even the topography (Gibbon et al. 2002). This allowed the Archaic inhabitants of the area to establish less nomadic lifestyles and access resources that were previously unavailable. Due to the longer habitation of locations by Archaic peoples, there is greater archaeological evidence of their lifestyles than previous inhabitants. These sites are still often deeply buried, but they do produce

a larger number of artifacts--including distinctive notched and stemmed projectile points--when they are excavated by modern archaeologists (Gibbon et al. 2002).

Following the Archaic Period, came the Woodland Period. In Minnesota, the Woodland Period is divided into the Initial Woodland (ca. 500 BC to 500 AD) and the Terminal Woodland (500 AD to 1650 AD). The Initial Woodland is defined by the emergence of pottery containers, burial mounds, and agriculture (Gibbon 2012). Initial Woodland sites have been more commonly identified than earlier settlements, as they are both located at shallower depths below the ground surface, and because the presence of burial mounds also often indicates the presence of an archaeological site (Gibbon et al. 2002). Due to the amount of Initial Woodland sites that have been identified and studied, more detailed cultural and temporal contexts have been able to be developed, such as the Fox Lake cultural context. The Terminal Woodland is further defined by rapid population growth, changes in artifact typologies, and changes in settlement patterns, including greater exploitation of wild rice as a food source in northern Minnesota (Gibbon et al. 2002). These social and cultural changes resulted in a series of cultural contexts (Oneota, Plains Village, and Silvernale) collectively known as the Mississippian complex. From these cultural contexts, the emergence of tribal groups such as the Dakota and Iowa begins (Gibbon 2012).

Protohistoric Period (1650s to 1830s)

Contact between Native Americans and European explorers in this part of the United States initially occurred due to fur trapping expeditions. French explorers are reportedly the first Europeans to reach what is now Minnesota. The French were the dominant European presence in the area until the 1760s, and trade between European fur trappers and Native American groups such as the Dakota was common (Gibbon et al. 2002). However, trade goods were not the only things exchanged at these meetings, as the European intrusion into the area also introduced new cultural practices as well as diseases (Gibbon et al. 2002). In the 1760s, the British gained control of French territories within continental North America, and quickly established their own network of fur trapping and trading posts in what would eventually become Minnesota.

It is important to note that the Protohistoric Period marks a significant change in the lifeways of Native Americans throughout North America. In addition to diseases and warfare which decimated tribal communities, the expansion westward of European settlers from the eastern coasts also caused relocations of tribal groups, including the Dakota (Sioux) shifting to the south and the Anishinabe (Ojibwa) to the north (Gibbon et al. 2002). Tribal material cultures also began to change, with traditional materials such as stone and pottery being gradual replaced with metals and ceramic.

Historic Period (1830s to present)

Minnesota became an official United States Territory in 1849, and then became a state in 1858. The arrival of the lumber and railroad industries in Minnesota would industrialize the area, while drastically increasing the number of European-American settlers. These changes further

disenfranchised the Native American population of the state, pushing tribal groups out of their traditional homelands into other parts of the country and, over time, into reservations. The archaeological sites related to the historic period are distinctly different from earlier phases of human occupation in this part of the country, especially as manufactured goods became prevalent. Written histories and maps of the area also become more common, which allow for easier identification of historic site locations.

Crow Wing County was organized in May 1857 and was reorganized in March of 1870 (Crow Wing County 2018). The county was a center for trading between Native Americans and fur traders, with the original county seat (Crow Wing) boasting a mixed population of 600 Chippewa, European, and European Americans by 1866 (Crow Wing County 2018). This town site was eventually abandoned, and Brainerd became the County Seat. The town of Cuyuna and the Cuyuna Mountain Range were both named by prospector Cuyler Adams, who combined his first name with that of his dog, Una (Upham 1920). Mining of iron ore began in the Cuyuna Iron Range in 1910, approximately 15 years after the iron deposits were first recorded by Cuyler Adams. The development of the mining industry necessitated the creation of railroad lines to transport the excavated ore, and several were constructed to connect the Cuyuna Iron Range to larger markets. World War I in particular was a boon for the mining industry in the Cuyuna area, as the high manganese content iron ore being extracted was ideal for certain types of military-grade steel (Radford 2013). Iron mining remained profitable until the 1930s, when the Great Depression had a significant impact on the industry. The onset of World War II revived the market for iron ore, so much so that there was a concern that the ore deposits within the Cuyuna Iron Range would be totally depleted (Radford 2013). Production from these mines began to slow in the 1950s, and mining of the Cuyuna Iron Range ended in 1984 (Radford 2013). Once active mining ceased, nature began to reclaim the wastelands that had been left behind. Lakes began to form in the holes left by open pit mines, vegetation began to take over the piles of displaced soil and discarded ore, and woodlands began to redevelop in locations where they had been depleted by the mining and lumber industries. While this natural reclamation of the former mines has veiled some of the scarring done to the landscape, former mine and industrial areas are still identifiable in person through uneven topography, industrial debris, and unintentionally man-made lakes.

4.0 RECORDS SEARCH AND BACKGROUND RESEARCH RESULTS

A records search was conducted with the Minnesota State Historic Preservation Office (SHPO) for information on previously recorded historic or archaeological sites within a mile of each of the proposed trail expansions. The records search revealed that no archaeological sites have been previously recorded within the project areas or within one mile of the project areas. No historic age structures were identified within the project areas, and four were identified within one mile of the project areas. The structures included three “company houses” (Structures CW-CYC-001 to CW-CYC-003) and one bank (Structure CW-CYC-004), all located within the town of Cuyuna.

A series of historic atlases and plat maps were consulted at the Historic Map Works (2018) website to identify areas where historic age cultural resources may be present. These maps included Andreas 1874, Farm and Home Publishers 2006, Hixson 1925, Nelson 1956, and Ogle 1913. Historic General Land Office (GLO) maps dating back to 1871 were also examined via the Bureau of Land Management's online GLO database (2018). Many of the examined maps depict the project area as woodland or undeveloped land, and all but the GLO maps depict a railroad near or within the both the Cuyuna Connection and the Cuyuna Hills project areas. This railroad is labeled as the Minneapolis, St. Paul, & Sault Ste Marie Railroad in older maps, and as the Burlington Northern Railroad in more modern maps. This railroad is also depicted on the topographic quadrangles that contain the project area.

Archival research was conducted at the Crow Wing County Historical Society in Brainerd, Minnesota on September 5, 2018. This research included investigation of local records and photographs of the Cuyuna and Crosby areas, as well as investigation of the recorded locations of mines within or near the project area. Mine claims that were identified within the vicinity of the project area included the Yawkey Mine, Federal Reserve Mine, the Holding Company Reserve Mine, and the Kona Reserve Mine. The boundaries of some of these mines have only roughly been recorded, often only down to the quarter section in legal locations, though other mines in the area such as the Kennedy Mine have well documented locations (Minnesota Historical Records Survey Project 1940).

5.0 FIELDWORK

Terracon personnel conducted the Phase IA Cultural Resources Survey in two stages of pedestrian surveys. The first survey occurred on September 4, 2018 and investigated the Cuyuna Connection trail. This survey was hampered by the dense foliage and GPS equipment issues. A second survey examined both project areas on April 25th through April 27th, 2019. This survey was aided by staking of the proposed trail centerline by Widseth Smith Nolting (WSN), which was done late in the fall of 2018. Weather conditions prevented the Phase IA survey from being completed in the fall, and as such, it was postponed until snow cover would no longer hinder the pedestrian survey. The fieldwork for the project was carried out by Suzanne Reece, MSc, RPA, who served as Principal Investigator. The project areas were surveyed with pedestrian transects utilized as needed until the bike trail alignments and the buffer zone on each side of the centerline were investigated. No subsurface testing was conducted as part of the Phase IA survey; however, the roots of uprooted trees and soils displaced from animal burrows were examined for evidence of exposed artifacts or cultural features. No artifacts or features were identified in the disturbed soils that were examined. Overview photographs of the Cuyuna Connection trail survey can be found in Appendix B, Figures 1 through 8, and overview photographs of the Cuyuna Hills trail survey can be found in Appendix B, Figures 8 through 16.

The Cuyuna Connection trail is located in an area that not only has seen ground disturbances from mining activities and the construction (and subsequent abandonment) of the Burlington

Northern Railroad, but it has also been impacted by a series of roads. County Road 30 cuts through the easternmost portion of the project area. Running west from the now abandoned County Road, a dirt and gravel logging road winds through the project area, with several offshoots. In addition to these roads, a snow mobile route runs parallel to County Road 30 through a portion of the project area. Due to the accessibility provided by these access points, much of the Cuyuna Connection trail has become de facto dump, with modern trash such as appliances, furniture, and old tires found abandoned even deep within the woods. One area of historic detritus was identified during the Phase IA survey, with elements that can be dated to the 1930s (Appendix B, Figures 7 and 8). This location was recorded as a historic dump. The assignment of an official site number is still pending; however, a draft copy of the site form for this site and a map of its location can be found in Appendix C. An addendum with the official site number and finalized site form will be issued once a site number has been assigned. This site was not evaluated for possible National Register of Historic Places eligibility, and it is recommended that the proposed bike trail be routed to avoid the surface scatter, if possible. No additional areas of archaeological interest were identified within the Cuyuna Connection trail project area.

The Cuyuna Hills trail presents a similar landscape as the Cuyuna Connection trail; it has been impacted by mining and railroad related activities, and portions of the trail have been impacted by removal of trees by the lumber industry. Evidence for modern maple sugaring was identified in portions of the trail, including taps and buckets attached to trees (Appendix B, Figure 16), but no indicators of historic sugaring within the project area were identified. A portion of a railroad berm associated with the Burlington Northern line is present within a small section of the project area (Appendix B, Figure 10). However, the railroad itself has been dismantled and no evidence of related historic deposits was encountered during the pedestrian survey. As such, the placement of the proposed bike trail across a portion of the berm is unlikely to impact deposits of archaeological or cultural interest.

6.0 SUMMARY AND RECOMMENDATIONS

Approximately 11.5 miles of proposed mountain bike trail were surveyed in Crow Wing County, Minnesota. The Phase IA survey was conducted at the request of the Minnesota State Historic Preservation Office after review of the Environmental Assessment Worksheet (EAW) completed for the project. The Phase IA survey identified one point of archaeological interest, a small historic dump that can be dated to the 1930s through a license plate with an embossed date of 1938. This site has not been evaluated for possible inclusion on the NRHP. Assignment of a site number from the Office of the State Archaeologist is pending. It is recommended that the proposed Cuyuna Connection trail be routed to avoid disturbance of the site area. If avoidance of the site is not possible, a subsurface investigation of the site via a Phase I survey is recommended.

No additional archaeological or historic sites were identified within the project area that require either avoidance planning or additional cultural resources investigation. As such, a determination of *no historic properties affected* is recommended as long as the identified site is avoided by the

proposed project. Terracon recommends that the proposed project be allowed to proceed as planned under this stipulation. However, if the project uncovers items that may be of archaeological, architectural, or historic interest, the Minnesota State Historic Preservation Office (SHPO) should be contacted immediately.

Prepared by:

Suzanne Reece, MSc, RPA
Principal Investigator – Archaeology

Authorized Project Reviewer:

Jeremy Hanzlik
National Manager
Environmental Planning

7.0 REFERENCES

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2018 Web Soil Survey. Natural Resources Conservation Service, Washington, D.C. https://websoilsurvey.sc.egov.usda.gov/

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1913 *Standard Atlas of Crow Wing County, Minnesota.* Geo. A. Ogle and Company, Chicago.

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2013 *Cultural Resources Reconnaissance Survey for the Huntington Trailhead Improvements Project, Cuyuna Country State Recreation Area, Crow Wing County, Minnesota.* Minnesota Historical Society, St. Paul, Minnesota.

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1956 *Atlas of the State of Minnesota.* Thomas O. Nelson Company, Fergus Falls, Minnesota.

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1973 *Crosby, Minnesota.* 7.5 Minute Topographic. United States Geological Survey, Washington, D.C.

1973 *Cuyuna, Minnesota.* 7.5 Minute Topographic. United States Geological Survey, Washington, D.C.

APPENDIX A

Project Maps

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager:	
Drawn by:	
Checked by:	
Approved by:	

Project No.	41187142
Scale:	AS SHOWN
File Name:	
Date:	

Terracon
955 Wells St, Ste 100
Saint Paul, MN 55106-3870

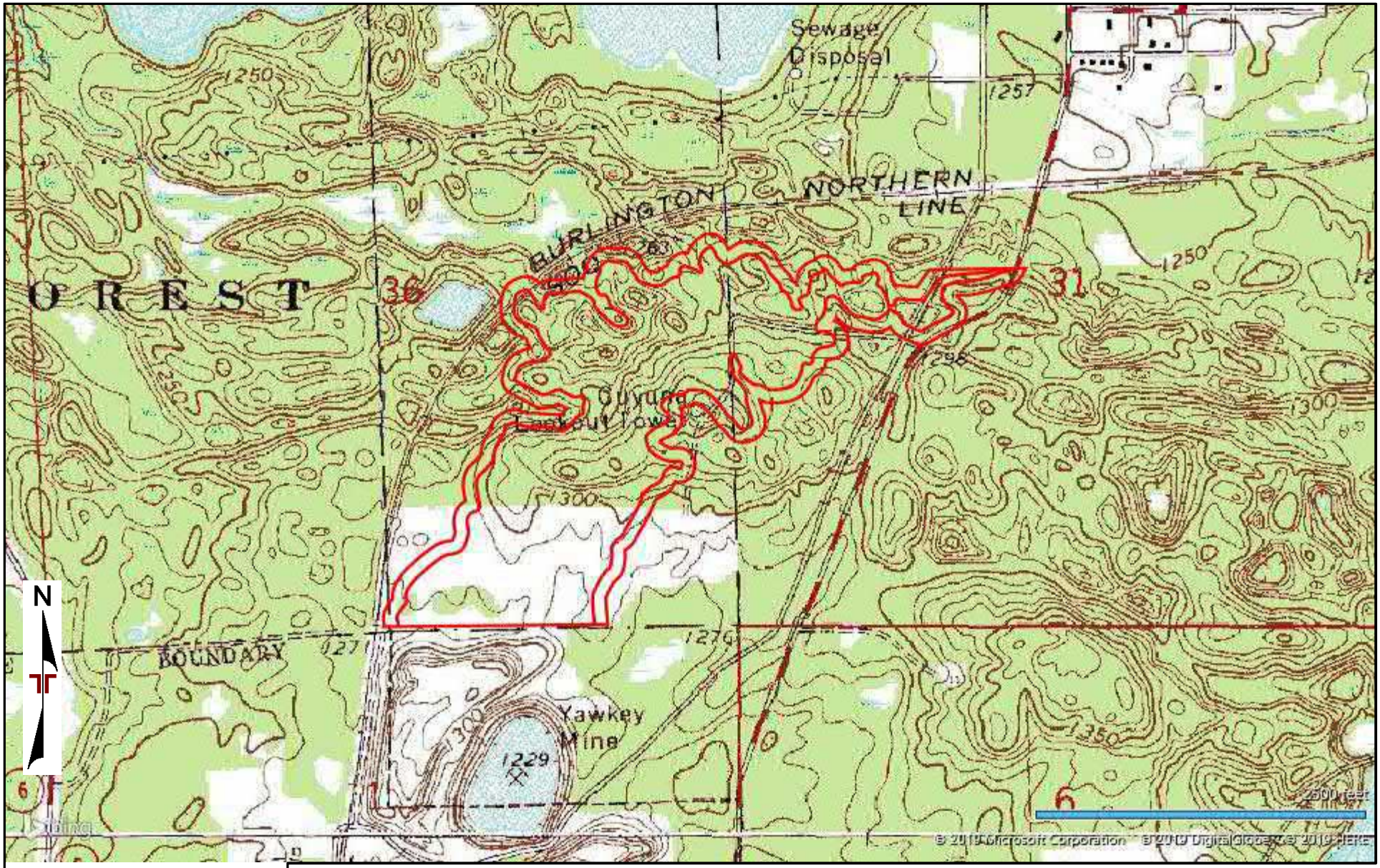
SITE DIAGRAM

Cuyuna Mountain Bike Trails

County Road 30
Cuyuna, MN

Exhibit

1



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Project No.	41187142
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Date:	

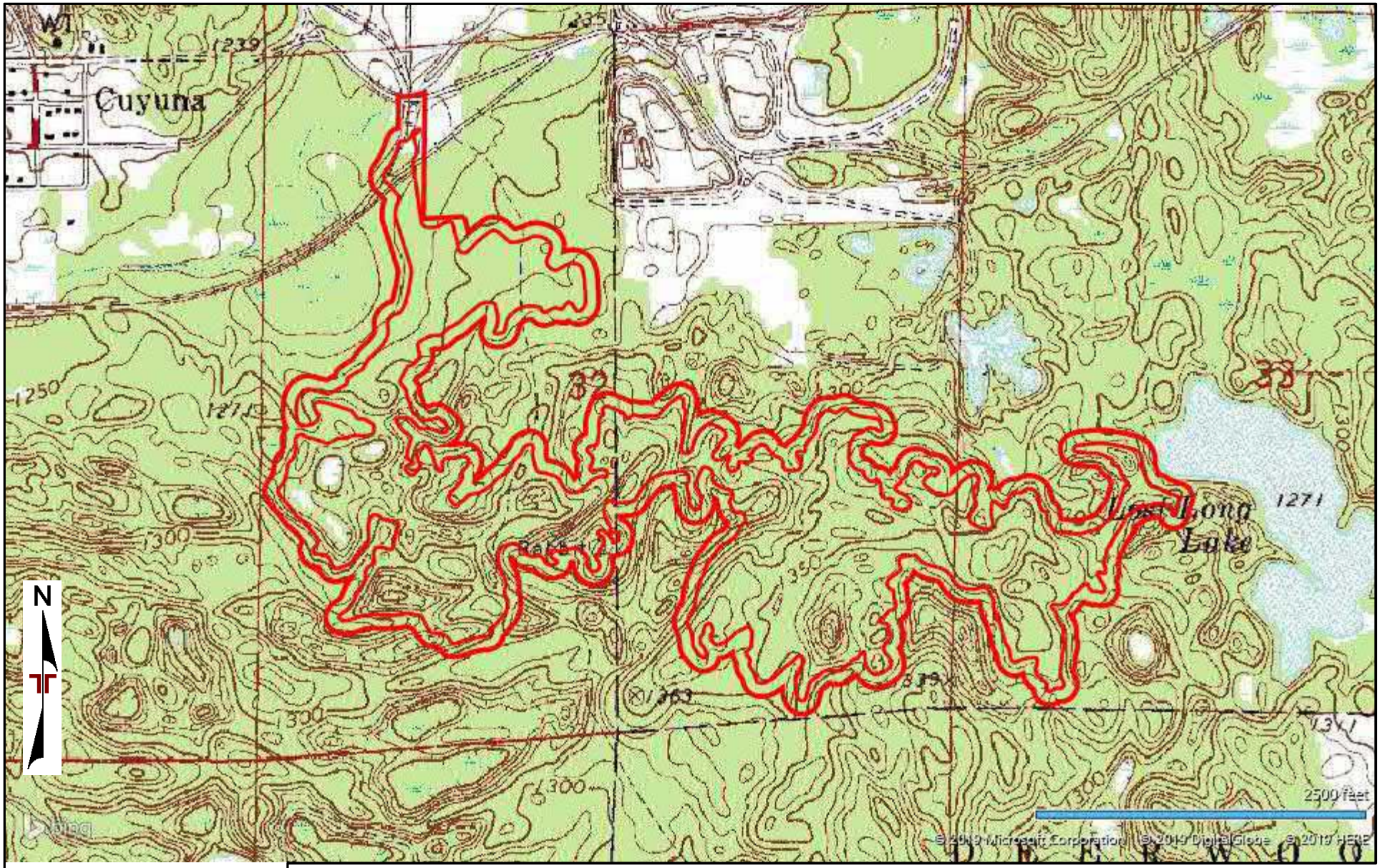
Terracon
955 Wells St, Ste 100
Saint Paul, MN 55106-3870

SITE DIAGRAM

Cuyuna Connection Bike Trail
County Road 30
Cuyuna, MN

Exhibit

2



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Checked by:	
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Project No.	41187142
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File Name:	
Date:	

Terracon
955 Wells St, Ste 100
Saint Paul, MN 55106-3870

SITE DIAGRAM

Cuyuna Hills Bike Trail
County Road 30
Cuyuna, MN

Exhibit

3

APPENDIX B

Project Area Photographs

1. View of a segment of the Cuyuna Connection trial, taken September 4, 2018.

2. View of a segment of the Cuyuna Connection trial, taken September 4, 2018.

3. View of a segment of the Cuyuna Connection trial, taken April 25, 2019.

4. View of a segment of the Cuyuna Connection trial, taken April 25, 2019.

5. View of a segment of the Cuyuna Connection trial, taken April 26, 2019.

6. Overview of an uprooted tree within the Cuyuna Connection trial that was examined for disturbed artifacts, taken on April 26, 2019.

	
7. Overview of historic ceramic located in a debris pile within a section of the Cuyuna Connection trail, taken April 26, 2019.	8. Overview of a historic license plate located in a debris pile within a section of the Cuyuna Connection trail, taken April 26, 2019
	
9. Overview of a segment of the Cuyuna Hills trail, taken on April 27, 2019.	10. Overview of a former railroad grade within a segment of the Cuyuna Hills trail, taken on April 27, 2019.

	
11. Overview of a segment of the Cuyuna Hills trail, taken on April 27, 2019.	12. Overview of a segment of the Cuyuna Hills trail, taken on April 27, 2019.
	
13. Overview of a segment of the Cuyuna Hills trail, taken on April 27, 2019.	14. Overview of a segment of the Cuyuna Hills trail, taken on April 27, 2019.
	
15. Overview of an uprooted tree within the Cuyuna Hills trial that was examined for disturbed artifacts, taken on April 27, 2019.	16. Evidence of modern sugaring within a segment of the Cuyuna Hills trail, taken on April 27, 2019.

APPENDIX C

Site Form and Map

Archeological Site Details

General Information

Record State	Pending
Date(s) of Survey	04/25-04/26/19
Site Area (Acres)	0.11
Max. Cultural Depth (cm.)	0

Location

County	Crow Wing
City/Township Name	Cuyuna
MnHPO region	5c - Central Lakes Coniferous Central
Quadrangle Name	Cuyuna
Quadrangle Index	0
Township / Range / Section	T47R28S31QQNWSW
Mapping method	Heads up digitizing
UTM center x	428334
UTM center y	5151298

Inferred Site Function

Other Function	historic dump

Site Evidence

Artifact Scatter	✓

Mortuary

None

Feature

None

Cultural Materials Present

Ceramics- Morphological

Euro-American ☑ (confidence: Highest (100%))

Ceramic - Diagnostic Type(s)

None

Ceramic -Euro- American

Porcelain ☑

Lithics

None

Lithics - Point Morphology

None

Projectile Point Diagnostics

None

Biological remains

None

Historic Materials

Metal ☑ (confidence: Highest (100%))
Misc. Historic ☑ (confidence: Highest (100%))

Native Materials

None

Exotic Materials

None

Artifact Curation

Artifact Curation Not Collected

Current Threats to Site

Erosion ☑
Development ☑

Other threats modern trash dumping

SurfaceVisibility within Site Area

Surface visibility Good (50-75%)
Surface visibility description Historic debris at ground surface, light covering of fallen leaves

Degree of Disturbance

Degree of Disturbance Unassessed

Land Use

Woodland ☑
Recreational ☑

Dating Method

There is currently no radio carbon information associated with this site.
Artifact Style/Cross-Dating ☑

Temporal Affiliation

Post-Contact (AD 1837 to 50 years BP) ☑(confidence: Highest (100%))
Historic Euro-American ☑(confidence: Fair (50%))

Cultural Context

None

Ownership

Unknown ☑

There is currently no landowner information associated with this site.

Topographic Setting

Major Drainage System

Major Drainage System Mississippi Headwaters

Nearest Water Source

Marsh/Swamp ☑

Location Confidence

Location Confidence Highest (100%)

Other Water Information

Watershed Index Map no. (MnDNR, Division of Waters) 10 - Mississippi River - Brainerd

Upland

General Upland ☑

Riverine

None

Lacustrine

None

Setting: Historic Sites Only

Setting Rural

Investigator/Reporter Information

Pre-Field Preparation, Literature Search, Historic Documentation ☑

Phase I (reconnaissance survey) ☑

Max. Testing depth (cm) 0

Methods / Techniques employed

There is currently no informant information associated with this site.

Surface Survey ☑

Other Description Phase IA survey only

Repository

There is currently no curation information associated with this site.

None

Other Notes

Notes and/or Site Narrative Surface level historic dump, primarily household and metal debris. A Minnesota license plate dating to 1938 was identified, and is suggestive of the age of the dump.

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager:	
Drawn by:	
Checked by:	
Approved by:	

Project No.	41187142
Scale:	AS SHOWN
File Name:	
Date:	

Terracon
955 Wells St, Ste 100
Saint Paul, MN 55106-3870

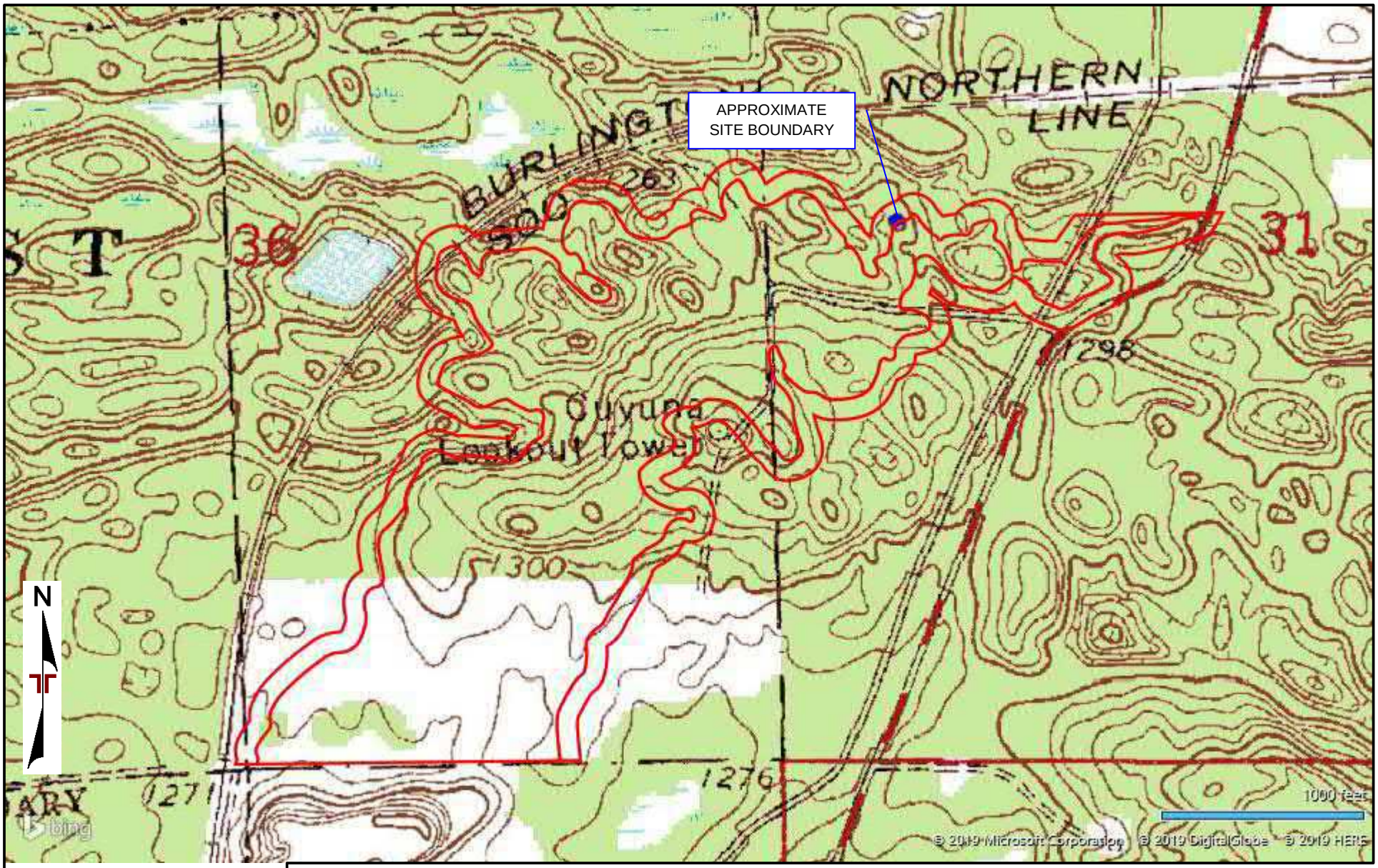
SITE DIAGRAM

Cuyuna Mountain Bike Trails: Site Location

County Road 30
Cuyuna, MN

Exhibit

1



AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager:	
Drawn by:	
Checked by:	
Approved by:	

Project No.	41187142
Scale:	AS SHOWN
File Name:	
Date:	

Terracon
955 Wells St, Ste 100
Saint Paul, MN 55106-3870

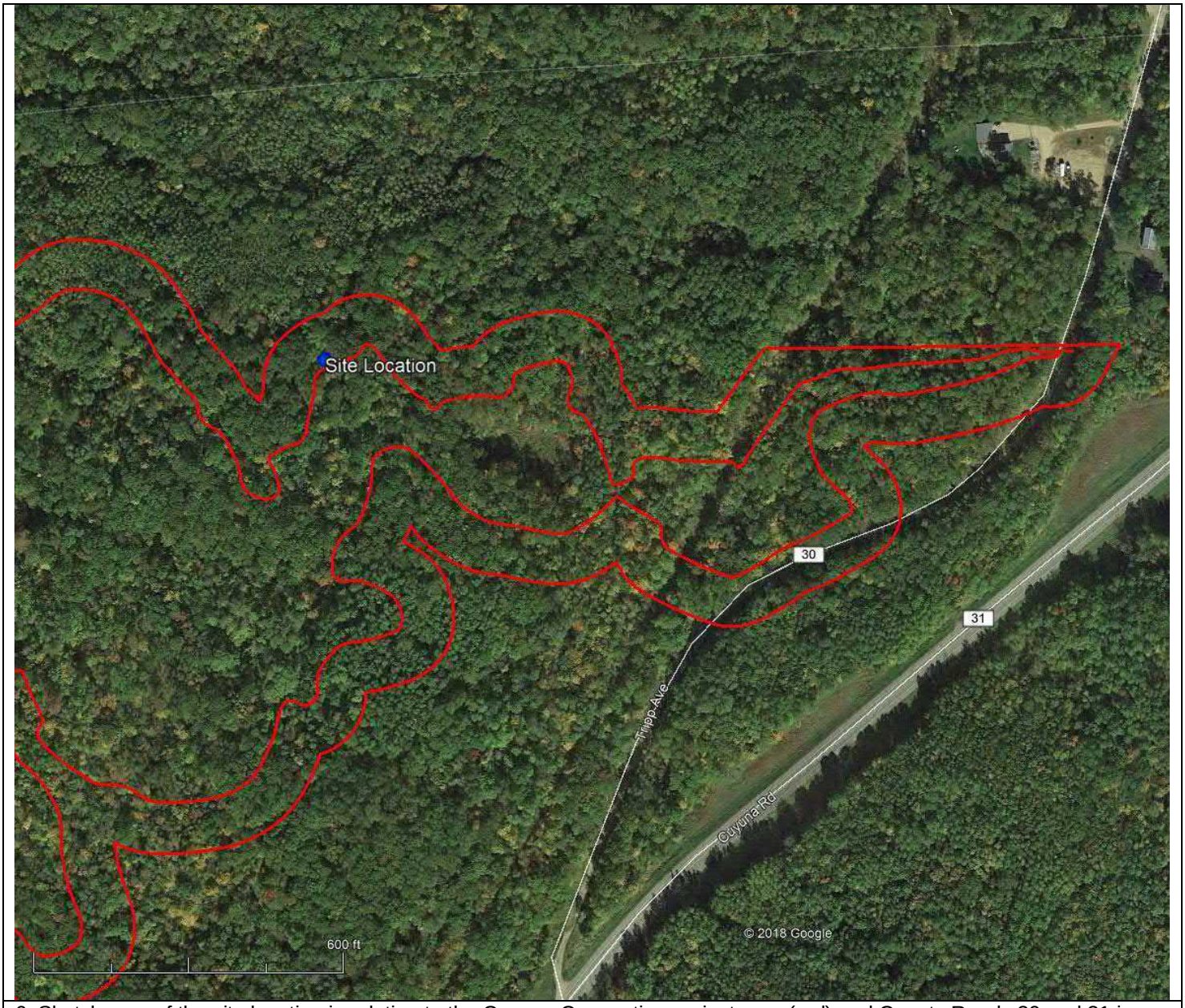
SITE DIAGRAM

Cuyuna Mountain Bike Trails: Site Location
County Road 30
Cuyuna, MN

Exhibit

2

	
1. Overview of historic ceramic located in a debris pile within a section of the Cuyuna Connection trail, taken April 26, 2019.	2. Overview of historic ceramic located in a debris pile within a section of the Cuyuna Connection trail, taken April 26, 2019.
	
3. Overview of a concentration of historic debris, including the license plate in Figure 4, container glass fragments, and metal debris, taken April 26, 2019.	4. Overview of a license plate from 1938 located in a debris pile within a section of the Cuyuna Connection trail, taken April 26, 2019
	
5. Overview of the general site location, taken April 26, 2019.	



6. Sketch map of the site location in relation to the Cuyuna Connection project area (red) and County Roads 30 and 31 in Cuyuna, Crow Wing County, Minnesota.

7. Close up of sketch map of site in relation to the Cuyuna Connection project area (red).

June 7, 2019

Mr. Joshua Rebbenack
Cuyuna Lakes Mountain Bike Crew
307 3rd Street Southwest
Ironton, Minnesota

Re: Addendum to the Phase IA Cultural Resources Survey of the Cuyuna Mountain Bike Trail Expansion Project.

Dear Mr. Rebbenack,

Enclosed is the updated Minnesota Archaeological Site Form for the historic dump identified during the Phase IA cultural resources survey of the proposed expansion of the Cuyuna Mountain Bike Trails. The Minnesota Office of the State Archaeologist has accepted the Site Form that was submitted to them, and has assigned the number of 21CW0347 to the historic dump.

Please include the updated Site Form that includes the official site number when submitting the cultural resources report for review by the State Historic Preservation Office.

Sincerely,
Terracon Consultants, Inc.

SReece

Suzanne Reece, MSc, RPA
Principal Investigator - Archaeology

Archeological Site Details

General Information

Record State	Site
Site Number	21CW0347
Date(s) of Survey	04/25-04/26/19
First Date	4/25/2019 12:00:00 AM
Site Area (Acres)	0.11
Max. Cultural Depth (cm.)	0

Location

County	Crow Wing
City/Township Name	Cuyuna
MnHPO region	5c - Central Lakes Coniferous Central
Quadrangle Name	Cuyuna
Quadrangle Index	0
Township / Range / Section	T47R28S31QQNWSW
Mapping method	Heads up digitizing
UTM center x	428334
UTM center y	5151298

Inferred Site Function

Other Function	historic dump

Site Evidence

Artifact Scatter	☑

Mortuary

None

Feature

Midden ☑

Cultural Materials Present

Ceramics- Morphological

Euro-American ☑ (confidence: Highest (100%))

Ceramic - Diagnostic Type(s)

None

Ceramic -Euro- American

Porcelain ☑

Lithics

None

Lithics - Point Morphology

None

Projectile Point Diagnostics

None

Biological remains

None

Historic Materials

Metal ☑ (confidence: Highest (100%))
Misc. Historic ☑ (confidence: Highest (100%))

Native Materials

None

Exotic Materials

None

Artifact Curation

Artifact Curation Not Collected

Current Threats to Site

Erosion ☑
Development ☑
Other threats modern trash dumping

SurfaceVisibility within Site Area

Surface visibility Good (50-75%)
Historic debris at ground surface, light covering of fallen leaves

Surface visibility description

Degree of Disturbance

Degree of Disturbance Unassessed

Land Use

Woodland ☑

Recreational ☑

Dating Method

There is currently no radio carbon information associated with this site.

Artifact Style/Cross-Dating ☑

Temporal Affiliation

Post-Contact (AD 1837 to 50 years BP) ☑ (confidence: Highest (100%))

Historic Euro-American ☑ (confidence: Fair (50%))

Cultural Context

None

Ownership

Unknown ☑

There is currently no landowner information associated with this site.

Topographic Setting

Major Drainage System

Major Drainage System Mississippi Headwaters

Nearest Water Source

Marsh/Swamp ☑

Location Confidence

Location Confidence Highest (100%)

Other Water Information

Watershed Index Map no. (MnDNR, Division of Waters) 10 - Mississippi River - Brainerd

Upland

General Upland ☑

Riverine

None

Lacustrine

None

Setting: Historic Sites Only

Setting Rural

Investigator/Reporter Information

Pre-Field Preparation, Literature Search, Historic Documentation ☑
Phase I (reconnaissance survey) ☑
Max. Testing depth (cm) 0

Methods / Techniques employed

There is currently no informant information associated with this site.

Surface Survey ☑
Other Description Phase IA survey only

Repository

There is currently no curation information associated with this site.

None

Other Notes

Notes and/or Site Narrative Surface level historic dump, primarily household and metal debris. A Minnesota license plate dating to 1938 was identified, and is suggestive of the age of the dump.

Data Migration Notes

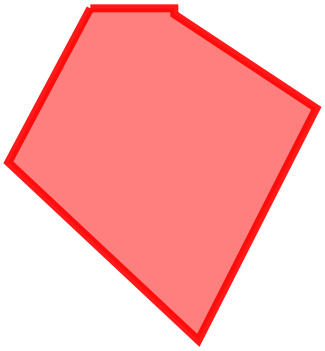
None

Documents

Record History

- 6/7/2019 12:54:25 PM:Site Record created by bruce.koenen@state.mn.us. This Site Record was based upon Site Form Id number: 40928 (/OSAportal/ArchSites/Details/40928)

Record Creator: Suzanne.Reece@terracon.com
Record State: Site

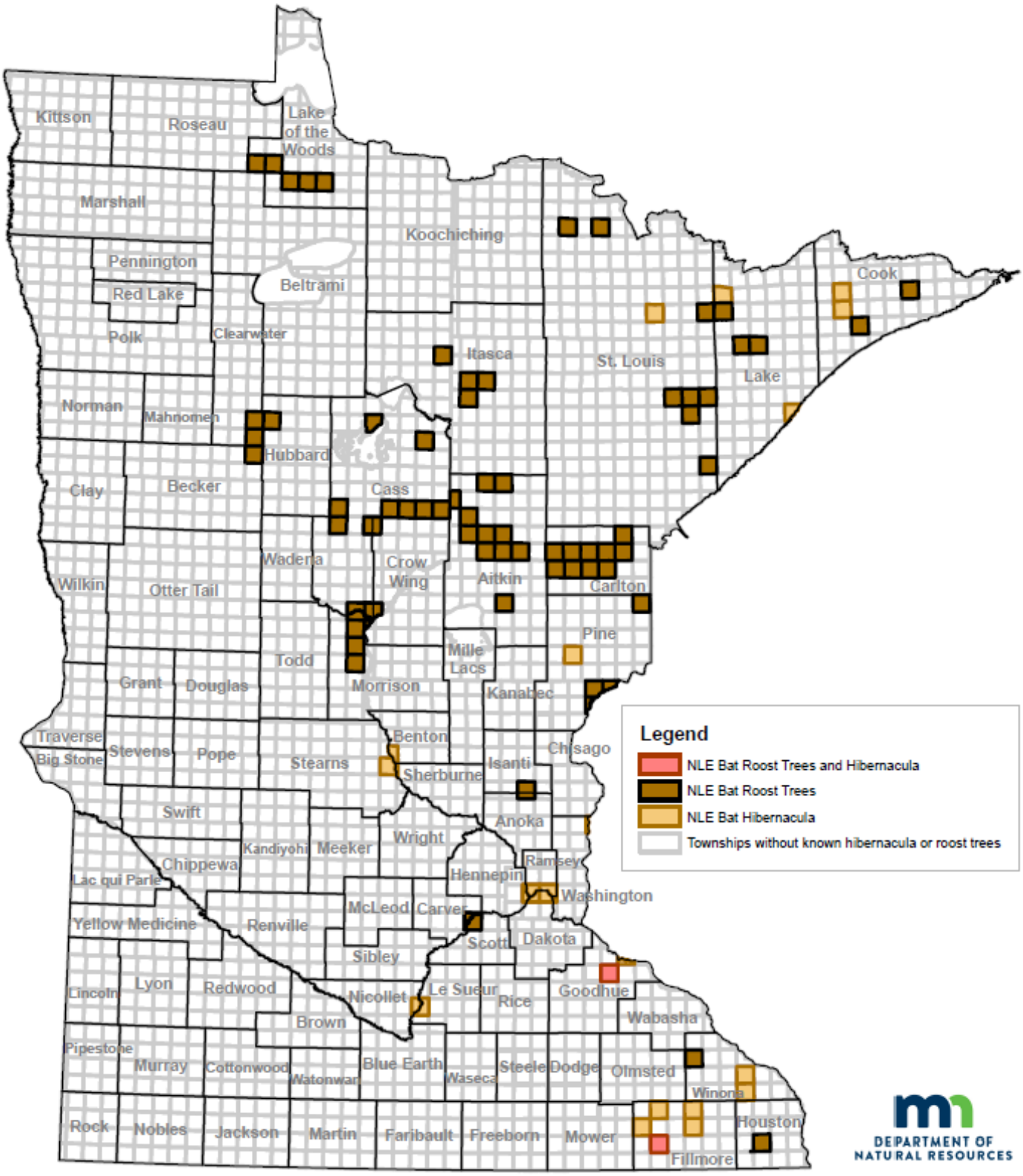


Sources: Esri, HERE, Garmin

Attachment 4

NLEB Township Map

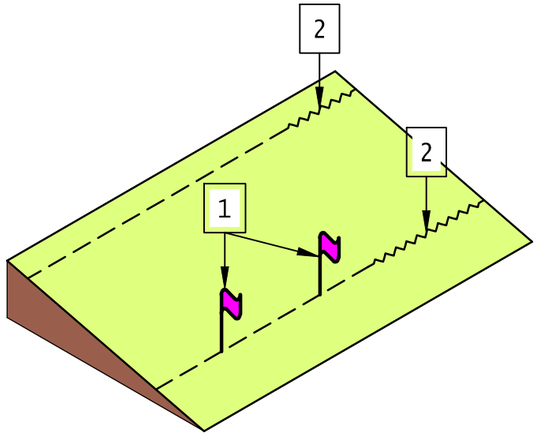
TOWNSHIPS CONTAINING DOCUMENTED NORTHERN LONG-EARED BAT MATERNITY ROOST TREES AND/OR HIBERNACULA ENTRANCES



Attachment 5

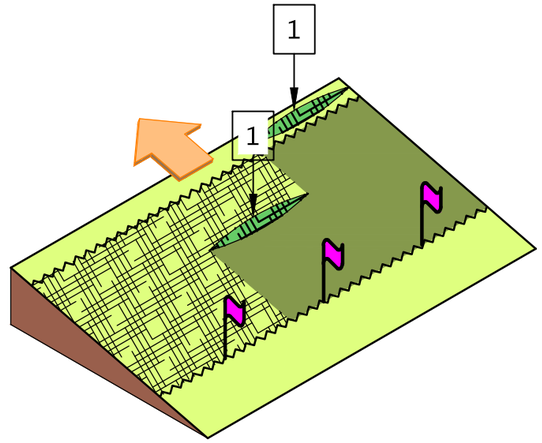
Trail Construction Steps Illustrated

STEP 1



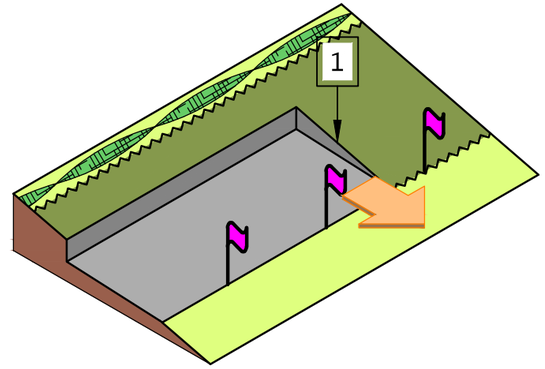
1. PIN FLAG TRAIL EDGE
2. SCRATCH LINE TO SHOW TREAD WIDTH

STEP 2



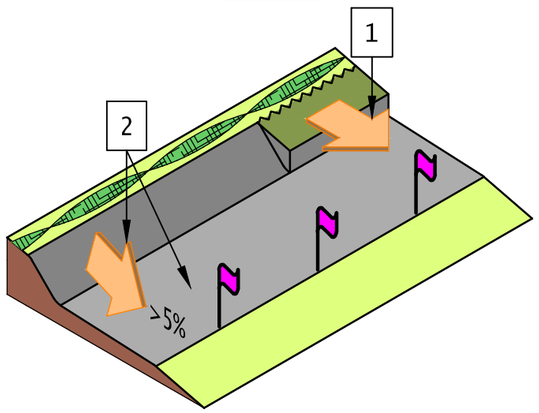
1. RAKE BIOLOGICAL SURFACE MATERIALS ("DUFF") AWAY FROM AREA TO BE DISTURBED

STEP 3



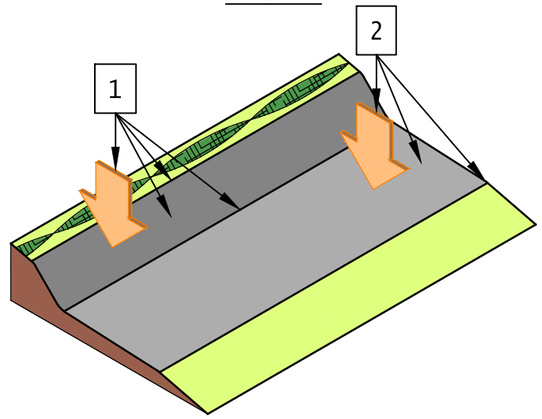
1. CUT IN THE BENCH & BROADCAST THE DEBRIS DOWN THE FORESLOPE

STEP 4



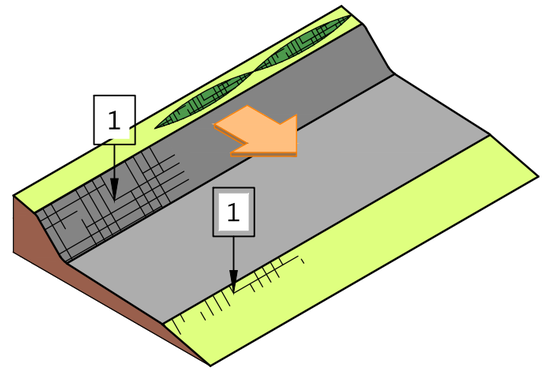
1. CUT IN THE BACKSLOPE & BROADCAST THE DEBRIS DOWN THE FORESLOPE
2. OUTSLOPE THE TRAIL TREAD >5% CROSS SLOPE

STEP 5



1. COMPACT THE BACKSLOPE & CRITICAL POINTS
2. COMPACT THE BENCH STARTING AT THE FORESLOPE

STEP 6



1. DISPERSE DUFF OVER BACKSLOPE & EDGE OF FORESLOPE TO PROMOTE RE-VEGETATION

TRAIL CONSTRUCTION STEPS ILLUSTRATION

SCALE: NONE