Environmental Assessment

Marquette County Shooting Range

Richmond Township, Marquette County, Michigan

Prepared for:

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Project 2004504

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Reviewer

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1. Project Summary, Purpose, and Need

1.1 Project Summary

The proposed project involves the development of a State of Michigan (State-run) shooting range in Richmond Township, Marquette County in Michigan's Upper Peninsula (Figure 1). The parcel is currently owned by Cleveland Cliffs (Cliffs). The following is a list of potential development plan components.

- 4-station archery range
- 6-station shotgun range
- 4 to 5-station 10-yard shooting range
- 4 to 5-station 25-yard shooting range
- 3 to 5-station 100-yard shooting range
- 2 to 3-station 200-yard shooting range
- 2 to 3-station 400-yard shooting range
- Rear and side berms, berms separating individual ranges
- Concrete vault toilet, benches, and trash receptacles
- 6 concrete ADA compliant parking areas (10 and 40 vehicle spaces)
- ADA compliant sidewalks and pedestrian circulation for retrieving targets
- Educational and interpretive signage

1.2 Purpose

The purpose of this assessment is to identify potential environmental features of the parcel which may impact use of this parcel for the proposed development. The parcel has not had any know uses in recent years. There are currently no State-run shooting ranges in the Upper Peninsula.

1.3 Need

In 2019 the Michigan Department of Natural Resources (MDNR) reported statewide deer license issuance numbers at 917,826, with 79,191 permits in the Upper Peninsula (Frawley 2019). Currently, there are no State-run shooting ranges located in the Upper Peninsula of Michigan.

Despite the presence of an informal shooting range nearby, development of the proposed parcel into a State-run operation would allow for a controlled, accessible, and safer location for the use of firearms.

1.4 Decisions that Need to be Made

This assessment and initial design will be posted online for public comment. Adjustments may be made to the alternatives in response to comments from citizens and other interested parties. The MDNR will consider public comments, cost, operational characteristics, environmental impacts and other relevant factors for range design and construction at the Cliffs range site. Grant approval from the United States Fish and Wildlife Service for all design work at the proposed site prior to project commencement is required.

2. Alternatives, Including the Proposed Action

2.1 Alternatives Not Considered for Detailed Analysis

Several alternatives to the development of the Richmond Township Cliffs parcel and the no build option were considered. These alternatives were not considered for detailed analysis and are beyond the scope of this assessment – notable amongst these are as follows: Cleveland Cliffs property in Sands Township, Marquette County Road Commission property in Sands Township, and DNR owned property in Sands Township.

2.2 Alternatives Carried Forward for Detailed Analysis

2.2.1 Alternative A (Proposed Action)

Under this alternative, the proposed Cliffs parcel would be developed to include the following bulleted list of potential attributes:

- 4-station archery range
- 6-station shotgun range
- 4 to 5-station 10-yard shooting range
- 4 to 5-station 25-yard shooting range
- 3 to 5-station 100-yard shooting range
- 2 to 3-station 200-yard shooting range
- 2 to 3-station 400-yard shooting range
- Rear and side berms, berms separating individual ranges
- Concrete vault toilet, benches, and trash receptacles
- 6 concrete ADA compliant parking areas (10 and 40 vehicle spaces)
- ADA compliant sidewalks and pedestrian circulation for retrieving targets
- Educational and interpretive signage

2.2.2 Alternative B (No Build)

With this alternative, no improvements would be made to the existing property. It is presumed the Cliffs parcel would remain vacant. Marquette County and the Upper Peninsula would continue to have no State-run (managed or monitored) shooting range.

3. Affected Environment

A team of GEI Consultants (GEI) technical staff with expertise spanning the breadth of the site assessment requirements used onsite observations, desktop analysis and historical records review to determine project area characteristics and potential concerns.

A GEI biologist experienced with identifying wetlands, mapping vegetative communities, and documenting biological resources (i.e. flora and fauna), conducted a field site assessment of the subject property on October 14, 2020. Additional physical and ecological features of the subject property were assessed utilizing aerial photography and agency resource database information received.

GEI Archaeologists, in accordance with Section 106 of the National Historic Preservation Act (NHPA), conducted a historic records search and research associated with the project area and lands proximal to.

3.1 Physical Characteristics

The proposed development site is approximately 25 acres in size and is located within the northeastern quarter of Richmond Township, Marquette County, Michigan (T47N R26W S24).

Physical features and attributes associated with this site are bulleted below:

- Quaternary geological classification of the parcel is: Thin to discontinuous glacial till over bedrock. (EGLE b)
- Dominant vegetation present: Dry northern forest dominated by jack pine (*Pinus banksiana*), white pine (*Pinus strobus*), bigtooth aspen (*Populus grandidentata*), red maple (*Acer rubrum*).
- The parcel and surrounding properties were logged in the past but have been left to succeed to forest for at least two decades.
- Goose Lake public boat launch is located approximately 270 meters to the west.
- A two-track/old logging road currently runs through the northern part of the parcel.

3.2 Biological Environment (Habitat/Vegetation)

The property can be characterized as a dry northern forest that is an early state of succession to a more mature forest. Dominant plant species throughout the site were upland-rated, soils were sandy and lacking field indicators of hydric soils, and there were no visual signs of wetland hydrology at the ground surface nor within the soil

profile.

Canopy dominants include jack pine (*Pinus banksiana*), white pine (*Pinus strobus*), and big-tooth aspen (*Populus grandidentata*). The understory is dominated by red maple (*Acer rubrum*), bracken fern (*Pteridium aquilinum*), wintergreen (*Gaultheria procumbens*), and upland sedges (*Carex spp.*). A listing of flora observed, and the floristic quality assessment metrics associated with the subject property, are provided in Appendix A.

Wetlands

The field assessment conducted on October 14, 2020 determined that no wetlands were within or within close proximity to the project area. The proposed activities will not impact regulated wetlands and therefore a permit from the Michigan Department of Environment, Great Lakes, and Energy (EGLE), pursuant to Part 303, Wetland Protection, of the Natural Resources and Environmental Protection Act (NEPA), as amended will not be required. Maps showing the approximate location of the nearest regulated features to the site are provided in Figure 2.

If the project is expanded beyond the current location and into regulated wetland areas or watercourses regulated by EGLE, pursuant to either Part 303 or Part 301, Inland Lakes and Streams, of NREPA, then additional field site assessments to document and delineate these resources is recommended.

Water Quality

There are no surface water features within or directly adjacent to the project area. Specifically, no open water ponds, waterbodies, or watercourses, as defined by Part 301 of NREPA, were identified.

Streams, Lakes and Drains

As noted above, there are no defined streams, drains, ponds, or lakes on or adjacent to the parcel, therefore a permit from EGLE is not required, pursuant to Part 301 of NREPA. The nearest waterbodies are Goose Lake (approximately 300 meters from the site), Grace Lake (approximately 650 meters from the site), and Goose Lake Outlet (approximately 125 meters from the site) (Figure 2).

Geological Features

Michigan's Natural Features Inventory (MNFI) responded to GEI's request for information identifying the potential presence of Limestone Cliff's within the geographic area associated with the project. Limestone cliffs are defined by the Michigan Natural Features Inventory (MNFI) as a critical habitat. It consists of vertical or near-vertical exposures of bedrock, which typically support less than 25% vascular plant coverage, with some rock surfaces densely covered by lichens, mosses, and liverworts (MNFI a).

GEI's field site assessment did not observe any exposed bedrock nor vertical or near vertical faces, other than some sand embankments. The substrates of the site are dominated by sand

and to a lesser extent, gravel. Limestone Cliff was not present on the subject property.

3.3 Threatened/Endangered Flora and Candidate Species

MNFI's response to GEI's information request provided additional information as to the potential presence of federally- and state-listed plant species within the geographic area associated with the project (Appendix B). Each of the species and their optimal habitats are described separately below (courtesy of the regulatory agencies) coupled with GEI's assessment of these species' habitats relative to the subject property and the likelihood of these species' presence/use of the subject property.

Northern woodsia *(Woodsia alpina)* – State Endangered

Northern woodsia is a small fern (8 in; 20 cm) of calcareous dry cliffs; blade lanceolate with lobed, untoothed pinnae; rachis with scattered hairs and scales. Northern woodsia occurs on rock cliffs, crevices, talus, and rocky, boreal woods in sun to partial shade. It is usually found in alkaline rock formations, but occasionally occurs on igneous outcrops (MNFI h).

GEI did not observe the presence of any calcareous cliffs on the subject property. It is GEI's professional opinion that due to a lack of suitable habitat, the presence of northern woodsia on the site is unlikely.

Rock whitlow grass *(Draba arabisans)* – State Special Concern

Rock whitlow grass is a small forb (4 to 16 in; 10 to 40 cm) of rocky shores in the Upper Peninsula; basal rosette of oblong leaves, covered with stellate hairs; stem leaves sparse (3 to 10); flowers white with four petals; fruits elongated, flattened, glabrous, and twisting when mature. This species is found on cliffs, boulders, and cobble near the Great Lakes shores in the Upper Peninsula (MNFI c).

GEI did not observe the presence of any rocky shores on the subject property. It is GEI's professional opinion that due to a lack of suitable habitat, the presence of rock whitlow grass is unlikely.

Male fern *(Dryopteris filix-mas)* – State Special Concern

The Male fern is a medium-sized fern (12 to 48 in; 30 to 120 cm) with blades pinnately divided 2 to 3 times with relatively short petioles (less than one-third the length of blade), the base of the petiole has both brown scales and scattered hairs. The Male fern occurs on rocky, sheltered sites (cliffs, sinkholes, ravines, crevices) in mixed northern hardwood forests in the northern Lower Peninsula and Upper Peninsula. It often occurs on limestone bedrock but is not restricted to calcareous substrates (MNFI d).

Although the October field site assessment was outside of the July to September optimal survey period; GEI did not observe the presence of any rocky sheltered cliffs, sinkholes, ravines, nor crevices on the subject property. It is GEI's professional opinion that due to a

lack of suitable habitat, the presence of male fern is unlikely.

Green spleenwort *(Asplenium viride)* – State Special Concern

Green spleenwort is a small fern (5-15 cm) of calcareous cliffs and crevices; fronds pinnate with small (1 cm), opposite, oval pinnae; rachis green except at base. It is found on shaded cool calcareous rock ledges and crevices; very rarely on moist, shady, mossy banks of forested dunes near Lake Michigan (MNFI b).

The single record of this species from Marquette County is historical. While the site visit was outside of the growing season, due to a lack of suitable habitat, the presence of this species on site is unlikely.

3.4 Threatened/Endangered Fauna and Candidate Species

King rail *(Rallus elegans)* – State Endangered

The King rail is a large, 15 to 19 inches (38 to 48 cm) long bird with a wingspan 21 to 25 inches (53 to 64 cm). It is a rust-colored marsh bird with a long bill and long toes. The upper body parts are olive brown, the breast is reddish-brown, flanks are barred with black and white; the tail is short and often uplifted. Although seldom flushed, flight is usually short, skimming the top of emergent vegetation with legs often dangling. The King rail is associated with permanent marsh habitats along upland-wetland edges, largely dominated by tussock-forming sedges (MNFI g).

Although the October field site assessment was outside of the April to late May Michigan optimal survey period; GEI did not observe the presence of any marsh habitats on the subject property. It is GEI's professional opinion that due to a lack of suitable habitat, the presence of king rail is unlikely.

Bald eagle *(Haliaeetus leucocephalus)* – State Special Concern

The bald eagle is a large bird of prey, with a wingspan ranging from 6 to 7.5 feet (1.8 to 2.3m). Mature adults have a white head and tail and dark brown body with yellow hooked beak and feet. Juvenile plumages are variable, but head and tail are brown with increasing amounts of white until they attain their adult plumage between 4.5 and 5.5 years of age. Females are larger than males. Bald eagles will nest in a wide variety of habitats that provide suitable nest sites close to open water. Nests may be placed in snags or large live trees as well as on constructed platforms or utility poles. They are resident (stay year-round) if open water is available for foraging opportunities (MNFI e).

No bald eagles or potential nests were observed during the October survey. Several nets are present on Goose Lake. Due to the proximity of the nesting locations, it is plausible that travel corridors may exist near/over the proposed project site.

Northern long-eared bat *(Myotis septentrionalis)* – Federally Threatened, State Special Concern

The Northern long-eared bat is distinguished by its long ears, it is a medium-sized bat with a body length of 3 to 3.7 inches but a wingspan of 9 to 10 inches. Their fur color can be medium to dark brown on the back and tawny to pale-brown on the underside. Northern long-eared bats spend winter hibernating in caves and mines, called hibernacula. They use areas in various sized caves or mines with constant temperatures, high humidity, and no air currents. Within hibernacula, surveyors find them hibernating most often in small crevices or cracks, often with only the nose and ears visible. During the summer, northern long-eared bats roost singly or in colonies underneath bark, in cavities or in crevices of both live trees and snags (dead trees). Males and non-reproductive females may also roost in cooler places, like caves and mines. Northern long-eared bats seem to be flexible in selecting roosts,

choosing roost trees based on suitability to retain bark or provide cavities or crevices. This bat has also been found rarely roosting in structures, like barns and sheds (USFWS b).

GEI determined that there were no trees nor tree species typically associated with having features suitable for summer bat roosting habitat. Potential winter hibernacula were also absent on the site. It is GEI's professional opinion that due to a lack of suitable habitat, the presence of northern long-eared bat is unlikely.

Rufa red knot *(Calidris canutus rufa)* – Federally Threatened

The Rufa red knot is a subspecies of the Red knot, a large sandpiper. Its May through August breeding plumage is a distinctive breast of brilliant rusty red to pale salmon; this russet color extends up the neck and around the eyes, and bleeds somewhat into the patterned black, brown, gray and white colorations on the wings and back. The rump is whitish. The knot has a short, straight black bill and, during breeding season, dark brown/black legs. Knots are known to fly more than 9,300 miles from south to north every spring and repeat the trip in reverse every autumn, from Tierra del Fuego to the central Canadian Arctic (Kieffer; USFWS).

Wetlands and coastal areas are primary stopover points for the red knot. Since the subject site is devoid of wetlands and is not near the coastal shoreline of Lake Superior, it is GEI's professional opinion that due to a lack of suitable habitat, rufa red knot would not utilize the subject area.

Lynx *(Lynx canadensis)* – Federally Threatened, State Endangered

The lynx is a medium-sized cat 2.5 to 4 feet (0.8 to 1.2 m) long with grizzled, silvery-gray fur, prominent, long black ear tufts (2 in; 5cm long), and a short stubby tail that is completely black at the tip. Tracks are large, averaging 3.7 inches (9.3 cm) wide and 4.5 inches (11.4 cm) long for front paws and 3 by 3.1 inches (7.6 by 7.9 cm) for rear paws. Pads are usually round and unlobed and have no claw marks. Lynx prefer dense, mature stands of boreal forest and other conifer or mixed-conifer stands. They will inhabit second growth forests and will tolerate small clear-cuts if adjacent blocks of mature conifer stands are present. Lynx

utilize large hollow logs, overturned stumps, and thick brush for den sites (MNFI f).

The primary prey of lynx is the snowshoe hare (*Lepus americanus*). Without high densities of snowshoe hares, lynx are unable to sustain populations despite utilizing a multitude of other prey when snowshoe hare numbers are low (USFWS a). Snowshoe hare prefer forests with thick understory and is often found in places like coniferous forests, cedar bogs, and spruce swamps (MDNR 2020).

Although the site does not contain cedar bogs and spruce swamps it does have second growth forests with maturing conifers which correlates with known habitats for lynx and their prey. Methods used to determine the presence of lynx are track surveys in snow through the months of December to April.

3.5 Cultural/Paleontological Resources

GEI Archaeologists conducted a records search and research for the project area and proximal lands to identify the presence or absence of cultural resources, including Historic Properties, in accordance with Section 106 of the National Historic Preservation Act (NHPA), as amended. A Technical Memorandum with findings and recommendations was developed as per Michigan SHPO Section 106 Application supporting documentation guidance and this memorandum can be found in Appendix C of this document.

Based on information available from various databases and the Michigan SHPO files for archaeological and architectural resources, no known and previously recorded cultural resources are located in the project area. As such, the project will not result in effects to previously recorded cultural resources. In 2001, 0.84-acres within the project area was examined for cultural resources (Halsey 2001); the remainder of the project area has not been surveyed to determine the presence or absence of undocumented cultural resources (Figure 4).

Michigan SHPO files indicate four (4) previously recorded archaeological resources are located within 0.30-miles of the project area. One of the four previously recorded archaeological sites (20-MQ-34) is eligible for the National Register of Historic Places (NRHP); the remaining three (3) sites have not been evaluated for eligibility. Past research in the vicinity has suggested that 20-MQ-139 may be the southeastern extension of 20-MQ-34 (Table 3). As such, the project area is located between these two (2) sites and it may contain intervening artifacts or features.

Collectively, the four (4) previously recorded sites contain prehistoric and historic components that may range in age from Paleo-Indian (11,000-9,500 Before Present [BP]) to the historic-era, including artifacts and features reflective of trade activities and railroad construction. The presence of these resources, in conjunction with the existence of other known prehistoric and historic sites in the vicinity, indicate the project area has a high sensitivity for such cultural resources.

Aerial photographs and topographic maps show the presence of access roads, the railroad,

and logging activities proximal to, and including, the project area. Despite the potential soil disturbances from logging and railroad construction in the immediate vicinity of the project area, the Michigan SHPO files show there have been incidences of intact archaeological features and cultural soils discovered in the area. Thus, the subsurface sensitivity for archaeological resources is considered high within the project area. As construction may include up to five (5)-feet of vertical ground disturbance, the project may have the potential to encounter undisturbed soils with the ability to yield intact archaeological deposits.

Based on the findings outlined above, GEI recommends a Phase I survey in the project area to determine the presence or absence of previously undocumented archaeological resources, including Historic Properties, pursuant to Section 106 of the NHPA. The methodology for the survey fieldwork should be informed by the Michigan SHPO Draft State Archaeological Documentation Standards (SHPO a). The need for such fieldwork should ultimately be determined by the federal agency, often in consultation with interested parties such as the SHPO (SHPO b).

The SHPO consultation will be initiated between the federal agency and SHPO by the submittal of an MI SHPO Application for Section 106 Consultation and the results of those efforts will assist in determining the need or lack thereof for additional fieldwork to determine the effect of the shooting range on cultural resources, including Historic Properties pursuant to Section 106 of the NHPA.

3.6 Contamination

The use of the site as a shooting range will inherently result in the deposit of lead and shot. Dissolved lead can migrate through soils to groundwater. Factors which may cause lead contamination issues and mitigation techniques are outlined in *Best Management Practices for Lead at Outdoor Shooting Range* (EPA).

3.7 Local Socio-Economic Conditions

The proposed project site is located on Cliffs property within Richmond Township, Marquette County. Local socio-economic data is provided in provided in Table 2 (MTA; USCB, USDOJ). It is not anticipated that the proposed project would cause any adverse impacts to local demographic groups.

3.8 Economic Issues

The proposed project site has been forested and has had limited other use by Cliffs for at least two decades. The site and surrounding land are owned and managed by Cliffs. Cliffs does not actively restrict use of the land by outdoor recreators. The development of this site would change the current land use and could possibly add positive economic influences. The transition of the site from a vacant forested plot to a shooting range operated by the State would provide a safe location for firearms use. The establishment of the range may increase

firearm related sales such as ammunition, targets, etc.

3.9 Noise

The nearest residential property to the proposed site is nearly 3,000 meters away. In 2017 a sound study was completed by Siebein Associates for a proposed alternate site (Cleveland Cliffs property Sands Township) approximately 1,200 meters to the east of the proposed site. Existing ambient sound levels at the Sands Township site varied from 8 to 77 dBA with average Day-Night Sound Levels (LDN) of 36 to 55 dBA. Noise levels observed at the nearest residential proper during acoustic testing ranged from 40 to 55 dBA (Siebein Associates). Ambient sound levels associated with the Sand Township site and shot experiment results show comparable noise levels at distances consistent with residential properties. Extrapolating from Sands Township results, it is presumed sound levels will be comparable to or less than such, given the increased distance of the proposed project site from residential properties.

4. Environmental Consequences

4.1 Impact Specific to Alternatives Considered

4.1.1 Alternative A (Proposed Action)

This alternative would result in the development of the site into a State-run shooting range. Development of the range on a currently undisturbed site such as the Cliffs property will result in impacts to natural resources; however, impacts would be restricted to a relatively low-diversity area of dry northern forest. Several listed species, although not confirmed on the site, were noted by MNFI to have been observed within 1.5 miles of the site. Surveys for the presence of a subset of those species outlined in Sections 3.2 and 3.3 are recommended prior to any development. There will be no impacts to surface water or wetland resources within the boundaries of the subject area that was assessed. A PSI is recommended to determine current contamination levels and a lead management plan to mitigate future issues.

4.1.2 Alternative B (No Build)

With the No Build alternative, the development of the proposed site would not be carried out. The site would likely remain out of human use, with the potential for development by Cleveland Cliffs. Any current environmental issues would persist.

5. List of Preparer(s)

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6. Consultation and Coordination with the Public and Others

A public meeting is planned for January 2021. Shooting range development plans and alternatives as in Section 2.1 will be presented to the public. A draft of this assessment along with site development plans will be provided to the public prior to plan commencement.

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Tables

Table 1. Alternative Characteristics

Characteristic	Alternative A - Cliffs Parcel	Alternative B - No Build
Accessible to Public?	Yes	Yes
Site Development Required?	Yes	No
Addresses ADA Issues?	Yes	No
Addresses Hunter Education Needs / Outdoor Skill Training Addresses Purpose and Need?	Yes	No
Provide a Safe Place to Shoot?	Yes	No

Table 2. Census Data

	State of Michigan	Marquette County	Richmond Township
Total Population	9,986,857	66,272	929
% Minority	25.3	7.8	2.0
% Below Poverty	13	16.7	11.4
%LEP	3.24	<1	<1

LEP refers to the portion of the population with Limited English Proficiency

Figures

Figure 1. Location of the proposed DNR shooting range (project area in red)

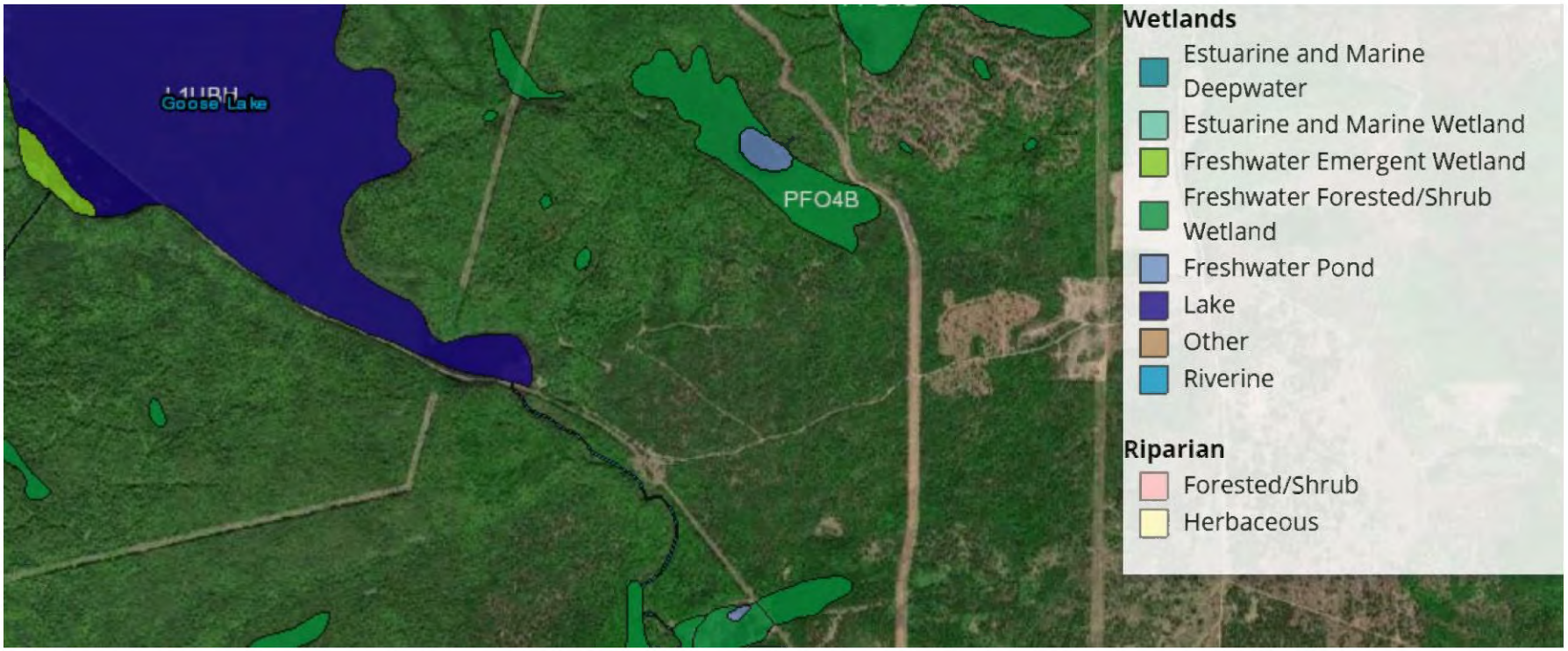


Figure 2. Identified wetlands in the immediate vicinity of the proposed project site

Figure 3. Project Site Development Plan

Appendix A Project Site Plant List and FQA Form

**Shooting Range Floristic
Floristic Quality
Assessment (FQA)**

10/14/2020

Marquette DNR Range
Marquette County
Michigan

Practitioner:	Zack Pitman
Community Type Notes:	Dry northern forest

Total Mean C:	2.9	
Native Mean C:	3.5	
Total FQI:	18.1	
Native FQI:	19.8	
Adjusted FQI:	31.7	
% C value 0:	20.5	
% C value 1-3:	38.5	
% C value 4-6:	33.3	
% C value 7-10:	7.7	
Native Tree Mean C:	3.2	
Native Shrub Mean C:	5	
Native Herbaceous Mean C:	3.3	
Total Species:	39	
Native Species:	32	82.10%
Non-native Species:	7	17.90%
Mean Wetness:	2.9	
Native Mean Wetness:	2.8	
Tree:	11	28.20%
Shrub:	5	12.80%
Vine:	0	0%
Forb:	12	30.80%
Grass:	4	10.30%
Sedge:	4	10.30%
Rush:	1	2.60%

Fern:	2	5.10%
Bryophyte:	0	0%

Shooting Range Plants

Scientific Name	Family	Native?	C	W	Common Name
Abies balsamea	Pinaceae	native	3	0	balsam fir
Acer rubrum	Sapindaceae	native	1	0	red maple
Acer saccharum	Sapindaceae	native	5	3	sugar maple
Achillea millefolium	Asteraceae	native	1	3	yarrow
Betula papyrifera	Betulaceae	native	2	3	paper birch
Carex backii	Cyperaceae	native	8	5	sedge
Carex blanda	Cyperaceae	native	1	0	sedge
Carex eburnea	Cyperaceae	native	7	3	sedge
Carex pensylvanica	Cyperaceae	native	4	5	sedge
Centaurea stoebe	Asteraceae	non-native	0	5	spotted knapweed
Comptonia peregrina	Myricaceae	native	6	5	sweetfern
Cornus canadensis	Cornaceae	native	6	0	bunchberry
Dactylis glomerata	Poaceae	non-native	0	3	orchard grass
Danthonia spicata	Poaceae	native	4	5	poverty grass; oatgrass
Elymus repens	Poaceae	non-native	0	3	quack grass
Eurybia macrophylla	Asteraceae	native	4	5	big-leaved aster
Fragaria virginiana	Rosaceae	native	2	3	wild strawberry
Gaultheria procumbens	Ericaceae	native	5	3	wintergreen
Gaylussacia baccata	Ericaceae	native	7	3	huckleberry
Hypericum perforatum	Hypericaceae	non-native	0	5	common st. johns-wort
Juncus tenuis	Juncaceae	native	1	0	path rush
Lycopodium clavatum	Lycopodiaceae	native	4	0	running ground-pine
Melilotus albus	Fabaceae	non-native	0	3	white sweet-clover
Oenothera biennis	Onagraceae	native	2	3	common evening-primrose
Picea glauca	Pinaceae	native	3	3	white spruce
Pinus banksiana	Pinaceae	native	5	3	jack pine
Pinus strobus	Pinaceae	native	3	3	white pine
Poa compressa	Poaceae	non-native	0	3	canada bluegrass
Populus grandidentata	Salicaceae	native	4	3	big-tooth aspen
Populus tremuloides	Salicaceae	native	1	0	quaking aspen
Prunus pensylvanica	Rosaceae	native	3	3	pin cherry
Pteridium aquilinum	Dennstaedtiaceae	native	0	3	bracken fern
Quercus rubra	Fagaceae	native	5	3	red oak
Rubus allegheniensis	Rosaceae	native	1	3	common blackberry
Solidago hispida	Asteraceae	native	3	5	hairy goldenrod
Solidago nemoralis	Asteraceae	native	2	5	old-field goldenrod
Symphyotrichum ciliolatum	Asteraceae	native	4	5	northern heart-leaved aster
Tanacetum vulgare	Asteraceae	non-native	0	3	garden tansy
Trientalis borealis	Myrsinaceae	native	5	0	star-flower

Appendix B MNFI Report

MICHIGAN STATE UNIVERSITY | Extension

Mr. Zack Pitman
Wetland Ecologist
GEI
1755 Barlow Street
Traverse City, MI 49686
517-285-8093

November 25, 2020

Re: Rare Species Review #2766 – DNR Shooting Range, Richmond Township, Marquette County, MI, T47N R26W Section 24).

Mr. Pitman:

The location for the proposed project was checked against known localities for rare species and unique natural features, which are recorded in the Michigan Natural Features Inventory (MNFI) natural heritage database. This continuously updated database is a comprehensive source of existing data on Michigan's endangered, threatened, or otherwise significant plant and animal species, natural plant communities, and other natural features. Records in the database indicate that a qualified observer has documented the presence of special natural features. The absence of records in the database for a particular site may mean that the site has not been surveyed. The only way to obtain a definitive statement on the status of natural features is to have a competent biologist perform a complete field survey.

Under Act 451 of 1994, the Natural Resources and Environmental Protection Act, Part 365, Endangered Species Protection, "a person shall not take, possess, transport, …fish, plants, and wildlife indigenous to the state and determined to be endangered or threatened," unless first receiving an Endangered Species Permit from the Michigan Department of Natural Resources (MDNR), Wildlife Division. Responsibility to protect endangered and threatened species is not limited to the lists below. Other species may be present that have not been recorded in the database.

Several at-risk species have been documented within 1.5-miles of the project location. However, the occurrences are Historic and/or far removed from the site so **it is not likely that negative impacts will occur.** Keep in mind that MNFI cannot fully evaluate this project without visiting the project site. MNFI offers several levels of Rare Species Reviews, including field surveys which I would be happy to discuss with you.

Sincerely,

Michael A. Sanders

Michael A. Sanders
Environmental Review Specialist/Zoologist
Michigan Natural Features Inventory

MSU EXTENSION

Michigan Natural Features Inventory

PO Box 13036
Lansing MI 48901

(517) 284-6200
Fax (517) 373-9566

mnfi.anr.msu.edu

Comments for Rare Species Review #2766: It is important to note that it is the applicant's responsibility to comply with both state and federal threatened and endangered species legislation. Therefore, if a state listed species occurs at a project site, and you think you need an endangered species permit please contact: Casey Reitz, Michigan DNR Wildlife Division, 517-284-6210, or ReitzC@michigan.gov. If a federally listed species is involved and, you think a permit is needed, please contact Carrie Tansy, Endangered Species Program, U.S. Fish and Wildlife Service, East Lansing office, 517-351-8375, or Carrie_Tansy@fws.gov.

Special concern species and natural communities are not protected under endangered species legislation, but efforts should be taken to minimize any or all impacts. Species classified as special concern are species whose numbers are getting smaller in the state. If these species continue to decline, they would be recommended for reclassification to threatened or endangered status. Please consult MNFI's Rare Species Explorer for additional information regarding the tables below.

Table 1: Occurrences of threatened & endangered species within 1.5 miles of RSR #2766

ELCAT	SNAME	SCOMNAME	USESA	SPROT	G_RANK	S_RANK	FIRSTOBS	LASTOBS
Animal	*Rallus elegans*	King rail		E	G4	S2	1969	1969-05-23
Plant	*Woodsia alpina*	Northern woodsia		E	G4G5	S1	1961	1983-08-04
Plant	*Draba cana*	Ashy whitlow grass		T	G5	S1	2020-06-19	2020-06-19

Comments for Table 1:

No concerns for Table 1.

Table 2: Occurrences of special concern species & other natural features within 1.5 miles of RSR #2766

ELCAT	SNAME	SCOMNAME	USESA	SPROT	G_RANK	S_RANK	FIRSTOBS	LASTOBS
Animal	*Haliaeetus leucocephalus*	Bald eagle		SC	G5	S4	1963	1984-05-25
Community	*Limestone Cliff*				G4G5	S2	1981	1983-08-04
Plant	*Asplenium viride*	Green spleenwort		SC	G5	S3	1980	1980
Plant	*Draba arabisans*	Rock whitlow grass		SC	G4G5	S3	1981	1983-08-04
Plant	*Dryopteris filix-mas*	Male fern		SC	G5	S3	1871	1871-07-31

Comments for Table 2:

No concerns for Table 1.

Codes to accompany Tables:

State Protection Status Code Definitions (SPROT)
E: Endangered
T: Threatened
SC: Special concern

Federal Protection Status Code Definitions (USESA)
LE = listed endangered
LT = listed threatened
LELT = partly listed endangered and partly listed threatened
PDL = proposed delist
E(S/A) = endangered based on similarities/appearance
PS = partial status (federally listed in only part of its range)
C = species being considered for federal status

Global Heritage Status Rank Definitions (GRANK)
The priority assigned by NatureServe's national office for data collection and protection based upon the element's status throughout its entire world-wide range. Criteria not based only on number of occurrences; other critical factors also apply. Note that ranks are frequently combined.
G1 = critically imperiled globally because of extreme rarity (5 or fewer occurrences range-wide or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extinction.
G2 = imperiled globally because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extinction throughout its range.
G3: Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range (e.g. a single western state, a physiographic region in the East) or because of other factor(s) making it vulnerable to extinction throughout its range; in terms of occurrences, in the range of 21 to 100.
G4: Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.
G5: Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.
Q: Taxonomy uncertain

State Heritage Status Rank Definitions (SRANK)
The priority assigned by the Michigan Natural Features Inventory for data collection and protection based upon the element's status within the state. Criteria not based only on number of occurrences; other critical factors also apply. Note that ranks are frequently combined.
S1: Critically imperiled in the state because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because of some factor(s) making it especially vulnerable to extirpation in the state.
S2: Imperiled in state because of rarity (6 to 20 occurrences or few remaining individuals or acres) or because of some factor(s) making it very vulnerable to extirpation from the state.
S3: Rare or uncommon in state (on the order of 21 to 100 occurrences).
S4 = apparently secure in state, with many occurrences.
S5 = demonstrably secure in state and essentially ineradicable under present conditions.
SX = apparently extirpated from state.

Section 7 Comments for Rare Species Review #2766
GEI Consultants
MDNR Shooting Range Project
Richmond Township
Marquette County, MI
November 25, 2020

For projects involving Federal funding or a Federal agency authorization

The following information is provided to assist you with Section 7 compliance of the Federal Endangered Species Act (ESA). The ESA directs all Federal agencies "to work to conserve endangered and threatened species. Section 7 of the ESA, called "Interagency Cooperation," is the means by which Federal agencies ensure their actions, including those they authorize or fund, do not jeopardize the existence of any listed species." The project falls within the range of four federally listed/proposed species which have been identified by the U.S. Fish and Wildlife Service (USFWS) to occur in Marquette County, Michigan:

Federally Threatened

Northern long-eared bat – there appears to be suitable habitat in the immediate project area. Northern long-eared bat (*Myotis septentrionalis*) numbers in the north eastern United States have declined up to 99 percent in recent years. Loss or degradation of summer habitat, wind turbines, disturbance to hibernacula, predation, and pesticides have contributed to this decline. However, no other threat has been as severe to the decline as White-nose Syndrome (WNS). WNS is a fungus that thrives in the cold, damp conditions in caves and mines where bats hibernate. The disease is believed to disrupt the hibernation cycle by causing bats to repeatedly awake thereby depleting vital energy reserves. This species was federally listed in May 2015 primarily due to the threat from WNS. This activity occurs within the US Fish and Wildlife Service's designated White-Nose Syndrome zone.

Also called northern bat or northern myotis, this bat is distinguished from other *Myotis* species by its long ears. In Michigan, northern long-eared bats hibernate in abandoned mines and caves in the Upper Peninsula; they also commonly hibernate in the Tippy Dam spillway in Manistee County. This species is a regional migrant with migratory distance largely determined by locations of suitable hibernacula sites.

Northern long-eared bats typically roost and forage in forested areas. During the summer, these bats roost singly or in colonies underneath bark, in cavities or in crevices of both living and dead trees. Roost trees are selected based on the suitability to retain bark or provide cavities or crevices. Common roost trees in southern Lower Michigan include species of ash, elm and maple. Foraging occurs primarily in areas along woodland edges, woodland clearings and over small woodland ponds. Moths, beetles and small flies are common food items. Like all temperate bats this species typically produces only 1-2 young per year.

Management and Conservation: when there are known roost trees or hibernacula in the project area, we encourage you to conduct tree-cutting activities and prescribed burns in forested areas during October 1 through March 31 when possible, but you are not required by the ESA to do so. When that is not possible, we encourage you to remove trees prior to June 1 or after July 31, as that will help to protect young bats that may be in forested areas but are not yet able to fly. The USFWS has prepared a dichotomous key to help determine if this action may cause prohibited take of this bat. Please consult the USFWS Endangered Species Page for more information.

Rufa red knot – there does not appear to be suitable habitat within our standard 1.5-mile search buffer. The rufa red knot (*Calidris canutus rufa*) is one of the longest-distance migrants in the animal kingdom, flying some 18,000 miles annually between its breeding grounds in the Canadian Arctic to the wintering grounds at the southern-most tip of South America. Primarily occurring along the Atlantic and Gulf coasts, small groups of this shorebird

regularly use the interior of the United States such as the Great Lakes during the annual migration. The Great Lakes shorelines provide vital stopover habitat for resting and refueling during their long annual journey.

The largest concentration of rufa red knots is found in May in Delaware Bay, where the birds stop to gorge on the eggs of spawning horseshoe crabs; a spectacle attracting thousands of birdwatchers to the area. In just a few days, the birds nearly double their weight to prepare for the final leg of their long journey to the Arctic. This species may be especially vulnerable to climate change which affects coastal habitats due to rising sea levels.

Management and Conservation: applies to actions that occur along coastal areas during the red knot migratory window of MAY 1 - SEPTEMBER 30.

Canada lynx – there appears to be suitable habitat within the 1.5-mile search buffer. With its large paws and long hind legs, the Canada lynx (*Lynx canadensis*) is adapted to hunting its primary prey, the snowshoe hare (*Lepus americanus*). Lynx and hares are associated with moist, cool, boreal spruce-fir forests. Hares require forests with dense understories that provide food and cover, especially during periods of deep snow. Snowshoe hares comprise much of the lynx diet throughout its range. Lynx prey opportunistically on other small mammals, particularly red squirrels (*Tamiasciurus hudsonicus*), and birds, especially when hare numbers are low. Lynx experience widespread food shortages and many die of starvation or abandon home ranges to search for adequate prey.

Management and Conservation: any management that promotes snowshoe hare populations while maintaining large block of conifers on the larger landscape will benefit this species. It is quite shy of humans, so areas of minimal intrusion (roads, snowmobile trails, campsites, etc.) should be maintained. The species is still threatened by illegal poaching, natural population lows combined with continued human-induced mortality, mismanagement of mature coniferous forests, and incidental trapping.

USFWS Section 7 Consultation Technical Assistance can be found at:

https://www.fws.gov/service/esa-section-7-consultation

The website offers step-by-step instructions to guide you through the Section 7 consultation process with prepared templates for documenting “no effect.” as well as requesting concurrence on "may affect, but not likely to adversely affect" determinations.

Please let us know if you have questions.

Michael Sanders
Environmental Review Specialist/Zoologist
Sander75@msu.edu
Cell: 517-980-5632

Attachment 1: Project Location Maps

Figure 1: Project Area Map – Topographic Base
Figure 2: Project Area/Draft APE Map

Study Area (+/- 25 acres)

SOURCE:
7.5' USGS Palmer and Sands Quadrangle Maps

0 950 1,900
Feet

Identification of Historic Properties
Marquette County Shooting Range
Marquette County, Michigan

Nowak & Fraus Engineers
Traverse City, Michigan

GEI Consultants

PROJECT AREA MAP
TOPOGRAPHIC BASE

Project 2004504

December 2020 Fig. 1

D:\GIS_Data\Projects\Stu\2004504_Marquette_Shooting_Range\GIS\Fig1_Project_Area_Map.mxd

Project Area/Draft APE (+/- 25 acres)

SOURCE:
Aerial Photo Source: Google Earth Pro

0 100 200
Feet

Identification of Historic Properties
Marquette County Shooting Range
Marquette County, Michigan

Nowak & Fraus Engineers
Traverse City, Michigan

GEI Consultants

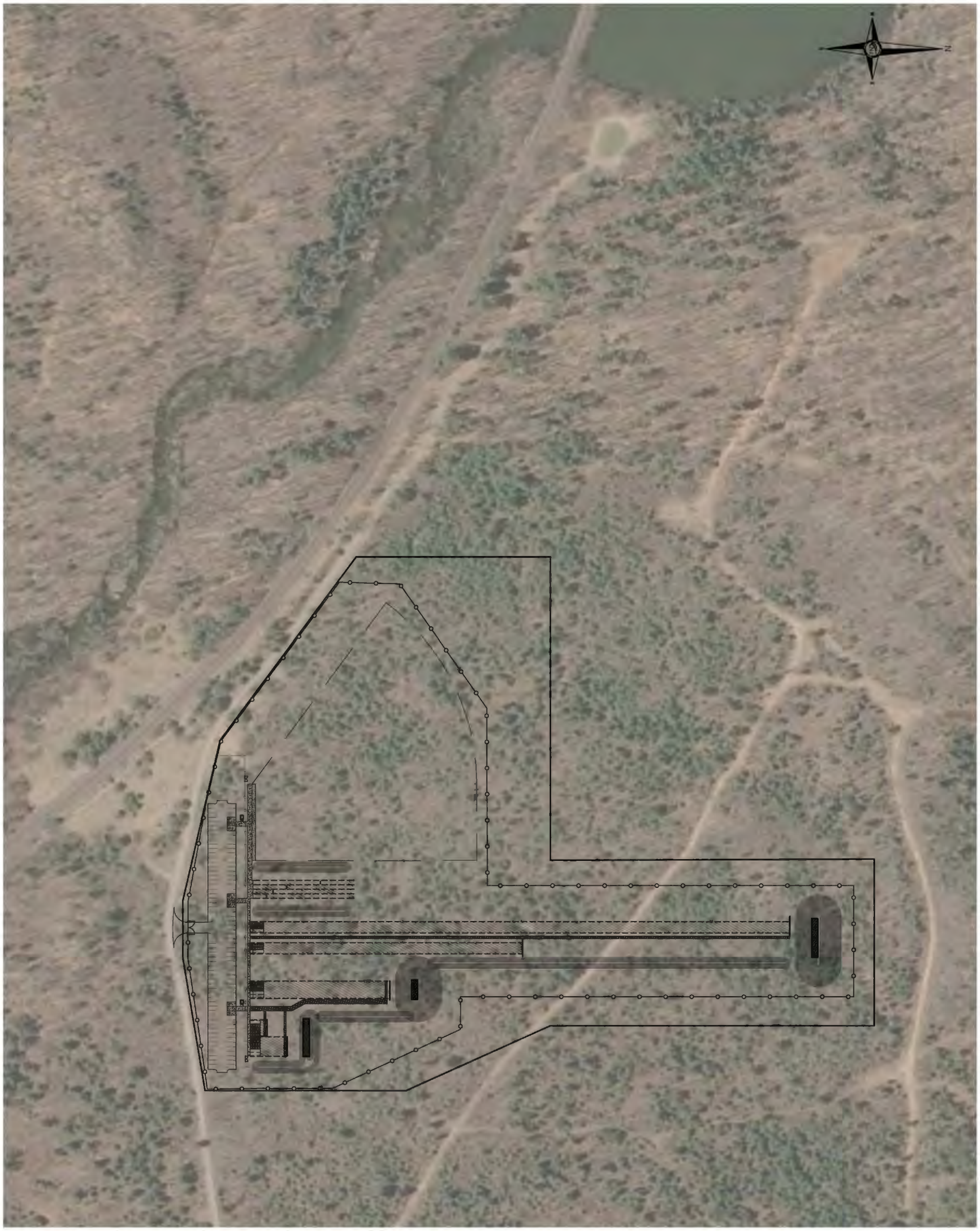
PROJECT AREA /
DRAFT APE MAP

Project 2004504 | December 2020 | Fig. 2

D:\GIS_Data\Projects\Stu\2004504_Marquette_Shooting_Range\GIS\Fig2_Project_Area_Draft_APE_Map.mxd

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI,

Attachment 2: Site Development Plan



LEGEND

PROPOSED SHOOTING LANE
PROPOSED CONCRETE WALK
PROPOSED ACCESSIBLE GRAVEL WALK
PROPOSED GRAVEL PATH/ROAD
LIMITS OF DISTURBANCE
PROPOSED POST AND WIRE SAFETY PERIMETER FENCING
EXISTING TREE LINE
EXISTING GRAVEL PATH/ROAD
MANHOLE
EXISTING SANITARY SEWER
HYDRANT
GATE VALVE
SAN. CLEAN OUT
EXISTING WATERMAIN
MANHOLE CATCH BASIN
EXISTING STORM SEWER
EX. R. Y. CATCH BASIN
EXISTING BURIED CABLES
UTILITY POLE GUY POLE
GUY WIRE
OVERHEAD LINES
LIGHT POLE
SIGN
EXISTING GAS MAIN

SCALE: 1" = 100'
100 50 0 50 100 150

CIVIL ENGINEER

NF ENGINEERS
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS
46777 WOODWARD AVENUE
PONTIAC, MI 48342-5032
TEL (248) 332-7931
FAX (248) 332-8257

C1

PROJECT NO.	3080 / K731
INDEX	-
PCA	00-0000
DRAWN BY	J HAMILTON
DESIGNED BY	J. HAMILTON
JC/ENG BY	S SUTTON

SITE PLAN - OPTION A

MARQUETTE
SHOOTING RANGE DEVELOPMENT

DATE	REVIEW
02/24/2020	Schematic Site Plan
07/30/2019	Schematic Site Plan

STATE OF MICHIGAN
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET
STATE FACILITIES ADMINISTRATION
DESIGN AND CONSTRUCTION DIVISION
ROBERT C. HALL, RA, NCARB, DIRECTOR

Attachment 3: Photographs

Photograph 1. Typical overstory in the northwestern portion of the APE. View to the southeast.

Photograph 2. Thick forest edge along the western boundary of the APE. View to the north.

Photograph 3. Vegetation typical in the APE north of the access road. View to the west.

Photograph 4. View down dirt road that traverses the northern portion of the APE. View to the southeast.

Photograph 5. Dominate pine overstory typical of the eastern portion of the APE. View to west.

Photograph 6. Vegetation typical in the southeast portion of the APE. View to the northwest.

Photograph 7. Non-hydric sandy soils typical of the APE.

Photograph 8. View of the railroad located to the south of the southern APE boundary. View to the southwest.