

Survey Area
Braun's Holly Fern
Mileposts 37.5-38.0

Incidental Observation
Braun's Holly Fern
Milepost 31.0

Milepost	○
<i>Polystichum braunii</i>	●
Survey Location	■
Mainline Corridor	▬

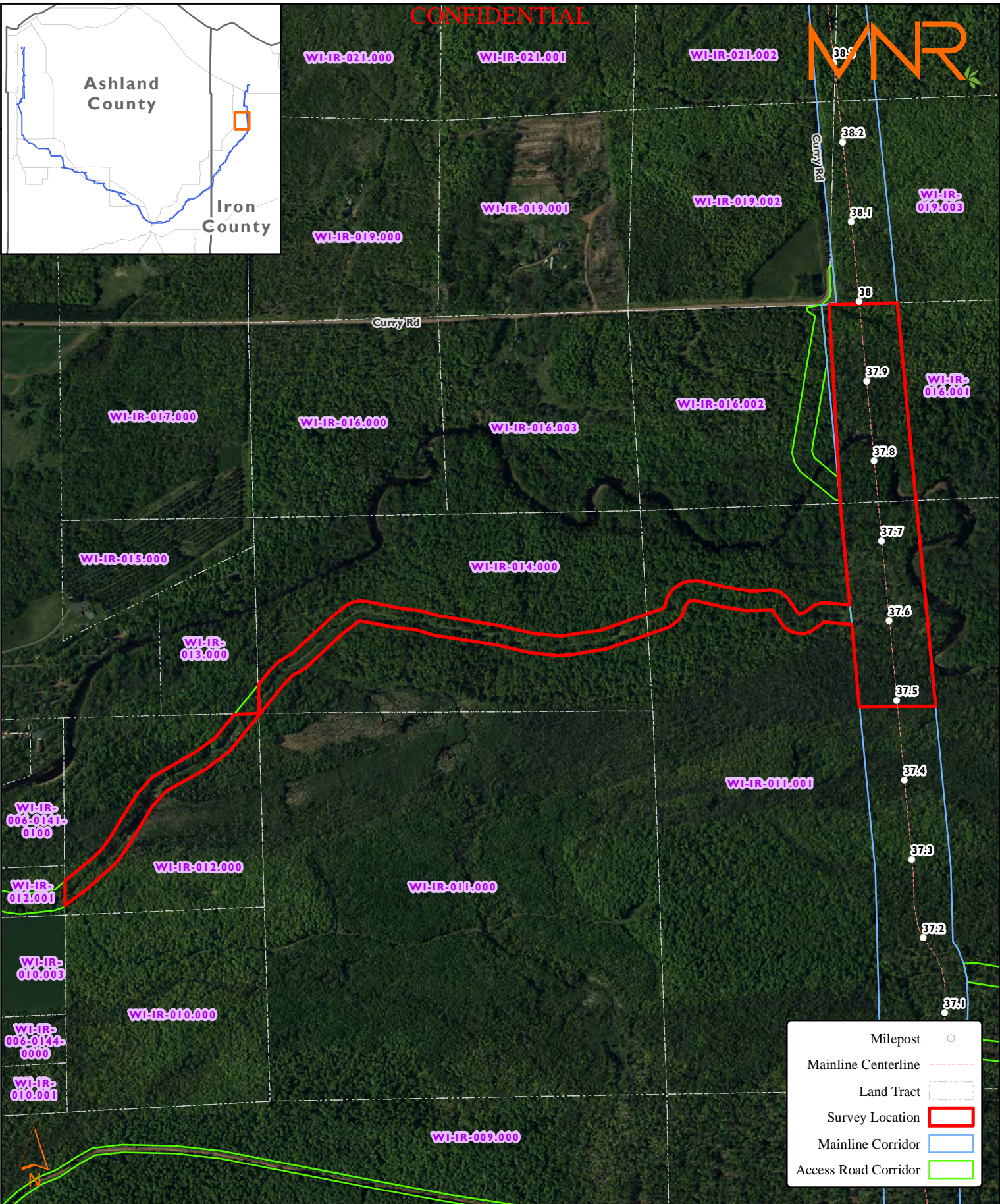
Source: OpenStreetMap, US Census, Date: 6/24/2020



Project Overview
Braun's Holly Fern Survey
Line 5 Relocation Project
Enbridge
Iron County, Wisconsin

Figure 1

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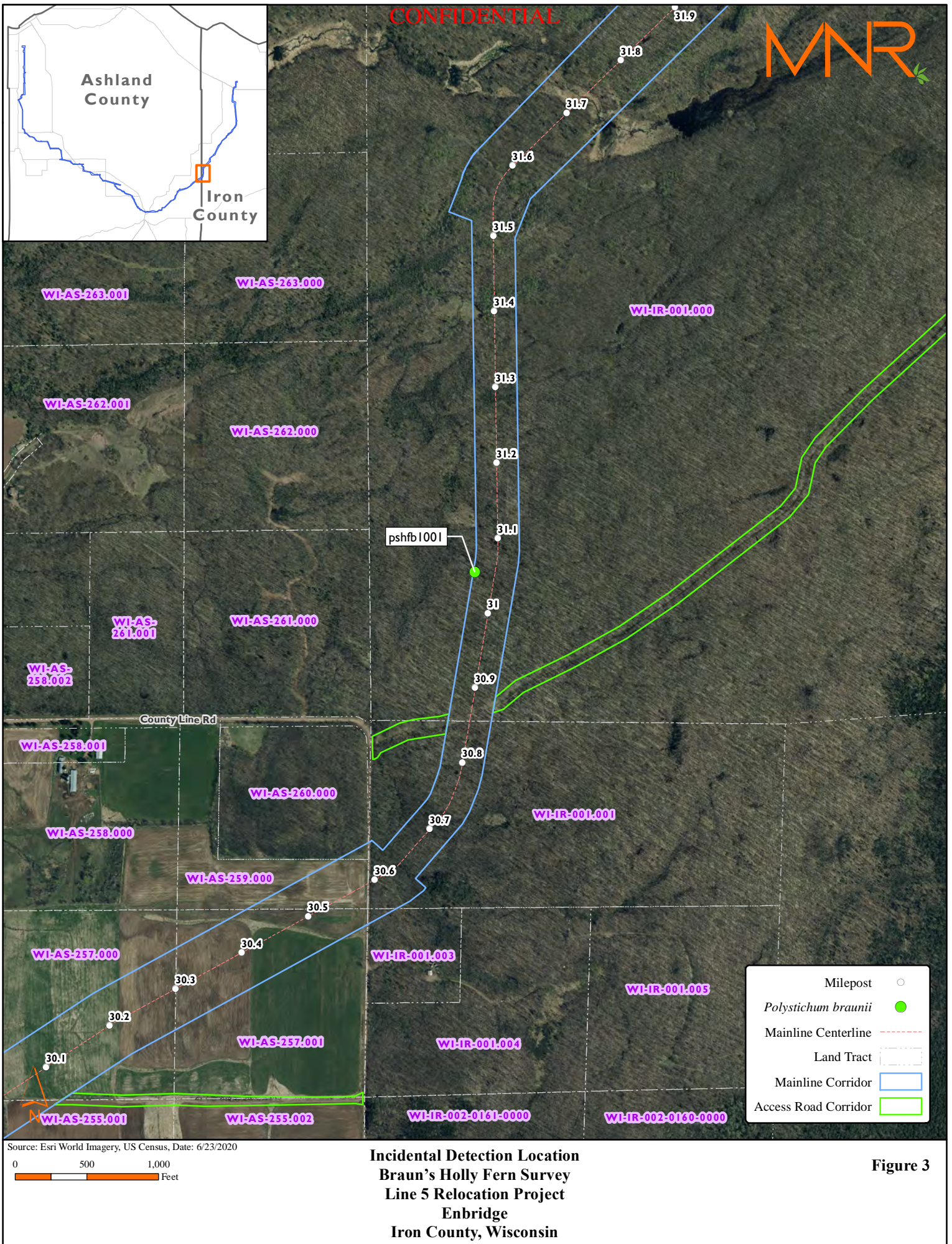
Milepost	○
Mainline Centerline	---
Land Tract	---
Survey Location	■
Mainline Corridor	▭
Access Road Corridor	▭

Source: Esri World Imagery, US Census, Date: 6/23/2020



Survey Location Overview
Braun's Holly Fern Survey
Line 5 Relocation Project
Enbridge
Iron County, Wisconsin

Figure 2



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Appendix A

Species List

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Midwest Natural Resources, Inc. – Enbridge – Line 5 Wisconsin Segment Replacement Project – *Polystichum braunii* Surveys – Wisconsin

Species List		
<i>Abies balsamea</i>	<i>Rubus allegheniensis</i>	
<i>Acer rubrum</i>	<i>Rubus idaeus</i> var. <i>strigosus</i>	
<i>Acer saccharum</i>	<i>Rumex obtusifolius</i>	
<i>Adiantum pedatum</i>	<i>Sambucus racemosa</i> var. <i>pubens</i>	
<i>Allium tricoccum</i>	<i>Sanguinaria canadensis</i>	
<i>Alnus incana</i> subsp. <i>rugosa</i>	<i>Solidago flexicaulis</i>	
<i>Anemone quinquefolia</i>	<i>Taxus canadensis</i>	
<i>Athyrium filix-femina</i>	<i>Thalictrum dioicum</i>	
<i>Betula alleghaniensis</i>	<i>Thuja occidentalis</i>	
<i>Betula papyrifera</i>	<i>Tilia americana</i>	
<i>Cardamine concatenata</i>	<i>Trillium cernuum</i>	
<i>Cardamine diphylla</i>	<i>Tsuga canadensis</i>	
<i>Carex gracillima</i>		
<i>Carex peckii</i>		
<i>Carex pedunculata</i>		
<i>Carpinus caroliniana</i>		
<i>Caulophyllum thalictroides</i>		
<i>Claytonia caroliniana</i>		
<i>Clintonia borealis</i>		
<i>Cornus alternifolia</i>		
<i>Corylus cornuta</i> subsp. <i>cornuta</i>		
<i>Crataegus punctata</i>		
<i>Dicentra cucullaria</i>		
<i>Dirca palustris</i>		
<i>Dryopteris intermedia</i>		
<i>Equisetum hyemale</i>		
<i>Equisetum scirpoides</i>		
<i>Equisetum sylvaticum</i>		
<i>Erythronium americanum</i>		
<i>Fraxinus nigra</i>		
<i>Glyceria striata</i>		
<i>Gymnocarpium dryopteris</i>		
<i>Lonicera canadensis</i>		
<i>Maianthemum canadense</i>		
<i>Matteuccia struthiopteris</i>		
<i>Micranthes pennsylvanica</i>		
<i>Mitchella repens</i>		
<i>Oryzopsis asperifolia</i>		
<i>Ostrya virginiana</i>		
<i>Picea glauca</i>		
<i>Prunus serotina</i>		
<i>Pyrola elliptica</i>		
<i>Quercus rubra</i>		
<i>Ranunculus sceleratus</i>		
<i>Ribes cynosbati</i>		
<i>Ribes triste</i>		

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Appendix B

Habitat Photos

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Midwest Natural Resources, Inc. – Enbridge – Line 5 Wisconsin Segment Replacement Project – *Polystichum braunii* Surveys – Wisconsin



Mesic hardwood community south of Lawrence Creek



Looking south towards Lawrence Creek

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Midwest Natural Resources, Inc. – Enbridge – Line 5 Wisconsin Segment Replacement Project – *Polystichum braunii* Surveys – Wisconsin



Floodplain forest south of Lawrence Creek



Mesic hardwood community south of Lawrence Creek

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Midwest Natural Resources, Inc. – Enbridge – Line 5 Wisconsin Segment Replacement Project – *Polystichum braunii* Surveys – Wisconsin



Mesic hardwood forest almost entirely dominated by yellow trout lily

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Appendix C

Braun's Holly Fern Photos

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Midwest Natural Resources, Inc. – Enbridge – Line 5 Wisconsin Segment Replacement Project – *Polystichum braunii* Surveys – Wisconsin



Polystichum braunii



Line 5 Wisconsin Segment Relocation Project

Ashland, Bayfield, Douglas, and Iron Counties Wisconsin

Water Resources Application for Project Permits

Environmental Impact Report

Revised August 2020

EIR Attachment O

Protected Species Survey Reports

Wood Turtle Habitat Survey Report

Privileged and Confidential Information

ENVIRONMENTAL SURVEY REPORT

ENBRIDGE – LINE 5 WISCONSIN SEGMENT REPLACEMENT PROJECT WOOD TURTLE HABITAT SURVEYS – MAINLINE

Prepared for:

**Mr. Tim Drake, Technical Director
Environmental Resources Management
80 South Eighth Street
1000 IDS Center
Minneapolis, MN 55402**



JUNE 26, 2020

**Prepared by:
Midwest Natural Resources, Inc.
1032 West 7th Street, Suite 150
St. Paul, Minnesota 55102**





Mr. Tim Drake
Technical Director
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June 26, 2020

Mr. Drake,

Midwest Natural Resources, Inc. (“MNR”) is pleased to provide the following report regarding Wood Turtle (*Glyptemys insculpta*) habitat surveys specific to the proposed mainline for the Line 5 Wisconsin Segment Replacement Project.

Project Description

In Wisconsin, the existing Line 5 pipeline owned by Enbridge Energy, Limited Partnership (“Enbridge”) crosses Douglas, Bayfield, Ashland, and Iron Counties. Within Ashland County, the existing Line 5 pipeline crosses through approximately 12 miles of the Bad River Reservation of the Bad River Band of the Lake Superior Tribe of Chippewa Indians. The Line 5 Wisconsin Segment Replacement Project (“Project”) will replace approximately 20 miles of the existing Line 5 pipeline, including the approximate 12 miles of pipeline within the Reservation, with approximately 41.1 miles of a new, 30-inch outside diameter pipeline segment that will be located entirely outside the exterior boundaries of the Reservation. Enbridge is proposing to conduct geotechnical investigations in locations where Enbridge is evaluating pipeline construction using a boring technique (e.g., road bores) or a horizontal directional drilling (“HDD”) technique, and locations where additional subsurface information is needed for pipeline design purposes.

The Wood Turtle is a state-threatened species in Wisconsin, and Enbridge’s decision to conduct Wood Turtle habitat surveys was based on an initial Endangered Resources Review (“ERR”) in consultation with the Wisconsin Department of Natural Resources (“WDNR”). These surveys were recommended as part of a larger effort to conserve rare species within the state for the proposed pipeline Project. Potential suitable waterbodies for the Wood Turtle were identified during the ERR review.

Methods

According to the WDNR, suitable aquatic habitat includes perennial waterbodies greater than five feet wide (WDNR, 2020). Additionally, suitable nesting habitat includes well-drained, open or sparsely vegetated sandy or gravelly soils within 200 feet of a suitable waterbody (WDNR, 2015). Habitat was considered unsuitable when it lacked habitat features described above or was deemed inaccessible to Wood Turtles. Nesting habitat surveys were conducted at all waterbodies identified in the ERR; however, waterbodies lacking suitable habitat characteristics in the field were identified as unsuitable for nesting.

Habitat surveys were conducted in May 2020 by the undersigned, with assistance from MNR biologist Austin Grundtner, to assess the presence of suitable Wood Turtle habitat within areas of suitable waterbody

crossings identified by the ERR within the proposed project area (**Figure 1**). Aquatic and terrestrial habitat characteristics were visually inventoried and documented to confirm suitability at each waterbody evaluated. In addition, areas within 200 feet of the waterbody were surveyed for suitable nesting habitat.

Incidental observations of Wood Turtles encountered during habitat surveys were documented with spatial points in addition to digital photos of the individuals.

Results and Discussion

Wood Turtle habitat surveys resulted in the documentation of 9 suitable waterbody crossings, 17 suitable nesting habitats, and 3 incidental observations of Wood Turtles (**Table 1**). Waterbody features are indicated by the prefix “s”, whereas suitable nesting habitat and incidental observations are designated by the prefix “pswt” or “h”. Two of the incidental observations were made by another MNR crew during the course of wetland and waterbody surveys. Representative photos of suitable waterbodies and suitable nesting habitats are provided in **Appendix A** and **Appendix B**, respectively. Photos of incidental observations are provided in **Appendix C**. Suitable habitat features at each waterbody crossing are detailed below.

Table 1. Mainline survey sites and associated suitable habitats and incidental observations.

Waterbody Name	Habitat Features	Habitat Feature Type	Figure(s)	Appendix Photo Page(s)
White River	sasw023p	Waterbody	2	A-1
	pswtf015	Nesting	2	B-1
	pswtf016	Nesting	2	B-1, B-2
	pswtf017	Nesting	2	B-2, B-3
	pswtf018	Nesting	2	B-3
	hasa1002 ¹	Wood Turtle observed	2	C-1
Brunswailer River ²	pswta1001 ¹	Wood Turtle observed	3	C-1
Trib. of Silver Creek	sase005p	Waterbody	4	A-2
Krause Creek	sasv019p	Waterbody	5, 6	A-3
Bad River	sasb006p	Waterbody	7	A-4
	pswtf019	Nesting	7	B-4
	pswtf020	Nesting	7	B-4
	pswtf021	Nesting	7	B-5
Tyler Forks	sirb012p	Waterbody	8	A-5
	sirb013p	Waterbody	8	A-6
	pswtf004	Wood Turtle observed	8	C-2
	pswtf005	Nesting	8	B-6
	pswtf006	Nesting	8	B-7
Potato River/Lawrence Creek	sird001p	Waterbody	9	A-7
	sira003p	Waterbody	9	A-8
	pswtf008	Nesting	9	B-8
	pswtf009	Nesting	9	B-8, B-9
	pswtf010	Nesting	9	B-9
	pswtf011	Nesting	9	B-10

Waterbody Name	Habitat Features	Habitat Feature Type	Figure(s)	Appendix Photo Page(s)
Vaughn Creek	sird016p	Waterbody	10	A-9
	pswtf012	Nesting	10	B-11
Vaughn Creek	pswtf013	Nesting	10	B-11
	pswtf022	Nesting	10	B-12
	pswtf023	Nesting	10	B-12

¹Incidental observation by MNR wetland survey crew independent of the Wood Turtle habitat surveys.

²Brunsweler River (**Figure 3**) was not identified in the ERR for Wood Turtle habitat surveys.

White River

The White River (**sasw023p**) is a perennial waterbody flowing west to east through the survey corridor (**Figure 2; Appendix A-1**). The waterbody is approximately 60 feet wide with moderate flow. The streambed is comprised of sandy cobble substrate. Stream characteristics include downed woody debris, exposed roots, and sand and gravel bars along the margins of the waterbody. The canopy cover along the northern bank is dominated by balsam fir (*Abies balsamea*) and aspen (*Populus* sp.) to the east and box elder (*Acer negundo*) to the west. The north side of the stream has sandy, sloughing banks to the east and sparsely vegetated sandy soils shallowly sloping into sandbars to the west, providing suitable nesting habitat for Wood Turtles (**pswtf015** and **pswtf016; Appendices B-1 and B-2**). The canopy cover along the southern bank is dominated by box elder to the east and balsam fir and black ash (*Fraxinus nigra*) to the west, with speckled alder (*Alnus incana*) present throughout. The west side of the southern bank provides suitable nesting habitat (**pswtf017**) characterized by a small patch of sloughing sandy soil mixed with gravel, as well as sparsely vegetated sand within canopy openings along the top of the bank (**Appendices B-2 and B-3**). The east side of the southern bank includes dry sandy soils along the top of the bank, with sparse vegetation within canopy openings, as well as patches of exposed sand present further into the woodland away from the waterbody, providing suitable nesting habitat (**pswtf018; Appendix B-3**). A juvenile Wood Turtle was observed by an MNR wetland survey crew along the streambank (**hasa1002; Appendix C-1**).

Tributary of Silver Creek

The tributary of Silver Creek (**sase005p**) is a perennial waterbody flowing southwest to northeast through the survey corridor (**Figure 4; Appendix A-2**). The waterbody is approximately 9 feet wide with moderate flow and a streambed composed of a sandy cobble substrate. Water depth within the corridor varies from 1 to 3 feet and includes pools and riffles with small falls. The banks on either side of the waterbody are undercut, and downed woody debris with exposed roots is present along the margins of the waterbody throughout the corridor. Canopy cover along the bank is dominated by balsam fir, black ash, and red maple (*Acer rubrum*), with ground cover dominated by mosses and scattered graminoids with yellow trout lily (*Erythronium americanum*). The surrounding soils are poorly-drained, with small patches of wet sand present within the survey area. No suitable nesting habitat was observed within 200 feet of the waterbody.

Krause Creek

Krause Creek (**sasv019p**) is a meandering, perennial waterbody flowing southwest to northeast within the survey corridor (**Figures 5 and 6; Appendix A-3**). Stream width varies throughout the survey area and averages approximately 15 feet, with moderate to fast flow. The streambed substrate is composed of bedrock overlain by sand, with boulders present throughout. Canopy cover along the banks is dominated by yellow birch (*Betula alleghaniensis*), with ground cover dominated by American wintergreen (*Gaultheria procumbens*), partridgeberry (*Mitchella repens*), and graminoids. Immediately to the south of

the waterbody is a mowed trail following the path of the waterbody, and the surrounding area is comprised of bedrock or wetlands with poorly-drained soils. No suitable nesting habitat was observed within 200 feet of the waterbody.

Bad River

The Bad River (**sasb006p**) is a meandering, perennial waterbody flowing southeast to north within the survey corridor (**Figure 7; Appendix A-4**). Stream width averages approximately 60 feet, with moderate flow. The streambed substrate is composed of sand, and sand and gravel bars are present along the west side of the stream. The west bank is characterized by eroded, undercut banks, with poorly-drained, saturated, sandy soils. Canopy cover along both banks is dominated by silver maple (*Acer saccharinum*) and *Prunus* sp., with ground cover dominated by graminoids. The east bank is characterized by drier sandy soils, including patches of sparsely vegetated sand along the top of the bank, and provides suitable nesting habitat (**pswtf019, pswtf020, and pswtf021; Appendices B-4 and B-5**).

Tyler Forks

Tyler Forks (**sirb012p**) is a perennial waterbody flowing east to west within the survey corridor (**Figure 8; Appendix A-5**). A perennial tributary of Tyler Forks (**sirb013p**) feeds into **sirb012p** from the east (**Figure 8; Appendix A-6**). Stream widths average approximately 60 feet and 15 feet, respectively. The waterbodies are associated with a forested riparian area dominated by balsam fir and white cedar (*Thuja occidentalis*) along the north bank, with dense herbaceous vegetation dominated by graminoids. The south bank is dominated by silver maple with patches of exposed sandy soil and sparse vegetation interspersed with areas of moderate ground cover. Erosion is evident along the banks, with downed woody debris and exposed roots extending into the water, resulting in limited accessibility to Wood Turtles. Gravel bars are present along the south bank of the waterbody. The sandy soils along the south side of **sirb012p** and both sides of **sirb013p** provide suitable nesting habitat (**pswtf005 and pswtf006; Appendices B-6 and B-7**). An individual Wood Turtle (**pswtf004**) was observed swimming up to the north bank of **sirb012p** on the west side of the survey corridor (**Appendix C-2**).

Potato River/Lawrence Creek

The Potato River (**sird001p**) is a meandering, perennial waterbody flowing southeast to northwest through the survey corridor (**Figure 9; Appendix A-7**). Lawrence Creek (**sira003p**) flows into **sird011p** from the east (**Figure 9; Appendix A-8**). Stream widths average approximately 40 and 30 feet, respectively. The north sides of **sird001p** and **sira003p** are of significantly higher elevation than the south sides of the waterbodies, with the upland community dominated by balsam fir. **Sird001p** is associated with a floodplain characterized by sandy banks leveling out into sand and gravel bars along the water's edge. The sandy banks are sparsely vegetated with graminoids and yellow trout lily within silver maple canopy openings along the shoreline, providing suitable nest habitat (**pswtf008, pswtf009, and pswtf011; Appendices B-8, B-9, and B-10**) for Wood Turtles. The north side of **sira003p** also includes a floodplain dominated by silver maple with sandy soils and sparse ground cover of graminoids and yellow trout lily, providing suitable nesting habitat (**pswtf010; Appendix B-9**).

Vaughn Creek

Vaughn Creek (**sird016p**) is a perennial waterbody flowing east to west across the survey corridor (**Figure 10; Appendix A-9**). Stream width varies within the survey corridor and averages approximately 10 feet. Downed woody debris is abundant throughout the stream and the surrounding area. Dominant bank vegetation includes balsam fir, with eastern hemlock (*Tsuga canadensis*) and yellow birch scattered throughout, with ground cover dominated by graminoids. Suitable nesting habitat (**pswtf012, pswtf013,**

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pswtf022, and **pswtf023**; **Appendices B-11** and **B-12**) was observed along portions of the stream banks. Nesting habitat includes steep, sloughing, sandy banks and patches of exposed sandy soils within canopy openings along the top of the banks.

In closing, please let us know if you have any questions pertaining to our field findings.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Kirsten D. Frahm", is written over a horizontal line.

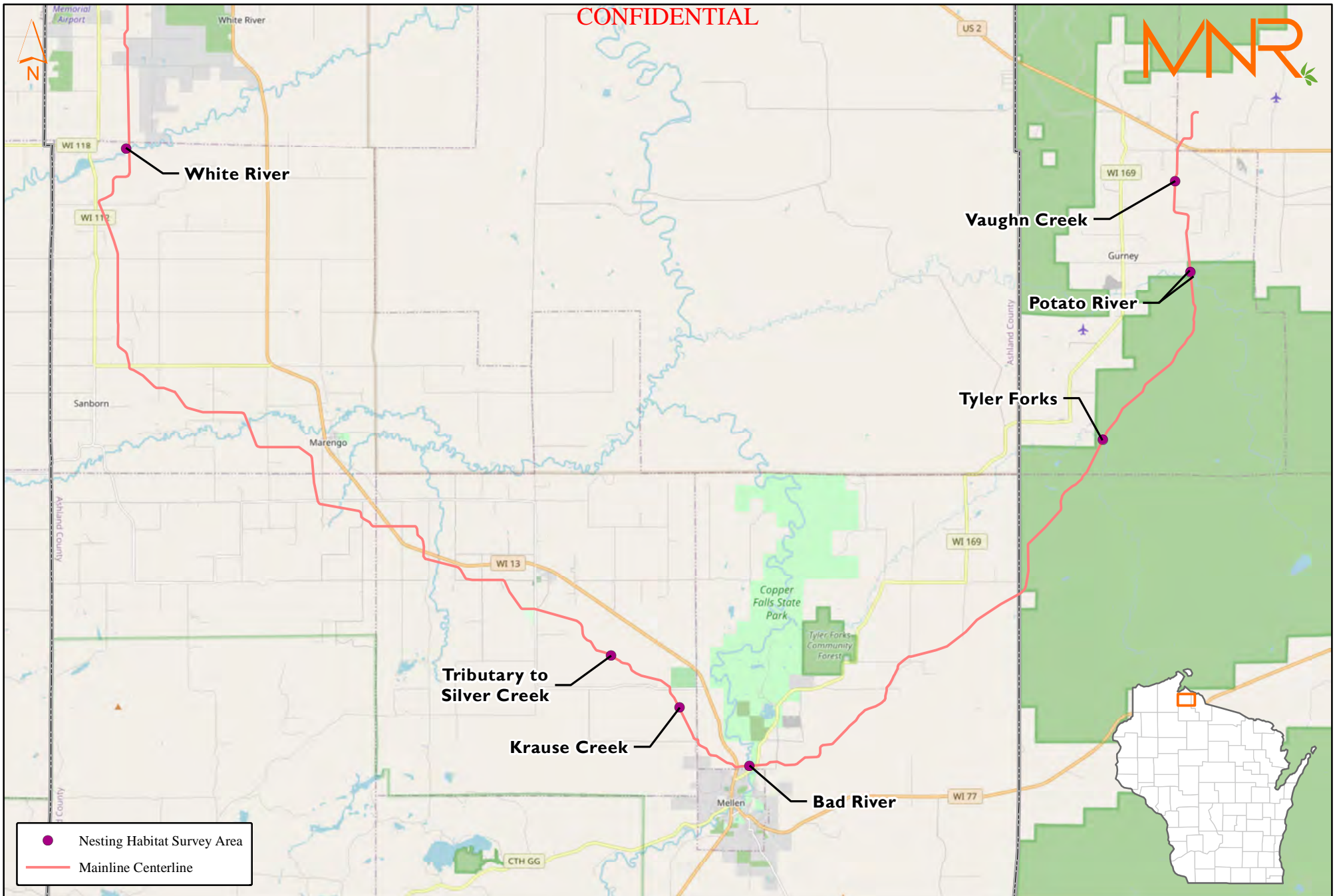
Kirsten D. Frahm, M.S.
Herpetologist
Midwest Natural Resources, Inc.

References

Wisconsin Department of Natural Resources (WDNR). 2015. Wisconsin Wood Turtle Species Guidance. Bureau of Natural Heritage Conservation, Wisconsin Department of Natural Resources, Madison, Wisconsin. PUB-ER-684 (last updated June 23, 2017). Available online at <https://dnr.wi.gov/files/PDF/pubs/er/ER0684.pdf>. Accessed June 2020.

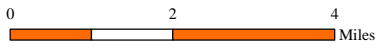
Wisconsin Department of Natural Resources (WDNR). 2020. Personal communication between WDNR (S. Rowe) and ERM (L. Rodman-Jaramillo) March 17, 2020.

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- Nesting Habitat Survey Area
- Mainline Centerline

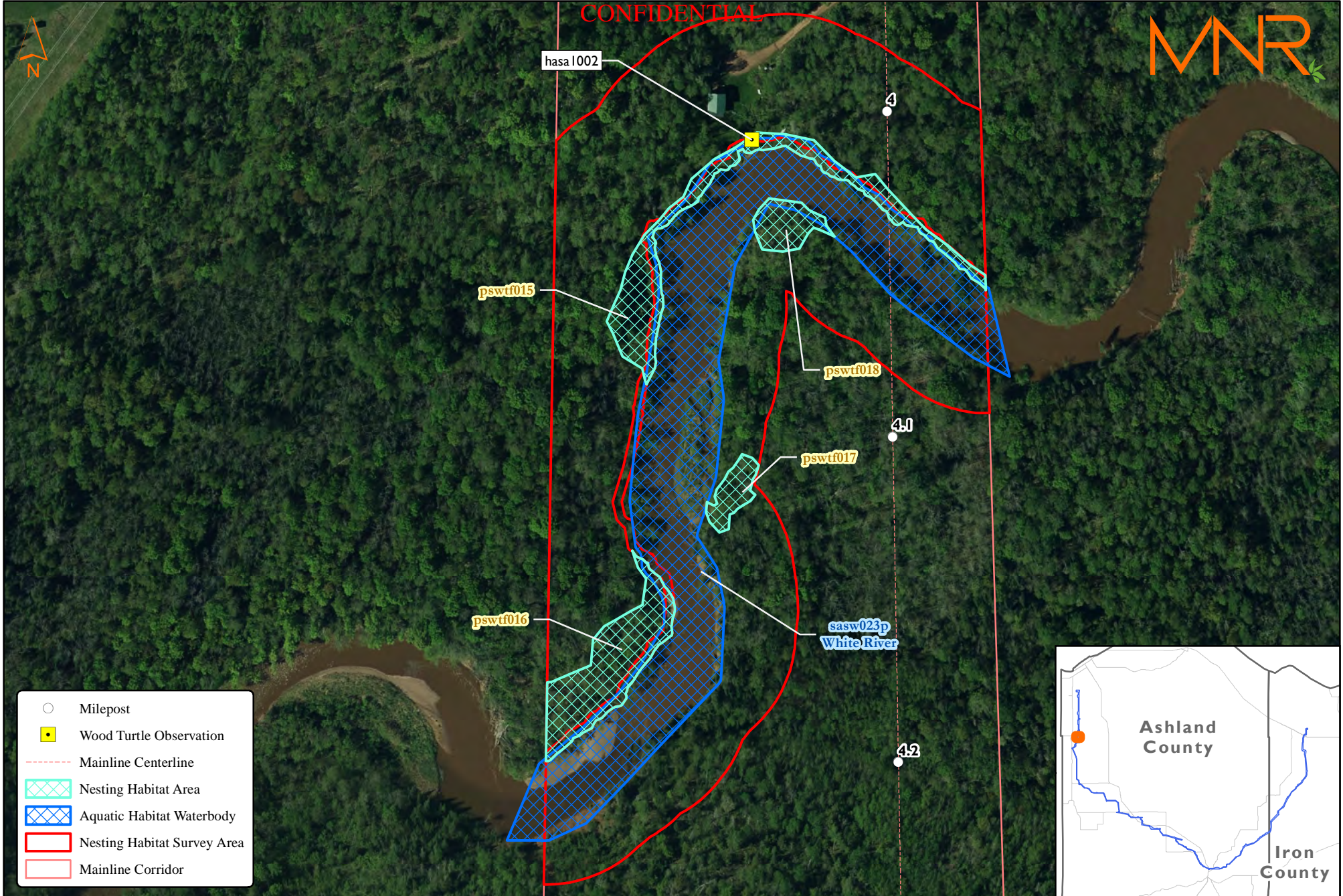
Source: OpenStreetMap, US Census, Date: 6/26/2020



Survey Site Overview
Wood Turtle Mainline Survey
Line 5 Relocation Project
Enbridge
Ashland and Iron counties, Wisconsin

Figure 1

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- Milepost
- Wood Turtle Observation
- - - Mainline Centerline
- ▨ Nesting Habitat Area
- ▨ Aquatic Habitat Waterbody
- ▨ Nesting Habitat Survey Area
- ▨ Mainline Corridor

Source: US Census, Date: 6/26/2020

0 200 400 Feet

**White River
Wood Turtle Mainline Survey
Line 5 Relocation Project
Enbridge
Ashland County, Wisconsin**

Figure 2

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MNR

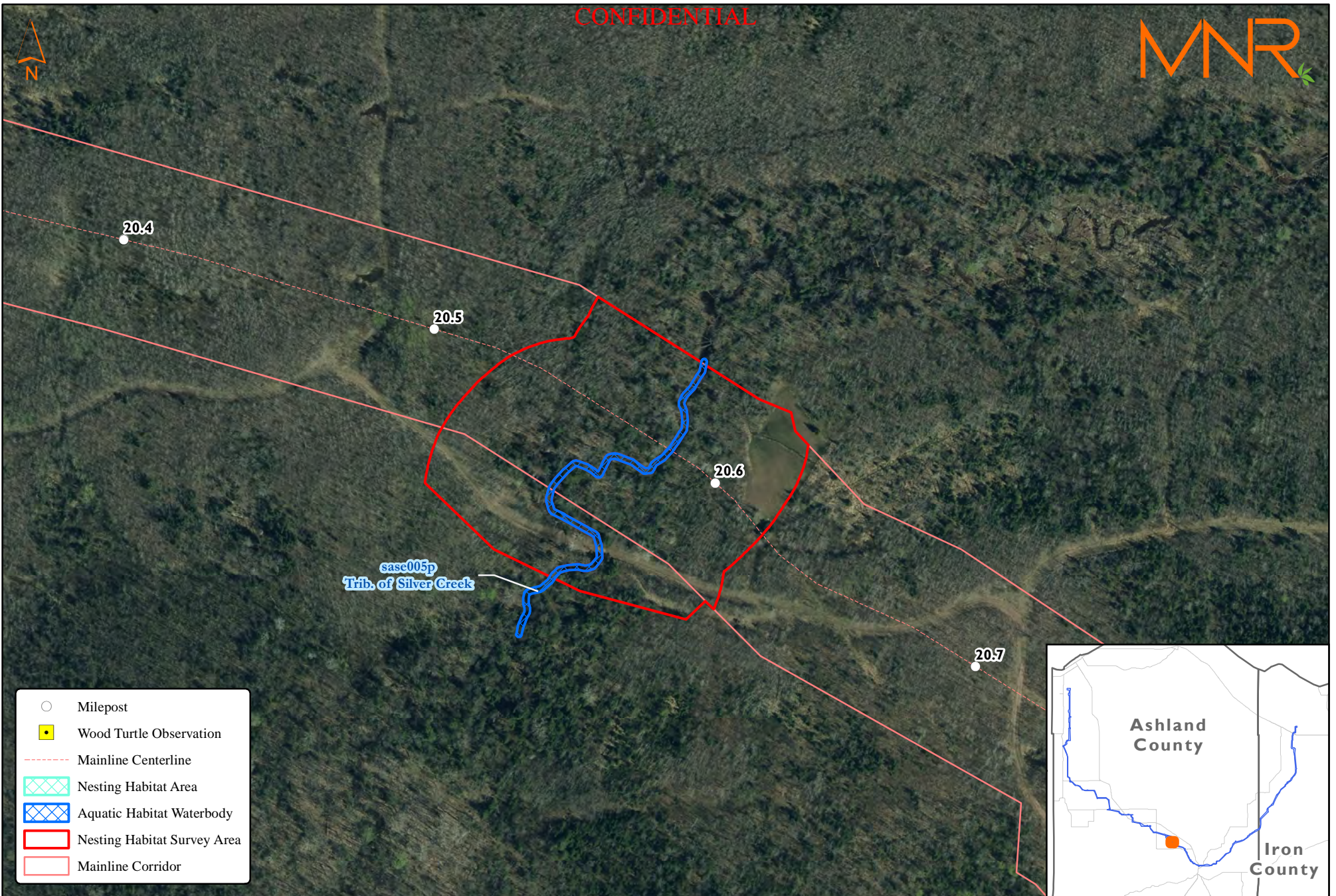


Source: US Census, Date: 6/26/2020

0 200 400 Feet

**Brunsweler River
Wood Turtle Mainline Survey
Line 5 Relocation Project
Enbridge
Ashland County, Wisconsin**

Figure 3



Source: US Census, Date: 6/26/2020

0 200 400 Feet

**Tributary to Silver Creek
Wood Turtle Mainline Survey
Line 5 Relocation Project
Enbridge
Ashland County, Wisconsin**

Figure 4

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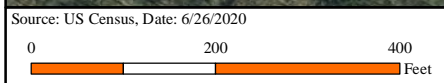
22.1

22.2

22.3

sasv019p
Krause Creek

- Milepost
- Wood Turtle Observation
- - - Mainline Centerline
- ▨ Nesting Habitat Area
- ▨ Aquatic Habitat Waterbody
- ▭ Nesting Habitat Survey Area
- ▭ Mainline Corridor



**Krause Creek
Wood Turtle Mainline Survey
Line 5 Relocation Project
Enbridge
Ashland County, Wisconsin**

Figure 5

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sasv019p
Krause Creek

22.3

22.4

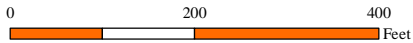
sasv019p
Krause Creek

22.5

- Milepost
- Wood Turtle Observation
- - - Mainline Centerline
- ▨ Nesting Habitat Area
- ▨ Aquatic Habitat Waterbody
- ▭ Nesting Habitat Survey Area
- ▭ Mainline Corridor



Source: US Census, Date: 6/26/2020



**Krause Creek
Wood Turtle Mainline Survey
Line 5 Relocation Project
Enbridge
Ashland County, Wisconsin**

Figure 6