Line 5 Wisconsin Segment Relocation Project

Wisconsin Department of Natural Resources
and
U.S. Army Corps of Engineers
Supplemental Filing

July 2020

Table of Contents

List of Tables

List of Figures

List of Appendices

List of Acronyms

Name	Description
°F	degree Fahrenheit
API	American Petroleum Institute
ATWS	additional temporary workspace
DC	Dry-Crossing
Enbridge	Enbridge Energy, Limited Partnership
ERR	endangered resources review
HDD	horizontal directional drill
MP	milepost
N/A	not applicable
NHI	Natural Heritage Inventory
NHPA	National Historic Preservation Act
NWI	National Wetlands Inventory
OC	open-cut
PEM	palustrine emergent
Perm	permanent impact
PFO	palustrine forested
Project	Line 5 Wisconsin Segment Relocation Project
PSI	pounds per square inch
PSS	palustrine scrub-shrub
ROW	right-of-way
SSURGO	Soil Survey Geographic Database
Temp	temporary impact
USACE	U.S. Army Corps of Engineers
WDH	Wisconsin 24k Hydrography Dataset
WDNR	Wisconsin Department of Natural Resources
WPDES	Wisconsin Pollutant Discharge Elimination System
WWI	Wisconsin Wetland Inventory

1 SUPPLEMENTAL FILING SUMMARY

On February 11, 2020, Enbridge Energy, Limited Partnership ("Enbridge") submitted a Water Resources Application for Project Permits for the Line 5 Wisconsin Segment Relocation Project ("Project") to the Wisconsin Department of Natural Resources ("WDNR") and U.S. Army Corps of Engineers ("USACE"). A subsequent data request response was filed on April 1, 2020. This supplemental filing is provided to capture updates due to further refinement of the Project route based on landowner input, completion of wetland/waterbody and archaeological surveys, and constructability reviews. A revised Project overview map is included in Figure 1-1. The following updated information is provided to support development of the environmental impact statement and federal permitting with the USACE.

2 PROPOSED PROJECT DESCRIPTION

The Project is located in Ashland, Bayfield, Douglas, and Iron Counties, Wisconsin. Enbridge has made minor modification to the route proposed in Enbridge's February 11, 2020 application materials where practicable to incorporate landowner requests, improve constructability, and/or reduce resource impacts. Figure 1-1 provides an updated general location map depicting the Project route. Updated aerial-based and topographic route maps are included in Appendices A and B, respectively. The Project involves the construction and operation of various types of equipment or facilities, including:

- approximately 41.1 miles of new, 30-inch-outside diameter pipeline;
- cathodic protection and AC mitigation facilities;
- seven mainline block valves;
- four pipeyards and contractor yards; and
- minor modifications to the existing Ino Pump Station.

The route is located within the USACE – St. Paul District and WDNR Northern Region. The Project occurs in the following township, range, and sections:

- T45N R1W Sections: 5, 6, 7, 8, 18
- T45N R2W Sections: 1, 2, 13, 14, 22, 23, 27, 28, 29, 30, 31, 32, 33
- T45N R3W Sections: 6, 7, 8, 9, 14, 15, 16, 22, 23, 24, 25, 36
- T45N R4W Sections: 1, 2
- T46N R1W Sections: 3, 4, 10, 15, 16, 17, 20, 21, 22, 27, 28, 29, 32, 33
- T46N R4W Sections: 5, 6, 7, 8, 17, 18, 20, 27, 28, 29, 34, 35
- T47N R1W Sections: 33, 34, 35
- T47N R4W Sections: 3, 8, 17, 20, 29, 32
- T47N R5W Sections: 8, 10
- T48N R13W Section: 16
- T48N R4W Section: 34

2.1 LANDOWNERS

An updated landowner and abutting landowner list is provided in Appendix C. Enbridge has reached option and/or easement agreements with 99% of landowners along the proposed route and continues to work collaboratively with remaining landowners to reach satisfactory option and/or easement agreements for the remaining tracts. Enbridge anticipates 100% option/easement acquisition for the proposed pipeline route.

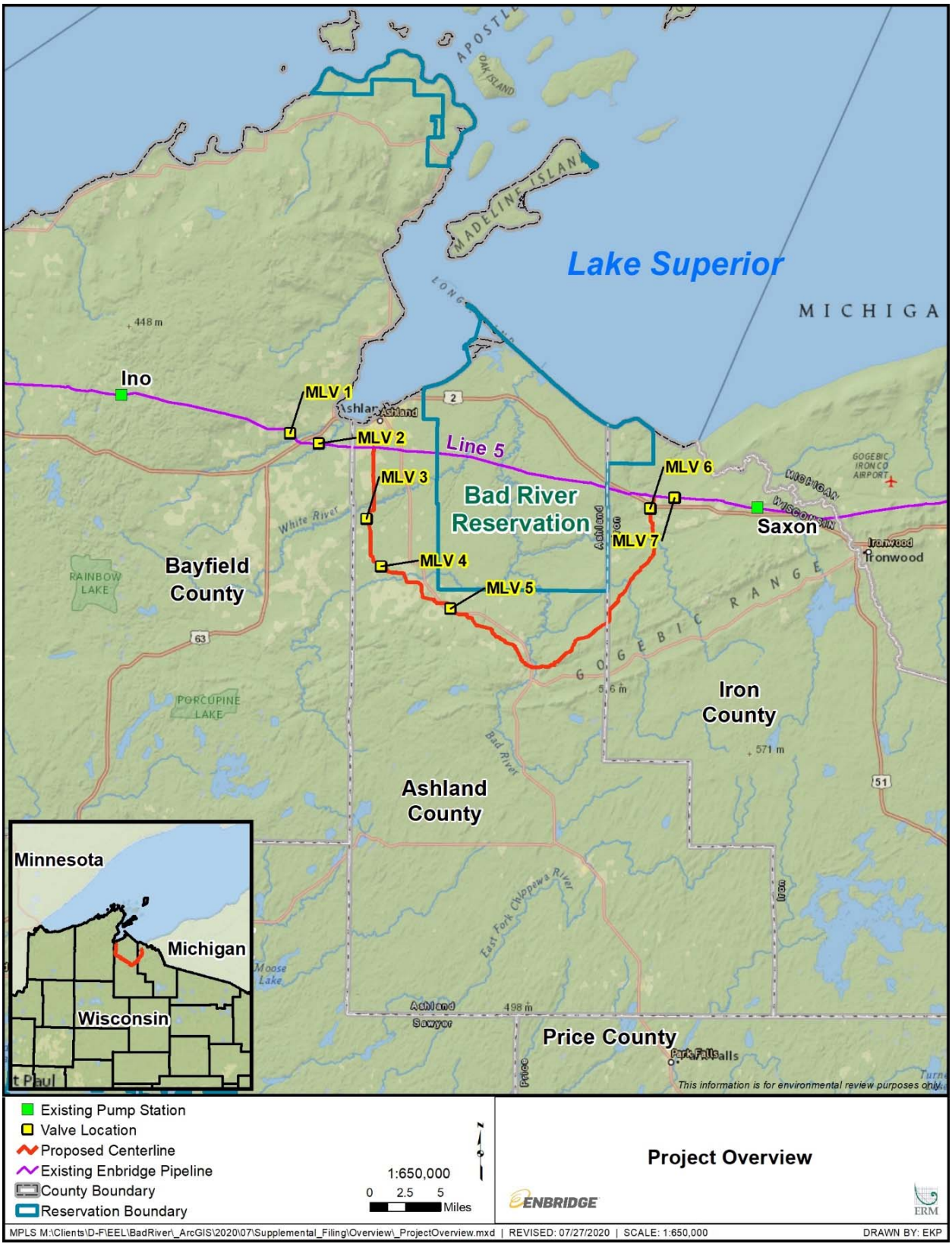

Figure 1-1: Project Overview Map

2.2 PROJECT SCHEDULE

Enbridge anticipates construction to take approximately 7 months; construction will be completed as one construction spread. Currently, construction is expected to start in February 2021 and be complete by August 2021, with restoration continuing until permit criteria are met. Table 2.2-1 provides a more detailed Project schedule.

2.3 AUTHORITIES AND APPROVALS

Table 2.3-1 provides the status of the required local, state, and federal permits for the Project.

3 ROUTE ALTERNATIVES

The route alternatives analyzed for the Project are shown on Figure 3-1. Appendix D provides updated maps for the proposed route. Route Alternatives RA-01, RA-02, and RA-03 have not changed; therefore, updated maps have not been provided for these. An updated environmental features comparison for the proposed route is included in Table 3-1.

Table 2.2-1: Proposed Project Schedule

Enbridge L5WSRP Construction Schedule for Permitting

Schedule dates and durations are approximate and subject to change pending receipt of permits.
Seasonal considerations such as species and waterbody timing restrictions may result in modifications to dates illustrated below.

ID	Task Name	Start	Finish	Duration
1	Permits Received	2/8/2021	2/8/2021	0w
2	Construction ROW Staking	2/9/2021	5/24/2021	15w
3	Start ROW Clearing	2/10/2021	4/20/2021	10w
4	Utility Sweeps	2/10/2021	4/20/2021	10w
5	Access Grading & Site Prep	2/10/2021	5/11/2021	13w
6	Rock Blasting	3/1/2021	5/14/2021	11w
7	Begin HDD Crossings	3/1/2021	6/25/2021	17w
8	Mainline ROW Grading	5/17/2021	7/2/2021	7w
9	Hauling & Stringing Pipe	5/27/2021	7/14/2021	7w
10	Facilities Field Work	6/1/2021	8/9/2021	10w
11	Pipe Bending	6/1/2021	7/19/2021	7w
12	Welding of Pipe	6/7/2021	7/23/2021	7w
13	Pipe Coating	6/8/2021	7/26/2021	7w
14	Ditching	6/14/2021	7/30/2021	7w
15	Lowering In of Pipe	6/15/2020	7/31/2020	7w
16	Backfill Ditch	6/16/2021	8/3/2021	7w
17	ROW Restoration	6/21/2021	11/5/2021	20w
18	Hydrotesting of Pipe	7/26/2021	8/6/2021	2w
19	Commissioning & Tie In	8/4/2021	8/31/2021	4w
20	In-Service Date	9/1/2021	9/1/2021	0w

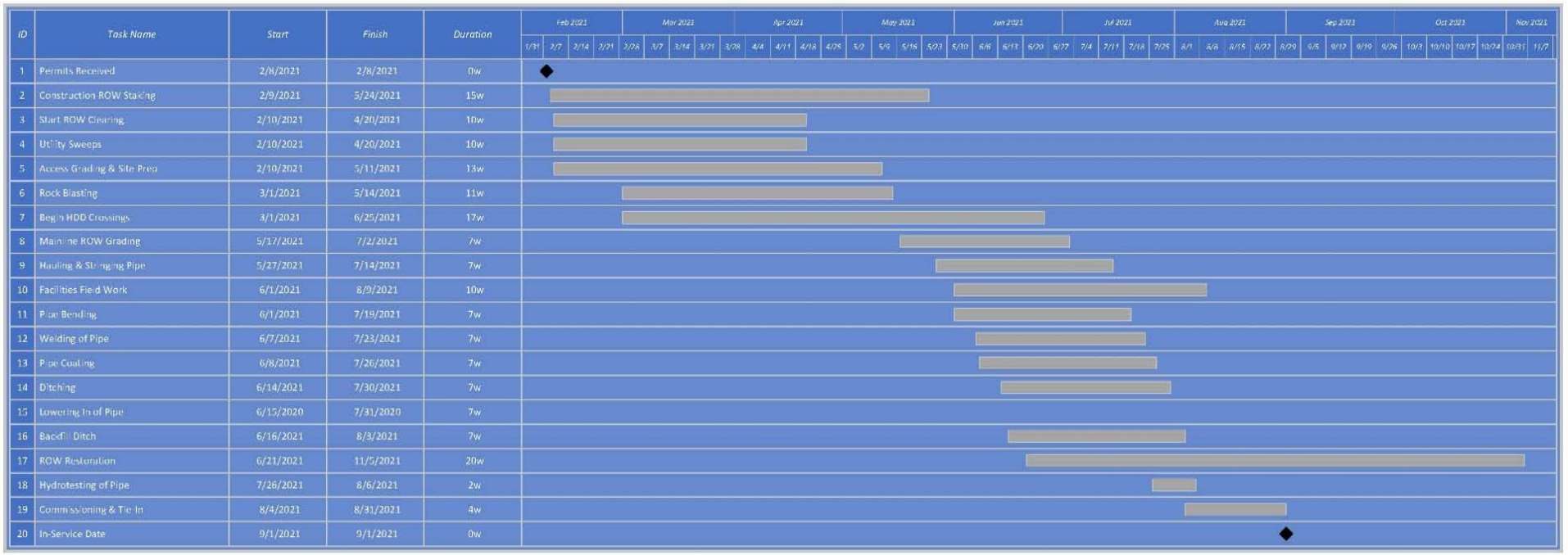

Table 2.3-1: List of Government Authorities and Titles of Permits/Approvals

Name of Agency	Title of Permit/Approval	Date of Application / Consultation [a]	Status
USACE – St. Paul District	Clean Water Act Section 404	February 2020	In progress
U.S. Fish and Wildlife Service	Endangered Species Act Consultation	Summer 2020	In progress
Public Service Commission of Wisconsin	Public Interest Determination	February 2020	In progress
WDNR	Chapter 30 Permit / NR 103 Water Quality Certification	February 2020	In progress
	NR 150 Wisconsin Environmental Policy Act Compliance (joint review with the Project)	February 2020	In progress
	State Endangered Resources Review / Incidental Take Permit (joint review with the Line 5 Pipeline Project)	January 2020	In progress
	Temporary Water Use Permit	Summer 2020	
	Hydrostatic Test Discharge Permit	Summer 2020	
	WPDES General Construction Stormwater Permit—Pipeline Construction	Summer 2020	In progress
Wisconsin Historical Society—State Historic Preservation Officer (Section 106)	Cultural Resources Consultation, NHPA Section 106 Clearance	Fall 2019	In progress
Wisconsin Department of Agriculture	Agricultural Protection Plan	Fall 2019	In progress
Wisconsin Department of Administration	Coastal Zone Management Federal Consistency Review	February 2020	In progress
Wisconsin Department of Transportation	Road Crossing Permits	Summer 2020	

Notes:
[a] NHPA = National Historic Preservation Act; WPDES = Wisconsin Pollutant Discharge Elimination System

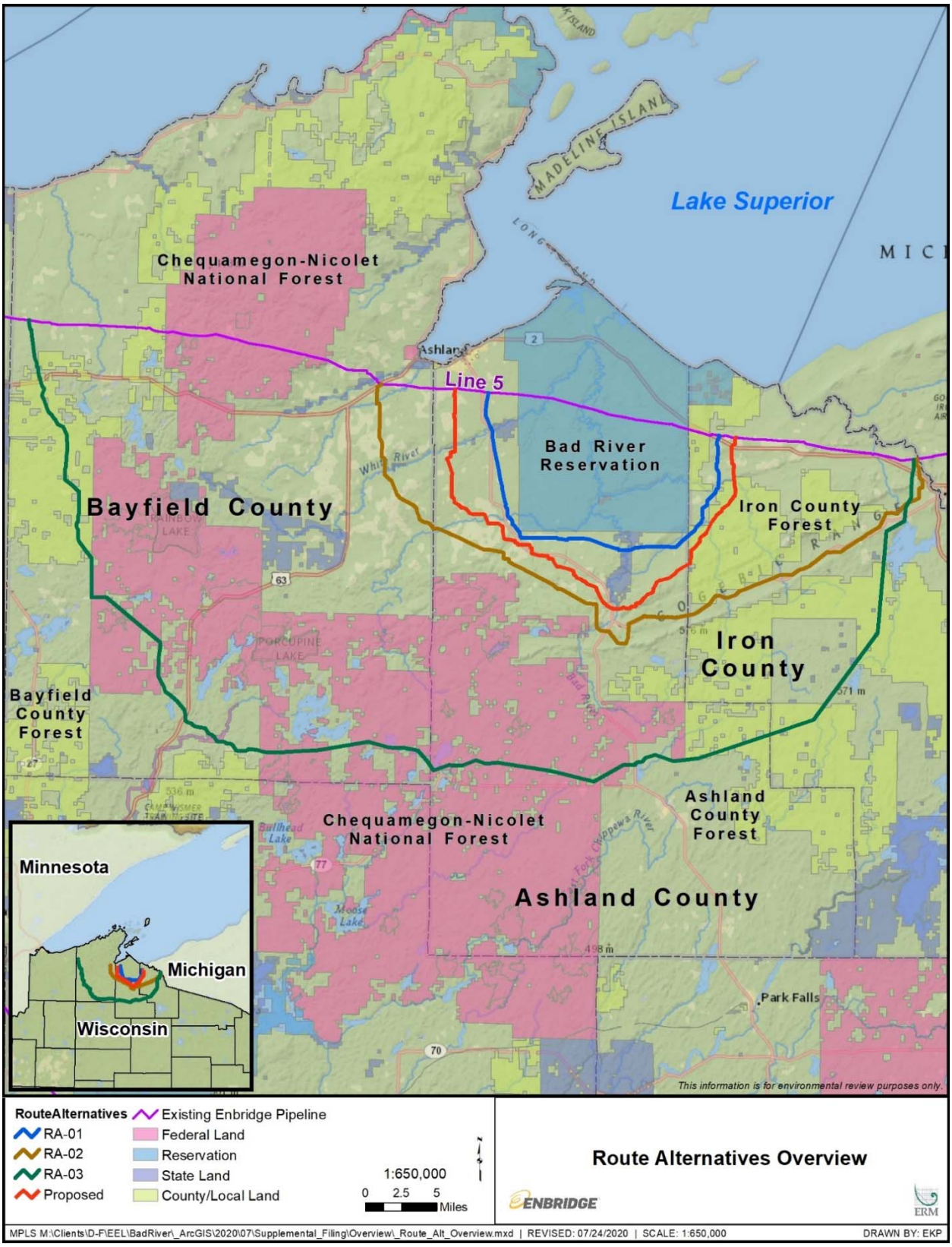

Figure 3-1: Overview of Route Alternatives

Table 3-1: Environmental Features Comparison—Route Alternatives

Environmental Features	Unit	Proposed Route Length [a]: 41.1 miles Route Corridor [b]: 597.8 acres	Route Alternative RA-01 Route Length [a]: 29.3 miles Route Corridor [b]: 456.5 acres	Route Alternative RA-02 Route Length [a]: 57.6 miles Route Corridor [b]: 843.6 acres	Route Alternative RA-03 Route Length [a]: 100.5 miles Route Corridor [b]: 1,476.9 acres
Wetland Crossing Length—WWI	miles	4.2	5.3	6.5	26.2
Wetland Crossed—NWI					
PEM	acres	2.0	1.7	1.1	7.7
PSS	acres	2.0	2.1	9.9	50.6
PFO	acres	26.1	22.3	40.2	304.5
Wetland Crossed—WWI					
Emergent/Wet Meadow	acres	2.7	7.8	8.7	7.0
Scrub/Shrub	acres	2.7	2.0	2.0	21.7
Forested	acres	54.0	46.4	57.4	260.8
State-Listed Species Occurrences [c]	number	27	14	87	85
Migratory Bird Concentration Areas	number	1	1	0	0
Agricultural Land [d]	acres	83.8	29.8	55.1	2.4
Coniferous Forest [d]	acres	57.5	56.5	69.0	387.4
Broad-Leaved Deciduous Forest [d]	acres	297.2	222.8	488.2	655.7
Prime and Statewide Importance Farmland Soils	miles	11.5	13.9	15.1	16.6
Hydric Soils	miles	2.2	1.6	5.0	25.4
Highly Wind Erodible Soils	miles	7.4	4.3	2.7	28.5
Intermittent / Fluctuating Waterbody Crossings—WDH	number	40	29	38	9
Perennial Waterbody Crossings—WDH	number	18	13	36	38
Designated Trout Stream Crossings	number	15	12	20	25
WDNR Priority Navigable Waterways Crossings	number	15	15	21	17
Wild and Scenic Rivers	number	0	0	0	1
Wild Rice Production Areas	number	0	0	0	0
Areas of Special Natural Resource Interest Crossings (WDNR-owned)	number	0	1	0	1
Federal-, County-, and State-Owned Lands	acres	107.5	34.7	21.3	875.7
WDNR-Owned Lands	miles	0	0.7	0	0.1
County Forest Land	miles	7.4	<0.1	0	4.1
Railroad Crossings	number	4	2	1	1
Road Crossings [e]	number	39	37	50	98

Notes:

[a] Centerline length.

[b] A standard 120-foot-wide corridor was used for each route comparison.

[c] Based on NHI data review, includes state threatened and endangered species.

[d] Wiscland 2 Land Cover Data (WDNR 2019).

[e] Includes county and local roads, and state and U.S. highways.

WDH = Wisconsin 24k Hydrography Dataset; NHI = Natural Heritage Inventory; NWI = National Wetlands Inventory; PEM = palustrine emergent; PFO = palustrine forested; PSS = palustrine scrub-shrub; WWI = Wisconsin Wetland Inventory

4 ROUTE ADJUSTMENTS

Enbridge has made minor adjustments to the route proposed in Enbridge's February 11, 2020 application materials (Filed Route) where practicable to incorporate landowner requests, improve constructability, and/or reduce resource impacts (see maps in Appendix E). Enbridge has adopted seven minor route adjustments. Each route adjustment is discussed below.

4.1 ROUTE ADJUSTMENT #1

Route Adjustment #1 was developed to shift the pipeline onto a land parcel where Enbridge has been able to secure a land agreement. The current proposed route is approximately 0.32, or about 0.03 mile longer than the Filed Route. Route Adjustment #1 begins at approximately milepost (MP) 0.38 and rejoins the Filed Route at approximately MP 0.70. Enbridge completed environmental surveys on both the Filed Route as well as the current proposed route. Both the Filed Route and Route Adjustment #1 cross Bay City Creek (intermittent waterbody sase006); however, Route Adjustment #1 would cross the creek approximately 150 feet upstream of the Filed Route location. One additional ephemeral waterbody (sasa1008e) is within the current workspace, but is not crossed by the pipeline centerline. This waterbody was not impacted by the Filed Route. Route Adjustment #1 will also impact approximately 0.06 additional acre of wetland including about 0.04 acre of Palustrine Emergent (PEM) wetland, <0.01 acre of Palustrine Forested (PFO) wetland, and 0.02 acre of Palustrine Scrub-shrub (PSS) wetland. Approximately 0.03 acre of additional wetland conversion from PFO and PSS to PEM would occur. One Environmentally Sensitive Area (ESA) is within the proposed construction workspace. This site was avoided by the Filed Route. Construction is not anticipated to impact the status of this ESA. Although impacts are slightly greater along the proposed route, Enbridge has adopted Route Adjustment #1 due to landowner agreement.

4.2 ROUTE ADJUSTMENT #2

Route Adjustment #2 was developed to address a landowner's request to accommodate future farming plans. The proposed route adjustment is approximately 0.46 mile in length, or less than about 0.01 mile shorter than the Filed Route. Route Adjustment #2 begins at approximately MP 8.17 and rejoins the Filed Route at approximately MP 8.62. Enbridge completed environmental surveys on both the Filed Route as well as the proposed route. No sensitive environment resources (i.e., wetlands, waterbodies, or cultural resources) were delineated along the Filed Route. Route Adjustment #2 will cross two PEM wetlands (wase1006e and wase1003e). Two additional PEM wetlands (wase1005e and wase1004e) are within the proposed workspace, but are not crossed by the pipeline centerline. Adoption of Route Adjustment #2 would increase temporary PEM wetland impacts by 0.13 acre. Additionally, one Environmental Sensitive Area (ESA) is within the proposed construction workspace. This site was avoided by the Filed Route. Construction is not anticipated to impact the status of this ESA. Although wetland impacts are slightly greater along Route Adjustment #2, Enbridge has adopted Route Adjustment #2 as the proposed route to accommodate the landowner request.

4.3 ROUTE ADJUSTMENT #3

Route Adjustment #3 was developed to accommodate a landowner's route adjustment request and to improve constructability of the Marengo River crossing. The proposed route adjustment is approximately 1.51 mile in length, or about 0.14 mile longer than the Filed Route. Route Adjustment #3 begins at approximately MP 11.05 and rejoins the Filed Route at approximately MP 12.51. Enbridge completed environmental surveys along the proposed route; however, limited environmental surveys were completed along the Filed Route due to landowner permission restrictions. Therefore, Enbridge used public information to compare the potential impacts along the Filed Route and Route Adjustment #3. Based on public data (Wisconsin 24K Hydrography), the Filed Route would cross four waterbodies, including the

Marengo River. Proposed Route Adjustment #3 would cross two waterbodies identified in public data. Reviewing Wisconsin Wetland Inventory (WWI) data, the Filed Route would temporarily impact about 0.33 acre of wetland (Open Water). To reduce overall PFO impacts and minimize disturbance to the Marengo River, Enbridge proposes to use a trenchless construction technique for the proposed route. Use of the trenchless crossing method reduces the PFO conversion to PEM wetland to approximately 0.28 acre from 0.57 acre. Although wetland impacts are slightly greater along the Route Adjustment #3 route, Enbridge has adopted Route Adjustment #3 as the proposed route to accommodate the landowner request and improve constructability, while minimizing wetland conversion using a trenchless technique to cross the Marengo River.

4.4 ROUTE ADJUSTMENT #4

Route Adjustment #4 was developed to avoid an ESA identified during 2020 field surveys. The proposed route adjustment is approximately 1.08 miles long, or about 0.02 mile longer than the Filed Route. Route Adjustment #4 begins at approximately MP 16.9 and rejoins the Filed Route at approximately MP 17.70. Enbridge completed environmental surveys on both the Filed Route as well as the proposed route. The Filed Route would temporarily impact approximately 3.78 acres of wetland, including about 2.06 acres of PFO and 0.24 acres of PSS wetland. The Filed Route would also convert approximately 1.26 acre of PFO/PSS wetland to PEM wetland as part of Enbridge's maintained operational right-of-way. Route Adjustment #4 would temporarily impact about 1.37 acres of wetland, including about 0.32 acre of PFO wetland and 0.07 acre of PEM wetland. Adoption of Route Adjustment #4 would reduce temporary wetland impacts by approximately 2.4 acres, including about 1.74 acres of PFO wetland disturbance. Enbridge also proposes to cross Billy Creek and an unnamed tributary to Billy Creek using a trenchless construction technique on the proposed route; thereby minimizing instream disturbance. The Filed Route would pass through an ESA that is potentially protected under Federal law. Enbridge has avoided this location by adopting Route Adjustment #4 as the preferred route.

4.5 ROUTE ADJUSTMENT #5

Route Adjustment #5 was developed to shift the pipeline onto a land parcel where Enbridge has been able to secure a land agreement. The proposed route adjustment is approximately 0.66 mile long, or about 0.03 mile shorter than the Filed Route. Route Adjustment #5 begins at approximately MP 27.19 and rejoins the original line at approximately MP 27.78. Enbridge completed environmental surveys along the proposed route, but was not able to complete environmental surveys along the Filed Route due to landowner permission restrictions. Enbridge used public information to assess the potential impacts along the Filed Route and compare those impacts to public information along the proposed route. Based on public information, the Filed Route would cross two intermittent waterbodies. Enbridge's Route Adjustment #5 would not cross any waterbodies based on public information. WWI information does not depict any wetlands along either route. Enbridge has adopted Route Adjustment #5 as the proposed route due to landowner agreement.

4.6 ROUTE ADJUSTMENT #6

Route Adjustment #6 was developed to improve the constructability of the Vaughn Creek waterbody crossing. The proposed route is approximately 1.35 miles in length, or about 0.13 mile shorter than the Filed Route. Route Adjustment #6 begins at approximately MP 38.9 and rejoins the Filed Route at approximately MP 40.1. Enbridge completed environmental surveys on both the Filed Route as well as the adjusted route. Based on field delineation data, the Filed Route would temporarily disturb approximately 0.72 acre of wetland, including about 0.21 acre of PFO and 0.03 acre of PSS wetland. Route Adjustment #6 would temporarily disturb approximately 1.49 acre of wetlands, including about 1.15 acre of PFO and about 0.04 acre of PSS wetland. The Filed Route would cross four waterbodies (two perennial and two

intermittent). Route Adjustment #6 would avoid crossing one of the intermittent streams. Additionally, Route Adjustment #6 would allow Enbridge to complete the crossing of Vaughn Creek using a trenchless crossing technique. Although wetland impacts are greater along Route Alternative #6, the route adjustment would improve the alignment and constructability to complete a trenchless crossing of Vaughn Creek, thereby avoiding direct stream bed and bank disturbance. Enbridge has adopted Route Adjustment #6 as the proposed route to minimize stream disturbance to Vaughn Creek.

4.7 ROUTE ADJUSTMENT #7

Route Adjustment #7 was developed to address a landowner's request to modify the location of the pipeline on their property. The proposed route adjustment is approximately 0.45 mile in length, or about 0.02 mile shorter than the Filed Route. Route Adjustment #7 begins at approximately MP 40.32 and rejoins the original line at approximately MP 40.67. Enbridge completed environmental surveys on both the Filed Route as well as the proposed route. No wetlands, waterbodies, or ESAs were identified on either route; therefore, there would be no change to resource impacts. Enbridge has adopted Route Adjustment #7 as the proposed route to address a landowner request.

5 ENGINEERING AND CONSTRUCTION PRACTICES

5.1 PHYSICAL PIPELINE CHARACTERISTICS

Updated project pipe specifications have been provided in Table 5.1-1.

Table 5.1-1: Project Pipe Specifications

Use Type	General Use	Road/Railroad Bores/Valve Assembly	HDD and Direct Bore	HDD/ Railroad Crossings
Wall Thickness	0.500 inch	0.500 inch	0.625 inch	0.750 inch
Length	30.3 miles	4.9 miles	2.8 miles	3.3 miles
Coating	Fusion Bond Epoxy [a]			
Pipe Industry Specification	API 5L PSL2			
Pipe Grade	X70			
Pipe Design Factor	0.72			
Longitudinal Seam Factor	1.0			
Class Location and Requirements	N/A (applies to natural gas pipelines)			
Specified Minimum Yield Strength	70,000 psi			
Tensile Strength	82,000 psi			

Notes:

[a] Fusion Bond Epoxy will be used everywhere. Pipe installed by HDD or any type of bore will also have an Abrasion Resistant Overlay.

API = American Petroleum Institute; HDD = horizontal directional drill; N/A = not applicable; psi = pounds per square inch; N/A = not applicable; PSL = Product Specification Level

5.2 LAND REQUIREMENTS

5.2.1 Construction and Operational Right-of-Way

As described in the environmental protection plan filed on February 11, 2020, Enbridge will maintain a 50-foot-wide operational right-of-way that is cleared of vegetation to facilitate access and aerial inspections. Enbridge proposes to reduce the maintained portion of the operational right-of-way from 50 feet to 30 feet between the proposed horizontal directional drill ("HDD") crossings and the direct bore crossings. The

operational right-of-way will be cleared as part of construction and maintained for operations as herbaceous vegetation. In addition, where waterbodies and wetlands occur between the HDD entry and exit points, they will be bridged or matted, respectively, to allow clearing equipment to travel along the right-of-way. However, mainline construction equipment will be rerouted around the HDD locations, with the exception of Tyler Forks which will be bridged.

5.2.2 Access Roads

An updated list of access roads that will be used for construction and operation is included in Table 5.2.2-1.

Table 5.2.2-1: Proposed Access Roads

Access Road ID	County (ies)	Approximate Milepost (Intersects with Pipelines)	Length (miles)	Temporary/ Permanent	Public/ Private Road	Improvements
001	Ashland	0.0	0.15	Temporary	Private	Existing, Improvements needed
003.01	Ashland	2.7	0.32	Temporary	Private	Existing, Improvements needed
13	Ashland	6.0	0.08	Temporary	Private	Existing, Improvements needed
014	Ashland	6.9	0.41	Temporary	Private	Existing, Improvements needed
015	Ashland	7.7	0.15	Temporary	Private	Existing, Improvements needed
016	Ashland	8.1	0.09	Temporary	Private	Existing, Improvements needed
017	Ashland	8.6	0.07	Temporary	Private	Existing, Improvements needed
018	Ashland	8.8	0.12	Temporary	Private	Existing Approach, Improvements needed
019	Ashland	9.3	0.06	Temporary	Private	Existing Approach, Improvements needed
020	Ashland	10.3	0.15	Temporary	Private	Existing Improvements needed
021	Ashland	11.1	0.48	Temporary	Private	Existing, Improvements needed
022	Ashland	11.4	0.16	Temporary	Private	Existing Approach, Improvements needed
024	Ashland	12.9	0.22	Temporary	Private	Existing Approach, Improvements needed
025	Ashland	13.5	0.14	Temporary	Private	Existing, Improvements needed
026	Ashland	14.0	0.11	Temporary	Private	Existing, Improvements needed
026.01	Ashland	14.1	0.14	Temporary	Private	Existing, Improvements needed
027	Ashland	14.5	0.03	Temporary	Private	Existing, No Improvements needed
028	Ashland	14.7	0.07	Temporary	Private	Existing Approach, Improvements needed
028.1	Ashland	15.0	0.12	Temporary	Private	Existing Approach, Improvements needed
029	Ashland	16.0	0.10	Temporary	Private	Existing, No Improvements needed
030	Ashland	16.7	0.08	Temporary	Private	Existing, Improvements needed
031	Ashland	17.1	0.02	Temporary	Private	Existing, Improvements needed
031.01	Ashland	17.1	0.03	Temporary	Private	Existing, Improvements needed
034	Ashland	18.7	0.16	Temporary	Private	Existing, Improvements needed
039	Ashland	20.5	1.21	Temporary	Private	Existing, Improvements needed
040.01	Ashland	19.6	0.22	Temporary	Private	Existing, Improvements needed
040.02	Ashland	19.5	0.20	Temporary	Private	Existing, Improvements needed
042	Ashland	20.0	0.76	Temporary	Private	Existing, Improvements needed
043	Ashland	20.5	0.18	Temporary	Private	Existing, Improvements needed
044	Ashland	20.7	0.02	Temporary	Private	Existing, Improvements needed
045	Ashland	20.7	0.52	Temporary	Private	Existing, Improvements needed

Access Road ID	County (ies)	Approximate Milepost (Intersects with Pipelines)	Length (miles)	Temporary/ Permanent	Public/ Private Road	Improvements
046	Ashland	21.4	0.16	Temporary	Private	Existing, Improvements needed
047	Ashland	21.8	0.20	Temporary	Private	Existing, Improvements needed
048	Ashland	22.1	0.18	Temporary	Private	Existing, Improvements needed
049	Ashland	22.6	0.24	Temporary	Private	Existing, Improvements needed
050	Ashland	22.9	0.11	Temporary	Private	Existing, Improvements needed
050.01	Ashland	23.2	0.11	Temporary	Private	Existing, Improvements needed
050.02	Ashland	23.6	0.21	Temporary	Both	Existing, Improvements needed
050.03	Ashland	23.8	0.10	Temporary	Private	Existing, Improvements needed
051.01	Ashland	23.9	0.08	Temporary	Both	Existing, Improvements needed
052	Ashland	24.1	0.06	Temporary	Private	Existing, Improvements needed
053	Ashland	24.1	0.12	Temporary	Private	Existing, Improvements needed
054	Ashland	24.2	0.11	Temporary	Private	Existing, Improvements needed
055	Ashland	24.4	0.07	Temporary	Private	Existing, Improvements needed
058	Ashland	25.0	0.08	Temporary	Private	Existing, Improvements needed
060	Ashland	25.7	0.32	Temporary	Private	Existing, Improvements needed
061	Ashland	26.0	0.20	Temporary	Private	Existing, Improvements needed
062	Ashland	26.0	0.13	Temporary	Private	Existing, Improvements needed
063	Ashland	27.2	0.31	Temporary	Private	Existing, Improvements needed
064	Ashland	27.7	0.01	Temporary	Private	Existing, Improvements needed
065	Ashland	28.00	0.06	Temporary	Private	Existing Approach, Improvements needed
066	Ashland	28.1	0.03	Temporary	Private	Existing, Improvements needed
067	Ashland	28.3	0.10	Temporary	Private	Existing, Improvements needed
068	Ashland	28.6	0.30	Temporary	Private	Existing, Improvements needed
069	Ashland	28.9	0.35	Temporary	Private	Existing, Improvements needed
070	Ashland	29.5	0.32	Temporary	Private	Existing, Improvements needed
071	Ashland	30.0	0.49	Temporary	Private	Existing, Improvements needed
072	Ashland	30.1	0.47	Temporary	Private	Existing, Improvements needed
073	Iron	30.9	0.12	Temporary	Public	Existing, Improvements needed
074	Iron	30.9	1.89	Temporary	Public	Existing, Improvements needed
075	Iron	32.1	0.28	Temporary	Public	Existing, Improvements needed
076	Ashland, Iron	32.4	1.58	Temporary	Both	Existing, Improvements needed
077	Iron	32.7	0.41	Temporary	Public	Existing, Improvements needed
078	Iron	32.5	0.32	Temporary	Public	Existing, Improvements needed
079	Ashland, Iron	32.7	1.17	Temporary	Both	Existing, Improvements needed
080	Iron	33.0	1.00	Temporary	Public	Existing, Improvements needed
081	Iron	33.0	0.14	Temporary	Public	Existing, Improvements needed
082	Ashland, Iron	33.2	2.39	Temporary	Both	Existing, Improvements needed
083	Iron	33.9	0.95	Temporary	Public	Existing, Improvements needed
084	Iron	34.3	1.27	Temporary	Both	Existing, Improvements needed
085	Iron	33.4	0.21	Temporary	Both	Existing, Improvements needed
087	Iron	36.3	1.12	Temporary	Public	Existing, Improvements needed
088	Iron	36.6	0.23	Temporary	Public	Existing, Improvements needed
089	Iron	36.9	1.60	Temporary	Both	Existing, Improvements needed
090	Iron	37.2	0.60	Temporary	Public	Existing, Improvements needed

Access Road ID	County (ies)	Approximate Milepost (Intersects with Pipelines)	Length (miles)	Temporary/ Permanent	Public/ Private Road	Improvements
091	Iron	37.1	0.09	Temporary	Public	Existing, Improvements needed
092	Iron	37.6	1.47	Temporary	Both	Existing, Improvements needed
094	Iron	38.0	0.01	Temporary	Both	Existing, Improvements needed
095	Iron	38.8	0.24	Temporary	Private	Existing, Improvements needed
098	Iron	39.3	0.43	Temporary	Private	Existing, Improvements needed
099	Iron	39.8	0.26	Temporary	Private	Existing, Improvements needed
101	Iron	40.3	0.10	Temporary	Private	Existing, Improvements needed
102	Iron	40.8	0.02	Temporary	Private	Existing, Improvements needed
103	Iron	40.8	0.14	Temporary	Private	Existing, Improvements needed
104	Iron	41.0	0.25	Temporary	Private	Existing, Improvements needed
202	Ashland	5.0	0.38	Temporary	Private	Existing, Improvements needed
203.01	Ashland	4.8	0.33	Temporary	Private	New, Improvements needed
204	Ashland	4.9	0.09	Temporary	Private	Existing, Improvements needed
Bayside 1	Ashland	N/A	0.17	Temporary	Private	Existing, No Improvements
Bayside 2	Ashland	N/A	0.02	Temporary	Private	Existing, No Improvements
MLV 1	Bayfield	0.0	0.28	Permanent	Both	Existing and new, Improvements needed
MLV 2	Bayfield	0.0	0.13	Permanent	Both	Existing and new, Improvements needed
MLV 3	Ashland	5.6	0.11	Permanent	Both	Existing and new, Improvements needed
MLV 4	Ashland	9.3	0.03	Permanent	Both	New, Improvements needed
MLV 5	Ashland	16.1	0.10	Permanent	Both	New, Improvements needed
MLV 6	Iron	40.0	0.39	Permanent	Private	Existing, Improvements needed
MLV 7	Iron	41.1	0.03	Permanent	Private	New, Improvements needed
South Range 1	Douglas	N/A	0.02	Temporary	Private	Existing, No Improvements
South Range 2	Douglas	N/A	0.32	Temporary	Private	Existing, No Improvements
South Range 3	Douglas	N/A	0.18	Temporary	Private	Existing, No Improvements

MLV = mainline block valve; N/A = not applicable

5.2.3 Pipe Storage and Contractor Yards

As indicated in Enbridge's February 11, 2020 application materials, the Project will require temporary use of off-right-of-way areas for pipe and materials storage during construction. In addition, construction contractors will require off-right-of-way contractor yards to park equipment and stage construction activities.

Enbridge has continued to assess the Project needs for offline pipe and material storage yards. Enbridge has revised the locations of the proposed offline yards based on landowner interest in leasing the land, potential resource impacts, and Project-specific needs. The revised locations are presented in Appendices A and B. The four proposed sites have been previously used for commercial/industrial purposes including sand/gravel extraction and timber storage. Enbridge has assessed sensitive environmental features when planning the placement and use of these pipe yards to minimize potential sensitive resource impacts. The proposed workspace at each yard has been designed to avoid resource impacts to the extent practicable.

Enbridge and/or the Contractor will lease the sites and will restore them upon the completion of the Project unless the landowner and applicable agencies otherwise permit or authorize.

5.2.4 Aboveground Facilities

As indicated in Enbridge's April 1, 2020 data request response to the WDNR, Enbridge has continued to analyze the number and location of proposed Project mainline block valves which will also function as Emergency Flow Restricting Devices. Additionally, Enbridge has continued to assess the proximity of the proposed mainline block valves to public roads and electrical service and to evaluate potential environmental resource impacts.

Enbridge has completed additional Project design analysis, which has modified the number of proposed valves from five to seven. This modification includes the installation of two additional mainline block valves on the existing Enbridge Line 5 pipeline. Enbridge proposes to install two mainline block valves west of the Project and one mainline block valve east of the Project tie-in point to the existing Line 5 pipeline. Proposed mainline block valve locations are shown on the Project route maps (see Appendices A and B).

Enbridge has modified the location of several of the mainline block valves included in the February 11, 2020 application to address land availability and landowner preferences for the mainline valve locations. Enbridge has worked with each private landowner at the proposed mainline block valve sites to approve the proposed valve location and to minimize environmental resource impacts. Proposed mainline block valve locations and their proximity to wetlands and waterbodies are shown on the Project route maps (see Appendices A and B).

Enbridge proposes to use existing access roads and/or existing public road entrances where practicable to minimize overall land disturbance and permanent resource impacts. Each proposed mainline block valve permanent aboveground facility will be approximately 0.13 acre in size and will include the valve, instrumentation and controls, an electrical service building and grounding, fencing, a permanent access road, and a small graveled parking/turn-around area. The area within the fence will be graveled/rocked. No permanent resource impacts (e.g., wetland fill) will be required for the mainline block valve aboveground facilities; however, approximately 998 square feet (0.02 acre) of total permanent wetland fill will be required for the establishment of the permanent access roads into the valve sites. A table of the proposed valve sites, acreages, and associated impacts is provided in Table 5.2.3-1.

Additionally, Enbridge will make minor modifications to the Ino Pump Station at the existing facility. These modifications will include the replacement of the existing drag reducing agent injection system (DRA Injection skid) with a new 40-foot by 8-foot DRA Injection skid containing a drag reducing agent storage tank, tank mixers, transfer pumps, and associated appurtenances. No other aboveground facilities are required for the Project.

Table 5.2.3-1 Mainline Valves

Mainline Block Valves	Milepost	Permanent Site Acreage	Temporary wetland impacts (acres)	Permanent wetland impacts (acres)	Access Road length (feet)	Temporary Access Road wetland impacts (acres)	Permanent Access Road wetland fill impacts (acres)	Permanent Access Road wetland fill (sq. feet)
MLV #1	N/A	0.13	0.32	0	1,486	0.01	0.01	371
MLV #2	N/A	0.13	0	0	683	0	0	0
MLV #3	5.03	0.13	0	0	573	0	0	0
MLV #4	9.32	0.13	0	0	168	0	0	0
MLV #5	16.09	0.13	0.01	0	504	0.01	0.01	627
MLV #6	40.00	0.13	0	0	2,050	0	0	0
MLV #7	N/A	0.13	0	0	144	0	0	0

MLV = mainline block valve; N/A = not applicable

5.2.5 Cathodic Protection and AC Mitigation

Enbridge proposes to install a cathodic protection and AC mitigation system on the new pipeline segment. This cathodic protection system would apply a small electric current to the pipeline, which would induce corrosion of a remote, sacrificial anode and inhibit corrosion of the steel comprising the pipeline. AC Mitigation protects the pipeline from potential stray voltage associated with overhead powerlines. Workspace associated with installation of cathodic protection and AC mitigation system is within the workspace shown in Appendices A and B.

5.3 CONSTRUCTION PROCEDURES

There will be 13 HDD or direct bore crossings, which are listed in Table 5.3.1-1.

5.3.1 Water Usage

Enbridge proposes two options for water withdrawals for use during hydrostatic testing of the mainline. The preferred option includes conducting hydrostatic testing in two sections and using water from the Bad River. The alternate option includes conducting hydrostatic testing in three sections and using water from Tyler Forks and Silver Creek. Additional details are included in the Draft Hydrostatic Test Plan in Appendix F. Water used for HDD drilling activities will be acquired from municipal sources. As described in the Environmental Protection Plan, Enbridge will hydrostatically test pre-built sections of the HDDs. Water sources for each pre-built section are included in the Draft Hydrostatic Test Plan in Appendix F.

5.4 SPECIALIZED CONSTRUCTION—WATERBODIES

5.4.1 Bridging

Enbridge is not proposing to use rock flume bridges or use instream supports for engineered bridges (see Table 5.4.1-1). Appendix G provides descriptions of and drawings for the engineered bridges that will be used for vehicle travel over waterbodies. There are 3 bridge options that will be used; Type A are timber mat bridges typically 20-feet long or less); Type B is an engineered bridge that is 20 to 60 feet long, and Type C is an engineered bridge that is greater than 60 feet long. Bridges over waterbodies would meet the requirements of the WDNR in NR 320.04. Enbridge will work with WDNR as outlined in NR 320.04(3) to maintain access if the requirements of WDNR NR 320.04 cannot be met at a specific location.

Typically, temporary construction access bridge installation can be completed from adjacent areas, and equipment is not required to pass once through a stream to cross to the other side for installation. However, for the bridge installation at Tyler Forks (waterbody sira004p) on Casey Sag Road (access road 085) and at the HDD crossing of Tyler Forks (waterbody sirc005e), equipment will need to pass once through Tyler Forks for bridge installation at each location. In order to place and remove an appropriate bridge to meet the WDNR requirements of 5 feet of clearance for navigation, an excavator or crane will be required to help maneuver the proposed engineered bridge into place. Currently, the stream on Casey Sag Road is forded by the public and logging trucks via an existing rocked crossing; therefore, impacts on the streambed from a one-time pass of equipment in order to install and remove the bridge will be minimal. Enbridge is requesting approval to allow equipment to pass through Tyler Forks at Casey Sag Road and at the HDD crossing of Tyler Forks for both bridge installation and removal.

Table 5.4.1-1: Types of Bridges

Type	Description	Applicability	Advantages	Disadvantages
Typical Span Type / Engineered Bridge (timber mats, railroad flat cars, or similar)	Construction of temporary bridge utilizing timber mats or an imported portable bridge material (e.g., railroad flat cars).	Generally suitable for small to moderate size streams with stable banks. This bridge type can be used for large waterbodies. Regular bridge maintenance required. Preferred bridge type to provide safe crossing of heavy construction equipment. No instream supports will be used.	• Strong, removable, and portable bridge that can be optimally located • Limited instream disturbance • Limited sediment release • Maintains streamflow • Maintains fish passage	• Specialized equipment / crew required • Substantial amount of work to transport and/or construct may be necessary • Limited span for timber bridges and cap may be required • Regular maintenance of erosion and sediment controls required • Possible sediment release from bank disturbance • May cause interference on navigable waterways • Instream disturbance and sediment mobilization if instream abutments used for multiple spans • Bridges need to be keyed into the banks

5.4.2 Geotechnical Soil Borings and HDD Feasibility Assessments

Enbridge is providing plan and profile drawings for proposed trenchless waterbody crossings (HDD and direct pipe) crossings in Appendix H, based on geotechnical information gathered during 2019 and 2020 survey activities.

6 ENVIRONMENTAL EFFECTS

The below section includes updates to the environmental effects for various resources as originally described in the permit application and Environmental Impact Report.

6.1 AIR QUALITY AND NOISE

The minor route adjustments included in this supplemental filing have not changed air quality or noise impacts as described in the February 11, 2020 application submittal materials.

6.2 SOILS

Updated maps showing the Soil Survey Geographic Database ("SSURGO") soil map units are included in Appendix I. Table 6.2-1 summarizes the soil characteristics affected by the Project. Topsoil depths encountered by the Project have been updated in Table 6.2-2. Slopes greater than 20 percent affected by the Project have been updated in Table 6.2-3.

6.3 GEOLOGY AND GROUNDWATER

The minor route adjustments included in this supplemental filing have not changed geology and groundwater impacts as described in the February 11, 2020 application submittal materials.

6.4 SURFACE WATERS AND WETLANDS

As discussed in Enbridge's February 11, 2020 application submittal, the Project will require installation of the pipeline across wetlands and waterbodies. Project activities will also include the installation of temporary bridge crossings over waterbodies for the purpose of moving construction equipment across the feature and the installation of the pipeline beneath the bed of the waterbody. Temporary bridges may also be needed for select access roads.

At the time of the February 11, 2020 application submittal, Enbridge had completed wetland and waterbody surveys of approximately 70 percent of the proposed Project work areas. Since the February 11, 2020 application submittal, Enbridge has completed the remaining wetland and waterbody surveys along the Project route. Enbridge is submitting an addendum to the 2019 Wetland and Waterbody Survey Report that includes information collected during the 2020 field season. The addendum wetland and waterbody delineation report for the 2020 surveys that includes representative photographs, data sheets, and maps is provided as Appendix J. Wetland and waterbody locations are shown on the aerial maps provided as Appendix A. Appendix K includes a wetland and waterbody crossing table identifying Project impacts.

Table 6.2-1: Acres of Soil Characteristics Affected by the Project [a, b]

Facility	Total Acres	Prime Farmland [c]	Farmland of Statewide Importance [d]	Hydric Soils [e]	Compaction Prone [f]	Highly Erodible		Droughty [i]	Rocky [j]	Shallow Bedrock [k]
						Water [g]	Wind [h]			
Pipeline										
Permanent ROW	239.0	4.3	67.4	13.3	26.9	70.9	43.5	22.5	98.7	5.5
Temporary Workspace	497.2	6.1	154.7	17.2	55.8	142.9	116.6	65.4	183.0	11.8
Access Roads										
Permanent Roads	3.4	0.0	1.6	0.0	0.3	0.4	2.0	0.5	0.0	0.0
Temporary Roads	117.2	1.1	12.0	8.2	5.5	34.3	15.4	13.2	75.8	2.6
Appurtenant Facilities										
Pipe Yards	57.9	0.0	13.8	0.3	6.2	5.8	7.2	7.0	14.0	4.1
Valves	0.9	0.0	0.6	0.0	0.2	0.0	0.3	0.1	0.0	0.0
Project Total	**915.6**	**11.5**	**250.2**	**39.0**	**94.9**	**254.3**	**185.0**	**108.7**	**371.6**	**24.0**

Notes:

[a] The area affected includes permanent workspace, temporary workspace, and access roads.

[b] The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends. The values in each row do not add up to the total acreage for each facility because the soils may occur in more than one characteristic class or may not occur in any class listed in the table.

[c] As designated by the Natural Resources Conservation Service. Prime farmland includes those soils that are considered prime if a limiting factor is mitigated (e.g., through artificial drainage).

[d] Farmland of Statewide Importance is land other than prime farmland that is of statewide importance for the production of food, feed, fiber, forage, or oilseed crops.

[e] As designated by the Natural Resources Conservation Service.

[f] Soils in somewhat poor to very poor drainage classes with surface textures of sandy clay loam and finer.

[g] Soils in land capability subclasses 4E through 8E and soils with an average slope greater than 8 percent.

[h] Soils with a wind erodibility group classification of 1 or 2.

[i] Soils with a surface texture of sandy loam or coarser that are moderately well to excessively drained.

[j] Soils with one or more horizons that have a cobbley, stony, bouldery, channery, flaggy, very gravelly, or extremely gravelly modifier to the textural class and/or contain greater than 5 percent by weight rocks larger than 3 inches.

[k] Soils identified as containing bedrock within 60 inches of the soil surface. All shallow bedrock in the Project area is lithic (hard) bedrock.

ROW = right-of-way

Table 6.2-2: Topsoil Depths in the Project Area [a, b]

Facility	Total Acres	Acres of Topsoil Depth (inches)				
		0-6 [c]	>6-12	>12-18	>18	Organic soils [d]
Pipeline						
Permanent ROW	239.0	226.7	3.4	0.0	2.0	7.0
Temporary Workspace	497.2	480.9	3.7	0.0	2.9	9.7
Access Roads						
Permanent Roads	3.4	3.4	0.0	0.0	0.0	0.0
Temporary Roads	117.2	105.4	0.0	0.0	5.6	6.1
Appurtenant Facilities						
Pipe Yard	57.9	57.7	0.0	0.0	0.0	0.3
Valves	0.9	0.9	0.0	0.0	0.0	0.0
Project Total	**915.6**	**874.9**	**7.2**	**0.0**	**10.5**	**23.0**

Notes:

[a] The area affected includes permanent workspace, temporary workspace, and access roads.

[b] The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends. The values in each row do not add up to the total acreage for each facility because the soils may occur in more than one characteristic class or may not occur in any class listed in the table.

[c] Includes water, rock outcrops, pits, and anthropologically disturbed soils.

[d] Organic soils are those in which the organic carbon content exceeds 12 to 20 percent by weight, dependent on clay content and saturation frequency.

ROW = right-of-way

Table 6.2-3: Slopes Greater than 20 Percent Along the Proposed Pipeline Route [a, b]

Approximate Milepost Beginning	Approximate Milepost Ending	Crossing Length (feet)	Approximate Milepost Beginning	Approximate Milepost Ending	Crossing Length (feet)
0.61	0.62	56	19.02	19.06	249
0.63	0.64	59	19.20	19.21	52
2.90	2.91	40	19.22	19.25	166
2.92	2.93	50	19.26	19.29	152
3.77	3.94	830	19.31	19.33	73
3.95	3.96	30	19.43	19.43	21
3.97	3.98	90	19.80	19.81	60
4.03	4.03	30	19.85	19.87	120
4.16	4.17	60	20.94	20.95	49
4.19	4.23	150	21.15	21.17	75
4.25	4.28	160	22.01	22.02	33
4.29	4.30	70	22.24	22.26	69
4.67	4.70	150	22.27	22.29	80
5.04	5.05	60	22.45	22.46	36
5.06	5.07	50	22.47	22.49	89
5.81	5.82	20	23.76	23.77	62
5.91	5.92	42	23.78	23.79	82
5.93	5.94	59	23.80	23.81	61
6.31	6.33	115	23.86	23.87	67
6.35	6.35	31	23.89	23.89	43
6.36	6.40	216	23.90	23.92	70
7.04	7.04	30	23.97	23.98	50
7.07	7.07	30	24.04	24.05	44
7.98	7.99	40	24.17	24.18	20
8.00	8.01	40	24.38	24.39	40
11.24	11.24	21	24.51	24.52	21
11.39	11.39	32	24.82	24.83	38
11.40	11.41	85	24.84	24.87	153

Approximate Milepost Beginning	Approximate Milepost Ending	Crossing Length (feet)	Approximate Milepost Beginning	Approximate Milepost Ending	Crossing Length (feet)
12.42	12.43	60	24.89	24.91	111
12.45	12.45	20	24.97	24.98	60
12.72	12.73	63	25.03	25.04	40
12.76	12.77	38	25.06	25.06	40
14.07	14.10	163	25.07	25.10	132
14.30	14.32	128	25.21	25.25	175
14.52	14.52	20	25.27	25.33	293
14.71	14.73	92	25.36	25.38	61
14.74	14.76	81	25.39	25.41	150
14.95	14.95	20	25.42	25.43	50
14.97	14.97	30	25.44	25.47	114
15.16	15.18	70	25.58	25.59	46
15.19	15.19	40	25.63	25.63	30
15.20	15.21	40	25.64	25.67	180
15.25	15.25	20	25.68	25.69	40
15.26	15.27	70	25.72	25.73	43
15.29	15.30	60	25.76	25.77	29
15.34	15.35	20	25.79	25.80	43
15.84	15.85	69	26.96	26.96	20
15.87	15.88	56	27.12	27.12	43
15.91	15.93	62	27.92	27.94	40
16.17	16.18	30	30.91	30.92	29
16.54	16.55	72	30.95	30.95	20
16.58	16.59	21	31.33	31.34	30
16.66	16.69	139	31.40	31.40	30
16.74	16.75	31	31.77	31.77	28
16.76	16.78	88	34.09	34.10	34
16.93	16.93	20	36.84	36.86	80
16.94	16.95	30	37.86	37.88	121
17.07	17.07	20	38.34	38.35	71
17.23	17.24	60	39.02	39.03	45
17.26	17.28	100	39.23	39.24	20
17.86	17.86	20	39.53	39.56	150
19.00	19.00	21	39.61	39.64	170
				Total	**9,368**

Notes:

[a] Analysis of digital elevation model data converted to slope for Ashland and Iron Counties along the Project centerline (University of Wisconsin Madison Space Science and Engineering Center 2019a; 2019b)

[b] Slopes that are over 20 percent, but less than 20 feet in length, are omitted from the analysis. These slopes are likely the result of stream banks, roadside ditches, or other irregularities.

6.4.1 Waterbodies

Table 6.4.1-1 and Figure 6.4.1-1 has been updated to reflect the current proposed route watershed crossing boundaries. An updated summary of waterbodies crossed by the project is included in Table 6.4.1-2.

Table 6.4.1-1: Watershed Boundaries Crossed by the Project

Major Basin	Watershed	WDNR Watershed Code	Milepost In	Milepost Out	Crossing Length (miles)
Lake Superior	Fish Creek	LS08	0.0	1.2	1.2
	Lower Bad River	LS09	1.2	3.3	2.2
	White River	LS10	3.3	7.4	4.0
	Marengo River	LS12	7.4	21.9	14.6
	Upper Bad River	LS14	21.9	26.4	4.4
	Tyler Forks	LS13	26.4	34.2	7.8
	Potato River	LS11	34.2	40.3	6.1
	Montreal River	LS15	40.3	41.1	0.8

Table 6.4.1-2: Summary of Pipeline Centerline Waterbody Crossings

Waterbody Regime	Number
Delineated Waterbodies	
Perennial	29
Intermittent	36
Ephemeral	31
PROJECT TOTAL	96

Notes: Delineated waterbodies are based on 2019 and 2020 field surveys. Includes rivers, streams, swales, and ditches. Includes one WDNR 24K Hydrography Data waterway (WDH-18) where survey was not permitted in a highway median and 17 WDH waterbodies where a navigability determination by WDNR is requested.

Enbridge has identified nine streams where in-water blasting may be necessary to install the pipeline. An updated list of waterbodies where blasting is anticipated is in Appendix K.

Waterbody crossing plans for waterbodies which may require special restoration considerations are included in Appendix L.

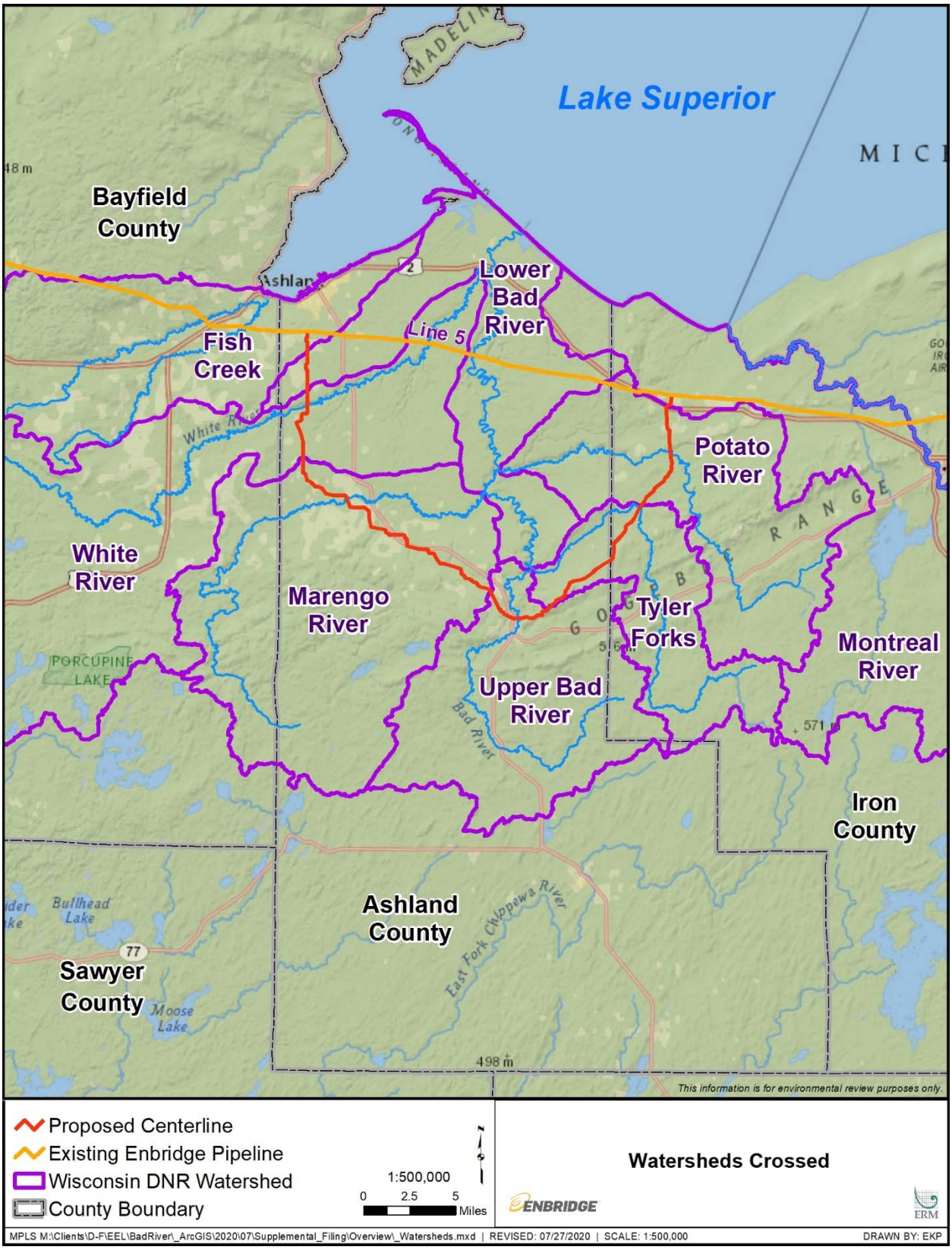

Figure 6.4.1-1: Overview of Watersheds Within the Project Area

6.4.2 Wetlands

The Project will require permanent fill of approximately 998 square feet (0.02 acre) of PEM and PSS wetland associated with the installation of permanent access roads for mainline valves. Please see Section 5.2.4 for a description of permanent wetland impacts associated with mainline block valves. An updated summary of wetland impacts is included in Table 6.4.2-1.

Table 6.4.2-1 Summary of Project Wetland Impacts

Wetland Type [a]	Temporary Impacts (acres) [b]	Permanent Conversion (acres) [c]	Permanent Fill (acres) [d]
Delineated Wetlands			
PEM	28.5	0	0.02
PFO	64.5	5.4	0
PSS	10.1	0.3	<0.01
PROJECT TOTAL [e]	**103.1**	**5.7**	**0.02**

Source: Cowardin et al. 1979

Notes:

[a] Delineated wetlands are based on 2019 field surveys, and where surveys were unable to be completed, WWI wetland data was used for calculations.

[b] Includes temporary impacts associated with pipeline workspace, access roads, and pipeyards.

[c] Permanent conversion impacts include acreage within PFO and PSS wetlands that will be maintained as PEM within the permanent right-of-way.

[d] Permanent fill impacts include wetland acreage that will be impacted by construction of permanent aboveground structures and an associated access road.

[e] The sum of the addends may not equal the totals in all cases due to rounding.

PEM = palustrine emergent; PSS = palustrine scrub shrub; PFO = palustrine forested

Areas within wetlands that may require blasting due to shallow bedrock are provided in Appendix K.

Wetland Mitigation

Enbridge continues to work with the WDNR and USACE on wetland mitigation and post-construction monitoring.

6.4.3 Public Water Supply Wells

The minor route adjustments included in this supplemental filing have not changed public water supply well impacts as described in the February 11, 2020 application submittal materials.

6.4.4 Private Water Supply Wells

The minor route adjustments included in this supplemental filing have not changed private water supply well impacts as described in the February 11, 2020 application submittal materials.

6.4.5 Impaired Waters

Every 2 years, Section 303(d) and 305(b) of the Clean Water Act requires states to publish a list of all waters that do not meet water quality standards. The list, also known as the Impaired Waters List, is updated to reflect waters that are newly added or removed based on new information or changes in water quality status. The 2020 assessment of impaired waters has not been approved by the U.S. Environmental Protection Agency; therefore, Enbridge reviewed Wisconsin's 2018 Impaired Waters List approved by the

U.S. Environmental Protection Agency on 2 August 2018. Three waterbodies crossed by the proposed Project are listed (WDNR 2020):

- Bay City Creek – Total Phosphorus;
- Marengo River – Fecal Coliform; and
- Trout Brook – Fecal Coliform.

Project activities are not expected to contribute to the impairments of these waterbodies.

6.5 VEGETATION, WILDLIFE, AND FISHERIES

Enbridge initiated coordination on the Project with the Green Bay Ecological Services Field Office (Region 3) of the U.S. Fish and Wildlife Service ("USFWS") in September 2019. The USACE will complete Section 7 consultation for the Project. Informal consultations with USACE, USFWS, and Enbridge will continue throughout 2020.

Enbridge conducted preliminary habitat assessments in 2019 and provided the report to the WDNR in January 2020; the report is included in Appendix M. Enbridge completed surveys for state-listed species based on WDNR coordination. Results of those surveys are summarized below. On behalf of Enbridge, ERM submitted an Environmental Review Request to WDNR on January 15, 2020; and an updated draft endangered resources review will be provided to the WDNR on August 3, 2020. The review will require WDNR Endangered Species Review Program approval. A draft of the updated ERR is provided in Appendix M. Enbridge will continue to consult with the USFWS and the WDNR on the status of mitigation strategies for protected species.

6.5.1 Bald Eagles

The Natural Heritage Inventory ("NHI") buffer associated with the bald eagle nest identified in the NHI database (identified in 2018) was evaluated by the aerial surveys, including the area of overlap with the survey corridor, which included a 1,000-foot-wide buffer applied to the Project centerline. No nests were detected within the evaluated survey buffer. Bald eagle (*Haliaeetus leucocephalus*) surveys were conducted in 2020, and the *2020 Bald Eagle Nest Surveys Report* was provided to the WDNR separately. Aerial bald eagle nest surveys were conducted on April 25, 2020 and resulted in the documentation of two raptor stick nests. The first nest was an active bald eagle nest occupied by an adult and at least one chick. The second nest was occupied by a great horned owl (*Bubo virginianus*). The active bald eagle nest observed during 2020 surveys was greater than 660 feet away from the Project workspace or access roads; therefore, in accordance with the *National Bald Eagle Management Guidelines* (U.S. Fish and Wildlife Service 2007), there will be no impact on nesting bald eagles.

6.5.2 Fisheries

An updated list of trout streams and perennial tributaries to trout streams crossed by the project is included in Table 6.5.2-1.

Table 6.5.2-1: Trout Streams and Their Perennial Tributaries Crossed by the Project

Waterbody	Trout Stream Classification	Approximate Crossing Location (MP)	Project Component	Proposed Crossing/Bridge Method
White River	CLASS II	4.0	Pipeline	HDD/None
Marengo River	CLASS III	11.4	Pipeline	Direct Bore/None
UNT of Marengo River	CLASS III	8.0*	Pipeline	DC/Bridge Type B
UNT of Marengo River	CLASS III	13.6*	Pipeline	N/A/Bridge Type A
Brunsweiler River	CLASS III	14.1	Pipeline	HDD/None
UNT of Brunsweiler River	CLASS III	14.7*	Pipeline	DC/Bridge Type B
Trout Brook	CLASS III	16.6	Pipeline	HDD/None
UNT of Trout Brook	CLASS III	15.9*	Pipeline	DC/Bridge Type B
		15.9*	Pipeline	N/A/Bridge Type A
Billy Creek	CLASS I	17.3	Pipeline	HDD/None
UNT of Billy Creek	CLASS I	16.7*	Pipeline	HDD/Bridge Type A
		16.7*	Pipeline	N/A/Bridge Type A
Silver Creek	CLASS II	19.1	Pipeline	HDD/Type C
		19.1	Pipeline	HDD/Type C
		19.2	Pipeline	HDD/Type C
		20.2	Access Road	N/A/Bridge Type C
UNT of Silver Creek	CLASS II	19.1*	Pipeline	HDD/Type A
		19.8*	Access Road	N/A/Bridge Type B
		19.8*	Pipeline	N/A/None
		19.8*	Pipeline	N/A/Bridge Type C
		19.8*	Pipeline	DC/Bridge Type B
		20.6*	Access Road	N/A/Bridge Type A
		20.6*	Pipeline	DC/Bridge Type A
		20.9*	Access Road	N/A/Bridge Type A
		20.9*	Access Road	N/A/Bridge Type A
		21.3*	Pipeline	DC/Bridge Type A
Krause Creek	CLASS I	22.3	Pipeline	HDD/None
UNT of Krause Creek	CLASS I	22.0*	Pipeline	DC/Bridge Type A
Bad River	CLASS III	24.2	Pipeline	HDD/None
UNT of Bad River	CLASS III	23.7*	Pipeline	DC/Bridge Type A
Gehrman Creek	CLASS II	28.7	Access Road	N/A/Bridge Type A
		28.8	Access Road	N/A/Bridge Type A
UNT of Gehrman Creek	CLASS II	28.4*	Pipeline	DC/ Bridge Type A
Camp Four Creek	CLASS II	29.8	Pipeline	OC/DC/Bridge Type B
		29.9	Access Road	N/A/Type B Bridge
Feldcher Creek [a]	CLASS II	31.2	Pipeline	DC/ Type A Bridge
		32.2	Access Road	N/A/Type A Bridge
UNT of Feldcher Creek	CLASS II	30.7*	Pipeline	DC/ Type A Bridge
		30.8*	Access Road	N/A/Type A Bridge
Tyler Forks	CLASS II	33.4	Access Road	N/A/Type C Bridge
		34.0	Pipeline	HDD/Type C Bridge
Vogue Creek	CLASS II	34.3	Access Road	N/A/Type B Bridge
		34.4	Access Road	N/A/Type A Bridge
Coil Creek	CLASS II	36.6	Access Road	N/A/Type A Bridge
		36.8[b]	Access Road	N/A/Type B Bridge
Potato River	CLASS II	37.9	Pipeline	HDD/None
UNT of Potato River		37.6*	Access Road	N/A/Bridge Type B
Vaughn Creek	CLASS II	39.6*	Pipeline	HDD/None
UNT of Vaughn Creek		38.6	Pipeline	OC/DC/ Bridge Type A
		39.0*	Pipeline	DC/Bridge Type A

Waterbody	Trout Stream Classification	Approximate Crossing Location (MP)	Project Component	Proposed Crossing/Bridge Method
Notes:				
* Crossing is of a perennial tributary of designated trout stream				
[a] Feldcher Creek was field delineated as a wetland; recent beaver activity in the project crossing location has impounded the waterbody changing the feature from a stream to a wetland. No defined channel was visible at the crossing location.				
[b] Waterway delineated as a wetland. Pending Navigability Determination from WDNR.				
MP – milepost; HDD – Horizontal Directional Drill; OC – Open-Cut; DC - Dry Crossing				

Enbridge anticipates construction will occur between February and August, which could overlap with fishery timing restrictions. Enbridge is requesting timing restriction waivers for bridge placement and removal at the waterbodies listed in Appendix K. A waiver of timing restrictions request form is included in Appendix N.

6.5.3 Threatened and Endangered Species

There is no change to federally listed species that may be impacted by the Project.

6.5.3.1 State Threatened and Endangered Resources

There are three state endangered and two state threatened terrestrial species documented within 1 mile, and one state threatened aquatic species documented within 2 miles of the Project area. The element occurrences are shown in Table 6.5.3-1.

Table 6.5.3-1: NHI Occurrences of Sensitive Species Within the Project Area

Common name	Scientific name	State Listing Status
Terrestrial and Wetland Element Occurrences Within 1 Mile of the Project		
Birds		
Northern Goshawk	*Accipiter gentilis*	Special Concern
Long-Eared Owl	*Asio otus*	Special Concern
American Bittern	*Botaurus lentiginosus*	Special Concern
Evening Grosbeak	*Coccothraustes vespertinus*	Special Concern
Least Bittern	*Ixobrychus exilis*	Special Concern
Peregrine Falcon	*Falco peregrinus*	Endangered
Loggerhead Shrike	*Lanius ludovicianus*	Endangered
Canada Jay	*Perisoreus canadensis*	Special Concern
Black-Backed Woodpecker	*Picoides arcticus*	Special Concern
Western Meadowlark	*Sturnella neglecta*	Special Concern
Insects		
West Virginia White	*Pieris virginiensis*	Special Concern
Plants/Lichens		
Neat Spike-Rush	*Eleocharis nitida*	Endangered
Marsh Horsetail	*Equisetum palustre*	Special Concern
Vasey's Rush	*Juncus vaseyi*	Special Concern
Fringed Rosette Lichen	*Physcia tenella*	Special Concern
Braun's Holly-Fern	*Polystichum braunii*	Threatened
Yellow Specklebelly	*Pseudocyphellaria crocata*	Special Concern
Clustered Bur-Reed	*Sparganium glomeratum*	Threatened
Aquatic Element Occurrences Within 2 Miles of the Project		
Insects		
A Predaceous Diving Beetle	*Agabetes acuductus*	Special Concern
A Humpless Casemaker Caddisfly	*Brachycentrus lateralis*	Special Concern
Swamp Darner	*Epiaeschna heros*	Special Concern
A Flat-Headed Mayfly	*Maccaffertium pulchellum*	Special Concern
A Caddisfly	*Psilotreta indecisa*	Special Concern
Plants		
Torrey's Bulrush	*Schoenoplectus torreyi*	Special Concern
Pale Bulrush	*Scirpus pallidus*	Special Concern
Reptiles		
Wood turtle	*Glyptemys insculpta*	Threatened

Loggerhead Shrike

In 2020, surveys were conducted for the loggerhead shrike. The *2020 Loggerhead Shrike Surveys Report* is included in Appendix M. The surveys were conducted in accordance with the guidance provided by the WDNR and survey methods approved by the WDNR. Surveys were concentrated along the proposed pipeline route as well as proposed access roads in potential habitat areas. The Project area in these locations comprised four habitat types, including agricultural fields, old field, mesic hardwood forest, and two-track trails. Each of these habitat types within the survey area was surveyed for the presence of the loggerhead shrike. Surveys for the loggerhead shrike were conducted on May 15–16; May 26–28; and June 11–12, 2020 and did not result in any loggerhead shrike nest or individual observations.

Wood Turtle

In 2020, habitat surveys were conducted for the wood turtle. The *2020 Wood Turtle Habitat Surveys Report* is included in Appendix M. The surveys were conducted in accordance with the guidance provided by the

WDNR. Surveys were conducted to assess the presence of suitable wood turtle habitat within areas of suitable waterbody crossings identified by the ERR within the proposed project area. Any incidental wood turtle observations encountered during habitat surveys were documented with spatial points in addition to digital photos of the individuals. Wood turtle habitat surveys resulted in the documentation of 9 suitable waterbody crossings, 17 suitable nesting habitats, and 3 incidental observations of wood turtles. Enbridge will continue to work with the WDNR on the consultation for this species.

Sensitive Plant Species

In 2020, surveys were conducted for the Braun's holly fern. The *2020 Braun's Holly Fern Survey Report* is included in Appendix M. The surveys were conducted in accordance with guidance provided by the WDNR and survey methods approved by the WDNR. Surveys for the Braun's holly fern occurred in areas determined suitable through the WDNR ERR. Specifically, presence/absence surveys were conducted on suitable woodland habitat on public lands within 1.0 mile from a WNDR NHI element occurrence for this species. Surveys were conducted within the Project's environmental survey corridor and associated Project access roads (buffered) on public lands. These efforts did not result in any Braun's holly fern observations. One incidental detection of the Braun's holly fern was documented during wetland and waterbody surveys on public lands. A single individual was observed growing in a transition between a mesic hardwood forest and a black ash seepage swamp. The single observance location is outside the proposed Project workspace. Enbridge will continue to work with the WDNR on the consultation for this species.

During wetland surveys in 2019, an incidental observation of Arrowleaf sweet coltsfoot (*Petasites sagittatus*) was made near an access road. Enbridge will continue to work with the WDNR on the consultation for this species.

6.6 LAND USE AND PUBLIC LANDS

Updated land use maps are provided in Appendix O, and are summarized in Table 6.6-1. An updated trails map is included in Figure 6.6-1.

Table 6.6-1: Land Use Types Affected by Construction and Operation of the Project [a, b] (acres)

	Forestland		Grassland		Agriculture		Wetland [c]		Urban/ Developed		Barren		Open Water		Total	
Facility Type	**Total Temp**	**Total Perm**	**Total Temp**	**Total Perm**	**Total Temp**	**Total Perm**	**Total Temp**	**Total Perm**	**Total Temp**	**Total Perm**	**Total Temp**	**Total Perm**	**Total Temp**	**Total Perm**	**Total Temp**	**Total Perm**
Pipeline Facilities																
ATWS	81.3	0.0	63.7	0.0	53.4	0.0	10.0	0.0	3.1	0.0	0.3	0.0	0.0	0.0	211.8	0.0
Temporary Workspace	140.0	0.0	52.1	0.0	43.8	0.0	35.2	0.0	3.1	0.0	0.4	0.0	0.0	0.0	274.8	0.0
Permanent Right-of-Way [d, e]	0.0	118.0	39.6	0.0	34.1	0.0	43.0	0.0	0.0	3.1	0.4	0.0	0.5	0.0	117.6	121.1
Pipeline Facilities Total	**221.3**	**118.0**	**155.4**	**0.0**	**131.3**	**0.0**	**88.2**	**0.0**	**6.2**	**3.1**	**1.1**	**0.0**	**0.5**	**0.0**	**604.2**	**121.1**
Valves	0.6	0.1	7.4	0.5	1.7	0.3	0.3	0.0	0.4	0.0	0.0	0.0	0.0	0.0	10.4	0.9
Access Roads	75.7	1.5	10.5	0.8	8.6	0.7	14.3	<0.1	7.7	0.4	0.4	0.0	0.1	0.0	117.2	3.4
Pipe Yards	0.8	0.0	9.1	0.0	1.5	0.0	0.3	0.0	29.0	0.0	17.4	0.0	0.0	0.0	57.9	0.0
PROJECT TOTAL	**298.4**	**119.6**	**182.4**	**1.3**	**143.1**	**1.0**	**103.1**	<0.1	**43.3**	**3.5**	**18.9**	**0.0**	**0.6**	0.0	**789.7**	125.4

Notes:

[a] The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.

[b] The land temporarily affected during construction includes both temporary construction and long-term/permanent operational activities and impacts.

[c] Wiscland 2.0 data for wetlands and open water is for general characterization purposes only and is not used for assessing Project-specific impacts. Wiscland 2.0 data was not used to estimate permanent wetland and open water impacts. These impacts were assessed based on site-specific data.

[d] The permanent right-of-way includes cathodic protection, HDD paths, and permanent easement.

[e] Impacts are considered temporary within the permanent right-of-way where land use will not change due to operational maintenance, and permanent where land use type will change (i.e., forested areas will be maintained as herbaceous for operational safety and inspection).

ATWS = additional temporary workspace; Temp = temporary impact; Perm = permanent impact

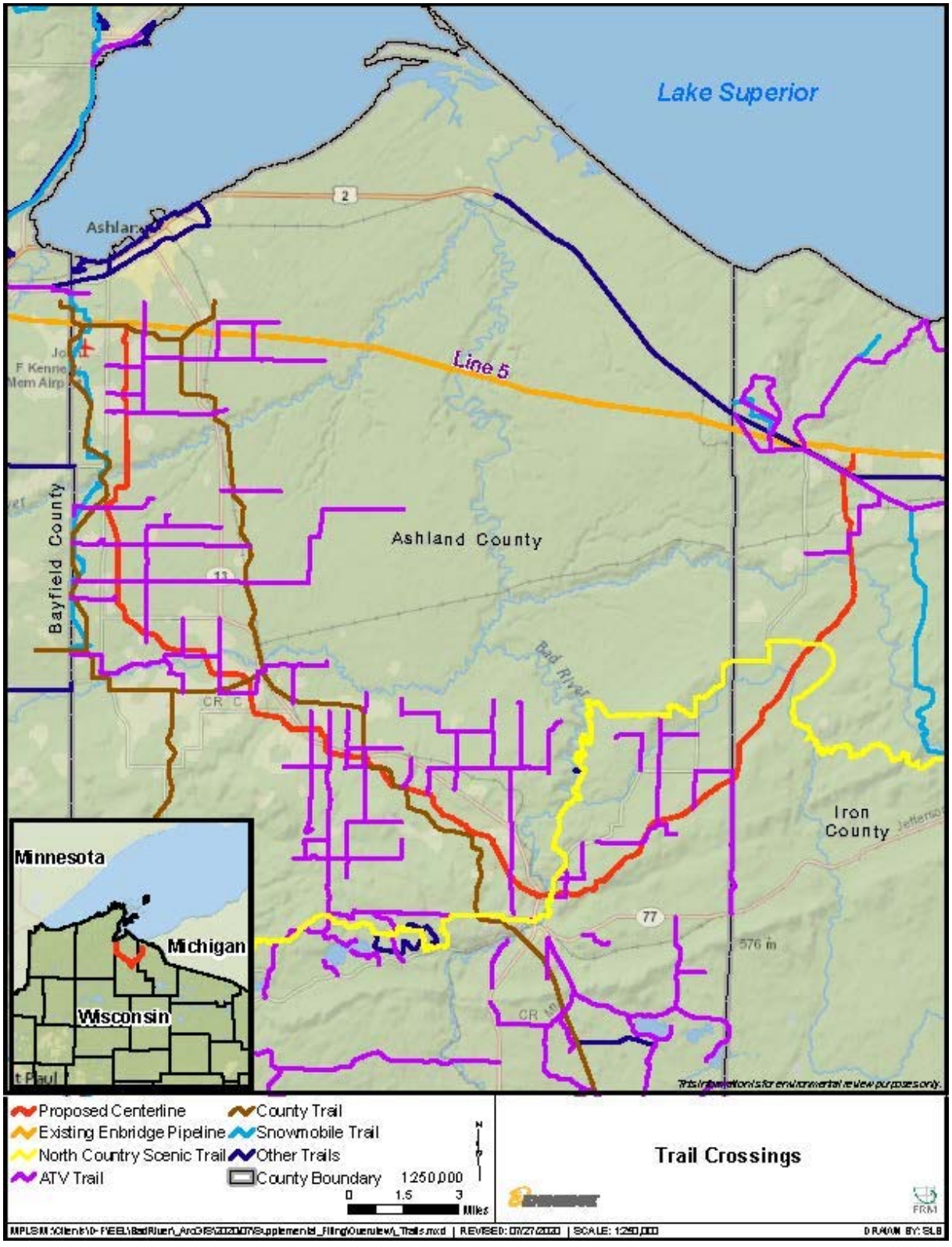

Figure 6.6-1: Trails Crossed by the Proposed Project

6.7 SOCIOECONOMIC RESOURCES

The minor route adjustments included in this supplemental filing have not changed socioeconomic resource impacts as described in the February 11, 2020 application submittal materials.

6.8 CULTURAL RESOURCES

Similar to the wetland and waterbody surveys, Enbridge completed traditional archaeological resource surveys during the 2019 survey season on approximately 70 percent of the Project route. Enbridge has since completed the remaining Phase I archaeological resource surveys as well as conducted a survey of the Project area to identify archaeological sites and historic standing structures, to evaluate these sites regarding National Register of Historic Properties ("NRHP") eligibility, and to assess potential impacts. Enbridge has prepared an addendum report covering the results of the 2020 surveys, which is included in Appendix P. Additionally, Enbridge has completed a Traditional Cultural Property survey of the proposed Project. This report is included in Appendix Q.

7 SECONDARY AND CUMULATIVE IMPACTS

The minor route adjustments included in this supplemental filing have not changed secondary and cumulative impacts as described in the February 11, 2020 application submittal materials.

8 REFERENCES

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