APPENDIX D

Part 8 of 22

Wetland Delineation Data Sheets and Site Photographs

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project **City/County:** Ashland **Sampling Date:** 05-Oct-19

Applicant/Owner: Enbridge **State:** WI **Sampling Point:** wasw034f

Investigator(s): ES/WC **Section, Township, Range: S.** 9 **T.** 45N **R.** 3W

Landform (hillslope, terrace, etc.): Undulating **Local relief (concave, convex, none):** undulating **Slope:** 8.7 % / 5.0

Subregion (LRR or MLRA): LRR K **Lat.:** 46.38564547 **Long.:** -90.75567119 **Datum:** WGS 1984

Soil Map Unit Name: Cornucopia silt loam, 15 to 45 percent slopes **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks: (Explain alternative procedures here or in a separate report.)

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉ No ○	Depth (inches): 2	
Water Table Present?	Yes ◉ No ○	Depth (inches): 12	**Wetland Hydrology Present?** Yes ◉ No ○
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches): 10	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: wasw034f

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. *Populus tremuloides*	10	☑	20.4%	FACU
2. *Tilia americana*	2	☐	4.1%	FACU
3. *Betula alleghaniensis*	7	☐	14.3%	FAC
4. *Betula papyrifera*	10	☑	20.4%	FACU
5. *Juniperus virginiana*	10	☑	20.4%	FACU
6. *Abies balsamea*	5	☐	10.2%	FAC
7. *Acer rubrum*	5	☐	10.2%	FAC
	49	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15')				
1. *Betula alleghaniensis*	20	☑	42.6%	FAC
2. *Ulmus americana*	5	☐	10.6%	FACW
3. *Ostrya virginiana*	10	☑	21.3%	FACU
4. *Abies balsamea*	5	☐	10.6%	FAC
5. *Tilia americana*	2	☐	4.3%	FACU
6. *Juniperus virginiana*	2	☐	4.3%	FACU
7. *Fraxinus pennsylvanica*	3	☐	6.4%	FACW
	47	= Total Cover		

Herb Stratum (Plot size: 5')				
1. *Carex bromoides*	15	☐	16.9%	FACW
2. *Equisetum arvense*	25	☑	28.1%	FAC
3. *Solidago gigantea*	5	☐	5.6%	FACW
4. *Onoclea sensibilis*	3	☐	3.4%	FACW
5. *Eutrochium maculatum*	1	☐	1.1%	OBL
6. *Symphyotrichum lanceolatum*	5	☐	5.6%	FACW
7. *Calamagrostis canadensis*	0	☐	0.0%	OBL
8. *Ostrya virginiana*	5	☐	5.6%	FACU
9. *Acer rubrum*	2	☐	2.2%	FAC
10. *Equisetum pratense*	1	☐	1.1%	FACW
11. *Carex crinita*	7	☐	7.9%	OBL
12. *Phalaris arundinacea*	20	☑	22.5%	FACW
	89	= Total Cover		

Woody Vine Stratum (Plot size: 15')				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	7	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	42.9%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	8	x 1 =	8	
FACW species	57	x 2 =	114	
FAC species	69	x 3 =	207	
FACU species	51	x 4 =	204	
UPL species	0	x 5 =	0	
Column Totals:	185	(A)	533	(B)

Prevalence Index = B/A = 2.881

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☑ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☑ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FW

Soil

Sampling Point: wasw034f

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type [1]	Loc[2]	Texture	Remarks
0-6	10YR	3/1	15						Loam	
+mottle	7.5YR	4/3	85						Loam	
6-16	7.5YR	4/3	70	7.5YR	4/6	2	C	PL	Loam	
+mottle	7.5YR	3/2	28						Loam	
16-24	7.5YR	3/2	90	7.5YR	4/6	10	C	PL	Sandy Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR R, MLRA 149B)
- ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ☐ Loamy Mucky Mineral (F1) LRR K, L)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils : [3]

- ☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ☐ Coast Prairie Redox (A16) (LRR K, L, R)
- ☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ☐ Dark Surface (S7) (LRR K, L, M)
- ☐ Polyvalue Below Surface (S8) (LRR K, L)
- ☐ Thin Dark Surface (S9) (LRR K, L)
- ☐ Iron-Manganese Masses (F12) (LRR K, L, R)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ☑ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Soils indicative of red parent material problematic hydric soil indicator

Plot ID: **wasw034f** Photo Path: C:\WetForm\ERM Line 5 Pipeline\Photos\

Photo File: **DSCN7887.JP** Orientation: -facing

Lat/Long or UTM : Long/Easting: Lat/Northing:

Description:

Photo File: **DSCN7889.JPG** Orientation: -facing

Lat/Long or UTM: Long/Easting: Lat/Northing:

Description:

Plot ID: **wasw034f** Photo Path: C:\WetForm\ERM Line 5 Pipeline\Pho

Photo File: **DSCN7892.JP** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

Photo File: **DSCN7900.JPG** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **none.bmp** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **none.bmp** Orientation: -facing

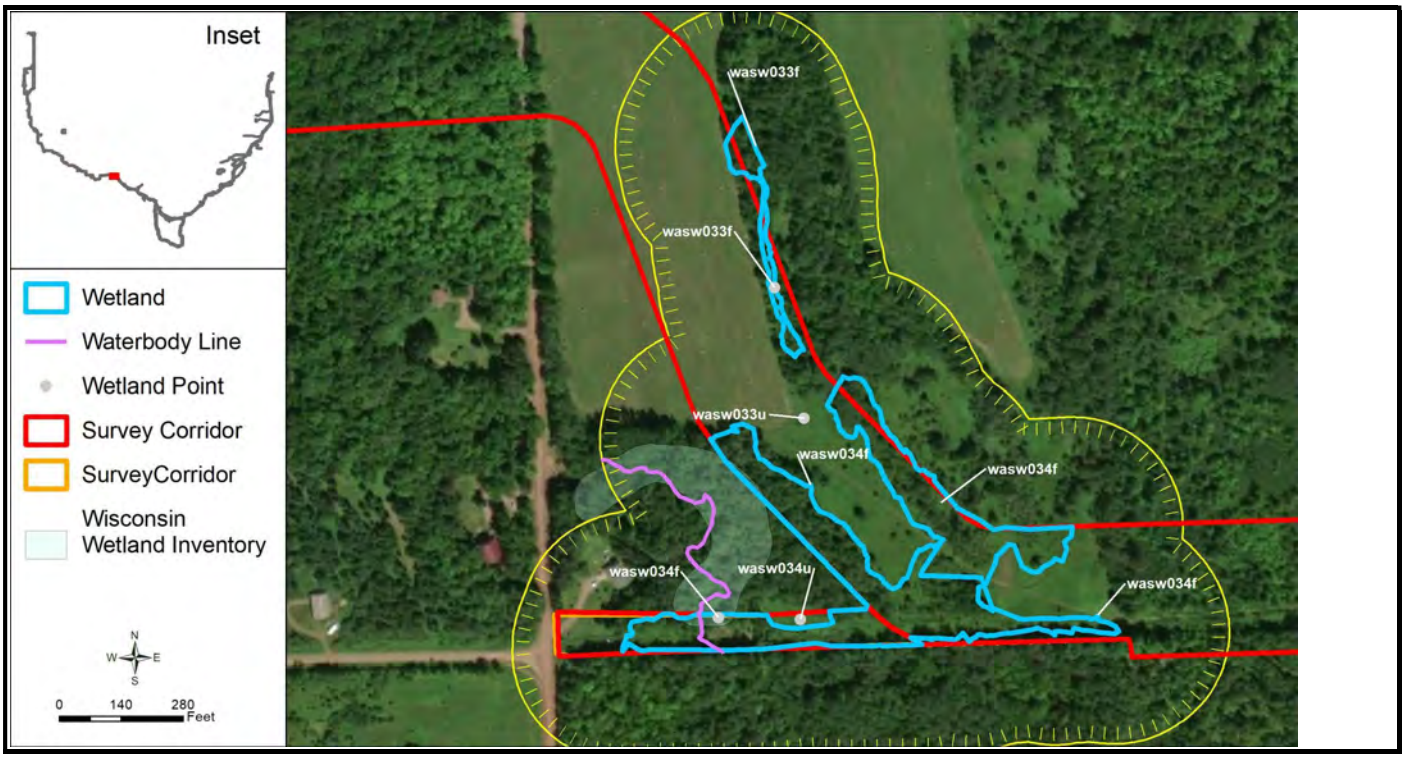
Long/Easting: Lat/Northing:

Description:

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION wasw033f, wasw034f	
Project name: Line 5 Relocation Project	Evaluator(s): Emily Stulik and Wes Conway
File #:	Date of visit(s): October 5th, 2019
Location: PLSS: Section 09 T45N R3W Lat: 46.38768276 (wasw033f) 46.38564547 (wasw034f) Long: -90.75508411 -90.75567119 County: Ashland Town/City/Village:	Ecological Landscape: North Central Forest Watershed: Marengo River, LS12, 0401030204 and Billy Creek
SITE DESCRIPTION	
Soils: Mapped Type(s): wasw033f, wasw034f: Cornucopia silt loam, 6 to 15 percent slopes Field Verified: Yes	WWI Class: wasw033f: unmapped, wasw034f - T3/5K Wetland Type(s): Forested needle-leaved evergreen Wetland Size: 0.89 / Wetland Area Impacted
Hydrology: Perennial stream, high water table, ground water processes, seeps observed	Vegetation: Plant Community Description(s): Calamagrostis canadensis, Tilia americana, Abies balsamea, Populus tremuloides, Juniperus virginiana, Equisetum arvense, Carex bromoides

SITE MAP



SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	Y		Used for recreation (hunting, birding, hiking, etc.). List: hunting, ATV recreation, private property
2	N		Used for educational or scientific purposes
3	Y		Visually or physically accessible to public
4	N		Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	Y		In or adjacent to RED FLAG areas List: Billy Creek, ASNRI Trout Stream Class I
6	Y		Supports or provides habitat for endangered, threatened or special concern species
7		P	In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N		Wetland and contiguous habitat >10 acres
2	Y		3 or more strata present (>10% cover)
3	N		Within or adjacent to habitat corridor or established wildlife habitat area
4	N		100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N		Occurs in a Joint Venture priority township
6	Y		Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y		Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	Y		Part of a large habitat block that supports area sensitive species
9	N		Ephemeral pond with water present ≥ 45 days
10	N		Standing water provides habitat for amphibians and aquatic invertebrates
11	N		Seasonally exposed mudflats present
12	N		Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	Y		Wetland is connected or contiguous with perennial stream or lake
2	N		Standing water provides habitat for amphibians and aquatic invertebrates
3		P	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4		P	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	Y		Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N		Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	Y		Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y		Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y		Water flow through wetland is NOT channelized
3	Y		Dense, persistent vegetation
4	Y		Evidence of flashy hydrology
5	Y		Point or non-point source inflow
6	N		Impervious surfaces cover >10% of land surface within the watershed
7	Y		Within a watershed with ≤10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N		Provides substantial storage of storm and floodwater based on previous section
2	Y		Basin wetland or constricted outlet
3	Y		Water flow through wetland is NOT channelized
4	Y		Vegetated wetland associated with a lake or stream
5	Y		Dense, persistent vegetation
6	N		Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	Y		Stormwater or surface water from agricultural land is major hydrology source
8	Y		Discharge to surface water
9	Y		Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	Y		Springs, seeps or indicators of groundwater present
2	N		Location near a groundwater divide or a headwater wetland
3	Y		Wetland remains saturated for an extended time period with no additional water inputs
4	N		Wetland soils are organic
5	N		Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU 7 - Ongoing cultural resources on site
wetlands are forested/emergent complexes located in residential and agricultural landscape
adjacent to upland field, residential property, paved road
wetland adjacent to Billy Creek, 2nd order stream
indicators of groundwater observed in emergent wetland strip between forests: standing water, seeps

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
		Large Ranid spp. Frog, American toad metamorph, Ruffed grouse

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
		fish and water striders in stream

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Abies balsamea*	balsam fir	5	wasw033f; wasw034f	37%
Acer rubrum	red maple	3	wasw033f; wasw034f	19%
Acer saccharum	hard maple, sugar maple	5	wasw033f	5%
Amelanchier arborea	downy Juneberry, common serviceberry	6	wasw033f	7%
Athyrium filix-femina	common lady fern, lady fern	5	wasw033f	10%
Betula alleghaniensis*	yellow birch	7	wasw034f	37%
Betula papyrifera	canoe birch, paper birch, white birch	3	wasw033f; wasw034f	20%
Calamagrostis canadensis*	blue-joint grass	5	wasw033f; wasw034f	80%
Carex bromoides	brome-like sedge	8	wasw034f	15%
Carex crinita	fringed sedge	6	wasw034f	7%
Equisetum arvense	common horsetail, field horsetail	1	wasw034f	25%
Equisetum pratense	meadow horsetail	9	wasw034f	1%
Eutrochium maculatum	spotted Joe-Pye-weed	4	wasw034f	1%
Fraxinus nigra*	black ash	8	wasw033f	20%
Fraxinus pennsylvanica	green ash, red ash	2	wasw034f	0%
Juniperus virginiana*	eastern red-cedar	3	wasw033f; wasw034f	37%
Onoclea sensibilis	sensitive fern	5	wasw033f; wasw034f	8%
Ostrya virginiana*	eastern hop-hornbeam, ironwood	5	wasw033f; wasw034f	25%
Populus tremuloides*	aspen, quaking aspen	2	wasw033f; wasw034f	40%
Solidago gigantea	giant goldenrod	3	wasw033f; wasw034f	10%
Symphyotrichum lanceolatum	panicled aster	4	wasw034f	5%
Symphyotrichum lateriflorum	side-flowering aster	3	wasw033f	2%
Tilia americana*	American linden, basswood	5	wasw033f; wasw034f	45%
Ulmus americana*	American elm, white elm	3	wasw033f; wasw034f	17%

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
					Roads or railroad
x	x		L		Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
					Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
	x		M		Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Phalaris observed outside of sample plot within emergent wetland corridor of utility line

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		x			
Human Use Values					
Wildlife Habitat					
Fish and Aquatic Life Habitat			x		
Shoreline Protection					x
Flood and Stormwater Storage		x			
Water Quality Protection		x			
Groundwater Processes		x			

FUNCTION	RATIONALE
Floristic Integrity	good assemblage of native species. Phalaris observed outside sampled plot within wetland
Human Use Values	located adjacent to residential house on private property
Wildlife Habitat	emergent wetland, forested wetland, and upland grassland complex all contiguous. Potential to support rare species. Standing water supports lithobates amphibian
Fish and Aquatic Life Habitat	Billy Creek supports fish species, water striders
Shoreline Protection	N/A
Flood and Stormwater Storage	wetland adjacent to Billy Creek, within watershed with <10% wetland
Water Quality Protection	wetland adjacent to Billy Creek, dense, persistent vegetation present
Groundwater Processes	seeps and standing water evident

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	medium
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	low
Cumulative Impacts	Operational vegetation maintenance.	low
Spatial/Habitat Integrity	Temporary construction impacts.	low
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project **City/County:** Ashland **Sampling Date:** 07-Oct-19

Applicant/Owner: Enbridge **State:** WI **Sampling Point:** wasw034u

Investigator(s): ES/WC **Section, Township, Range: S.** 9 **T.** 45N **R.** 3W

Landform (hillslope, terrace, etc.): Terrace **Local relief (concave, convex, none):** convex **Slope:** 3.5 % / 2.0

Subregion (LRR or MLRA): LRR K **Lat.:** 46.3856199 **Long.:** -90.75493749 **Datum:** WGS 1984

Soil Map Unit Name: Kellogg-Allendale-Ashwabay complex, 2 to 6 percent slopes **NWI classification:** None

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present?	Yes ○ No ◉	**Is the Sampled Area within a Wetland?** Yes ○ No ◉
Hydric Soil Present?	Yes ○ No ◉	
Wetland Hydrology Present?	Yes ○ No ◉	

Remarks: (Explain alternative procedures here or in a separate report.)

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of 2 required)

- ☐ Surface Soil Cracks (B6)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ○ No ◉

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION - Use scientific names of plants

Sampling Point: wasw034u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. *Populus tremuloides*	3	☐	13.0%	FACU
2. *Pinus strobus*	15	☑	65.2%	FACU
3. *Acer rubrum*	5	☑	21.7%	FAC
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	23	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15')				
1. *Populus tremuloides*	25	☑	100.0%	FACU
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
	25	= Total Cover		

Herb Stratum (Plot size: 5')				
1. *Pteridium aquilinum*	20	☑	19.0%	FACU
2. *Solidago altissima*	15	☑	14.3%	FACU
3. *Rubus allegheniensis*	15	☑	14.3%	FACU
4. *Symphyotrichum lateriflorum*	3	☐	2.9%	FAC
5. *Achillea millefolium*	7	☐	6.7%	FACU
6. *Leucanthemum vulgare*	15	☑	14.3%	UPL
7. *Hypericum perforatum*	5	☐	4.8%	UPL
8. *Bromus inermis*	20	☑	19.0%	UPL
9. *Carex crinita*	5	☐	4.8%	OBL
10.	0	☐	0.0%	
11.	0	☐	0.0%	
12.	0	☐	0.0%	
	105	= Total Cover		

Woody Vine Stratum (Plot size: 15')				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	8	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	12.5%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	5	x 1 =	5	
FACW species	0	x 2 =	0	
FAC species	8	x 3 =	24	
FACU species	100	x 4 =	400	
UPL species	40	x 5 =	200	
Column Totals:	153	(A)	629	(B)

Prevalence Index = B/A = 4.111

Hydrophytic Vegetation Indicators:

- ☐ **Rapid Test for Hydrophytic Vegetation**
- ☐ **Dominance Test is > 50%**
- ☐ **Prevalence Index is ≤3.0** [1]
- ☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Definitions of Vegetation Strata:

Tree - Woody plants, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1m) tall..

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine - All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks: (Include photo numbers here or on a separate sheet.)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FW

Soil

Sampling Point: wasw034u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)	%	Type [1]	Loc[2]	Texture	Remarks
0-5	10YR	3/2	80					Silt Loam	
+mottle	7.5YR	4/6	20					Silt Loam	
5-16	10YR	3/2	50					Loam	
+mottle	7.5YR	4/6	50					Loam	
16-24	10YR	3/2	10					Loam	
+mottle	7.5YR	4/6	90					Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) (LRR R, MLRA 149B)
- ☐ Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- ☐ Thin Dark Surface (S9) (LRR R, MLRA 149B)
- ☐ Loamy Mucky Mineral (F1) LRR K, L)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils : [3]

- ☐ 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- ☐ Coast Prairie Redox (A16) (LRR K, L, R)
- ☐ 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- ☐ Dark Surface (S7) (LRR K, L, M)
- ☐ Polyvalue Below Surface (S8) (LRR K, L)
- ☐ Thin Dark Surface (S9) (LRR K, L)
- ☐ Iron-Manganese Masses (F12) (LRR K, L, R)
- ☐ Piedmont Floodplain Soils (F19) (MLRA 149B)
- ☐ Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- ☐ Red Parent Material (F21)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Plot ID: **wasw034u** Photo Path: C:\WetForm\ERM Line 5 Pipeline\Photos\

Photo File: **DSCN7911.JP** Orientation: -facing

Lat/Long or UTM : Long/Easting: Lat/Northing:

Description:

Photo File: **DSCN7912.JPG** Orientation: -facing

Lat/Long or UTM: Long/Easting: Lat/Northing:

Description:

Plot ID: **wasw034u** Photo Path: C:\WetForm\ERM Line 5 Pipeline\Pho

Photo File: **DSCN7913.JP** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **None.bmp** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **None.bmp** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

No Photo

Photo File: **None.bmp** Orientation: -facing

Long/Easting: Lat/Northing:

Description:

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-18

Applicant/Owner: Enbridge State: WI Sampling Point: wase001e_w

Investigator(s): ARK/KDF Section, Township, Range: 045N-003W-16

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.377504 Long: -90.741754 Datum: WGS84

Soil Map Unit Name: Lupton, Cathro, and Tawas soils, 0 to 1 percent slopes NWI classification: PFO2/EM1Bg

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

Open, acid peatland surrounded by young upland forest, and a recreational area with turf grass to the southeast.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes ✓	No _____	Depth (inches): 6
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 3

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturated recharge wetland.

VEGETATION – Use scientific names of plants.

Sampling Point: wase001e_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Picea mariana*	1	N	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	1 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Betula papyrifera*	1	N	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	1 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Chamaedaphne calyculata*	35	Y	OBL
2. *Carex lacustris*	25	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	60 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	1	x 2 =	2
FAC species	0	x 3 =	0
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	62 (A)		66 (B)

Prevalence Index = B/A = 1.06

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

Sample plot is representative of the wetland feature. Small patches of black spruce are present, becoming dominant outside of the survey area. Carex oligosperma is common in parts of the wetland, and woolgrass is dominant in patches near the edge. Continuous sphagnum mat present.

SOIL

Sampling Point: wase001e_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	100					P	
3-17	10YR 2/1	100					P	
17-20	10YR 3/2	100					MMI	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ✓ Histosol (A1)
- ✓ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Peat over mucky mineral soil.

wase001e_w_N

wase001e_w_S

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): KDF/ARK
File #: wase001	Date of visit(s): 09/18/2019
Location: PLSS: 045N-003W-16 Lat: 46.37747 Long: -90.741723 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River

SITE DESCRIPTION		
Soils: Mapped Type(s): 405A Lupton, Cathro, and Tawas soils, 705B Cublake-Croswell-Ashwabay complex Field Verified: Series not verified. Soils were peat over a mucky mineral.	WWI Class: T8/S4H Wetland Type(s): PEM	
	Wetland Size: 1.59	Wetland Area Impacted 1.59
Hydrology: The hydrologic regime is saturated with recharge hydrology.	Vegetation: Plant Community Description(s): Open bog with a canopy dominated by Picea mariana, with Chamaedaphne calyculata dominating the shrub layer, and Carex lacustris dominating the herbaceous layer. There is a mat of Sphagnum sp. throughout the wetland.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	Y	Y	Used for recreation (hunting, birding, hiking, etc.). List: Hunting, birding
2	Y	Y	Used for educational or scientific purposes
3	Y	Y	Visually or physically accessible to public
4	Y	Y	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	Y	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N	N	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N	N	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	N	N	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	Y	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	Y	Y	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU-2: relatively undisturbed wetland
ST-5: road access and buildings located nearby but predominately surrounded by forested area

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	Y	Avian, herpetofauna, mammals, insects
Y	Y	Redbellied snakes (sphagnum bog)

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☐	All strata present and good assemblage of native species ☑	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☑	S3 ☐	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☐	Common ☐	Uncommon ☑	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Picea mariana			PEM	Rare
Betula papyrifera			PEM	Rare
Chamaedaphne calyculata			PEM	Common
Carex lacustris			PEM	Common

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

The plant community is comprised of native vegetation expected within a bog, with no observed invasive species.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
	X		L	U	Point source or stormwater discharge
	X		L	U	Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
	X		L	U	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
	X		M	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
					Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
	X		L	C	Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The wetland is relatively undisturbed. The area around the wetland is influenced by roadway access and other stressors. A recreational area with turf grass is present in the buffer area.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity			✓		
Human Use Values		✓			
Wildlife Habitat		✓			
Fish and Aquatic Life Habitat					✓
Shoreline Protection					✓
Flood and Stormwater Storage		✓			
Water Quality Protection		✓			
Groundwater Processes		✓			

FUNCTION	RATIONALE
Floristic Integrity	Fully intact native plant community, no invasives
Human Use Values	Relatively undisturbed with some habitat complexity
Wildlife Habitat	Avian, herpetofauna, mammals, insects
Fish and Aquatic Life Habitat	No waterbodies within the wetland
Shoreline Protection	
Flood and Stormwater Storage	Closed basin with persistent vegetation, fairly large in size
Water Quality Protection	See above
Groundwater Processes	Recharge hydrology

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Low
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Low
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-18

Applicant/Owner: Enbridge State: WI Sampling Point: wase001_u

Investigator(s): ARK/KDF Section, Township, Range: 045N-003W-16

Landform (hillslope, terrace, etc.): Backslope Local relief (concave, convex, none): None Slope (%): 3-7%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.377511 Long: -90.741497 Datum: WGS84

Soil Map Unit Name: Cublake-Croswell-Ashwabay complex, 0 to 6 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: (Explain alternative procedures here or in a separate report.)

Sample point located at edge of woodland, near wetland and recreational area with turf grass.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wase001_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	50	Y	FAC
2. *Populus tremuloides*	20	Y	FAC
3. *Tilia americana*	10	N	FACU
4. *Abies balsamea*	5	N	FAC
5. *Picea mariana*	5	N	FACW
6.			
7.			
	90 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Corylus cornuta*	10	Y	FACU
2. *Quercus rubra*	5	Y	FACU
3. *Fraxinus pennsylvanica*	2	N	FACW
4.			
5.			
6.			
7.			
	17 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Pteridium aquilinum*	10	Y	FACU
2. *Maianthemum canadense*	5	Y	FACU
3. *Acer saccharum*	5	Y	FACU
4. *Carex pedunculata*	2	N	FAC
5. *Lonicera canadensis*	2	N	FACU
6. *Veronica officinalis*	1	N	FACU
7.			
8.			
9.			
10.			
11.			
12.			
	25 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 28.57 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	7	x 2 =	14
FAC species	77	x 3 =	231
FACU species	48	x 4 =	192
UPL species	0	x 5 =	0
Column Totals:	132 (A)		437 (B)

Prevalence Index = B/A = 3.31

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Sample plot is consistent with vegetation surrounding the wetland.

SOIL

Sampling Point: wase001_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	5YR 2.5/2	100					FSL	
2-8	5YR 4/3	100					FS	
8-20	5YR 4/6	100					FS	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

No indicators of hydric soils were observed.

wase001_u_N

wase001_u_S

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-18

Applicant/Owner: Enbridge State: WI Sampling Point: wase002f_w

Investigator(s): ARK/KDF Section, Township, Range: 045N-003W-15

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 3-7%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.372172 Long: -90.728131 Datum: WGS84

Soil Map Unit Name: Udorthents, ravines and escarpments, 25 to 60 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** _____
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

Mixed hardwood-conifer swamp, located in a steep forested valley.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes ✓	No _____	Depth (inches): 14
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 0

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Seasonally saturated riparian wetland. Located on terrace of small perennial stream; likely flooded infrequently. Depressions within the terrace are saturated to the surface.

VEGETATION – Use scientific names of plants.

Sampling Point: wase002f_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Abies balsamea*	60	Y	FAC
2. *Fraxinus nigra*	25	Y	FACW
3. *Tsuga canadensis*	15	N	FACU
4. *Betula alleghaniensis*	10	N	FAC
5. *Ulmus americana*	5	N	FACW
6.			
7.			
	115 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Carex crinita*	15	Y	OBL
2. *Athyrium angustum*	10	Y	FAC
3. *Onoclea sensibilis*	5	N	FACW
4. *Rubus pubescens*	1	N	FACW
5. *Equisetum scirpoides*	1	N	FAC
6. *Osmunda claytoniana*	1	N	FAC
7.			
8.			
9.			
10.			
11.			
12.			
	33 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	36	x 2 =	72
FAC species	82	x 3 =	246
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	148 (A)		393 (B)

Prevalence Index = B/A = 2.66

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation is sparse.

SOIL

Sampling Point: wase002f_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	50	5YR 3/3	50	C	M	MMI	
3-6	10YR 2/1	95	5YR 3/3	5	C	M	MMI	Prominent redox concentrations
6-18	10YR 2/1	60	5YR 3/3	40	C	M	SC	Prominent redox concentrations
18-20	10YR 4/1	100					SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ✓ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Mucky mineral over sandy clay.

wase002f_w_N

wase002f_w_S

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): KDF/ARK
File #: wase002	Date of visit(s): 09/18/2019
Location: PLSS: 045N-003W-15 Lat: 46.372166 Long: -90.728124 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River

SITE DESCRIPTION		
Soils: Mapped Type(s): 92F Udorthents, ravines and escarpments Field Verified: Series not verified. Soils were a mucky mineral over a sandy clay, with a sandy clay loam beneath this.	WWI Class: N/A Wetland Type(s): PFO - Hardwood swamp	
	Wetland Size: 0.58	Wetland Area Impacted 0.58
Hydrology: The hydrologic regime is seasonally saturated, with through-flow hydrology.	Vegetation: Plant Community Description(s): The hardwood swamp canopy is dominated by Abies balsamea and Fraxinus nigra. Corylus cornuta dominates the shrub layer, and Carex crinita and Arthyrium angustum dominate the herbaceous layer.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: Hunting, birding
2	N	Y	Used for educational or scientific purposes
3	N	Y	Visually or physically accessible to public
4	Y	Y	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	Y	Y	In or adjacent to RED FLAG areas List: Trout streams: Silver Creek
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	Y	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	Y	Y	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	Y	Y	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	N	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	N	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	Y	Y	Vegetated wetland associated with a lake or stream
5	N	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	Y	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU-3: nearby roadways for access
HU-5: the feature is adjacent to the RED FLAG area, but does not intersect it
FA-2: through-flow hydrology, adjacent to perennial stream habitat
ST-3: the tree layer is dense, but the herbaceous layer is somewhat sparse
WQ-1: closed basins present within wetland

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	Y	Avian, herpetofauna, mammals, insects

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☐	All strata present and good assemblage of native species ☑	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☐	S3 ☑	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☐	Common ☑	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Abies balsamea	balsam fir		PFO	Abundant
Fraxinus nigra			PFO	Common
Tsuga canadensis			PFO	Common
Betula alleghaniensis			PFO	Common
Ulmus americana			PFO	Uncommon
Carex crinita			PFO	Common
Athyrium angustum			PFO	Common
Onoclea sensibilis			PFO	Uncommon
Rubus pubescens			PFO	Rare
Equisetum scirpoides			PFO	Rare
Osmunda claytoniana			PFO	Rare

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

The plant community is comprised of native vegetation expected within a hardwood swamp with no invasive species observed.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
	X				Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
	X		L	C	Point source or stormwater discharge
	X		L	C	Polluted runoff
					Pond construction
					Agriculture – row crops
	X		L	C	Agriculture – hay
					Agriculture – pasture
	X		L	C	Roads or railroad
	X		L	C	Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
X	X		H	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
					Removal of tree or shrub strata – logging, unprescribed fire
	X		L	C	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
	X		L	C	Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The wetland is relatively undisturbed. Hay fields and a road are present nearby, but likely do not have a significant impact upon the wetland.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity			✓		
Human Use Values	✓				
Wildlife Habitat		✓			
Fish and Aquatic Life Habitat					✓
Shoreline Protection		✓			
Flood and Stormwater Storage		✓			
Water Quality Protection		✓			
Groundwater Processes		✓			

FUNCTION	RATIONALE
Floristic Integrity	Native plant species, no invasive species
Human Use Values	Undisturbed, diverse habitats, but no human clear uses
Wildlife Habitat	Avian, herpetofauna, mammals, insects
Fish and Aquatic Life Habitat	N/A
Shoreline Protection	Highly vegetated, some erosion
Flood and Stormwater Storage	The wetland has the potential to store floodwater from the associated perennial stream, and may obtain some runoff from the nearby hay fields
Water Quality Protection	See above
Groundwater Processes	Recharge and discharge associated with adjacent stream

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Medium
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Medium
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-18

Applicant/Owner: Enbridge State: WI Sampling Point: wase002_u

Investigator(s): ARK/KDF Section, Township, Range: 045N-003W-15

Landform (hillslope, terrace, etc.): Backslope Local relief (concave, convex, none): None Slope (%): 26-60%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.372002 Long: -90.728231 Datum: WGS84

Soil Map Unit Name: Udorthents, ravines and escarpments, 25 to 60 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: (Explain alternative procedures here or in a separate report.)

Mixed forest community dominated by balsam fir and quaking aspen.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrologic indicators were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wase002_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Abies balsamea*	60	Y	FAC
2. *Populus tremuloides*	15	N	FAC
3. *Betula papyrifera*	15	N	FACU
4. *Acer rubrum*	15	N	FAC
5. *Pinus resinosa*	5	N	FACU
6.			
7.			
	110 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Tsuga canadensis*	5	Y	FACU
2. *Thuja occidentalis*	2	N	FACW
3.			
4.			
5.			
6.			
7.			
	7 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Vinca minor*	10	Y	NI
2. *Carex pedunculata*	5	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	15 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	2	x 2 =	4
FAC species	95	x 3 =	285
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column Totals:	122 (A)		389 (B)

Prevalence Index = B/A = 3.19

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Upland forest vegetation.

SOIL

Sampling Point: wase002_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					FSL	
5-20	10YR 3/3	100					FSL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

No hydric soil indicators were observed.

wase002_u_N

wase002_u_S

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-19

Applicant/Owner: Enbridge State: WI Sampling Point: wase003e_w1

Investigator(s): ARK/KDF Section, Township, Range: 045N-003W-15

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.371595 Long: -90.726166 Datum: WGS84

Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)
Wet meadow bounded by a hay field and hardwood forest.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Seasonally saturated, recharge wetland.

VEGETATION – Use scientific names of plants.

Sampling Point: wase003e_w1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus nigra*	1	N	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	1 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Salix discolor*	5	Y	FACW
2. *Alnus incana*	1	N	FACW
3.			
4.			
5.			
6.			
7.			
	6 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Phalaris arundinacea*	95	Y	FACW
2. *Solidago altissima*	5	N	FACU
3. *Scirpus cyperinus*	2	N	OBL
4. *Onoclea sensibilis*	2	N	FACW
5. *Symphyotrichum lateriflorum*	2	N	FAC
6. *Poa palustris*	1	N	FACW
7.			
8.			
9.			
10.			
11.			
12.			
	107 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	105	x 2 =	210
FAC species	2	x 3 =	6
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	114 (A)		238 (B)

Prevalence Index = B/A = 2.09

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

Bluejoint grass is common elsewhere in the wetland. Trees and shrubs are present at the upland boundary.

SOIL

Sampling Point: wase003e_w1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Cannot dig due to proximity of buried utilities. Soils are assumed hydric based on the landscape position and dominant vegetation.

wase003e_w1_N

wase003e_w1_S

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-19

Applicant/Owner: Enbridge State: WI Sampling Point: wase003e_w2

Investigator(s): ARK/KDF Section, Township, Range: 045N-003W-15

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.371903 Long: -90.725459 Datum: WGS84

Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

Opening along logging roads within a forest that was recently logged. Wet meadow community is part of a larger wetland complex which includes hardwood swamp.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Seasonally saturated recharge wetland.

VEGETATION – Use scientific names of plants.

Sampling Point: wase003e_w2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Rubus idaeus*	5	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	5 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Symphyotrichum lateriflorum*	10	Y	FAC
2. *Carex crinita*	10	Y	OBL
3. *Scirpus atrovirens*	5	Y	OBL
4. *Carex projecta*	5	Y	FACW
5. *Agrostis gigantea*	5	Y	FACW
6. *Glyceria striata*	2	N	OBL
7. *Onoclea sensibilis*	2	N	FACW
8. *Fragaria virginiana*	2	N	FACU
9. *Poa palustris*	1	N	FACW
10. *Veronica officinalis*	1	N	FACU
11.			
12.			
	43 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	17	x 1 =	17
FACW species	13	x 2 =	26
FAC species	15	x 3 =	45
FACU species	3	x 4 =	12
UPL species	0	x 5 =	0
Column Totals:	48 (A)		100 (B)

Prevalence Index = B/A = 2.08

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

Disturbance-associated species present.

SOIL

Sampling Point: wase003e_w2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Cannot dig due to proximity of buried utilities. Soils are assumed hydric based on the landscape position and dominant vegetation.

wase003e_w2_E

wase003e_w2_S

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-19

Applicant/Owner: Enbridge State: WI Sampling Point: wase003f_w

Investigator(s): ARK/KDF Section, Township, Range: 045N-003W-15

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.371553 Long: -90.725587 Datum: WGS84

Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

Northern wet-mesic hardwood forest with recent thinning. The wetland has been highly modified by compaction from recent logging, especially on old logging roads.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Seasonally saturated wetland. Seasonal seepage is suggested by areas where hydrophytes range out of the depression onto somewhat steep slopes. These slopes were dry at the time of survey.

VEGETATION – Use scientific names of plants.

Sampling Point: wase003f_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides*	45	Y	FAC
2. *Fraxinus nigra*	35	Y	FACW
3. *Acer rubrum*	5	N	FAC
4. *Ulmus americana*	5	N	FACW
5.			
6.			
7.			
	90	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *Ilex verticillata*	5	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	5	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Poa pratensis*	40	Y	FACU
2. *Carex intumescens*	35	Y	FACW
3. *Epilobium coloratum*	5	N	OBL
4. *Carex projecta*	5	N	FACW
5. *Poa palustris*	2	N	FACW
6. *Symphyotrichum lateriflorum*	2	N	FAC
7. *Scirpus atrovirens*	1	N	OBL
8.			
9.			
10.			
11.			
12.			
	90	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	6	x 1 =	6
FACW species	87	x 2 =	174
FAC species	52	x 3 =	156
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column Totals:	185 (A)		496 (B)

Prevalence Index = B/A = 2.68

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

Incomplete tree canopy, with trees overhanging old logging roads.

SOIL

Sampling Point: wase003f_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Cannot dig due to proximity of buried utilities. Soils are assumed hydric based on the landscape position and dominant vegetation.

wase003f_w_E

wase003f_w_W

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): KDF/ARK
File #: wase003	Date of visit(s): 09/19/2019
Location: PLSS: 045N-003W-15 Lat: 46.3716 Long: -90.726195 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River

SITE DESCRIPTION		
Soils: Mapped Type(s): 5172B Gogebic, very stony-Pence, very stony-Cathro complex Field Verified: Series not verified. Soils in the wetland could not be sampled due to the proximity of buried underground utilities.	WWI Class: N/A Wetland Type(s): PEM/PFO complex	
	Wetland Size: 0.36	Wetland Area Impacted 0.36
Hydrology: The hydrologic regime is seasonally saturated, with recharge hydrology.	Vegetation: Plant Community Description(s): The hardwood swamp has a canopy is dominated by Populus tremuloides and Fraxinus nigra. Ilex verticillata and Rubus ideaus dominate the shrub layer, and Phalaris arundinacea and Carex crinita dominate the herbaceous layer.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: Hunting, birding
2	N	N	Used for educational or scientific purposes
3	Y	Y	Visually or physically accessible to public
4	Y	Y	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	Y	Y	In or adjacent to RED FLAG areas List: Trout streams: Silver Creek
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	Y	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N	N	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N	N	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU-1: Accessible by roadway
HU-5: the wetland in relatively close to the RED FLAG area
WQ-1: closed basin, recharge hydrology

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	Y	Avian, herpetofauna, mammals, insects

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☐	All strata present and good assemblage of native species ☑	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☐	S3 ☑	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☐	Common ☑	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Populus tremuloides			PFO	Common
Fraxinus nigra			PFO	Common
Acer rubrum			PFO	Uncommon
Ulmus americana			PFO	Uncommon
Ilex verticillata			PFO	Uncommon
Poa pratensis			PFO	Common
Carex intumescens			PFO	Common
Epilobium coloratum			PFO	Uncommon
Carex projecta			PFO	Uncommon
Poa palustris			PFO, PEM	Uncommon
Symphyotrichum lateriflorum			PFO, PEM	Common
Scirpus atrovirens			PFO, PEM	Uncommon
Salix discolor			PEM	Uncommon
Alnus incana			PEM	Rare
Phalaris arundinacea			PEM	Abundant
Solidago altissima			PEM	Uncommon
Scirpus cyperinus			PEM	Uncommon
Onoclea sensibilis			PEM	Uncommon
Rubus idaeus			PEM	Uncommon
Carex crinita			PEM	Uncommon
Agrostis gigantea			PEM	Uncommon
Glyceria striata			PEM	Uncommon
Fragaria virginiana			PEM	Uncommon
Veronica officinalis			PEM	Rare

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Vegetation is comprised of native species expected within plant community; some non-native species are present.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
	X		M	C	Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
	X		M	C	Agriculture – hay
					Agriculture – pasture
	X		L	U	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
X	X		M	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X		H	C	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
	X		L	U	Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The wetland is highly influenced by compaction from logging roads. The surrounding area is influenced by agriculture, roadway, and residential land use.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		✓			
Human Use Values		✓			
Wildlife Habitat		✓			
Fish and Aquatic Life Habitat					✓
Shoreline Protection					✓
Flood and Stormwater Storage		✓			
Water Quality Protection		✓			
Groundwater Processes	✓				

FUNCTION	RATIONALE
Floristic Integrity	Native plant species, some non-native
Human Use Values	Accessible, large tract, diverse complex
Wildlife Habitat	Avian, herpetofauna, mammals, insects. The nearby road is residential and thus likely has low traffic. As a result wildlife habitat is not significantly impacted
Fish and Aquatic Life Habitat	No standing water
Shoreline Protection	
Flood and Stormwater Storage	Closed basin with dense, persistent vegetation
Water Quality Protection	See above
Groundwater Processes	Recharge hydrology

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Medium
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Medium
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-19

Applicant/Owner: Enbridge State: WI Sampling Point: wase003_u

Investigator(s): ARK/KDF Section, Township, Range: 045N-003W-15

Landform (hillslope, terrace, etc.): Talf Local relief (concave, convex, none): None Slope (%): _____

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.371623 Long: -90.725988 Datum: WGS84

Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: (Explain alternative procedures here or in a separate report.)
Upland hardwood forest, near edge of stand.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No primary indicators of wetland hydrology were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wase003_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	40	Y	FAC
2. *Fraxinus nigra*	40	Y	FACW
3. *Populus tremuloides*	20	N	FAC
4. *Picea glauca*	10	N	FACU
5. *Tilia americana*	5	N	FACU
6. *Ulmus americana*	5	N	FACW
7.			
	120 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Ilex verticillata*	10	Y	FACW
2. *Viburnum lentago*	5	Y	FAC
3. *Corylus cornuta*	5	Y	FACU
4.			
5.			
6.			
7.			
	20 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Carex pedunculata*	20	Y	FAC
2. *Mitchella repens*	5	N	FACU
3. *Pteridium aquilinum*	5	N	FACU
4. *Fragaria virginiana*	2	N	FACU
5. *Rubus pubescens*	2	N	FACW
6. *Carex intumescens*	2	N	FACW
7.			
8.			
9.			
10.			
11.			
12.			
	36 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	59	x 2 =	118
FAC species	85	x 3 =	255
FACU species	32	x 4 =	128
UPL species	0	x 5 =	0
Column Totals:	176 (A)		501 (B)

Prevalence Index = B/A = 2.85

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

Forest vegetation.

SOIL

Sampling Point: wase003_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Cannot dig due to proximity of buried utilities. Soils are assumed non-hydric based on the landscape position and dominant vegetation.

wase003_u_N

wase003_u_S

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-19

Applicant/Owner: Enbridge State: WI Sampling Point: wase004e_w

Investigator(s): KDF/ARK Section, Township, Range: 045N-003W-15

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.371369 Long: -90.724483 Datum: WGS84

Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** _____
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

The emergent wetland is located within a northern mesic forest and is a part of a wetland complex with a hardwood swamp community (wase004f).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrologic regime is seasonally saturated, with recharge hydrology.

VEGETATION – Use scientific names of plants.

Sampling Point: wase004e_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Salix discolor*	2	N	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	2 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Scirpus atrovirens*	50	Y	OBL
2. *Calamagrostis canadensis*	5	N	OBL
3. *Juncus effusus*	1	N	OBL
4. *Juncus tenuis*	1	N	FAC
5. *Plantago rugelii*	1	N	FAC
6. *Fragaria virginiana*	1	N	FACU
7. *Poa palustris*	1	N	FACW
8.			
9.			
10.			
11.			
12.			
	60 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	56	x 1 =	56
FACW species	3	x 2 =	6
FAC species	2	x 3 =	6
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	62 (A)		72 (B)

Prevalence Index = B/A = 1.16

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

The vegetation at the sample plot is representative of emergent wetland.

SOIL

Sampling Point: wase004e_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Cannot dig due to proximity of buried utilities. Soils are assumed hydric based on the landscape position and dominant vegetation.

wase004e_w_N

wase004e_w_S

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-19

Applicant/Owner: Enbridge State: WI Sampling Point: wase004f_w

Investigator(s): ARK/KDF Section, Township, Range: 045N-003W-15

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.371455 Long: -90.724080 Datum: WGS84

Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** _____
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

Compaction-influenced wetland strongly associated with logging roads. Wetland includes a wooded swale north of the road.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Seasonally saturated recharge wetland. Water-holding capacity of soil is highly influenced by compaction along logging roads.

VEGETATION – Use scientific names of plants.

Sampling Point: wase004f_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus nigra*	40	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	40 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Glyceria striata*	60	Y	OBL
2. *Carex crinita*	5	N	OBL
3. *Epilobium coloratum*	5	N	OBL
4. *Scirpus atrovirens*	2	N	OBL
5. *Onoclea sensibilis*	1	N	FACW
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	73 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	72	x 1 =	72
FACW species	41	x 2 =	82
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	113 (A)		154 (B)

Prevalence Index = B/A = 1.36

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

Ash canopy is 90 percent in forested swale portion of the wetland.

SOIL

Sampling Point: wase004f_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Cannot dig due to proximity of buried utilities. Soils are assumed hydric based on the landscape position and dominant vegetation.

wase004f_w_S

wase004f_w_W

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): KDF/ARK
File #: wase004	Date of visit(s): 09/19/2019
Location: PLSS: 045N-003W-15 Lat: 46.371482 Long: -90.724079 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River

SITE DESCRIPTION		
Soils: Mapped Type(s): 5172B Gogebic, very stony-Pence, very stony-Cathro complex, 92F Udorthents, ravines and escarpments Field Verified: Series not verified. Soils were not sampled due to the proximity of buried underground utilities.	WWI Class: N/A Wetland Type(s): PEM/PFO complex	
	Wetland Size: 0.06	Wetland Area Impacted 0.06
Hydrology: The hydrologic regime is seasonally saturated, with recharge hydrology.	Vegetation: Plant Community Description(s): In the hardwood swamp component Fraxinus nigra dominates the canopy and shrub layer, and Glyceria striata and Scirpus atrovirens dominate the herbaceous layer. The emergent component is dominated by Scirpus atrovirens.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: Hunting, birding
2	N	N	Used for educational or scientific purposes
3	Y	Y	Visually or physically accessible to public
4	Y	Y	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	Y	Y	In or adjacent to RED FLAG areas List: Trout streams: Silver Creek
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	Y	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N	N	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N	N	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	N	N	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU-1: Accessible by roadway
HU-4: diverse habitats but heavily influenced by logging roads
HU-5: an ephemeral stream leads from the RED FLAG area into the wetland
WQ-1: Water-holding capacity is largely influenced by compaction from logging roads

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	Y	Avian, herpetofauna, mammals, insects

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☐	All strata present and good assemblage of native species ☑	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☐	S3 ☑	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☐	Common ☑	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Salix discolor			PEM	Uncommon
Scirpus atrovirens			PEM, PFO	Abundant
Calamagrostis canadensis			PEM	Uncommon
Juncus effusus			PEM	Rare
Juncus tenuis			PEM	Rare
Plantago rugelii			PEM	Rare
Fragaria virginiana			PEM	Rare
Poa palustris			PEM	Rare
Fraxinus nigra				Common
Glyceria striata				Abundant
Carex crinita				Uncommon
Epilobium coloratum				Uncommon
Onoclea sensibilis				Rare

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Vegetation is comprised of native species expected within plant community.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
	X		L	C	Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
X	X		H	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
X	X		M	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X		H	C	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
	X		L	U	Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The wetland is highly influenced by compaction from logging roads. The surrounding area is influenced by roadway and residential land use.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		✓			
Human Use Values		✓			
Wildlife Habitat		✓			
Fish and Aquatic Life Habitat	✓				
Shoreline Protection					✓
Flood and Stormwater Storage		✓			
Water Quality Protection		✓			
Groundwater Processes		✓			

FUNCTION	RATIONALE
Floristic Integrity	Native plant species, no invasives
Human Use Values	Accessible, large tract, diverse complex
Wildlife Habitat	Avian, herpetofauna, mammals, insects
Fish and Aquatic Life Habitat	No standing water
Shoreline Protection	
Flood and Stormwater Storage	Closed basin with dense, persistent vegetation
Water Quality Protection	See above
Groundwater Processes	Recharge hydrology

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Medium
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Medium
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-19

Applicant/Owner: Enbridge State: WI Sampling Point: wase004_u

Investigator(s): KDF/ARK Section, Township, Range: 045N-003W-15

Landform (hillslope, terrace, etc.): Crest Local relief (concave, convex, none): None Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.371454 Long: -90.723895 Datum: WGS84

Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: (Explain alternative procedures here or in a separate report.)

The upland sample plot is located within a northern mesic forest.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrologic indicators were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wase004_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharum*	15	Y	FACU
2. *Acer rubrum*	10	Y	FAC
3. *Populus grandidentata*	10	Y	FACU
4. *Betula alleghaniensis*	5	N	FAC
5. *Quercus rubra*	2	N	FACU
6. *Picea glauca*	2	N	FACU
7.			
	44 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Fraxinus nigra*	20	Y	FACW
2. *Viburnum acerifolium*	15	Y	UPL
3. *Corylus cornuta*	5	N	FACU
4. *Ostrya virginiana*	5	N	FACU
5.			
6.			
7.			
	45 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Pteridium aquilinum*	20	Y	FACU
2. *Symphyotrichum lateriflorum*	5	N	FAC
3. *Mitchella repens*	5	N	FACU
4. *Pyrola elliptica*	2	N	FACU
5. *Carex pedunculata*	2	N	FAC
6. *Veronica officinalis*	1	N	FACU
7. *Athyrium angustum*	1	N	FAC
8.			
9.			
10.			
11.			
12.			
	36 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	23	x 3 =	69
FACU species	67	x 4 =	268
UPL species	15	x 5 =	75
Column Totals:	125 (A)		452 (B)

Prevalence Index = B/A = 3.62

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

Remarks: (Include photo numbers here or on a separate sheet.)

The vegetation at the sample plot is representative of upland forest.

SOIL

Sampling Point: wase004_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

The soils were not sampled due to the proximity of existing buried utilities. The soils are assumed to be non-hydric based on upland vegetation and hydrology.

wase004_u_E

wase004_u_W

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-07

Applicant/Owner: Enbridge State: WI Sampling Point: wase072f_w

Investigator(s): ARK/OTG Section, Township, Range: 045N-003W-15

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.372113 Long: -90.723348 Datum: WGS84

Soil Map Unit Name: Udorthents, ravines and escarpments, 25 to 60 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓** **No _____**
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)
Rocky floodplain of Silver Creek with reduced vegetation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✓ High Water Table (A2)
- ✓ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✓ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ✓ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ✓ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes ✓	No _____	Depth (inches): 6
Saturation Present? (includes capillary fringe)	Yes ✓	No _____	Depth (inches): 4

Wetland Hydrology Present? **Yes ✓** **No _____**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Floodplain of a creek.

VEGETATION – Use scientific names of plants.

Sampling Point: wase072f_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	60.0	Y	FAC
2. *Acer saccharum*	25.0	Y	FACU
3. *Ulmus americana*	20.0	N	FACW
4.			
5.			
6.			
7.			
	105.0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Fraxinus nigra*	2.0	N	FACW
2. *Rubus idaeus*	2.0	N	FAC
3.			
4.			
5.			
6.			
7.			
	4.0 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Carex scabrata*	30.0	Y	OBL
2. *Symphyotrichum lateriflorum*	5.0	N	FAC
3. *Thalictrum dasycarpum*	5.0	N	FACW
4. *Veronica officinalis*	5.0	N	FACU
5. *Glyceria striata*	5.0	N	OBL
6. *Impatiens capensis*	2.0	N	FACW
7.			
8.			
9.			
10.			
11.			
12.			
	52.0 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2.0 (A)

Total Number of Dominant Species Across All Strata: 3.0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.66666666666666 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	35.0	x 1 =	35.0
FACW species	29.0	x 2 =	58.0
FAC species	67.0	x 3 =	201.0
FACU species	30.0	x 4 =	120.0
UPL species	0.0	x 5 =	0.0
Column Totals:	161.0 (A)		414.0 (B)

Prevalence Index = B/A = 2.6

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

Trees are rooted at margin of feature. Feature is mostly unvegetated rocky streambank, with Carex scabrata the most prominent plant species.

SOIL

Sampling Point: wase072f_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/2	90	10YR 4/6	10	C	M	S	
4-18	10YR 4/1	100					S	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ✓ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Sand with redox in the upper profile.

wase072f_w_N

wase072f_w_NE

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): ARK/OTG
File #: wase072	Date of visit(s): 10/07/2019
Location: PLSS: 045N-003W-15 Lat: 46.372113 Long: -90.723348 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River
SITE DESCRIPTION	
Soils: Mapped Type(s): 92F, Udorthents, ravines and escarpments, 25 to 60 percent slopes Field Verified: Series not verified. The soils consist of a sand texture.	WWI Class: N/A Wetland Type(s): PFO - Floodplain forest Wetland Size: 0.01 / Wetland Area Impacted 0.01
Hydrology: Seasonally flooded. Hydrology indicators include high water table, saturation, drift deposits, water stained leaves, hydrogen sulfide odor, drainage patterns, and geomorphic position.	Vegetation: Plant Community Description(s): Sedge dominated community in a bed of sand and cobblestones, with patches sparsely vegetated. Overhanging trees are rooted at the margins of the feature. Subject to annual to biennial flooding from adjacent Silver Creek.

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: Birding, hunting, fishing.
2	N	Y	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	Y	Y	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	Y	Y	In or adjacent to RED FLAG areas List: Silver creek trout stream
6	N	Y	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	Y	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	Y	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	Y	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	Y	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	Y	Y	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	Y	Y	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N	N	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	N	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	N	Y	Dense, persistent vegetation
4	Y	Y	Evidence of flashy hydrology
5	N	N	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	Y	Y	Vegetated wetland associated with a lake or stream
5	N	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	Y	Y	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU5: Adjacent to silver creek FA2: Areas of surface water are present WQ8: Drains into the adjacent river-way

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	Y	Forest-dwelling birds.
	Y	Turtles

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☐	All strata present and good assemblage of native species ☑	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☐	S3 ☐	S2 ☑	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☐	Common ☑	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Betula alleghaniensis			PFO	Abundant
Acer saccharum			PFO	Common
Ulmus americana			PFO	Common
Fraxinus nigra			PFO	Rare
Rubus idaeus			PFO	Rare
Carex scabrata			PFO	Common
Symphyotrichum lateriflorum			PFO	Rare
Thalictrum dasycarpum			PFO	Rare
Veronica officinalis			PFO	Rare
Glyceria striata			PFO	Rare
Impatiens capensis			PFO	Rare

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Common native species with little invasive species cover

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
					Removal of tree or shrub strata – logging, unprescribed fire
	X		L	C	Human trails – unpaved
					Human trails – paved
	X		L	C	Removal of large woody debris
X	X		L	C	Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Moderate condition trails present within the buffer

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		✓			
Human Use Values		✓			
Wildlife Habitat		✓			
Fish and Aquatic Life Habitat		✓			
Shoreline Protection		✓			
Flood and Stormwater Storage		✓			
Water Quality Protection		✓			
Groundwater Processes		✓			

FUNCTION	RATIONALE
Floristic Integrity	Common native species
Human Use Values	Birding, fishing, hunting
Wildlife Habitat	Forested matrix
Fish and Aquatic Life Habitat	Adjacent water is habitat for fish
Shoreline Protection	Wetland stores floodwaters
Flood and Stormwater Storage	Floodplain of stream
Water Quality Protection	See above
Groundwater Processes	Recharge wetland

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Medium
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Medium
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-07

Applicant/Owner: Enbridge State: WI Sampling Point: wase072_u

Investigator(s): ARK/OTG Section, Township, Range: 045N-003W-15

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.372030 Long: -90.723274 Datum: WGS84

Soil Map Unit Name: Udorthents, ravines and escarpments, 25 to 60 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: (Explain alternative procedures here or in a separate report.)
Mesic forest on a stream terrace.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No indicators of wetland hydrology were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wase072_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Betula alleghaniensis*	70.0	Y	FAC
2. *Acer saccharum*	20.0	Y	FACU
3. *Tilia americana*	5.0	N	FACU
4.			
5.			
6.			
7.			
	95.0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Lonicera canadensis*	20.0	Y	FACU
2. *Fraxinus nigra*	5.0	N	FACW
3. *Abies balsamea*	2.0	N	FAC
4.			
5.			
6.			
7.			
	27.0 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Rubus pubescens*	5.0	Y	FACW
2. *Matteuccia struthiopteris*	5.0	Y	FAC
3. *Pyrola elliptica*	5.0	Y	FACU
4. *Equisetum scirpoides*	2.0	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	17.0 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3.0 (A)

Total Number of Dominant Species Across All Strata: 6.0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.0	x 1 =	0.0
FACW species	10.0	x 2 =	20.0
FAC species	79.0	x 3 =	237.0
FACU species	50.0	x 4 =	200.0
UPL species	0.0	x 5 =	0.0
Column Totals:	139.0 (A)		457.0 (B)

Prevalence Index = B/A = 3.3

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Mesic forest plants.

SOIL

Sampling Point: wase072_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	7.5YR 4/4	100					S	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Bedrock

Depth (inches): 7

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Reddish sand to 7 inches where bedrock was encountered.

wase072_u_E

wase072_u_S

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-17

Applicant/Owner: Enbridge State: WI Sampling Point: wasa140s_w

Investigator(s): BRG/DGL Section, Township, Range: 045N-003W-14

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.373963 Long: -90.713066 Datum: WGS84

Soil Map Unit Name: Gogebic-Pence complex, 18 to 35 percent slopes, very stony NWI classification: PFO1Bg

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

The wetland is an alder thicket that exists due to the associated perennial stream. The stream/wetland receive runoff from the adjacent gravel road, and the stream supplies the wetland with groundwater. The wetland shares upland sample point wasa139_u.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrologic regime is seasonally saturated, with discharge hydrology. A perennial stream runs from a culvert through the wetland, and water flows from the wetland downstream.

VEGETATION – Use scientific names of plants.

Sampling Point: wasa140s_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus nigra*	5.0	Y	FACW
2. *Tilia americana*	5.0	Y	FACU
3.			
4.			
5.			
6.			
7.			
	10.0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Alnus incana*	50.0	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	50.0 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Solidago gigantea*	15.0	Y	FACW
2. *Thalictrum dasycarpum*	10.0	Y	FACW
3. *Glyceria striata*	10.0	Y	OBL
4. *Carex crinita*	5.0	N	OBL
5. *Carex cf. bromoides*	5.0	N	
6. *Symphyotrichum lateriflorum*	5.0	N	FAC
7. *Onoclea sensibilis*	2.0	N	FACW
8.			
9.			
10.			
11.			
12.			
	47.0 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5.0 (A)

Total Number of Dominant Species Across All Strata: 6.0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83.33333333333334 (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:
OBL species	15.0	x 1 =	15.0
FACW species	82.0	x 2 =	164.0
FAC species	5.0	x 3 =	15.0
FACU species	5.0	x 4 =	20.0
UPL species	0.0	x 5 =	0.0
Column Totals:	107.0 (A)		214.0 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

The wetland is dominated by Alnus incana, and herbaceous vegetation is concentrated on the banks of the perennial stream.

SOIL

Sampling Point: wasa140s_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Soils could not be sampled due to the proximity of potential buried utilities along the road. Soils are assumed to be hydric based on the hydrology and dominant vegetation.

wasa140s_w_E

wasa140s_w_W

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): KDF/DGL/BRG
File #: wasa140	Date of visit(s): 10/17/2019
Location: PLSS: 045N-003W-14 Lat: 46.373974 Long: -90.713064 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River

SITE DESCRIPTION		
Soils: Mapped Type(s): 5173D Gogebic-Pence complex Field Verified: Series not verified. Soils could not be sampled due to the proximity of potential buried utilities along the road. Soils are assumed to be hydric based on the hydrology and dominant vegetation.	WWI Class: N/A Wetland Type(s): PSS - alder thicket	
	Wetland Size: 0.15	Wetland Area Impacted 0.15
Hydrology: The hydrologic regime is seasonally saturated, with discharge hydrology. The feature is associated with a perennial stream running through five culverts and receives runoff from a gravel roadway.	Vegetation: Plant Community Description(s): The dominate shrub vegetation is Alnus incana. The herbaceous vegetation is dominated by Glyceria striata, Carex crinita, Thalictrum dasycarpum, and Solidago gigantea and is concentrated on the banks of the stream.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	Y	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	Y	Y	Wetland is connected or contiguous with perennial stream or lake
2	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	Y	Y	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	Y	Y	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	Y	Y	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	Y	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	Y	Y	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	Y	Y	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU-4: associated with stream, some degradation from invasive species coverage
FA-2: potential standing water after precipitation events and snow melt in patches of the wetland
ST-5: located off of gravel roadway, associated runoff
WQ-8: discharge to stream

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	Y	Avians, herpetofauna, mammals, insects

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☐	All strata present and good assemblage of native species ☑	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☑	S3 ☐	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☐	Common ☑	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Fraxinus nigra			PSS	Uncommon
Tilia americana			PSS	Uncommon
Alnus incana			PSS	Abundant
Solidago gigantea			PSS	Common
Thalictrum dasycarpum			PSS	Common
Glyceria striata			PSS	Common
Carex crinita			PSS	Uncommon
Carex cf. bromoides			PSS	Uncommon
Symphyotrichum lateriflorum			PSS	Uncommon
Onoclea sensibilis			PSS	Uncommon

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

The vegetation is comprised of native species expected within the plant community. Some non-native and invasive species are present within the wetland, including tansy and Amur silvergrass.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
X	X		M	C	Point source or stormwater discharge
X	X		M	C	Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
X	X		M	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
X	X		M	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
					Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
X	X		M	U	Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The wetland and surrounding area is located off of a gravel roadway and alongside a perennial stream with 5 culverts running underneath the road. The wetland is likely impacted by the roadway and associated runoff, as well as earthworm activity within the wetland and buffer area. Non-native and invasive species are present within the wetland and surrounding area.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		✓			
Human Use Values	✓				
Wildlife Habitat			✓		
Fish and Aquatic Life Habitat		✓			
Shoreline Protection		✓			
Flood and Stormwater Storage			✓		
Water Quality Protection			✓		
Groundwater Processes		✓			

FUNCTION	RATIONALE
Floristic Integrity	Mostly native vegetation, some invasive species present
Human Use Values	Unlikely to be used for recreation or research purposes
Wildlife Habitat	Diverse assemblage of habitats with associated stream, multiple strata represented
Fish and Aquatic Life Habitat	Potential standing water after precipitation events would support aquatic invertebrates
Shoreline Protection	Stream bank is lined with emergent and woody vegetation, potential for erosion
Flood and Stormwater Storage	Closed basin, associated with stream, dense vegetation
Water Quality Protection	See above
Groundwater Processes	Discharge hydrology

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Medium
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Medium
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-17

Applicant/Owner: Enbridge State: WI Sampling Point: wasa139_u

Investigator(s): BRG/DGL Section, Township, Range: 045N-003W-14

Landform (hillslope, terrace, etc.): Side slope Local relief (concave, convex, none): Concave Slope (%): 26-60%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.373769 Long: -90.713216 Datum: WGS84

Soil Map Unit Name: Gogebic-Pence complex, 18 to 35 percent slopes, very stony NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: (Explain alternative procedures here or in a separate report.)

The upland is located on a steep slope in a young disturbed forest, and is adjacent to a gravel road. This upland sample point is shared with wetland wasa140s.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wasa139_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tilia americana*	30.0	Y	FACU
2. *Fraxinus americana*	10.0	Y	FACU
3. *Abies balsamea*	10.0	Y	FAC
4. *Prunus serotina*	5.0	N	FACU
5. *Acer saccharum*	5.0	N	FACU
6. *Ulmus americana*	5.0	N	FACW
7.			
	65.0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Corylus cornuta*	30.0	Y	FACU
2. *Tilia americana*	10.0	Y	FACU
3. *Prunus serotina*	5.0	N	FACU
4.			
5.			
6.			
7.			
	45 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Carex pedunculata*	30.0	Y	FAC
2. *Pyrola elliptica*	5.0	N	FACU
3. *Pteridium aquilinum*	5.0	N	FACU
4. *Symphyotrichum lateriflorum*	2.0	N	FAC
5. *Abies balsamea*	2.0	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	44 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	44	x 3 =	132
FACU species	105	x 4 =	420
UPL species	0	x 5 =	0
Column Totals:	154 (A)		562 (B)

Prevalence Index = B/A = 3.65

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

Remarks: (Include photo numbers here or on a separate sheet.)

The upland is a young forest dominated by Tilia americana.

SOIL

Sampling Point: wasa139_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Soils could not be sampled due to the proximity of potential buried utilities within the roadside area. Soils are assumed non-hydric based on the landscape position and dominant vegetation.

wasa139_u_E

wasa139_u_W

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-17

Applicant/Owner: Enbridge State: WI Sampling Point: wasa139s_w

Investigator(s): BRG/DGL Section, Township, Range: 045N-003W-14

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.373783 Long: -90.713049 Datum: WGS84

Soil Map Unit Name: Gogebic-Pence complex, 18 to 35 percent slopes, very stony NWI classification: PFO1Bg

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

The wetland is an alder thicket that exists due to the influence of the perennial stream that runs through it and under the adjacent gravel road.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrologic regime is seasonally saturated, with discharge hydrology. The wetland is associated with a perennial stream that flows through several culverts.

VEGETATION – Use scientific names of plants.

Sampling Point: wasa139s_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0.0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Alnus incana*	60.0	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	60.0 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Solidago gigantea*	20.0	Y	FACW
2. *Glyceria striata*	15.0	Y	OBL
3. *Carex crinita*	5.0	N	OBL
4. *Rubus idaeus*	5.0	N	FAC
5. *Impatiens capensis*	5.0	N	FACW
6. *Osmunda claytoniana*	5.0	N	FAC
7. *Onoclea sensibilis*	2.0	N	FACW
8. *Thalictrum dasycarpum*	2.0	N	FACW
9.			
10.			
11.			
12.			
	59.0 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3.0 (A)

Total Number of Dominant Species Across All Strata: 3.0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:
OBL species	20.0	x 1 =	20.0
FACW species	89.0	x 2 =	178.0
FAC species	10.0	x 3 =	30.0
FACU species	0.0	x 4 =	0.0
UPL species	0.0	x 5 =	0.0
Column Totals:	119.0 (A)		228.0 (B)

Prevalence Index = B/A = 1.9

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

The wetland is dominated by a thick shrub layer of Alnus incana, with an herbaceous layer consisting mainly of Glyceria striata and Solidago gigantea.

SOIL

Sampling Point: wasa139s_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Soils were not sampled due to the proximity of potential buried utilities along the road. Soils are assumed to be hydric based on the hydrology and dominant vegetation.

wasa139s_w_E

wasa139s_w_W

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): KDF/DGL/BRG
File #: wasa139	Date of visit(s): 10/17/2019
Location: PLSS: 045N-003W-14 Lat: 46.373783 Long: -90.713049 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River

SITE DESCRIPTION		
Soils: Mapped Type(s): 5173D Gogebic-Pence complex Field Verified: Series not verified. Soils were not sampled due to the proximity of potential buried utilities along the road. Soils are assumed to be hydric based on the hydrology and dominant vegetation.	WWI Class: N/A Wetland Type(s): PSS - alder thicket	
	Wetland Size: 0.10	Wetland Area Impacted 0.10
Hydrology: The hydrologic regime is seasonally saturated, with discharge hydrology. The feature is associated with a stream that flows through several culverts.	Vegetation: Plant Community Description(s): The dominate shrub vegetation is Alnus incana. The herbaceous vegetation is dominated by Solidago gigantea and Glyceria striata.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	Y	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	Y	Y	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	Y	Y	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	Y	Y	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	Y	Y	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	Y	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	Y	Y	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	Y	Y	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU-4: associated with stream
FA-4: potential inundation after precipitation events and snow melt
ST-5: located off of gravel roadway, associated runoff

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	Y	Herpetofauna, mammals, insects
Y	Y	Avians

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☑	All strata present but reduced native species ☐	All strata present and good assemblage of native species ☐	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☑	S3 ☐	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☐	Common ☑	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Alnus incana				Abundant
Solidago gigantea				Common
Glyceria striata				Common
Carex crinita				Uncommon
Rubus idaeus				Uncommon
Impatiens capensis				Uncommon
Osmunda claytoniana				Uncommon
Onoclea sensibilis				Uncommon
Thalictrum dasycarpum				Uncommon

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

The vegetation is comprised of native species expected within the plant community. Some Amur silvergrass is present within the wetland.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
X	X		M	C	Point source or stormwater discharge
X	X		M	C	Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
X	X		M	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
X	X		M	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
					Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
X	X		L	U	Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The wetland and surrounding area is located off of a gravel roadway and alongside a perennial stream with 5 culverts running underneath the road. The wetland is likely impacted by the roadway and associated runoff, as well as earthworm activity within the wetland and buffer area. Some non-native and invasive species are present within the wetland and wetland buffer area.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		✓			
Human Use Values	✓				
Wildlife Habitat			✓		
Fish and Aquatic Life Habitat		✓			
Shoreline Protection		✓			
Flood and Stormwater Storage			✓		
Water Quality Protection			✓		
Groundwater Processes		✓			

FUNCTION	RATIONALE
Floristic Integrity	Mostly native vegetation within the wetland
Human Use Values	Unlikely to be used for recreation or research purposes
Wildlife Habitat	Diverse assemblage of habitats with associated stream, multiple strata represented
Fish and Aquatic Life Habitat	Potential standing water after precipitation events would support aquatic invertebrates, connected to perennial stream
Shoreline Protection	Stream bank is lined with emergent and woody vegetation, potential for erosion
Flood and Stormwater Storage	Closed basin, associated with stream, dense vegetation
Water Quality Protection	See above
Groundwater Processes	Discharge hydrology

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Medium
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Medium
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-17

Applicant/Owner: Enbridge State: WI Sampling Point: wasa139_u

Investigator(s): BRG/DGL Section, Township, Range: 045N-003W-14

Landform (hillslope, terrace, etc.): Side slope Local relief (concave, convex, none): Concave Slope (%): 26-60%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.373769 Long: -90.713216 Datum: WGS84

Soil Map Unit Name: Gogebic-Pence complex, 18 to 35 percent slopes, very stony NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: (Explain alternative procedures here or in a separate report.)

The upland is located on a steep slope in a young disturbed forest, and is adjacent to a gravel road. This upland sample point is shared with wetland wasa140s.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wasa139_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tilia americana*	30.0	Y	FACU
2. *Fraxinus americana*	10.0	Y	FACU
3. *Abies balsamea*	10.0	Y	FAC
4. *Prunus serotina*	5.0	N	FACU
5. *Acer saccharum*	5.0	N	FACU
6. *Ulmus americana*	5.0	N	FACW
7.			
	65.0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Corylus cornuta*	30.0	Y	FACU
2. *Tilia americana*	10.0	Y	FACU
3. *Prunus serotina*	5.0	N	FACU
4.			
5.			
6.			
7.			
	45 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Carex pedunculata*	30.0	Y	FAC
2. *Pyrola elliptica*	5.0	N	FACU
3. *Pteridium aquilinum*	5.0	N	FACU
4. *Symphyotrichum lateriflorum*	2.0	N	FAC
5. *Abies balsamea*	2.0	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	44 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	44	x 3 =	132
FACU species	105	x 4 =	420
UPL species	0	x 5 =	0
Column Totals:	154 (A)		562 (B)

Prevalence Index = B/A = 3.65

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

Remarks: (Include photo numbers here or on a separate sheet.)

The upland is a young forest dominated by Tilia americana.

SOIL

Sampling Point: wasa139_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Soils could not be sampled due to the proximity of potential buried utilities within the roadside area. Soils are assumed non-hydric based on the landscape position and dominant vegetation.

wasa139_u_E

wasa139_u_W

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-17

Applicant/Owner: Enbridge State: WI Sampling Point: wasa138f_w

Investigator(s): BRG/DGL Section, Township, Range: 045N-003W-14

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.375310 Long: -90.709171 Datum: WGS84

Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 18 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: (Explain alternative procedures here or in a separate report.)

The wetland is a hardwood swamp located adjacent to a gravel road. The wetland is associated with a culvert, and is bordered on the other side by an upland forest on a slope.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The hydrologic regime is temporarily flooded, with recharge hydrology. The wetland receives some runoff from the adjacent compacted gravel road, and as such has a flooded hydrology. Shallow surface water is present outside the sample plot.

VEGETATION – Use scientific names of plants.

Sampling Point: wasa138f_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ulmus americana*	30.0	Y	FACW
2. *Populus tremuloides*	20.0	Y	FAC
3. *Acer rubrum*	10.0	N	FAC
4. *Betula alleghaniensis*	5.0	N	FAC
5. *Fraxinus pennsylvanica*	5.0	N	FACW
6.			
7.			
	70.0	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *Ilex verticillata*	5.0	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	5.0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Acorus calamus*	20.0	Y	OBL
2. *Glyceria canadensis*	10.0	Y	OBL
3. *Persicaria amphibia*	5.0	N	OBL
4. *Iris versicolor*	5.0	N	OBL
5. *Carex crinita*	5.0	N	OBL
6. *Onoclea sensibilis*	2.0	N	FACW
7. *Carex intumescens*	2.0	N	FACW
8. *Juncus effusus*	2.0	N	OBL
9.			
10.			
11.			
12.			
	51.0	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5.0 (A)

Total Number of Dominant Species Across All Strata: 5.0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	47.0	x 1 =	47.0
FACW species	44.0	x 2 =	88.0
FAC species	35.0	x 3 =	105.0
FACU species	0.0	x 4 =	0.0
UPL species	0.0	x 5 =	0.0
Column Totals:	126.0 (A)		240.0 (B)

Prevalence Index = B/A = 1.9

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

The wetland is dominated by Ulmus americana and Populus tremuloides, with an herbaceous layer dominated by Acorus calamus in the most wet areas and Glyceria canadensis/Carex in the less wet areas.

SOIL

Sampling Point: wasa138f_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Soils were not sampled due to the proximity of potential buried utilities along the road. Soils are assumed hydric based on the landscape position and dominant vegetation.

wasa138f_w_E

wasa138f_w_W

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION

Project name: Line 5 Relocation Project	Evaluator(s): KDF/DGL/BRG
File #: wasa138	Date of visit(s): 10/17/2019
Location: PLSS: 045N-003W-14 Lat: 46.375310 Long: -90.709171 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River

SITE DESCRIPTION

Soils: Mapped Type(s): 5172C Gogebic, very stony-Pence, very stony-Cathro complex Field Verified: Series not verified. Soils were not sampled due to the proximity of potential buried utilities along the road. Soils are assumed hydric based on the landscape position and dominant vegetation.	WWI Class: T3/S3K Wetland Type(s): PFO - Hardwood swamp Wetland Size: 0.10	Wetland Area Impacted 0.10
Hydrology: The hydrologic regime is temporarily flooded, with recharge hydrology. The feature is associated with culvert and receives runoff from the adjacent gravel road.	Vegetation: Plant Community Description(s): The canopy is dominated by Ulmus americana and Populus tremuloides. The shrub layer is dominated by Ilex verticillata. The herbaceous vegetation is dominated by Carex crinita and Glyceria canadensis in some areas and Acorus calamus in others.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: Hunting
2	N	N	Used for educational or scientific purposes
3	Y	Y	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N	N	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N	N	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	N	N	Water flow through wetland is NOT channelized
3	N	N	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	Y	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	N	N	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	N	N	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	Y	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU-4: artificial wetland within ditch
WH-10, FA-2: shallow surface water is present outside of the sample plot
ST-5: located alongside a gravel roadway, associated with culvert

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	Y	Avians, herpetofauna, insects

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	Y	Aquatic invertebrates

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☑	<10% ☐
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☑	All strata present and good assemblage of native species ☐	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☐	S3 ☑	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☑	Common ☐	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Ulmus americana				Common
Populus tremuloides				Common
Acer rubrum				Common
Betula alleghaniensis				Uncommon
Fraxinus pensylvanica				Uncommon
Ilex verticillata				Uncommon
Acorus calamus				Common
Glyceria canadensis				Uncommon
Persicaria amphibia				Uncommon
Iris versicolor				Uncommon
Carex crinita				Uncommon
Onoclea sensibilis				Uncommon
Carex intumescens				Uncommon
Juncus effusus				Uncommon

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

The vegetation is comprised of native species expected within plant community, with invasive species cover present.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
X	X		M	C	Point source or stormwater discharge
X	X		M	C	Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
X	X		H	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
	X		M	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
					Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The wetland is located alongside a gravel roadway and is impacted by associated runoff. The surrounding area is impacted by earthworm activity.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity	✓				
Human Use Values	✓				
Wildlife Habitat		✓			
Fish and Aquatic Life Habitat		✓			
Shoreline Protection					✓
Flood and Stormwater Storage			✓		
Water Quality Protection			✓		
Groundwater Processes	✓				

FUNCTION	RATIONALE
Floristic Integrity	Invasive species cover is present
Human Use Values	Roadside wetland, unlikely to be used for recreation or research purposes
Wildlife Habitat	Multiple strata represented, part of larger forested habitat block, standing water present
Fish and Aquatic Life Habitat	Standing water to support aquatic invertebrates but not fish
Shoreline Protection	N/A
Flood and Stormwater Storage	Closed basin, receives runoff, located alongside gravel roadway
Water Quality Protection	See above
Groundwater Processes	Recharge hydrology

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Medium
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Medium
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-10-17

Applicant/Owner: Enbridge State: WI Sampling Point: wasa138_u

Investigator(s): BRG/DGL Section, Township, Range: 045N-003W-14

Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.375222 Long: -90.709439 Datum: WGS84

Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 18 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: (Explain alternative procedures here or in a separate report.)

The upland is a young upland forest located near the bottom of a gradual slope, and adjacent to a gravel road.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wasa138_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharum*	40.0	Y	FACU
2. *Tilia americana*	20.0	Y	FACU
3. *Ulmus americana*	5.0	N	FACW
4.			
5.			
6.			
7.			
	65.0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Acer saccharum*	10.0	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	10 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Mitchella repens*	25.0	Y	FACU
2. *Carex pedunculata*	10.0	Y	FAC
3. *Dryopteris intermedia*	5.0	N	FAC
4. *Pyrola elliptica*	5.0	N	FACU
5. *Athyrium angustum*	2.0	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	47 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0.0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	17	x 3 =	51
FACU species	100	x 4 =	400
UPL species	0	x 5 =	0
Column Totals:	122 (A)		461 (B)

Prevalence Index = B/A = 3.78

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

Remarks: (Include photo numbers here or on a separate sheet.)

The upland is a young Acer saccharum/Tilia americana-dominated forest.

SOIL

Sampling Point: wasa138_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Soils were not sampled due to the proximity of potential buried utilities within the roadside area. Soils are assumed non-hydric based on the landscape position and dominant vegetation.

wasa138_u_E

wasa138_u_W

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-20

Applicant/Owner: Enbridge State: WI Sampling Point: wase005f_w

Investigator(s): ARK/KDF Section, Township, Range: 045N-003W-23

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.367461 Long: -90.712867 Datum: WGS84

Soil Map Unit Name: Tula-Wormet-Gogebic complex, 0 to 6 percent slopes, very stony NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: (Explain alternative procedures here or in a separate report.)
Hardwood swamp within a mesic hardwood forest.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes ✓ No _____**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Seasonally saturated recharge wetland.

VEGETATION – Use scientific names of plants.

Sampling Point: wase005f_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus nigra*	40	Y	FACW
2. *Populus tremuloides*	10	N	FAC
3. *Acer rubrum*	10	N	FAC
4. *Tilia americana*	5	N	FACU
5.			
6.			
7.			
	65 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Alnus incana*	10	Y	FACW
2. *Abies balsamea*	2	N	FAC
3.			
4.			
5.			
6.			
7.			
	12 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Carex intumescens*	30	Y	FACW
2. *Rubus pubescens*	10	N	FACW
3. *Mitchella repens*	5	N	FACU
4. *Carex projecta*	2	N	FACW
5. *Symphyotrichum lateriflorum*	2	N	FAC
6. *Epilobium ciliatum*	1	N	FACW
7. *Pyrola elliptica*	1	N	FACU
8. *Maianthemum canadense*	1	N	FACU
9. *Brachyelytrum erectum*	1	N	FACU
10.			
11.			
12.			
	53 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	93	x 2 =	186
FAC species	24	x 3 =	72
FACU species	13	x 4 =	52
UPL species	0	x 5 =	0
Column Totals:	130 (A)		310 (B)

Prevalence Index = B/A = 2.38

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

Speckled alder is more abundant in wetter portions of the feature.

SOIL

Sampling Point: wase005f_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	90	5YR 3/4	10	C	M	L	Prominent redox concentrations
4-14	10YR 3/2	85	5YR 3/4	10	C	M	L	Prominent redox concentrations
4-14	10YR 5/2	5					L	
14-20	7.5YR 4/4	70	5YR 3/4	5	C	M	L	Faint redox concentrations
14-20	10YR 3/2	25					FSL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Dark loam with redox.

wase005f_w_NW

wase005f_w_SE

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): KDF/ARK
File #: wase005	Date of visit(s): 09/20/2019
Location: PLSS: 045N-003W-23 Lat: 46.367365 Long: -90.712948 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River

SITE DESCRIPTION		
Soils: Mapped Type(s): 5170A Minocqua-Pleine-Cathro complex, 5171B Tula-Wormet-Gogebic complex, 5172B Gogebic, very stony-Pence, very stony-Cathro complex Field Verified: Series not verified. Soils were a loam over a mix of loam and fine sandy loam.	WWI Class: T3K Wetland Type(s): PFO Wetland Size: 0.65	Wetland Area Impacted 0.65
Hydrology: The hydrologic regime is seasonally saturated with recharge hydrology.	Vegetation: Plant Community Description(s): Hardwood swamp with a canopy is dominated by Fraxinus nigra and Acer rubrum. Alnus incana and Fraxinus nigra dominate the shrub layer, and Rubus pubescens, Osmundastrum cinnamonea, and Carex intumescent dominate the herbaceous layer.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: Hunting
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	Y	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	Y	Y	In or adjacent to RED FLAG areas List: Trout streams: Silver Creek
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	Y	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N	N	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N	N	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	N	N	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU-1: private land with potential hunting use
HU-4: diverse habitats, degradation of herbaceous layer by earthworms
HU-5: a RED FLAG trout stream is present in moderate proximity to the wetland
WQ-1: closed basin with recharge hydrology

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
Y	Y	Avian
	Y	Herpetofauna, mammals, insects

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☐	All strata present and good assemblage of native species ☑	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☐	S3 ☑	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☐	Common ☑	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Fraxinus nigra			PFO	Common
Populus tremuloides			PFO	Common
Acer rubrum			PFO	Common
Tilia americana			PFO	Uncommon
Alnus incana			PFO	Common
Abies balsamea			PFO	Uncommon
Carex intumescens			PFO	Common
Rubus pubescens			PFO	Common
Mitchella repens			PFO	Uncommon
Carex projecta			PFO	Uncommon
Symphyotrichum lateriflorum			PFO	Uncommon
Epilobium ciliatum			PFO	Rare
Pyrola elliptica			PFO	Rare
Maianthemum canadense			PFO	Rare
Brachyelytrum erectum			PFO	Rare

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Native plant species expected within plant community, with no observed invasive species.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
X	X		M	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
					Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The wetland and surrounding area is predominately impacted by removal of the herbaceous layer due to earthworm activity.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		✓			
Human Use Values		✓			
Wildlife Habitat		✓			
Fish and Aquatic Life Habitat					✓
Shoreline Protection					✓
Flood and Stormwater Storage		✓			
Water Quality Protection		✓			
Groundwater Processes	✓				

FUNCTION	RATIONALE
Floristic Integrity	Native species, no invasives, earthworm activity
Human Use Values	Private land, potential hunting use
Wildlife Habitat	Variety of habitats
Fish and Aquatic Life Habitat	No standing water
Shoreline Protection	
Flood and Stormwater Storage	Closed basin with dense persistent vegetation
Water Quality Protection	See above
Groundwater Processes	Recharge hydrology

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Medium
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Medium
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-20

Applicant/Owner: Enbridge State: WI Sampling Point: wase005_u

Investigator(s): ARK/KDF Section, Township, Range: 045N-003W-23

Landform (hillslope, terrace, etc.): Talf Local relief (concave, convex, none): None Slope (%): _____

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.367224 Long: -90.713015 Datum: WGS84

Soil Map Unit Name: Tula-Wormet-Gogebic complex, 0 to 6 percent slopes, very stony NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)
Mesic hardwood forest.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No indicators of wetland hydrology were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wase005_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides*	65	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	65 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Fraxinus nigra*	40	Y	FACW
2. *Acer saccharum*	10	Y	FACU
3.			
4.			
5.			
6.			
7.			
	50 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Carex pedunculata*	20	Y	FAC
2. *Mitchella repens*	5	N	FACU
3. *Pyrola elliptica*	2	N	FACU
4. *Cornus canadensis*	2	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	29 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	87	x 3 =	261
FACU species	17	x 4 =	68
UPL species	0	x 5 =	0
Column Totals:	144 (A)		409 (B)

Prevalence Index = B/A = 2.84

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

Mesic hardwood forest vegetation.

SOIL

Sampling Point: wase005_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	7.5YR 3/2	100					SIL	
5-10	7.5YR 4/4	98	7.5YR 5/6	2	C	M	FSL	Distinct redox concentrations
10-20	7.5YR 4/4	95	7.5YR 5/6	5	C	M	FSL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

No indicators of hydric soils were observed.

wase005_u_N

wase005_u_S

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-20

Applicant/Owner: Enbridge State: WI Sampling Point: wase006f_w

Investigator(s): ARK/KDF Section, Township, Range: 045N-003W-23

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.367023 Long: -90.712929 Datum: WGS84

Soil Map Unit Name: Tula-Wormet-Gogebic complex, 0 to 6 percent slopes, very stony NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

Forested wet-mesic depressional wetland within a mesic hardwood forest. Upland sample point shared with wase00f.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes ✓ No _____**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Seasonally saturated recharge wetland.

VEGETATION – Use scientific names of plants.

Sampling Point: wase006f_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus nigra*	50	Y	FACW
2. *Populus tremuloides*	30	Y	FAC
3.			
4.			
5.			
6.			
7.			
	80 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Carex intumescens*	15	Y	FACW
2. *Rubus pubescens*	5	Y	FACW
3. *Carex pedunculata*	5	Y	FAC
4. *Dryopteris cristata*	5	Y	OBL
5. *Carex brunnescens*	2	N	FACW
6. *Geum macrophyllum*	2	N	FACW
7. *Carex projecta*	2	N	FACW
8. *Fragaria virginiana*	2	N	FACU
9. *Glyceria striata*	2	N	OBL
10. *Carex crinita*	1	N	OBL
11. *Epilobium ciliatum*	1	N	FACW
12. *Brachyelytrum erectum*	1	N	FACU
	43 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	8	x 1 =	8
FACW species	77	x 2 =	154
FAC species	35	x 3 =	105
FACU species	3	x 4 =	12
UPL species	0	x 5 =	0
Column Totals:	123 (A)		279 (B)

Prevalence Index = B/A = 2.27

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

Sample plot is representative of the feature.

SOIL

Sampling Point: wase006f_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	95	5YR 3/4	5	C	M	L	Prominent redox concentrations
5-14	10YR 3/3	85	5YR 3/4	15	C	M	SIL	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Loamy soils with redox throughout.

wase006f_w_N

wase006f_w_S

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): KDF/ARK
File #: wase006	Date of visit(s): 09/20/2019
Location: PLSS: 045N-003W-23 Lat: 46.36718 Long: -90.71285 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River

SITE DESCRIPTION		
Soils: Mapped Type(s): 5171B Tula-Wormet-Gogebic complex Field Verified: Series not verified. Soils were loam over a silt loam.	WWI Class: N/A Wetland Type(s): PFO	
	Wetland Size: 0.07	Wetland Area Impacted 0.07
Hydrology: The hydrologic regime is seasonally saturated with recharge hydrology.	Vegetation: Plant Community Description(s): Hardwood swamp with a canopy is dominated by Fraxinus nigra and Populus tremuloides. Fraxinus nigra dominates the shrub layer, and Rubus pubescens and Carex intumescent dominate the herbaceous layer.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: Hunting
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	Y	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	Y	Y	In or adjacent to RED FLAG areas List: Trout Streams: Silver Creek
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	Y	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N	N	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N	N	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	N	N	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU-1: private land with potential hunting use
HU-4: diverse habitats, degradation of herbaceous layer by earthworms
HU-5: moderately close to the RED FLAG area, although the wetland likely does not have any influence on, or is not influenced by, the trout stream
WQ-1: closed basin with recharge hydrology

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
		Avian, herpetofauna, mammals, insects

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☐	All strata present and good assemblage of native species ☑	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☐	S3 ☑	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☐	Common ☑	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Fraxinus nigra			PFO	Abundant
Populus tremuloides			PFO	Common
Carex intumescens			PFO	Common
Rubus pubescens			PFO	Uncommon
Carex pedunculata			PFO	Uncommon
Dryopteris cristata			PFO	Uncommon
Carex brunnescens			PFO	Uncommon
Geum macrophyllum			PFO	Uncommon
Carex projecta			PFO	Uncommon
Fragaria virginiana			PFO	Uncommon
Glyceria striata			PFO	Uncommon
Carex crinita			PFO	Uncommon
Epilobium ciliatum			PFO	Uncommon
Brachyelytrum erectum			PFO	Uncommon

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

The vegetation is comprised of native plant species expected within plant community, with no observed invasive species. The tree and shrub strata are not very diverse, but the herbaceous layer shows good diversity.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
X	X		M	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
					Removal of tree or shrub strata – logging, unprescribed fire
	X		L	U	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The wetland and surrounding area is predominately impacted by removal of the herbaceous layer due to earthworm activity. An unpaved two-track trail is present in the buffer area, but likely does not affect the wetland.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		✓			
Human Use Values		✓			
Wildlife Habitat		✓			
Fish and Aquatic Life Habitat					✓
Shoreline Protection					✓
Flood and Stormwater Storage		✓			
Water Quality Protection		✓			
Groundwater Processes	✓				

FUNCTION	RATIONALE
Floristic Integrity	Native species, no invasives, earthworm activity
Human Use Values	Private land, potential hunting use
Wildlife Habitat	Variety of habitats
Fish and Aquatic Life Habitat	No standing water
Shoreline Protection	
Flood and Stormwater Storage	Closed basin
Water Quality Protection	See above
Groundwater Processes	Recharge hydrology

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Medium
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Medium
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-21

Applicant/Owner: Enbridge State: WI Sampling Point: wase007f_w

Investigator(s): ARK/KDF Section, Township, Range: 045N-003W-23

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.365269 Long: -90.710564 Datum: WGS84

Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 18 percent slopes NWI classification: PFO1/4Bg

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** _____
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: (Explain alternative procedures here or in a separate report.)
Ash swamp depression.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✓ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Surface water present beyond the sample point.

VEGETATION – Use scientific names of plants.

Sampling Point: wase007f_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides*	30	Y	FAC
2. *Fraxinus nigra*	20	Y	FACW
3. *Abies balsamea*	20	Y	FAC
4. *Acer rubrum*	2	N	FAC
5.			
6.			
7.			
	72	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *Alnus incana*	10	Y	FACW
2. *Ilex verticillata*	5	Y	FACW
3. *Corylus cornuta*	2	N	FACU
4. *Rhamnus cathartica*	1	N	FAC
5.			
6.			
7.			
	18	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Calamagrostis canadensis*	30	Y	OBL
2. *Carex intumescens*	30	Y	FACW
3. *Rubus pubescens*	5	N	FACW
4. *Carex projecta*	2	N	FACW
5. *Carex brunnescens*	2	N	FACW
6. *Glyceria striata*	2	N	OBL
7. *Fragaria virginiana*	2	N	FACU
8. *Solidago gigantea*	2	N	FACW
9. *Pyrola elliptica*	1	N	FACU
10. *Clematis virginiana*	1	N	FAC
11.			
12.			
	77	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	32	x 1 =	32
FACW species	76	x 2 =	152
FAC species	54	x 3 =	162
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	167 (A)		366 (B)

Prevalence Index = B/A = 2.19

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

Graminoids dense in canopy gaps.

SOIL

Sampling Point: wase007f_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 2/1	100					L	
7-14	10YR 3/2	95	5YR 4/6	5	C	M	SIL	Prominent redox concentrations
14-18	10YR 3/4	80	5YR 4/6	20	C	M	SL	Prominent redox concentrations
18-20	10YR 5/3	90	5YR 4/6	10	C	M	FSL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Loamy soils with redox below 7 inches.

wase007f_w_SE

wase007f_w_SW

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): KDF/ARK
File #: wase007	Date of visit(s): 09/21/2019
Location: PLSS: 045N-003W-23 Lat: 46.364228 Long: -90.710007 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River

SITE DESCRIPTION		
Soils: Mapped Type(s): 5171B Tula-Wormet-Gogebic complex, 5172C Gogebic, very stony-Pence, very stony-Cathro complex Field Verified: Series not verified. Soils were a loam over silty loam over sandy loam over fine sandy loam.	WWI Class: N/A Wetland Type(s): PFO	
	Wetland Size: 0.34	Wetland Area Impacted 0.34
Hydrology: The hydrologic regime is seasonally saturated with recharge hydrology. Small pools of standing water present within the wetland.	Vegetation: Plant Community Description(s): Hardwood swamp with a canopy dominated by Populus tremuloides and Fraxinus nigra. Alnus incana dominates the shrub layer, and Calamagrostis canadensis dominates the herbaceous layer.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	N	Y	Visually or physically accessible to public
4	N	Y	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	Y	Y	In or adjacent to RED FLAG areas List: Trout streams: Silver Creek
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	Y	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N	N	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N	N	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	N	N	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU-1: limited accessibility, dense vegetation
HU-5: the wetland is in moderately close proximity to the RED FLAG area
WH-10: small standing water pools present
WQ-1: close basin with recharge hydrology

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
Y	Y	Avian
	Y	Herpetofauna, mammals
Y	Y	Insects
Y	Y	Red squirrel

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☐	All strata present and good assemblage of native species ☑	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☐	S3 ☑	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☐	Common ☑	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Populus tremuloides			PFO	Common
Fraxinus nigra			PFO	Common
Abies balsamea			PFO	Common
Acer rubrum			PFO	Uncommon
Alnus incana			PFO	Common
Ilex verticillata			PFO	Uncommon
Corylus cornuta			PFO	Uncommon
Rhamnus cathartica			PFO	Uncommon
Calamagrostis canadensis			PFO	Common
Carex intumescens			PFO	Common
Rubus pubescens			PFO	Uncommon
Carex projecta			PFO	Uncommon
Carex brunnescens			PFO	Uncommon
Glyceria striata			PFO	Uncommon
Fragaria virginiana			PFO	Uncommon
Solidago gigantea			PFO	Uncommon
Pyrola elliptica			PFO	Uncommon
Clematis virginiana			PFO	Uncommon

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

The vegetation is comprised of native plant species expected within plant community, with no observed invasive species.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
X	X		M	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X	X	L	U	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The wetland and surrounding area is influenced by some earthworm activity. The area has been historically logged.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		✓			
Human Use Values	✓				
Wildlife Habitat		✓			
Fish and Aquatic Life Habitat	✓				
Shoreline Protection					✓
Flood and Stormwater Storage		✓			
Water Quality Protection		✓			
Groundwater Processes		✓			

FUNCTION	RATIONALE
Floristic Integrity	Native plant species, no invasives
Human Use Values	Private land, limited accessibility, dense vegetation
Wildlife Habitat	Diverse assemblage of vegetation, disturbed by earthworm activity
Fish and Aquatic Life Habitat	Small pools present that could support aquatic invertebrates
Shoreline Protection	
Flood and Stormwater Storage	Closed basin wetland, dense vegetation
Water Quality Protection	See above
Groundwater Processes	Recharge hydrology, remains saturated for extended periods of time

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Medium
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Medium
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-21

Applicant/Owner: Enbridge State: WI Sampling Point: wase007_u

Investigator(s): ARK/KDF Section, Township, Range: 045N-003W-23

Landform (hillslope, terrace, etc.): Backslope Local relief (concave, convex, none): None Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.365400 Long: -90.710333 Datum: WGS84

Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 18 percent slopes NWI classification: PFO1/4Bg

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: (Explain alternative procedures here or in a separate report.)
Mesic hardwood forest.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No indicators of wetland hydrology were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wase007_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides*	50	Y	FAC
2. *Acer saccharum*	15	N	FACU
3. *Fraxinus nigra*	10	N	FACW
4. *Abies balsamea*	10	N	FAC
5. *Tilia americana*	5	N	FACU
6.			
7.			
	90 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Corylus cornuta*	2	N	FACU
2. *Prunus serotina*	1	N	FACU
3.			
4.			
5.			
6.			
7.			
	3 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Mitchella repens*	10	Y	FACU
2. *Carex pedunculata*	5	Y	FAC
3. *Cornus canadensis*	2	N	FAC
4. *Pyrola elliptica*	2	N	FACU
5. *Oryzopsis asperifolia*	2	N	NI
6. *Trientalis borealis*	1	N	FAC
7.			
8.			
9.			
10.			
11.			
12.			
	22 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	68	x 3 =	204
FACU species	35	x 4 =	140
UPL species	0	x 5 =	0
Column Totals:	113 (A)		364 (B)

Prevalence Index = B/A = 3.22

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

Upland forest plants.

SOIL

Sampling Point: wase007_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2	100					L	
7-20	7.5YR 3/4	98	7.5YR 5/8	2	C	M	FS	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

No indicators of hydric soils were observed.

wase007_u_N

wase007_u_S

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-21

Applicant/Owner: Enbridge State: WI Sampling Point: wase008f_w

Investigator(s): ARK/KDF Section, Township, Range: 045N-003W-23

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.364788 Long: -90.707351 Datum: WGS84

Soil Map Unit Name: Tula-Wormet-Gogebic complex, 0 to 6 percent slopes, very stony NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)
Forested depressional wetland located next to a perennial creek (sase005p).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes ✓ No _____**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Seasonally saturated recharge wetland.

VEGETATION – Use scientific names of plants.

Sampling Point: wase008f_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Thuja occidentalis*	20	Y	FACW
2. *Acer rubrum*	20	Y	FAC
3. *Betula alleghaniensis*	15	Y	FAC
4. *Fraxinus nigra*	10	N	FACW
5. *Abies balsamea*	10	N	FAC
6. *Acer saccharum*	5	N	FACU
7. *Populus tremuloides*	2	N	FAC
	82	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *Tilia americana*	5	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	5	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Carex scabrata*	5	Y	OBL
2. *Impatiens capensis*	5	Y	FACW
3. *Athyrium angustum*	5	Y	FAC
4. *Equisetum scirpoides*	5	Y	FAC
5. *Carex gracillima*	2	N	FACU
6. *Equisetum sylvaticum*	2	N	FACW
7.			
8.			
9.			
10.			
11.			
12.			
	24	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 87.50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	37	x 2 =	74
FAC species	57	x 3 =	171
FACU species	12	x 4 =	48
UPL species	0	x 5 =	0
Column Totals:	111 (A)		298 (B)

Prevalence Index = B/A = 2.68

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

Sensitive fern is abundant elsewhere in the feature.

SOIL

Sampling Point: wase008f_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					SL	
2-8	10YR 2/2	95	7.5YR 3/4	5	C	M	SL	Distinct redox concentrations
8-20	5YR 3/3	98	7.5YR 3/4	2	C	M	LFS	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Sandy loam over loamy fine sand with redox below 2 inches.

wase008f_w_N

wase008f_w_S

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): KDF/ARK
File #: wase008	Date of visit(s): 09/21/2019
Location: PLSS: 045N-003W-23 Lat: 46.364825 Long: -90.708232 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River

SITE DESCRIPTION		
Soils: Mapped Type(s): 5171B Tula-Wormet-Gogebic complex Field Verified: Series not verified. Soils were a sandy loam over loamy fine sand.	WWI Class: T3/5K Wetland Type(s): PFO	
	Wetland Size: 0.05	Wetland Area Impacted 0.05
Hydrology: The hydrologic regime is seasonally saturated with recharge hydrology. The closed basin wetland is located alongside a stream.	Vegetation: Plant Community Description(s): Hardwood swamp with a canopy dominated by Acer rubrum. Corylus cornuta and Fraxinus nigra dominate the shrub layer, and Carex dominates the herbaceous layer.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	N	Y	Visually or physically accessible to public
4	Y	Y	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	Y	In or adjacent to RED FLAG areas List: Trout streams: Silver Creek
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	Y	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	Y	Y	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	Y	Y	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	N	N	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	Y	Y	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

WQ-1: closed basin with recharge hydrology
HU-4: diverse habitat, including upland, wetland, and stream
HU-5: the wetland is adjacent to a stream that may connect with the Silver Creek trout stream

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	Y	Avian, herpetofauna, mammals, insects

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☐	All strata present and good assemblage of native species ☑	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☐	S3 ☑	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☐	Common ☑	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Thuja occidentalis			PFO	Common
Acer rubrum			PFO	Common
Betula alleghaniensis			PFO	Common
Fraxinus nigra			PFO	Common
Abies balsamea			PFO	Common
Acer saccharum			PFO	Uncommon
Populus tremuloides			PFO	Uncommon
Tilia americana			PFO	Uncommon
Carex scabrata			PFO	Uncommon
Impatiens capensis			PFO	Uncommon
Athyrium angustum			PFO	Uncommon
Equisetum scirpoides			PFO	Uncommon
Carex gracillima			PFO	Uncommon
Equisetum sylvaticum			PFO	Uncommon

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Native vegetation expected within plant community is present with no observed invasive species. Herbaceous cover is fairly sparse.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
X	X		L	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X	X	L	U	Removal of tree or shrub strata – logging, unprescribed fire
	X		L	C	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The wetland is influenced by some earthworm activity, and historic logging has occurred in the area. A cleared trail is present in the wetland buffer area.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity			✓		
Human Use Values	✓				
Wildlife Habitat		✓			
Fish and Aquatic Life Habitat					✓
Shoreline Protection		✓			
Flood and Stormwater Storage		✓			
Water Quality Protection		✓			
Groundwater Processes		✓			

FUNCTION	RATIONALE
Floristic Integrity	Native plants, no invasives
Human Use Values	Limited accessibility, dense vegetation
Wildlife Habitat	Diverse assemblage of habitat, associated with small stream
Fish and Aquatic Life Habitat	No standing water
Shoreline Protection	Densely rooted vegetation along stream
Flood and Stormwater Storage	Closed basin, dense vegetation
Water Quality Protection	See above, associated with stream
Groundwater Processes	Recharge hydrology

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Medium
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Medium
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-21

Applicant/Owner: Enbridge State: WI Sampling Point: wase008_u

Investigator(s): ARK/KDF Section, Township, Range: 045N-003W-23

Landform (hillslope, terrace, etc.): Backslope Local relief (concave, convex, none): None Slope (%): 3-7%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.364720 Long: -90.707087 Datum: WGS84

Soil Map Unit Name: Tula-Wormet-Gogebic complex, 0 to 6 percent slopes, very stony NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: (Explain alternative procedures here or in a separate report.)
Mesic hardwood forest on a gentle slope.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No indicators of wetland hydrology were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wase008_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus rubra*	30	Y	FACU
2. *Acer saccharum*	20	Y	FACU
3. *Abies balsamea*	10	N	FAC
4. *Fraxinus nigra*	5	N	FACW
5. *Betula alleghaniensis*	5	N	FAC
6. *Acer rubrum*	5	N	FAC
7. *Tilia americana*	2	N	FACU
	77 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Ostrya virginiana*	10	Y	FACU
2. *Lonicera canadensis*	5	Y	FACU
3. *Corylus cornuta*	2	N	FACU
4.			
5.			
6.			
7.			
	17 = Total Cover		
Herb Stratum (Plot size: 5')			
1. *Mitchella repens*	5	Y	FACU
2. *Cornus canadensis*	2	N	FAC
3. *Dryopteris intermedia*	2	N	FAC
4. *Onoclea sensibilis*	2	N	FACW
5. *Clintonia borealis*	2	N	FAC
6. *Carex pedunculata*	2	N	FAC
7. *Pyrola elliptica*	1	N	FACU
8. *Rubus pubescens*	1	N	FACW
9. *Gymnocarpium dryopteris*	1	N	FACU
10.			
11.			
12.			
	18 = Total Cover		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	8	x 2 =	16
FAC species	28	x 3 =	84
FACU species	76	x 4 =	304
UPL species	0	x 5 =	0
Column Totals:	112 (A)		404 (B)

Prevalence Index = B/A = 3.61

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Upland forest plants.

SOIL

Sampling Point: wase008_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	7.5YR 2.5/3	100					SL	
7-13	7.5YR 3/3	100					SL	
13-16	7.5YR 3/3	95	7.5YR 5/8	5	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

No indicators of hydric soils were observed.

wase008_u_N

wase008_u_S

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-23

Applicant/Owner: Enbridge State: WI Sampling Point: wase010f_w

Investigator(s): KDF/ARK Section, Township, Range: 045N-003W-23

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.365043 Long: -90.705330 Datum: WGS84

Soil Map Unit Name: Tula-Wormet-Gogebic complex, 0 to 6 percent slopes, very stony NWI classification: PFO1Bg

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)

Hardwood swamp surrounded by mesic hardwood forest. Associated upland point is shared with wase009f.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ✓ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Seasonally saturated recharge wetland.

VEGETATION – Use scientific names of plants.

Sampling Point: wase010f_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides*	75	Y	FAC
2. *Salix discolor*	2	N	FACW
3. *Acer rubrum*	1	N	FAC
4. *Abies balsamea*	1	N	FAC
5.			
6.			
7.			
	79	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1. *Fraxinus nigra*	15	Y	FACW
2. *Ilex verticillata*	5	Y	FACW
3. *Betula alleghaniensis*	2	N	FAC
4. *Corylus cornuta*	2	N	FACU
5.			
6.			
7.			
	24	= Total Cover	

Herb Stratum (Plot size: 5')			
1. *Cornus canadensis*	20	Y	FAC
2. *Carex crinita*	15	Y	OBL
3. *Carex intumescens*	10	Y	FACW
4. *Fragaria virginiana*	10	Y	FACU
5. *Rubus pubescens*	10	Y	FACW
6. *Calamagrostis canadensis*	5	N	OBL
7. *Carex intumescens*	2	N	FACW
8. *Equisetum sylvaticum*	2	N	FACW
9. *Osmundastrum cinnamomeum*	1	N	FACW
10.			
11.			
12.			
	75	= Total Cover	

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 87.50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	47	x 2 =	94
FAC species	99	x 3 =	297
FACU species	12	x 4 =	48
UPL species	0	x 5 =	0
Column Totals:	178 (A)		459 (B)

Prevalence Index = B/A = 2.58

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

Sphagnum occurs in patches outside of the sample plot. Northwestern end becomes thinner in woody vegetation, approaching but not reaching PEM structure, where woolgrass becomes prominent.

SOIL

Sampling Point: wase010f_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100					L	
3-12	10YR 2/1	70	5YR 4/6	15	C	M	CL	Prominent redox concentrations
3-12	5YR 3/2	15					FS	
12-20	7.5YR 3/3	90	5YR 5/8	10	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Loamy soils with redox.

wase010f_w_NE

wase010f_w_SW

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): KDF/ARK
File #: wase010	Date of visit(s): 09/23/2019
Location: PLSS: 045N-003W-23 Lat: 46.365162 Long: -90.705625 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River

SITE DESCRIPTION		
Soils: Mapped Type(s): 5171B Tula-Wormet-Gogebic complex, 5172B Gogebic, very stony-Pence, very stony-Cathro complex Field Verified: Series not verified. Soils were a loam over clay loam over fine sand over sandy loam.	WWI Class: T3/E2K Wetland Type(s): PFO - hardwood swamp	
	Wetland Size: 1.01	Wetland Area Impacted 1.01
Hydrology: The hydrologic regime is seasonally saturated with recharge hydrology.	Vegetation: Plant Community Description(s): Canopy is dominated by Populus tremuloides. Fraxinus nigra and Ilex verticillata dominate the shrub layer. Cornus canadensis, Rubus pubescens, and Carex crinita dominate the herbaceous layer.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	Y	Y	Used for recreation (hunting, birding, hiking, etc.). List: Hunting
2	N	N	Used for educational or scientific purposes
3	N	Y	Visually or physically accessible to public
4	Y	Y	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	Y	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N	N	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N	N	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	N	N	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU-1: Deer stand located in opening near wetland
HU-3: private land, logging road located nearby
WH-6: PFO/upland complex with diverse vegetation assemblage

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
Y	Y	Avian
	Y	Herpetofauna, mammals
Y	Y	Insects

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☐	All strata present and good assemblage of native species ☑	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☐	S3 ☑	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☐	Common ☑	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Populus tremuloides			PFO	Abundant
Salix discolor			PFO	Uncommon
Acer rubrum			PFO	Uncommon
Abies balsamea			PFO	Uncommon
Fraxinus nigra			PFO	Common
Ilex verticillata			PFO	Uncommon
Betula alleghaniensis			PFO	Uncommon
Corylus cornuta			PFO	Uncommon
Cornus canadensis			PFO	Common
Carex crinita			PFO	Common
Carex intumescens			PFO	Common
Fragaria virginiana			PFO	Common
Rubus pubescens			PFO	Common
Calamagrostis canadensis			PFO	Uncommon
Carex intumescens			PFO	Uncommon
Equisetum sylvaticum			PFO	Uncommon
Osmundastrum cinnamomeum			PFO	Uncommon

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

The vegetation is comprised of native plant species expected within the plant community, with no observed invasive species.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
X	X		L	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X	X	M	U	Removal of tree or shrub strata – logging, unprescribed fire
	X		L	C	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
	X		L	U	Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The wetland is predominately influenced by earthworm and previous logging activity, with young growth vegetation. The surrounding area is influenced by earthworm activity and other stressors.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		✓			
Human Use Values		✓			
Wildlife Habitat		✓			
Fish and Aquatic Life Habitat					✓
Shoreline Protection					✓
Flood and Stormwater Storage		✓			
Water Quality Protection		✓			
Groundwater Processes	✓				

FUNCTION	RATIONALE
Floristic Integrity	Native species, no invasives
Human Use Values	Hunting activity, diverse habitat aesthetic
Wildlife Habitat	Diverse habitat availability
Fish and Aquatic Life Habitat	No standing water
Shoreline Protection	
Flood and Stormwater Storage	Closed basin, water flow is not channelized
Water Quality Protection	See above
Groundwater Processes	Recharge hydrology

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Medium
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Medium
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-23

Applicant/Owner: Enbridge State: WI Sampling Point: wase009_u

Investigator(s): ARK/KDF Section, Township, Range: 045N-003W-23

Landform (hillslope, terrace, etc.): Crest Local relief (concave, convex, none): Convex Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.364770 Long: -90.705395 Datum: WGS84

Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: (Explain alternative procedures here or in a separate report.)
Mesic hardwood forest. Upland sample point is shared with wetland wase010f.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No indicators of wetland hydrology were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wase009_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides*	45	Y	FAC
2. *Fraxinus pennsylvanica*	20	Y	FACW
3. *Acer saccharum*	20	Y	FACU
4.			
5.			
6.			
7.			
	85 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Ostrya virginiana*	5	Y	FACU
2. *Prunus serotina*	5	Y	FACU
3.			
4.			
5.			
6.			
7.			
	10 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Carex pedunculata*	10	Y	FAC
2. *Mitchella repens*	10	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	20 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 42.86 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	55	x 3 =	165
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column Totals:	115 (A)		365 (B)

Prevalence Index = B/A = 3.17

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Upland forest plants.

SOIL

Sampling Point: wase009_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 2.5/2	100					L	
4-14	7.5YR 3/3	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

No indicators of hydric soils were observed.

wase009_u_NW

wase009_u_S

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-23

Applicant/Owner: Enbridge State: WI Sampling Point: wase009f_w

Investigator(s): ARK/KDF Section, Township, Range: 045N-003W-23

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.364281 Long: -90.705765 Datum: WGS84

Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** _____
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: (Explain alternative procedures here or in a separate report.)
Forested wet depression within mesic hardwood forest.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Seasonally saturated recharge wetland.

VEGETATION – Use scientific names of plants.

Sampling Point: wase009f_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus nigra*	40	Y	FACW
2. *Acer rubrum*	40	Y	FAC
3. *Tilia americana*	20	N	FACU
4. *Abies balsamea*	5	N	FAC
5.			
6.			
7.			
	105 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Ilex verticillata*	5	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
	5 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Carex intumescens*	15	Y	FACW
2. *Onoclea sensibilis*	10	Y	FACW
3. *Rubus pubescens*	5	N	FACW
4. *Fragaria virginiana*	2	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	32 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	75	x 2 =	150
FAC species	45	x 3 =	135
FACU species	22	x 4 =	88
UPL species	0	x 5 =	0
Column Totals:	142 (A)		373 (B)

Prevalence Index = B/A = 2.63

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

Winterberry is dominant elsewhere in the wetland.

SOIL

Sampling Point: wase009f_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 2.5/1	100					SICL	
4-12	7.5YR 2.5/1	50	7.5YR 4/6	10	C	M	SIL	Prominent redox concentrations
4-12	7.5YR 4/3	40					SIL	
12-14	5YR 4/6	100					FSL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rocks

Depth (inches): 14

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Silty loam with redox. Soil pit limited to 14 inches due to rocks.

wase009f_w_S

wase009f_w_W

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): KDF/ARK
File #: wase009	Date of visit(s): 09/23/2019
Location: PLSS: 045N-003W-23 Lat: 46.364281 Long: -90.705472 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS12 Marengo River

SITE DESCRIPTION		
Soils: Mapped Type(s): 5172B, Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes Field Verified: Series not verified. The soils consist of a silty clay loam over a silty loam over a fine sandy loam.	WWI Class: T3/5K Forested Wetland Type(s): PFO - hardwood swamp	
	Wetland Size: 0.29	Wetland Area Impacted 0.29
Hydrology: The hydrologic regime is seasonally saturated with recharge hydrology.	Vegetation: Plant Community Description(s): The canopy is dominated by Populus tremuloides and Acer rubrum. The shrub layer is dominated by Fraxinus nigra and Ilex verticillata, and Calamogrostris canadensis, Carex intumescens, and Onoclea sensibilis dominate the herbaceous layer.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: Hunting
2	N	N	Used for educational or scientific purposes
3	N	Y	Visually or physically accessible to public
4	N	Y	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	Y	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N	N	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N	N	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	N	N	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU-3: limited accessibility, private land HU-4: wetland/upland complex predominately dominated by few species WQ-1: closed basin, recharge hydrology

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	Y	Avian, herpetofauna, mammals
Y	Y	Insects

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☐	All strata present and good assemblage of native species ☑	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☑	S3 ☐	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☐	Common ☑	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Fraxinus nigra			PFO	Abundant
Acer rubrum			PFO	Abundant
Tilia americana			PFO	Common
Abies balsamea			PFO	Common
Ilex verticillata			PFO	Common
Carex intumescens			PFO	Common
Onoclea sensibilis			PFO	Common
Rubus pubescens			PFO	Common
Fragaria virginiana			PFO	Common

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

The plant community is comprised of native species with no observed invasive species.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
X	X		L	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X	X	M	U	Removal of tree or shrub strata – logging, unprescribed fire
	X		L	C	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
	X		L	U	Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The wetland is influenced by historic logging resulting in new growth vegetation and some earthworm activity. The surrounding area is influenced by logging, earthworm activity, and ATV trails.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		✓			
Human Use Values	✓				
Wildlife Habitat		✓			
Fish and Aquatic Life Habitat					✓
Shoreline Protection					✓
Flood and Stormwater Storage		✓			
Water Quality Protection		✓			
Groundwater Processes		✓			

FUNCTION	RATIONALE
Floristic Integrity	Native species, no invasives, previously logged
Human Use Values	Limited accessibility, dense vegetation.
Wildlife Habitat	All strata present, wetland/upland complex
Fish and Aquatic Life Habitat	No standing water
Shoreline Protection	N/A
Flood and Stormwater Storage	Closed basin, dense vegetation
Water Quality Protection	See above
Groundwater Processes	Recharge hydrology

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Medium
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Medium
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-23

Applicant/Owner: Enbridge State: WI Sampling Point: wase009_u

Investigator(s): ARK/KDF Section, Township, Range: 045N-003W-23

Landform (hillslope, terrace, etc.): Crest Local relief (concave, convex, none): Convex Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.364770 Long: -90.705395 Datum: WGS84

Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: (Explain alternative procedures here or in a separate report.)
Mesic hardwood forest. Upland sample point is shared with wetland wase010f.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No indicators of wetland hydrology were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wase009_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides*	45	Y	FAC
2. *Fraxinus pennsylvanica*	20	Y	FACW
3. *Acer saccharum*	20	Y	FACU
4.			
5.			
6.			
7.			
	85 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Ostrya virginiana*	5	Y	FACU
2. *Prunus serotina*	5	Y	FACU
3.			
4.			
5.			
6.			
7.			
	10 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Carex pedunculata*	10	Y	FAC
2. *Mitchella repens*	10	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	20 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 42.86 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	55	x 3 =	165
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column Totals:	115 (A)		365 (B)

Prevalence Index = B/A = 3.17

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Upland forest plants.

SOIL

Sampling Point: wase009_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 2.5/2	100					L	
4-14	7.5YR 3/3	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

No indicators of hydric soils were observed.

wase009_u_NW

wase009_u_S

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-23

Applicant/Owner: Enbridge State: WI Sampling Point: wase012e_w

Investigator(s): ARK/KDF Section, Township, Range: 045N-003W-23

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.364034 Long: -90.704418 Datum: WGS84

Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil ✓, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes ✓ No _____**
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____

Remarks: (Explain alternative procedures here or in a separate report.)
Artificial, sedge-dominated wet meadow, created by excavation. Wetland shares upland point wase011_u.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ✓ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes ✓ No _____**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Seasonally saturated recharge wetland.

VEGETATION – Use scientific names of plants.

Sampling Point: wase012e_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
6.			
7.			
	0 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Cornus racemosa*	1	N	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	1 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Scirpus cyperinus*	60	Y	OBL
2. *Persicaria lapathifolia*	16	N	FACW
3. *Carex projecta*	2	N	FACW
4. *Stachys palustris*	2	N	OBL
5. *Bidens frondosa*	1	N	FACW
6. *Sagittaria latifolia*	1	N	OBL
7.			
8.			
9.			
10.			
11.			
12.			
	82 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	63	x 1 =	63
FACW species	19	x 2 =	38
FAC species	1	x 3 =	3
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	83 (A)		104 (B)

Prevalence Index = B/A = 1.25

Hydrophytic Vegetation Indicators:

✓ 1 - Rapid Test for Hydrophytic Vegetation

✓ 2 - Dominance Test is >50%

✓ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

Broadleaf arrowhead occurs only in wettest portion of feature.

SOIL

Sampling Point: wase012e_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**)
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
✓ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: parent material

Depth (inches): 1

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

Soil could not be sampled due to coarse parent material present within 1 inch of surface. Soil is assumed hydric based on the landscape position and dominant vegetation.

wase012e_w_NW

wase012e_w_SW

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): KDF/ARK
File #: wase012	Date of visit(s): 09/23/2019
Location: PLSS: 045N-003W-23 Lat: 46.364039 Long: -90.704428 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS12 Marengo River

SITE DESCRIPTION		
Soils: Mapped Type(s): 5172B, Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes Field Verified: Series not verified.	WWI Class: N/A Wetland Type(s): PEM - hardwood swamp	
	Wetland Size: 0.05	Wetland Area Impacted 0.05
Hydrology: The hydrologic regime is seasonally flooded within the most depressed part of the wetland and seasonally saturated within the remaining area of the wetland. The wetland has recharge hydrology and is a closed basin depression influenced by excavation.	Vegetation: Plant Community Description(s): The herbaceous layer is dominated by Scirpus cyperinus, with mosses present throughout.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	N	Y	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	Y	Ephemeral pond with water present ≥ 45 days
10	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N	N	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N	N	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	N	N	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	N	N	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	N	N	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

WH-8: the area surrounding the wetland is part of a large tract of habitat capable of providing habitat for wildlife WH-9: standing water likely present within most depressed area of wetland WQ-1: closed basin but not densely vegetated

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	Y	Herpetofauna, insects

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	Y	Aquatic invertebrates

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☐	All strata present and good assemblage of native species ☑	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☐	S3 ☐	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☐	Common ☑	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Cornus sericea			PEM	Uncommon
Scirpus cyperinus			PEM	Abundant
Persicaria lapathifolia			PEM	Uncommon
Carex projecta			PEM	Uncommon
Stachys palustris			PEM	Uncommon
Bidens frondosa			PEM	Uncommon
Sagittaria latifolia			PEM	Uncommon

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

The vegetation is comprised of native species, with no observed invasive species.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
X	X		L	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
	X	X	M	U	Removal of tree or shrub strata – logging, unprescribed fire
	X		L	C	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
	X		L	C	Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
	X		L	U	Recreational use (boating, ATVs, etc.)
X			M	U	Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The wetland is highly influenced by excavation activity. The surrounding area is influenced by previous logging and earthworm activity.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		✓			
Human Use Values	✓				
Wildlife Habitat		✓			
Fish and Aquatic Life Habitat	✓				
Shoreline Protection					✓
Flood and Stormwater Storage	✓				
Water Quality Protection	✓				
Groundwater Processes		✓			

FUNCTION	RATIONALE
Floristic Integrity	Native species, no invasives
Human Use Values	Limited accessibility
Wildlife Habitat	Standing water seasonally present, some diversity of habitat
Fish and Aquatic Life Habitat	Standing water likely present ephemeral to support aquatic invertebrates
Shoreline Protection	N/A
Flood and Stormwater Storage	Closed basin, areas of sparse vegetation
Water Quality Protection	See above
Groundwater Processes	Recharge hydrology

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Low
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Low
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-23

Applicant/Owner: Enbridge State: WI Sampling Point: wase011_u

Investigator(s): ARK/KDF Section, Township, Range: 045N-003W-23

Landform (hillslope, terrace, etc.): Backslope Local relief (concave, convex, none): None Slope (%): 3-7%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.364212 Long: -90.704130 Datum: WGS84

Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: (Explain alternative procedures here or in a separate report.)

Dry-mesic hardwood forest. Upland sample point is shared with wetland wase012e.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wase011_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus nigra*	20	Y	FACW
2. *Quercus rubra*	15	Y	FACU
3. *Acer saccharum*	15	Y	FACU
4. *Ostrya virginiana*	10	N	FACU
5. *Abies balsamea*	2	N	FAC
6.			
7.			
	62 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Corylus cornuta*	2	N	FACU
2. *Lonicera canadensis*	2	N	FACU
3.			
4.			
5.			
6.			
7.			
	4 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Mitchella repens*	15	Y	FACU
2. *Carex pedunculata*	15	Y	FAC
3. *Pyrola elliptica*	5	N	FACU
4. *Veronica officinalis*	2	N	FACU
5. *Oryzopsis asperifolia*	2	N	NI
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	39 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	17	x 3 =	51
FACU species	66	x 4 =	264
UPL species	0	x 5 =	0
Column Totals:	103 (A)		355 (B)

Prevalence Index = B/A = 3.45

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Upland forest plants.

SOIL

Sampling Point: wase011_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: parent material

Depth (inches): 6

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Non-hydric loam. Could not sample more than 6 inches of soil profile due to presence of coarse parent material.

wase011_u_N

wase011_u_S

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-23

Applicant/Owner: Enbridge State: WI Sampling Point: wase011f_w

Investigator(s): ARK/KDF Section, Township, Range: 045N-003W-23

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.364341 Long: -90.703752 Datum: WGS84

Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** **Yes** ✓ **No** _____
Hydric Soil Present?	Yes ✓	No _____	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: (Explain alternative procedures here or in a separate report.)
Forested wet-mesic depression within a mesic hardwood forest.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ✓ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✓ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** ✓ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Temporarily flooded recharge wetland.

VEGETATION – Use scientific names of plants.

Sampling Point: wase011f_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus tremuloides*	95	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	95 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Viburnum lentago*	10	Y	FAC
2. *Ilex verticillata*	10	Y	FACW
3. *Fraxinus nigra*	5	N	FACW
4. *Abies balsamea*	2	N	FAC
5.			
6.			
7.			
	27 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Osmunda claytoniana*	15	Y	FAC
2. *Carex gracillima*	10	Y	FACU
3. *Carex intumescens*	5	N	FACW
4. *Symphyotrichum lateriflorum*	2	N	FAC
5. *Calamagrostis canadensis*	2	N	OBL
6. *Poa palustris*	1	N	FACW
7.			
8.			
9.			
10.			
11.			
12.			
	35 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	21	x 2 =	42
FAC species	124	x 3 =	372
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	157 (A)		456 (B)

Prevalence Index = B/A = 2.90

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ✓ 2 - Dominance Test is >50%
- ✓ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ✓ **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

Sample plot is representative of the feature.

SOIL

Sampling Point: wase011f_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1			100			L	
2-8	10YR 2/1	90	2.5YR 3/6	10	C	M	L	Prominent redox concentrations
8-14	7.5YR 3/2	60	5YR 4/6	40	C	M	L	Prominent redox concentrations
14-20	7.5YR 4/2	50	5YR 4/6	50	C	M	SIL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ✓ **No** ___

Remarks:

The hydric soil is loam above silt loam with redox present from 2-20 inches below the soil surface, qualifying under the F6 indicator.

wase011f_w_N

wase011f_w_SW

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): KDF/ARK
File #: wase011	Date of visit(s): 09/23/2019
Location: PLSS: 045N-003W-23 Lat: 46.364363 Long: -90.703912 County: Ashland Town/City/Village: Ashland town	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River

SITE DESCRIPTION		
Soils: Mapped Type(s): 5172B, Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes Field Verified: Series not verified. The soils consist of a loam over a silt loam.	WWI Class: N/A Wetland Type(s): PFO - hardwood swamp	
	Wetland Size: 0.16	Wetland Area Impacted 0.16
Hydrology: The hydrologic regime is seasonally saturated with recharge hydrology.	Vegetation: Plant Community Description(s): The canopy is dominated by Populus tremuloides. Ilex verticillata dominates the shrub layer, and Rubus pubescens and Osmunda claytoniana dominate the herbaceous layer.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: Hunting
2	N	N	Used for educational or scientific purposes
3	N	Y	Visually or physically accessible to public
4	Y	Y	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover ≥50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	Y	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N	N	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	N	N	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N	N	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	N	N	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with ≤10% wetland
8	N	N	Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	Y	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU-1: hunting stand located nearby HU-3: limited accessibility, privately used for hunting WQ-5: dense overstory and understory with small mossy tussocks

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	Y	Avian, herpetofauna, mammals, insects

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50% ☐	20-50% ☐	10-20% ☐	<10% ☑
Strata	Missing stratum(a) or bare due to invasive species ☐	All strata present but reduced native species ☐	All strata present and good assemblage of native species ☑	All strata present, conservative species represented ☐
NHI plant community ranking	S4 ☑	S3 ☐	S2 ☐	S1-S2 (S2 high quality) ☐
Relative frequency of plant community in watershed	Abundant ☐	Common ☑	Uncommon ☐	Rare ☐
FQI (optional)	<13 ☐	13-23 ☐	23-32 ☐	>32 ☐
Mean C (optional)	<2.4 ☐	2.4-4.2 ☐	4.3-4.7 ☐	>4.7 ☐

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Populus tremuloides			PFO	Abundant
Viburnum lentago			PFO	Uncommon
Fraxinus nigra			PFO	Uncommon
Abies balsamea			PFO	Uncommon
Osmunda claytoniana			PFO	Uncommon
Carex gracillima			PFO	Uncommon
Carex intumescens			PFO	Uncommon
Symphyotrichum lateriflorum			PFO	Uncommon
Calamagrostis canadensis			PFO	Uncommon
Poa palustris			PFO	Uncommon

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

The vegetation is comprised of native plant species, with no observed invasives.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
X	X		L	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X	X	M	U	Removal of tree or shrub strata – logging, unprescribed fire
	X		L	C	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
	X		L	C	Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
	X		L	U	Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

The wetland and surrounding area are influenced by earthworm activity and previous logging. ATV trails are present nearby.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		✓			
Human Use Values		✓			
Wildlife Habitat		✓			
Fish and Aquatic Life Habitat					✓
Shoreline Protection					✓
Flood and Stormwater Storage		✓			
Water Quality Protection		✓			
Groundwater Processes		✓			

FUNCTION	RATIONALE
Floristic Integrity	Native species, no invasives
Human Use Values	Hunting, limited access
Wildlife Habitat	Diverse available habitat
Fish and Aquatic Life Habitat	No standing water
Shoreline Protection	N/A
Flood and Stormwater Storage	Closed basin with no point or non-point water inputs
Water Quality Protection	See above
Groundwater Processes	Recharge hydrology

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	Low
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	Medium
Cumulative Impacts	Operational vegetation maintenance.	Low
Spatial/Habitat Integrity	Temporary construction impacts.	Medium
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-23

Applicant/Owner: Enbridge State: WI Sampling Point: wase011_u

Investigator(s): ARK/KDF Section, Township, Range: 045N-003W-23

Landform (hillslope, terrace, etc.): Backslope Local relief (concave, convex, none): None Slope (%): 3-7%

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.364212 Long: -90.704130 Datum: WGS84

Soil Map Unit Name: Gogebic, very stony-Pence, very stony-Cathro complex, 0 to 6 percent slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** **Yes** _____ **No** ✓
Hydric Soil Present?	Yes _____	No ✓	If yes, optional Wetland Site ID: _____
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: (Explain alternative procedures here or in a separate report.)

Dry-mesic hardwood forest. Upland sample point is shared with wetland wase012e.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No ✓	Depth (inches): _____
Water Table Present?	Yes _____	No ✓	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No ✓	Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wase011_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus nigra*	20	Y	FACW
2. *Quercus rubra*	15	Y	FACU
3. *Acer saccharum*	15	Y	FACU
4. *Ostrya virginiana*	10	N	FACU
5. *Abies balsamea*	2	N	FAC
6.			
7.			
	62 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Corylus cornuta*	2	N	FACU
2. *Lonicera canadensis*	2	N	FACU
3.			
4.			
5.			
6.			
7.			
	4 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Mitchella repens*	15	Y	FACU
2. *Carex pedunculata*	15	Y	FAC
3. *Pyrola elliptica*	5	N	FACU
4. *Veronica officinalis*	2	N	FACU
5. *Oryzopsis asperifolia*	2	N	NI
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	39 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	17	x 3 =	51
FACU species	66	x 4 =	264
UPL species	0	x 5 =	0
Column Totals:	103 (A)		355 (B)

Prevalence Index = B/A = 3.45

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** _____ **No** ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Upland forest plants.

SOIL

Sampling Point: wase011_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2	100					L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: parent material

Depth (inches): 6

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

Non-hydric loam. Could not sample more than 6 inches of soil profile due to presence of coarse parent material.

wase011_u_N

wase011_u_S

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/20/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV012f_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 3-5% Lat.: 46.3630716 Long.: -90.70354405 Datum: WGS1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in forested seep which extends slightly outside of the study area south and upslope.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	X	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches): Surface

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Hydrology indicators are present.

VEGETATION - Use scientific names of plants

Sampling Point: WASV012f_W

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	63	Y	FACW
2	*Betula alleghaniensis*	10	N	FAC
3	*Acer saccharum*	3	N	FACU
4				
5				
6				
7				
8				
9				
10				
		76	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	10	Y	FACW
2	*Abies balsamea*	3	Y	FAC
3				
4				
5				
6				
7				
8				
9				
10				
		13	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex scabrata*	63	Y	OBL
2	*Impatiens capensis*	10	N	FACW
3	*Matteuccia struthiopteris*	3	N	FAC
4	*Symphyotrichum puniceum*	1	N	OBL
5	*Symphyotrichum lateriflorum*	1	N	FAC
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		78	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	15	38
Sapling/Shrub Stratum	3	7
Herb Stratum	16	39
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	64	x 1 =	64
FACW species	83	x 2 =	166
FAC species	17	x 3 =	51
FACU species	3	x 4 =	12
UPL species	0	x 5 =	0
Column totals	167 (A)		293 (B)

Prevalence Index = B/A = 1.75

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV012f_W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-4	10YR 3/2	100					Silt loam	
4-8	10YR 3/2	90	10YR 4/2	8	C	M	Gravelly silt loam	
			10YR 5/6	2	C	M		

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
_X_ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:
Indicator Redox Dark Surface (F6) present; parameter is met.

Photograph 1: WASV012f_W, North

Photograph 2: WASV012f_W, East

Photograph 3: WASV012f_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/20/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV012_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Undulating
Slope (%): 3-5% Lat.: 46.36312696 Long.: -90.70337846 Datum: WGS1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal
Are vegetation _____, soil _____, or hydrology _____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in rocky mesic forest representative of upland forests adjacent to wetland WASV012f.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	_____	No	X	Depth (inches): _____
Water table present?	Yes	_____	No	X	Depth (inches): _____
Saturation present? (includes capillary fringe)	Yes	_____	No	X	Depth (inches): _____

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No indicators of hydrology present; parameter is not met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV012_U

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	63	Y	FACU
2	*Betula alleghaniensis*	3	N	FAC
3	*Abies balsamea*	3	N	FAC
4	*Quercus rubra*	3	N	FACU
5	*Ostrya virginiana*	3	N	FACU
6				
7				
8				
9				
10				
		75	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Corylus cornuta*	3	Y	FACU
2	*Acer saccharum*	1	N	FACU
3	*Abies balsamea*	1	N	FAC
4	*Fraxinus americana*	1	N	FACU
5				
6				
7				
8				
9				
10				
		6	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Mitchella repens*	20	Y	FACU
2	*Gaultheria procumbens*	10	Y	FACU
3	*Lonicera canadensis*	3	N	FACU
4	*Quercus rubra*	3	N	FACU
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		36	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	15	38
Sapling/Shrub Stratum	1	3
Herb Stratum	7	18
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	7	x 3 =	21	
FACU species	110	x 4 =	440	
UPL species	0	x 5 =	0	
Column totals	117	(A)	461	(B)

Prevalence Index = B/A = 3.94

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

No hydrophytic vegetation present.

SOIL **Sampling Point:** WASV012_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-1	7.5YR 5/3	100					Silt loam	
1-12	7.5YR 4/6	100					Silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: Stone
Depth (inches): 12

Hydric soil present? N

Remarks:
Auger refusal at 12 inches due to stone.

Photograph 1: WASV012_U, East

Photograph 2: WASV012_U, Northeast

Photograph 3: WASV012_U, West

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION **WASV012**	
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 09/20/2019
Location: PLSS: 45N03W Lat: 46.3630716 Long: -90.70354405 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: Marengo River, LS12
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic, very stony-Pence, very stony-Cathro complex, 0-6% slopes and Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony Field Verified: Yes, very stony	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp Wetland Size: 0.143 acres / Wetland Area Impacted 0.143 acres Vegetation: Plant Community Description(s): *Fraxinus nigra*, *Betula alleghaniensis*, *Acer saccharum*, *Abies balsamea*, *Carex scabrata*
Hydrology: Groundwater seepage starting at toe of slope, drains downslope to the west, 5-7% slopes, saturated at surface, very little surface water.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: **Hunting**
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	N	N	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	N	N	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	N	N	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	Y	Y	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU1: Hunting stand and blinds observed on property but not within wetland or wetland buffer.
GW2, GW3: Saturated at surface, small pockets of standing water, water table at about 4 inches.
WH10, FA2, FA4: No standing water at time of survey and wetland does not appear to hold water for long periods of time.
WH1: Contiguous forested habitat is greater than ten acres.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
X	X	Songbirds
	X	Area Sensitive Species

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
		None; no standing water at time of survey and wetland does not appear to hold water for long periods of time.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Fraxinus nigra*	Black ash	8	PFO	15
Acer saccharum	Sugar maple	5	PFO	38
**Carex scabrata*	Eastern rough sedge	8	PFO	85
**Abies balsamea*	Balsam fir	5	PFO	15
Matteuccia struthiopteris	Ostrich fern	5	PFO	5
Osmundastrum cinnamomeum	Cinnamon fern	7	PFO	3
Rubus pubescens	Dwarf raspberry	7	PFO	15
Impatiens capensis	Touch-me-not	2	PFO	1
Symphyotrichum lateriflorum	Calico aster	3	PFO	0.5
Solidago gigantea	Giant goldenrod	3	PFO	0.5
Athyrium filix-femina	Lady fern	5	PFO	0.5
Equisetum sylvaticum	Wood horsetail	7	PFO	0.5
Onoclea sensibilis	Sensitive fern	5	PFO	1
Tilia americana	Basswood	5	PFO	1
Betula alleghaniensis	Swamp birch		PFO	
Symphyotrichum puniceum	Purplestem aster, Swamp aster		PFO	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

One buckthorn individual was observed outside the wetland boundary, otherwise a good diversity of native species was observed.
Earthworms are affecting the herbaceous layer; area was historically logged (uniform stand age).
FQI = 20.0, Mean C of C = 5.4

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
X	X		M	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X	X	L	C	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Earthworms present and tree “buttressing” is apparent. Forest stand was historically logged (uniform stand age).
Very low level of invasive species present (1 buckthorn).

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity			X		
Human Use Values	X				
Wildlife Habitat		X			
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage		X			
Water Quality Protection		X			
Groundwater Processes	X				

FUNCTION	RATIONALE
Floristic Integrity	Community altered by earthworms and historic logging; however, native flora is relatively diverse.
Human Use Values	Wetland is located on private property. It is relatively small and unlikely to be used for human recreation despite signs of hunting observed on-site.
Wildlife Habitat	Evidence of birds using wetland; wetland is located within a large contiguous forested tract that could provide habitat for area sensitive species.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. No standing water at time of survey and little evidence that the wetland can hold standing water.
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland is capturing surface water run-off from the surrounding landscape.
Water Quality Protection	Minimal pollutants are received from surrounding landscape. Wetland does not have the opportunity to capture significant amounts of pollutants.
Groundwater Processes	Minimal signs of groundwater processes: seep is saturated at surface but no water table observed.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/20/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV013f_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): None
Slope (%): 3-5% Lat.: 46.36319576 Long.: -90.70302708 Datum: WGS1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in forested seep wetland originating from side of hillslope. Wetland is groundwater-driven, but receives surface water runoff from surrounding landscape.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	X	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches): 0

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Primary and secondary indicators of wetland hydrology observed; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV013f_W

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	38	Y	FACW
2	*Betula alleghaniensis*	38	Y	FAC
3				
4				
5				
6				
7				
8				
9				
10				
		76	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	10	Y	FACW
2	*Betula alleghaniensis*	3	Y	FAC
3	*Acer saccharum*	1	N	FACU
4	*Ilex verticillata*	1	N	FACW
5				
6				
7				
8				
9				
10				
		15	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex scabrata*	63	Y	OBL
2	*Impatiens capensis*	10	N	FACW
3	*Geum aleppicum*	3	N	FAC
4	*Symphyotrichum lateriflorum*	3	N	FAC
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		79	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	15	38
Sapling/Shrub Stratum	3	8
Herb Stratum	16	40
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across 5 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	63	x 1 =	63	
FACW species	59	x 2 =	118	
FAC species	47	x 3 =	141	
FACU species	1	x 4 =	4	
UPL species	0	x 5 =	0	
Column totals	170	(A)	326	(B)

Prevalence Index = B/A = 1.92

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV013f_W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks
0-10	10YR 4/1	98	10YR 4/6	2	C	M	Silt loam	
10-12	10YR 5/1	90	10YR 4/6	10	C	M	Silt loam	
12-14	7.5YR 3/4	80	10YR 4/6	15	C	M	Silt loam	
			10YR 5/1	5	D	M		

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
_X_ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:
Indicator Depleted Matrix (F3) is present; parameter is met.

Photograph 1: WASV013f_W, East

Photograph 2: WASV013f_W, North

Photograph 3: WASV013f_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/20/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV013_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Undulating
Slope (%): 3-5% Lat.: 46.36325748 Long.: -90.7032129 Datum: WGS1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in mixed deciduous forest stand representative of uplands adjacent to wetland WASV013f.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	X	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	____	No	X	Depth (inches): ____

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No hydrology indicators present.

VEGETATION - Use scientific names of plants

Sampling Point: WASV013_U

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	20	Y	FACU
2	*Abies balsamea*	10	Y	FAC
3	*Fraxinus nigra*	10	Y	FACW
4	*Quercus rubra*	10	Y	FACU
5	*Ostrya virginiana*	3	N	FACU
6				
7				
8				
9				
10				
		53	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	3	Y	FACU
2	*Abies balsamea*	3	Y	FAC
3	*Fraxinus nigra*	3	Y	FACW
4				
5				
6				
7				
8				
9				
10				
		9	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Mitchella repens*	63	Y	FACU
2	*Lonicera canadensis*	10	N	FACU
3	*Trientalis borealis*	3	N	FAC
4	*Abies balsamea*	3	N	FAC
5	*Maianthemum canadense*	3	N	FACU
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		82	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	11	27
Sapling/Shrub Stratum	2	5
Herb Stratum	16	41
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across 8 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	13	x 2 =	26	
FAC species	19	x 3 =	57	
FACU species	112	x 4 =	448	
UPL species	0	x 5 =	0	
Column totals	144	(A)	531	(B)

Prevalence Index = B/A = 3.69

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

No hydrophytic vegetation present.

SOIL **Sampling Point:** WASV013_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-2	7.5YR 5/3	100					Silt loam	
2-9	7.5YR 5/6	100					Silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: Rock
Depth (inches): 9

Hydric soil present? N

Remarks:
No indicators of hydric soil observed. Auger refusal at 9 inches due to rock.

Photograph 1: WASV013_U, East

Photograph 2: WASV013_U, South

Photograph 3: WASV013_U, West

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION **WASV013**	
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 09/20/2019
Location: PLSS: 45N03W Lat: 46.36319576 Long: -90.70302708 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: Marengo River, LS12
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic, very stony-Pence, very stony-Cathro complex, 0-6% slopes and Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony Field Verified: Yes, very stony	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp Wetland Size: 0.137 acres / Wetland Area Impacted 0.137 acres Vegetation: Plant Community Description(s): *Fraxinus nigra*, *Betula alleghaniensis*, *Acer saccharum*, *Abies balsamea*, *Carex scabrata*
Hydrology: Groundwater seep starting at toe of slope, drains downslope to the west, 5-7% slopes, saturated at surface, very little surface water.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: **Hunting**
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	N	N	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	N	N	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	N	N	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	Y	Y	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU1: Hunting stand and blinds observed on property but not within wetland or wetland buffer.
GW2, GW3: Saturated at surface, small pockets of standing water, water table at about 4 inches.
WH10, FA2, FA4: No standing water at time of survey and wetland does not appear to hold water for long periods of time.
WH1: Contiguous forested habitat is greater than ten acres.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
X		Songbirds
	X	Area Sensitive Species

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
		None; no standing water at time of survey and wetland does not appear to hold water for long periods of time.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Fraxinus nigra*	Black ash	8	PFO	15
Acer saccharum	Sugar maple	5	PFO	38
**Carex scabrata*	Eastern rough sedge	8	PFO	85
Abies balsamea	Balsam fir	5	PFO	15
Matteuccia struthiopteris	Ostrich fern	5	PFO	5
Osmundastrum cinnamomeum	Cinnamon fern	7	PFO	3
Rubus pubescens	Dwarf raspberry	7	PFO	15
Impatiens capensis	Touch-me-not	2	PFO	1
Symphyotrichum lateriflorum	Calico aster	3	PFO	0.5
Solidago gigantea	Giant goldenrod	3	PFO	0.5
Athyrium felix-femina	Lady fern	5	PFO	0.5
Equisetum sylvaticum	Wood horsetail	7	PFO	0.5
Onoclea sensibilis	Sensitive fern	5	PFO	1
Tilia americana	Basswood	5	PFO	1
**Betula alleghaniensis*	Yellow birch		PFO	
Ilex verticillata	Winterberry		PFO	
Geum aleppicum	Yellow avens		PFO	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

A good diversity of native species was observed
FQI = 20.0, Mean C of C = 5.4
Earthworms are affecting the herbaceous layer; area historically logged (uniform stand age).

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
X	X		M	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X	X	L	C	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Earthworms present and tree “buttressing” is apparent. Forest stand was historically logged (uniform stand age).

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity			X		
Human Use Values	X				
Wildlife Habitat		X			
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage		X			
Water Quality Protection		X			
Groundwater Processes		X			

FUNCTION	RATIONALE
Floristic Integrity	Community altered by earthworms and historic logging; however, native flora is relatively diverse.
Human Use Values	Wetland is located on private property. It is relatively small and unlikely to be used for human recreation despite signs of hunting observed on-site.
Wildlife Habitat	Evidence of birds using wetland; wetland is located within a large contiguous forested tract that could provide habitat for area sensitive species.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. No standing water at time of survey and little evidence that the wetland can hold standing water.
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland is capturing surface water run-off from the surrounding landscape.
Water Quality Protection	Minimal pollutants are received from surrounding landscape. Wetland does not have the opportunity to capture significant amounts of pollutants.
Groundwater Processes	Minimal signs of groundwater processes: seep is saturated at surface, but no water table observed.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV011f_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave
Slope (%): 3-5% Lat.: 46.36367 Long.: -90.7022 Datum: WGS 1984
Soil Map Unit Name: Gogebic,very stony-Pence,very stony-Cathro complex, 0-6% slopes NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in PFO wetland dominated by black ash and yellow birch with smaller components of balsam fir and sugar maple. Groundwater and surface water components to hydrology are present.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	X	No	____	Depth (inches): 8
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches): 1

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Wetland hydrology driven by groundwater discharge and surface water input.

VEGETATION - Use scientific names of plants

Sampling Point: WASV011f_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	38	Y	FACW
2	*Abies balsamea*	20	Y	FAC
3	*Betula alleghaniensis*	10	N	FAC
4	*Acer saccharum*	3	N	FACU
5	*Thuja occidentalis*	3	N	FACW
6	*Betula papyrifera*	1	N	FACU
7				
8				
9				
10				
		75	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Abies balsamea*	38	Y	FAC
2	*Corylus cornuta*	10	N	FACU
3	*Fraxinus nigra*	3	N	FACW
4				
5				
6				
7				
8				
9				
10				
		51	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex intumescens*	20	Y	FACW
2	*Glyceria striata*	20	Y	OBL
3	*Carex scabrata*	10	N	OBL
4	*Onoclea sensibilis*	10	N	FACW
5	*Rubus pubescens*	10	N	FACW
6	*Symphyotrichum lateriflorum*	3	N	FAC
7	*Equisetum pratense*	3	N	FACW
8				
9				
10				
11				
12				
13				
14				
15				
		76	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	15	38
Sapling/Shrub Stratum	10	26
Herb Stratum	15	38
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across 5 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	30	x 1 =	30	
FACW species	87	x 2 =	174	
FAC species	71	x 3 =	213	
FACU species	14	x 4 =	56	
UPL species	0	x 5 =	0	
Column totals	202	(A)	473	(B)

Prevalence Index = B/A = 2.34

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV011f_W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-8	10YR 2/1	100					silt loam	
8-12	10YR 2/1	90	10YR 5/6	10	C	M	silt loam	
12-14	10YR 4/3	90	10YR 2/1	10	D	M	fine sandy loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
_X_ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? Y

Remarks:
Redox Dark Surface (F6) present; parameter is met.

Photograph 1: WASV011f_W, North

Photograph 2: WASV011f_W, West

Photograph 3: WASV011f_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV011_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Flat
Slope (%): 5-8% Lat.: 46.3636 Long.: -90.7023 Datum: WGS 1984
Soil Map Unit Name Gogebic,very stony-Pence,very stony-Cathro complex, 0-6% slopes NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in mesic hardwood forest adjacent to WASV011.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	X	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	____	No	X	Depth (inches): ____

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:
Only one secondary indicator of wetland hydrology present; parameter is not met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV011_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	20	Y	FACW
2	*Betula alleghaniensis*	10	Y	FAC
3	*Acer saccharum*	10	Y	FACU
4	*Abies balsamea*	3	N	FAC
5				
6				
7				
8				
9				
10				
		43	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	10	Y	FACW
2				
3				
4				
5				
6				
7				
8				
9				
10				
		10	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Cornus canadensis*	38	Y	FAC
2	*Dryopteris intermedia*	10	Y	FAC
3	*Pyrola elliptica*	10	Y	FACU
4	*Rubus pubescens*	10	Y	FACW
5	*Fraxinus nigra*	10	Y	FACW
6	*Acer spicatum*	3	N	FACU
7	*Symphyotrichum lateriflorum*	3	N	FAC
8	*Abies balsamea*	1	N	FAC
9				
10				
11				
12				
13				
14				
15				
		85	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	9	22
Sapling/Shrub Stratum	2	5
Herb Stratum	17	43
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across 9 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 77.78% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	50	x 2 =	100	
FAC species	65	x 3 =	195	
FACU species	23	x 4 =	92	
UPL species	0	x 5 =	0	
Column totals	138	(A)	387	(B)

Prevalence Index = B/A = 2.80

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV011_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-7	10YR 3/3	100					silt loam	
7-11	10YR 3/3	70	10YR 4/4	30	C	M	silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: Rock
Depth (inches): 11

Hydric soil present? N

Remarks:
No hydric soils present.

Photograph 1: WASV011_U, South

Photograph 2: WASV011_U, West

Photograph 3: WASV011_U, East

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION **WASV011**	
Project name: Line 5	Evaluator(s): Caitlin Cyrus; Chris Sheldon
File #: N/A	Date of visit(s): 09/19/2019
Location: PLSS: 45N03W Lat: 46.36367 Long: -90.7022 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: Marengo River, LS12
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic, very stony-Pence, very stony-Cathro complex, 0-6% slopes Field Verified: Yes, very stony.	WWI Class: T5K Wetland Type(s): Hardwood Swamp Wetland Size: 0.304 acres / Wetland Area Impacted 0.304 acres Vegetation: Plant Community Description(s): *Fraxinus nigra*, *Betula alleghaniensis*, *Acer saccharum*
Hydrology: Wetland is both ground and surface water-driven. Saturated at surface. 5-7% slopes draining northward. Water table at 8 inches.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: **Hunting**
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	Y	Ephemeral pond with water present ≥ 45 days
10	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	N	N	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	Y	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	Y	Y	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
HU1: Hunting stand and blinds observed on property but not within wetland or wetland buffer.
WH1: Contiguous forested habitat is greater than ten acres.
WHO, FA1: No standing water at time of survey (only saturation); however, microtopography indicates wetland could hold small ponds of water.
GW3: Saturated at surface; water table at 8 inches.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
X		Deer tracks
X		Nuthatches
	X	Area Sensitive Species

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	X	Frogs, salamanders; no standing water at time of survey, but potential to hold water during wetter seasons.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Carex intumescens*	great bladder sedge	5	PFO	15
Carex gracillima	graceful sedge	5	PFO	38
Tilia americana	American basswood	5	PFO	3
Betula alleghaniensis	yellow birch	7	PFO	3
Parthenocissus quinquefolia	Virginia creeper	5	PFO	0.5
Rubus pubescens	dwarf red blackberry	7	PFO	15
Symphyotrichum lateriflorum	calico aster	3	PFO	3
**Abies balsamea*	balsam fir	5	PFO	15
Dryopteris cristata	crested woodfern	7	PFO	0.5
**Glyceria striata*	fowl manna grass	4	PFO	15
Onoclea sensibilis	sensitive fern	5	PFO	3
Acer saccharum	sugar maple	5	PFO	15
**Fraxinus nigra*	black ash	8	PFO	38
Pyrola elliptica	shinleaf	6	PFO	3
Matteuccia struthiopteris	ostrich fern	5	PFO	3
Veronica officinalis	common gypsyweed	0	PFO	1
Corylus cornuta	beaked hazelnut	5	PFO	0.5
Trientalis borealis	American starflower, northern starflower, maystar	7	PFO	1
Thuja occidentalis	northern white-cedar, arborviate		PFO	
Betula papyrifera	paper birch		PFO	
Carex scabrata	eastern rough sedge		PFO	
Equisetum pratense	meadow horsetail		PFO	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Earthworms are affecting herbaceous cover; trees historically logged (stand age uniform).
Good diversity of common native flora.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
X	X		L	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X	X	M	C	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
Earthworms present and tree “buttressing” is apparent. Forest stand was historically logged (uniform stand age).

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		X			
Human Use Values	X				
Wildlife Habitat		X			
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage		X			
Water Quality Protection		X			
Groundwater Processes		X			

FUNCTION	RATIONALE
Floristic Integrity	Community altered by earthworms and historic logging; however, native flora is relatively diverse.
Human Use Values	Wetland is located on private property. It is relatively small and unlikely to be used for human recreation despite signs of hunting observed on-site.
Wildlife Habitat	Evidence of birds and deer using wetland; wetland is located within a large contiguous forested tract that could provide habitat for area sensitive species.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. No standing water at time of survey (only saturation), but it is possible that the wetland could hold water for periods of time during wetter seasons
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland is capturing surface water run-off from the surrounding landscape.
Water Quality Protection	Minimal pollutants are received from surrounding landscape. Wetland does not have the opportunity to capture significant amounts of pollutants.
Groundwater Processes	Signs of groundwater are present in the wetland: high water table at 8 inches and saturated at soil surface.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/20/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV014f_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Undulating
Slope (%): 5-8% Lat.: 46.36361441 Long.: -90.7011184 Datum: WGS1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in forested wetland seep. Stream SASV002e drains into wetland.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	X	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	____	No	X	Depth (inches): ____

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Primary and secondary indicators of wetland hydrology present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV014f_W

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	38	Y	FACW
2	*Ulmus americana*	10	N	FACW
3	*Abies balsamea*	3	N	FAC
4				
5				
6				
7				
8				
9				
10				
		51	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Abies balsamea*	38	Y	FAC
2	*Fraxinus nigra*	10	N	FACW
3	*Acer saccharum*	3	N	FACU
4				
5				
6				
7				
8				
9				
10				
		51	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex bromoides*	63	Y	FACW
2	*Carex crinita*	10	N	OBL
3	*Fraxinus nigra*	10	N	FACW
4	*Symphyotrichum lateriflorum*	10	N	FAC
5	*Rubus pubescens*	10	N	FACW
6	*Equisetum pratense*	3	N	FACW
7				
8				
9				
10				
11				
12				
13				
14				
15				
		106	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	10	26
Sapling/Shrub Stratum	10	26
Herb Stratum	21	53
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	10	x 1 =	10	
FACW species	144	x 2 =	288	
FAC species	51	x 3 =	153	
FACU species	3	x 4 =	12	
UPL species	0	x 5 =	0	
Column totals	208	(A)	463	(B)

Prevalence Index = B/A = 2.23

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV014f_W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-5	10YR 3/2	100					Silt loam	
5-11	10YR 3/2	97	10YR 4/6	3	C	PL	Silt loam	
11-14	7.5YR 4/6	90	7.5YR 5/8	10	C	M	Silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
_X_ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:
Indicator Redox Dark Surface (F6) present; parameter is met.

Photograph 1: WASV014f_W, East

Photograph 2: WASV014f_W, North

Photograph 3: WASV014f_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/20/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV014e_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Undulating
Slope (%): 3-5% Lat.: 46.36359463 Long.: -90.6999339 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Large wetland complex containing both PEM and PFO components. PEM portion is located within a cow pasture and portions of the ground are compacted.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	X	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	____	No	X	Depth (inches): ____

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Primary and secondary indicators of hydrology present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV014e_W

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus americana*	10	Y	FACU
2	*Ulmus americana*	3	Y	FACW
3	*Picea glauca*	1	N	FACU
4				
5				
6				
7				
8				
9				
10				
		14	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Ilex verticillata*	10	Y	FACW
2	*Salix bebbiana*	3	Y	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		13	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Juncus effusus*	38	Y	OBL
2	*Scirpus atrovirens*	38	Y	OBL
3	*Persicaria sagittata*	10	N	OBL
4	*Onoclea sensibilis*	3	N	FACW
5	*Lycopus americanus*	3	N	OBL
6	*Symphyotrichum lateriflorum*	3	N	FAC
7	*Bidens frondosa*	3	N	FACW
8	*Prunella vulgaris*	3	N	FAC
9				
10				
11				
12				
13				
14				
15				
		101	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	3	7
Sapling/Shrub Stratum	3	7
Herb Stratum	20	51
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 83.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	89	x 1 =	89	
FACW species	22	x 2 =	44	
FAC species	6	x 3 =	18	
FACU species	11	x 4 =	44	
UPL species	0	x 5 =	0	
Column totals	128	(A)	195	(B)

Prevalence Index = B/A = 1.52

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV014e_W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-7	10YR 3/1	85%	10YR 4/6	15%	C	PL	Silt loam	
7-14	10YR 5/4	60%	10YR 4/6	30%	C	M	Silt loam	
			10YR 3/1	10%	D	M		

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
_X_ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:
Indicator Redox Dark Surface (F6) is present; parameter is met.

Photograph 1: WASV014e_W, East

Photograph 2: WASV014e_W, North

Photograph 3: WASV014e_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/20/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV014_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Undulating
Slope (%): 5-8% Lat.: 46.36333223 Long.: -90.70116946 Datum: WGS1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point is located in upland forest stand adjacent to wetland WASV014f.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	X	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	____	No	X	Depth (inches): ____

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No hydrology indicators present.

VEGETATION - Use scientific names of plants

Sampling Point: WASV014_U

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	38	Y	FACU
2	*Fraxinus nigra*	20	Y	FACW
3	*Tilia americana*	20	Y	FACU
4	*Ostrya virginiana*	3	N	FACU
5	*Abies balsamea*	3	N	FAC
6				
7				
8				
9				
10				
		84	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Abies balsamea*	20	Y	FAC
2	*Fraxinus nigra*	3	N	FACW
3	*Acer saccharum*	3	N	FACU
4				
5				
6				
7				
8				
9				
10				
		26	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex pedunculata*	20	Y	FACU
2	*Lonicera canadensis*	10	Y	FACU
3	*Dryopteris intermedia*	10	Y	FAC
4	*Solidago flexicaulis*	3	N	FACU
5	*Rubus pubescens*	3	N	FACW
6	*Fraxinus nigra*	3	N	FACW
7				
8				
9				
10				
11				
12				
13				
14				
15				
		49	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	17	42
Sapling/Shrub Stratum	5	13
Herb Stratum	10	25
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across 7 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 42.86% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	29	x 2 =	58	
FAC species	33	x 3 =	99	
FACU species	97	x 4 =	388	
UPL species	0	x 5 =	0	
Column totals	159	(A)	545	(B)

Prevalence Index = B/A = 3.43

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

No hydrophytic vegetation present.

SOIL **Sampling Point:** WASV014_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-6	10YR 3/3	100%						
6-10	10YR 3/4	90%	10YR 5/4	10	C	M		

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: Stone
Depth (inches): 10

Hydric soil present? N

Remarks:
Auger refusal at 10 inches due to stone.

Photograph 1: WASV014_U, East

Photograph 2: WASV014_U, North

Photograph 3: WASV014_U, South

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION **WASV014**	
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/20/19
Location: PLSS: 45N03W Lat: 46.36361441 Long: -90.7011184 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River
SITE DESCRIPTION	
Soils: Mapped Type(s):Gogebic-Metonga-Rock outcrop complex, 6-18% slopes. Field Verified: Yes – Very stony	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp Wetland Size: 0.784 acres / Wetland Area Impacted: 0.784 acres
Hydrology: Groundwater seep area originating from hillslope and draining north. Possibly part of same system as WASV011f.	Vegetation: Plant Community Description(s): Forested seep with *Fraxinus nigra, Betula alleghaniensis, Ulmus americana, Abies balsaminea, Carex scabrata*

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: **Hunting**
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	Y	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	N	N	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	N	N	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	N	N	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	N	N	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	Y	Y	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
HU1: Hunting blinds and stands observed on the property, but outside of the wetland buffer.
GW1, GW3: Groundwater seep is saturated at surface with no water table.
SP: Ephemeral stream dissipates into wetland; shoreline protection therefore was not evaluated.
ST2, WQ3: Ephemeral stream is 5' wide X 2' deep and dissipates into wetland.
WH1: Contiguous forested habitat is greater than ten acres.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
X		Green Frog
X		Various songbirds
X		Ruffed grouse (2 individuals)

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
		None; no standing water at time of survey and wetland does not appear to hold water for long periods of time.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Carex bromoides*	Brome-like sedge	8	PFO/PEM	68
Lonicera canadensis	Fly honeysuckle	8	PFO/PEM	3
**Fraxinus nigra*	Black ash	8	PFO	38
Equisetum pratense	Meadow horsetail	9	PFO/PEM	3
Athyrium filix-femina	Lady fern	5	PFO/PEM	1
**Ulmus americana*	American elm	3	PFO	5
**Abies balsamea*	Balsam fir	5	PFO	15
Symphyotrichum lateriflorum	Calico aster	3	PFO/PEM	3
Osmunda cinnamomea	Cinnamon fern	5	PFO/PEM	3
Tilia americana	Basswood	5	PFO	1
Mitchella repens	Partridge berry	6	PFO	0.5
Solidago flexicaulis	zigzag broad-leaved goldenrod	6	PFO/PEM	1
Carex intumescens	Greater bladder sedge	5	PFO/PEM	5
Geum canadense	white avens	2	PFO	1
Acer saccharum	Sugar maple	5	PFO	5
Leersia oryzoides	Rice cutgrass	3	PEM	15
Rubus pubescens	Dwarf raspberry	7	PFO/PEM	5
Carex crinita	Fringed sedge	6	PFO/PEM	3
Fraxinus americana	White ash		PFO/PEM	
Picea glauca	White spruce		PFO/PEM	
**Ilex verticillata*	Winterberry		PEM	
**Salix bebbiana*	Bebb willow		PEM	
**Juncus effusus*	Soft rush		PEM	
**Scirpus atrovirens*	Dark-green bulrush		PEM	
Persicaria sagittata	Arrow-leaved tearthumb		PEM	
Onoclea sensibilis	Sensitive fern		PEM	
Lycopus americanus	American Water-horehound/Bugleweed		PEM	
Bidens frondosa	Devil's beggartick		PEM	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

No invasive species present within wetland; Prunella vulgaris also present.
Good diversity of native flora.
FQI = 24.0, Mean C of C=5.8

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
X	X		H	UC	Point source or stormwater discharge
X	X		H	UC	Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
X	X		H	UC	Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
X	X		M	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X	X	M	C	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
Area impacted by earthworms and forested area has been historically logged (uniform stand age).
Portion of wetland is located within a cow pasture; PEM wetland is highly impacted and water quality is affected by animal waste.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		X			
Human Use Values	X				
Wildlife Habitat		X			
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage		X			
Water Quality Protection		X			
Groundwater Processes	X				

FUNCTION	RATIONALE
Floristic Integrity	Forested wetland has a good assemblage of native plants. Portion of wetland within cow pasture is missing the tree strata and the native flora diversity is reduced.
Human Use Values	Wetland is located on private property. There are signs of hunting on the property, but stands and blinds are present well outside of the wetland buffer area.
Wildlife Habitat	Wetland is part of a large contiguous forested habitat that is likely to provide habitat for area sensitive species.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. No standing water at time of survey and little evidence that the wetland can hold standing water.
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland receives stormwater run-off from surrounding landscape and an ephemeral stream that dissipates into it.
Water Quality Protection	Wetland captures runoff from cow pasture.
Groundwater Processes	Weak evidence of groundwater processes: wetland has saturation at surface but no high water table observed.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/20/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV016f_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Concave
Slope (%): 5-8% Lat.: 46.3631032 Long.: -90.70031998 Datum: WGS1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 10-35% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in forested portion of WASV016, which is a wide drainageway to ephemeral stream SASV002e.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes ____	No	X	Depth (inches):	
Water table present?	Yes ____	No	X	Depth (inches):	
Saturation present? (includes capillary fringe)	Yes ____	No	X	Depth (inches):	

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Wetland hydrology indicators present.

VEGETATION - Use scientific names of plants

Sampling Point: WASV016f_W

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	38	Y	FACW
2	*Ulmus americana*	10	Y	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		48	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Ulmus americana*	3		FACW
2				
3				
4				
5				
6				
7				
8				
9				
10				
		3	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*	38	Y	OBL
2	*Carex bromoides*	38	Y	FACW
3	*Symphyotrichum lateriflorum*	10	N	FAC
4	*Geum aleppicum*	3	N	FAC
5	*Impatiens capensis*	3	N	FACW
6	*Epilobium ciliatum*	3	N	FACW
7	*Equisetum pratense*	3	N	FACW
8				
9				
10				
11				
12				
13				
14				
15				
		98	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	10	24
Sapling/Shrub Stratum	1	2
Herb Stratum	20	49
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	38	x 1 =	38	
FACW species	98	x 2 =	196	
FAC species	13	x 3 =	39	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	149	(A)	273	(B)

Prevalence Index = B/A = 1.83

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV016f_W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-6	7.5YR 3/2	100%					Silt loam	
6-16	7.5YR 4/4	70%	7.5YR 3/2	27%	D	M	Silt loam	
			7.5YR 4/6	3%	C	M		
16-18	7.5YR 4/4	70%	7.5YR 3/2	27%	D	M	Very fine sandy loam	
			7.5YR 4/6	3%	C	M		

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)

___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
_X_ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:
Indicator Red Parent Material (F21) is present; parameter is met.

Photograph 1: WASV016f_W, East

Photograph 2: WASV016f_W, North

Photograph 3: WASV016f_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/20/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV016e_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Concave
Slope (%): 5-8% Lat.: 46.3629175 Long.: -90.7000367 Datum: WGS1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? No
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in cow pasture with soil compaction, hydrology partly associated with treaded areas.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	X	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	____	No	X	Depth (inches): ____

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Primary and secondary indicators of hydrology present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV016e_W

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Ulmus americana*	10	Y	FACW
2	*Fraxinus nigra*	3	Y	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		13	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Ulmus americana*	3		FACW
2				
3				
4				
5				
6				
7				
8				
9				
10				
		3	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*	20	Y	OBL
2	*Carex bromoides*	20	Y	FACW
3	*Symphyotrichum lateriflorum*	10	N	FAC
4	*Geum aleppicum*	3	N	FAC
5	*Impatiens capensis*	3	N	FACW
6	*Equisetum pratense*	3	N	FACW
7				
8				
9				
10				
11				
12				
13				
14				
15				
		59	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	3	7
Sapling/Shrub Stratum	1	2
Herb Stratum	12	30
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	20	x 1 =	20
FACW species	42	x 2 =	84
FAC species	13	x 3 =	39
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	75 (A)		143 (B)

Prevalence Index = B/A = 1.91

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV016e_W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-7	10YR 3/1	90%	10YR 5/8	10%	C	PL/M	Silt loam	
7-14	7.5YR 4/4	85%	10YR 3/1	10%	D	M	Silt loam	
			10YR 5/8	5%	C	M		

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
_X_ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:
Indicator Redox Dark Surface (F6) present in wetland; parameter is met.

Photograph 1: WASV016e_W, South

Photograph 2: WASV016e_W, North

Photograph 3: WASV016e_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/20/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV016/017_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Concave
Slope (%): 5-8% Lat.: 46.36269136 Long.: -90.69987141 Datum: WGS1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? No
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	Y		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in cow pasture with soil compaction. Upland area lacking hydrology.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	X	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	____	No	X	Depth (inches): ____

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No hyrologic indicators present in upland.

VEGETATION - Use scientific names of plants

Sampling Point: WASV016/017_U

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Ostrya virginiana*	38	Y	FACU
2	*Abies balsamea*	10	N	FAC
3	*Tilia americana*	3	N	FACU
4	*Fraxinus nigra*	3	N	FACW
5				
6				
7				
8				
9				
10				
		54	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Trifolium repens*	38	Y	FACU
2	*Ranunculus acris*	20	Y	FAC
3	*Veronica officinalis*	20	Y	FACU
4	*Symphyotrichum lateriflorum*	20	Y	FAC
5	*Plantago major*	10	N	FACU
6	*Carex crinita*	3	N	OBL
7				
8				
9				
10				
11				
12				
13				
14				
15				
		111	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	11	27
Sapling/Shrub Stratum	0	0
Herb Stratum	22	56
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across 5 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 40.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	3	x 1 =	3	
FACW species	3	x 2 =	6	
FAC species	50	x 3 =	150	
FACU species	109	x 4 =	436	
UPL species	0	x 5 =	0	
Column totals	165	(A)	595	(B)

Prevalence Index = B/A = 3.61

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

Trifolium campestre present in herbaceous layer at 15% cover.

SOIL **Sampling Point:** WASV016/017_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-3	7.5YR 3/2	100					Silt loam	
3-13	7.5YR 3/3	60	7.5YR 3/1	40	D	M	Silt loam	
13-14	7.5YR 3/3	60	7.5YR 3/1	30	D	M	Silt loam	
			7.5YR 4/4	10	C	M		

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
_X_ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:
Although hydric soils are present in upland, no hydrology indicators or hydrophytic vegetation were observed.

Photograph 1: WASV016/017_U, East

Photograph 2: WASV016/017_U, North

Photograph 3: WASV016/017_U, South

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV016**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/20/19
Location: PLSS: 45N03W Lat: 46.3631032 Long: -90.70031998 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River
SITE DESCRIPTION	
Soils: Mapped Type(s):Gogebic-Metonga-Rock outcrop complex, 6-18% slopes. Field Verified: Yes - Very stony	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp & Fresh (Wet) Meadow Wetland Size: 0.114 acres / Wetland Area Impacted: 0.114 acres
Hydrology: Ground water-driven system flowing downslope to WASV015f. 5-7% slopes, oxidized rhizospheres observed. Connects in woods to SASV002e.	Vegetation: Plant Community Description(s): Wetland in cow pasture – *Juncus effusis, Leersia oryzoides, Agrostis stolonifera* Forested seep – *Fraxinus nigra, Osmunda cinnamomea, Carex bromoides*

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) – if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	N	N	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	Y	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	Y	Y	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

SP: Although connected to an ephemeral stream, we did not evaluate shoreline protection because the connection is very small.
ST5: Non point source runoff from uphill cow pasture
WQ7: Major hydrology source in wetland is from groundwater, but all surface water runoff comes from cow pasture.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	X	Songbirds
	X	Area Sensitive Species

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
		None; no standing water at time of survey and wetland does not appear to hold water for long periods of time.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Juncus effusus	Lamp rush	4	PEM	15
**Fraxinus nigra*	Black ash	8	PFO	38
Symphyotrichum lateriflorum	Calico aster	3	PFO/PEM	5
**Ulmus americana*	American elm	3	PFO/PEM	5
Lycopus americana	American horehound	4	PFO/PEM	3
**Ranunculus acris*	Tall buttercup	0	PEM	38
Persicaria hydropiperoides	Swamp smartweed	0	PEM	5
Onoclea sensibilis	Sensitive fern	5	PFOPEM	3
**Agrostis perennans*	Creeping bentgrass	4	PEM	63
Picea glauca	White spruce	7	PEM	5
**Carex bromoides*	Brome-like sedge	8	PFO	38
Acer saccharum	Sugar maple	5	PFO	5
Prunella vulgaris	heal-all, lawn prunella, self-heal	1	PFO/PEM	38
**Carex crinita*	Fringed sedge		PFO/PEM	
Geum aleppicum	Yellow avens		PFO/PEM	
Impatiens capensis	Spotted touch-me-not		PFO/PEM	
Epilobium ciliatum	Fringed willowherb		PFO/PEM	
Equisetum pratense	Meadow horsetail		PFO/PEM	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Low diversity of native flora present within PEM portion of wetland due to grazing.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
X	X		L	UC	Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
X	X		M	UC	Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
X	X		H	UC	Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X		H	C	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
X	X		M	C	Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Hydrology affected by compaction due to cows. Pollution run off from cows. Tree strata absent within cow pasture. Non-native species in wetland, but wooded buffer surrounding the area mostly native community.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity	X				
Human Use Values	X				
Wildlife Habitat	X				
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage	X				
Water Quality Protection		X			
Groundwater Processes		X			

FUNCTION	RATIONALE
Floristic Integrity	Portion of wetland within cow pasture is missing the tree strata and the native flora diversity is reduced. Several non-native species present within wetland.
Human Use Values	Wetland is on private property and primarily within a cow pasture. It is unlikely to be used recreationally due to its current land use.
Wildlife Habitat	Wetland is located on transitional edge of large contiguous forested habitat. Grazing and compaction from cows have reduced vegetation structure, reducing habitat suitability for wildlife.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. No standing water at time of survey and little evidence that the wetland can hold standing water.
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland is capturing surface water run-off, but water is quickly moving through wetland into ephemeral stream.
Water Quality Protection	Pasture portion of wetland is receiving animal waste associated with cows.
Groundwater Processes	Evidence of groundwater processes within wetland: saturation is at surface and oxidized rhizospheres are present.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV009e_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Flat
Slope (%): 1-2% Lat.: 46.36263 Long.: -90.70487 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very ston NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in small PEM receiving surface water from WASV010 via culvert under dirt access road. Evidence of flow within wetland, some channelization.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	____	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	____	No	____	Depth (inches): ____

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Surface indicators of hydrology observed. Subsurface indicators of hydrology not investigated due to the potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV009e_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*	20	Y	OBL
2	*Persicaria sagittata*	10	Y	OBL
3	*Glyceria striata*	3	N	OBL
4	*Leersia oryzoides*	3	N	OBL
5	*Onoclea sensibilis*	3	N	FACW
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		39	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	8	20
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	36	x 1 =	36	
FACW species	3	x 2 =	6	
FAC species	0	x 3 =	0	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	39	(A)	42	(B)

Prevalence Index = B/A = 1.08

Hydrophytic Vegetation Indicators:

X Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)

___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Dominance Test and Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV009e_W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? Y

Remarks:
No soils taken due to potential for underground utilities. Soils assumed to be hydric due to the presence of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV009e_W, North

Photograph 2: WASV009e_W, West

Photograph 3: WASV009e_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV009/010_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
Slope (%): 3-5% Lat.: 46.36254 Long.: -90.70485 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very ston NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in mesic hardwoods. Data is representative of conditions in upland habitats adjacent to WASV009 and WASV010.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	____	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	____	No	____	Depth (inches): ____

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

No surface hydrology indicators present. Subsurface hydrologic conditions not observed due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV009/010_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	85	Y	FACU
2				
3				
4				
5				
6				
7				
8				
9				
10				
		85	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Corylus cornuta*	20	Y	FACU
2				
3				
4				
5				
6				
7				
8				
9				
10				
		20	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Mitchella repens*	38	Y	FACU
2	*Lonicera canadensis*	20	Y	FACU
3	*Acer saccharum*	3	N	FACU
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		61	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	17	43
Sapling/Shrub Stratum	4	10
Herb Stratum	12	31
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	0	x 3 =	0	
FACU species	166	x 4 =	664	
UPL species	0	x 5 =	0	
Column totals	166	(A)	664	(B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

No hydrophytic vegetation present.

SOIL **Sampling Point:** WASV009/010_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? N

Remarks:
No soils taken due to potential for underground utilities. Soils assumed to be non-hydric due to lack of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV009/010_U, North

Photograph 2: WSAV009/010_U, West

Photograph 3: WASV009/010_U, South

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV009**
Project name: Line 5	Evaluator(s): Caitlin Cyrus; Chris Sheldon
File #: N/A	Date of visit(s): 09/19/2019
Location: PLSS: 45N03W Lat: 46.36263 Long: -90.70487 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River

SITE DESCRIPTION		
Soils: Mapped Type(s): Gogebic-Metonga Rock outcrop complex, 6-18% slope very stony Field Verified: No ground disturbance due to the potential for underground utilities	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow	
	Wetland Size: 0.006 acres	Wetland Area Impacted 0.006 acres
Hydrology: Receiving stormwater input from culvert connected underneath access road to WASV010, draining west offsite.	Vegetation: Plant Community Description(s): *Carex crinita, Scirpus cyperinus, Osmunda cinnamomea*	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	Y	Y	Used for recreation (hunting, birding, hiking, etc.). List: **Hunting**
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	N	N	Water flow through wetland is NOT channelized
3	N	N	Dense, persistent vegetation
4	Y	Y	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	N	N	Water flow through wetland is NOT channelized
4	Y	Y	Vegetated wetland associated with a lake or stream
5	N	N	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU1: Hunting stand observed adjacent to wetland.
ST4: Wetland has thin drainage pattern
WH10, FA2, FA4: No standing water at time of survey and wetland does not appear to hold water for long periods of time.
GW: Subsurface indicators of wetland hydrology were not investigated due to the potential for underground utilities.
WH1: Contiguous forested habitat is greater than ten acres.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	X	Songbirds
	X	Area Sensitive Species

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
		None; no standing water at time of survey and wetland does not appear to hold water for long periods of time.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Mentha canadensis	field mint, wild mint	3	PEM	1
Epilobium ciliatum	fringed willowherb	3	PEM	1
Symphyotrichum lateriflorum	calico aster	3	PEM	3
Calamagrostis stricta	slim-stem reed grass, slim-stem small reed grass	7	PEM	38
Agrostis perennans	upland bent	4	PEM	5
Carex intumescens	greater bladder sedge, shining bur sedge	5	PEM	5
**Persicaria sagittata*	arrowleaf tearthumb	6	PEM	0.5
**Carex crinita*	fringed sedge	6	PEM	1
Prunella vulgaris	common selfheal	1	PEM	1
Onoclea sensibilis	sensitive fern	5	PEM	3
Glyceria striata	fowl mannagrass		PEM	
Leersia oryzoides	rice cutgrass		PEM	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

FQI = 11.7, Mean C of C = 4.4

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
X	X		L	C	Hydrologic changes - high capacity wells, impounded water, increased runoff
X	X		L	UC	Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
X	X		H	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X		H	C	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
X	X		L	UC	Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Increased runoff and flow from access road due to compaction.
Tree strata missing due to human disturbance (access road).

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		X			
Human Use Values	X				
Wildlife Habitat	X				
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage	X				
Water Quality Protection	X				
Groundwater Processes	X				

FUNCTION	RATIONALE
Floristic Integrity	Tree and shrub/sapling strata are missing; good diversity of native flora throughout.
Human Use Values	Wetland is on private property and is affected by the presence of the access road; it is relatively small and unlikely to be used for human recreation, despite signs pf hunting observed on-site.
Wildlife Habitat	Large contiguous acreage of forest supports habitat for wildlife; however, wetland is located along transitional edge of forest and in and of itself does not provide high quality habitat.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. No standing water at time of survey and wetland does not appear to hold standing water for long periods of time.
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland is capturing surface water run-off from the surrounding landscape and the adjacent access road. Wetland is surface water-driven; however, drainage patterns indicate water is passing quickly through wetland.
Water Quality Protection	Possible pollutants could be entering wetland from the adjacent access road, and minimal pollutants received from surrounding landscape. Wetland does not have the opportunity to capture significant amounts of pollutants.
Groundwater Processes	No sign of groundwater observed in wetland hydrology. Subsurface indicators of wetland hydrology were not observed due to the potential for underground utilities.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV010e_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 0-2% Lat.: 46.36257 Long.: -90.70478 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very ston NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in PEM adjacent to dirt access road. Formed from access road drainage system (roadside swale), and receives surface water from uphill portions of drainage system. Connected via culvert to WASV009.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	____	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	____	No	____	Depth (inches): ____

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Surface wetland hydrology indicators present. Subsurface hydrologic conditions not observed due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV010e_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Scirpus atrovirens*	62	Y	OBL
2	*Leersia oryzoides*	20	Y	OBL
3	*Carex crinita*	10	N	OBL
4	*Epilobium ciliatum*	3	N	FACW
5	*Juncus effusus*	1	N	OBL
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		96	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	19	48
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	93	x 1 =	93
FACW species	3	x 2 =	6
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	96 (A)		99 (B)

Prevalence Index = B/A = 1.03

Hydrophytic Vegetation Indicators:

X Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)

___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Dominance Test and Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV010e_W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? Y

Remarks:
No soils taken due to potential for underground utilities. Soils assumed to be hydric due to presence of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV010e_W, North

Photograph 2: WASV010e_W, South

Photograph 3: WASV010e_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV009/010_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
Slope (%): 3-5% Lat.: 46.36254 Long.: -90.70485 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very ston NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in mesic hardwoods. Data is representative of conditions in upland habitats adjacent to WASV009 and WASV010.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	____	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	____	No	____	Depth (inches): ____

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

No surface hydrology indicators present. Subsurface hydrologic conditions not observed due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV009/010_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	85	Y	FACU
2				
3				
4				
5				
6				
7				
8				
9				
10				
		85	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Corylus cornuta*	20	Y	FACU
2				
3				
4				
5				
6				
7				
8				
9				
10				
		20	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Mitchella repens*	38	Y	FACU
2	*Lonicera canadensis*	20	Y	FACU
3	*Acer saccharum*	3	N	FACU
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		61	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	17	43
Sapling/Shrub Stratum	4	10
Herb Stratum	12	31
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	0	x 3 =	0	
FACU species	166	x 4 =	664	
UPL species	0	x 5 =	0	
Column totals	166	(A)	664	(B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

No hydrophytic vegetation present.

SOIL **Sampling Point:** WASV009/010_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? N

Remarks:
No soils taken due to potential for underground utilities. Soils assumed to be non-hydric due to lack of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV009/010_U, North

Photograph 2: WASV009/010_U, West

Photograph 3: WASV009/010_U, South

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV010**
Project name: Line 5	Evaluator(s): Caitlin Cyrus; Chris Sheldon
File #: N/A	Date of visit(s): 09/19/2019
Location: PLSS: 45N03W Lat: 46.36257 Long: -90.70478 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River

SITE DESCRIPTION		
Soils: Mapped Type(s): Gogebic-Metonga Rock outcrop complex, 6-18% slope very stony Field Verified: No ground disturbance due to the potential for underground utilities	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow	
	Wetland Size: 0.039 acres	Wetland Area Impacted: 0.039 acres
Hydrology: Surface water-driven wetland; connected underneath access road via culvert to WASV009e. 3-5% slopes.	Vegetation: Plant Community Description(s): *Carex crinita, Scirpus cyperinus, Osmunda cinnamomea*	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	Y	Y	Used for recreation (hunting, birding, hiking, etc.). List: **Hunting**
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	Y	Y	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	N	N	Water flow through wetland is NOT channelized
4	Y	Y	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU1: Hunting stand observed adjacent to wetland.
ST4: Wetland has thin drainage patterns
WH10, FA2, FA4: No standing water at time of survey and wetland does not appear to hold water for long periods of time.
GW: Subsurface indicators of wetland hydrology were not investigated due to the potential for underground utilities.
WH1: Contiguous forested habitat is greater than ten acres.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	X	Songbirds
	X	Area sensitive species

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
		None; no standing water at time of survey and wetland does not appear to hold water for long periods of time.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	**Medium**	**High**	**Exceptional**
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	**Common Name**	**C of C**	**Plant communities**	**Comments (Estimate of % Cover, Abundance)**
Scirpus cyperinus	woolgrass	4	PEM	
**Scirpus atrovirens*	green bulrush	3	PEM	
Symphyotrichum lateriflorum	calico aster	3	PEM	
Impatiens capensis	jewelweed	1	PEM	
Persicaria sagittata	arrow-leaved tear-thumb	6	PEM	
Carex crinita	fringed sedge	6	PEM	
Ulmus americana	American elm	3	PEM	
**Leersia oryzoides*	rice cutgrass		PEM	
Epilobium ciliatum	fringed willowherb		PEM	
Juncus effusus	soft rush		PEM	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
X	X		L	C	Hydrologic changes - high capacity wells, impounded water, increased runoff
X	X		L	UC	Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
X	X		H	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X		H	C	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
X	X		L	UC	Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Increased runoff and flow from access road due to compaction.
Tree strata missing due to human disturbance (access road).

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		X			
Human Use Values	X				
Wildlife Habitat	X				
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage	X				
Water Quality Protection	X				
Groundwater Processes	X				

FUNCTION	RATIONALE
Floristic Integrity	Tree and shrub/sapling strata are missing; good diversity of native flora throughout.
Human Use Values	Wetland is on private property and is affected by the presence of the access road; it is relatively small and unlikely to be used for human recreation, despite signs of hunting observed on-site.
Wildlife Habitat	Large contiguous acreage of forest supports habitat for wildlife; however, wetland is located along transitional edge of forest and in and of itself does not provide high quality habitat.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. No standing water at time of survey and wetland does not appear to hold standing water for long periods of time.
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland is capturing surface water run-off from the surrounding landscape and the adjacent access road. Wetland is surface water-driven; however, drainage patterns indicate water is passing quickly through wetland.
Water Quality Protection	Possible pollutants could be entering wetland from the adjacent access road, and minimal pollutants received from surrounding landscape. Wetland does not have the opportunity to capture significant amounts of pollutants.
Groundwater Processes	No sign of groundwater observed in wetland hydrology. Subsurface indicators of wetland hydrology were not observed due to the potential for underground utilities.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/20/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV015f_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 1-2% Lat.: 46.36249485 Long.: -90.7006698 Datum: WGS1984
Soil Map Unit Name Gogebic fine sandy loam, 1-6% slopes, very stony, rocky NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in small depression at the top of a hill. Stream SASV002e originates from wetland WASV015f and drains downslope to WASV014f. WASV015 and WASV017 are part of the same wetland complex, but connect offsite.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- X Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	X	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	____	No	X	Depth (inches): ____

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Primary and secondary indicators of wetland hydrology observed; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV015f_W

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus pennsylvanica*	63	Y	FACW
2	*Tilia americana*	10	N	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		73	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	20	Y	FACW
2	*Tilia americana*	10	Y	FACU
3	*Ostrya virginiana*	3	N	FACU
4				
5				
6				
7				
8				
9				
10				
		33	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex bromoides*	63	Y	FACW
2	*Fraxinus nigra*	3	N	FACW
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		66	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	15	37
Sapling/Shrub Stratum	7	17
Herb Stratum	13	33
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 75.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	149	x 2 =	298	
FAC species	0	x 3 =	0	
FACU species	23	x 4 =	92	
UPL species	0	x 5 =	0	
Column totals	172	(A)	390	(B)

Prevalence Index = B/A = 2.27

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)

___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV015f_W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-6	10YR 3/2	100%					Silt loam	
6-13	7.5YR 3/4	100%					Silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
_X_ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:
Indicator Red Parent Material (F21) present; parameter is met.

Photograph 1: WASV015f_W, South

Photograph 2: WASV015f_W, North

Photograph 3: WASV015f_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/20/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV015_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Flat
Slope (%): 3-5% Lat.: 46.36255813 Long.: -90.70057453 Datum: WGS1984
Soil Map Unit Name Gogebic fine sandy loam, 1-6% slopes, very stony, rocky NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal
Are vegetation _____, soil _____, or hydrology _____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Upland point taken in mixed hardwood forest adjacent to WASV015f.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Sparsely Vegetated Concave Surface (B8)
___ Water-Stained Leaves (B9)
___ Aquatic Fauna (B13)
___ Marl Deposits (B15)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Drainage Patterns (B10)
___ Moss Trim Lines (B16)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Stunted or Stressed Plants (D1)
___ Geomorphic Position (D2)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)
___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	_____	No	X	Depth (inches): _____
Water table present?	Yes	_____	No	X	Depth (inches): _____
Saturation present? (includes capillary fringe)	Yes	_____	No	X	Depth (inches): _____

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No hydrology indicators are present.

VEGETATION - Use scientific names of plants

Sampling Point: WASV015_U

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	38	Y	FACU
2	*Ostrya virginiana*	20	Y	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		58	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Ostrya virginiana*	38	Y	FACU
2				
3				
4				
5				
6				
7				
8				
9				
10				
		38	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Mitchella repens*	63	Y	FACU
2	*Fraxinus nigra*	20	Y	FACW
3	*Abies balsamea*	3	N	FAC
4	*Maianthemum canadense*	3	N	FACU
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		89	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	12	29
Sapling/Shrub Stratum	8	19
Herb Stratum	18	45
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across 5 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 20.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	20	x 2 =	40	
FAC species	3	x 3 =	9	
FACU species	162	x 4 =	648	
UPL species	0	x 5 =	0	
Column totals	185	(A)	697	(B)

Prevalence Index = B/A = 3.77

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

No hydrophytic vegetation present.

SOIL **Sampling Point:** WASV015_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-5	10YR 3/3	100%					Silt loam	
5-13	7.5YR 4/4	100%					Silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___N___

Remarks:
No indicators of hydric soil present.

Photograph 1: WASV015_U, South

Photograph 2: WASV015_U, North

Photograph 3: WASV015_U, West

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV015**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/20/19
Location: PLSS: 45N03W Lat: 46.36249485 Long: -90.7006698 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River
SITE DESCRIPTION	
Soils: Mapped Type(s):Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony. Field Verified: Yes - very stony	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp Wetland Size: 0.066 acres / Wetland Area Impacted: 0.066 acres
Hydrology: Wetland received surface water, originating at top of hill and draining via ephemeral stream SASV002e to WASV014f. FAC Neutral, drainage patterns, drift deposits observed. WASV015 connects to WASV017 off-site.	Vegetation: Plant Community Description(s): Forested seep with *Fraxinus nigra, Ulmus americana, Abies balsamea, Carex bromoides*

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	Y	Used for recreation (hunting, birding, hiking, etc.). List: **Hunting**
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	N	N	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	N	N	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	Y	Y	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	N	N	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	Y	Y	Springs, seeps or indicators of groundwater present
2	Y	Y	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
HU1: Hunting blinds and stands observed on the property, but outside of the wetland buffer.
SP: Although connected to an ephemeral stream, did not evaluate shoreline protection because wetland is situated at its headwaters.
ST4: Drainage patterns, drift deposits observed
ST2 & WQ3: Ephemeral stream 5'wide x 2' deep
WH1: Contiguous forested habitat is greater than ten acres.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	X	Songbirds
	X	Area Sensitive Species

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
		None; no standing water at time of survey and wetland does not appear to hold water for long periods of time.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Carex bromoides*	Brome-like sedge	8	PFO/PEM	63
**Fraxinus nigra*	Black ash	8	PFO	5
Athyrium filix-femina	Lady fern	5	PFO/PEM	15
**Ulmus americana*	American elm	3	PFO	63
Corylus cornuta	Beaked hazelnut	5	PFO/PEM	1
Dryopteris intermedia	Intermediate wood fern	7	PFO/PEM	1
Pilea pumila	Canadian clearweed	3	PFO	1
Carex intumescens	Greater bladder sedge	5	PFO	1
**Fraxinus pennsylvanica*	Green ash		PFO	
**Tilia americana*	American basswood		PFO	
Ostrya virginiana	American hophornbeam		PFO	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
No invasive species present within wetland.
Low diversity of native flora.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
X	X		L	UC	Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
X	X		H	C	Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
X	X		M	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X		L	C	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Area impacted by earthworms and forested area has been historically logged (uniform stand age).
Wetland is in wooded forest stand adjacent to a cow pasture; some runoff received from pasture.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		X			
Human Use Values	X				
Wildlife Habitat		X			
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage		X			
Water Quality Protection	X				
Groundwater Processes	X				

FUNCTION	RATIONALE
Floristic Integrity	Forested wetland has a good assemblage of native plants. Portion of wetland within cow pasture is missing the tree strata and the native flora diversity is reduced.
Human Use Values	Wetland is relatively small and located on private property. There are signs of hunting on the property, but stands and blinds are present well outside of the wetland buffer area.
Wildlife Habitat	Wetland is part of a large contiguous forested habitat that is likely to provide habitat for area sensitive species.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. No standing water at time of survey and little evidence that the wetland can hold standing water.
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland captures surface water run-off from surrounding landscape, but water moves quickly through wetland and channelizes at the headwaters to an ephemeral stream.
Water Quality Protection	Wetland may capture run-off from the adjacent cow pasture.
Groundwater Processes	Weak evidence of groundwater processes: wetland has saturation at surface but no high water table.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/21/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV018e_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Flat
Slope (%): 1-2% Lat.: 46.36253246 Long.: -90.6987219 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation X, soil X, or hydrology X significantly disturbed? Are "normal
Are vegetation ___, soil ___, or hydrology ___ naturally problematic? circumstances" present? No
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in cow pasture. Soil, vegetation, and hydrology all disturbed from land use and soil compaction. Wetland is a floodplain formed at toe of slope to stream SASV003p edge.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches): ___
Water table present?	Yes	X	No	___	Depth (inches): 12
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 0

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV018e_W

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Glyceria striata*	38	Y	OBL
2	*Ranunculus acris*	20	Y	FAC
3	*Carex bromoides*	20	Y	FACW
4	*Impatiens capensis*	10	N	FACW
5	*Onoclea sensibilis*	3	N	FACW
6	*Symphyotrichum lateriflorum*	3	N	FAC
7	*Persicaria sagittata*	3	N	OBL
8				
9				
10				
11				
12				
13				
14				
15				
		97	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	19	49
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	41	x 1 =	41	
FACW species	33	x 2 =	66	
FAC species	23	x 3 =	69	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	97	(A)	176	(B)

Prevalence Index = B/A = 1.81

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV018e_W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-8	7.5YR 4/4	80	7.5YR 3/1	20	D	M	Very fine sandy loam	
8-15	7.5YR 3/3	100					Very fine sandy loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
_X_ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:
Indicator Red Parent Material (F21) is present; parameter is met.

Photograph 1: WASV018e_W, South

Photograph 2: WASV018e_W, North

Photograph 3: WASV018e_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/21/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV018_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Bluff Local relief (concave, convex, none): None
Slope (%): 1-2% Lat.: 46.36246298 Long.: -90.69884055 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? No
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in cow pasture with compacted soil. Representative of upland areas adjacent to WASV018e.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	X	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	____	No	X	Depth (inches): ____

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No hydrology indicators observed.

VEGETATION - Use scientific names of plants

Sampling Point: WASV018_U

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Ostrya virginiana*	20	Y	FACU
2	*Abies balsamea*	20	Y	FAC
3	*Acer saccharum*	3	N	FACU
4	*Tsuga canadensis*	3	N	FACU
5	*Picea glauca*	1	N	FACU
6				
7				
8				
9				
10				
		47	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Tsuga canadensis*	1		FACU
2				
3				
4				
5				
6				
7				
8				
9				
10				
		1	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Mitchella repens*	38	Y	FACU
2	*Symphyotrichum lateriflorum*	20	Y	FAC
3	*Carex crinita*	3	N	OBL
4	*Fraxinus nigra*	3	N	FACW
5	*Abies balsamea*	3	N	FAC
6	*Picea glauca*	1	N	FACU
7	*Maianthemum canadense*	1	N	FACU
8	*Pteridium aquilinum*	1	N	FACU
9				
10				
11				
12				
13				
14				
15				
		70	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	9	24
Sapling/Shrub Stratum	0	1
Herb Stratum	14	35
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	3	x 1 =	3	
FACW species	3	x 2 =	6	
FAC species	43	x 3 =	129	
FACU species	69	x 4 =	276	
UPL species	0	x 5 =	0	
Column totals	118	(A)	414	(B)

Prevalence Index = B/A = 3.51

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

No hydrophytic vegetation present.

SOIL **Sampling Point:** WASV018_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-5	7.5YR 4/4	100					Silt loam	
5-14	7.5YR 4/6	100					Silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
_X_ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___N___

Remarks:
No indicators of hydric soil observed.

Photograph 1: WASV018_U, South

Photograph 2: WASV018_U, North

Photograph 3: WASV018_U, West

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV018**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/21/19
Location: PLSS: 45N03W Lat: 46.362494 Long: -90.698702 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony Field Verified: Yes – very stony	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow Wetland Size: 0.031 acres / Wetland Area Impacted: 0.031 acres
Hydrology: Small floodplain bench on left bank of SASV003p, 0-3% slope; water table at 12"; saturated at surface; water lines, drainage patterns; wetland receives water from overbank flooding and surface water runoff from upslope areas of cow pasture. Algal mats present.	Vegetation: Plant Community Description(s): Sedge-dominated cow pasture (PEM): *Carex bromoides, Impatiens capensis; Glyceria striata*

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	N	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	Y	Y	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	Y	Y	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	Y	Y	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	Y	Y	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	N	N	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	Y	Y	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	N	N	Water flow through wetland is NOT channelized
4	Y	Y	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	Y	Y	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	Y	Y	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	Y	Y	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
ST2 & WQ3: Water flows thru wetland via SASV003p
WQ6, WQ7, & WQ9: Wetland is located within a cow pasture, and there are signs of cow use throughout area. Algal mats observed.
WH7: Habitat complexity is low, and wetland is small. Birds may use for foraging.
GW1 – Water table at 12 inches; saturated at surface; primary hydrology is from overbank flow from stream and surface water runoff from adjacent uplands.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	X	Songbirds

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
		None; no standing water at time of survey and wetland does not appear to hold water for long periods of time.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Carex bromoides*	brome-like sedge	8	PEM	38
Agrostis perennans	upland bent	4	PEM	38
**Glyceria striata*	fowl manna grass	4	PEM	15
Impatiens capensis	jewelweed	2	PEM	38
Prunella vulgaris	common selfheal	1	PEM	15
Symphyotrichum lateriflorum	side-flowering aster	3	PEM	3
Persicaria hydropiperoides	false water-pepper	6	PEM	1
Lycopus americanus	American water horehound	4	PEM	5
Onoclea sensibilis	sensitive fern	5	PEM	3
Bidens frondosa	common beggar-ticks	1	PEM	1
Trifolium campestre	field clove	0	PEM	5
**Ranunculus acris*	common buttercup	0	PEM	15
Trifolium pratense	red clover	0	PEM	3
Persicaria sagittata	arrow-leaved tearthumb		PEM	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Tree and shrub strata removed within cow pasture. Active cattle grazing prevents significant tree and shrub recruitment. Non-native species present within wetland.
FQI = 8.9, Mean C of C = 2.5

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
X	X		L	UC	Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
X	X		M	UC	Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
X	X		H	C	Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
X	X		M	C	Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X		M	C	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
X	X		M	UC	Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
Compaction from cows creates increased runoff into wetland. Manure from cows likely washes into wetland, and algal mats were observed.
Tree and shrub strata missing within wetland, and herbaceous layer grazed by cows.
Non-native species are present in community assemblage.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity	X				
Human Use Values	X				
Wildlife Habitat	X				
Fish and Aquatic Life Habitat	X				
Shoreline Protection		X			
Flood and Stormwater Storage		X			
Water Quality Protection		X			
Groundwater Processes	X				

FUNCTION	RATIONALE
Floristic Integrity	Wetland is missing the tree and sapling/shrub strata and the native flora diversity is reduced. Non-native species present within wetland.
Human Use Values	Wetland is on private property and within a cow pasture. It is unlikely to be used recreationally due to its current land use.
Wildlife Habitat	May provide small amounts of forage for songbirds, but wetland is small and structural complexity and connectivity to natural landscape is low.
Fish and Aquatic Life Habitat	Although connected to a stream, potential for wetland to hold water for substantial periods of time is low.
Shoreline Protection	Wetland vegetation provides bank stability during high flow.
Flood and Stormwater Storage	Wetland has potential to store and dissipate water from storm/high-flow events, but it is small in size.
Water Quality Protection	Wetland is capturing pollutant runoff from cattle pasture. Manure in wetland.
Groundwater Processes	No signs of groundwater processes within wetland. Hydrology appears to be driven by overbank flow from adjacent stream.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/21/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV017f_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Flat
Slope (%): 1-2% Lat.: 46.36188351 Long.: -90.70027061 Datum: WGS 1984
Soil Map Unit Name Gogebic fine sandy loam, 1-6% slopes, very stony, rocky NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)
WASV017 is primarily a PEM wetland within a cow pasture, with fringes of PFO wetland outside of the pasture boundaries. WASV017 and WASV015 are part of the same wetland complex and are connected off-site.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- X Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes ____	No X	Depth (inches): ____	**Indicators of wetland hydrology present?** Y
Water table present?	Yes ____	No X	Depth (inches): ____	
Saturation present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____	

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Primary and secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV017f_W

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	85	Y	FACW
2	*Tilia americana*	3	N	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		88	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	20	Y	FACW
2	*Tilia americana*	10	Y	FACU
3	*Ostrya virginiana*	3	N	FACU
4	*Salix bebbiana*	1	N	FACW
5				
6				
7				
8				
9				
10				
		34	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex bromoides*	85	Y	FACW
2	*Onoclea sensibilis*	3	N	FACW
3	*Impatiens capensis*	3	N	FACW
4	*Rubus pubescens*	3	N	FACW
5	*Symphyotrichum lateriflorum*	3	N	FAC
6	*Persicaria sagittata*	3	N	OBL
7	*Carex stipata*	3	N	OBL
8	*Eutrochium maculatum*	3	N	OBL
9				
10				
11				
12				
13				
14				
15				
		106	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	18	44
Sapling/Shrub Stratum	7	17
Herb Stratum	21	53
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 75.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	9	x 1 =	9	
FACW species	200	x 2 =	400	
FAC species	3	x 3 =	9	
FACU species	16	x 4 =	64	
UPL species	0	x 5 =	0	
Column totals	228	(A)	482	(B)

Prevalence Index = B/A = 2.11

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV017f_W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-2	10YR 3/1	100					Silt loam	
2-4	10YR 3/1	90	10YR 5/1	10	D	M	Silt loam	
4-8	10YR 5/1	90	10YR 3/1	10	D	M	Silt loam	
8-15	7.5YR 5/4	90	10YR 3/1	10	D	M	Very fine sandy loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)

___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
_X_ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
_X_ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:
Indicators Depleted Matrix (F3) and Depleted Dark Surface (F7) are present; parameter is met.

Photograph 1: WASV017f_W, South

Photograph 2: WASV017f_W, North

Photograph 3: WASV017f_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/20/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV017e_W1
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 1-2% Lat.: 46.36238201 Long.: -90.69954048 Datum: WGS1984
Soil Map Unit Name Gogebic fine sandy loam, 1-6% slopes, very stony, rocky NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? No
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

WASV017 is primarily a PEM wetland within a cow pasture, with fringes of PFO wetland outside of the pasture boundaries. WASV017 and WASV015 are part of the same wetland complex and are connected off-site.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes ____	No X	Depth (inches): ____	**Indicators of wetland hydrology present?** Y
Water table present?	Yes ____	No X	Depth (inches): ____	
Saturation present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____	

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Wetland hydrology indicators present.

VEGETATION - Use scientific names of plants

Sampling Point: WASV017e_W1

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Juncus effusus*	38	Y	OBL
2	*Ranunculus acris*	38	Y	FAC
3	*Persicaria sagittata*	20	N	OBL
4	*Plantago major*	20	N	FACU
5	*Carex crinita*	10	N	OBL
6	*Lycopus americanus*	3	N	OBL
7	*Oxalis stricta*	3	N	FACU
8	*Dryopteris cristata*	1	N	OBL
9				
10				
11				
12				
13				
14				
15				
		133	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	27	67
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	72	x 1 =	72
FACW species	0	x 2 =	0
FAC species	38	x 3 =	114
FACU species	23	x 4 =	92
UPL species	0	x 5 =	0
Column totals	133 (A)		278 (B)

Prevalence Index = B/A = 2.09

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV017e_W1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-6	10YR 3/1	95%	10YR 4/6	5%	C	M	Silt loam	
6-8	10YR 3/1	100%					Gravelly silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
_X_ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: Rock
Depth (inches): 8

Hydric soil present? Y

Remarks:
Indicator Redox Dark Surface (F6) present; parameter is met. Auger refusal at 8 inches due to rock.

Photograph 1: WASV017e_W1, East

Photograph 2: WASV017e_W1, North

Photograph 3: WASV017e_W1, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/21/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV017e_W2
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 1-2% Lat.: 46.36123011 Long.: -90.69901846 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? No
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Wetland seep located in cow pasture and experiencing soil compaction. Pockets of standing water were observed throughout the wetland.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	X	No	____	Depth (inches): 1
Water table present?	Yes	X	No	____	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches): ____

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Primary and secondary indicators of hydrology observed; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV0017e_W2

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Glyceria canadensis*	38	Y	OBL
2	*Carex crinita*	20	Y	OBL
3	*Symphyotrichum puniceum*	10	N	OBL
4	*Juncus effusus*	10	N	OBL
5	*Lycopus americanus*	10	N	OBL
6	*Scirpus cyperinus*	3	N	OBL
7	*Eupatorium perfoliatum*	3	N	FACW
8				
9				
10				
11				
12				
13				
14				
15				
		94	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	19	47
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	91	x 1 =	91
FACW species	3	x 2 =	6
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	94 (A)		97 (B)

Prevalence Index = B/A = 1.03

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV017e_W2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-8	10YR 2/1	100					Muck	
8-16	10YR 5/1	100					Silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
_X_ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)

___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
_X_ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:
Indicators Histic Epipedon (A2) and Depleted Matrix (F3) observed; parameter is met.

Photograph 1: WASV017e_W2, Southeast

Photograph 2: WASV017e_W2, North

Photograph 3: WASV017e_W2, Southwest

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/20/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV016/017_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Concave
Slope (%): 5-8% Lat.: 46.36269136 Long.: -90.69987141 Datum: WGS1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? No
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	Y		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in cow pasture with soil compaction. Upland area lacking hydrology.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	X	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	____	No	X	Depth (inches): ____

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No hyrologic indicators present in upland.

VEGETATION - Use scientific names of plants

Sampling Point: WASV016/017_U

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Ostrya virginiana*	38	Y	FACU
2	*Abies balsamea*	10	N	FAC
3	*Tilia americana*	3	N	FACU
4	*Fraxinus nigra*	3	N	FACW
5				
6				
7				
8				
9				
10				
		54	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Trifolium repens*	38	Y	FACU
2	*Ranunculus acris*	20	Y	FAC
3	*Veronica officinalis*	20	Y	FACU
4	*Symphyotrichum lateriflorum*	20	Y	FAC
5	*Plantago major*	10	N	FACU
6	*Carex crinita*	3	N	OBL
7				
8				
9				
10				
11				
12				
13				
14				
15				
		111	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	11	27
Sapling/Shrub Stratum	0	0
Herb Stratum	22	56
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across 5 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 40.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	3	x 1 =	3	
FACW species	3	x 2 =	6	
FAC species	50	x 3 =	150	
FACU species	109	x 4 =	436	
UPL species	0	x 5 =	0	
Column totals	165	(A)	595	(B)

Prevalence Index = B/A = 3.61

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

Trifolium campestre present in herbaceous layer at 15% cover.

SOIL **Sampling Point:** WASV016/017_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-3	7.5YR 3/2	100					Silt loam	
3-13	7.5YR 3/3	60	7.5YR 3/1	40	D	M	Silt loam	
13-14	7.5YR 3/3	60	7.5YR 3/1	30	D	M	Silt loam	
			7.5YR 4/4	10	C	M		

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
_X_ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:

Although hydric soils are present in upland, no hydrology indicators or hydrophytic vegetation were observed.

Photograph 1: WASV016/017_U, East

Photograph 2: WASV016/017_U, North

Photograph 3: WASV016/017_U, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/21/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV017_U2
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Bench Local relief (concave, convex, none): Convex
Slope (%): 3-5% Lat.: 46.3615968 Long.: -90.69896918 Datum: WGS 1984
Soil Map Unit Name Gogebic fine sandy loam, 1-6% slopes, very stony, rocky NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal
Are vegetation _____, soil _____, or hydrology _____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point represents a topographic rise and upland island in WASV017e.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	_____	No	X	Depth (inches): _____
Water table present?	Yes	_____	No	X	Depth (inches): _____
Saturation present? (includes capillary fringe)	Yes	_____	No	X	Depth (inches): _____

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No hydrology indicators observed.

VEGETATION - Use scientific names of plants

Sampling Point: WASV017_U2

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Ostrya virginiana*	63	Y	FACU
2	*Acer saccharum*	20	Y	FACU
3	*Abies balsamea*	10	N	FAC
4	*Prunus serotina*	3	N	FACU
5	*Fraxinus nigra*	3	N	FACW
6				
7				
8				
9				
10				
		99	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Abies balsamea*	10	Y	FAC
2				
3				
4				
5				
6				
7				
8				
9				
10				
		10	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Mitchella repens*	38	Y	FACU
2	*Symphyotrichum lateriflorum*	20	Y	FAC
3	*Prunella vulgaris*	10	N	FAC
4	*Dryopteris intermedia*	10	N	FAC
5	*Carex crinita*	3	N	OBL
6	*Abies balsamea*	3	N	FAC
7				
8				
9				
10				
11				
12				
13				
14				
15				
		84	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	20	50
Sapling/Shrub Stratum	2	5
Herb Stratum	17	42
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across 5 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 40.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	3	x 1 =	3	
FACW species	3	x 2 =	6	
FAC species	63	x 3 =	189	
FACU species	124	x 4 =	496	
UPL species	0	x 5 =	0	
Column totals	193	(A)	694	(B)

Prevalence Index = B/A = 3.60

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation

___ Dominance test is >50%

x Prevalence index is ≤3.0*

___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)

___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Prevalence Index calculated for reference purposes only

SOIL **Sampling Point:** WASV017_U2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-5	7.5YR 3/3	100					Silt loam	
5-13	7.5YR 4/4	100					Silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___N___

Remarks:
No indicators of hydric soil observed.

Photograph 1: WASV017_U2, South

Photograph 2: WASV017_U2, North

Photograph 3: WASV017_U2, West

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION **WASV017**	
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/20/19
Location: PLSS: 45N03W Lat: 46.3631032 Long: -90.70031998 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River
SITE DESCRIPTION	
Soils: Mapped Type(s):Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony and Gogebic fine sandy loam, 1-6% slopes, very stony, very rocky Field Verified: yes - very stony, very rocky	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp and Fresh (Wet) Meadow Wetland Size: 2.365 acres / Wetland Area Impacted: 2.365 acres
Hydrology: Surface water at 1 inch in parts of wetland; iron oxide in some areas. Groundwater seep wetland that slopes northwards, 5-7% slopes with small depressions throughout. Wetland likely connects to WASV015 off-site.	Vegetation: Plant Community Description(s): Sedge, rush, and grass-dominated cow pasture - *Glyceria striata, Juncus effuses, Scirpus cyperinus* Forested seep – *Fraxinus nigra, Carex bromoides, Betula papyrifera*

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	N	N	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	Y	Y	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
ST5: Non point source runoff from cow pasture
WQ7: Major hydrology source in wetland is from groundwater, but all surface water runoff comes from cow pasture.
WH1, WH2: Wooded portion of forest is connected to >10 acres of forest.
WH6: PEM/PFO components, upland islands, hummocks, areas of standing water are interspersed throughout.
GW1, GW3: Standing water in some portions of wetland at 1 inch depth.
WH10, FA2: Although small portion of wetland has surface water, disturbance from cows precludes ability to provide habitat to aquatic.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
X		Spring peeper
	X	Songbirds
	X	Area Sensitive Species

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
		None; although there was standing water at time of survey, the level of disturbance within the cow pasture makes habitat for aquatic life unlikely.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Juncus effusus*	Lamp rush	4	PEM	
Hypericum majus	Larger Canadian St. John's wort	5	PEM	
Symphyotrichum lateriflorum	Calico aster	3	PEM	
Fragaria virginiana	Virginia strawberry	1	PEM	
Lycopus americana	American horehound	4	PEM	
**Ranunculus acris*	Tall buttercup	0	PEM	
Scirpus atrovirens	Green bulrush	3	PEM	
Onoclea sensibilis	Sensitive fern	5	PEM	
Osmunda cinnamomea	Cinnamon fern	7	PEM	
Juncus tenuis	Trail rush	1	PEM	
Bidens frondosa	common beggar-ticks	1	PEM	
Eleocharis obtusa	Blunt spike rush	3	PEM	
**Plantago major*	Common plantain	0	PEM	
Carex stricta	tussock sedge	7	PEM	
Carex bromoides	brome-like sedge	8	PEM	
Phleum pretense	timothy	8	PEM	
Helianthus strumosus	pale-leaved woodland sunflower, rough-leaved sunflower	4	PEM	
Lotus corniculatus	bird's-foot deer-vetch, bird's-foot trefoil	0	PEM	
Trifolium campestre	field clover, low hop clover, pinnate hop clover	0	PEM	
Persicaria hydropiper	marsh-pepper smartweed, water-pepper	0	PEM	
Scirpus cyperinus	wool-grass	4	PEM	
Symphyotrichum puniceum	swamp aster	5	PEM	
Typha latifolia	broad-leaved cat-tail, common cat-tail	1	PEM	
Eleocharis elliptica	elliptic spike-rush	7	PEM	
**Carex crinita*	fringed sedge	6	PEM	
Epilobium ciliatum	fringed willowherb	3	PEM	
Impatiens capensis	orange jewelweed, orange touch-me-not	2	PEM	
Rumex britannica	greater water dock, British dock	8	PEM	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
Although there is a good diversity of native flora in the emergent wetland area, non-native species are dominant. The tree strata is missing within the PEM component.
PEM FQI = 21.9, Mean C of C = 3.6 (Page attached with other PEM/PFO species)
PFO FQI = 16.3, Mean C of C = 5.4 (Page attached with other PEM/PFO species)

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
X	X		L	UC	Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
X	X		M	UC	Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
X	X		H	UC	Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X		H	C	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
X	X		M	C	Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Hydrology affected by compaction due to cows. Pollution run off from cows. Tree strata absent within cow pasture. Non-native species in wetland, but wooded buffer surrounding the area mostly native community.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		X			
Human Use Values	X				
Wildlife Habitat	X				
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage		X			
Water Quality Protection		X			
Groundwater Processes		X			

FUNCTION	RATIONALE
Floristic Integrity	Portion of wetland within cow pasture is missing the tree strata and the native flora diversity is reduced. Several non-native species present within wetland.
Human Use Values	Wetland is on private property and primarily within a cow pasture. It is unlikely to be used recreationally due to its current land use.
Wildlife Habitat	Wetland is located on transitional edge of large contiguous forested habitat. Grazing and compaction from cows have reduced vegetation structure, reducing habitat suitability for wildlife.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. Although there was standing water at the time of survey, the level of disturbance created by cows within this habitat makes it unlikely that this wetland provides habitat for aquatic life.
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland captures surface water run-off from surrounding landscape. Microtopography will hold water during storm events.
Water Quality Protection	Pasture portion of wetland is receiving animal waste associated with cows.
Groundwater Processes	Evidence of groundwater processes within wetland: saturation is at surface and oxidized rhizospheres are present.

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WASV017 – Additional Plant list (PEM/PFO)

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Persicaria sagittata	arrow-leaved tearthumb, arrow vine	6	PEM	
Leersia oryzoides	rice cut grass	3	PEM	
Mentha canadensis	field mint, wild mint	3	PEM	
**Glyceria canadensis*	rattlesnake grass, rattlesnake manna grass	7	PEM	
Eupatorium perfoliatum	boneset, common boneset, thoroughwort	6	PEM	
Equisetum pratense	meadow horsetail	9	PEM	
Salix bebbiana	beaked willow, Bebb's willow	7	PEM	
Trifolium pratense	red clover	0	PEM	
Ambrosia artemisiifolia	annual bur-sage, common ragweed, short ragweed	0	PEM	
Dryopteris intermedia	fancy wood fern, glandular wood fern, intermediate	7	PFO	
**Carex bromoides*	brome-like sedge	8	PFO	
Impatiens capensis	orange jewelweed, orange touch-me-not	2	PFO	
Eutrochium maculatum	spotted Joe-Pye-weed	4	PFO	
Salix bebbiana	beaked willow, Bebb's willow	7	PFO	
Lycopus americanus	American water-horehound, common water-horehound	4	PFO	
Rubus pubescens	dwarf red raspberry	7	PFO	
Hypericum perforatum	common St. John's-wort, Klamath-weed, St. John's-w	0	PFO	
Panax quinquefolius	American ginseng, ginseng	10	PFO	
**Fraxinus nigra*	black ash	8	PFO	
onoclea sensibilis	sensitive fern	5	PFO	
Ulmus americana	American elm, white elm	3	PFO	
Leersia oryzoides	rice cut grass	3	PFO	
**Persicaria sagittata*	arrow-leaved tearthumb, arrow vine	6	PFO	
Carex stipata	awlfruit sedge, prickly sedge		PFO	
**Tilia americana*	American basswood		PFO	
Ostrya virginiana	American hophornbeam		PFO	
Oxalis stricta	common yellow woodsorrel		PEM	
Dryopteris cristata	crested woodfern		PEM	

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV008e_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Flat
Slope (%): 1-2% Lat.: 46.36101 Long.: -90.70468 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very ston NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in PEM roadside swale adjacent to dirt access road. Drains southward towards stream SASV001p.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	____	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	____	No	____	Depth (inches): ____

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Surface wetland hydrology indicators present. Subsurface hydrologic conditions not observed due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV008e_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Calamagrostis canadensis*	20	Y	OBL
2	*Onoclea sensibilis*	10	Y	FACW
3	*Juncus effusus*	1	N	OBL
4	*Carex crinita*	1	N	OBL
5	*Symphyotrichum lateriflorum*	1	N	FAC
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		33	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	7	17
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	22	x 1 =	22
FACW species	10	x 2 =	20
FAC species	1	x 3 =	3
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	33 (A)		45 (B)

Prevalence Index = B/A = 1.36

Hydrophytic Vegetation Indicators:

X Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)

___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Dominance Test and Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV008e_W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? Y

Remarks:
No soils taken due to potential for underground utilities. Soils assumed to be hydric due to presence of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV008e_W, East

Photograph 2: WASV008e_W, West

Photograph 3: WASV008e_W, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV008_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave
Slope (%): 1-2% Lat.: 46.36095 Long.: -90.70466 Datum: WGS 1984
Soil Map Unit Nam Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very ston NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point is located in mesic hardwoods adjacent to WASV008.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	____	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	____	No	____	Depth (inches): ____

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:
Subsurface hydrologic conditions not observed; no ground disturbance due to the potential of underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV008_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	38	Y	FACU
2	*Quercus rubra*	10	N	FACU
3	*Fraxinus nigra*	10	N	FACW
4				
5				
6				
7				
8				
9				
10				
		58	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	10	Y	FACU
2	*Corylus cornuta*	10	Y	FACU
3	*Fraxinus nigra*	3	N	FACW
4	*Populus tremuloides*	3	N	FAC
5				
6				
7				
8				
9				
10				
		26	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Mitchella repens*	85	Y	FACU
2	*Dryopteris intermedia*	20	N	FAC
3	*Gaultheria procumbens*	3	N	FACU
4	*Cornus canadensis*	3	N	FAC
5	*Corylus cornuta*	3	N	FACU
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		114	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	12	29
Sapling/Shrub Stratum	5	13
Herb Stratum	23	57
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 0.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	13	x 2 =	26	
FAC species	26	x 3 =	78	
FACU species	159	x 4 =	636	
UPL species	0	x 5 =	0	
Column totals	198	(A)	740	(B)

Prevalence Index = B/A = 3.74

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

No hydrophytic vegetation present.

SOIL **Sampling Point:** WASV008_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? N

Remarks:
No soils taken due to potential for underground utilities. Soils assumed to be non-hydric due to lack of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV008_U, East

Photograph 2: WASV008_U, North

Photograph 3: WASV008_U, South

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV008**
Project name: Line 5	Evaluator(s): Caitlin Cyrus; Chris Sheldon
File #: N/A	Date of visit(s): 09/19/2019
Location: PLSS: 45N03W Lat: 46.36101 Long: -90.70468 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic-Metonga Rock outcrop complex, 6-18% slope very stony Field Verified: No ground disturbance due to the potential for underground utilities	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow Wetland Size: 0.009 acres / Wetland Area Impacted 0.009 acres Vegetation: Plant Community Description(s): *Scirpus atrovirens* and *Calamagrostis canadensis*
Hydrology: Surface water-driven wetland. Sloping south towards unnamed stream. 8-10% slope. Some saturation at the surface. No subsurface indicators of wetland hydrology were observed due to the potential for underground utilities.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	Y	Y	Used for recreation (hunting, birding, hiking, etc.). List: **Hunting**
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	N	N	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	Y	Y	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	Y	Y	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

HU1: Hunting stand observed adjacent to wetland.
WH10, FA2, FA4: No standing water at time of survey and wetland does not appear to hold water for long periods of time.
GW: Subsurface indicators of wetland hydrology were not investigated due to the potential for underground utilities.
WH1: Contiguous forested habitat is greater than ten acres.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
X		Blue Jay
	X	Songbirds
	X	Area Sensitive Species

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
		None; no standing water at time of survey and wetland does not appear to hold water for long periods of time.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Scirpus cyperinus	woolgrass	4	PEM	38
Fraxinus nigra	black ash	8	PEM	0.5
Solidago gigantea	giant goldenrod	3	PEM	3
Lobelia inflata	Indian-tobacco	2	PEM	0.5
Symphyotrichum lateriflorum	calico aster	3	PEM	1
Lycopus americanus	American water horehound	4	PEM	0.5
Euthamia graminifolia	flat-top goldentop	4	PEM	1
**Onoclea sensibilis*	sensitive fern	5	PEM	5
Osmunda claytoniana	interrupted fern	6	PEM	3
Equisetum pratense	meadow horsetail	9	PEM	0.5
**Calamagrostis canadensis*	blue-joint grass	5	PEM	38
Juncus effusus	soft rush		PEM	
Carex crinita	fringed sedge		PEM	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Tree, sapling, and shrub strata are absent due to human disturbance (access road through wetland); reduced overall diversity of native plant species.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
X	X		L	C	Hydrologic changes - high capacity wells, impounded water, increased runoff
X	X		L	UC	Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
X	X		H	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X		H	C	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Access road crossing through the wetland compacts soil and alters hydrology by increasing surface runoff.
Tree strata removed due to human disturbance (access road).

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		X			
Human Use Values	X				
Wildlife Habitat		X			
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage	X				
Water Quality Protection	X				
Groundwater Processes	X				

FUNCTION	RATIONALE
Floristic Integrity	Tree and shrub/sapling strata are missing; good diversity of native flora throughout.
Human Use Values	Wetland is on private property and is affected by the presence of the access road; it is relatively small and unlikely to be used for human recreation, despite signs of hunting observed on-site.
Wildlife Habitat	Large contiguous acreage of forest supports habitat for wildlife; however, wetland is located along transitional edge of forest and in and of itself does not provide high quality habitat.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. No standing water at time of survey and wetland does not appear to hold standing water for long periods of time.
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland is capturing surface water run-off from the surrounding landscape and the adjacent access road. Wetland is surface water-driven; however, water appears to pass quickly through wetland.
Water Quality Protection	Possible pollutants could be entering wetland from the adjacent access road, and minimal pollutants received from surrounding landscape. Wetland does not have the opportunity to capture significant amounts of pollutants.
Groundwater Processes	Some saturation observed at the surface within the wetland. Subsurface indicators of wetland hydrology were not observed due to the potential for underground utilities.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV006e_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Flat
Slope (%): 0-2% Lat.: 46.3605 Long.: -90.70492 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very ston NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in the floodplain for a small stream (SASV001p). Dirt access road bisects wetland into WASV006 and WASV007, and stream is culverted under road.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- X Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	____	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches): surface

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:
Subsurface hydrologic conditions not observed due to potential for underground utilities. Microtopography suggests wetland holds water from overbank flow; additionally, portions of wetland are saturated suggesting there is a groundwater component to the hydrology. Wetland is situated in a valley, so surface water runoff input is also received from surrounding landscape.

VEGETATION - Use scientific names of plants

Sampling Point: WASV006e_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Populus tremuloides*	3	Y	FAC
2	*Fraxinus nigra*	3	Y	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		6	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Calamagrostis canadensis*	85	Y	OBL
2	*Onoclea sensibilis*	20	N	FACW
3	*Equisetum sylvaticum*	10	N	FACW
4	*Dryopteris cristata*	3	N	OBL
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		118	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratu WASV006e_W	1	3
Sapling/Shrub Stratum	0	0
Herb Stratum	24	59
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	88	x 1 =	88
FACW species	33	x 2 =	66
FAC species	3	x 3 =	9
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	124 (A)		163 (B)

Prevalence Index = B/A = 1.31

Hydrophytic Vegetation Indicators:

X Rapid test for hydrophytic vegetation

X Dominance test is >50%

X Prevalence index is ≤3.0*

___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)

___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Dominance Test and Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV006e_W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? Y

Remarks:
No soils taken due to potential for underground utilities. Soils assumed to be hydric due to presence of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV006e_W, South

Photograph 2: WASV006e_W, Northwest

Photograph 3: WASV006e_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV006/007_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Flat
Slope (%): 0-2% Lat.: 46.36057 Long.: -90.70493 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very ston NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located on forested hillslope above wetlands WASV006 and WASV007. Data is indicative of upland habitats in surrounding area.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	____	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	____	No	____	Depth (inches): ____

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

No surface hydrology indicators are present. Subsurface hydrology indicators were not identified due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV006/007_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	20	Y	FACU
2	*Populus tremuloides*	10	Y	FAC
3	*Betula papyrifera*	3	N	FACU
4				
5				
6				
7				
8				
9				
10				
		33	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	10	Y	FACU
2	*Corylus americana*	3	Y	FACU
3	*Quercus rubra*	1	N	FACU
4				
5				
6				
7				
8				
9				
10				
		14	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Pteridium aquilinum*	20	Y	FACU
2	*Mitchella repens*	10	Y	FACU
3	*Gaultheria procumbens*	10	Y	FACU
4	*Corylus americana*	3	N	FACU
5	*Cornus canadensis*	1	N	FAC
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		44	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	7	17
Sapling/Shrub Stratum	3	7
Herb Stratum	9	22
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across 7 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 14.29% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	11	x 3 =	33	
FACU species	80	x 4 =	320	
UPL species	0	x 5 =	0	
Column totals	91	(A)	353	(B)

Prevalence Index = B/A = 3.88

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

No hydrophytic vegetation present.

SOIL **Sampling Point:** WASV006/007_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? N

Remarks:
No soils taken due to potential for underground utilities; assume soil is non-hydric due to the absence of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV006/007_U, East

Photograph 2: WASV006/007_U, North

Photograph 3: WASV006/007_U, West

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV006**
Project name: Line 5	Evaluator(s): Caitlin Cyrus; Chris Sheldon
File #: N/A	Date of visit(s): 09/19/2019
Location: PLSS: 45N03W Lat: 46.3604987 Long: -90.7049245 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic-Metonga Rock outcrop complex, 6-18% slope, very stony Field Verified: No ground disturbance due to the potential for underground utilities	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow Wetland Size: 0.10 acres / Wetland Area Impacted 0.10 acres Vegetation: Plant Community Description(s): *Calamagrostis canadensis*, *Onoclea sensibilis*, *Solidago gigantea*
Hydrology: Wetland at toe of slope. Geomorphically positioned to receive stormwater runoff. Slopes leading into wetland 15-20%; wetland 0-3%. WASV006 and WASV007 are separated by gravel access road but were historically the same feature. Subsurface indicators of wetland hydrology were not investigated due to the potential for underground utilities. Stream SASV001p flows through wetlands WASV006 and WASV007; both are floodplains to this stream and appear to receive overbank flooding.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	Y	Y	Used for recreation (hunting, birding, hiking, etc.). List: **Hunting**
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	Y	Y	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	Y	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	Y	Y	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	Y	Y	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	Y	Y	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	N	N	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	Y	Y	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	N	N	Water flow through wetland is NOT channelized
4	Y	Y	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	Y	Y	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
HU1: Hunting stand observed along access road within wetland buffer.
FA4, WH10, FA2: Wetland has potential to hold water in spring based on shape, microtopography & signs of long-standing pools of water. This suggests water is being held after overbank flooding.
GW: Subsurface indicators of wetland hydrology were not investigated due to the potential for underground utilities.
WH1: Contiguous forested habitat is greater than ten acres.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
X		Deer paths through the wetland.
X		Several bird species flew through the area.

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	X	Frogs, salamanders; no standing water at time of survey, but wetland appears to hold water during wetter time periods.
	X	Potential fish in stream.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Scirpus atrovirens	green bulrush	3	PEM	3
Solidago gigantea	giant goldenrod	3	PEM	15
Scirpus cyperinus	woolgrass	4	PEM	38
Euthamia graminifolia	flat-top goldentop	4	PEM	15
Symphyotrichum laeve	smooth blue aster	6	PEM	3
Verbena hastata	swamp verbena	3	PEM	1
Doellingeria umbellata	parasol whitetop	6	PEM	.5
**Calamagrostis canadensis*	blue-joint grass	5	PEM	96
Onoclea sensibilis	sensitive fern	5	PEM	15
Salix bebbiana	beaked willow, Bebb's willow	7	PEM	3
Acer saccharum	sugar maple	2	PEM	3
Alnus incana	wild hazel alder	4	PEM	3
Betula papyrifera	paper birch	3	PEM	3
Dryopteris intermedia	intermediate woodfern	7	PEM	3
Symphyotrichum puniceum	swamp aster	5	PEM	3
Parthenocissus quinquefolia	Virginia creeper	5	PEM	11
Rubus idaeus	wild red raspberry	4	PEM	3
Salix discolor	pussy willow	2	PEM	3
Tsuga canadensis	eastern hemlock	8	PEM	.5
Impatiens capensis	jewelweed	2	PEM	1
Galium aparine	stickywilly	2	PEM	.5
**Fraxinus nigra*	black ash	8	PEM	3
**Populus tremuloides*	quaking aspen		PEM	
Equisetum sylvaticum	wood horsetail		PEM	
Dryopteris cristata	crested woodfern		PEM	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

There is good diversity of relatively common native flora; hydrology affected by culverted stream, which may have affected flora.
Tree strata has been artificially removed.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
X	X		M	C	Hydrologic changes - high capacity wells, impounded water, increased runoff
X	X		L	UC	Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
X	X		H	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X		H	C	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
Y	Y		L	UC	Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
Construction of access road through wetland is disrupting hydrologic flow through wetland. SASV001 is culverted underneath access road and connects WASV006 and WASV007, which were historically connected.
Tree strata removed due to human disturbance (access road).
Hunting stand present within buffer.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		X			
Human Use Values		X			
Wildlife Habitat		X			
Fish and Aquatic Life Habitat		X			
Shoreline Protection		X			
Flood and Stormwater Storage		X			
Water Quality Protection	X				
Groundwater Processes		X			

FUNCTION	RATIONALE
Floristic Integrity	Tree and shrub/sapling strata are missing; good diversity of native flora throughout.
Human Use Values	Wetland is bisected by access road, but is natural and relatively large. Hunting stand observed just upslope from wetland. Area is likely to be used for human recreation.
Wildlife Habitat	Size of wetland and signs of wildlife (deer browse, paths through wetland, etc.) indicate that wetland provides good habitat for wildlife.
Fish and Aquatic Life Habitat	Stream provides habitat for fish; microtopography of wetland indicates that it has the ability hold water for periods of time.
Shoreline Protection	Dense vegetation is maintaining stream edge, little sign of erosion.
Flood and Stormwater Storage	Signs of overbank flow and water storage in floodplain.
Water Quality Protection	Possible pollutants could be entering wetland from the adjacent access road, and minimal pollutants received from surrounding landscape. Wetland does not have the opportunity to capture significant amounts of pollutants.
Groundwater Processes	Ground very saturated in parts of wetland; because elevation not far above stream(lift above), it is likely receiving groundwater.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV007e_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Flat
Slope (%): 0-2% Lat.: 46.36049 Long.: -90.70516 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very ston NWI Classification: PEM1C
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point is located within the floodplain of a small stream (SASV001p). Access road bisects wetland into WASV006 and WASV007 and stream is culverted under road.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- X Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- X Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	____	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	X	No	____	Depth (inches): surface

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:
Subsurface hydrologic conditions not observed due to potential for underground utilities. Microtopography suggests wetland holds water from overbank flow. Portions of wetland are very saturated, suggesting a groundwater component to hydrology is present. Wetland is situated in a valley and receives surface water run-off from surrounding landscape.

VEGETATION - Use scientific names of plants

Sampling Point: WASV007e_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	10	Y	FACW
2	*Acer saccharum*	3	Y	FACU
3	*Ulmus americana*	1	N	FACW
4	*Populus tremuloides*	1	N	FAC
5				
6				
7				
8				
9				
10				
		15	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Calamagrostis canadensis*	85	Y	OBL
2	*Impatiens capensis*	20	N	FACW
3	*Persicaria sagittata*	10	N	OBL
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		115	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	3	8
Sapling/Shrub Stratum	0	0
Herb Stratum	23	58
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 66.67% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	95	x 1 =	95	
FACW species	31	x 2 =	62	
FAC species	1	x 3 =	3	
FACU species	3	x 4 =	12	
UPL species	0	x 5 =	0	
Column totals	130	(A)	172	(B)

Prevalence Index = B/A = 1.32

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV007e_W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? Y

Remarks:
No soils taken due to potential for underground utilities. Soils assumed to be hydric due to hydrology and hydrophytic vegetation.

Photograph 1: WASV007e_W, South

Photograph 2: WASV007e_W, North

Photograph 3: WASV007e_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/19/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV006/007_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Flat
Slope (%): 0-2% Lat.: 46.36057 Long.: -90.70493 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very ston NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located on slope above wetlands. Data is indicative of upland habitats in surrounding area.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	____	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	____	No	____	Depth (inches): ____

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

No surface hydrology indicators are present. Subsurface hydrology indicators were not identified due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV006/007_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	20	Y	FACU
2	*Populus tremuloides*	10	Y	FAC
3	*Betula papyrifera*	3	N	FACU
4				
5				
6				
7				
8				
9				
10				
		33	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	10	Y	FACU
2	*Corylus americana*	3	Y	FACU
3	*Quercus rubra*	1	N	FACU
4				
5				
6				
7				
8				
9				
10				
		14	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Pteridium aquilinum*	20	Y	FACU
2	*Mitchella repens*	10	Y	FACU
3	*Gaultheria procumbens*	10	Y	FACU
4	*Corylus americana*	3	N	FACU
5	*Cornus canadensis*	1	N	FAC
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		44	= Total Cover	

Woody Vine Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	7	17
Sapling/Shrub Stratum	3	7
Herb Stratum	9	22
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across 7 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 14.29% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	11	x 3 =	33	
FACU species	80	x 4 =	320	
UPL species	0	x 5 =	0	
Column totals	91	(A)	353	(B)

Prevalence Index = B/A = 3.88

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

No hydrophytic vegetation present.

SOIL **Sampling Point:** WASV006/007_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type*	Loc**	Texture	Remarks

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: N/A
Depth (inches):

Hydric soil present? N

Remarks:
No soils taken due to potential for underground utilities; assume soil is non-hydric due to the absence of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV006/007_U, East

Photograph 2: WASV006/007_U, North

Photograph 3: WASV006/007_U, West

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV007**
Project name: Line 5	Evaluator(s): Caitlin Cyrus; Chris Sheldon
File #: N/A	Date of visit(s): 09/19/2019
Location: PLSS: 45N03W Lat: 46.3604987 Long: -90.7049245 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic-Metonga Rock outcrop complex, 6-18% slope, very stony Field Verified: No ground disturbance due to the potential for underground utilities	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow Wetland Size: 0.133 ac / Wetland Area Impacted 0.133 ac Vegetation: Plant Community Description(s): *Calamagrostis canadensis, Onoclea sensibilis, Solidago gigantea*
Hydrology: Wetland at toe of slope. Geomorphically positioned to receive stormwater runoff. Slopes leading into wetland 15-20%; wetland 0-3%. WASV006 and WASV007 are separated by gravel access road but were historically the same feature. Subsurface indicators of wetland hydrology were not investigated due to the potential for underground utilities. Stream SASV001p flows through wetlands WASV006 and WASV007; both are floodplains to this stream and appear to receive overbank flooding.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	Y	Y	Used for recreation (hunting, birding, hiking, etc.). List: **Hunting**
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	N	Wetland and contiguous habitat >10 acres
2	Y	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	Y	Y	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh shrub/emergent, wetland/upland complex,etc.)
7	Y	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	Y	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	Y	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	Y	Y	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	Y	Y	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	Y	Y	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	N	N	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	Y	Y	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	N	N	Water flow through wetland is NOT channelized
4	Y	Y	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	N	N	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	N	N	Stormwater or surface water from agricultural land is major hydrology source
8	Y	Y	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
HU1: Hunting stand observed along access road within wetland buffer.
FA4, WH10, FA2: Wetland has potential to hold water in spring based on shape, microtopography & signs of long-standing pools of water.
GW: Subsurface indicators of wetland hydrology were not investigated due to the potential for underground utilities.
WH1: Contiguous forested habitat is greater than ten acres.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
X		Deer paths through the wetland.
X		Several bird species flew through the area.

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
	X	Frogs, salamanders; no standing water at time of survey, but wetland appears to hold water during wetter time periods.
	X	Potential fish in stream.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Fraxinus nigra*	black ash	8	PEM	15
**Acer saccharum*	sugar maple	5	PEM	15
Solidago gigantea	giant goldenrod	3	PEM	15
**Calamagrostis canadensis*	blue-joint grass	5	PEM	63
Verbena hastata	swamp verbena	3	PEM	1
Rubus idaeus	wild red raspberry	4	PEM	5
Scirpus cyperinus	woolgrass	4	PEM	3
Eutrochium maculatum	spotted joe pye weed	4	PEM	3
Juncus effusus	common rush	4	PEM	3
Onoclea sensibilis	sensitive fern	5	PEM	5
Typha latifolia	broadleaf cattail	1	PEM	15
Impatiens capensis	jewelweed	2	PEM	3
Symphyotrichum lateriflorum	side-flowering aster	3	PEM	1
Matteuccia struthiopteris	ostrich fern	5	PEM	1
Equisetum pratense	meadow horsetail	9	PEM	1
Polygonum sagittatum	arrowleaf tearthumb	6	PEM	0.5
Symphyotrichum puniceum	purplestem aster	5	PEM	1
Salix bebbiana	beaked willow, Bebb's willow	7	PEM	3
Ulmus americana	American elm, white elm	3	PEM	3
Betula papyrifera	paper birch	3	PEM	3
Populus tremuloides	quaking aspen		PEM	
Persicaria sagittata	arrow-leaved tearthumb		PEM	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

There is good diversity of relatively common native flora; hydrology affected by culverted stream, which may have affected flora.
Tree strata has been artificially removed.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
X	X		M	C	Hydrologic changes - high capacity wells, impounded water, increased runoff
X	X		L	UC	Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
X	X		H	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X		H	C	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
					Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
Y	Y		L	UC	Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
Construction of access road through wetland is disrupting hydrologic flow through wetland. SASV001 is culverted underneath access road and connects WASV006 and WASV007, which were historically connected.
Tree strata removed due to human disturbance (access road).
Hunting stand present within buffer.
Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		X			
Human Use Values	X				
Wildlife Habitat		X			
Fish and Aquatic Life Habitat		X			
Shoreline Protection		X			
Flood and Stormwater Storage		X			
Water Quality Protection		X			
Groundwater Processes		X			

FUNCTION	RATIONALE
Floristic Integrity	Tree and shrub/sapling strata are missing; good diversity of native flora throughout.
Human Use Values	Wetland is bisected by access road, but is natural and relatively large. Hunting stand observed just upslope from wetland. Area is likely to be used for human recreation
Wildlife Habitat	Size of wetland and signs of wildlife (deer browse, paths through wetland, etc.) indicate that wetland provides good habitat for wildlife.
Fish and Aquatic Life Habitat	Stream provides habitat for fish; microtopography of wetland indicates that it has the ability hold water for periods of time.
Shoreline Protection	Dense vegetation is maintaining stream edge, little sign of erosion.
Flood and Stormwater Storage	Signs of overbank flow and water storage in floodplain.
Water Quality Protection	Possible pollutants could be entering wetland from the adjacent access road, and minimal pollutants received from surrounding landscape. Wetland does not have the opportunity to capture significant amounts of pollutants.
Groundwater Processes	Ground very saturated in parts of wetland; because elevation not far above stream(lift above), it is likely receiving groundwater.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/21/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV020e_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 1-2% Lat.: 46.36069321 Long.: -90.69763105 Datum: WGS 1984
Soil Map Unit Name Gogebic fine sandy loam, 1-6% slopes, very stony, rocky NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in isolated depression wetland with no outlet.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes ____	No X	Depth (inches): ____	**Indicators of wetland hydrology present?** Y
Water table present?	Yes ____	No X	Depth (inches): ____	
Saturation present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____	

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Primary and secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV020e_W

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Scirpus atrovirens*	38	Y	OBL
2	*Potentilla simplex*	38	Y	FACU
3	*Juncus effusus*	20	N	OBL
4	*Symphyotrichum lateriflorum*	10	N	FAC
5	*Salix discolor*	3	N	FACW
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		109	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	22	55
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 50.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	58	x 1 =	58
FACW species	3	x 2 =	6
FAC species	10	x 3 =	30
FACU species	38	x 4 =	152
UPL species	0	x 5 =	0
Column totals	109 (A)		246 (B)

Prevalence Index = B/A = 2.26

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- ___ Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Prevalence Index is met.

SOIL **Sampling Point:** WASV020e_W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-4	10YR 3/2	98	10YR 4/6	2	C	PL/M	Silt loam	
4-8	10YR 5/2	93	10YR 3/2	5	D	M	Silt loam	
			10YR 4/6	2	C	M		
8-14	7.5YR 5/4	98	10YR 5/2	2	D	M	Silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
_X_ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:
Indicator Depleted Matrix (F3) is present; parameter is met.

Photograph 1: WASV020e_W, South

Photograph 2: WASV020e_W, North

Photograph 3: WASV020e_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/21/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV019/20_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Flat
Slope (%): 5-8% Lat.: 46.36059156 Long.: -90.69756995 Datum: WGS 1984
Soil Map Unit Name NWI Classification:
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil X, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? No
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	N	**Is the sampled area within a wetland?**	N
Hydric soil present?	N		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in cow pasture. Soil compaction present from land use.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes ____	No X	Depth (inches): ____	**Indicators of wetland hydrology present?** N
Water table present?	Yes ____	No X	Depth (inches): ____	
Saturation present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____	

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No indicators of wetland hydrology observed.

VEGETATION - Use scientific names of plants

Sampling Point: WASV019/20_U

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Tsuga canadensis*	3	Y	FACU
2	*Picea glauca*	3	Y	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		6	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Picea glauca*	1		FACU
2	*Abies balsamea*	1		FAC
3				
4				
5				
6				
7				
8				
9				
10				
		2	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Ranunculus acris*	85	Y	FAC
2	*Plantago major*	20	N	FACU
3	*Symphyotrichum lateriflorum*	10	N	FAC
4	*Achillea millefolium*	3	N	FACU
5	*Trifolium repens*	3	N	FACU
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		121	= Total Cover	

Woody Vine Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	1	3
Sapling/Shrub Stratum	0	1
Herb Stratum	24	61
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 33.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	96	x 3 =	288	
FACU species	33	x 4 =	132	
UPL species	0	x 5 =	0	
Column totals	129	(A)	420	(B)

Prevalence Index = B/A = 3.26

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation
___ Dominance test is >50%
___ Prevalence index is ≤3.0*
___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

Trifolium campestre was observed at 3%.

SOIL **Sampling Point:** WASV019/20_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type*	Loc**	Texture	Remarks
0-3	10YR 3/3	98	10YR 4/6	2	C	M	Silt loam	
3-13	10YR 4/6	95	10YR 3/3	5	D	M	Silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA**
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? ___N___

Remarks:
No indicators of hydric soil observed.

Photograph 1: WASV019/020_U, South

Photograph 2: WASV019/020_U, North

Photograph 3: WASV019/020_U, West

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV020**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/21/19
Location: PLSS: 45N03W Lat: 46.359874 Long: -90.696224 County: Ashland Town/City/Village:	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River

SITE DESCRIPTION		
Soils: Mapped Type(s): Gogebic fine sandy loam, 1-6% slopes, very stony, rocky. Field Verified: Yes - very stony, rocky.	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow	
	Wetland Size: 0.016 acres	Wetland Area Impacted: 0.016 acres
Hydrology: Basin wetland with geomorphic position and oxidized rhizospheres. Slope 0-3%. No saturation or standing water.	Vegetation: Plant Community Description(s): Cow pasture (PEM); *Carex crinita, Juncus effusus, Symphyotrichum lateriflorum*.	

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	N	N	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	N	N	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	N	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	N	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	N	N	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	N/A	N/A	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	N/A	N/A	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	N/A	N/A	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	N	N	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	Y	Y	Basin wetland or constricted outlet
3	N	N	Water flow through wetland is NOT channelized
4	N	N	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	Y	Y	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	Y	Y	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	N	N	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	N	N	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

ST1 & WQ2: Although it is a basin wetland, it is small and shallow. Water will drain downslope during significant rain events.
WQ6: Cow manure observed in wetland.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
		Vegetation grazed to ground level by cows; wetland does not provide habitat to wildlife.

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
		No standing water at time of survey. Although a depression wetland, it is relatively shallow and does not appear to hold water for significant durations.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Juncus effusus	common rush	4	PEM	15
Symphyotrichum lateriflorum	side-flowering aster	3	PEM	15
**Potentilla simplex*	common cinquefoil	2	PEM	38
Carex crinita	fringed sedge	6	PEM	38
Dryopteris intermedia	intermediate woodfern	7	PEM	1
Prunella vulgaris	common selfheal	1	PEM	5
Agrostis perennans	upland bent	4	PEM	3
Onoclea sensibilis	sensitive fern	5	PEM	1
Thelypteris palustris	eastern marsh fern	7	PEM	1
**Scirpus atrovirens*	dark-green bulrush		PEM	
Salix discolor	pussy willow		PEM	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Reduced diversity due to disturbances from grazing cattle. Tree and shrub strata removed. Non-native species present within wetland.

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
X	X		M	C	Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
X	X		M	UC	Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
X	X		H	C	Agriculture – pasture
					Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X	Y	H	C	Removal of tree or shrub strata – logging, unprescribed fire
X	X		L	UC	Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
X	X		M	C	Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Compaction from cows altering hydrology, contributing increased runoff. Cow manure observed in wetlands. Active cattle grazing has prevent significant recruitment of trees and shrubs.

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity	X				
Human Use Values	X				
Wildlife Habitat	X				
Fish and Aquatic Life Habitat	X				
Shoreline Protection					X
Flood and Stormwater Storage	X				
Water Quality Protection	X				
Groundwater Processes	X				

FUNCTION	RATIONALE
Floristic Integrity	Tree and shrub strata removed, likely for cattle pasture or other agricultural activity, and area is regularly grazed by cattle. Several non-native species interspersed within vegetation community.
Human Use Values	Small wetland and active cattle grazing precludes human recreational use.
Wildlife Habitat	Small size of wetland reduces its value as wildlife habitat; vegetation browsesd to ground level.
Fish and Aquatic Life Habitat	Wetland does not provide fish or aquatic life habitat. Wetland does not remain inundated for long enough periods of time to support aquatic wildlife.
Shoreline Protection	N/A
Flood and Stormwater Storage	This is a small wetland with very limited storage volume. It will hold some water but during significant rain events, most would drain offsite.
Water Quality Protection	Wetland captures and filters pollutants from cow pasture, but it is very small with a very limited capacity.
Groundwater Processes	No sign of groundwater processes. Hydrology driven by surface runoff from uplands.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/23/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV021e_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Flat
Slope (%): 0-2% Lat.: 46.36091 Long.: -90.69589 Datum: WGS 1984
Soil Map Unit Name: Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: R5UBH
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation X, soil X, or hydrology ___ significantly disturbed? Are "normal circumstances" present? Yes
Are vegetation ___, soil ___, or hydrology ___ naturally problematic?
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	Y
Hydric soil present?	Y		
Indicators of wetland hydrology present?	Y	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in wet cow pasture (PEM) adjacent to stream SASV004p. Wetland continues offsite and transitions into PSS wetland. Area disturbed and soil compacted by cattle use.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- X Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- X Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	___	No	X	Depth (inches):	___
Water table present?	Yes	___	No	X	Depth (inches):	___
Saturation present? (includes capillary fringe)	Yes	X	No	___	Depth (inches):	surface

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV021e_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Ranunculus acris*	38	Y	FAC
2	*Symphyotrichum lateriflorum*	20	Y	FAC
3	*Persicaria sagittata*	20	Y	OBL
4	*Bidens frondosa*	10	N	FACW
5	*Plantago major*	10	N	FACU
6	*Juncus effusus*	10	N	OBL
7	*Prunella vulgaris*	10	N	FAC
8	*Cirsium arvense*	10	N	FACU
9				
10				
11				
12				
13				
14				
15				
		128	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	0	0
Sapling/Shrub Stratum	0	0
Herb Stratum	26	64
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	30	x 1 =	30	
FACW species	10	x 2 =	20	
FAC species	68	x 3 =	204	
FACU species	20	x 4 =	80	
UPL species	0	x 5 =	0	
Column totals	128	(A)	334	(B)

Prevalence Index = B/A = 2.61

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV021e_W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-14	10YR 4/2	80	10YR 4/6	20	C	PL/M	Silt loam	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)

___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:
Indicator Depleted Matrix (F3) is present; parameter is met.

Photograph 1: WASV021e_W, West

Photograph 2: WASV021e_W, North

Photograph 3: WASV021e_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/23/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV021_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Bluff Local relief (concave, convex, none): Flat
Slope (%): 0-2% Lat.: 46.3608 Long.: -90.69607 Datum: WGS 1984
Soil Map Unit Name Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony NWI Classification: None
Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)
Are vegetation ____, soil ____, or hydrology ____ significantly disturbed? Are "normal
Are vegetation ____, soil ____, or hydrology ____ naturally problematic? circumstances" present? Yes
(If needed, explain any answers in remarks)

SUMMARY OF FINDINGS

Hydrophytic vegetation present?	Y	**Is the sampled area within a wetland?**	N
Hydric soil present?	Y		
Indicators of wetland hydrology present?	N	If yes, optional wetland site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)

Data point located in mesic coniferous forest adjacent to WASV021.

HYDROLOGY

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	____	No	X	Depth (inches): ____
Water table present?	Yes	____	No	X	Depth (inches): ____
Saturation present? (includes capillary fringe)	Yes	____	No	X	Depth (inches): ____

Indicators of wetland hydrology present? N

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

N/A

Remarks:

No hydrology indicators observed.

VEGETATION - Use scientific names of plants

Sampling Point: WASV021_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Abies balsamea*	85	Y	FAC
2	*Thuja occidentalis*	20	N	FACW
3	*Acer saccharum*	3	N	FACU
4	*Fraxinus nigra*	1	N	FACW
5				
6				
7				
8				
9				
10				
		109	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Veronica officinalis*	10	Y	FACU
2	*Abies balsamea*	10	Y	FAC
3	*Tsuga canadensis*	1	N	FACU
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		21	= Total Cover	

Woody Vine Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	22	55
Sapling/Shrub Stratum	0	0
Herb Stratum	4	11
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 66.67% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	21	x 2 =	42	
FAC species	95	x 3 =	285	
FACU species	14	x 4 =	56	
UPL species	0	x 5 =	0	
Column totals	130	(A)	383	(B)

Prevalence Index = B/A = 2.95

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X Dominance test is >50%
- X Prevalence index is ≤3.0*
- ___ Morphogical adaptations* (provide supporting data in Remarks or on a separate sheet)
- ___ Problematic hydrophytic vegetation* (explain)

*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Hydrophytic vegetation present? Y

Remarks: (Include photo numbers here or on a separate sheet)

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV021_U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-4	7.5YR 4/3	90	7.5YR 5/8	10	C	M	Silt loam	
4-8	7.5YR 4/3	70	7.5YR 5/8	30	C	M	Silt loam	
8+								Rocky soil; auger refusal

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

___ Histisol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Depleted Below Dark Suface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) (**LRR R, MLRA 149B**)
___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**
___ Loamy Mucky Mineral (F1) (**LRR K, L**)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils:

___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**
___ Coast Prairie Redox (A16) (**LRR K, L, R**)
___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
___ Dark Surface (S7) (**LRR K, L**
___ Polyvalue Below Surface (S8) (**LRR K, L**)
___ Thin Dark Surface (S9) (**LRR K, L**)
___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
X Red Parent Material (F21)
___ Very Shallow Dark Surface (TF12)
___ Other (Explain in Remarks)

*Indicators of hydrophytic vegetation and weltand hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):
Type: Rock
Depth (inches): 8 inches

Hydric soil present? Y

Remarks:
Indicator Red Parent Material (F21) is present. Auger refusal at 8 inches due to rock.

Photograph 1: WASV021_U, West

Photograph 2: WASV021_U, South

Photograph 3: WASV021_U, East

Wisconsin Department of Natural Resources
Wetland Rapid Assessment Methodology – version 2.0

WETLAND IDENTIFICATION	**WASV021**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/23/19
Location: PLSS: 45N03W Lat: 46.36096 Long: -90.69585 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS12, Marengo River
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic-Metonga-Rock outcrop complex, 6-18% slopes, very stony Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow Wetland Size: 0.060 / Wetland Area Impacted: 0.060
Hydrology: Saturated at surface; geomorphic position; iron deposits; oxidized rhizospheres; floodplain to unnamed tributary	Vegetation: Plant Community Description(s): Cattle pasture *Trifolium pratense*, *Ranunculus acris, Phleum pratense*

SITE MAP

SECTION 1: Functional Value Assessment

HU	Y/N	Potential	**Human Use Values: recreation, culture, education, science, natural scenic beauty**
1	N	N	Used for recreation (hunting, birding, hiking, etc.). List:
2	N	N	Used for educational or scientific purposes
3	N	N	Visually or physically accessible to public
4	N	N	Aesthetically pleasing due to diversity of habitat types, lack of pollution or degradation
5	N	N	In or adjacent to RED FLAG areas List:
6	N	N	Supports or provides habitat for endangered, threatened or special concern species
7			In or adjacent to archaeological or cultural resource site
WH			**Wildlife Habitat**
1	Y	Y	Wetland and contiguous habitat >10 acres
2	N	N	3 or more strata present (>10% cover)
3	N	N	Within or adjacent to habitat corridor or established wildlife habitat area
4	N	N	100 m buffer – natural land cover >50%(south) 75% (north) intact
5	N	N	Occurs in a Joint Venture priority township
6	Y	Y	Interspersion of habitat structure (hemi-marsh,shrub/emergent, wetland/upland complex,etc.)
7	N	Y	Supports or provides habitat for SGCN or birds listed in the WI All-Bird Cons. Plan, or other plans
8	N	Y	Part of a large habitat block that supports area sensitive species
9	N	N	Ephemeral pond with water present ≥ 45 days
10	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
11	N	N	Seasonally exposed mudflats present
12	N	N	Provides habitat scarce in the area (urban, agricultural, etc.)
FA			**Fish and Aquatic Life Habitat**
1	Y	Y	Wetland is connected or contiguous with perennial stream or lake
2	N	N	Standing water provides habitat for amphibians and aquatic invertebrates
3	N	N	Natural Heritage Inventory (NHI) listed aquatic species within aquatic system
4	N	N	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	Y	Y	Along shoreline of a stream, lake, pond or open water area (>1 acre) - if no, not applicable
2	Y	Y	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	Y	Y	Densely rooted emergent or woody vegetation
ST			**Storm and Floodwater Storage**
1	Y	Y	Basin wetland, constricted outlet, has through-flow or is adjacent to a stream
2	N	N	Water flow through wetland is NOT channelized
3	Y	Y	Dense, persistent vegetation
4	N	N	Evidence of flashy hydrology
5	Y	Y	Point or non-point source inflow
6	N	N	Impervious surfaces cover >10% of land surface within the watershed
7	N	N	Within a watershed with <10% wetland
8			Potential to hold >10% of the runoff from contributing area from a 2-year 24-hour storm event
WQ			**Water Quality Protection**
1	N	N	Provides substantial storage of storm and floodwater based on previous section
2	N	N	Basin wetland or constricted outlet
3	N	N	Water flow through wetland is NOT channelized
4	Y	Y	Vegetated wetland associated with a lake or stream
5	Y	Y	Dense, persistent vegetation
6	Y	Y	Signs of excess nutrients, such as algae blooms, heavy macrophyte growth
7	Y	Y	Stormwater or surface water from agricultural land is major hydrology source
8	N	N	Discharge to surface water
9	N	N	Natural land cover in 100m buffer area < 50%
GW			**Groundwater Processes**
1	Y	Y	Springs, seeps or indicators of groundwater present
2	N	N	Location near a groundwater divide or a headwater wetland
3	Y	Y	Wetland remains saturated for an extended time period with no additional water inputs
4	N	N	Wetland soils are organic
5	N	N	Wetland is within a wellhead protection area

Section 1 Comments (Refer to Section 1 numbers)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
WH6 – Habitat interspersion occurring in PSS zone outside of study area
WQ6 – Cattle pasture, manure in wetland
WH10, FA2, FA4: No standing water at time of survey and wetland does not appear to hold water for long periods of time.

Wildlife Habitat and Species Observation (including amphibians and reptiles)
List: direct observation, tracks, scat, other sign; type of habitat: nesting, migratory, winter, etc.

Observed	Potential	Species/Habitat/Comments
	X	Songbirds
	X	Area sensitive species

Fish and Aquatic Life Habitat and Species Observations
List: direct observation, other sign; type of habitat: nesting, spawning, nursery areas, etc.

Observed	Potential	Species/Habitat
		None; no standing water at time of survey and wetland does not appear to hold water for long periods of time.

SECTION 2: Floristic Integrity

Plant Community Integrity (circle)*

	Low	Medium	High	Exceptional
Invasive species cover	> 50%	20-50%	10-20%	<10%
Strata	Missing stratum(a) or bare due to invasive species	All strata present but reduced native species	All strata present and good assemblage of native species	All strata present, conservative species represented
NHI plant community ranking	S4	S3	S2	S1-S2 (S2 high quality)
Relative frequency of plant community in watershed	Abundant	Common	Uncommon	Rare
FQI (optional)	<13	13-23	23-32	>32
Mean C (optional)	<2.4	2.4-4.2	4.3-4.7	>4.7

***Note: separate plant communities are described independently**

Plant Species List (* dominant species) attach list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Ranunculus acris*	common buttercup	0	PEM	63
Trifolium pratense	red clover	0	PEM	63
Phleum pratense	timothy	0	PEM	38
Scirpus microcarpus	panicled bulrush	6	PEM	3
Bidens frondosa	common beggar-ticks, devil's beggar-ticks	1	PEM	3
Scirpus atrovirens	black bulrush, dark-green bulrush	3	PEM	3
**Symphyotrichum lateriflorum*	side-flowering aster	3	PEM	5
Carex crinita	fringed sedge	6	PEM	5
Glyceria striata	fowl manna grass, fowl meadow grass	0	PEM	1
Leersia oryzoides	rice cut grass	4	PEM	15
Glyceria maximum	reed manna grass	0	PEM	5
Prunella vulgaris	heal-all, lawn prunella, self-heal	1	PEM	3
**Persicaria sagittata*	arrow-leaved tearthumb, arrow vine	6	PEM	3
Juncus effusus	common rush, soft rush	4	PEM	1
Lycopus americana	American water-horehound, common water-horehound	4	PEM	1
Impatiens capensis	orange jewelweed, orange touch-me-not	2	PEM	1
Agrostis perennans	autumn bent grass, thin grass, upland bent grass	4	PEM	3
Eleocharis obtusa	blunt spike-rush	3	PEM	5
Lemna minor	common duckweed, lesser duckweed, small duckweed	4	PEM	0.5
Cirsium arvense	Canada thistle, creeping thistle, field thistle	0	PEM	15
Plantago major	broadleaf plantain		PEM	

SUMMARY OF FLORISTIC INTEGRITY (Include general comments on plant communities)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
Invasive Canada thirstle (*Cirsium arvense*) provides approximately 15% cover.
Tree and shrub strata missing, most likely due to clearing for pasture or other agricultural activity. Active cattle grazing prevents trees and shrubs from recruiting
into wetland.
FQI = 11.5, C of C = 2.6

SECTION 3: Condition Assessment of Wetland Assessment Area (AA) and Buffer (100 m)

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
					Filling, berms (non-impounding)
					Drainage – tiles, ditches
X	X		H	UC	Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
X	X		H	UC	Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
X	X		H	UC	Agriculture – pasture
	X		L	UC	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	X		M	UC	Removal of tree or shrub strata – logging, unprescribed fire
					Human trails – unpaved
					Human trails – paved
					Removal of large woody debris
X	X		L	UC	Cover of non-native and/or invasive species
					Residential land use
					Urban, commercial or industrial use
					Parking lot
					Golf course
					Gravel pit
					Recreational use (boating, ATVs, etc.)
					Excavation or soil grading
					Other (list below):

* L= Low, M = Medium, H = High
**Relative frequency of the impact in comparison to the general condition of wetlands and buffer areas in the region or watershed (C=Common, UC=Uncommon)

SUMMARY OF CONDITION ASSESSMENT (Include general description and comments)

Hydrologic modification due to soil compaction by cattle, polluted runoff from cattle pasture, and missing vegetation strata have degraded wetland functions and values. Wetland has also been invaded by invasive exotic Canada thistle

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity	X				
Human Use Values	X				
Wildlife Habitat	X				
Fish and Aquatic Life Habitat	X				
Shoreline Protection		X			
Flood and Stormwater Storage		X			
Water Quality Protection		X			
Groundwater Processes		X			

FUNCTION	RATIONALE
Floristic Integrity	Missing strata and relatively high cover of invasive exotic species.
Human Use Values	Use as active cattle pasture precludes human recreational use.
Wildlife Habitat	Active cattle grazing and clearing limit use of the wetland by other wildlife.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. No standing water at time of survey and little evidence that the wetland can hold standing water.
Shoreline Protection	Erosion on banks from use by cattle, but vegetation is relatively dense on shoreline.
Flood and Stormwater Storage	Potential to receive overbank flow from stream, but wetland is fairly small with little storage capacity.
Water Quality Protection	Potential to capture pollutants from cattle pasture, but small size limits ability to effectively treat all runoff water.
Groundwater Processes	Saturated at surface and oxidized rhizospheres indicate presence of groundwater near or at the surface for at least part of the year.

Section 4: Project Impact Assessment

Brief Project Description

Enbridge Line 5 pipeline route analysis.

Expected Project Impacts

IMPACT: describe (+ or -)	Permanence/Reversibility	Significance (Low, Medium, High)
Direct Impacts	Temporary trenching, soil storage, and backfilling.	L
Secondary Impacts (including impacts which are indirectly attributable to the project)	Vegetation removal for construction.	L
Cumulative Impacts	Operational vegetation maintenance.	L
Spatial/Habitat Integrity	Temporary construction impacts	L
Rare Plant/Animal Communities/ Natural Areas	N/A	N/A