APPENDIX D

Part 14 of 22

Wetland Delineation Data Sheets and Site Photographs

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/27/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV049f_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.: 46.344039 Long.: -90.616963 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 is located in a depressional wetland located in regenerating hardwood forest.

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)
- 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	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:

N/A

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV049f_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	38	Y	FACW
2	*Betula alleghaniensis*	15	Y	FAC
3	*Abies balsamea*	15	Y	FAC
4	*Tsuga canadensis*	15	Y	FACU
5				
6				
7				
8				
9				
10				
		83	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	15	Y	FACW
2	*Betula alleghaniensis*	3	N	FAC
3				
4				
5				
6				
7				
8				
9				
10				
		18	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Rubus pubescens*	38	Y	FACW
2	*Fraxinus nigra*	15	Y	FACW
3	*Carex crinita*	15	Y	OBL
4	*Glyceria striata*	3	N	OBL
5	*Abies balsamea*	0.5	N	FAC
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		71.5	= 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	17	42
Sapling/Shrub Stratum	4	9
Herb Stratum	14	36
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 all Strata: 8 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 87.50% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	18	x 1 =	18
FACW species	106	x 2 =	212
FAC species	33.5	x 3 =	100.5
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column totals	172.5 (A)		390.5 (B)

Prevalence Index = B/A = 2.26

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:** WASV049f_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 2/1	100					muck	
6-12	10YR 4/2	80	10YR 4/6	10	C	M	silt loam	
6-12			10YR 2/1	10				
12-14	10YR 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)
X 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:

___ 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 Below Dark Surface (A11) is present; parameter is met.

Photograph 1: WASV049f_W, North

Photograph 2: WASV049f_W, West

Photograph 3: WASV049f_W, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/27/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV049_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.: 46.344157 Long.: -90.616802 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 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?**	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 data point located in regenerating hardwood forest.

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: WASV049_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Abies balsamea*	85	Y	FAC
2	*Acer saccharum*	3	N	FACU
3	*Betula alleghaniensis*	3	N	FAC
4				
5				
6				
7				
8				
9				
10				
		91	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Abies balsamea*	15	Y	FAC
2	*Cornus alternifolia*	0.5	N	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		15.5	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		0	= 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	18	46
Sapling/Shrub Stratum	3	8
Herb Stratum	0	0
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: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	103	x 3 =	309	
FACU species	3.5	x 4 =	14	
UPL species	0	x 5 =	0	
Column totals	106.5	(A)	323	(B)

Prevalence Index = B/A = 3.03

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation

X 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? Y

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

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV049_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
0-1	10YR 2/1	100					silt loam	
1-7	10YR 4/2	80	10YR 2/1	20			silt clay loam	mixed matrix
7-14	10YR 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 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**)
___ 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: WASV049_U, North

Photograph 2: WASV049_U, West

Photograph 3: WASV049_U, South

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

WETLAND IDENTIFICATION	**WASV049**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/26/2019
Location: PLSS: 45N02W Lat: 46.34561 Long: -90.615199 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp Wetland Size: 0.040 acres / Wetland Area Impacted: 0.040 acres
Hydrology: Basin wetland, surface water-driven hydrology; relatively flat landscape; algal mats; geomorphic position.	Vegetation: Plant Community Description(s): PFO: *Fraxinus nigra, Acer saccharum, Ulmus americana*

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	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	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	Y	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	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	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	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)

WH9, WH10, FA2 & FA4 – Algal mats indicate parts of the wetland are inundated for extended periods of time
during wetter seasons.
ST3 & WQ5 – Vegetation is only dense in some portions of wetland due to hydrology and extended periods of inundation.
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
	X	Frogs and salamanders; No standing water at the time of this survey

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	
Acer saccharum	hard maple, sugar maple	5	PFO	
Ulmus americana	American elm, white elm	3	PFO	
Glyceria striata	fowl manna grass, fowl meadow grass	4	PFO	
Juncus effusus	common rush, soft rush	4	PFO	
**Rubus pubescens*	dwarf red raspberry	7	PFO	
**Betula alleghaniensis*	yellow birch		PFO	
**Abies balsamea*	balsam fir		PFO	
**Carex crinita*	fringed sedge		PFO	
**Tsuga canadensis*	Eastern hemlock		PFO	

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

Good diversity of native species.
Low cover in wettest areas.
FQI = 12.7, Mean C of C=5.2

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.
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)

Area is a regenerating forest. Historically logged/cleared in the past (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	Wetland supports good diversity of common native flora. Low vegetation cover observed in lowest areas of wetland due to periods of extended inundation.
Human Use Values	Wetland is located on private property and there are no signs of recreational use within surrounding area.
Wildlife Habitat	Signs of wildlife use in surrounding area; wetland is part of a large contiguous forest stand that may support area sensitive species.
Fish and Aquatic Life Habitat	No standing water at the time of this survey, but hydrology indicators suggest the wetland holds water during wetter seasons and may provide habitat for amphibians.
Shoreline Protection	N/A
Flood and Stormwater Storage	Basin wetland receives surface water runoff and is medium sized with water storage capacity.
Water Quality Protection	Little opportunity to capture pollutants from surrounding landscape.
Groundwater Processes	Wetland is surface water-driven and no signs of groundwater processes 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: 9/26/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV039f_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Flat
Slope (%): 0-1% Lat.: 46.346405 Long.: -90.614075 Datum: WGS1984
Soil Map Unit Name Tula-Gogebic complex, 0-6% slopes, stony 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 in a mixed deciduous/coniferous swamp. An upland island is located within the western portion of the wetland. The wetland is in part culverted underneath a dirt logging road for approximately 20 feet

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)
- 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	X	No	___	Depth (inches):	2
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:

Primary and secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV039f_W

Tree Stratum (Plot Size (30' radius))	Absolute % Cover	Dominant Species	Indicator Status
1 *Tsuga canadensis*	15	Y	FACU
2 *Betula alleghaniensis*	15	Y	FAC
3 *Fraxinus nigra*	15	Y	FACW
4 *Thuja occidentalis*	15	Y	FACW
5 *Abies balsamea*	15	Y	FAC
6			
7			
8			
9			
10			
	75	= Total Cover	

Sapling/Shrub Stratum (Plot Size (30' radius))	Absolute % Cover	Dominant Species	Indicator Status
1 *Acer saccharum*	15	Y	FACU
2 *Betula alleghaniensis*	3	N	FAC
3 *Abies balsamea*	3	N	FAC
4 *Fraxinus nigra*	3	N	FACW
5 *Ulmus americana*	3	N	FACW
6			
7			
8			
9			
10			
	27	= Total Cover	

Herb Stratum (Plot Size (15' radius))	Absolute % Cover	Dominant Species	Indicator Status
1 *Thelypteris palustris*	3	Y	FACW
2 *Rubus pubescens*	3	Y	FACW
3 *Onoclea sensibilis*	3	Y	FACW
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
	9	= 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	5	14
Herb Stratum	2	5
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 all Strata: 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	45	x 2 =	90
FAC species	36	x 3 =	108
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column totals	111 (A)		318 (B)

Prevalence Index = B/A = 2.86

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:** WASV039f_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
0-24	10YR 2/1	100					Muck	

*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains
**Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators:

- X 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**)
- ___ 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 Histisol (A1) is present; parameter is met.

Photograph 1: WASV039f_W, Northeast

Photograph 2: WASV039f_W, East

Photograph 3: WASV039f_W, West

Photograph 4: WASV039f_W, Road Crossing, Northeast

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/26/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV039_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Flat
Slope (%): 1-2% Lat.: 46.346332 Long.: -90.614125 Datum: WGS1984
Soil Map Unit Name Tula-Gogebic complex, 0-6% slopes, 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 circumstances" present? Yes
Are vegetation ____, soil ____, or hydrology ____ naturally problematic?
(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 a mixed deciduous forest stand representative of the uplands adjacent to WASV039.

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 wetland hydrology indicators observed.

VEGETATION - Use scientific names of plants

Sampling Point: WASV039_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	38	Y	FACU
2	*Tilia americana*	38	Y	FACU
3	*Ostrya virginiana*	15	N	FACU
4				
5				
6				
7				
8				
9				
10				
		91	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Ostrya virginiana*	38	Y	FACU
2	*Acer saccharum*	15	Y	FACU
3	*Abies balsamea*	3	N	FAC
4				
5				
6				
7				
8				
9				
10				
		56	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Trientalis borealis*	15	Y	FAC
2	*Gymnocarpium dryopteris*	15	Y	FACU
3	*Mitchella repens*	15	Y	FACU
4	*Maianthemum canadense*	3	N	FACU
5	*Abies balsamea*	3	N	FAC
6	*Acer saccharum*	3	N	FACU
7	*Matteuccia struthiopteris*	3	N	FAC
8	*Dryopteris intermedia*	3	N	FAC
9				
10				
11				
12				
13				
14				
15				
		60	= 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	46
Sapling/Shrub Stratum	11	28
Herb Stratum	12	30
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 all Strata: 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	27	x 3 =	81	
FACU species	180	x 4 =	720	
UPL species	0	x 5 =	0	
Column totals	207	(A)	801	(B)

Prevalence Index = B/A = 3.87

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:** WASV039_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
0-1	10YR 3/3	100					Silt loam	
1-4	10YR 3/3	80	10YR 4/6	20	C	M	Silt loam	
4-12	10YR 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 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**)
___ 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): 12

Hydric soil present? N

Remarks:
No indicators of hydric soil observed. Auger refusal layer at 12 inches due to rock.

Photograph 1: WASV039_U, Northwest

Photograph 2: WASV039_U, Southeast

Photograph 3: WASV039_U, East

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

WETLAND IDENTIFICATION	**WASV039**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/26/2019
Location: PLSS: 45N02W Lat: 46.346394 Long: -90.614141 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Tula-Gogebic complex, 0-6% slopes stony; Gogebic silt loam, 18-35% slopes, very stony, rocky Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp Wetland Size: 0.709 acres / Wetland Area Impacted: 0.709 acres
Hydrology: Portion of wetland identified in NWI as PEM1C; muck; standing water, up to 1 inch inch depth in low pockets; hydrology primarily groundwater driven, receiving some surface water runoff from surrounding landscape.	Vegetation: Plant Community Description(s): PFO: *Tsuga canadensis; Fraxinus nigra; 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	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	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	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	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	N	Y	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	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	Y	Y	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)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
WH6: Upland island located within wetland.
WH10 & FA2: Inundation of 1 inch in lowest pockets.
WQ3 & ST3: Dense persistent vegetation only in highest portions of wetland; muck and sparse vegetation cover in lowest.
ST1: Through-flow draining to the north.
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		Chickadee
	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	Frog, Salamanders; standing water at time of survey but no species observed.

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)
**Thelypteris palustris*	eastern marsh fern, marsh fern	7	PFO	
Impatiens capensis	orange jewelweed, orange touch-me-not	2	PFO	
**Fraxinus nigra*	black ash	8		
**Acer saccharum*	hard maple, sugar maple	5	PFO	
Carex intumescens	greater bladder sedge, shining bur sedge	5	PFO	
Carex bromoides	brome-like sedge	8	PFO	
**Rubus pubescens*	dwarf red raspberry	7	PFO	
Carex crinita	fringed sedge	6	PFO	
Athyrium filix-femina	common lady fern, lady fern	5	PFO	
Dryopteris intermedia	fancy wood fern, glandular wood fern, intermediate	7	PFO	
Lycopus americanus	American water-horehound, common water-horehound	4	PFO	
Carex scabrata	eastern rough sedge	8	PFO	
Ulmus americana	American elm, white elm	3	PFO	
Juncus effusus	common rush, soft rush	4	PFO	
**Tsuga canadensis*	eastern hemlock, hemlock, northern hemlock	8	PFO	
Tilia americana	American linden, basswood	5	PFO	
Equisetum sylvaticum	wood horsetail, woodland horsetail	7	PFO	
**Betula alleghaniensis*	yellow birch	7	PFO	
Symphyotrichum puniceum	swamp aster	5	PFO	
Symphyotrichum lateriflorum	side-flowering aster	3	PFO	
**Onoclea sensibilis*	sensitive fern	5	PFO	
Equisetum pratense	meadow horsetail	9	PFO	
Solidago gigantea	giant goldenrod	3	PFO	
Osmunda cinnamomea	cinnamon fern	7	PFO	
Packera aurea	golden ragwort, heart-leaved groundsel	6	PFO	
Geum canadense	white avens	2	PFO	
**Thuja occidentalis*	northern white cedar, arborvitae		PFO	
**Abies balsamea*	balsam fir		PFO	

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

Good assemblage of common native wetland species.
FQI = 26.8, Mean C of C = 5.6

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		M	C	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
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	L	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)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
Area historically logged (uniform stand age).
Impacts from earthworms observed in uplands, but impacts were not as extensive as other sites assessed.
Road crossing through wetland removes tree/shrub strata in 20-foot-wide strip. Compaction from road increase runoff.

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	Good diversity of native wetland flora in large hardwood swamp.
Human Use Values	It is a large wetland, but it is not accessible to public. No signs of use for hunting throughout area.
Wildlife Habitat	Signs of wildlife (bears, deer, birds) in surrounding landscape.
Fish and Aquatic Life Habitat	Standing water of about 1 inch in pockets in the lowest part of wetland provides potential habitat for amphibians.
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland doesn't appear to receive large amounts of surface water runoff based on position in landscape, but it would capture water and has relatively a large storage capacity.
Water Quality Protection	Large capacity for stormwater treatment, but the surrounding landscape is undeveloped. There is little opportunity for water quality improvement because wetland is not receiving pollutants.
Groundwater Processes	Hydrology is primarily driven by groundwater, and the wetland is positioned at top of landscape.

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: 9/26/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV040f_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.: 46.347164 Long.: -90.614253 Datum: WGS1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 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 small forested depression 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)
- 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)
- 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	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 are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV040f_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula alleghaniensis*	15	Y	FAC
2	*Acer saccharum*	15	Y	FACU
3	*Fraxinus nigra*	15	Y	FACW
4				
5				
6				
7				
8				
9				
10				
		45	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	3	Y	FACW
2	*Acer saccharum*	3	Y	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		6	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*	38	Y	OBL
2	*Rubus pubescens*	3	N	FACW
3	*Equisetum sylvaticum*	3	N	FACW
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		44	= 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	23
Sapling/Shrub Stratum	1	3
Herb Stratum	9	22
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 all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 66.67% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	38	x 1 =	38	
FACW species	24	x 2 =	48	
FAC species	15	x 3 =	45	
FACU species	18	x 4 =	72	
UPL species	0	x 5 =	0	
Column totals	95	(A)	203	(B)

Prevalence Index = B/A = 2.14

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:** WASV040f_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
0-2	7.5 YR 3/1	100					Silt loam	
2-4	7.5YR 3/1	90	7.5YR 4/4	10	C	M	Silt loam	
4-8	7.5YR 4/4	100					Very fine sandy silt loam	
8-14	7.5 YR 4/6	100					Very fine sandy 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)
___ 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: WASV040f_W, North

Photograph 2: WASV040f_W, South

Photograph 3: WASV040f_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/26/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV040_U
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.: 46.347124 Long.: -90.614416 Datum: WGS1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 circumstances" present? Yes
Are vegetation ____, soil ____, or hydrology ____ naturally problematic?
(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 upland forest adjacent to WASV040.

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 wetland hydrology indicators observed.

VEGETATION - Use scientific names of plants

Sampling Point: WASV040_U

Tree Stratum (Plot Size (30' radius))	Absolute % Cover	Dominant Species	Indicator Status
1 *Betula alleghaniensis*	38	Y	FAC
2 *Acer saccharum*	38	Y	FACU
3 *Tilia americana*	3	N	FACU
4 *Ostrya virginiana*	3	N	FACU
5 *Tsuga canadensis*	3	N	FACU
6			
7			
8			
9			
10			
	85	= Total Cover	

Sapling/Shrub Stratum (Plot Size (30' radius))	Absolute % Cover	Dominant Species	Indicator Status
1 *Ostrya virginiana*	38	Y	FACU
2 *Acer saccharum*	38	Y	FACU
3 *Fraxinus nigra*	3	N	FACW
4			
5			
6			
7			
8			
9			
10			
	79	= Total Cover	

Herb Stratum (Plot Size (15' radius))	Absolute % Cover	Dominant Species	Indicator Status
1 *Mitchella repens*	38	Y	FACU
2 *Lonicera canadensis*	15	Y	FACU
3 *Cornus alternifolia*	15	Y	FACU
4 *Pyrola elliptica*	15	Y	FACU
5 *Dryopteris intermedia*	3	N	FAC
6 *Trientalis borealis*	3	N	FAC
7 *Maianthemum canadense*	3	N	FACU
8			
9			
10			
11			
12			
13			
14			
15			
	95	= 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	43
Sapling/Shrub Stratum	16	40
Herb Stratum	19	48
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 all Strata: 8 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 12.50% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	3	x 2 =	6	
FAC species	47	x 3 =	141	
FACU species	209	x 4 =	836	
UPL species	0	x 5 =	0	
Column totals	259	(A)	983	(B)

Prevalence Index = B/A = 3.80

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)

Mixed hardwood forest with no hydrophytic vegetation present.

SOIL **Sampling Point:** WASV040_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
0-3	10YR 3/3	100					Silt loam	
3-14	10YR 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 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**)
___ 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: WASV040_U, North

Photograph 2: WASV040_U, South

Photograph 3: WASV040_U, East

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

WETLAND IDENTIFICATION	**WASV040**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/26/2019
Location: PLSS: 45N02W Lat: 46.347283 Long: -90.614248 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp Wetland Size: 0.060 acres / Wetland Area Impacted: 0.060 acres
Hydrology: Basin wetland, water stained leaves, geomorphic position, surface water-driven wetland, most likely holds water during wettest seasons.	Vegetation: Plant Community Description(s): PFO: *Fraxinus nigra, Betula alleghaniensis, 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	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	Y	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	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	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	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)

WH9, WH10, FA2 & FA4: Basin wetland exhibits signs of inundation in wetter seasons, no standing water at time of survey.
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		Nuthatch
	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
	X	Frogs and salamanders; no water at time of survey, but wetland holds 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)
**Betula alleghaniensis*	yellow birch	7	PFO	
**Fraxinus nigra*	black ash	8	PFO	
Glyceria striata	fowl manna grass, fowl meadow grass	4	PFO	
Carex bromoides	brome-like sedge	8	PFO	
Rubus pubescens	dwarf red raspberry	7	PFO	
Carex intumescens	greater bladder sedge, shining bur sedge, swollen	5	PFO	
Dryopteris intermedia	fancy wood fern, glandular wood fern, intermediate	7	PFO	
Equisetum sylvaticum	wood horsetail, woodland horsetail	7	PFO	
Rubus idaeus	wild red raspberry	3	PFO	
**Acer saccharum*	sugar maple		PFO	
**Carex crinita*	fringed sedge		PFO	

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

Good diversity of common native species.
Periodic extended inundation apparent in lowest parts of wetland leading to low ground cover in those areas. No water at time of survey.
FQI = 18.7, Mean C of C =6.2

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		L	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)

Area historically cleared (uniform stand age).
Signs of earthworm impacts in buffer area, but not as impacted as other sites assessed.

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	Good diversity of common native species; low cover in wettest areas due to extended periods of inundation.
Human Use Values	Recreation use limited by inaccessibility (located on private property) and small size of wetland.
Wildlife Habitat	Surrounding area shows signs of deer, bear, and birds.
Fish and Aquatic Life Habitat	No standing water at the time of this survey. Wetland potentially holds water in wetter seasons.
Shoreline Protection	N/A
Flood and Stormwater Storage	Has ability to store and hold surface water. Surface water-driven hydrology, but very small in size with little storage capacity.
Water Quality Protection	Surface water runoff reaching wetland has few pollutants, so little opportunity for water quality improvement.
Groundwater Processes	Hydrology is primarily driven by surface water input. No signs of groundwater 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.	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: 9/26/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV038f_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.: 46.347587 Long.: -90.613456 Datum: WGS1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 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 is located in depressional wetland within a regenerating forest stand.

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)
- 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	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 are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV038f_W

Tree Stratum	Plot Size (15' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	38	Y	FACW
2	*Ulmus americana*	15	Y	FACW
3	*Abies balsamea*	3	N	FAC
4				
5				
6				
7				
8				
9				
10				
		56	= Total Cover	

Sapling/Shrub Stratum	Plot Size (15' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Ulmus americana*	15	Y	FACW
2	*Fraxinus nigra*	3	N	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		18	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Scirpus cyperinus*	15	Y	OBL
2	*Onoclea sensibilis*	15	Y	FACW
3	*Carex crinita*	0.5	N	OBL
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		30.5	= 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	28
Sapling/Shrub Stratum	4	9
Herb Stratum	6	15
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 all Strata: 5 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	15.5	x 1 =	15.5	
FACW species	86	x 2 =	172	
FAC species	3	x 3 =	9	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	104.5	(A)	196.5	(B)

Prevalence Index = B/A = 1.88

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:** WASV038f_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
0-1	7.5YR 3/1	100					Silt loam	
1-6	7.5YR 4/4	90	7.5YR 3/1	10			Silt loam	
6-14	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 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: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:
Indicator Red Parent Material (F21) is present; parameter is met.

Photograph 1: WASV038f_W, West

Photograph 2: WASV038f_W, East

Photograph 3: WASV038f_W, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/26/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV038_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): Undulating
Slope (%): 1-2% Lat.: 46.347386 Long.: -90.613354 Datum: WGS1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 circumstances" present? Yes
Are vegetation _____, soil _____, or hydrology _____ naturally problematic?
(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 regenerating forest stand adjacent to WASV038.

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 wetland hydrology indicators observed.

VEGETATION - Use scientific names of plants

Sampling Point: WASV038_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Tilia americana*	38	Y	FACU
2	*Acer saccharum*	38	Y	FACU
3	*Fraxinus nigra*	3	N	FACW
4				
5				
6				
7				
8				
9				
10				
		79	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	63	Y	FACU
2	*Ostrya virginiana*	15	N	FACU
3	*Fraxinus nigra*	3	N	FACW
4				
5				
6				
7				
8				
9				
10				
		81	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	38	Y	FACU
2	*Athyrium filix-femina*	38	Y	FAC
3	*Mitchella repens*	15	N	FACU
4	*Pyrola elliptica*	3	N	FACU
5	*Tilia americana*	3	N	FACU
6				
7				
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	16	40
Sapling/Shrub Stratum	16	41
Herb Stratum	19	49
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 all Strata: 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	6	x 2 =	12	
FAC species	38	x 3 =	114	
FACU species	213	x 4 =	852	
UPL species	0	x 5 =	0	
Column totals	257	(A)	978	(B)

Prevalence Index = B/A = 3.81

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:** WASV038_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
0-2	7.5YR 3/1	100					Silt loam	
2-5	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 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**)
___ 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: WASV038_U, North

Photograph 2: WASV038_U, East

Photograph 3: WASV038_U, South

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

WETLAND IDENTIFICATION	**WASV038**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/26/2019
Location: PLSS: 45N02W Lat: 46.347594 Long: -90.613444 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp Wetland Size: 0.041 acres / Wetland Area Impacted: 0.041 acres
Hydrology: Surface water-driven hydrology; Water stained leaves; Basin wetland; signs that water is held for periods of time in wetter season; possible vernal pool; 0-2% slopes.	Vegetation: Plant Community Description(s): PFO: *Fraxinus nigra, Carex crinita, Scirpus cyperinus*

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	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	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	Y	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	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			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	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	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)

WH8: Signs of bear in surrounding landscape.
WH9, WH10, FA2 & FA4: Water stained leaves and basin shape of wetland suggest water is held for extended periods in wetter seasons.
Possible vernal pool.
ST2 & WQ2: Water sits in wetland with no obvious outfall/drain.
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
	X	Salamanders & Frogs; No water at time of survey but hydrology indicators suggest water is held for extended periods of time 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	greater bladder sedge, shining bur sedge	5	PFO	
Equisetum sylvaticum	wood horsetail, woodland horsetail	7	PFO	
**Fraxinus nigra*	black ash	8	PFO	
**Scirpus cyperinus*	wool-grass	4	PFO	
**Onoclea sensibilis*	sensitive fern	5	PFO	
**Ulmus americana*	American elm, white elm	3	PFO	
Symphyotrichum lateriflorum	side-flowering aster	3	PFO	
Abies balsamea	balsam fir		PFO	
Carex crinita	fringed sedge		PFO	

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

Low diversity most likely due to extended periodic inundation during wetter seasons (potential vernal pool).
Low cover throughout wetland.
FQI = 13.2, Mean C of C = 5.0

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
	X		L	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
					Sediment input
	X		L	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)

Road is approximately 100 feet away from wetland.
Earthworms in upland areas but not impacting the area as much as other sites assessed.
Historically logged/cleared (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	Low diversity and cover due to periodic extended inundation.
Human Use Values	Inaccessibility and small size preclude human recreational use of wetland.
Wildlife Habitat	Wetland and surrounding buffer support forest interior species.
Fish and Aquatic Life Habitat	No standing water at the time of this survey, but hydrology indicators suggest wetland is inundated for extended periods of time during wetter seasons. Potential vernal pool.
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland will receive and hold stormwater, but is very small in size, with little storage capacity.
Water Quality Protection	Little opportunity to capture pollutants from surrounding landscape because area is undeveloped.
Groundwater Processes	No signs of groundwater processes. Hydrology is primarily surface water-driven.

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: 9/26/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV037e_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.: 46.348353 Long.: -90.612932 Datum: WGS1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 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 taken in PEM wetland partially formed by old road bed. High cover of *Phalaris arundinaceus* in lower parts of wetland.

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)
- 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	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:
Primary and secondary indicators of wetland hydrology are present; parameter is met. Ruts present in wetland that hold water.

VEGETATION - Use scientific names of plants

Sampling Point: WASV037e_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	*Carex crinita*	38	Y	OBL
2	*Equisetum sylvaticum*	15	Y	FACW
3	*Dryopteris intermedia*	15	Y	FAC
4	*Impatiens capensis*	3	N	FACW
5	*Onoclea sensibilis*	3	N	FACW
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		74	= 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	15	37
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	38	x 1 =	38
FACW species	21	x 2 =	42
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	74 (A)		125 (B)

Prevalence Index = B/A = 1.69

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:** WASV037e_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
0-2	10YR 2/1	100					Muck	
2-6	7.5YR 2/1	90	7.5YR 3/4	10	C	M	Silt loam	
6-16	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 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: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:
Indicator Red Parend Material (F21) is present; parameter is met.

Photograph 1: WASV037e_W, North

Photograph 2: WASV037e_W, East

Photograph 3: WASV037e_W, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/26/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV037_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Undulating
Slope (%): 3-5% Lat.: 46.348153 Long.: -90.613168 Datum: WGS1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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.)

Data point is located in regenerating forest stand adjacent to WASV037.

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 wetland hydrology indicators observed.

VEGETATION - Use scientific names of plants

Sampling Point: WASV037_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	63	Y	FACU
2	*Ostrya virginiana*	15	N	FACU
3	*Tilia americana*	3	N	FACU
4	*Tsuga canadensis*	0.5	N	FACU
5				
6				
7				
8				
9				
10				
		81.5	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Ostrya virginiana*	38	Y	FACU
2	*Acer saccharum*	15	Y	FACU
3	*Tsuga canadensis*	0.5	N	FACU
4	*Abies balsamea*	0.5	N	FAC
5				
6				
7				
8				
9				
10				
		54	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	38	Y	FACU
2	*Dryopteris intermedia*	38	Y	FAC
3	*Gymnocarpium dryopteris*	15	N	FACU
4	*Cornus alternifolia*	15	N	FACU
5	*Trientalis borealis*	3	N	FAC
6	*Adiantum pedatum*	3	N	FACU
7	*Berberis thunbergii*	0.5	N	FACU
8	*Quercus rubra*	0.5	N	FACU
9				
10				
11				
12				
13				
14				
15				
		113	= 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	16	41
Sapling/Shrub Stratum	11	27
Herb Stratum	23	57
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 all Strata: 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	0	x 2 =	0
FAC species	41.5	x 3 =	124.5
FACU species	207	x 4 =	828
UPL species	0	x 5 =	0
Column totals	248.5 (A)		952.5 (B)

Prevalence Index = B/A = 3.83

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:** WASV037_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
0-3	7.5YR 3/1	100					Silt loam	
3-14	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 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**)
___ 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: WASV037_U, North

Photograph 2: WASV037_U, West

Photograph 3: WASV037_U, South

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

WETLAND IDENTIFICATION	**WASV037**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/26/2019
Location: PLSS: 45N02W Lat: 46.348345 Long: -90.612923 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks

SITE DESCRIPTION		
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow	
	Wetland Size: 0.101 acres	Wetland Area Impacted: 0.101 acres
Hydrology: Wetland located in old road bed; Saturated at surface, Drainage patterns, FAC neutral, slope 5-8%, area receives surface water from the south and funnels downslope to the north.	Vegetation: Plant Community Description(s): PEM in old road bed: *Carex crinita, Impatiens capensis, Phalaris arundinacea*	

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	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	N	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	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	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	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.
WH8: Signs of bear within surrounding landscape
WH2: Wetland is not channelized, but is generally long and linear
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)
Agrimonia gryposepala	common agrimony, tall hairy agrimony	2	PEM	
Rumex obtusifolius	bitter dock	0	PEM	
Rubus idaeus	wild red raspberry	3	PEM	
**Carex crinita*	fringed sedge	6	PEM	
Phalaris arundinacea	reed canary grass	0	PEM	
Onoclea sensibilis	sensitive fern	5	PEM	
Geum canadense	white avens	2	PEM	
Symphyotrichum lateriflorum	side-flowering aster	3	PEM	
Solidago gigantea	giant goldenrod	3	PEM	
Epilobium ciliatum	American willow-herb, hairy willow-herb	3	PEM	
Osmunda cinnamomea	cinnamon fern	7	PEM	
Persicaria sagittata	arrow-leaved tearthumb, arrow vine	6	PEM	
Lycopus americanus	American water-horehound, common water-horehound	4	PEM	
**Equisetum sylvaticum*	wood horsetail, woodland horsetail	7	PEM	
Acer saccharum	hard maple, sugar maple	5	PEM	
Athyrium filix-femina	common lady fern, lady fern	5	PEM	
**Dryopteris intermedia*	intermediate wood fern		PEM	
Impatiens capensis	spotted touch-me-not		PEM	

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

High cover of *Phalaris arundinacea* (~25%). Tree and sapling/shrub strata missing.
Mesic hardwood in surrounding landscape. Disturbed open area in PEM.
FQI = 15.3, Mean C of C = 3.8

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
X	X		M	UC	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
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.
X	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)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
Compaction from old road bed altering hydrology, forming portions of wetland.
Earthworms in buffer area, not as impacted as other sites observed.
High prevalence of invasive *Phalaris arundinacea* in wetland.

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 tree and shrub strata, and high prevalence of invasive species present.
Human Use Values	Wetland is used as an access road, precluding other recreational uses.
Wildlife Habitat	Wetland and surrounding buffer is part of large contiguous wooded habitat that is likely to support 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 collects and funnels water to the north due to long, linear shape and position on slope. Very little storage capacity during storm events.
Water Quality Protection	Receives some surface water runoff from surrounding landscape, but the area is relatively undeveloped. Therefore, there is little opportunity for water quality improvement because the wetland is not receiving pollutants.
Groundwater Processes	No signs of groundwater component to hydrology. Surface water-driven 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.	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: 9/25/19
Applicant/Owner: Enbridge State: WI Sampling Point: WASV036f_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): Flat
Slope (%): 0-2% Lat.: 46.348505 Long.: -90.610304 Datum: WGS 1984
Soil Map Unit Name Tula-Gogebic complex, 0-6% slopes, stony 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 in a linear PFO wetland. SASV010 originates within wetland and flows to WASV035.

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)
- 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	X	No	____	Depth (inches):	6"
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:
Primary and secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV036f_W

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	68	Y	FACW
2	*Acer saccharum*	15	N	FACU
3	*Betula alleghaniensis*	3	N	FAC
4				
5				
6				
7				
8				
9				
10				
		86	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	3	Y	FACU
2	*Fraxinus nigra*	3	Y	FACW
3	*Corylus americana*	3	Y	FACU
4				
5				
6				
7				
8				
9				
10				
		9	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex bromoides*	63	Y	FACW
2	*Equisetum pratense*	15	N	FACW
3	*Equisetum sylvaticum*	15	N	FACW
4	*Symphyotrichum lateriflorum*	3	N	FAC
5	*Athyrium filix-femina*	3	N	FAC
6	*Rubus pubescens*	3	N	FACW
7				
8				
9				
10				
11				
12				
13				
14				
15				
		102	= 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	43
Sapling/Shrub Stratum	2	5
Herb Stratum	20	51
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: 5 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 60.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	167	x 2 =	334	
FAC species	9	x 3 =	27	
FACU species	21	x 4 =	84	
UPL species	0	x 5 =	0	
Column totals	197	(A)	445	(B)

Prevalence Index = B/A = 2.26

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:** WASV036f_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	10YR 3/1	100					silt loam	
6-11	10YR 4/1	95	10YR 4/6	5	C	M	silt loam	
11-15	7.5YR 4/6	90	10YR 4/1	10	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 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: WASV036f_W, North

Photograph 2: WASV036f_W, West

Photograph 3: WASV036f_W, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/25/19
Applicant/Owner: Enbridge State: WI Sampling Point: WASV035/036_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Concave
Slope (%): 3-5% Lat.: 46.349159 Long.: -90.611019 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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.)

Data point is located on a forested hillslope adjacent to stream SASV010. Data point is representative of mixed hardwood stand located between WASV035 and WASV036.

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: WASV035/036_U

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Tsuga canadensis*	68	Y	FACU
2	*Acer saccharum*	38	Y	FACU
3	*Ostrya virginiana*	15	N	FACU
4	*Abies balsamea*	3	N	FAC
5				
6				
7				
8				
9				
10				
		124	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Tsuga canadensis*	15	Y	FACU
2	*Abies balsamea*	3	N	FAC
3	*Acer saccharum*	3	N	FACU
4				
5				
6				
7				
8				
9				
10				
		21	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Dryopteris intermedia*	38	Y	FAC
2	*Gymnocarpium dryopteris*	15	Y	FACU
3	*Maianthemum canadense*	3	N	FACU
4	*Carex pedunculata*	3	N	FACU
5	*Acer saccharum*	3	N	FACU
6	*Tilia americana*	1	N	FACU
7				
8				
9				
10				
11				
12				
13				
14				
15				
		63	= 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	25	62
Sapling/Shrub Stratum	4	11
Herb Stratum	13	32
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 all Strata: 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	0	x 2 =	0	
FAC species	44	x 3 =	132	
FACU species	164	x 4 =	656	
UPL species	0	x 5 =	0	
Column totals	208	(A)	788	(B)

Prevalence Index = B/A = 3.79

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:** WASV035/036_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
0-9	7.5YR 3/3	100					silt loam	
9-14	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 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**)
___ 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: WASV035/36_U, North

Photograph 2: WASV035/36_U, West

Photograph 3: WASV035/36_U, South

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

WETLAND IDENTIFICATION	**WASV036**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/25/2019
Location: PLSS: 45N02W Lat: 46.348266 Long: -90.610367 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Tula-Gogebic complex, 0-6% slopes, stony; Gogebic silt loam, 6-18% slopes, very stony, rocky; Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp Wetland Size: 1.376 acres / Wetland Area Impacted: 1.376 acres Vegetation: Plant Community Description(s): PFO: *Fraxinus nigra, Acer saccharum, Carex bromoides*
Hydrology: At top of landscape receiving very little surface water runoff; 0-3% slopes; saturation, water stain lines, moss trim lines at about 6 inches in some areas. SASV010 flows through a portion of the wetland as an ephemeral stream. Headcut at northern end of WASV026 is intermittent break. WASV026 is potentially a relict floodplain or a very old logging road, shape is long and linear.	

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	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	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	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	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	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	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.
WH10 & FA2: Moss trim lines suggest inundation for extended periods of time.
SP1: Ephemeral stream travels through wetland
ST2 & WQ4: Ephemeral stream 1 foot wide x 0.5 feet 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		Spring peeper calling
X		Signs of deer browsing
	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
	X	Frogs, salamanders – No water at the time of this survey, moss trim lines at 6 inches suggest the wetland is inundated for extended 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	
Rubus idaeus	wild red raspberry	3	PFO	
Equisetum sylvaticum	wood horsetail, woodland horsetail	7	PFO	
Equisetum pratense	meadow horsetail	9	PFO	
**Carex bromoides*	brome-like sedge	8	PFO	
Carex crinita	fringed sedge	6	PFO	
Carex scabrata	eastern rough sedge	8	PFO	
Symphyotrichum lateriflorum	side-flowering aster	3	PFO	
Athyrium filix-femina	common lady fern, lady fern	5	PFO	
Betula alleghaniensis	yellow birch	7	PFO	
Ulmus americana	American elm, white elm	3	PFO	
Tilia americana	American linden, basswood	5	PFO	
Solidago gigantea	giant goldenrod	3	PFO	
Osmunda cinnamomea	cinnamon fern	7	PFO	
Dryopteris intermedia	fancy wood fern, glandular wood fern	7	PFO	
Parthenocissus quinquefolia	Virginia creeper, woodbine	5	PFO	
Rubus pubescens	dwarf red raspberry	7	PFO	
Glyceria striata	fowl manna grass, fowl meadow grass	4	PFO	
Carex intumescens	greater bladder sedge, shining bur sedge	5	PFO	
**Acer saccharum*	sugar maple		PFO	
**Corylus americana*	American hazlelnut		PFO	

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

Diverse assemblage of common native wetland plant species
FQI = 25.5, 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
					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	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, but not as strongly affected as other areas. Areas had historically been logged/cleared.

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	Good diversity of native wetland plant species. Area historically logged (uniform stand age) and buffer affected by earthworms.
Human Use Values	Wetland is inaccessible to the public (located on private property) and there is no sign of recreational use within the area.
Wildlife Habitat	Wetland exhibits signs of use by deer. Wetland is part of a larger contiguous forest area that could support area sensitive species.
Fish and Aquatic Life Habitat	No standing water at time of this survey. Moss trim lines suggest the wetland is inundated during the wetter seasons and may provide some habitat for amphibians.
Shoreline Protection	Wetland occurs along edges of ephemeral stream; dense vegetation provides some streambank protection.
Flood and Stormwater Storage	Wetland exhibits signs of regular inundation and water storage. It is a long, linear feature that may be a relict stream or a very old logging road.
Water Quality Protection	Large wetland situated at the top of landscape does not receive significant surface water runoff from adjacent uplands. There is little opportunity for water quality improvement because area is undeveloped, and wetland does not receive pollutants.
Groundwater Processes	Water table was present at 6 inches, indicating a strong groundwater component to the 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.	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: 9/25/19
Applicant/Owner: Enbridge State: WI Sampling Point: WASV035f_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Flat
Slope (%): 0-2% Lat.: 46.349322 Long.: -90.611426 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% slopes, very stony, rocky NWI Classification: PFO2Bg
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 taken in a depressional terrace on the northern end of the study area. Water from stream SASV010 dissipates 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)
- ___ 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	____	No	X	Depth (inches): ____

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Two secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV035f_W

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	38	Y	FACU
2	*Betula alleghaniensis*	15	Y	FAC
3	*Fraxinus nigra*	15	Y	FACW
4	*Abies balsamea*	3	N	FAC
5	*Ulmus americana*	3	N	FACW
6				
7				
8				
9				
10				
		74	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	15	Y	FACU
2	*Abies balsamea*	15	Y	FAC
3	*Fraxinus nigra*	15	Y	FACW
4	*Ulmus americana*	3	N	FACW
5				
6				
7				
8				
9				
10				
		48	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex bromoides*	86	Y	FACW
2	*Carex crinita*	3	N	OBL
3	*Fraxinus nigra*	3	N	FACW
4	*Impatiens capensis*	3	N	FACW
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		95	= 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	10	24
Herb Stratum	19	48
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 all Strata: 7 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 71.43% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	3	x 1 =	3	
FACW species	128	x 2 =	256	
FAC species	33	x 3 =	99	
FACU species	53	x 4 =	212	
UPL species	0	x 5 =	0	
Column totals	217	(A)	570	(B)

Prevalence Index = B/A = 2.63

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:** WASV035f_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
0-9	10YR 3/2	100					silt loam	
9-14	10YR 5/1	95	10YR 4/6	5	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 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: WASV035f_W, North

Photograph 2: WASV035f_W, West

Photograph 3: WASV035f_W, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/25/19
Applicant/Owner: Enbridge State: WI Sampling Point: WASV035/036_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Concave
Slope (%): 3-5% Lat.: 46.349159 Long.: -90.611019 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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.)

Data point is located on a forested hillslope adjacent to stream SASV010. Data point is representative of mixed hardwood stand located between WASV035 and WASV036.

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: WASV035/036_U

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Tsuga canadensis*	68	Y	FACU
2	*Acer saccharum*	38	Y	FACU
3	*Ostrya virginiana*	15	N	FACU
4	*Abies balsamea*	3	N	FAC
5				
6				
7				
8				
9				
10				
		124	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Tsuga canadensis*	15	Y	FACU
2	*Abies balsamea*	3	N	FAC
3	*Acer saccharum*	3	N	FACU
4				
5				
6				
7				
8				
9				
10				
		21	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Dryopteris intermedia*	38	Y	FAC
2	*Gymnocarpium dryopteris*	15	Y	FACU
3	*Maianthemum canadense*	3	N	FACU
4	*Carex pedunculata*	3	N	FACU
5	*Acer saccharum*	3	N	FACU
6	*Tilia americana*	1	N	FACU
7				
8				
9				
10				
11				
12				
13				
14				
15				
		63	= 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	25	62
Sapling/Shrub Stratum	4	11
Herb Stratum	13	32
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 all Strata: 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	0	x 2 =	0	
FAC species	44	x 3 =	132	
FACU species	164	x 4 =	656	
UPL species	0	x 5 =	0	
Column totals	208	(A)	788	(B)

Prevalence Index = B/A = 3.79

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:** WASV035/036_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
0-9	7.5YR 3/3	100					silt loam	
9-14	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 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**)
___ 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: WASV035/36_U, North

Photograph 2: WASV035/36_U, West

Photograph 3: WASV035/36_U, South

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

WETLAND IDENTIFICATION	**WASV035**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/25/2019
Location: PLSS: 45N02W Lat: 46.349325 Long: -90.611408 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp Wetland Size: 0.357 acres / Wetland Area Impacted: 0.357 acres
Hydrology: Wetland received water from a small stream, SASV010i, which begins in WASV036f. Lowest parts of wetland exhibit signs of periodic inundation, water stain lines; 0-3% slopes	Vegetation: Plant Community Description(s): PFO: *Fraxinus nigra, Acer saccharum, Carex intumescens*

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	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	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/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	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	Y	Y	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.
WH10 & FA2: Some signs of periodic inundation within the lowest areas of the wetland.
SP: An intermittent stream dissipates into the wetland, but it is not along the shoreline; therefore, it was not evaluated for the SP metric.
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		Bear markings on trees
X		Signs of deer browsing
	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
	X	Frogs, salamanders – some signs of standing water in lowest areas of wetland.

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	American elm, white elm	3	PFO	
**Betula alleghaniensis*	yellow birch	7	PFO	
**Acer saccharum*	hard maple, sugar maple	5	PFO	
**Fraxinus nigra*	black ash	8	PFO	
Carex scabrata	eastern rough sedge	8	PFO	
**Carex bromoides*	brome-like sedge	8	PFO	
Athyrium filix-femina	common lady fern, lady fern	5	PFO	
Tilia americana	American linden, basswood	5	PFO	
Equisetum sylvaticum	wood horsetail, woodland horsetail	7	PFO	
Persicaria sagittata	arrow-leaved tearthumb, arrow vine	6	PFO	
Tsuga canadensis	eastern hemlock, hemlock, northern hemlock	8	PFO	
Ranunculus acris	common buttercup, blister plant, meadow buttercup,	0	PFO	
**Abies balsamea*	balsam fir		PFO	
Carex crinita	fringed sedge		PFO	
Impatiens capensis	spotted touch-me-not		PFO	

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

Diverse assemblage of common native wetland plant species
FQI= 20.2, 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
					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	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.
Buffer area affected by earthworms.
Area has been logged/cleared historically (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	Wetland supports a good diversity of native wetland plant species.
Human Use Values	Wetland is inaccessible to the public (located on private property) and there are no signs of human recreational use throughout the area.
Wildlife Habitat	Wetland exhibits signs of use by bear (bear-scarred trees) and deer.
Fish and Aquatic Life Habitat	No standing water at time of this survey, but there is some potential to hold water in pockets for periods of time. Wetland potentially provides habitat for amphibians.
Shoreline Protection	N/A - Intermittent stream dissipates into wetland, but wetland does not protect streambank.
Flood and Stormwater Storage	Dense vegetation disperses water flowing into wetland from stream, and the lowest areas appear to hold some water.
Water Quality Protection	Evidence of capacity for stormwater storage with dense vegetation and some residence time. However, little opportunity to provide water quality protection, because there is little input of polluted waters to they system.
Groundwater Processes	A groundwater component to hydrology is evident, but the wetland also receives a significant amount of hydrology from intermittent stream that flows into 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.	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: 9/25/19
Applicant/Owner: Enbridge State: WI Sampling Point: WASV035f_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Flat
Slope (%): 0-2% Lat.: 46.349322 Long.: -90.611426 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% slopes, very stony, rocky NWI Classification: PFO2Bg
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 taken in a depressional terrace on the northern end of the study area. Water from stream SASV010 dissipates 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)
- ___ 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	____	No	X	Depth (inches): ____

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Two secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV035f_W

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	38	Y	FACU
2	*Betula alleghaniensis*	15	Y	FAC
3	*Fraxinus nigra*	15	Y	FACW
4	*Abies balsamea*	3	N	FAC
5	*Ulmus americana*	3	N	FACW
6				
7				
8				
9				
10				
		74	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	15	Y	FACU
2	*Abies balsamea*	15	Y	FAC
3	*Fraxinus nigra*	15	Y	FACW
4	*Ulmus americana*	3	N	FACW
5				
6				
7				
8				
9				
10				
		48	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex bromoides*	86	Y	FACW
2	*Carex crinita*	3	N	OBL
3	*Fraxinus nigra*	3	N	FACW
4	*Impatiens capensis*	3	N	FACW
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		95	= 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	10	24
Herb Stratum	19	48
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 all Strata: 7 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 71.43% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	3	x 1 =	3	
FACW species	128	x 2 =	256	
FAC species	33	x 3 =	99	
FACU species	53	x 4 =	212	
UPL species	0	x 5 =	0	
Column totals	217	(A)	570	(B)

Prevalence Index = B/A = 2.63

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:** WASV035f_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
0-9	10YR 3/2	100					silt loam	
9-14	10YR 5/1	95	10YR 4/6	5	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 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: WASV035f_W, North

Photograph 2: WASV035f_W, West

Photograph 3: WASV035f_W, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/25/19
Applicant/Owner: Enbridge State: WI Sampling Point: WASV035/036_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Concave
Slope (%): 3-5% Lat.: 46.349159 Long.: -90.611019 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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.)

Data point is located on a forested hillslope adjacent to stream SASV010. Data point is representative of mixed hardwood stand located between WASV035 and WASV036.

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: WASV035/036_U

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Tsuga canadensis*	68	Y	FACU
2	*Acer saccharum*	38	Y	FACU
3	*Ostrya virginiana*	15	N	FACU
4	*Abies balsamea*	3	N	FAC
5				
6				
7				
8				
9				
10				
		124	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Tsuga canadensis*	15	Y	FACU
2	*Abies balsamea*	3	N	FAC
3	*Acer saccharum*	3	N	FACU
4				
5				
6				
7				
8				
9				
10				
		21	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Dryopteris intermedia*	38	Y	FAC
2	*Gymnocarpium dryopteris*	15	Y	FACU
3	*Maianthemum canadense*	3	N	FACU
4	*Carex pedunculata*	3	N	FACU
5	*Acer saccharum*	3	N	FACU
6	*Tilia americana*	1	N	FACU
7				
8				
9				
10				
11				
12				
13				
14				
15				
		63	= 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	25	62
Sapling/Shrub Stratum	4	11
Herb Stratum	13	32
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 all Strata: 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	0	x 2 =	0	
FAC species	44	x 3 =	132	
FACU species	164	x 4 =	656	
UPL species	0	x 5 =	0	
Column totals	208	(A)	788	(B)

Prevalence Index = B/A = 3.79

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:** WASV035/036_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
0-9	7.5YR 3/3	100					silt loam	
9-14	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 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**)
___ 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: WASV035/36_U, North

Photograph 2: WASV035/36_U, West

Photograph 3: WASV035/36_U, South

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

WETLAND IDENTIFICATION	**WASV035**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/25/2019
Location: PLSS: 45N02W Lat: 46.349325 Long: -90.611408 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp Wetland Size: 0.357 acres / Wetland Area Impacted: 0.357 acres
Hydrology: Wetland received water from a small stream, SASV010i, which begins in WASV036f. Lowest parts of wetland exhibit signs of periodic inundation, water stain lines; 0-3% slopes	Vegetation: Plant Community Description(s): PFO: *Fraxinus nigra, Acer saccharum, Carex intumescens*

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	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	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/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	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	Y	Y	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.
WH10 & FA2: Some signs of periodic inundation within the lowest areas of the wetland.
SP: An intermittent stream dissipates into the wetland, but it is not along the shoreline; therefore, it was not evaluated for the SP metric.
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		Bear markings on trees
X		Signs of deer browsing
	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
	X	Frogs, salamanders – some signs of standing water in lowest areas of wetland.

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	American elm, white elm	3	PFO	
**Betula alleghaniensis*	yellow birch	7	PFO	
**Acer saccharum*	hard maple, sugar maple	5	PFO	
**Fraxinus nigra*	black ash	8	PFO	
Carex scabrata	eastern rough sedge	8	PFO	
**Carex bromoides*	brome-like sedge	8	PFO	
Athyrium filix-femina	common lady fern, lady fern	5	PFO	
Tilia americana	American linden, basswood	5	PFO	
Equisetum sylvaticum	wood horsetail, woodland horsetail	7	PFO	
Persicaria sagittata	arrow-leaved tearthumb, arrow vine	6	PFO	
Tsuga canadensis	eastern hemlock, hemlock, northern hemlock	8	PFO	
Ranunculus acris	common buttercup, blister plant, meadow buttercup,	0	PFO	
**Abies balsamea*	balsam fir		PFO	
Carex crinita	fringed sedge		PFO	
Impatiens capensis	spotted touch-me-not		PFO	

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

Diverse assemblage of common native wetland plant species
FQI= 20.2, 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
					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	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.
Buffer area affected by earthworms.
Area has been logged/cleared historically (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	Wetland supports a good diversity of native wetland plant species.
Human Use Values	Wetland is inaccessible to the public (located on private property) and there are no signs of human recreational use throughout the area.
Wildlife Habitat	Wetland exhibits signs of use by bear (bear-scarred trees) and deer.
Fish and Aquatic Life Habitat	No standing water at time of this survey, but there is some potential to hold water in pockets for periods of time. Wetland potentially provides habitat for amphibians.
Shoreline Protection	N/A - Intermittent stream dissipates into wetland, but wetland does not protect streambank.
Flood and Stormwater Storage	Dense vegetation disperses water flowing into wetland from stream, and the lowest areas appear to hold some water.
Water Quality Protection	Evidence of capacity for stormwater storage with dense vegetation and some residence time. However, little opportunity to provide water quality protection, because there is little input of polluted waters to they system.
Groundwater Processes	A groundwater component to hydrology is evident, but the wetland also receives a significant amount of hydrology from intermittent stream that flows into 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.	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: 9/25/19
Applicant/Owner: Enbridge State: WI Sampling Point: WASV032f_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Flat
Slope (%): 0-2% Lat.: 46.350357 Long.: -90.608781 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 is located in a hardwood swamp. Lowest parts of wetland have water-stained leaves. Bear-scarred trees present throughout 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)
- ___ 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	___	No	X	Depth (inches): ___

Indicators of wetland hydrology present? Y

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Two secondary indicators of hydrology present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV032f_W

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	15	Y	FACU
2	*Populus tremuloides*	15	Y	FAC
3	*Fraxinus nigra*	15	Y	FACW
4				
5				
6				
7				
8				
9				
10				
		45	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	3	Y	FACU
2	*Fraxinus nigra*	3	Y	FACW
3	*Abies balsamea*	3	Y	FAC
4				
5				
6				
7				
8				
9				
10				
		9	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex bromoides*	63	Y	FACW
2	*Glyceria striata*	15	N	OBL
3	*Equisetum pratense*	3	N	FACW
4	*Epilobium ciliatum*	1	N	FACW
5				
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	9	23
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: 5 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 71.43% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	15	x 1 =	15	
FACW species	85	x 2 =	170	
FAC species	18	x 3 =	54	
FACU species	18	x 4 =	72	
UPL species	0	x 5 =	0	
Column totals	136	(A)	311	(B)

Prevalence Index = B/A = 2.29

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:** WASV032f_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
0-2	10YR 3/2	100					silt loam	
2-4	10YR 4/3	90	10YR 3/2	10			silt loam	
4-14	10YR 5/2	98	10YR 4/6	2	C	M	silt loam	
14-16	10YR 4/4	90	10YR 5/2	5	D	M	very fine sandy loam	
			10YR 3/2	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 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: Rock
Depth (inches): 8"

Hydric soil present? Y

Remarks:
Indicator Depleted Matrix (F3) is present; parameter is met.

Photograph 1: WASV032f_W, North

Photograph 2: WASV032f_W, South

Photograph 3: WASV032f_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/25/19
Applicant/Owner: Enbridge State: WI Sampling Point: WASV032s_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Flat
Slope (%): 0-2% Lat.: 46.349798 Long.: -90.608663 Datum: WGS 1984
Soil Map Unit Name Tula-Gogebic complex, 0-6% slopes, 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 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 is located in an alder thicket surrounded by hardwood swamp.

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)
- 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:
Two secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV032s_W

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	15	Y	FACW
2	*Populus tremuloides*	3	N	FAC
3				
4				
5				
6				
7				
8				
9				
10				
		18	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Alnus incana*	63	Y	FACW
2	*Fraxinus nigra*	3	N	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		66	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex bromoides*	63	Y	FACW
2	*Solidago gigantea*	15	N	FACW
3	*Rubus pubescens*	15	N	FACW
4	*Calamagrostis canadensis*	3	N	OBL
5	*Symphyotrichum puniceum*	3	N	OBL
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		99	= 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	4	9
Sapling/Shrub Stratum	13	33
Herb Stratum	20	50
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	6	x 1 =	6	
FACW species	174	x 2 =	348	
FAC species	3	x 3 =	9	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	183	(A)	363	(B)

Prevalence Index = B/A = 1.98

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:** WASV032s_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	95	10YR 4/6	5	C	M	silt loam	
6-14	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 149B**)
___ 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: WASV032s_W, North

Photograph 2: WASV032s_W, South

Photograph 3: WASV032s_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/25/19
Applicant/Owner: Enbridge State: WI Sampling Point: WASV032_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None
Slope (%): 0-3% Lat.: 46.349974 Long.: -90.609004 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 circumstances" present? Yes
Are vegetation ____, soil ____, or hydrology ____ naturally problematic?
(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 forest located between WASV032 and access road. Very stony with earthworms present.

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:

Auger refusal at 8" due to rock. No water table present.

Remarks:

No indicators of hydrology observed.

VEGETATION - Use scientific names of plants

Sampling Point: WASV032_U

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Abies balsamea*	38	Y	FACU
2	*Acer saccharum*	38	Y	FACU
3	*Fraxinus nigra*	15	N	FACW
4				
5				
6				
7				
8				
9				
10				
		91	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	38	Y	FACU
2	*Fraxinus nigra*	15	Y	FACW
3	*Tsuga canadensis*	3	N	FACU
4				
5				
6				
7				
8				
9				
10				
		56	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex pedunculata*	38	Y	FACU
2	*Osmunda cinnamomea*	5	N	FACW
3	*Acer saccharum*	5	N	FACU
4	*Trientalis borealis*	1	N	FAC
5	*Athyrium filix-femina*	1	N	FAC
6	*Cornus canadensis*	1	N	FAC
7	*Rubus pubescens*	1	N	FACW
8				
9				
10				
11				
12				
13				
14				
15				
		52	= 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	46
Sapling/Shrub Stratum	11	28
Herb Stratum	10	26
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 all Strata: 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	36	x 2 =	72	
FAC species	3	x 3 =	9	
FACU species	160	x 4 =	640	
UPL species	0	x 5 =	0	
Column totals	199	(A)	721	(B)

Prevalence Index = B/A = 3.62

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:** WASV032_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
0-8	7.5YR 3/3	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 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**)
___ 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? N

Remarks:
No indicators of hydric soil observed. Auger refusal at 8" due to rock.

Photograph 1: WASV032_U, North

Photograph 2: WASV032_U, South

Photograph 3: WASV032_U, West

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

WETLAND IDENTIFICATION **WASV032**	
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/25/2019
Location: PLSS: 45N02W Lat: 46.35009 Long: -90.608658 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp Wetland Size: 0.785 acres / Wetland Area Impacted: 0.785 acres
Hydrology: Groundwater and surface water components to hydrology, drains northwest, 10-15% slopes; concave; drainage patterns; recent rain	Vegetation: Plant Community Description(s): PFO: *Fraxinus nigra, Acer saccharum, Carex bromoides* PSS: *Alnus serrulata*

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	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	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	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			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	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)

WH8: Bear-scarred trees in wetland
WH10 & FA2: Depressions within wetland with no vegetation and water stain lines suggesting shallow inundation for extended periods.
GW3: Wetland remains saturated in lowest areas, but not in majority of 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		Bear-scarred trees
X		Evidence of deer browsing; deer rub
	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
	X	No signs of fish or other aquatic life. No standing water at time of survey; some potential to hold water in 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 bromoides*	brome-like sedge	8	PFO/PSS	
Iris versicolor	harlequin blue flag, northern blue flag	5	PFO	
Rubus pubescens	dwarf red raspberry	7	PFO	
**Fraxinus nigra*	black ash	8	PFO	
Tsuga canadensis	eastern hemlock, hemlock, northern hemlock	8	PFO	
**Acer saccharum*	hard maple, sugar maple	5	PFO	
Osmunda cinnamomea	cinnamon fern	7	PFO	
Symphyotrichum lateriflorum	side-flowering aster	3	PFO/PSS	
Carex intumescens	greater bladder sedge, shining bur sedge, swollen	5	PFO	
Equisetum sylvaticum	wood horsetail, woodland horsetail	7	PFO	
Bromus pubescens	Canadian brome, hairy woodland brome	6	PFO	
Agrimonia striata	grooved agrimony, roadside agrimony	3	PSS	
**Alnus incana*	speckled alder	4	PSS	
Dryopteris intermedia	fancy wood fern, glandular wood fern, intermediate	7	PSS	
Solidago gigantea	giant goldenrod	3	PSS	
Rubus idaeus	wild red raspberry	3	PSS	
Glyceria striata	fowl manna grass, fowl meadow grass	4	PFO	
Equisetum palustre	marsh horsetail	10	PSS	
**Populus tremuloides*	aspen, quaking aspen	2	PFO	
Dryopteris carthusiana	spinulose wood fern, toothed wood fern	7	PFO	
**Abies balsamea*	balsam fir		PFO	
Equisetum pratense	meadow horsetail		PFO	
Epilobium ciliatum	fringed willowherb		PFO	
Calamagrostis canadensis	bluejoint grass		PSS	
Symphyotrichum puniceum	purplestem aster, swamp aster		PSS	

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

Good assemblage of common native species
PFO FQI = 21.6, Mean C of C = 6.0
PSS FQI = 15.3, Mean C of C = 5.1

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		L	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)

Evidence of earthworms observed in surrounding area, but not nearly as impacted as other sites that have been cleared historically.
Area has been historically cleared (uniform stand age).

SUMMARY OF FUNCTIONAL VALUES

FUNCTION	SIGNIFICANCE				
	Low	Medium	High	Exceptional	NA
Floristic Integrity		X			
Human Use Values	X				
Wildlife Habitat		X	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	Good diversity of native species, including the presence of some conservative species.
Human Use Values	Large, aesthetically pleasing wetland, but little opportunity for use because it is located on private property with limited access. There is no sign of human recreation within surrounding area.
Wildlife Habitat	Bear-scarred trees throughout wetland. Wetland is located in a large habitat block.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. No standing water at time of survey, 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	Large wetland with good storage capacity and evidence of inundation (large depressional wetland, relatively flat topography), but the wetland would not receive much surface runoff due to landscape position.
Water Quality Protection	Few stressors on wetland because surrounding landscape is undeveloped; wetland is not capturing runoff from polluted sources. Additionally, the wetland captures little runoff due to landscape position.
Groundwater Processes	Hydrology is primarily groundwater-driven. Lower areas remain 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.	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: 9/25/19
Applicant/Owner: Enbridge State: WI Sampling Point: WASV034f_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.: 46.350573 Long.: -90.608069 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 is located in a depressional forested 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)
- 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)
- 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	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 are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV034f_W

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	38	Y	FACW
2	*Ulmus americana*	15	Y	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		53	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	15	Y	FACW
2	*Ulmus americana*	3	N	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		18	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*	38	Y	OBL
2	*Fraxinus nigra*	15	Y	FACW
3	*Mitchella repens*	15	Y	FACU
4	*Rubus pubescens*	3	N	FACW
5	*Glyceria striata*	3	N	OBL
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		74	= 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	4	9
Herb Stratum	15	37
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 all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 83.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	41	x 1 =	41	
FACW species	89	x 2 =	178	
FAC species	0	x 3 =	0	
FACU species	15	x 4 =	60	
UPL species	0	x 5 =	0	
Column totals	145	(A)	279	(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:** WASV034f_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
0-2	10YR 3/1	100					silt loam	
2-6	10YR 4/1	100					silt loam	
6-14	7.5YR 4/4	90	10YR 4/1	8	D	M	silt loam	
			10YR 4/6	2	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 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: WASV034f_W, North

Photograph 2: WASV034f_W, West

Photograph 3: WASV034f_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/25/19
Applicant/Owner: Enbridge State: WI Sampling Point: WASV033/034_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.: 46.350589 Long.: -90.607783 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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.)

Data point located on an undulating forested hillslope representative of the woods surrounding WASV033 and WASV034.

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: WASV033/034_U

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	63	Y	FACU
2	*Fraxinus nigra*	15	N	FACW
3	*Ulmus americana*	3	N	FACW
4				
5				
6				
7				
8				
9				
10				
		81	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	15	Y	FACU
2	*Ulmus americana*	3	N	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		18	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	38	Y	FACW
2	*Carex pedunculata*	38	Y	FACU
3	*Matteuccia struthiopteris*	15	N	FAC
4	*Symphyotrichum lateriflorum*	3	N	FAC
5	*Trientalis borealis*	3	N	FAC
6	*Maianthemum canadense*	3	N	FACU
7				
8				
9				
10				
11				
12				
13				
14				
15				
		100	= 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	16	41
Sapling/Shrub Stratum	4	9
Herb Stratum	20	50
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 all Strata: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 25.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	59	x 2 =	118	
FAC species	21	x 3 =	63	
FACU species	119	x 4 =	476	
UPL species	0	x 5 =	0	
Column totals	199	(A)	657	(B)

Prevalence Index = B/A = 3.30

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 indicators of hydric soil observed.

SOIL **Sampling Point:** WASV033/034_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
0-6	7.5YR 3/3	100					silt loam	
6-14	7.5YR 4/4	90	7.5YR 3/3	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 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**)
___ 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 hydric soil indicators observed.

Photograph 1: WASV033/034_U, North

Photograph 2: WASV033/034_U, South

Photograph 3: WASV033/034_U, East

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

WETLAND IDENTIFICATION	**WASV034**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/25/2019
Location: PLSS: 45N02W Lat: 46.350688 Long: -90.607642 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp Wetland Size: 0.083 acres / Wetland Area Impacted: 0.083 acres
Hydrology: Concave, basin wetland; drains to WASV032, 3-5% slopes; water stain lines; drainage patterns, receives surface water from east and drains to west.	Vegetation: Plant Community Description(s): PFO: *Fraxinus nigra, Carex scabrata, Carex intumescens*

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	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	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			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	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)

WH8: Signs of bear in surrounding areas
WH10, FA2, FA4: No standing water at time of survey, and wetland does not appear to hold water for significant amounts 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	Bear
	X	Songbirds
	X	Deer
	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 significant amounts 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	
Carex scabrata	eastern rough sedge	8	PFO	
Carex intumescens	greater bladder sedge, shining bur sedge	5	PFO	
Acer saccharum	hard maple, sugar maple	5	PFO	
**Ulmus americana*	American elm, white elm	3	PFO	
Glyceria striata	fowl manna grass, fowl meadow grass	4	PFO	
**Carex crinita*	fringed sedge	6	PFO	
Tilia americana	American linden, basswood	5	PFO	
Symphyotrichum lateriflorum	side-flowering aster	3	PFO	
Tsuga canadensis	eastern hemlock, hemlock, northern hemlock	8	PFO	
Rubus pubescens	dwarf red raspberry	7	PFO	
Equisetum pratense	meadow horsetail	9	PFO	
**Mitchella repens*	partridgeberry		PFO	

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

Diverse assemblage of common native wetland plant species
FQI= 20.8, Mean C of C = 6.0

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	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 was historically logged/cleared (uniform stand age). Earthworms impacting area, but not as extensively as observed in other nearby areas.

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	Good diversity of native wetland plant species.
Human Use Values	Human recreational use of wetland limited by small size of wetland and inaccessibility (located on private property).
Wildlife Habitat	Wetland is small with no sign of wildlife use, but surrounding areas exhibit signs of use by deer, bear, and birds.
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 collects and funnels surface water runoff from uplands into wetland WASV032. Little storage capacity within this wetland.
Water Quality Protection	Not a large capacity for treatment of received water, and short residence time within wetland. Little opportunity to provide water quality protection, because there is little input of polluted waters.
Groundwater Processes	Hydrology is primarily driven by surface water runoff from uplands. No sign of a groundwater component to the 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.	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: _____ Sampling Date: 9/25/19
Applicant/Owner: Enbridge State: WI Sampling Point WASV033f_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Flat
Slope (%): 0-2% Lat.: 46.35066 Long.: -90.607653 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 is located in a depressional forested 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)
- 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)
- 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: WASV033f_W

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	25	Y	FACW
2	*Ulmus americana*	5	N	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		30	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	3	Y	FACW
2	*Ulmus americana*	3	Y	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		6	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex bromoides*	15	Y	FACW
2	*Symphyotrichum lateriflorum*	3	N	FAC
3	*Onoclea sensibilis*	1	N	FACW
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		19	= 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	6	15
Sapling/Shrub Stratum	1	3
Herb Stratum	4	10
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 all Strata: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	52	x 2 =	104	
FAC species	3	x 3 =	9	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	55	(A)	113	(B)

Prevalence Index = B/A = 2.05

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:** WASV033f_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 3/2	100					silt loam	
2-8	10YR 4/2	98	10YR 4/6	2	C	M	silt loam	
8-15	7.5YR 4/4	95	10YR 4/6	5	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)
_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: WASV033f_W, West

Photograph 2: WASV033f_W, South

Photograph 3: WASV033f_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/25/19
Applicant/Owner: Enbridge State: WI Sampling Point: WASV033/034_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.: 46.350589 Long.: -90.607783 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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.)

Data point located on an undulating forested hillslope representative of the woods surrounding WASV033 and WASV034.

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: WASV033/034_U

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	63	Y	FACU
2	*Fraxinus nigra*	15	N	FACW
3	*Ulmus americana*	3	N	FACW
4				
5				
6				
7				
8				
9				
10				
		81	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	15	Y	FACU
2	*Ulmus americana*	3	N	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		18	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	38	Y	FACW
2	*Carex pedunculata*	38	Y	FACU
3	*Matteuccia struthiopteris*	15	N	FAC
4	*Symphyotrichum lateriflorum*	3	N	FAC
5	*Trientalis borealis*	3	N	FAC
6	*Maianthemum canadense*	3	N	FACU
7				
8				
9				
10				
11				
12				
13				
14				
15				
		100	= 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	16	41
Sapling/Shrub Stratum	4	9
Herb Stratum	20	50
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 all Strata: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 25.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	59	x 2 =	118	
FAC species	21	x 3 =	63	
FACU species	119	x 4 =	476	
UPL species	0	x 5 =	0	
Column totals	199	(A)	657	(B)

Prevalence Index = B/A = 3.30

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 indicators of hydric soil observed.

SOIL **Sampling Point:** WASV033/034_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
0-6	7.5YR 3/3	100					silt loam	
6-14	7.5YR 4/4	90	7.5YR 3/3	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 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**)
___ 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 hydric soil indicators observed.

Photograph 1: WASV033/034_U, North

Photograph 2: WASV033/034_U, South

Photograph 3: WASV033/034_U, East

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

WETLAND IDENTIFICATION **WASV033**	
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/25/2019
Location: PLSS: 45N02W Lat: 46.350688 Long: -90.607642 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp Wetland Size: 0.025 acres / Wetland Area Impacted: 0.025 acres
Hydrology: Basin wetland; sparse vegetation due to inundation for extended periods of time during wetter seasons; water stain lines, surface water driven hydrology with potential for groundwater component; no slope.	Vegetation: Plant Community Description(s): PFO: *Fraxinus nigra, Carex bromoides, Carex intumescens*

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	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	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	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	Y	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	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			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	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	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)

WH2: Sparsely vegetated due to periodic inundation during wetter seasons
WH9 & WH10: Water stain lines, depressional basin wetland; tree buttresses
FA2 & FA4: Hydrology indicators show water is held for extended periods during wetter seasons
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
	X	Frogs, salamanders; wetland is potential vernal pool

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)
Symphyotrichum lateriflorum	side-flowering aster	3	PFO	
**Carex bromoides*	brome-like sedge	8	PFO	
Carex intumescens	greater bladder sedge, shining bur sedge, swollen	5	PFO	
**Fraxinus nigra*	black ash	8	PFO	
Onoclea sensibilis	sensitive fern	5	PFO	
Dryopteris intermedia	fancy wood fern, glandular wood fern, intermediate	7	PFO	
Equisetum pratense	meadow horsetail	9	PFO	
**Ulmus americana*	American elm		PFO	

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

Low cover of vegetation due to wetland holding water for extended periods of time.
FQI = 17.4, Mean C of C = 6.6

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
					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	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)

Forest historically cleared. Earthworm presences leading to soil subsidence, which is exposing the lower trunk and roots of the trees within the wetland.

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	Sparse groundcover vegetation due to prolonged inundation during wetter seasons.
Human Use Values	Human recreational use of wetland limited by small size of wetland and inaccessibility (located on private property).
Wildlife Habitat	Wetland is small with no sign of wildlife use, but surrounding areas exhibits signs of use by deer, bear, and birds.
Fish and Aquatic Life Habitat	Borderline potential vernal pool that could be used by amphibians. Evidence of inundation over extended periods.
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland is relatively small and will not hold large volumes of water; however, it does receive and retain water from the surrounding landscape.
Water Quality Protection	Not a large capacity for treatment of received water. Little opportunity to provide water quality protection because there is little input of polluted waters. Very few stressors observed.
Groundwater Processes	Hydrology is primarily driven by surface water 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: 9/25/19
Applicant/Owner: Enbridge State: WI Sampling Point: WASV031f_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 0-3% Lat.: 46.350912 Long.: -90.606881 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 is located in a forested depression 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)
- ___ 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	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:
Secondary indicators of hydrology observed; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV031f_W

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	38	Y	FACW
2	*Acer saccharum*	15	Y	FACU
3	*Ulmus americana*	3	N	FACW
4				
5				
6				
7				
8				
9				
10				
		56	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	15	Y	FACW
2	*Acer saccharum*	3	N	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		18	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Equisetum pratense*	38	Y	FACW
2	*Fraxinus nigra*	15	Y	FACW
3	*Carex scabrata*	15	Y	OBL
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		68	= 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	28
Sapling/Shrub Stratum	4	9
Herb Stratum	14	34
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 all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 83.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	15	x 1 =	15	
FACW species	109	x 2 =	218	
FAC species	0	x 3 =	0	
FACU species	18	x 4 =	72	
UPL species	0	x 5 =	0	
Column totals	142	(A)	305	(B)

Prevalence Index = B/A = 2.15

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:** WASV031f_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
0-3	10YR 3/2	100					silt loam	
3-8	10YR 3/2	98	10YR 4/6	2	C	M	silt loam	
8-15	10YR 3/2	90	10YR 4/4	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 149B**)
___ 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: WASV031f_W, Northwest

Photograph 2: WASV031f_W, East

Photograph 3: WASV031f_W, Southeast

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/25/19
Applicant/Owner: Enbridge State: WI Sampling Point: WASV031_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.: 46.350786 Long.: -90.606917 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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.)

Data point is located within upland forest representative of conditions surrounding WASV031.

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: WASV031_U

Tree Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	63	Y	FACU
2	*Betula alleghaniensis*	15	N	FAC
3	*Ostrya virginiana*	15	N	FACU
4				
5				
6				
7				
8				
9				
10				
		93	= Total Cover	

Sapling/Shrub Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	15	Y	FACW
2	*Acer saccharum*	15	Y	FACU
3	*Dirca palustris*	3	N	FAC
4				
5				
6				
7				
8				
9				
10				
		33	= Total Cover	

Herb Stratum	Plot Size ( )	Absolute % Cover	Dominant Species	Indicator Status
1	*Solidago flexicaulis*	15	Y	FACU
2	*Gymnocarpium dryopteris*	15	Y	FACU
3	*Equisetum pratense*	15	Y	FACW
4	*Ostrya virginiana*	15	Y	FACU
5	*Fraxinus pennsylvanica*	3	N	FACW
6	*Abies balsamea*	3	N	FAC
7	*Dryopteris intermedia*	3	N	FAC
8				
9				
10				
11				
12				
13				
14				
15				
		69	= 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	19	47
Sapling/Shrub Stratum	7	17
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 all Strata: 7 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 28.57% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	33	x 2 =	66	
FAC species	24	x 3 =	72	
FACU species	138	x 4 =	552	
UPL species	0	x 5 =	0	
Column totals	195	(A)	690	(B)

Prevalence Index = B/A = 3.54

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:** WASV031_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
0-14	7.5YR 4/4	95	7.5YR 3/2	5	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 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**)
___ 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: WASV031_U, North

Photograph 2: WASV031_U, West

Photograph 3: WASV031_U, South

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

WETLAND IDENTIFICATION	**WASV031**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/25/2019
Location: PLSS: 45N02W Lat: 46.350108 Long: -90.606877 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp Wetland Size: 0.086 acres / Wetland Area Impacted: 0.086 acres
Hydrology: Groundwater and surface water components to hydrology, drains northwest, 10-15% slopes; concave; drainage patterns; recent rain	Vegetation: Plant Community Description(s): PFO *Fraxinus nigra, Acer saccharum, 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	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	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	Y	Y	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)

WH8 – Wetland portion of large forest strand
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		Signs of deer browsing on plants
	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	
**Carex scabrata*	eastern rough sedge	8	PFO	
**Equisetum pratense*	meadow horsetail	9	PFO	
Osmunda cinnamomea	cinnamon fern	7	PFO	
**Acer saccharum*	hard maple, sugar maple	5	PFO	
Ulmus americana	American elm, white elm	3	PFO	
Equisetum sylvaticum	wood horsetail, woodland horsetail	7	PFO	
Solidago flexicaulis	broad-leaved goldenrod, zigzag goldenrod	6	PFO	

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

Good assemblage of common native species
FQI = 19.1, Mean C of C = 6.8

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
					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		L	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)

Historic tree clearing in area (uniform stand age), but relatively mature trees present. Some evidence of earthworms in buffer but not as high intensity as observed on other sites.

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	Good diversity of common native species; wetland is relatively small in size.
Human Use Values	Wetland is relatively small and located on private property. Human recreational use is unlikely.
Wildlife Habitat	Part of large habitat block, but not a lot of signs of wildlife use within wetland.
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	Little storage capacity due to slope of wetland.
Water Quality Protection	Few stressors on wetland; wetland not capturing runoff from polluted sources. Little capacity for treatment due to slope.
Groundwater Processes	Signs of groundwater component to hydrology are present but weak.

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: 9/24/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV030f_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.: 46.352015 Long.: -90.605244 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 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 is located in a forested depression wetland. Wetland is hydrologically influenced by compaction from old road bed.

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)
- ___ 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:
Primary and secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV030f_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	63	Y	FACW
2	*Acer saccharum*	15	N	FACU
3	*Betula alleghaniensis*	3	N	FAC
4	*Ostrya virginiana*	3	N	FACU
5				
6				
7				
8				
9				
10				
		84	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	15	Y	FACW
2	*Acer saccharum*	15	Y	FACU
3	*Ostrya virginiana*	3	N	FACU
4				
5				
6				
7				
8				
9				
10				
		33	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex scabrata*	68	Y	OBL
2	*Rubus pubescens*	15	N	FACW
3	*Fraxinus nigra*	3	N	FACW
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		86	= 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	17	42
Sapling/Shrub Stratum	7	17
Herb Stratum	17	43
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: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 75.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	68	x 1 =	68	
FACW species	96	x 2 =	192	
FAC species	3	x 3 =	9	
FACU species	36	x 4 =	144	
UPL species	0	x 5 =	0	
Column totals	203	(A)	413	(B)

Prevalence Index = B/A = 2.03

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:** WASV030f_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	10YR 4/1	100					Muck	
8-16	7.5YR 4/4	90	7.5YR 6/2	10	D	M	silty clay 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 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**)
___ 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 Histic Epipedon (A2) is present; parameter is met.

Photograph 1: WASV030f_W, North

Photograph 2: WASV030f_W, East

Photograph 3: WASV030f_W, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/24/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV030f_U
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.: 46.352033 Long.: -90.605369 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 circumstances" present? Yes
Are vegetation ____, soil ____, or hydrology ____ naturally problematic?
(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 within upland forest representative of conditions surrounding WASV030.

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: WASV030f_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	63	Y	FACU
2	*Ostrya virginiana*	3	N	FACU
3	*Betula alleghaniensis*	3	N	FAC
4	*Tilia americana*	1	N	FACU
5				
6				
7				
8				
9				
10				
		70	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	38	Y	FACU
2	*Ostrya virginiana*	15	Y	FACU
3	*Abies balsamea*	3	N	FAC
4				
5				
6				
7				
8				
9				
10				
		56	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Tilia americana*	15	Y	FACU
2	*Fraxinus nigra*	15	Y	FACW
3	*Acer saccharum*	15	Y	FACU
4	*Pyrola elliptica*	3	N	FACU
5	*Symphyotrichum lateriflorum*	3	N	FAC
6	*Dryopteris intermedia*	3	N	FAC
7	*Mitchella repens*	3	N	FACU
8				
9				
10				
11				
12				
13				
14				
15				
		57	= 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	14	35
Sapling/Shrub Stratum	11	28
Herb Stratum	11	29
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 all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 16.67% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	15	x 2 =	30	
FAC species	12	x 3 =	36	
FACU species	156	x 4 =	624	
UPL species	0	x 5 =	0	
Column totals	183	(A)	690	(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:** WASV030f_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 3/1	100					silt loam	
3-6	7.5YR 3/1	50	7.5YR 3/4	50	C	M	silt loam	
6-14	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 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**)
___ 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:
Unsaturated red parent material. No indicators of hydric soil observed.

Photograph 1: WASV030_U, North

Photograph 2: WASV030_U, West

Photograph 3: WASV030_U, South

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

WETLAND IDENTIFICATION **WASV030**	
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/24/2019
Location: PLSS: 45N02W Lat: 46.352021 Long: -90.605238 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp Wetland Size: 0.056 acres / Wetland Area Impacted: 0.056 acres
Hydrology: Wetland primarily formed in an old road bed that collects surface water from surrounding landscape. Appears to hold water in lowest areas for extended periods of time. 5-8% slopes. Drains northeast.	Vegetation: Plant Community Description(s): PFO *Fraxinus nigra, Carex bromoides, Ostrya virginiana*

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	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	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	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	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	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)

ST2 & WQ3: Most of wetland is channelized road bed that channels water downslope.
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		Deer tracks
	X	Songbirds
X		Green frogs
	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	
Impatiens capensis	orange jewelweed, orange touch-me-not	2	PFO	
Glyceria striata	fowl manna grass, fowl meadow grass	4	PFO	
Geum canadense	white avens	2	PFO	
**Fraxinus nigra*	black ash	8	PFO	
Carex crinita	fringed sedge	6	PFO	
Athyrium filix-femina	common lady fern, lady fern	5	PFO	
Solidago gigantea	giant goldenrod	3	PFO	
Onoclea sensibilis	sensitive fern	5	PFO	
Epilobium ciliatum	American willow-herb, hairy willow-herb	3	PFO	
Bidens frondosa	common beggar-ticks, devil's beggar-ticks	1	PFO	
Persicaria sagittata	arrow-leaved tearthumb, arrow vine	6	PFO	
Ostrya virginiana	eastern hop-hornbeam, ironwood	5	PFO	
Betula alleghaniensis	yellow birch		PFO	
**Acer saccharum*	sugar maple		PFO	
**Carex scabrata*	eastern rough sedge		PFO	
Rubus pubescens	dwarf red raspberry, dwarf red blackberry		PFO	

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

Good assemblage of native wetland plant species.
FQI = 14.4, Mean C of C = 4.2

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	C	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
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	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)

Wetland is mostly formed by compaction of soil within an old road bed cut through several small existing wetlands. Areas has been logged in the past (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	Wetland contains a relatively diverse assemblage of native species.
Human Use Values	Wetland is located on private property. Additionally, past land use as an access road makes human recreational use unlikely.
Wildlife Habitat	Evidence of deer grazing throughout wetland. Large wooded buffer around wetland would support forest interior 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 would hold water during wetter seasons.
Shoreline Protection	N/A
Flood and Stormwater Storage	Road bed collects water from surrounding landscape, but water moves quickly out of wetland and downslope.
Water Quality Protection	Captures surface water runoff from surrounding upland areas, but area is undeveloped. There is little opportunity for the wetland to capture pollutants.
Groundwater Processes	No signs of groundwater component to hydrology. Wetland is driven primarily by surface water inputs.

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: 9/24/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV029f_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): Concave
Slope (%): 3-5% Lat.: 46.351832 Long.: -90.603927 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 taken in PFO portion of larger wetland complex. Area is in part influenced by past land use as a road bed.

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)
- ___ 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	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:
Primary and secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV029f_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	38	Y	FACW
2	*Acer saccharum*	15	Y	FACU
3	*Betula alleghaniensis*	3	N	FAC
4	*Ulmus americana*	0.5	N	FACW
5				
6				
7				
8				
9				
10				
		56.5	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	38	Y	FACW
2	*Acer saccharum*	15	Y	FACU
3	*Ostrya virginiana*	3	N	FACU
4				
5				
6				
7				
8				
9				
10				
		56	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex scabrata*	38	Y	OBL
2	*Persicaria sagittata*	15	Y	OBL
3	*Glyceria striata*	15	Y	OBL
4	*Equisetum sylvaticum*	15	Y	FACW
5	*Dryopteris intermedia*	15	Y	FAC
6	*Epilobium ciliatum*	3	N	FACW
7				
8				
9				
10				
11				
12				
13				
14				
15				
		101	= 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	11	28
Sapling/Shrub Stratum	11	28
Herb Stratum	20	51
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 all Strata: 9 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 77.78% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	68	x 1 =	68	
FACW species	94.5	x 2 =	189	
FAC species	18	x 3 =	54	
FACU species	33	x 4 =	132	
UPL species	0	x 5 =	0	
Column totals	213.5	(A)	443	(B)

Prevalence Index = B/A = 2.07

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:** WASV029f_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
0-3	10YR 3/1	100					Silt loam	
3-9	10YR 3/1	90	10YR 4/6	10	C	M	Silt loam	
9-14	10YR 4/4	80	10YR 3/1	20	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 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: WASV029f_W, North

Photograph 2: WASV029f_W, West

Photograph 3: WASV029f_W, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/24/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV029e_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Flat
Slope (%): 0-2% Lat.: 46.351832 Long.: -90.603927 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 is located in PEM portion of larger wetland complex. PEM portion formed in part by compaction associated with past land use as a road bed.

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)
- ___ 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	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:
Auger refusal at 5 inches. No groundwater table observed. Primary and secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV029e_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	3	Y	FACU
2	*Tilia americana*	3	Y	FACU
3	*Ostrya virginiana*	3	Y	FACU
4	*Betula alleghaniensis*	3	Y	FAC
5				
6				
7				
8				
9				
10				
		12	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	3	Y	FACU
2	*Ostrya virginiana*	3	Y	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		6	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex scabrata*	68	Y	OBL
2	*Glyceria striata*	38	Y	OBL
3	*Bidens frondosa*	15	N	FACW
4	*Juncus effusus*	15	N	OBL
5	*Fraxinus nigra*	3	N	FACW
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		139	= 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	2	6
Sapling/Shrub Stratum	1	3
Herb Stratum	28	70
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: 8 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 37.50% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	121	x 1 =	121	
FACW species	18	x 2 =	36	
FAC species	3	x 3 =	9	
FACU species	15	x 4 =	60	
UPL species	0	x 5 =	0	
Column totals	157	(A)	226	(B)

Prevalence Index = B/A = 1.44

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:** WASV029e_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 2/1	100					Muck	
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**
___ 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): 5"

Hydric soil present? Y

Remarks:
Indicator Histisol (A1) is present; parameter is met. Auger refusal at 5 inches due to rock.

Photograph 1: WASV029e_W, North

Photograph 2: WASV029e_W, West

Photograph 3: WASV029e_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/24/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV028/029_U
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.: 46.352157 Long.: -90.603565 Datum: WGS 1984
Soil Map Unit Name Foxpaw-Gay, stony complex, 0-2% 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 circumstances" present? Yes
Are vegetation ____, soil ____, or hydrology ____ naturally problematic?
(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 is located on an upland bench situated between WASV028 and WASV029.

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: WASV028/029_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula papyrifera*	68	Y	FACU
2	*Acer saccharum*	15	N	FACU
3	*Fraxinus nigra*	1	N	FACW
4	*Ostrya virginiana*	1	N	FACU
5				
6				
7				
8				
9				
10				
		85	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula papyrifera*	15	Y	FACU
2	*Acer saccharum*	3	N	FACU
3	*Ostrya virginiana*	1	N	FACU
4				
5				
6				
7				
8				
9				
10				
		19	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Gymnocarpium dryopteris*	38	Y	FACU
2	*Mitchella repens*	38	Y	FACU
3	*Fraxinus nigra*	15	N	FACW
4	*Equisetum pratense*	3	N	FACW
5	*Cornus alternifolia*	3	N	FACU
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		97	= 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	17	43
Sapling/Shrub Stratum	4	10
Herb Stratum	19	49
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 all Strata: 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	19	x 2 =	38	
FAC species	0	x 3 =	0	
FACU species	182	x 4 =	728	
UPL species	0	x 5 =	0	
Column totals	201	(A)	766	(B)

Prevalence Index = B/A = 3.81

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:** WASV028/029_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
0-4	7.5YR 3/2	100					Silt loam	
4-8	7.5YR 3/2	90	7.5YR 4/6	10	C	M	Silt loam	
8-19	7.5YR 3/2	80	7.5YR 3/3	10	D	M	Silt loam	
			7.5YR 4/6	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 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: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:
Indicator Red Parent Material (F21) is present; parameter is met.

Photograph 1: WASV028/029_U, West

Photograph 2: WASV028/029_U, South

Photograph 3: WASV028/029_U, East

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

WETLAND IDENTIFICATION	**WASV029**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/24/2019
Location: PLSS: 45N02W Lat: 46.351581 Long: -90.604267 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks

SITE DESCRIPTION		
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky; Foxpaw-Gay, stony complex, 0-2% slopes Field Verified: Yes	WWI Class: Unmapped	
	Wetland Type(s): Hardwood Swamp, Fresh (Wet) Meadow	
	Wetland Size: 0.295 acres	Wetland Area Impacted: 0.295 acres
Hydrology: Wetland primarily formed in an old road bed that collects surface water from surrounding landscape and feeds into SASV008i. Appears to hold water in lowest areas for extended periods of time. 0-3% slopes. Drains northeast.	Vegetation: Plant Community Description(s): PEM - *Carex bromoides, Dryopteris intermedia*	

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	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	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	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	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)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
SP: Wetland does connect to a stream, but the stream is intermittent, and the wetland is the headwater.
ST2 & WQ3: SASV008i; most of wetland is channelized road bed that drains water to SASV008i
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		Deer tracks
	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	PEM	
Impatiens capensis	orange jewelweed, orange touch-me-not	2	PEM	
**Glyceria striata*	fowl manna grass, fowl meadow grass	4	PEM	
Geum canadense	white avens	2	PEM	
Rumex obtusifolius	bitter dock	0	PEM	
Carex crinita	fringed sedge	6	PEM	
Athyrium filix-femina	common lady fern, lady fern	5	PEM	
Solidago gigantea	giant goldenrod	3	PEM	
Onoclea sensibilis	sensitive fern	5	PEM	
Epilobium ciliatum	American willow-herb, hairy willow-herb	3	PEM	
Bidens frondosa	common beggar-ticks, devil's beggar-ticks	1	PEM	
**Persicaria sagittata*	arrow-leaved tearthumb, arrow vine	6	PEM	
**Acer saccharum*	hard maple, sugar maple	5	PFO	
**Fraxinus nigra*	black ash	8	PFO	
Betula alleghaniensis	yellow birch		PFO/PEM	
Ulmus americana	American elm		PFO	
**Ostrya virginiana*	American hophornbeam		PFO/PEM	
**Carex scabrata*	Eastern rough sedge		PFO/PEM	
**Equisetum sylvaticum*	wood horsetail		PFO	
**Dryopteris intermedia*	intermediate wood fern		PFO	
Juncus effusus	soft rush		PEM	

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

Tree and shrub/sapling strata missing in PEM portion of wetland due to past land use as an access road.
FQI =13.0, Mean C of C = 3.8

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
X	X		H	C	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
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		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.
Wetland is mostly formed by compaction of soil within an old road bed cut through several small existing wetlands. Area has been logged in the past (uniform stand age), and soil compaction is preventing tree regeneration/recruitment.

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 strata missing due to compaction associated with past land use as a road bed. Relatively diverse assemblage of common native species within PEM component of wetland.
Human Use Values	Wetland is located on private property. Additionally, the past land use as a road bed makes the wetland unlikely to be used for human recreation.
Wildlife Habitat	Evidence of deer grazing throughout wetland. Large wooded buffer around wetland would support forest interior 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	Although connected to stream, wetland is located at headwater and stream is intermittent.
Flood and Stormwater Storage	Road bed collects surface water, but it quickly moves through the wetland to the headwater of SASV008i.
Water Quality Protection	Captures surface water runoff from surrounding upland areas, but area is relatively undeveloped. There is little opportunity for the wetland to capture pollutants.
Groundwater Processes	No signs of groundwater component to hydrology, primarily driven by surface water inputs. Wetland is situated at the headwaters to SASV008i.

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: 9/24/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV028f_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.: 46.352207 Long.: -90.603661 Datum: WGS 1984
Soil Map Unit Name Foxpaw-Gay, stony complex, 0-2% 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 is located in a floodplain seep wetland associated with either side of stream SASV008i.

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)
- 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	X	No		Depth (inches):	6
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:
Primary and secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV028f_W

Tree Stratum (Plot Size: 30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1 *Tsuga canadensis*	15	Y	FACU
2 *Abies balsamea*	15	Y	FAC
3 *Betula papyrifera*	15	Y	FACU
4 *Betula alleghaniensis*	3	N	FAC
5 *Acer saccharum*	3	N	FACU
6 *Fraxinus nigra*	3	N	FACW
7			
8			
9			
10			
	54	= Total Cover	

Sapling/Shrub Stratum (Plot Size: 30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1 *Tsuga canadensis*	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: 15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1 *Carex scabrata*	68	Y	OBL
2 *Equisetum sylvaticum*	15	N	FACW
3 *Dryopteris carthusiana*	15	N	FACW
4 *Glyceria striata*	3	N	OBL
5 *Solidago flexicaulis*	3	N	FACU
6 *Fraxinus nigra*	3	N	FACW
7 *Carex crinita*	3	N	OBL
8			
9			
10			
11			
12			
13			
14			
15			
	110	= 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	11	27
Sapling/Shrub Stratum	2	5
Herb Stratum	22	55
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 all Strata: 7 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 57.14% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	74	x 1 =	74
FACW species	39	x 2 =	78
FAC species	21	x 3 =	63
FACU species	39	x 4 =	156
UPL species	0	x 5 =	0
Column totals	173 (A)		371 (B)

Prevalence Index = B/A = 2.14

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:** WASV028f_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
0-10	10YR 2/1	100					Muck	
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)
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 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**)
___ 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): 10"

Hydric soil present? Y

Remarks:
Indicator Histic Epipedon (A2) is present; parameter is met. Auger refusal at 10 inches due to rock.

Photograph 1: WASV028f_W, North

Photograph 2: WASV028f_W, South

Photograph 3: WASV028f_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/24/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV028/029_U
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.: 46.352157 Long.: -90.603565 Datum: WGS 1984
Soil Map Unit Name Foxpaw-Gay, stony complex, 0-2% 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 circumstances" present? Yes
Are vegetation ____, soil ____, or hydrology ____ naturally problematic?
(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 is located on an upland bench situated between WASV028 and WASV029.

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: WASV028/029_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula papyrifera*	68	Y	FACU
2	*Acer saccharum*	15	N	FACU
3	*Fraxinus nigra*	1	N	FACW
4	*Ostrya virginiana*	1	N	FACU
5				
6				
7				
8				
9				
10				
		85	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula papyrifera*	15	Y	FACU
2	*Acer saccharum*	3	N	FACU
3	*Ostrya virginiana*	1	N	FACU
4				
5				
6				
7				
8				
9				
10				
		19	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Gymnocarpium dryopteris*	38	Y	FACU
2	*Mitchella repens*	38	Y	FACU
3	*Fraxinus nigra*	15	N	FACW
4	*Equisetum pratense*	3	N	FACW
5	*Cornus alternifolia*	3	N	FACU
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		97	= 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	17	43
Sapling/Shrub Stratum	4	10
Herb Stratum	19	49
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 all Strata: 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	19	x 2 =	38	
FAC species	0	x 3 =	0	
FACU species	182	x 4 =	728	
UPL species	0	x 5 =	0	
Column totals	201	(A)	766	(B)

Prevalence Index = B/A = 3.81

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:** WASV028/029_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
0-4	7.5YR 3/2	100					Silt loam	
4-8	7.5YR 3/2	90	7.5YR 4/6	10	C	M	Silt loam	
8-19	7.5YR 3/2	80	7.5YR 3/3	10	D	M	Silt loam	
			7.5YR 4/6	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 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: _____
Depth (inches): _____

Hydric soil present? Y

Remarks:
Indicator Red Parent Material (F21) is present; parameter is met.

Photograph 1: WASV028/029_U, West

Photograph 2: WASV028/029_U, South

Photograph 3: WASV028/029_U, East

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

WETLAND IDENTIFICATION	**WASV028**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/24/2019
Location: PLSS: 45N02W Lat: 46.352499 Long: -90.603983 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky; Foxpaw-Gay, stony complex, 0-2% slopes Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp Wetland Size: 0.636 acres / Wetland Area Impacted: 0.636 acres
Hydrology: Floodplain to intermittent stream SASV008i; water table at 6 inches depth; saturated at surface; hydrology primarily groundwater-driven; 5-8% slopes; system flows north.	Vegetation: Plant Community Description(s): PFO, Floodplain Wetland *Carex bromoides, Fraxinus nigra, Acer saccharum*

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	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	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	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	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.
WH: Large forested area, has been logged in the past (uniform stand age).
SP: Adjacent to an intermittent stream.
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		Evidence of deer browsing on vegetation
	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 scabrata*	eastern rough sedge	8	PFO	
Dryopteris intermedia	fancy wood fern, glandular wood fern, intermediate	7	PFO	
Equisetum sylvaticum	wood horsetail, woodland horsetail	7	PFO	
**Fraxinus nigra*	black ash	8	PFO	
Viburnum acerifolium	dockmackie, maple-leaved arrow-wood, maple-leaved	7	PFO	
Impatiens capensis	orange jewelweed, orange touch-me-not	2	PFO	
Osmunda cinnamomea	cinnamon fern	7	PFO	
Rubus pubescens	dwarf red raspberry	7	PFO	
**Tsuga canadensis*	eastern hemlock, hemlock, northern hemlock	8	PFO	
Ulmus americana	American elm, white elm	3	PFO	
Betula alleghaniensis	yellow birch	7	PFO	
Solidago flexicaulis	broad-leaved goldenrod, zigzag goldenrod	6	PFO	
Glyceria striata	fowl manna grass, fowl meadow grass	4	PFO	
Carex crinita	fringed sedge	6	PFO	
Acer saccharum	sugar maple		PFO	
**Abies balsamea*	balsam fir		PFO	
**Betula papyrifera*	paper birch		PFO	
Dryopteris carthusiana	spinulose wood fern		PFO	

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

Good assemblage of native wetland plant species.
FQI=23.3, Mean C of C = 6.2

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	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.
A road is located just outside the buffer area.

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	Good assemblage of native plant species with little evidence of stressors.
Human Use Values	Wetland is located on private property, and there are no signs of human recreational use within the surrounding area.
Wildlife Habitat	Wetland and buffer have the potential to provide habitat for forest interior 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. Adjacent stream SASV008i could provide habitat for aquatic life.
Shoreline Protection	Wetland vegetation provides protection against erosion along streambanks.
Flood and Stormwater Storage	Wetland acts as floodplain to SASV008i; has potential to hold water from overbank flow during storm events.
Water Quality Protection	Wetland is buffering a stream, but there is little opportunity for water quality improvement because there is no visible source of pollutants or nutrients. Area is relatively undeveloped.
Groundwater Processes	Wetland hydrology is primarily driven by groundwater processes. Water table was 6 inches below surface and wetland is saturated for long 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.	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: 9/24/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV027f_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.: 46.352512 Long.: -90.601873 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 is located in a small wetland basin within regenerating hardwood forest.

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)
- 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: WASV027f_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	28	Y	FACW
2	*Acer saccharum*	3	N	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		31	= 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	*Poa alsodes*	15	Y	FAC
2	*Symphyotrichum lateriflorum*	1	N	FAC
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		16	= 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	6	16
Sapling/Shrub Stratum	0	0
Herb Stratum	3	8
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: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	28	x 2 =	56	
FAC species	16	x 3 =	48	
FACU species	3	x 4 =	12	
UPL species	0	x 5 =	0	
Column totals	47	(A)	116	(B)

Prevalence Index = B/A = 2.47

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. Fraxinus nigra was present in sapling/shrub layer at 3%, and was placed into tree layer per regional supplement guidelines.

SOIL **Sampling Point:** WASV027f_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	7.5YR 3/2	98	7.5YR 3/4	2	C	M	Silt loam	
4-16	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) is present; parameter is met.

Photograph 1: WASV027f_W, West

Photograph 2: WASV027f_W, North

Photograph 3: WASV027f_W, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/24/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV027_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Upland terrace Local relief (concave, convex, none): Flat
Slope (%): 1-2% Lat.: 46.352433 Long.: -90.601835 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 circumstances" present? Yes
Are vegetation ____, soil ____, or hydrology ____ naturally problematic?
(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 regenerating hardwood forest representative of uplands surrounding WASV027.

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: WASV027_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	38	Y	FACU
2	*Betula papyrifera*	15	Y	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		53	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Ostrya virginiana*	63	Y	FACU
2	*Acer saccharum*	15	N	FACU
3	*Fraxinus nigra*	3	N	FACW
4	*Abies balsamea*	3	N	FAC
5				
6				
7				
8				
9				
10				
		84	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	15	Y	FACW
2	*Gymnocarpium dryopteris*	15	Y	FACU
3	*Solidago flexicaulis*	3	N	FACU
4	*Acer saccharum*	3	N	FACU
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		36	= 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	11	27
Sapling/Shrub Stratum	17	42
Herb Stratum	7	18
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 all Strata: 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	18	x 2 =	36	
FAC species	3	x 3 =	9	
FACU species	152	x 4 =	608	
UPL species	0	x 5 =	0	
Column totals	173	(A)	653	(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:** WASV027_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
0-3	7.5YR 3/2	100					Silt loam	
3-15	7.5YR 4/4	95	7.5YR 3/2	5	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 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**)
___ 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: WASV027_U, West

Photograph 2: WASV027_U, North

Photograph 3: WASV027_U, South

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

WETLAND IDENTIFICATION	**WASV027**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/24/2019
Location: PLSS: 45N02W Lat: 46.352517 Long: -90.601875 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp Wetland Size: 0.011 acres / Wetland Area Impacted: 0.011 acres
Hydrology: Small landscape depression, collects surface water runoff from adjacent upland areas; water stain lines, FAC neutral; geomorphic position.	Vegetation: Plant Community Description(s): PFO *Fraxinus nigra, Poa alsodes, 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	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	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	Y	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	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			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	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	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)

WH10, WH8, & FA2 – Water stain lines and basin wetland shape suggest water is held in wetland, but no standing water observed at time of this
survey.
WH – Wetland is located within a large habitat block of relatively young forest.

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
	X	No standing water observed at the time of this survey, but likely that wetland holds 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)
**Fraxinus nigra*	black ash	8	PFO	
**Poa alsodes*	grove bluegrass, woodland bluegrass	5	PFO	
Symphyotrichum lateriflorum	side-flowering aster	3	PFO	
Carex intumescens	greater bladder sedge, shining bur sedge, swollen	5	PFO	
Dryopteris intermedia	fancy wood fern, glandular wood fern, intermediate	7	PFO	
Glyceria striata	fowl manna grass, fowl meadow grass	4	PFO	
Acer saccharum	sugar maple		PFO	

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

Low diversity of plant community likely due to periodic inundation.
FQI = 5.3, mean C of C = 13.1

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

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
X	X		L	UC	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.
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)

Historic berm from past land use present (e.g., logging road). Area 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	Low plant community diversity is most likely due to periodic inundation.
Human Use Values	Human recreational use is limited by small wetland size and location of wetland on private property.
Wildlife Habitat	Wetland is very small and provides little habitat, but it is located within a large forested area that may provide habitat for large mammals such as bear and deer.
Fish and Aquatic Life Habitat	No signs of fish or other aquatic life. No standing water at time of survey, 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 captures and retains runoff but is very small, so it has little storage capacity.
Water Quality Protection	Wetland receives runoff inputs but is very small, and is located in a relatively undeveloped area. There is little ability to improve water quality because no pollutants are entering the system.
Groundwater Processes	Wetland hydrology is primarily driven by surface water inputs. No groundwater component to hydrology was 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: 9/27/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV044e_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 5-8% Lat.: 46.353355 Long.: -90.602608 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 roadside drainage feature.

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)
- 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:

N/A

Remarks:

Surface wetland hydrology indicators are present. Subsurface hydrology indicators were not identified due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV044e_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	*Carex crinita*	38	Y	OBL
2	*Impatiens capensis*	15	Y	FACW
3	*Fraxinus nigra*	3	N	FACW
4	*Rubus idaeus*	3	N	FAC
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		59	= 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	12	30
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: 2 (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	18	x 2 =	36	
FAC species	3	x 3 =	9	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	59	(A)	83	(B)

Prevalence Index = B/A = 1.41

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:** WASV044e_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 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**)
___ 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:

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: WASV044e_W, North

Photograph 2: WASV044e_W, South

Photograph 3: WASV044e_W, Northwest

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/27/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV044_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.: 46.353422 Long.: -90.602779 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 circumstances" present? Yes
Are vegetation ____, soil ____, or hydrology ____ naturally problematic?
(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 roadside shoulder in forested area adjacent to WASV044e.

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 surface hydrology indicators present. Subsurface hydrology indicators were not identified due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV044_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Tilia americana*	38	Y	FACU
2	*Acer saccharum*	38	Y	FACU
3	*Betula alleghaniensis*	15	N	FAC
4	*Betula papyrifera*	3	N	FACU
5				
6				
7				
8				
9				
10				
		94	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	38	Y	FACU
2	*Betula alleghaniensis*	3	N	FAC
3	*Populus tremuloides*	3	N	FAC
4				
5				
6				
7				
8				
9				
10				
		44	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula alleghaniensis*	15	Y	FAC
2	*Panicum virgatum*	15	Y	FAC
3	*Solidago gigantea*	3	N	FACW
4	*Trifolium repens*	3	N	FACU
5	*Symphyotrichum lateriflorum*	3	N	FAC
6	*Rubus idaeus*	3	N	FAC
7	*Lactuca canadensis*	0.5	N	FACU
8				
9				
10				
11				
12				
13				
14				
15				
		42.5	= 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	19	47
Sapling/Shrub Stratum	9	22
Herb Stratum	9	21
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: 5 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 40.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	3	x 2 =	6	
FAC species	57	x 3 =	171	
FACU species	120.5	x 4 =	482	
UPL species	0	x 5 =	0	
Column totals	180.5	(A)	659	(B)

Prevalence Index = B/A = 3.65

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:** WASV044_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 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**)
___ 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 ground disturbance allowed due to potential for underground utilities; assume soil is non-hydric based on absence of wetland hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV044_U, North

Photograph 2: WASV044_U, Southeast

Photograph 3: WASV044_U, Northwest

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

WETLAND IDENTIFICATION	**WASV044**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/27/2019
Location: PLSS: 45N02W Lat: 46.353285 Long: -90.602661 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks

SITE DESCRIPTION		
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky Field Verified: No ground disturbance allowed due to potential to encounter underground utilities	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow	
	Wetland Size: 0.034 acres	Wetland Area Impacted: 0.034 acres
Hydrology: Receiving surface runoff from gravel/dirt access road. Draining downslope to the northeast towards an unnamed stream; roadside drainage feature, 5-8% slopes	Vegetation: Plant Community Description(s): PFO: *Fraxinus nigra, Acer saccharum, Carex crinita*	

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	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	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	Y	Y	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			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	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)

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		Chipmunk
X		Bald eagle (fly over)
	X	Songbirds
X		Bat (fly over)

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	PEM	
Acer saccharum	hard maple, sugar maple	5	PEM	
Osmunda cinnamomea	cinnamon fern	7	PEM	
Dryopteris intermedia	fancy wood fern, glandular wood fern	7	PEM	
**Carex crinita*	fringed sedge	6	PEM	
Solidago gigantea	giant goldenrod	3	PEM	
**Impatiens capensis*	orange jewelweed, orange touch-me-not	2	PEM	
Rubus idaeus	wild red raspberry	4	PEM	

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

Relatively low diversity of native wetland species.
FQI=14.5, Mean C of C = 5.1

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	C	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
X	X		M	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	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)

Regenerating woods, cleared/logged in the past (uniform stand age).
Access road increases flow of runoff into wetland, which is partially a roadside drainage feature.
GW: Subsurface indicators of wetland hydrology were not investigated due to the potential for underground utilities.

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 stratum limited in cover due to disturbance from adjacent access road.
Human Use Values	Trash in wetland, old vehicles and lawnmowers. Wetland not accessible to public.
Wildlife Habitat	Chipmunk, bald eagle, and bat observed. Part of large contiguous forest stand that is likely to support 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 and drains water to stream in northeast. Does not have a large capacity for water storage.
Water Quality Protection	Receives surface water runoff from adjacent road. Equipment located in wetland that may leak fluids.
Groundwater Processes	Subsurface indicators of wetland hydrology not investigated because of 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: 9/27/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV045f_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave
Slope (%): 0-3% Lat.: 46.353622 Long.: -90.601728 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 forested seep wetland acting as both the headwaters and floodplain to streams SASV011 and SASV012. Groundwater observed discharging from wetland into stream.

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)
- 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:

N/A

Remarks:

Some low areas within the wetland were saturated or inundated. Three secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV045f_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	38	Y	FACW
2	*Betula alleghaniensis*	15	Y	FAC
3	*Ulmus americana*	3	N	FACW
4				
5				
6				
7				
8				
9				
10				
		56	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	15	Y	FACW
2	*Betula alleghaniensis*	3	N	FAC
3				
4				
5				
6				
7				
8				
9				
10				
		18	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex scabrata*	63	Y	OBL
2	*Equisetum sylvaticum*	3	N	FACW
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		66	= 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	11	28
Sapling/Shrub Stratum	4	9
Herb Stratum	13	33
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 all Strata: 4 (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	18	x 3 =	54
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	140 (A)		235 (B)

Prevalence Index = B/A = 1.68

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:** WASV045f_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 3/1	98	10YR 4/6	2	C	PL/M	silt loam	
6-9	10YR 5/1	60	10YR 5/8	40	C	PL/M	silt loam	
9-14	7.5YR 4/6	90	10YR 5/8	10	C	PL/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 149B**)
___ 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: WASV045f_W, North

Photograph 2: WASV045f_W, West

Photograph 3: WASV045f_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/27/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV045/46/47_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hilltop Local relief (concave, convex, none): Flat
Slope (%): 3-5% Lat.: 46.354085 Long.: -90.601924 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 data point located in regenerating forest associated with wetlands WASV045, WASV046 and WASV047.

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: WASV045/46/47_U

Tree Stratum (Plot Size: 30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1 *Acer saccharum*	63	Y	FACU
2 *Ostrya virginiana*	15	N	FACU
3 *Quercus rubra*	3	N	FACU
4 *Tsuga canadensis*	0.5	N	FACU
5			
6			
7			
8			
9			
10			
	81.5	= Total Cover	

Sapling/Shrub Stratum (Plot Size: 30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1 *Ostrya virginiana*	15	Y	FACU
2 *Abies balsamea*	0.5	N	FAC
3			
4			
5			
6			
7			
8			
9			
10			
	15.5	= Total Cover	

Herb Stratum (Plot Size: 15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1 *Mitchella repens*	15	Y	FACU
2 *Dryopteris intermedia*	3	Y	FAC
3 *Acer saccharum*	3	Y	FACU
4 *Abies balsamea*	3	Y	FAC
5 *Maianthemum canadense*	3	Y	FACU
6 *Ostrya virginiana*	3	Y	FACU
7 *veronica officinalis*	3	Y	FACU
8			
9			
10			
11			
12			
13			
14			
15			
	33	= 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	16	41
Sapling/Shrub Stratum	3	8
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 all Strata: 9 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 22.22% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	6.5	x 3 =	19.5
FACU species	123.5	x 4 =	494
UPL species	0	x 5 =	0
Column totals	130 (A)		513.5 (B)

Prevalence Index = B/A = 3.95

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:** WASV045/46/47_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	10YR 3/1	100					silt loam	
2-7	10YR 4/4	100					silt loam	
7-14	10YR 4/6	95	10YR 4/4	5			silt loam	Mixed matrix

*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: WASV045/046/047_U, North

Photograph 2: WASV045/046/047_U, South

Photograph 3: WASV045/046/047_U, West

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

WETLAND IDENTIFICATION WASV045f	
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/27/2019
Location: PLSS: 45N02W Lat: 46.353677 Long: -90.601663 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky; Tula-Gogebic complex, 0-6% slopes, stony Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp Wetland Size: 0.504 acres / Wetland Area Impacted: 0.504 acres
Hydrology: Hydrology is primarily groundwater driven; headwaters and floodplain to SASV011; 1 inch of standing water in low areas; 0-3% slopes; draining downslope to the north; geomorphic position	Vegetation: Plant Community Description(s): PFO: *Betula alleghaniensis, Acer saccharum, 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	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	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	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	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	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	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	Y	Y	Springs, seeps or indicators of groundwater present
2	Y	Y	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)

WH10 & FA2: 1 inch of standing water in low pockets of wetland in stream headwaters. Unclear how long water is held. It rained this morning.
FA1: Stream is most likely intermittent/borderline perennial.
SP2: Erosion on banks observed.
ST2 & WQ3: Intermittent stream 4 feet wide x 3 feet deep
WQ8 – Groundwater seeping within wetland into stream, recent rainfall most likely reason for high water levels.
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
	X	Frogs, salamanders, duration of standing water in wetland is unclear.

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)
Acer saccharum	hard maple, sugar maple	5	PFO	
**Betula alleghaniensis*	yellow birch	7	PFO	
Dryopteris intermedia	fancy wood fern, glandular wood fern	7	PFO	
Athyrium filix-femina	common lady fern, lady fern	5	PFO	
Abies balsamea	balsam fir	5	PFO	
Pyrola elliptica	elliptic shin-leaf, large-leaved shin-leaf	6	PFO	
Carex crinita	fringed sedge	6	PFO	
Glyceria striata	fowl manna grass, fowl meadow grass	4	PFO	
Onoclea sensibilis	sensitive fern	5	PFO	
**Fraxinus nigra*	black ash	8	PFO	
Carex intumescens	greater bladder sedge, shining bur sedge, swollen	5	PFO	
Solidago gigantea	giant goldenrod	3	PFO	
Osmunda cinnamomea	cinnamon fern	7	PFO	
Symphyotrichum lateriflorum	side-flowering aster	3	PFO	
Equisetum sylvaticum	wood horsetail, woodland horsetail	7	PFO	
Impatiens capensis	orange jewelweed, orange touch-me-not, spotted	2	PFO	
Ulmus americana	American elm		PFO	
**Carex scabrata*	Eastern rough sedge		PFO	

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

Good diversity of common native species.
FQI = 21.3, Mean C of C = 5.3

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		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)

Relatively young regenerating woods. Surrounding buffer area affected by earthworms.

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 supports a diverse assemblage of common native wetland species.
Human Use Values	Wetland is located on private property. No signs of human recreational use in surrounding landscape.
Wildlife Habitat	Songbirds heard throughout buffer area. Wetland is situated in large contiguous forested stand that may support area sensitive species.
Fish and Aquatic Life Habitat	Although there are some pockets of standing water in the wetland, it recently rained, and the duration of inundation is unclear.
Shoreline Protection	Signs of past erosion along streambank. Vegetation dense in some portions of wetland and sparse in others.
Flood and Stormwater Storage	Wetland captures surface water runoff from adjacent upland areas.
Water Quality Protection	The surrounding landscape is undeveloped. There is little opportunity for water quality improvement because the wetland is not receiving pollutants.
Groundwater Processes	Water table at/near surface, seepage into wetland/stream observed. Wetland contains headwaters of stream SASV011i.

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: 9/27/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV047f_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.: 46.353933 Long.: -90.602052 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 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 small depressional wetland within regenerating hardwood forest.

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)
- X 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)
- 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	____	No	X	Depth (inches): ____

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: WASV047f_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	38	Y	FACW
2	*Ulmus americana*	3	N	FACW
3	*Acer saccharum*	3	N	FACU
4				
5				
6				
7				
8				
9				
10				
		44	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	15	Y	FACW
2	*Acer saccharum*	3	N	FACU
3	*Abies balsamea*	3	N	FAC
4				
5				
6				
7				
8				
9				
10				
		21	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*	3	Y	OBL
2	*Glyceria striata*	3	Y	OBL
3	*Fraxinus nigra*	3	Y	FACW
4	*Carex scabrata*	3	Y	OBL
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		12	= 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	9	22
Sapling/Shrub Stratum	4	11
Herb Stratum	2	6
Woody Vine Stratum	0	0

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:

OBL species	9	x 1 =	9	
FACW species	59	x 2 =	118	
FAC species	3	x 3 =	9	
FACU species	6	x 4 =	24	
UPL species	0	x 5 =	0	
Column totals	77	(A)	160	(B)

Prevalence Index = B/A = 2.08

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:** WASV047f_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
0-2	10YR 2/1	100					silt loam	
2-7	10YR 5/1	100					silt loam	
7-16	10YR 4/6	90	10YR 5/1	10	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 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: WASV047e_W, North

Photograph 2: WASV047e_W, West

Photograph 3: WASV047e_W, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/27/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV045/46/47_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hilltop Local relief (concave, convex, none): Flat
Slope (%): 3-5% Lat.: 46.354085 Long.: -90.601924 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 circumstances" present? Yes
Are vegetation ____, soil ____, or hydrology ____ naturally problematic?
(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 data point located in regenerating hardwood forest associated with wetlands WASV045, WASV046 and WASV047.

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: WASV045/46/47_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	63	Y	FACU
2	*Ostrya virginiana*	15	N	FACU
3	*Quercus rubra*	3	N	FACU
4	*Tsuga canadensis*	0.5	N	FACU
5				
6				
7				
8				
9				
10				
		81.5	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Ostrya virginiana*	15	Y	FACU
2	*Abies balsamea*	0.5	N	FAC
3				
4				
5				
6				
7				
8				
9				
10				
		15.5	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Mitchella repens*	15	Y	FACU
2	*Dryopteris intermedia*	3	Y	FAC
3	*Acer saccharum*	3	Y	FACU
4	*Abies balsamea*	3	Y	FAC
5	*Maianthemum canadense*	3	Y	FACU
6	*Ostrya virginiana*	3	Y	FACU
7	*Veronica officinalis*	3	Y	FACU
8				
9				
10				
11				
12				
13				
14				
15				
		33	= 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	16	41
Sapling/Shrub Stratum	3	8
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 all Strata: 9 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 22.22% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	6.5	x 3 =	19.5
FACU species	123.5	x 4 =	494
UPL species	0	x 5 =	0
Column totals	130 (A)		513.5 (B)

Prevalence Index = B/A = 3.95

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:** WASV045/46/47_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	10YR 3/1	100					silt loam	
2-7	10YR 4/4	100					silt loam	
7-14	10YR 4/6	95	10YR 4/4	5			silt loam	Mixed matrix

*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: WASV045/046/047_U, North

Photograph 2: WASV045/046/047_U, South

Photograph 3: WASV045/046/047_U, West

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

WETLAND IDENTIFICATION	**WASV047**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #: N/A	Date of visit(s): 9/27/2019
Location: PLSS: 45N02W Lat: 46.353933 Long: -90.602039 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp Wetland Size: 0.015 acres / Wetland Area Impacted: 0.015 acres
Hydrology: Basin wetland; water-stained leaves, geomorphic position, sparsely vegetated concave surface; all suggesting water is held during wetter seasons; 0-2% slopes; surface water-driven hydrology	Vegetation: Plant Community Description(s): PFO: *Betula alleghaniensis, Acer saccharum, Fraxinus nigra*

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	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	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	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	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	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	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)

WH9, WH10, FA2, FA4: Basin wetland
ST1 & WQ2: Basin 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	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
	X	Frogs, salamanders – No standing water in wetland at time of this survey, but potential to hold water for
		extended 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	
**Glyceria striata*	fowl manna grass, fowl meadow grass	4	PFO	
Carex intumescens	greater bladder sedge, shining bur sedge	5	PFO	
Solidago gigantea	giant goldenrod	3	PFO	
Tilia americana	American linden, basswood	5	PFO	
Betula alleghaniensis	yellow birch	7	PFO	
Acer saccharum	hard maple, sugar maple	5	PFO	
Ulmus americana	American elm		PFO	
Abies balsamea	balsam fir		PFO	
**Carex crinita*	fringed sedge		PFO	
**Carex scabrata*	Eastern rough sedge		PFO	

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

Relatively low diversity but all common native wetland species.
FQI = 14.0, Mean C of C = 5.3

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		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)

Relatively young regenerating forest, formerly clear cut/logged (uniform stand age). Reduced diversity of native species in buffer due to earthworms.

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 supports a relatively low diversity assemblage of species due to extended periods of inundation, but common native wetland species are present.
Human Use Values	Wetland is located on private property and there are no signs of recreational use within the surrounding area.
Wildlife Habitat	Wetland is part of a large contiguous forest, stand but woods are relatively young and regenerating.
Fish and Aquatic Life Habitat	No standing water at time of this survey, but the wetland exhibits signs that it holds water during wetter seasons.
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland receives surface water runoff from surrounding area, but it is a relatively small wetland with little storage capacity.
Water Quality Protection	There is little opportunity to provide water quality improvements because of low storage capacity; few pollutants reach wetlands because surrounding landscape is undeveloped.
Groundwater Processes	Wetland is surface water-driven and no signs of groundwater processes 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: 9/27/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV046f_W
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave
Slope (%): 5-8% Lat.: 46.354264 Long.: -90.601744 Datum: WGS 1984
Soil Map Unit Name Tula-Gogebic complex, 0-6% slopes, 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 floodplain bench adjacent to stream SASV011.

HYDROLOGY

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

- X 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)
- ___ 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	X	No	____	Depth (inches): 1
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:
Up to 1 inch of standing water in low areas. Subsurface conditions were not observed below 4 inches due to rock restrictive layer. Primary and secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV046f_W

Tree Stratum (Plot Size (30' radius))	Absolute % Cover	Dominant Species	Indicator Status
1 *Betula alleghaniensis*	30	Y	FAC
2			
3			
4			
5			
6			
7			
8			
9			
10			
	30	= 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 *Carex scabrata*	38	Y	OBL
2 *Equisetum sylvaticum*	3	N	FACW
3 *Abies balsamea*	3	N	FAC
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
	44	= 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	6	15
Sapling/Shrub Stratum	0	0
Herb Stratum	9	22
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: 2 (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	3	x 2 =	6	
FAC species	33	x 3 =	99	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	74	(A)	143	(B)

Prevalence Index = B/A = 1.93

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:** WASV046f_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
0-4	10YR 4/1	98	10YR 4/6	2	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)
_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: Rock
Depth (inches): 4 inches

Hydric soil present? Y

Remarks:
Soils sampled to only 4 inches of depth due to rock restrictive layer. Indicator Depleted Matrix (F3) is present; parameter is met.

Photograph 1: WASV046f_W, North

Photograph 2: WASV046f_W, West

Photograph 3: WASV046f_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/27/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV045/46/47_U
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hilltop Local relief (concave, convex, none): Flat
Slope (%): 3-5% Lat.: 46.354085 Long.: -90.601924 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 circumstances" present? Yes
Are vegetation ____, soil ____, or hydrology ____ naturally problematic?
(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 data point located in regenerating hardwood forest associated with wetlands WASV045, WASV046 and WASV047.

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: WASV045/46/47_U

Tree Stratum (Plot Size: 30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1 *Acer saccharum*	63	Y	FACU
2 *Ostrya virginiana*	15	N	FACU
3 *Quercus rubra*	3	N	FACU
4 *Tsuga canadensis*	0.5	N	FACU
5			
6			
7			
8			
9			
10			
	81.5	= Total Cover	

Sapling/Shrub Stratum (Plot Size: 30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1 *Ostrya virginiana*	15	Y	FACU
2 *Abies balsamea*	0.5	N	FAC
3			
4			
5			
6			
7			
8			
9			
10			
	15.5	= Total Cover	

Herb Stratum (Plot Size: 15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1 *Mitchella repens*	15	Y	FACU
2 *Dryopteris intermedia*	3	Y	FAC
3 *Acer saccharum*	3	Y	FACU
4 *Abies balsamea*	3	Y	FAC
5 *Maianthemum canadense*	3	Y	FACU
6 *Ostrya virginiana*	3	Y	FACU
7 *veronica officinalis*	3	Y	FACU
8			
9			
10			
11			
12			
13			
14			
15			
	33	= 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	16	41
Sapling/Shrub Stratum	3	8
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 all Strata: 9 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 22.22% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	6.5	x 3 =	19.5
FACU species	123.5	x 4 =	494
UPL species	0	x 5 =	0
Column totals	130 (A)		513.5 (B)

Prevalence Index = B/A = 3.95

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:** WASV045/46/47_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	10YR 3/1	100					silt loam	
2-7	10YR 4/4	100					silt loam	
7-14	10YR 4/6	95	10YR 4/4	5			silt loam	Mixed matrix

*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: WASV045/046/047_U, North

Photograph 2: WASV045/046/047_U, South

Photograph 3: WASV045/046/047_U, West

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

WETLAND IDENTIFICATION **WASV046**	
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Chris Sheldon
File #:N/A	Date of visit(s): 9/27/2019
Location: PLSS: 45N02W Lat: 46.354299 Long: -90.601765 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Tula-Gogebic complex, 0-6% slopes, stony Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp Wetland Size: 0.013 acres / Wetland Area Impacted: 0.013 acres
Hydrology: Hydrology is primarily groundwater driven; floodplain bench to SASV011; 1 inch of standing water in low areas; 0-3% slopes; draining downslope to the north; geomorphic position	Vegetation: Plant Community Description(s): PFO: *Betula alleghaniensis, Carex bromoides, Athyrium filix-femina*

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	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	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	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	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	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	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)

WH10 & FA2: 1 inch of standing water in low pockets of wetland from recent rains
FA1: Stream is most likely intermittent/borderline perennial.
SP2: Erosion on banks observed.
ST2 & WQ3: Intermittent stream is 4 feet wide by 3 feet 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
	X	Frogs, salamanders, duration of standing water in wetland is unclear.

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*	yellow birch	7	PFO	
Abies balsamea	balsam fir	5	PFO	
Carex bromoides	brome-like sedge	8	PFO	
Athyrium filix-femina	common lady fern, lady fern	5	PFO	
Dryopteris intermedia	fancy wood fern, glandular wood fern, intermediate	7	PFO	
Symphyotrichum lateriflorum	side-flowering aster	3	PFO	
Equisetum pratense	meadow horsetail	9	PFO	
**Carex scabrata*	Eastern rough sedge		PFO	
Equisetum sylvaticum	wood horsetail		PFO	

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

Relatively low diversity but all common native wetland species.
FQI = 16.6, Mean C of C = 6.3

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		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)

Relatively young regenerating woods. Surrounding buffer area affected by earthworms.

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 supports are relatively low diversity assemblage of species, but common native wetland species are present throughout.
Human Use Values	Wetland is located on private property. There is no evidence of human recreational use in surrounding area.
Wildlife Habitat	Songbirds heard throughout buffer area. Wetland is located in a large contiguous stand of forest that is likely to support area sensitive species.
Fish and Aquatic Life Habitat	Although there is some standing water in the wetland, it recently rained, and the duration of inundation is unclear.
Shoreline Protection	Signs of past erosion is present along streambank. Vegetation is dense in some portions of wetland and sparse in others.
Flood and Stormwater Storage	Wetland captures overbank flow and surface water runoff from adjacent upland areas, but wetland is small, with limited storage capacity.
Water Quality Protection	Little opportunity to provide water quality improvements because of low storage capacity. Surrounding area is undeveloped and few pollutants reach wetlands.
Groundwater Processes	Water table at/near surface, bench wetland adjacent to stream SASV011i.

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: 9/27/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV048s_W1
Investigator(s): Caitlin Cyrus, Chris Sheldon Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 0-5% Lat.: 46.35441 Long.: -90.601486 Datum: WGS 1984
Soil Map Unit Name Tula-Gogebic complex, 0-6% slopes, 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 an excavated trash pit that meets wetland parameters.

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)
- ___ 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	X	No	____	Depth (inches): 3
Water table present?	Yes	X	No	____	Depth (inches): Surface
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:
Approximately 2-3 inches of standing water in lowest area of the wetland.

VEGETATION - Use scientific names of plants

Sampling Point: WASV048s_W2

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	3	Y	FACW
2	*Ulmus americana*	3	Y	FACW
3	*Acer saccharum*	3	Y	FACU
4				
5				
6				
7				
8				
9				
10				
		9	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	15	Y	FACW
2	*Acer saccharum*	3	N	FACU
3	*Abies balsamea*	3	N	FAC
4				
5				
6				
7				
8				
9				
10				
		21	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*	3	Y	OBL
2	*Glyceria striata*	3	Y	OBL
3	*Fraxinus nigra*	3	Y	FACW
4	*Carex scabrata*	3	Y	OBL
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		12	= 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	2	5
Sapling/Shrub Stratum	4	11
Herb Stratum	2	6
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 all Strata: 8 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 87.50% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	9	x 1 =	9	
FACW species	24	x 2 =	48	
FAC species	3	x 3 =	9	
FACU species	6	x 4 =	24	
UPL species	0	x 5 =	0	
Column totals	42	(A)	90	(B)

Prevalence Index = B/A = 2.14

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:** WASV048s_W2

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: _____
Depth (inches): _____

Hydric soil present? ___Y___

Remarks:
No soils sampled due to concerns of contamination and safety. Wetland is an excavated trash pit. Soils assumed to be hydric due to presence of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV048s_W1, North

Photograph 2: WASV048s_W1, West

Photograph 3: WASV048s_W1, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/28/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV048s_W2
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave
Slope (%): 3-5% Lat.: 46.354967 Long.: -90.601126 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 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 fallow and regenerating pasture and apple orchard.

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:

N/A

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV048s_W2

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	*Alnus incana*	15	Y	FACW
2	*Salix bebbiana*	15	Y	FACW
3	*Salix discolor*	5	N	FACW
4	*Fraxinus nigra*	3	N	FACW
5	*Populus tremuloides*	1	N	FAC
6				
7				
8				
9				
10				
		39	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*	63	Y	OBL
2	*Solidago gigantea*	15	N	FACW
3	*Solidago canadensis*	5	N	FACU
4	*Scirpus atrovirens*	5	N	OBL
5	*Lotus corniculatus*	5	N	FACU
6	*Euthamia graminifolia*	3	N	FAC
7	*Onoclea sensibilis*	3	N	FACW
8	*Symphyotrichum puniceum*	1	N	OBL
9	*Equisetum pratense*	1	N	FACW
10	*Symphyotrichum lateriflorum*	1	N	FAC
11	*Plantago major*	0.5	N	FACU
12	*Clematis virginiana*	0.5	N	FAC
13				
14				
15				
		103	= 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	8	20
Herb Stratum	21	52
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	69	x 1 =	69
FACW species	57	x 2 =	114
FAC species	5.5	x 3 =	16.5
FACU species	10.5	x 4 =	42
UPL species	0	x 5 =	0
Column totals	142 (A)		241.5 (B)

Prevalence Index = B/A = 1.70

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:** WASV048s_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
0-18	10YR 4/1	96	7.5YR 5/6	4	C	M	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: WASV048s_W2, North

Photograph 2: WASV048s_W2, West

Photograph 3: WASV048s_W2, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/28/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV048e_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave
Slope (%): 5-8% Lat.: 46.355796 Long.: -90.600396 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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.)

PEM component of wetland complex located within a fallow pasture. Dominated by the invasive *Phalaris arundinacea.*

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)
- X Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- X 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:

N/A

Remarks:

Primary and secondary indicators of wetland hydrology are present; parameter is met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV048e_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	*Onoclea sensibilis*	38	Y	FACW
2	*Typha latifolia*	38	Y	OBL
3	*Scirpus hattorianus*	5	N	OBL
4	*Equisetum pratense*	5	N	FACW
5	*Juncus effusus*	5	N	OBL
6	*Carex crinita*	5	N	OBL
7	*Rubus idaeus*	3	N	FAC
8	*Solidago canadensis*	3	N	FACU
9	*Persicaria sagittata*	3	N	OBL
10	*Lolium perenne*	1	N	FACU
11	*Carex scoparia*	1	N	FACW
12	*Symphyotrichum puniceum*	0.5	N	OBL
13	*Symphyotrichum lateriflorum*	0.5	N	FAC
14				
15				
		108	= 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	22	54
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: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	56.5	x 1 =	56.5	
FACW species	44	x 2 =	88	
FAC species	3.5	x 3 =	10.5	
FACU species	4	x 4 =	16	
UPL species	0	x 5 =	0	
Column totals	108	(A)	171	(B)

Prevalence Index = B/A = 1.58

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:** WASV048e_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
0-1	10YR 2/1	100					muck	Organic bodies observed
1-16	10YR 4/1	90	5YR 3/4	10	C	M	loam	
16-18	10YR 4/1	90	5YR 3/4	10	C	M	gravelly 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)
X 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:

___ 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 Below Dark Surface (A11) is present; parameter is met.

Photograph 1: WASV048e_W, North

Photograph 2: WASV048e_W, West

Photograph 3: WASV048e_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/28/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV048_U
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Flat
Slope (%): 0-2% Lat.: 46.355015 Long.: -90.600761 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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.)

Upland data point located in fallow pasture.

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: WASV048_U

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	*Agrostis capillaris*	85	Y	FAC
2	*Hypericum perforatum*	15	N	UPL
3	*Solidago canadensis*	15	N	FACU
4	*Salix nigra*	3	N	OBL
5	*Phalaris arundinacea*	1	N	FACW
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		119	= 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	24	60
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: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	3	x 1 =	3
FACW species	1	x 2 =	2
FAC species	85	x 3 =	255
FACU species	15	x 4 =	60
UPL species	15	x 5 =	75
Column totals	119 (A)		395 (B)

Prevalence Index = B/A = 3.32

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X 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? Y

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

Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV048_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
0-20	10YR 3/4	100					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)
___ 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: WASV048_U, South

Photograph 2: WASV048_U, West

Photograph 3: WASV048_U, East

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

WETLAND IDENTIFICATION	**WASV048**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Clay Robertson
File #: N/A	Date of visit(s): 9/28/2019
Location: PLSS: 45N02W Lat: 46.354492 Long: -90.60147 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky; Tula-Gogebic complex, 0-6% slopes, stony Field Verified: No ground disturbance allowed due to potential for underground utilities.	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow, Hardwood Swamp Wetland Size: 6.467 acres / Wetland Area Impacted 6.467 acres
Hydrology: FAC neutral, Geomorphic position (in some areas); oxidized rhizospheres (compaction); large wetland on 0-3% slopes. Saturated at surface and water table at surface in lowest areas.	Vegetation: Plant Community Description(s): PSS: *Alnus incana, Salix bebbiana, Scirpus cyperinus* PEM: *Onoclea sensibilis, Scirpus cyperinus, Carex crinita*

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**
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	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	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/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	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.
HU3: Roadside portion is visibly accessible to the public, but PSS portion acts as a shield to the majority of the wetland.
W2: Two strata, herbs and saplings/shrubs
WH10 & FA2: Cattail (*Typha* spp.) dominated portions may hold water during wet seasons.
WQ7: Apple orchard is now fallow.
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, unidentified cup nest
X		Evidence of deer browsing, bedding, trails, tracks

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 and salamanders; no standing water on site at the time of this survey; Cattail-dominated areas may 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)
Equisetum sylvaticum	wood horsetail, woodland horsetail	7	PEM/PSS	
Equisetum pratense	meadow horsetail	9	PEM/PSS	
**Alnus incana*	speckled alder	4	PSS	
Osmunda cinnamomea	cinnamon fern	7	PSS	
Thelypteris palustris	eastern marsh fern, marsh fern	7	PEM	
Rubus pubescens	dwarf red raspberry	7	PSS	
Fragaria virginiana	thick-leaved wild strawberry, Virginia strawberry,	1	PEM/PSS	
Doellingeria umbellata	flat-top aster, parasol aster, tall flat-topped white aster	6	PEM/PSS	
Solidago canadensis	Canadian goldenrod	1	PEM	
Solidago gigantea	giant goldenrod	3	PSS	
Athyrium filix-femina	common lady fern, lady fern	5	PSS	
Symphyotrichum lateriflorum	side-flowering aster	3	PEM/PSS	
Symphyotrichum puniceum	swamp aster	5	PEM/PSS	
Mentha canadensis	field mint, wild mint	3	PEM	
Acer saccharum	hard maple, sugar maple	5	PSS	
**Fraxinus nigra*	black ash	8	PSS	
Populus tremuloides	aspen, quaking aspen	2	PSS	
Rubus idaeus	wild red raspberry	3	PEM	
Carex scoparia	broom sedge, lance-fruited oval sedge	4	PEM/PSS	
**Carex crinita*	fringed sedge	6	PEM/PSS	
Scirpus cyperinus	wool-grass	4	PEM	
Scirpus hattorianus	early dark-green bulrush, mosquito bulrush	3	PEM	
**Glyceria striata*	fowl manna grass, fowl meadow grass	4	PEM/PSS	
Carex intumescens	greater bladder sedge, shining bur sedge, swollen	5	PSS	
Epilobium ciliatum	American willow-herb, hairy willow-herb	3	PEM	
**Salix bebbiana*	beaked willow, Bebb's willow	7	PSS	
Salix discolor	pussy willow	2	PSS	
Ilex verticillata	common winterberry	7	PSS	
Clematis virginiana	devil's-darning-needle, virgin's-bower	4	PSS	

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

Missing strata due to past land use, high prevalence of *Phalaris arundinacea*.
PEM FQI = 17.3, Mean C of C = 4.3
PSS FQI = 22.6, Mean C of C = 5.1

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

Assessment Area (AA)	Buffer	Historic	Impact Level*	Relative Frequency**	Stressor
	X	X	L	UC	Filling, berms (non-impounding)
					Drainage – tiles, ditches
X	X	X	M	C	Hydrologic changes - high capacity wells, impounded water, increased runoff
					Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
X	X	X	M	C	Agriculture – pasture
X	X		L	C	Roads or railroad
X	X	X	L	UC	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	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		H	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.)
X			L	UC	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.
Rock wall separating wetland from SASV011.
Increased runoff from past soil compaction associated with farming.
Portion of wetland adjacent to public road functioning as roadside drainage.
Signs of past distribution line through wetland.
Wetland cleared for agriculture.
Phalaris arundinacea dominates PEM portion of wetland.
Small portion of wetland excavated to create a trash pit.

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 due to past land use; high prevalence of invasive *Phalaris arundinacea*; diversity of common species, influenced by ground compaction.
Human Use Values	Wetland is located on private property and there are no signs of recreational use within surrounding area.
Wildlife Habitat	Signs of wildlife use in surrounding area, wetland is part of a large contiguous forest stand that may support area sensitive species.
Fish and Aquatic Life Habitat	No standing water as time of survey. Cattail-dominated areas may be inundated during wetter seasons.
Shoreline Protection	N/A
Flood and Stormwater Storage	Large wetland, but only some areas with ability to hold water for long periods.
Water Quality Protection	Past land use was agriculture, but it is now fallow. The area is no longer receiving pollutants/nutrients from surrounding landscape. However, part of wetland is receiving runoff from public road, acting as a roadside drainage feature.
Groundwater Processes	Surface water-driven wetland. No signs of groundwater processes. Oxidized rhizospheres are artificial due to soil compaction.

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

Additional Plant list

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Ulmus americana	American elm		PSS	
Abies balsamea	balsam fir		PSS	
**Carex scabrata*	Eastern rough sedge		PSS	
Scirpus atrovirens	dark-green bulrush		PSS	
Lotus corniculatus	bird's-foot trefoil		PSS	
Euthamia graminifolia	grass-leaved goldenrod		PSS	
**Onoclea sensibilis*	sensitive fern		PEM/PSS	
Plantago major	broadleaf plantain		PSS	
**Typha latifolia*	broadleaf cattail		PEM	
Juncus effusus	soft rush		PEM	
Persicaria sagittata	arrow-leaved tearthumb		PEM	
Lolium perenne	perennial ryegrass		PEM	

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/7/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV066e_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave
Slope (%): 5-10% Lat.: 46.356289 Long.: -90.605566 Datum: WGS 1984
Soil Map Unit Name: Gogebic silt loam, 6-18% 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 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 small PEM wetland connected to roadside ditch. Some modification of wetland by maintained road/ditch excavated near 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)
- ___ 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	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. Recent rainfall before data collection. Subsurface indicators of wetland hydrology were not observed due to the potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV066e_W

Tree Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Salix discolor*	15	Y	FACW
2				
3				
4				
5				
6				
7				
8				
9				
10				
		15	= Total Cover	

Herb Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Scirpus hattorianus*	38	Y	OBL
2	*Calamagrostis canadensis*	38	Y	OBL
3	*Carex crinita*	15	N	OBL
4	*Equisetum sylvaticum*	3	N	FACW
5	*Rubus idaeus*	3	N	FAC
6	*Juncus effusus*	3	N	OBL
7	*Mentha aquatica*	3	N	OBL
8	*Onoclea sensibilis*	3	N	FACW
9				
10				
11				
12				
13				
14				
15				
		106	= 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 Stratu WASV063e_W	0	0
Sapling/Shrub Stratum	3	8
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 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	97	x 1 =	97	
FACW species	21	x 2 =	42	
FAC species	3	x 3 =	9	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	121	(A)	148	(B)

Prevalence Index = B/A = 1.22

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)

Rapid Test indicator present; parameter is met. Prevalence Index and Dominance Test calculated for reference purposes only.

SOIL **Sampling Point:** WASV066e_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 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**)
___ 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:

No soils were sampled due to the potential for underground utilities. It was assumed soils were hydric due to presence of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV066e_W, East

Photograph 2: WASV066e_W, North

Photograph 3: WASV066e_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/7/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV066/067_U
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
Slope (%): 5-10% Lat.: 46.355906 Long.: -90.605513 Datum: WGS 1984
Soil Map Unit Name: Gogebic silt loam, 6-18% 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 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?**	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 hillslope. Data point is representative of conditions in upland habitats adjacent to both WASV066 and WASV067.

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 indicators of wetland hydrology are present; parameter is not met. Subsurface hydrologic conditions were not observed due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV066/067_U

Tree Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	63	Y	FACU
2	*Ulmus americana*	38	Y	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		101	= Total Cover	

Sapling/Shrub Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Ulmus americana*	15	Y	FACW
2	*Tilia americana*	15	Y	FACU
3	*Acer saccharum*	3	N	FACU
4				
5				
6				
7				
8				
9				
10				
		33	= Total Cover	

Herb Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Symphyotrichum lateriflorum*	15	Y	FAC
2	*Dryopteris intermedia*	15	Y	FAC
3	*Carex pedunculata*	3	N	FACU
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		33	= 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 Stratu WASV063e_W	20	51
Sapling/Shrub Stratum	7	17
Herb Stratum	7	17
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 all Strata: 6 (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	53	x 2 =	106	
FAC species	30	x 3 =	90	
FACU species	84	x 4 =	336	
UPL species	0	x 5 =	0	
Column totals	167	(A)	532	(B)

Prevalence Index = B/A = 3.19

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation

_X_ 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? Y

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

Dominance Test indicator present; parameter is met. Prevalence Index calculated for reference purposes only. Unidentified grass present in herbaceous layer at 15%.

SOIL **Sampling Point:** WASV066/067_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 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**)
___ 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 soils were sampled due to the potential for underground utilities. Soils assumed to be non-hydric due to absence of hydrology indicators and landscape position along hillside.

Photograph 1: WASV066/067_U, East

Photograph 2: WASV066/067_U, South

Photograph 3: WASV066/067_U, West

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

WETLAND IDENTIFICATION	**WASV066**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Clay Robertson
File #: N/A	Date of visit(s): 10/07/2019
Location: PLSS: 45N02W Lat: 46.35629 Long: -90.60555 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky Field Verified:	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow Wetland Size: 0.048 acres / Wetland Area Impacted: 0.048 acres
Hydrology: Roadside drainage features that are separated via a culvert for about 30 feet underneath the access road; ~1 ft standing water within WASV067. Sloping 3-5% downwards towards the east.	Vegetation: Plant Community Description(s): Roadside drainage: *Salix discolor, Scirpus cyperinus, Phalaris arundinacea*

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: **birding**
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	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	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	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	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	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	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	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.
HU3 – Roadside drainage features
WH8 & WH1 – Wetland occurs on transitional edge of contiguous forested habitat
WH4 – Wetland buffer is approximately ~60% intact.
WH10 & FA2 – ~1 foot of standing water but no aquatic species observed
WQ2 & ST1 – WASV066 constricted outlet via culvert
ST4 – Bent vegetation observed
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		Finches
	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
	X	Fish, salamanders, frogs, etc.

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)
Typha latifolia	broad-leaved cat-tail, common cat-tail	1	PEM	
Salix discolor	pussy willow	2	PEM	
Phalaris arundinacea	reed canary grass	0	PEM	
Tilia americana	American linden, basswood	5	PEM	
Epilobium ciliatum	American willow-herb, hairy willow-herb	3	PEM	
Onoclea sensibilis	sensitive fern	5	PEM	
Ulmus americana	American elm, white elm	3	PEM	
Juncus effusus	common rush, soft rush	4	PEM	
Impatiens capensis	orange jewelweed, orange touch-me-not, spotted tou	2	PEM	
Fraxinus pennsylvanica	green ash, red ash	2	PEM	
Solidago gigantea	giant goldenrod	3	PEM	
Agrimonia gryposepala	common agrimony, tall hairy agrimony	2	PEM	
Agrostis gigantea	redtop	0	PEM	
Clematis virginiana	devil's-darning-needle, virgin's-bower	4	PEM	
Hypericum majus	larger Canadian St. John's-wort	5	PEM	
Scirpus atrovirens	black bulrush, dark-green bulrush	3	PEM	
Prunella vulgaris	heal-all, lawn prunella, self-heal	1	PEM	
Symphyotrichum lateriflorum	side-flowering aster	3	PEM	
Geum canadense	white avens	2	PEM	
Carex crinita	fringed sedge	6	PEM	
Carex retrorsa	deflexed bottlebrush sedge, knot-sheath sedge, ret	6	PEM	
Ranunculus acris	common buttercup, blister plant, meadow buttercup,	0	PEM	
**Scirpus hattorianus*	mosquito bulrush		PEM	

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

Diverse assemblage of common native wetland species; dominance of *Phalaris arundinacea* in wetland.
PEM FQI =13.2, Mean C of C = 2.8

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)
X	X		M	C	Drainage – tiles, ditches
X	X		M	C	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
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		L	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
X	X		H	C	Cover of non-native and/or invasive species
	X		L	UC	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.
Roadside drainage feature, adjacent to public road and driveway – increased surface flow run-off due to impervious surfaces. Roadside maintenance (brush-hogging, mowing) keeps wetland as a PEM feature.

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	Reed canary grass is dominant within wetland; tree strata removed, and herbaceous vegetation mowed during routine roadside maintenance.
Human Use Values	Use as a roadside drainage feature precludes use for recreation.
Wildlife Habitat	On transitional edge of contiguous forest; wetland itself unlikely to be highly utilized by wildlife.
Fish and Aquatic Life Habitat	Standing water could be used by frogs, fish, salamanders.
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland receives stormwater run-off from road and surrounding landscape.
Water Quality Protection	Wetland is capturing pollutants from public road.
Groundwater Processes	No signs of groundwater processes.

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

Additional Plant Species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Calamagrostis canadensis*	bluejoint grass		PEM	
Equisetum sylvaticum	wood horsetail		PEM	
Rubus idaeus	red raspberry		PEM	
Mentha aquatica	water mint		PEM	

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/7/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV067e_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave
Slope (%): 5-10% Lat.: 46.356289 Long.: -90.60532 Datum: WGS 1984
Soil Map Unit Name: Gogebic silt loam, 6-18% 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 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 small PEM wetland connected to roadside ditch. Some modification of wetland by maintained road/ditch excavated near 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)
- ___ 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	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. Recent rainfall before data collection. No subsurface indicators of wetland hydrology were investigated due to the potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV067e_W

Tree Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Salix discolor*	15	Y	FACW
2				
3				
4				
5				
6				
7				
8				
9				
10				
		15	= Total Cover	

Herb Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Scirpus hattorianus*	38	Y	OBL
2	*Calamagrostis canadensis*	38	Y	OBL
3	*Carex crinita*	15	N	OBL
4	*Equisetum sylvaticum*	3	N	FACW
5	*Rubus idaeus*	3	N	FAC
6	*Juncus effusus*	3	N	OBL
7	*Mentha canadensis*	3	N	OBL
8	*Onoclea sensibilis*	3	N	FACW
9				
10				
11				
12				
13				
14				
15				
		106	= 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 Stratu WASV063e_W	0	0
Sapling/Shrub Stratum	3	8
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 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	97	x 1 =	97	
FACW species	21	x 2 =	42	
FAC species	3	x 3 =	9	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	121	(A)	148	(B)

Prevalence Index = B/A = 1.22

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)

Rapid Test indicator present; parameter is met. Prevalence Index and Dominance Test calculated for reference purposes only.

SOIL **Sampling Point:** WASV067e_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 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**)
___ 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:

No soils were sampled due to the potential for underground utilities. It was assumed soils were hydric due to presence of hydrology indicators and hydrophytic vegetation.

Photograph 1: WASV067e_W, West

Photograph 2: WASV067e_W, North

Photograph 3: WASV067e_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/7/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV066/067_U
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
Slope (%): 5-10% Lat.: 46.355906 Long.: -90.605513 Datum: WGS 1984
Soil Map Unit Name: Gogebic silt loam, 6-18% 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 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?**	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 hillslope. Data point is representative of conditions in upland habitats adjacent to both WASV066 and WASV067.

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 indicators of wetland hydrology are present; parameter is not met. Subsurface hydrologic conditions were not observed due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV066/067_U

Tree Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	63	Y	FACU
2	*Ulmus americana*	38	Y	FACW
3				
4				
5				
6				
7				
8				
9				
10				
		101	= Total Cover	

Sapling/Shrub Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Ulmus americana*	15	Y	FACW
2	*Tilia americana*	15	Y	FACU
3	*Acer saccharum*	3	N	FACU
4				
5				
6				
7				
8				
9				
10				
		33	= Total Cover	

Herb Stratum	Plot Size (5' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Symphyotrichum lateriflorum*	15	Y	FAC
2	*Dryopteris intermedia*	15	Y	FAC
3	*Carex pedunculata*	3	N	FACU
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		33	= 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 Stratu WASV063e_W	20	51
Sapling/Shrub Stratum	7	17
Herb Stratum	7	17
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 all Strata: 6 (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	53	x 2 =	106	
FAC species	30	x 3 =	90	
FACU species	84	x 4 =	336	
UPL species	0	x 5 =	0	
Column totals	167	(A)	532	(B)

Prevalence Index = B/A = 3.19

Hydrophytic Vegetation Indicators:

___ Rapid test for hydrophytic vegetation

_X_ 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? Y

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

Dominance Test indicator present; parameter is met. Prevalence Index calculated for reference purposes only. Unidentified grass present in herbaceous layer at 15%.

SOIL **Sampling Point:** WASV066/067_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 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**)
___ 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 soils were sampled due to the potential for underground utilities. Soils assumed to be non-hydric due to absence of hydrology indicators and landscape position along hillside.

Photograph 1: WASV066/067_U, East

Photograph 2: WASV066/067_U, South

Photograph 3: WASV066/067_U, West

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

WETLAND IDENTIFICATION	**WASV067**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Clay Robertson
File #: N/A	Date of visit(s): 10/07/2019
Location: PLSS: 45N02W Lat: 46.35629 Long: -90.60555 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky Field Verified:	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow Wetland Size: 0.042 acres / Wetland Area Impacted: 0.042 acres Vegetation: Plant Community Description(s): Roadside drainage: *Salix discolor, Scirpus cyperinus, Phalaris arundinacea*
Hydrology: Roadside drainage features that are separated via a culvert for about 30 feet underneath the access road; ~1 ft standing water within WASV067. Sloping 3-5% downwards towards the east.	

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: **birding**
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	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	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	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	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	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	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	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)

HU3 – Roadside drainage features
WH8 & WH1 – Wetland occurs on transitional edge of contiguous forested habitat
WH4 – Wetland buffer is approximately ~60% intact.
WH10 & FA2 – ~1 foot of standing water but no aquatic species observed
WQ2 & ST1 – WASV066 constricted outlet via culvert
ST4 – Bent vegetation observed

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		Finches
	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
	X	Fish, salamanders, frogs, etc.

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)
Typha latifolia	broad-leaved cat-tail, common cat-tail	1	PEM	
Salix discolor	pussy willow	2	PEM	
Phalaris arundinacea	reed canary grass	0	PEM	
Tilia americana	American linden, basswood	5	PEM	
Epilobium ciliatum	American willow-herb, hairy willow-herb	3	PEM	
Onoclea sensibilis	sensitive fern	5	PEM	
Ulmus americana	American elm, white elm	3	PEM	
Juncus effusus	common rush, soft rush	4	PEM	
Impatiens capensis	orange jewelweed, orange touch-me-not, spotted tou	2	PEM	
Fraxinus pennsylvanica	green ash, red ash	2	PEM	
Solidago gigantea	giant goldenrod	3	PEM	
Agrimonia gryposepala	common agrimony, tall hairy agrimony	2	PEM	
Agrostis gigantea	redtop	0	PEM	
Clematis virginiana	devil's-darning-needle, virgin's-bower	4	PEM	
Hypericum majus	larger Canadian St. John's-wort	5	PEM	
Scirpus atrovirens	black bulrush, dark-green bulrush	3	PEM	
Prunella vulgaris	heal-all, lawn prunella, self-heal	1	PEM	
Symphyotrichum lateriflorum	side-flowering aster	3	PEM	
Geum canadense	white avens	2	PEM	
Carex crinita	fringed sedge	6	PEM	
Carex retrorsa	deflexed bottlebrush sedge, knot-sheath sedge, ret	6	PEM	
Ranunculus acris	common buttercup, blister plant, meadow buttercup,	0	PEM	
**Scirpus hattorianus*	mosquito bulrush		PEM	

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

Diverse assemblage of common native wetland species; dominance of *Phalaris arundinacea* in wetland.
PEM FQI =13.2, Mean C of C = 2.8

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)
X	X		M	C	Drainage – tiles, ditches
X	X		M	C	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
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		L	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
X	X		H	C	Cover of non-native and/or invasive species
	X		L	UC	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.
Roadside drainage feature, adjacent to public road and driveway – increased surface flow run-off due to impervious surfaces. Roadside maintenance (brush-hogging, mowing) keeps wetland as a PEM feature.

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	Reed canary grass is dominant within wetland; tree strata removed, and herbaceous vegetation mowed during routine roadside maintenance.
Human Use Values	Use as a roadside drainage feature precludes use for recreation.
Wildlife Habitat	On transitional edge of contiguous forest; wetland itself unlikely to be highly utilized by wildlife.
Fish and Aquatic Life Habitat	Standing water could be used by frogs, fish, salamanders.
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland receives stormwater run-off from road and surrounding landscape.
Water Quality Protection	Wetland is capturing pollutants from public road.
Groundwater Processes	No signs of groundwater processes.

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

Additional Plant Species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Calamagrostis canadensis*	bluejoint grass		PEM	
Equisetum sylvaticum	wood horsetail		PEM	
Rubus idaeus	red raspberry		PEM	
Mentha canadensis	American wild mint		PEM	

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/1/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV052s_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 5-10% Lat.: 46.356259 Long.: -90.598967 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 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 partially ditched PSS wetland that connects to WASV052e and flows north. Recent rainfall at time of survey.

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)
- ___ 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	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. Note: Subsurface hydrology indicators were not identified due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV052s_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	*Salix discolor*	38	Y	FACW
2	*Fraxinus pennsylvanica*	38	Y	FACW
3	*Fraxinus nigra*	3	N	FACW
4				
5				
6				
7				
8				
9				
10				
		79	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*	38	Y	OBL
2	*Equisetum pratense*	15	Y	FACW
3	*Rubus idaeus*	15	Y	FAC
4	*Agrimonia striata*	3	N	FACU
5	*Onoclea sensibilis*	3	N	FACW
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		74	= 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	16	40
Herb Stratum	15	37
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 all Strata: 5 (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	97	x 2 =	194
FAC species	15	x 3 =	45
FACU species	3	x 4 =	12
UPL species	0	x 5 =	0
Column totals	153 (A)		289 (B)

Prevalence Index = B/A = 1.89

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)

Rapid Test is present; parameter is met. Prevalence Index and Dominance Test calculated for reference purposes only.

SOIL **Sampling Point:** WASV052s_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 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**)
___ 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:

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: WASV052s_W, East

Photograph 2: WASV052s_W, South

Photograph 3: WASV052s_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/1/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV052e_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Roadside swale
Slope (%): 5-10% Lat.: 46.356404 Long.: -90.599176 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 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 within roadside drainage feature. This portion of the wetland is regularly mowed as a part of roadside maintenance. PEM is culverted underneath county road. PSS component drains into PEM feature.

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)
- X 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):	___
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:
Primary and secondary indicators of wetland hydrology are present; parameter is met. Green frogs present in wetland. Note: Subsurface hydrology indicators were not identified due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV052e_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' x 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*	63	Y	OBL
2	*Scirpus hattorianus*	38	Y	OBL
3	*Onoclea sensibilis*	15	N	FACW
4	*Juncus effusus*	15	N	OBL
5	*Persicaria sagittata*	3	N	OBL
6	*Rubus idaeus*	3	N	FAC
7	*Equisetum pratense*	3	N	FACW
8				
9				
10				
11				
12				
13				
14				
15				
		140	= 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	28	70
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: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	119	x 1 =	119	
FACW species	18	x 2 =	36	
FAC species	3	x 3 =	9	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	140	(A)	164	(B)

Prevalence Index = B/A = 1.17

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)

Rapid Test is present; parameter is met. Prevalence Index and Dominance Test calculated for reference purposes only.

SOIL **Sampling Point:** WASV052e_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 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**)
___ 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:

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: WASV052e_W, East

Photograph 2: WASV052e_W, South

Photograph 3: WASV052e_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/30/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV052_U
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
Slope (%): 5-8% Lat.: Long.: Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 18-35% 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 data point representative of conditions in fallow pasture adjacent to wetland WASV052.

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 indicators of wetland hydrology are present; parameter is not met. Subsurface hydrologic conditions were not observed due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV052_U

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	*Festuca rubra*	63	Y	FACU
2	*Solidago gigantea*	15	N	FACW
3	*Rubus idaeus*	15	N	FAC
4	*Symphyotrichum lateriflorum*	5	N	FAC
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		98	= 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	20	49
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 all Strata: 1 (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	15	x 2 =	30	
FAC species	20	x 3 =	60	
FACU species	63	x 4 =	252	
UPL species	0	x 5 =	0	
Column totals	98	(A)	342	(B)

Prevalence Index = B/A = 3.49

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 indicators present; parameter is not met.

SOIL **Sampling Point:** WASV052_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 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**)
___ 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 soils taken due to potential for underground utilities. Soils assumed to be non-hydric due to absence of hydrology indicators and dominance of upland vegetation.

Photograph 1: WASV052_U, East

Photograph 2: WASV052_U, South

Photograph 3: WASV052_U, West

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

WETLAND IDENTIFICATION	**WASV052**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Clay Robertson
File #: N/A	Date of visit(s): 10/1/2019
Location: PLSS: 45N02W Lat: 46.356404 Long: -90.599176 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky Field Verified: No ground disturbance allowed due to potential for underground utilities.	WWI Class: Unmapped Wetland Type(s): Shrub-Carr, Fresh (Wet) Meadow Wetland Size: 0.319 acres / Wetland Area Impacted: 0.319 acres
Hydrology: Roadside drainage feature. SASV015e flows through wetland and is culverted under road, water enters WASV053. All water draining north under road, 5-8% slopes. SASV015e is a naturalized ditch located alongside a rock wall and PSS component surrounds either side of stream. Surface water-driven wetland capturing run-off from gravel road and fallow pasture.	Vegetation: Plant Community Description(s): PSS (roadside drainage feature): *Fraxinus nigra, Salix bebbiana, Alnus incana* PEM: *Scirpus cyperinus, Phalaris arundinacea, Carex crinita*

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	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	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	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	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	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)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
HU3: Roadside drainage portion of wetland is visible from road, but PSS acts as a visual screen to rest of wetland.
WH2: Tree strata present but at less than 30% cover.
FA1: Wetland is connected to an ephemeral stream.
SP: Not evaluated because the ephemeral stream is a naturalized ditch feature.
WA3 & ST1: Wetland is culverted underneath road.
ST2: 1' wide x 1' deep channel
WQ7: Wetland receives surface water run-off from a fallow field.

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		Common Raven
	X	Songbirds
X		Blue Jay

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)
Agrimonia gryposepala	common agrimony, tall hairy agrimony	2	PEM	
**Scirpus cyperinus*	wool-grass	4	PEM/PSS	
**Scirpus hattorianus*	early dark-green bulrush, mosquito bulrush	3	PEM	
Juncus effusus	common rush, soft rush	4	PEM	
Salix bebbiana	beaked willow, Bebb's willow	7	PSS	
Prunella vulgaris	heal-all, lawn prunella, self-heal	1	PEM	
Symphyotrichum lateriflorum	side-flowering aster	3	PEM/PSS	
Agrostis perennans	autumn bent grass, thin grass, upland bent grass	4	PEM	
Solidago gigantea	giant goldenrod	3	PEM/PSS	
Lotus corniculatus	bird's-foot deer-vetch, bird's-foot trefoil	0	PEM	
Plantago lanceolata	English plantain, narrow-leaved plantain, plantain	0	PEM	
Euthamia graminifolia	common flat-topped goldenrod, grass-leaved goldenrod	4	PEM	
**Onoclea sensibilis*	sensitive fern	5	PSS/PEM	
**Equisetum pratense*	meadow horsetail	9	PSS/PEM	
**Alnus incana*	speckled alder	4	PSS	
Doellingeria umbellata	flat-top aster, parasol aster, tall flat-topped white aster	6	PEM	
Phalaris arundinacea	reed canary grass	0	PEM	
**Fraxinus nigra*	black ash	8	PSS	
**Carex crinita*	fringed sedge	6	PSS/PEM	
Athyrium filix-femina	common lady fern, lady fern	5	PSS	
Clematis virginiana	devil's-darning-needle, virgin's-bower	4	PSS	
Glyceria striata	fowl manna grass, fowl meadow grass	4	PSS	
Rubus pubescens	dwarf red raspberry	7	PSS	
Epilobium ciliatum	American willow-herb, hairy willow-herb	3	PSS	
**Salix discolor*	American pussy willow		PSS	
**Fraxinus pennsylvanica*	green ash		PSS	
**Rubus idaeus*	red raspberry		PSS/PEM	
Agrimonia striata	roadside agrimony		PSS	
Persicaria sagittata	arrow-leaved tearthumb		PEM	

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

PEM FQI=19.6, Mean C of C = 4.0
PSS FQI = 22.8, Mean C of C = 5.1

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	X		M	UC	Drainage – tiles, ditches
X	X		M	C	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
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
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)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
Wetland is in part a roadside drainage feature and a naturalized ditch.
Wetland experiences increased runoff from road.
Phalaris arundinacea at 10% is herbaceous layer.
Tree and sapling/shrub strata missing in PEM portion due to roadside maintenance.

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 due to maintenance of roadside drainage feature. Invasive exotic species in PEM component.
Human Use Values	Wetland is located on private property and its roadside drainage function makes human recreational use of this area unlikely.
Wildlife Habitat	PSS portion provides some structure for songbirds; only edge habitat species observed; no connection to larger natural landscape because of road.
Fish and Aquatic Life Habitat	No standing water at time of survey, but stream supports aquatic habitats.
Shoreline Protection	N/A
Flood and Stormwater Storage	Roadside drainage feature acting to capture surface water run-off; however, water quickly passes through the wetland and underneath the road to WASV053.
Water Quality Protection	Wetland is capturing pollutants from roadside and fallow agricultural field.
Groundwater Processes	No signs of groundwater processes; surface water-driven. Subsurface indicators of hydrology not investigated due to 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: 10/1/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV053f_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Drainageway/Basin Local relief (concave, convex, none): Concave
Slope (%): 10-15% Lat.: 46.356707 Long.: -90.599686 Datum: WGS 1984
Soil Map Unit Name Tula-Gogebic complex, 0-6% slopes, 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 PFO wetland system receiving surface water runoff from WASV052, which is culverted underneath a county road into this wetland. Portions of wetland impacted by recent logging activities.

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)
- X Water-Stained Leaves (B9)
- X 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):	
Water table present?	Yes	X	No		Depth (inches):	surface
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. Frogs present in wetland.

VEGETATION - Use scientific names of plants

Sampling Point: WASV053f_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Tilia americana*	63	Y	FACU
2	*Fraxinus nigra*	63	Y	FACW
3	*Betula alleghaniensis*	15	N	FAC
4				
5				
6				
7				
8				
9				
10				
		141	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	63	Y	FACW
2	*Acer saccharum*	15	N	FACU
3	*Tilia americana*	15	N	FACU
4	*Betula alleghaniensis*	15	N	FAC
5	*Quercus rubra*	3	N	FACU
6	*Fraxinus pennsylvanica*	3	N	FACW
7				
8				
9				
10				
		114	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*	38	Y	OBL
2	*Persicaria sagittata*	38	Y	OBL
3	*Juncus effusus*	15	N	OBL
4	*Osmunda cinnamomea*	15	N	FACW
5	*Equisetum sylvaticum*	15	N	FACW
6	*Onoclea sensibilis*	3	N	FACW
7	*Polystichum braunii*	1	N	FACU
8				
9				
10				
11				
12				
13				
14				
15				
		125	= 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	28	71
Sapling/Shrub Stratum	23	57
Herb Stratum	25	62
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 all Strata: 5 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 80.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	91	x 1 =	91	
FACW species	162	x 2 =	324	
FAC species	30	x 3 =	90	
FACU species	96	x 4 =	384	
UPL species	0	x 5 =	0	
Column totals	379	(A)	889	(B)

Prevalence Index = B/A = 2.35

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)

Rapid Test is present; parameter is met. Prevalence Index and Dominance Test calculated for reference purposes only. Single occurrence of the state listed threatened fern, *Polystichum braunii* (S3).

SOIL **Sampling Point:** WASV053f_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
0-10	7.5YR 2.5/1	90	5YR 4/6	10	C	PL/M	Gravely Loam	
10-18	7.5YR 4/1	90	5YR 4/6	10	C	M	Gravely 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)
_X_ 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**)
___ 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 Below Dark Surface (A11) is present; parameter is met.

Photograph 1: WASV053f_W, East

Photograph 2: WASV053f_W, South

Photograph 3: WASV053f_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/1/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV053e_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave
Slope (%): 10-15% Lat.: 46.356726 Long.: -90.59978 Datum: WGS 1984
Soil Map Unit Name Tula-Gogebic complex, 0-6% slopes, 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 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 timber-cleared path used for logging activities. Logs placed as a mat across wettest portions of wetland.

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)
- 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	X	No		Depth (inches):	Surface
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: WASV053e_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	*Carex crinita*	38	Y	OBL
2	*Persicaria sagittata*	15	Y	OBL
3	*Impatiens capensis*	15	Y	FACW
4	*Glyceria striata*	15	Y	OBL
5	*Rumex crispus*	3	N	FAC
6	*Typha latifolia*	3	N	OBL
7				
8				
9				
10				
11				
12				
13				
14				
15				
		89	= 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	18	45
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 all Strata: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	71	x 1 =	71	
FACW species	15	x 2 =	30	
FAC species	3	x 3 =	9	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	89	(A)	110	(B)

Prevalence Index = B/A = 1.24

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)

Rapid Test is present; parameter is met. Prevalence Index and Dominance Test calculated for reference purposes only.

SOIL **Sampling Point:** WASV053e_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
0-7	7.5YR 2.5/1	98	5YR 4/6	2	C	PL	Clay Loam	
7-18	7.5YR 4/1	95	5YR 4/6	5	C	M	Clay 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)
_X_ 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**)
___ 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 Below Dark Surface (A11) is present; parameter is met.

Photograph 1: WASV053e_W, East

Photograph 2: WASV053e_W, South

Photograph 3: WASV053e_W, North

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/01/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV053/054_U
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
Slope (%): 10-15% Lat.: 46.357283 Long.: -90.59961 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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.)

Data point located within a regenerative mixed hardwood stand representative of uplands between WASV053 and WASV054.

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 indicators of wetland hydrology are present; parameter is not met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV053/054_U

Tree Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula alleghaniensis*	38	Y	FAC
2	*Acer saccharum*	15	Y	FACU
3	*Abies balsamea*	5	N	FAC
4	*Tilia americana*	3	N	FACU
5				
6				
7				
8				
9				
10				
		61	= Total Cover	

Sapling/Shrub Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula alleghaniensis*	63	Y	FAC
2	*Abies balsamea*	5	N	FAC
3	*Acer saccharum*	3	N	FACU
4	*Dirca palustris*	1	N	FAC
5				
6				
7				
8				
9				
10				
		72	= Total Cover	

Herb Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex pedunculata*	63	Y	FACU
2	*Mitchella repens*	15	N	FACU
3	*Pyrola americana*	3	N	FAC
4	*Trientalis borealis*	3	N	FAC
5	*Athyrium filix-femina*	1	N	FAC
6	*Fraxinus nigra*	1	N	FACW
7	*Dryopteris intermedia*	1	N	FAC
8	*Acer saccharum*	0.5	N	FACU
9				
10				
11				
12				
13				
14				
15				
		87.5	= Total Cover	

Woody Vine Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	12	31
Sapling/Shrub Stratum	14	36
Herb Stratum	18	44
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	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	120	x 3 =	360
FACU species	99.5	x 4 =	398
UPL species	0	x 5 =	0
Column totals	220.5 (A)		760 (B)

Prevalence Index = B/A = 3.45

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 indicators of hydrophytic vegetation present; parameter is not met.

SOIL **Sampling Point:** WASV053/054_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
0-8	7.5YR 3/3	100					Silty Loam	
8-10	7.5YR 3/3	60	7.5YR 4/6	40			Silty Loam	mixed matrix
10-18	7.5YR 3/4	100					Silty 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)
___ 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 hydric soil indicators present and soil does not meet NTCHS definition of hydric soil; parameter is not met.

Photograph 1: WASV053/054_U, East

Photograph 2: WASV053/054_U, South

Photograph 3: WASV053/054_U, West

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

WETLAND IDENTIFICATION	**WASV053**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Clay Robertson
File #: N/A	Date of visit(s): 10/1/2019
Location: PLSS: 45N02W Lat: 46.356726 Long: -90.59978 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky & Tula-Gogebic complex, 0-6% slopes, stony Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Hardwood Swamp, Fresh (Wet) Meadow Wetland Size: 0.693 acres / Wetland Area Impacted: 0.693 acres
Hydrology: WASV053 is a headwater wetland & floodplain to SASV016. Geomorphic position, Fac neutral, saturated at surface, water table at surface, rained morning prior to surveys. No standing water. One small area with *Typha* spp. may hold water for periods of time.	Vegetation: Plant Community Description(s): PFO: *Fraxinus nigra, Betula alleghaniensis, Carex crinita* PEM: *Carex crinita, Osmunda cinnamomea, Persicaria sagittata*

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	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	Y	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	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	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	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	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.
HU3: Roadside drainage portion visible from road, but PFO not readily visible.
HU6: *Polystichum braunii* observed on wetland edge.
WH10: One small portion of wetland with *Typha* spp. potentially holds water for short periods of time.
FA1: Stream is intermittent.
WQ3 & ST2: Stream SASV016 is 3 feet wide x 1 foot deep. Some secondary drainage patterns present throughout wetland.
GW2: Portion of WASV053f acts as headwater 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		Deer browse on plants
X		Green frog
	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
	X	There is habitat for aquatic life in the stream, but not in the wetland itself. A small portion of the wetland with *Typha* may hold water for short 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	
**Carex crinita*	fringed sedge	6	PFO	
Equisetum pratense	meadow horsetail	9	PFO	
**Tilia americana*	American linden, basswood	5	PFO	
Betula alleghaniensis	yellow birch	7	PFO	
Acer saccharum	hard maple, sugar maple	5	PFO	
Abies balsamea	balsam fir	5	PFO	
Polystichum braunii	Braun's holly fern	10	PEM/PFO	(S3) state listed
Viburnum trilobum	American cranberry-bush, cranberry viburnum, high-bush cranberry	6	PFO	
Osmunda cinnamomea	cinnamon fern	7	PFO/PEM	
Symphyotrichum lateriflorum	side-flowering aster	3	PFO/PEM	
Carex scabrata	eastern rough sedge	8	PFO	
Symphyotrichum puniceum	swamp aster	5	PEM/PFO	
Onoclea sensibilis	sensitive fern	10	PFO	
Calamagrostis canadensis	blue-joint grass	5	PFO	
Athyrium filix-femina	common lady fern, lady fern	5	PFO/PEM	
**Glyceria striata*	fowl manna grass, fowl meadow grass	4	PEM	
Juncus effusus	common rush, soft rush	4	PFO	
Geum canadense	white avens	2	PFO	
Myosotis scorpioides	common forget-me-not, forget-me-not, true forget-m	0	PFO	
Ulmus americana	American elm, white elm	3	PFO	
Equisetum sylvaticum	wood horsetail, woodland horsetail	7	PFO	
Rubus pubescens	dwarf red raspberry	7	PFO	
Dryopteris intermedia	fancy wood fern, glandular wood fern, intermediate	7	PFO	
**Impatiens capensis*	orange jewelweed, orange touch-me-not, spotted tou	2	PFO/PEM	
Carex plantaginea	plantain-leaved sedge, plantain-leaved wood sedge	10	PFO/PEM	
Epilobium ciliatum	American willow-herb, hairy willow-herb	3	PFO/PEM	
Typha latifolia	broad-leaved cat-tail, common cat-tail	1	PEM	
**Persicaria sagittata*	arrow-leaved tearthumb, arrow vine	6	PFO/PEM	
Campanula rapunculoides	creeping bellflower, European bellflower, rampion	0	PEM	
Eutrochium maculatum	spotted Joe-Pye-weed	4	PEM	
Carex retrorsa	deflexed bottlebrush sedge, knot-sheath sedge, ret	6	PFO	

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	UC	Point source or stormwater discharge
					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
					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
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)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site
Culvert feeds stormwater runoff from roadside drainage into wetland.
Small portion of wetland (~40-50 ft) cleared as logging access.
Low levels of invasive species in wetland.

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	There is some disturbance (cleared PEM portion of young woods that are regenerating), but discovery of S3 State Threatened species along wetland boundary indicate floristic integrity is high.
Human Use Values	Wetland is visible from road, but forested part of wetland complex acts as a screen.
Wildlife Habitat	Signs of deer throughout wetland; songbirds heard chattering; part of large block of forested land.
Fish and Aquatic Life Habitat	No standing water at time of survey; only one small portion wetland is likely to hold water for any amount of time.
Shoreline Protection	WASV053 helps protect SASV016 from erosion because of dense vegetation along majority of streambank.
Flood and Stormwater Storage	WASV053 acts in part as floodplain to SASV016. Wetland captures surface water run-off from surrounding landscape.
Water Quality Protection	Wetland is receiving surface water runoff from road and roadside drainage, and is also potentially capturing pollutants from logging operations.
Groundwater Processes	Signs of groundwater processes include position as a headwater wetland and saturation and water table at the 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	Impacts to single occurrence of *Polystichum braunii*, Braun's holly fern (S3)	H

Additional Plant list

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Quercus rubra	Northern red oak		PFO	
Fraxinus pennsylvanica	green ash		PFO	
Rumex crispus	curly dock		PEM	

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/1/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV054f_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Bench Local relief (concave, convex, none): Concave
Slope (%): 10-15% Lat.: 46.35733 Long.: -90.598961 Datum: WGS 1984
Soil Map Unit Name Tula-Gogebic complex, 0-6% slopes, 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 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 within a floodplain forest bench to SASV013. Data point taken adjacent to intermittent reach, but stream becomes perennial where PEM/PFO break occurs.

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)
- 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:

Two or more secondary indicators of wetland hydrology are present; parameter is met. Subsurface hydrology indicators were not identified due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV054f_W

Tree Stratum (Plot Size (30' radius))	Absolute % Cover	Dominant Species	Indicator Status
1 *Betula alleghaniensis*	38	Y	FAC
2 *Acer saccharum*	15	Y	FACU
3 *Abies balsamea*	5	N	FAC
4 *Ulmus americana*	3	N	FACW
5 *Fraxinus nigra*	1	N	FACW
6			
7			
8			
9			
10			
	62	= Total Cover	

Sapling/Shrub Stratum (Plot Size (30' radius))	Absolute % Cover	Dominant Species	Indicator Status
1 *Betula alleghaniensis*	5	Y	FAC
2 *Acer saccharum*	3	Y	FACU
3 *Abies balsamea*	1	N	FAC
4 *Fraxinus nigra*	0.5	N	FACW
5			
6			
7			
8			
9			
10			
	9.5	= Total Cover	

Herb Stratum (Plot Size (15' radius))	Absolute % Cover	Dominant Species	Indicator Status
1 *Equisetum pratense*	15	Y	FACW
2 *Equisetum sylvaticum*	15	Y	FACW
3 *Athyrium filix-femina*	5	N	FAC
4 *Osmunda cinnamomea*	1	N	FACW
5 *Abies balsamea*	1	N	FAC
6 *Carex crinita*	1	N	OBL
7 *Acer saccharum*	0.5	N	FACU
8 *Fraxinus nigra*	0.5	N	FACW
9 *Solidago flexicaulis*	0.5	N	FACU
10 *Symphyotrichum lateriflorum*	0.5	N	FAC
11			
12			
13			
14			
15			
	40	= 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	12	31
Sapling/Shrub Stratum	2	5
Herb Stratum	8	20
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 all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 66.67% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	1	x 1 =	1
FACW species	36	x 2 =	72
FAC species	55.5	x 3 =	166.5
FACU species	19	x 4 =	76
UPL species	0	x 5 =	0
Column totals	111.5 (A)		315.5 (B)

Prevalence Index = B/A = 2.83

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)

Rapid Test is present; parameter is met. Prevalence Index and Dominance Test calculated for reference purposes only.

SOIL **Sampling Point:** WASV054f_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 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**)
___ 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:

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: WASV054f_W, East

Photograph 2: WASV054f_W, West

Photograph 3: WASV054f_W, North

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/1/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV054e_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave
Slope (%): 10-15% Lat.: 46.357394 Long.: -90.599558 Datum: WGS 1984
Soil Map Unit Name Tula-Gogebic complex, 0-6% slopes, 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 area cleared for logging access. Woody debris placed as mats across wettest portions of wetland.

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)
- X 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	X	No	____	Depth (inches):	surface
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: WASV054e_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	*Tsuga canadensis*	3		FACU
2				
3				
4				
5				
6				
7				
8				
9				
10				
		3	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*	15	Y	OBL
2	*Persicaria sagittata*	15	Y	OBL
3	*Rubus idaeus*	15	Y	FAC
4	*Rumex crispus*	15	Y	FAC
5	*Carex scabrata*	15	Y	OBL
6	*Scirpus hattorianus*	15	Y	OBL
7	*Equisetum sylvaticum*	15	Y	FACW
8	*Glyceria striata*	3	N	OBL
9				
10				
11				
12				
13				
14				
15				
		108	= 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	1	2
Herb Stratum	22	54
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 all Strata: 7 (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	15	x 2 =	30
FAC species	30	x 3 =	90
FACU species	3	x 4 =	12
UPL species	0	x 5 =	0
Column totals	111 (A)		195 (B)

Prevalence Index = B/A = 1.76

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)

Rapid Test is present; parameter is met. Prevalence Index and Dominance Test calculated for reference purposes only.

SOIL **Sampling Point:** WASV054e_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	7.5YR 2.5/1	100					Silty Loam	
6-18	7.5YR 4/2	90	5YR 4/6	10	C	PL/M	Silty 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)
_X_ 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**)
___ 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 Below Dark Surface (A11) is present; parameter is met.

Photograph 1: WASV054e_W, East

Photograph 2: WASV054e_W, South

Photograph 3: WASV054e_W, North

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/01/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV053/054_U
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
Slope (%): 10-15% Lat.: 46.357283 Long.: -90.59961 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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.)

Data point located within a regenerative mixed hardwood stand representative of uplands between WASV053 and WASV054.

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 indicators of wetland hydrology are present; parameter is not met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV053/054_U

Tree Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula alleghaniensis*	38	Y	FAC
2	*Acer saccharum*	15	Y	FACU
3	*Abies balsamea*	5	N	FAC
4	*Tilia americana*	3	N	FACU
5				
6				
7				
8				
9				
10				
		61	= Total Cover	

Sapling/Shrub Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula alleghaniensis*	63	Y	FAC
2	*Abies balsamea*	5	N	FAC
3	*Acer saccharum*	3	N	FACU
4	*Dirca palustris*	1	N	FAC
5				
6				
7				
8				
9				
10				
		72	= Total Cover	

Herb Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex pedunculata*	63	Y	FACU
2	*Mitchella repens*	15	N	FACU
3	*Pyrola americana*	3	N	FAC
4	*Trientalis borealis*	3	N	FAC
5	*Athyrium filix-femina*	1	N	FAC
6	*Fraxinus nigra*	1	N	FACW
7	*Dryopteris intermedia*	1	N	FAC
8	*Acer saccharum*	0.5	N	FACU
9				
10				
11				
12				
13				
14				
15				
		87.5	= Total Cover	

Woody Vine Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	12	31
Sapling/Shrub Stratum	14	36
Herb Stratum	18	44
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	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	120	x 3 =	360
FACU species	99.5	x 4 =	398
UPL species	0	x 5 =	0
Column totals	220.5 (A)		760 (B)

Prevalence Index = B/A = 3.45

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 indicators of hydrophytic vegetation present; parameter is not met.

SOIL **Sampling Point:** WASV053/054_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
0-8	7.5YR 3/3	100					Silty Loam	
8-10	7.5YR 3/3	60	7.5YR 4/6	40			Silty Loam	mixed matrix
10-18	7.5YR 3/4	100					Silty 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)
___ 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 hydric soil indicators present and soil does not meet NTCHS definition of hydric soil; parameter is not met.

Photograph 1: WASV053/054_U, East

Photograph 2: WASV053/054_U, South

Photograph 3: WASV053/054_U, West

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

WETLAND IDENTIFICATION	**WASV054**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Clay Robertson
File #: N/A	Date of visit(s): 10/01/2019
Location: PLSS: 45N02W Lat: 46.357449 Long: -90.599841 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky and Tula-Gogebic complex, 0-6% slopes, stony Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow, Hardwood Swamp Wetland Size: 0.296 acres / Wetland Area Impacted: 0.296 acres
Hydrology: Floodplain benches to SASV013 on both left bank and right bank; Saturated at surface, water table at surface; ORCs, geomorphic position. Rain noted within 24 hours of survey. Stream flows westward with 10-15% slopes throughout wetland.	Vegetation: Plant Community Description(s): PEM: *Calamagrotis canadensis, Carex crinita, Athynum filix-femina* PFO: *Fraxinus nigra, Tsuga canadensis, Betula alleghaniensis*

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	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	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	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	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	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	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	Y	Y	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.
HU3: Roadside drainage portion of wetland is visible from road, but trees act as a screen.
HU6 – *Polystichum braunii* was observed in the adjacent stream valley.
WQ3, ST2: SASV013 is 10 feet wide by 2 feet deep.
ST4: Drift deposits observed along stream bank.
ST5: Stream SASV013 is culverted underneath access road.
WQ5, ST3, SP3: Dense vegetation is present in short pockets, but stream banks are mostly bare.
GW1: High water table, saturation at surface, ORCs
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		Deer browse on vegetation
	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 within wetland; no standing water at time of survey and wetland does not appear to hold water for significant amounts of time.
	X	Salamanders, frogs, and aquatic invertebrates; stream will support habitat for aquatic species.

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*	yellow birch	7	PFO	
Fraxinus nigra	black ash	8	PFO	
Tsuga canadensis	eastern hemlock, hemlock, northern hemlock	8	PFO	
Matteuccia struthiopteris	American ostrich fern, ostrich fern	5	PFO	
**Equisetum sylvaticum*	wood horsetail, woodland horsetail	7	PFO/PEM	
**Equisetum pratense*	meadow horsetail	9	PFO	
Athyrium filix-femina	common lady fern, lady fern	5	PFO	
**Carex crinita*	fringed sedge	6	PFO/PEM	
Dryopteris intermedia	fancy wood fern, glandular wood fern	7	PFO	
**Carex scabrata*	eastern rough sedge	8	PEM	
Solidago flexicaulis	broad-leaved goldenrod, zigzag goldenrod	6	PFO	
Mitchella repens	partridgeberry	6	PFO	
Glyceria striata	fowl manna grass, fowl meadow grass	4	PFO	
Viburnum trilobum	American cranberry-bush, cranberry viburnum, high-bush cranberry	6	PFO	
Phegopteris hexagonoptera	broad beech fern, southern beech fern	9	PFO	
Dirca palustris	eastern leatherwood, rope-bark	9	PFO	
Symphyotrichum lateriflorum	side-flowering aster	3	PFO	
Geum canadense	white avens	2	PFO	
Carex intumescens	greater bladder sedge, shining bur sedge, swollen	5	PFO	
Persicaria hydropiper	marsh-pepper smartweed, water-pepper	0	PFO	
Calamagrostis canadensis	blue-joint grass	5	PFO	
Hieracium aurantiacum	devil's-paintbrush, grim-the-collier, orange hawkweed	0	PFO	
**Persicaria sagittata*	arrow-leaved tearthumb, arrow vine	6	PEM	
Scirpus cyperinus	wool-grass	4	PFO	
Ulmus americana	American elm, white elm	3	PFO	
Osmunda cinnamomea	cinnamon fern	7	PFO	
Veronica officinalis	common gypsy-weed, common speedwell, speedwell	0	PFO	
Osmunda claytoniana	interrupted fern	6	PFO	
Scutellaria galericulata	common skullcap, marsh skullcap	5	PFO	

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

Extra plant list attached below. Tree and sapling/shrub strata missing in PEM portion of wetland complex.
PFO FQI = 28.9, Mean C of C = 5.2

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		L	UC	Point source or stormwater discharge
					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
					Removal of herbaceous stratum – mowing, grading, earthworms, etc.
X	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)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
Stream SASV013 culverted underneath road; captures surface water via road drainage feature on east side of road.
Logging road put log mats across wetland and created PEM portion.
Young and regenerating woods; Logging occurred in past. Observed stream erosion could have occurred at that time.

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	Good diversity of common native species; tree and sapling/shrub strata are missing from the PEM component of the wetland.
Human Use Values	Wetland is located on private property that is used for timber. Current land use makes it unlikely to be used for human recreation.
Wildlife Habitat	Wetland is along transitional edge of contiguous wooded habitat. Portions of the habitat have been recently logged.
Fish and Aquatic Life Habitat	No standing water in wetland and wetland does not appear to hold water for significant amounts of time. Stream crossing through wetland would provided habitat for aquatic life.
Shoreline Protection	Roots from trees and trees themselves protect streambank, but there are signs of past erosion.
Flood and Stormwater Storage	Wetland is floodplain to SASV013 and receives overbank flow; but wetland would not hold water for significant periods of time.
Water Quality Protection	Wetland is receiving stormwater runoff from the roadside and potentially pollutants associated with logging operations.
Groundwater Processes	Signs of groundwater processes are present: oxidized rhizospheres, saturation at surface, and high water table.

Additional Plant list

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

Additional Plant list

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Rumex obtusifolius	*bitter dock*	0	PEM/PFO	
**Acer saccharum*	*hard maple, sugar maple*	5	PEM/PFO	
Abies balsamea	*balsam fir*		PFO	
**Rubus idaeus*	*red raspberry*		PEM	
**Rumex crispus*	*curly dock*		PEM	
**Scirpus hattorianus*	*mosquito bulrush*		PEM	

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/1/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV055f_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave
Slope (%): 3-5% Lat.: 46.35836 Long.: -90.599349 Datum: WGS 1984
Soil Map Unit Name Tula-Gogebic complex, 0-6% slopes, 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 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 a mixed deciduous/coniferous stand. Broad headwater wetland within the study area, draining northwest to a larger complex just off-site.

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)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- X 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	X	No	___	Depth (inches): surface
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: WASV055f_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula alleghaniensis*	38	Y	FAC
2	*Acer saccharum*	15	Y	FACU
3	*Fraxinus pennsylvanica*	3	N	FACW
4				
5				
6				
7				
8				
9				
10				
		56	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus pennsylvanica*	85	Y	FACW
2	*Betula alleghaniensis*	15	N	FAC
3				
4				
5				
6				
7				
8				
9				
10				
		100	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Rubus idaeus*	63	Y	FAC
2	*Tsuga canadensis*	15	N	FACU
3	*Fraxinus pennsylvanica*	3	N	FACW
4	*Athyrium filix-femina*	3	N	FAC
5	*Viola sororia*	3	N	FAC
6	*Equisetum sylvaticum*	3	N	FACW
7				
8				
9				
10				
11				
12				
13				
14				
15				
		90	= 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	11	28
Sapling/Shrub Stratum	20	50
Herb Stratum	18	45
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	94	x 2 =	188
FAC species	122	x 3 =	366
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column totals	246 (A)		674 (B)

Prevalence Index = B/A = 2.74

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)

Rapid Test is present; parameter is met. Prevalence Index and Dominance Test calculated for reference purposes only.

SOIL **Sampling Point:** WASV055f_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
0-16	7.5YR 2.5/1	80	2.5YR 3/2	15	C	M	Silty Loam	
			5YR 4/6	5	C	PL		Auger refusal at 16 inches

*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)
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): 16

Hydric soil present? Y

Remarks:
Indicator Redox Dark Surface is present; parameter is met. Auger refusal at 16 inches due to rock.

Photograph 1: WASV055f_W, East

Photograph 2: WASV055f_W, West

Photograph 3: WASV055f_W, North

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/1/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV055e_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 3-5% Lat.: 46.357817 Long.: -90.598536 Datum: WGS 1984
Soil Map Unit Name: Tula-Gogebic complex, 0-6% slopes, 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 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 a roadside drainage feature connected to a larger forested wetland system.

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)
- ___ 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:

Primary and secondary indicators of wetland hydrology are present; parameter is met. Subsurface hydrology indicators were not identified due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV055e_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 (10'x20')	Absolute % Cover	Dominant Species	Indicator Status
1	*Calamagrostis canadensis*	63	Y	OBL
2	*Scirpus cyperinus*	15	N	OBL
3	*Rubus pubescens*	5	N	FACW
4	*Pteridium aquilinum*	5	N	FACU
5	*Carex crinita*	5	N	OBL
6	*Onoclea sensibilis*	5	N	FACW
7	*Solidago gigantea*	3	N	FACW
8	*Symphyotrichum lateriflorum*	3	N	FAC
9	*Salix discolor*	1	N	FACW
10	*Euthamia graminifolia*	1	N	FAC
11	*Juncus effusus*	1	N	OBL
12	*Fraxinus nigra*	1	N	FACW
13	*Equisetum pratense*	1	N	FACW
14	*Prunella vulgaris*	1	N	FAC
15				
		110	= 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	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 all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	84	x 1 =	84	
FACW species	16	x 2 =	32	
FAC species	5	x 3 =	15	
FACU species	5	x 4 =	20	
UPL species	0	x 5 =	0	
Column totals	110	(A)	151	(B)

Prevalence Index = B/A = 1.37

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)

Rapid Test is present; parameter is met. Prevalence Index and Dominance Test calculated for reference purposes only.

SOIL **Sampling Point:** WASV055e_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 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**)
___ 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:

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: WASV055e_W, South

Photograph 2: WASV055e_W, West

Photograph 3: WASV055e_W, North

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/02/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV055/056_U
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
Slope (%): 15-20% Lat.: 46.360047 Long.: -90.598019 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 18-35% 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 data point taken on hillslope adjacent to wetlands WASV055 and WASV056.

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 hydric soil indicators present; parameter is not met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV055/056_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	38	Y	FACU
2	*Tilia americana*	15	Y	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		53	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Ulmus americana*	38	Y	FACW
2	*Quercus rubra*	38	Y	FACU
3	*Acer saccharum*	38	Y	FACU
4	*Fraxinus nigra*	3	N	FACW
5				
6				
7				
8				
9				
10				
		117	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex pedunculata*	15	Y	FACU
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		15	= 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 Stratu WASV056e_W	11	27
Sapling/Shrub Stratum	23	59
Herb Stratum	3	8
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 all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 16.67% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	41	x 2 =	82	
FAC species	0	x 3 =	0	
FACU species	144	x 4 =	576	
UPL species	0	x 5 =	0	
Column totals	185	(A)	658	(B)

Prevalence Index = B/A = 3.56

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 indicators observed; parameter is not met.

SOIL **Sampling Point:** WASV055/056_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
0-18	7.5YR 4/3	80	7.5YR 4/4	20	C	M	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)
___ 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 hydric soil indicators present and soil does not meet NTCHS definitaion of hydric soil; parameter is not met.

Photograph 1: WASV055/056_U, West

Photograph 2: WASV055/056_U, North

Photograph 3: WASV055/056_U, South

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

WETLAND IDENTIFICATION	**WASV055**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Clay Robertson
File #: N/A	Date of visit(s): 10/01/2019
Location: PLSS: 45N02W Lat: 46.358237 Long: -90.598843 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Tula-Gogebic complex, 0-6% slopes, stony and Gogebic silt loam, 6-18% slopes, very stony, rocky Field Verified: Yes	WWI Class: PFO1Bg Wetland Type(s): Hardwood Swamp Wetland Size: 2.465 acres / Wetland Area Impacted: 2.465 acres
Hydrology: Mapped PFO1Bg NWI; Headwater drainage gaining stronger hydrology downslope. 10-15% slopes draining east. Saturation at surface; water table at surface towards western edge of study area; geomorphic position, FAC+/-, water stained leaves, wide wetland created by toe of slope on north end, hypertrophied lenticels, and drainage patterns present.	Vegetation: Plant Community Description(s): PFO: *Fraxinus nigra, Abies balsamea, Betula alleghaniensis*

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	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	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	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/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	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	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	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.
HU3: Wetland is visible from road, but trees act as screen; cannot see most of wetland.
WHO, FA2: Microtopography may hold water for periods of time in wetter seasons.
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	Other songbirds
X		Deer browse on vegetation
X		Chickadee
X		Blue jay
X		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
	X	Frogs, salamanders; no standing water at time of survey, but wetland has potential to hold water for periods of time in 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)
Picea mariana	black spruce	8	PFO	
Carex crinita	fringed sedge	6	PFO/PEM	
Carex intumescens	greater bladder sedge, shining bur sedge, swollen	5	PFO	
Fraxinus nigra	black ash	8	PFO	
Rubus pubescens	dwarf red raspberry	7	PFO/PEM	
Symphyotrichum puniceum	swamp aster	5	PFO	
Populus tremuloides	aspen, quaking aspen	2	PFO	
Dirca palustris	eastern leatherwood, rope-bark	9	PFO	
Abies balsamea	balsam fir	5	PFO	
Tilia americana	American linden, basswood	5	PFO	
Ulmus rubra	red elm, slippery elm	4	PFO	
Athyrium filix-femina	common lady fern, lady fern	5	PFO	
Solidago gigantea	giant goldenrod	3	PFO/PEM	
Viburnum trilobum	American cranberry-bush, cranberry viburnum, high-bush cranberry	6	PFO/PEM	
Osmunda cinnamomea	cinnamon fern	7	PFO	
Matteuccia struthiopteris	American ostrich fern, ostrich fern	5	PFO	
Symphyotrichum lateriflorum	side-flowering aster	3	PFO/PEM	
Equisetum pratense	meadow horsetail	9	PEM	
Mentha canadensis	field mint, wild mint	3	PEM	
Onoclea sensibilis	sensitive fern	5	PEM	
Euthamia graminifolia	common flat-topped goldenrod, grass-leaved goldenrod	4	PEM	
Scirpus cyperinus	wool-grass	4	PEM	
Salix discolor	pussy willow	2	PEM	
Juncus effusus	common rush, soft rush	4	PEM	
Pteridium aquilinum	bracken, bracken fern	2	PEM	
Prunella vulgaris	heal-all, lawn prunella, self-heal	1	PEM	
Solidago canadensis	Canadian goldenrod	1	PEM	
**Calamagrostis canadensis*	blue-joint grass	5	PEM	
**Betula alleghaniensis*	yellow birch		PFO	

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

PFO FQI = 22.6, Mean C of C = 5.5
PEM FQI = 16.3, Mean C of C = 4.1

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	X		M	UC	Drainage – tiles, ditches
X	X		M	C	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
X	X		M	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		L	C	Removal of tree or shrub strata – logging, unprescribed fire
X	X		M	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)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
PEM portion of wetland is a roadside drainage feature.
Increased runoff from road.
Signs of earthworms throughout and through buffer
Regenerating forest; owned by a timber company. Tree and sapling/shrub strata missing from roadside PEM portion of wetland due to roadside maintenance.

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	Good diversity of common native species; tree and sapling/shrub strata are missing from the PEM component of the wetland.
Human Use Values	Wetland is located on private property that is used for timber. Current land use makes it unlikely to be used for human recreation.
Wildlife Habitat	Wetland is located along transitional edge of contiguous forested habitat. Part of forested area has been recently timbered. Several bird species observed within wetland at the time of survey.
Fish and Aquatic Life Habitat	No standing water present in wetland, but the wetland has potential to hold water during wetter seasons.
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland is relatively large and receives surface water run-off from the surrounding landscape.
Water Quality Protection	Wetland is capturing pollutants from the roadside, and potentially pollutants associated with timbering operations.
Groundwater Processes	Signs of groundwater processes: hypertrophied lenticels, saturated at surface, and high water table.

Additional Plant list

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

Additional Plant list

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Acer saccharum*	hard maple, sugar maple		PFO	
**Fraxinus pennsylvanica*	green ash		PFO	
**Rubus idaeus*	red raspberry		PFO	
Tsuga canadensis	Eastern hemlock		PFO	
Viola sororia	common blue violet		PFO	
Equisetum sylvaticum	wood horsetail		PFO	

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/30/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV050f_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 2-5% Lat.: 46.358643 Long.: -90.597485 Datum: WGS 1984
Soil Map Unit Name Tula-Gogebic complex, 0-6% slopes, stony NWI Classification: PFO1Bg
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 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 a PFO adjacent to roadway. Three PFO components connected by a PEM within the WASV050 wetland system. Data point is representative of all 3 PFO components.

HYDROLOGY

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

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X 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)
- X 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)
- X Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	X	No	___	Depth (inches):	3
Water table present?	Yes	X	No	___	Depth (inches):	surface
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. Note: Heavy rainfall within 2 hours of data collection. Subsurface hydrology indicators were not identified due to potential for underground utilities. Saturation at surface observed prior to rainfall, and surface water and high water table may be a result of recent heavy rainfall.

VEGETATION - Use scientific names of plants

Sampling Point: WASV050f_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	38	Y	FACW
2	*Betula alleghaniensis*	15	Y	FAC
3	*Acer saccharum*	15	Y	FACU
4	*Tsuga canadensis*	15	Y	FACU
5	*Populus tremuloides*	3	N	FAC
6				
7				
8				
9				
10				
		86	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*	15	Y	FACW
2	*Betula alleghaniensis*	15	Y	FAC
3	*Tsuga canadensis*	15	Y	FACU
4				
5				
6				
7				
8				
9				
10				
		45	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*	38	Y	OBL
2	*Prunella vulgaris*	38	Y	FAC
3	*Rubus hispidus*	15	N	FACW
4	*Equisetum arvense*	3	N	FAC
5	*Symphyotrichum lateriflorum*	3	N	FAC
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		97	= 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	17	43
Sapling/Shrub Stratum	9	23
Herb Stratum	19	49
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across all Strata: 9 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 66.67% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	38	x 1 =	38	
FACW species	68	x 2 =	136	
FAC species	77	x 3 =	231	
FACU species	45	x 4 =	180	
UPL species	0	x 5 =	0	
Column totals	228	(A)	585	(B)

Prevalence Index = B/A = 2.57

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)

Dominance Test indicator is present; parameter is met. Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV050f_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 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**)
___ 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:

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: WASV050f_W, North

Photograph 2: WASV050f_W, West

Photograph 3: WASV050f_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/30/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV050e_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave
Slope (%): 5-10% Lat.: 46.358709 Long.: -90.597713 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 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 roadside drainage feature. PEM is regularly mowed due to roadside maintenance. Three forested wetland components connect and drain into PEM.

HYDROLOGY

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

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X 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)
- X Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	X	No	___	Depth (inches):	4
Water table present?	Yes	X	No	___	Depth (inches):	surface
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. Note: Heavy rainfall within 2 hours of data collection. Subsurface hydrology indicators were not identified due to potential for underground utilities. Saturation at surface observed prior to rainfall, and surface water and high water table may be a result of recent heavy rainfall.

VEGETATION - Use scientific names of plants

Sampling Point: WASV050e_W

Tree Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Scirpus hattorianus*	98	Y	OBL
2	*Onoclea sensibilis*	15	N	FACW
3	*Carex crinita*	15	N	OBL
4	*Juncus effusus*	3	N	OBL
5	*Persicaria sagittata*	3	N	OBL
6	*Equisetum arvense*	3	N	FAC
7				
8				
9				
10				
11				
12				
13				
14				
15				
		137	= Total Cover	

Woody Vine Stratum	Plot Size (5' X 40')	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	69
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 all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	119	x 1 =	119	
FACW species	15	x 2 =	30	
FAC species	3	x 3 =	9	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	137	(A)	158	(B)

Prevalence Index = B/A = 1.15

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)

Rapid Test indicator present; parameter is met. Prevalence Index and Dominance Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV050e_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 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**)
___ 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:

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: WASV050e_W, North

Photograph 2: WASV050e_W, South

Photograph 3: WASV050e_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/30/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV050/051_U
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
Slope (%): 5-10% Lat.: 46.359627 Long.: -90.596705 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 18-35% 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.)

Data point located on hillslope between WASV050 and WASV051. Data point is representative of conditions in upland habitats adjacent to both wetlands.

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 indicators of wetland hydrology are present; parameter is not met. Note: Heavy rainfall within 2 hours of data collection. Subsurface hydrologic conditions were not observed due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV050/051_U

Tree Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Quercus rubra*	38	Y	FACU
2	*Tilia americana*	15	Y	FACU
3	*Ulmus americana*	15	Y	FACW
4	*Acer saccharum*	15	Y	FACU
5				
6				
7				
8				
9				
10				
		83	= Total Cover	

Sapling/Shrub Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Ulmus americana*	63	Y	FACW
2	*Quercus rubra*	15	N	FACU
3	*Acer saccharum*	15	N	FACU
4				
5				
6				
7				
8				
9				
10				
		93	= Total Cover	

Herb Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Mitchella repens*	63	Y	FACU
2	*Athyrium filix-femina*	15	N	FAC
3	*Trientalis borealis*	3	N	FAC
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		81	= Total Cover	

Woody Vine Stratum	Plot Size (5' X 40')	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	19	47
Herb Stratum	16	41
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: 6 (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	78	x 2 =	156	
FAC species	18	x 3 =	54	
FACU species	161	x 4 =	644	
UPL species	0	x 5 =	0	
Column totals	257	(A)	854	(B)

Prevalence Index = B/A = 3.32

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 indicators present; parameter is not met.

SOIL **Sampling Point:** WASV050/051_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 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**)
___ 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 soils taken due to potential for underground utilities. Soils assumed to be non-hydric due to absence of hydrology indicators and dominance of upland vegetation.

Photograph 1: WASV050/051_U, North

Photograph 2: WASV050/051_U, South

Photograph 3: WASV050/051_U, East

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

WETLAND IDENTIFICATION	**WASV050**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Clay Robertson
File #: N/A	Date of visit(s): 9/30/2019
Location: PLSS: 45N02W Lat: 46.358131 Long: -90.597906 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks

SITE DESCRIPTION		
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky; Tula-Gogebic complex, 0-6% slopes, stony Field Verified: No ground disturbance allowed due to potential for underground utilities.	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow, Hardwood Swamp	
	Wetland Size: 0.851 acres	Wetland Area Impacted: 0.851 acres
Hydrology: NWI indicates as PFO1Bg; three forested wetland features connected by a PEM roadside drainage feature; 1-2 inches of standing water in microtopographic depressions throughout forested wetland due to recent rain; water stained leaves and sparsely vegetated concave surface.	Vegetation: Plant Community Description(s): PEM (roadside drainage feature): *Phalaris arundinacea, Onoclea sensibilis, Scirpus cyperinus* PFO: *Abies balsamea, Carex crinita, 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	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	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	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	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	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	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.
HU3: Wetland is visibly accessible since it is located along a roadside.
WH1: Wetland at transitional edge of contiguous habitat.
WH10, FA2 & FA4: Standing water at time of survey due to recent rains, unclear how long area remains inundated.
WQ2: Portion of wetland culverted underneath road.
ST2: Although not channelized in most of wetland, the long linear shape of the PEM portion yields the same effect. Stream SASV011i also flows through one of the PFOs.
SP1: Portion of PFO wetland along both sides of SASV011i.
GW: Subsurface indicators of wetland hydrology were not investigated due to the potential for underground utilities.

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		Woodpecker holes in trees
	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
	X	Frogs and Salamanders – Standing water at time of survey due to recent rain, unclear how long wetland will hold water.

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	
Abies balsamea	balsam fir	5	PFO	
Symphyotrichum lateriflorum	side-flowering aster	3	PFO/PEM	
Rubus pubescens	dwarf red raspberry	7	PFO	
Carex scabrata	eastern rough sedge	8	PFO	
**Acer saccharum*	hard maple, sugar maple	5	PFO	
Equisetum pratense	meadow horsetail	9	PFO	
Carex bromoides	brome-like sedge	8	PFO	
**Carex crinita*	fringed sedge	6	PFO/PEM	
Osmunda cinnamomea	cinnamon fern	7	PFO	
Solidago gigantea	giant goldenrod	3	PFO	
Glyceria striata	fowl manna grass, fowl meadow grass	4	PFO	
Trientalis borealis	American starflower, northern starflower, maystar	7	PFO	
Carex intumescens	greater bladder sedge, shining bur sedge	5	PFO	
**Betula alleghaniensis*	yellow birch	7	PFO	
Tilia americana	American linden, basswood	5	PFO	
Pyrola americana	American wintergreen, round-leaved shin-leaf	8	PFO	
Scirpus cyperinus	wool-grass	4	PEM/PFO	
Phalaris arundinacea	reed canary grass	0	PEM	
Ulmus americana	American elm, white elm	3	PFO	
Athyrium filix-femina	common lady fern, lady fern	5	PFO	
Onoclea sensibilis	sensitive fern	5	PEM/PFO	
Salix discolor	pussy willow	2	PEM	
Euthamia graminifolia	common flat-topped goldenrod, grass-leaved goldenrod	4	PEM	
Populus tremuloides	aspen, quaking aspen	2	PFO	
Equisetum sylvaticum	wood horsetail, woodland horsetail	7	PFO	
Juncus effusus	common rush, soft rush	4	PEM	
Impatiens capensis	orange jewelweed, orange touch-me-not	2	PEM	
Agrostis perennans	autumn bent grass, thin grass, upland bent grass	4	PEM	

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

Good diversity of common native species. Tree and sapling/shrub strata are missing in the PEM portion of the wetland.
PEM FQI = 10.8, Mean C of C= 3.4
PFO FQI = 27.3, Mean C of C = 5.7

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	X		H	UC	Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
X	X		H	UC	Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
X	X		H	C	Roads or railroad
X	X		L	UC	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.
X	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		H	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)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
PEM portion of wetland is a roadside drainage feature.
Utilities marked along roadside.
Wetland receiving surface water runoff from roadside; culverted under road.
PEM portion of wetland is missing the tree and sapling/shrub strata due to routine maintenance for roadside drainage feature.
Phalaris arundinacea is present at approximately 20% cover in PEM component.
Area historically logged (uniform stand age), evidence of earthworms affecting the herbaceous layer in the forested areas.

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 due to maintenance of roadside drainage feature. Dominance of invasive exotic species in PEM component. Overall, good diversity of common native wetland species in the forested area.
Human Use Values	Wetland is located on private property and its roadside drainage function makes human recreational use of this area unlikely.
Wildlife Habitat	Small wetland along a roadside; although contiguous to a large tract of natural habitat, wetland is on the transitional edge.
Fish and Aquatic Life Habitat	Although there was 2-3 inches of standing water at the time of the survey, wetland had no surface water the previous day. It is unclear what the duration of inundation will be.
Shoreline Protection	Wetland provides some level of protection along the streambank in the PFO area, but there are signs of erosion throughout the stream. Wetland is culverted underneath the road.
Flood and Stormwater Storage	Roadside drainage captures stormwater runoff; in addition, PFO components capture surface water runoff from surrounding landscape.
Water Quality Protection	Wetland captures stormwater runoff from areas that have been recently logged, and also captures potential pollutants from road.
Groundwater Processes	No signs of groundwater process. Subsurface indicators of wetland hydrology were not investigated 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

Additional Plant list

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Tsuga canadensis*	Eastern hemlock		PFO	
**Prunella vulgaris*	common self-heal, heal-all		PFO	
Equisetum arvense	field horsetail, common horsetail		PFO/PEM	
**Scirpus hattorianus*	mosquito bulrush		PEM	
Persicaria sagittata	arrow-leaved tearthumb		PEM	

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/30/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV051f_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Basin Local relief (concave, convex, none): Concave
Slope (%): 3-5% Lat.: 46.360626 Long.: -90.596179 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 18-35% 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.)

Wetland complex consists of a PFO basin along the edge of a PEM wetland. Basin holding standing water due to recent heavy rainfall. Wetland is culverted underneath road adjacent to PFO location, but culvert is perched. PEM components of wetland both slope down to/drain in to PFO basin.

HYDROLOGY

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

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X 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	X	No	___	Depth (inches):	4
Water table present?	Yes	X	No	___	Depth (inches):	surface
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. Note: Heavy rainfall within 4 hours of data collection. Subsurface hydrology indicators were not identified due to potential for underground utilities. Saturation at surface observed prior to rainfall, and surface water and high water table may be a result of recent heavy rainfall.

VEGETATION - Use scientific names of plants

Sampling Point: WASV051f_W

Tree Stratum	Plot Size (10' X 30')	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 (10' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	38	Y	FACU
2	*Fraxinus nigra*	15	Y	FACW
3	*Fraxinus pennsylvanica*	15	Y	FACW
4	*Betula alleghaniensis*	3	N	FAC
5				
6				
7				
8				
9				
10				
		71	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*	63	Y	OBL
2	*Equisetum arvense*	38	Y	FAC
3	*Onoclea sensibilis*	3	N	FACW
4	*Tilia americana*	3	N	FACU
5	*Equisetum scirpoides*	3	N	FAC
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		110	= 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	15	38
Sapling/Shrub Stratum	14	36
Herb Stratum	22	55
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 6 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 85.71% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	63	x 1 =	63	
FACW species	71	x 2 =	142	
FAC species	82	x 3 =	246	
FACU species	41	x 4 =	164	
UPL species	0	x 5 =	0	
Column totals	257	(A)	615	(B)

Prevalence Index = B/A = 2.39

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)

Dominance Test indicator is present; parameter is met. Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV051f_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 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**)
___ 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:

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: WASV051f_W, North

Photograph 2: WASV051f_W, South

Photograph 3: WASV051f_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/30/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV051e_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave
Slope (%): 5-10% Lat.: 46.359412 Long.: -90.597209 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 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 a roadside drainage feature. PEM is frequently mowed due to roadside maintenance, and drains towards PFO component. Wetland is culverted under county road adjacent to PFO portion, but culvert is perched. PEM was holding water (2 to 12 inches) at time of survey due to recent rainfall.

HYDROLOGY

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

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X 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)
- X Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	X	No	___	Depth (inches):	4
Water table present?	Yes	X	No	___	Depth (inches):	surface
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. Note: Heavy rainfall within 4 hours of data collection. Subsurface hydrology indicators were not identified due to potential for underground utilities. Saturation at surface observed prior to rainfall, and surface water and high water table may be a result of recent heavy rainfall.

VEGETATION - Use scientific names of plants

Sampling Point: WASV051e_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	*Scirpus hattorianus*	98	Y	OBL
2	*Onoclea sensibilis*	15	N	FACW
3	*Carex crinita*	15	N	OBL
4	*Juncus effusus*	3	N	OBL
5	*Persicaria sagittata*	3	N	OBL
6	*Equisetum arvense*	3	N	FAC
7				
8				
9				
10				
11				
12				
13				
14				
15				
		137	= 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	27	69
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 all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	119	x 1 =	119	
FACW species	15	x 2 =	30	
FAC species	3	x 3 =	9	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	137	(A)	158	(B)

Prevalence Index = B/A = 1.15

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)

Rapid Test indicator is present; paramater is met. Prevalence Index and Dominance Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV051e_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 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**)
___ 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:

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: WASV051e_W, North

Photograph 2: WASV051e_W, South

Photograph 3: WASV051e_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/30/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV050/051_U
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
Slope (%): 5-10% Lat.: 46.359627 Long.: -90.596705 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 18-35% 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.)

Data point located on hillslope between WASV050 and WASV051. Data point is representative of conditions in upland habitats adjacent to both WASV050 and WASV051.

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 indicators of wetland hydrology are present; parameter is not met. Note: Heavy rainfall within 2 hours of data collection. Subsurface hydrologic conditions were not observed due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV050/051_U

Tree Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Quercus rubra*	38	Y	FACU
2	*Tilia americana*	15	Y	FACU
3	*Ulmus americana*	15	Y	FACW
4	*Acer saccharum*	15	Y	FACU
5				
6				
7				
8				
9				
10				
		83	= Total Cover	

Sapling/Shrub Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Ulmus americana*	63	Y	FACW
2	*Quercus rubra*	15	N	FACU
3	*Acer saccharum*	15	N	FACU
4				
5				
6				
7				
8				
9				
10				
		93	= Total Cover	

Herb Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Mitchella repens*	63	Y	FACU
2	*Athyrium filix-femina*	15	N	FAC
3	*Trientalis borealis*	3	N	FAC
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		81	= Total Cover	

Woody Vine Stratum	Plot Size (5' X 40')	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	19	47
Herb Stratum	16	41
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: 6 (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	78	x 2 =	156	
FAC species	18	x 3 =	54	
FACU species	161	x 4 =	644	
UPL species	0	x 5 =	0	
Column totals	257	(A)	854	(B)

Prevalence Index = B/A = 3.32

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 indicators present; parameter is not met.

SOIL **Sampling Point:** WASV050/051_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 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**)
___ 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 soils taken due to potential for underground utilities. Soils assumed to be non-hydric due to absence of hydrology indicators and dominance of upland vegetation.

Photograph 1: WASV050/051_U, North

Photograph 2: WASV050/051_U, South

Photograph 3: WASV050/051_U, East

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

WETLAND IDENTIFICATION	**WASV051**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Clay Robertson
File #: N/A	Date of visit(s): 9/30/2019
Location: PLSS: 45N02W Lat: 46.360612 Long: -90.596233 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks

SITE DESCRIPTION		
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky; Gogebic silt loam, 18-35% slopes, very stony, rocky Field Verified: No ground disturbance allowed due to potential for underground utilities.	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow, Hardwood Swamp	
	Wetland Size: 0.351 acres	Wetland Area Impacted: 0.351 acres
Hydrology: Linear PEM roadside drainage feature that is bowl-shaped (low point in middle of PFO, so that all of the surface water runoff flows from PEM portions to the PFO). Wetland exhibited surface water of 2-3 inches throughout due to recent precipitation.	Vegetation: Plant Community Description(s): PEM (roadside drainage feature): *Onoclea sensibilis, Carex crinita, Scirpus cyperinus* PFO: *Fraxinus nigra, Ulmus americanus, Carex crinita*	

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	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	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	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/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	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	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)

HU3: Wetland is visibly accessible since it is located along a roadside.
WH1: Wetland at transitional edge of contiguous habitat.
WH10, FA2 & FA4: Standing water at time of survey due to recent rains, unclear how long area remains inundated.
WQ2: Wetland is culverted underneath the access road at the PFO component of the complex.
ST2: Although not channelized in most of wetland, the long linear shape of the PEM portion yields the same effect. Stream SASV011i also flows through one of the PFOs.

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
	X	Frogs and Salamanders – Standing water at time of survey due to recent rain, unclear how long wetland will hold water.

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	
Tilia americana	American linden, basswood	5	PFO	
Ulmus americana	American elm, white elm	3	PFO	
Equisetum sylvaticum	wood horsetail, woodland horsetail	7	PFO/PEM	
Symphyotrichum lateriflorum	side-flowering aster	3	PEM	
**Carex crinita*	fringed sedge	6	PFO/PEM	
**Acer saccharum*	hard maple, sugar maple	5	PFO	
Solidago gigantea	giant goldenrod	3	PFO/PEM	
Rubus idaeus	wild red raspberry	3	PFO	
Dryopteris intermedia	fancy wood fern, glandular wood fern	7	PFO	
Alnus incana	speckled alder	4	PEM	
Glyceria striata	fowl manna grass, fowl meadow grass	4	PEM/PFO	
Epilobium ciliatum	American willow-herb, hairy willow-herb	3	PEM	
Bidens frondosa	common beggar-ticks, devil's beggar-ticks	1	PEM	
Carex scabrata	eastern rough sedge	8	PFO	
Dactylis glomerate	orchard grass	0	PEM	
Euthamia graminifolia	common flat-topped goldenrod, grass-leaved goldenrod	4	PEM	
Osmunda cinnamomea	cinnamon fern	7	PEM	
Onoclea sensibilis	sensitive fern	5	PFO/PEM	
Salix bebbiana	beaked willow, Bebb's willow	7	PFO	
Persicaria sagittata	arrow-leaved tearthumb, arrow vine	6	PEM	
Phalaris arundinacea	reed canary grass	0	PEM	
Glyceria maxima	reed manna grass	0	PEM	
Typha latifolia	broad-leaved cat-tail, common cat-tail	1	PEM	
Geum canadense	white avens	2	PEM	
Thelypteris palustris	eastern marsh fern, marsh fern	7	PEM	
Juncus effusus	common rush, soft rush	4	PEM	
Symphyotrichum puniceum	swamp aster	5	PEM	
Carex scoparia	broom sedge, lance-fruited oval sedge	4	PEM	

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

- PEM portion of wetland missing tree and shrub strata due to routine roadside maintenance.
- *Phalaris arundinacea* is located in PEM portion of wetland.
PEM FQI = 16.6, Mean C of C = 3.6
PFO FQI = 19.7, Mean C of C = 5.5

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)
X	X		H	UC	Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
X	X		H	UC	Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
X	X		H	C	Roads or railroad
X	X		L	UC	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.
X	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		H	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)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
PEM portion of wetland is a roadside drainage feature.
Utilities marked along roadside.
Wetland receiving surface water runoff from roadside; culverted under road.
PEM portion of wetland is missing the tree and sapling/shrub strata due to routine maintenance for roadside drainage feature.
Phalaris arundinacea is present at approximately 20% cover in PEM component.

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 due to maintenance of roadside drainage feature. Dominance of invasive exotic species in PEM component. Overall, good diversity of common native wetland species in the forested area.
Human Use Values	Wetland is located on private property and its roadside drainage function makes human recreational use of this area unlikely.
Wildlife Habitat	Small wetland along a roadside; although contiguous to a large tract of natural habitat, wetland is on the transitional edge.
Fish and Aquatic Life Habitat	Although there was 2-3 inches of standing water at the time of the survey, wetland had no surface water the previous day. It is unclear what the duration of inundation will be.
Shoreline Protection	N/A
Flood and Stormwater Storage	Roadside drainage captures stormwater runoff; PFO component of the wetland holds 1-12 inches of water. However, the wetland is culverted underneath the access road in the area, so water leaves wetland quickly.
Water Quality Protection	Wetland captures stormwater runoff from areas that have been recently logged, and also captures potential pollutants from road.
Groundwater Processes	No signs of groundwater process. Subsurface indicators of wetland hydrology were not investigated 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

Additional Plant list

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Betula alleghaniensis*	yellow birch		PFO	
**Fraxinus pennsylvanica*	green ash		PFO	
**Equisetum arvense*	field horsetail, common horsetail		PEM/PFO	
**Scirpus hattorianus*	mosquito bulrush		PEM	
Equisetum scirpoides	dwarf horsetail, dwarf scouring rush		PFO	

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/30/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV051f_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Basin Local relief (concave, convex, none): Concave
Slope (%): 3-5% Lat.: 46.360626 Long.: -90.596179 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 18-35% 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.)

Wetland complex consists of a PFO basin along the edge of a PEM wetland. Basin holding standing water due to recent heavy rainfall. Wetland is culverted underneath road adjacent to PFO location, but culvert is perched. PEM components of wetland both slope down to/drain in to PFO basin.

HYDROLOGY

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

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X 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	X	No	___	Depth (inches):	4
Water table present?	Yes	X	No	___	Depth (inches):	surface
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. Note: Heavy rainfall within 4 hours of data collection. Subsurface hydrology indicators were not identified due to potential for underground utilities. Saturation at surface observed prior to rainfall, and surface water and high water table may be a result of recent heavy rainfall.

VEGETATION - Use scientific names of plants

Sampling Point: WASV051f_W

Tree Stratum	Plot Size (10' X 30')	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 (10' X 30')	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	38	Y	FACU
2	*Fraxinus nigra*	15	Y	FACW
3	*Fraxinus pennsylvanica*	15	Y	FACW
4	*Betula alleghaniensis*	3	N	FAC
5				
6				
7				
8				
9				
10				
		71	= Total Cover	

Herb Stratum	Plot Size (5' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*	63	Y	OBL
2	*Equisetum arvense*	38	Y	FAC
3	*Onoclea sensibilis*	3	N	FACW
4	*Tilia americana*	3	N	FACU
5	*Equisetum scirpoides*	3	N	FAC
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		110	= 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	15	38
Sapling/Shrub Stratum	14	36
Herb Stratum	22	55
Woody Vine Stratum	0	0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC: 6 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: 85.71% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	63	x 1 =	63	
FACW species	71	x 2 =	142	
FAC species	82	x 3 =	246	
FACU species	41	x 4 =	164	
UPL species	0	x 5 =	0	
Column totals	257	(A)	615	(B)

Prevalence Index = B/A = 2.39

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)

Dominance Test indicator is present; parameter is met. Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV051f_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 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**)
___ 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:

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: WASV051f_W, North

Photograph 2: WASV051f_W, South

Photograph 3: WASV051f_W, West

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/30/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV051e_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave
Slope (%): 5-10% Lat.: 46.359412 Long.: -90.597209 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 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 a roadside drainage feature. PEM is frequently mowed due to roadside maintenance, and drains towards PFO component. Wetland is culverted under county road adjacent to PFO portion, but culvert is perched. PEM was holding water (2 to 12 inches) at time of survey due to recent rainfall.

HYDROLOGY

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

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X 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)
- X Microtopographic Relief (D4)

Field Observations:

Surface water present?	Yes	X	No	___	Depth (inches):	4
Water table present?	Yes	X	No	___	Depth (inches):	surface
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. Note: Heavy rainfall within 4 hours of data collection. Subsurface hydrology indicators were not identified due to potential for underground utilities. Saturation at surface observed prior to rainfall, and surface water and high water table may be a result of recent heavy rainfall.

VEGETATION - Use scientific names of plants

Sampling Point: WASV051e_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	*Scirpus hattorianus*	98	Y	OBL
2	*Onoclea sensibilis*	15	N	FACW
3	*Carex crinita*	15	N	OBL
4	*Juncus effusus*	3	N	OBL
5	*Persicaria sagittata*	3	N	OBL
6	*Equisetum arvense*	3	N	FAC
7				
8				
9				
10				
11				
12				
13				
14				
15				
		137	= 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	27	69
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 all Strata: 1 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	119	x 1 =	119	
FACW species	15	x 2 =	30	
FAC species	3	x 3 =	9	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	137	(A)	158	(B)

Prevalence Index = B/A = 1.15

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)

Rapid Test indicator is present; paramater is met. Prevalence Index and Dominance Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV051e_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 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**)
___ 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:

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: WASV051e_W, North

Photograph 2: WASV051e_W, South

Photograph 3: WASV051e_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 9/30/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV050/051_U
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
Slope (%): 5-10% Lat.: 46.359627 Long.: -90.596705 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 18-35% 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.)

Data point located on hillslope between WASV050 and WASV051. Data point is representative of conditions in upland habitats adjacent to both WASV050 and WASV051.

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 indicators of wetland hydrology are present; parameter is not met. Note: Heavy rainfall within 2 hours of data collection. Subsurface hydrologic conditions were not observed due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV050/051_U

Tree Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Quercus rubra*	38	Y	FACU
2	*Tilia americana*	15	Y	FACU
3	*Ulmus americana*	15	Y	FACW
4	*Acer saccharum*	15	Y	FACU
5				
6				
7				
8				
9				
10				
		83	= Total Cover	

Sapling/Shrub Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Ulmus americana*	63	Y	FACW
2	*Quercus rubra*	15	N	FACU
3	*Acer saccharum*	15	N	FACU
4				
5				
6				
7				
8				
9				
10				
		93	= Total Cover	

Herb Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Mitchella repens*	63	Y	FACU
2	*Athyrium filix-femina*	15	N	FAC
3	*Trientalis borealis*	3	N	FAC
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		81	= Total Cover	

Woody Vine Stratum	Plot Size (5' X 40')	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	19	47
Herb Stratum	16	41
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: 6 (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	78	x 2 =	156	
FAC species	18	x 3 =	54	
FACU species	161	x 4 =	644	
UPL species	0	x 5 =	0	
Column totals	257	(A)	854	(B)

Prevalence Index = B/A = 3.32

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 indicators present; parameter is not met.

SOIL **Sampling Point:** WASV050/051_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 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**)
___ 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 soils taken due to potential for underground utilities. Soils assumed to be non-hydric due to absence of hydrology indicators and dominance of upland vegetation.

Photograph 1: WASV050/051_U, North

Photograph 2: WASV050/051_U, South

Photograph 3: WASV050/051_U, East

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

WETLAND IDENTIFICATION	**WASV051**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Clay Robertson
File #: N/A	Date of visit(s): 9/30/2019
Location: PLSS: 45N02W Lat: 46.360612 Long: -90.596233 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks

SITE DESCRIPTION		
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky; Gogebic silt loam, 18-35% slopes, very stony, rocky Field Verified: No ground disturbance allowed due to potential for underground utilities.	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow, Hardwood Swamp	
	Wetland Size: 0.351 acres	Wetland Area Impacted: 0.351 acres
Hydrology: Linear PEM roadside drainage feature that is bowl-shaped (low point in middle of PFO, so that all of the surface water runoff flows from PEM portions to the PFO). Wetland exhibited surface water of 2-3 inches throughout due to recent precipitation.	Vegetation: Plant Community Description(s): PEM (roadside drainage feature): *Onoclea sensibilis, Carex crinita, Scirpus cyperinus* PFO: *Fraxinus nigra, Ulmus americanus, Carex crinita*	

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	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	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	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/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	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	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)

HU3: Wetland is visibly accessible since it is located along a roadside.
WH1: Wetland at transitional edge of contiguous habitat.
WH10, FA2 & FA4: Standing water at time of survey due to recent rains, unclear how long area remains inundated.
WQ2: Wetland is culverted underneath the access road at the PFO component of the complex.
ST2: Although not channelized in most of wetland, the long linear shape of the PEM portion yields the same effect. Stream SASV011i also flows through one of the PFOs.

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
	X	Frogs and Salamanders – Standing water at time of survey due to recent rain, unclear how long wetland will hold water.

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	
Tilia americana	American linden, basswood	5	PFO	
Ulmus americana	American elm, white elm	3	PFO	
Equisetum sylvaticum	wood horsetail, woodland horsetail	7	PFO/PEM	
Symphyotrichum lateriflorum	side-flowering aster	3	PEM	
**Carex crinita*	fringed sedge	6	PFO/PEM	
**Acer saccharum*	hard maple, sugar maple	5	PFO	
Solidago gigantea	giant goldenrod	3	PFO/PEM	
Rubus idaeus	wild red raspberry	3	PFO	
Dryopteris intermedia	fancy wood fern, glandular wood fern	7	PFO	
Alnus incana	speckled alder	4	PEM	
Glyceria striata	fowl manna grass, fowl meadow grass	4	PEM/PFO	
Epilobium ciliatum	American willow-herb, hairy willow-herb	3	PEM	
Bidens frondosa	common beggar-ticks, devil's beggar-ticks	1	PEM	
Carex scabrata	eastern rough sedge	8	PFO	
Dactylis glomerate	orchard grass	0	PEM	
Euthamia graminifolia	common flat-topped goldenrod, grass-leaved goldenrod	4	PEM	
Osmunda cinnamomea	cinnamon fern	7	PEM	
Onoclea sensibilis	sensitive fern	5	PFO/PEM	
Salix bebbiana	beaked willow, Bebb's willow	7	PFO	
Persicaria sagittata	arrow-leaved tearthumb, arrow vine	6	PEM	
Phalaris arundinacea	reed canary grass	0	PEM	
Glyceria maxima	reed manna grass	0	PEM	
Typha latifolia	broad-leaved cat-tail, common cat-tail	1	PEM	
Geum canadense	white avens	2	PEM	
Thelypteris palustris	eastern marsh fern, marsh fern	7	PEM	
Juncus effusus	common rush, soft rush	4	PEM	
Symphyotrichum puniceum	swamp aster	5	PEM	
Carex scoparia	broom sedge, lance-fruited oval sedge	4	PEM	

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

- PEM portion of wetland missing tree and shrub strata due to routine roadside maintenance.
- *Phalaris arundinacea* is located in PEM portion of wetland.
PEM FQI = 16.6, Mean C of C = 3.6
PFO FQI = 19.7, Mean C of C = 5.5

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)
X	X		H	UC	Drainage – tiles, ditches
					Hydrologic changes - high capacity wells, impounded water, increased runoff
X	X		H	UC	Point source or stormwater discharge
					Polluted runoff
					Pond construction
					Agriculture – row crops
					Agriculture – hay
					Agriculture – pasture
X	X		H	C	Roads or railroad
X	X		L	UC	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.
X	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		H	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)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
PEM portion of wetland is a roadside drainage feature.
Utilities marked along roadside.
Wetland receiving surface water runoff from roadside; culverted under road.
PEM portion of wetland is missing the tree and sapling/shrub strata due to routine maintenance for roadside drainage feature.
Phalaris arundinacea is present at approximately 20% cover in PEM component.

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 due to maintenance of roadside drainage feature. Dominance of invasive exotic species in PEM component. Overall, good diversity of common native wetland species in the forested area.
Human Use Values	Wetland is located on private property and its roadside drainage function makes human recreational use of this area unlikely.
Wildlife Habitat	Small wetland along a roadside; although contiguous to a large tract of natural habitat, wetland is on the transitional edge.
Fish and Aquatic Life Habitat	Although there was 2-3 inches of standing water at the time of the survey, wetland had no surface water the previous day. It is unclear what the duration of inundation will be.
Shoreline Protection	N/A
Flood and Stormwater Storage	Roadside drainage captures stormwater runoff; PFO component of the wetland holds 1-12 inches of water. However, the wetland is culverted underneath the access road in the area, so water leaves wetland quickly.
Water Quality Protection	Wetland captures stormwater runoff from areas that have been recently logged, and also captures potential pollutants from road.
Groundwater Processes	No signs of groundwater process. Subsurface indicators of wetland hydrology were not investigated 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

Additional Plant list

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
**Betula alleghaniensis*	yellow birch		PFO	
**Fraxinus pennsylvanica*	green ash		PFO	
**Equisetum arvense*	field horsetail, common horsetail		PEM/PFO	
**Scirpus hattorianus*	mosquito bulrush		PEM	
Equisetum scirpoides	dwarf horsetail, dwarf scouring rush		PFO	

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/02/2019
Applicant/Owner: Enbridge State: WI Sampling Point WASV056f_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave
Slope (%): 5-8% Lat.: 46.360527 Long.: -90.597064 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 a forested area with relatively open canopy due to being recently logged. Regenerating hardwood understory.

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)
- ___ 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:
Primary and secondary indicators of wetland hydrology are present; parameter is met. Raining at time of data collection. Subsurface hydrology indicators were not identified due to potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV056f_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula alleghaniensis*	15	Y	FAC
2	*Fraxinus nigra*	15	Y	FACW
3	*Acer saccharum*	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	*Betula alleghaniensis*	15	Y	FAC
2	*Acer saccharum*	15	Y	FACU
3	*Fraxinus nigra*	5	N	FACW
4	*Ulmus americana*	3	N	FACW
5				
6				
7				
8				
9				
10				
		38	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex scabrata*	38	Y	OBL
2	*Glyceria striata*	38	Y	OBL
3	*Elymus virginicus*	5	N	FACW
4	*Dryopteris intermedia*	3	N	FAC
5	*Calamagrostis canadensis*	3	N	OBL
6	*Rumex obtusifolius*	3	N	FAC
7	*Athyrium filix-femina*	3	N	FAC
8	*Rubus pubescens*	1	N	FACW
9	*Viburnum opulus*	1	N	FACW
10	*Epilobium ciliatum*	0.5	N	FACW
11	*Lonicera canadensis*	0.5	N	FACU
12	*Ranunculus acris*	0.5	N	FAC
13				
14				
15				
		96.5	= 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 Stratu WASV056e_W	7	17
Sapling/Shrub Stratum	8	19
Herb Stratum	19	48
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 all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 83.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	79	x 1 =	79
FACW species	30.5	x 2 =	61
FAC species	39.5	x 3 =	118.5
FACU species	18.5	x 4 =	74
UPL species	0	x 5 =	0
Column totals	167.5 (A)		332.5 (B)

Prevalence Index = B/A = 1.99

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. Signs of earthworms in herbaceous layer.

SOIL **Sampling Point:** WASV056f_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:

6 near s ___ 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? ___Y___

Remarks:
No soils taken due to potential for underground utilities. Soils assumed to be hydric due to presence of hydrology and hydrophytic vegetation.

Photograph 1: WASV056f_W, East

Photograph 2: WASV056f_W, West

Photograph 3: WASV056f_W, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/02/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV056e_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 2-5% Lat.: 46.36021 Long.: -90.59824 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 18-35% 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 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 portion of wetland cleared for logging access. Rutting from heavy equipment present throughout the wetland; soils significantly disturbed from activities.

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)
- 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	X	No	____	Depth (inches):	1
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. Raining at time of data collection.

VEGETATION - Use scientific names of plants

Sampling Point: WASV056e_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	*Scirpus microcarpus*	38	Y	OBL
2	*Scirpus hattorianus*	38	Y	OBL
3	*Persicaria pensylvanica*	15	N	FACW
4	*Symphyotrichum lateriflorum*	15	N	FAC
5	*Epilobium ciliatum*	3	N	FACW
6	*Rubus idaeus*	3	N	FAC
7	*Fraxinus pennsylvanica*	3	N	FACW
8	*Mentha canadensis*	3	N	FACW
9				
10				
11				
12				
13				
14				
15				
		118	= 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 Stratu WASV056e_W	0	0
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: 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	76	x 1 =	76
FACW species	24	x 2 =	48
FAC species	18	x 3 =	54
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column totals	118 (A)		178 (B)

Prevalence Index = B/A = 1.51

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:** WASV056e_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
0-10	7.5YR 4/1	95	7.5YR 5/6	5	C	PL	Silt loam	
10-20	7.5YR 4/1	80	7.5YR 3/2	10	C	M	Silt loam	
			7.5YR 5/6	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 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: WASV056e_W, East

Photograph 2: WASV056e_W, North

Photograph 3: WASV056e_W, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/02/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV055/056_U
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
Slope (%): 15-20% Lat.: 46.360047 Long.: -90.598019 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 18-35% 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 data point taken on hillslope adjacent to wetlands WASV055 and WASV056.

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 hydric soil indicators present; parameter is not met.

VEGETATION - Use scientific names of plants

Sampling Point: WASV055/056_U

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	38	Y	FACU
2	*Tilia americana*	15	Y	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		53	= Total Cover	

Sapling/Shrub Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Ulmus americana*	38	Y	FACW
2	*Quercus rubra*	38	Y	FACU
3	*Acer saccharum*	38	Y	FACU
4	*Fraxinus nigra*	3	N	FACW
5				
6				
7				
8				
9				
10				
		117	= Total Cover	

Herb Stratum	Plot Size (15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex pedunculata*	15	Y	FACU
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		15	= 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 Stratu WASV056e_W	11	27
Sapling/Shrub Stratum	23	59
Herb Stratum	3	8
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 all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 16.67% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	41	x 2 =	82	
FAC species	0	x 3 =	0	
FACU species	144	x 4 =	576	
UPL species	0	x 5 =	0	
Column totals	185	(A)	658	(B)

Prevalence Index = B/A = 3.56

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 indicators observed; parameter is not met.

SOIL **Sampling Point:** WASV055/056_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
0-18	7.5YR 4/3	80	7.5YR 4/4	20	C	M	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)
___ 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 hydric soil indicators present and soil does not meet NTCHS definitaion of hydric soil; parameter is not met.

Photograph 1: WASV055/056_U, West

Photograph 2: WASV055/056_U, North

Photograph 3: WASV055/056_U, South

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

WETLAND IDENTIFICATION	**WASV056**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Clay Robertson
File #: N/A	Date of visit(s): 10/02/2019
Location: PLSS: 45N02W Lat: 46.360416 Long: -90.597419 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic silt loam, 18-35% slopes, very stony, rocky Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow, Hardwood Swamp Wetland Size: 3.194 acres / Wetland Area Impacted: 3.194 acres Vegetation: Plant Community Description(s): Logging road *Fraxinus nigra, Scirpus cyperinus, Carex crinita*
Hydrology: Wetland influenced by rutting from logging activities, ruts holding 3-5 inches of water at time of survey. Raining at time of survey. Draining west at 20-25% slopes and flattening/widening out at western edge. ORCs, Saturation at surface, geomorphic position (in parts), FAC neutral, high water table.	

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	N	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	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	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	N	Y	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	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			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	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)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
WH1: Large tract of wooded land owned by logging company and portions recently logged. Other portions are regenerating.
WH4: Areas surrounding this wetland are forested but disturbed from logging; regenerating forest stands with open canopy.
WH10, FA2: Standing water in ruts caused by forestry activity.
ST2, WQ3 - Area is rutted, but not channelized

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		Woodpecker holes & downy woodpecker
X		Blue jay
X		White tailed deer
X		Songbirds
X		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
	X	Frogs and Salamanders; standing water present in ruts at time of survey

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	
Fraxinus pensylvanica	green ash, red ash	2	PEM	
**Betula allegheniensis*	yellow birch	7	PEM/PFO	
**Acer saccharum*	hard maple, sugar maple	5	PFO	
Carex crinita	fringed sedge	6	PFO	
Persicaria pensylvanica	Pennsylvania knotweed, Pennsylvania smartweed, pinkweed	1	PEM	
Erechtites hieracifolius	American burn-weed, fireweed	2	PEM	
Symphyotrichum lateriflorum	side-flowering aster	3	PEM	
Scirpus cyperinus	wool-grass	4	PEM	
Scirpus atrovirens	black bulrush, dark-green bulrush	3	PEM	
**Scirpus microcarpus*	panicled bulrush	6	PEM	
Impatiens capensis	orange jewelweed, orange touch-me-not	2	PEM/PFO	
Mentha piperita	peppermint	0	PEM	
Carex crinita	fringed sedge	6	PEM	
Juncus tenuis	path rush, poverty rush, roadside rush	1	PEM	
**Glyceria striata*	fowl manna grass, fowl meadow grass	4	PFO	
Typha latifolia	broad-leaved cat-tail, common cat-tail	1	PEM	
Persicaria sagitatta	arrow-leaved tearthumb, arrow vine	6	PFO	
Calamagrostis canadensis	blue-joint grass	5	PFO	
Equisetum sylvaticum	wood horsetail, woodland horsetail	7	PEM	
Rubus pubescens	dwarf red raspberry	7	PFO	
Fragaria virginiana	thick-leaved wild strawberry, Virginia strawberry	1	PEM/PFO	
**Carex scabrata*	eastern rough sedge	8	PFO	
Rumex obtusifolius	bitter dock	0	PEM/PFO	
Elymus virginicus	common eastern wild-rye, Virginia wild-rye	6	PFO	
Solidago gigantea	giant goldenrod	3	PFO	
Epilobium ciliatum	American willow-herb, hairy willow-herb	3	PEM/PFO	
Athyrium filix-femina	common lady fern, lady fern	5	PFO	
Thelypteris palustris	eastern marsh fern, marsh fern	7	PEM/PFO	

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

PFO FQI = 22.8, Mean C of C = 5.1
PEM FQI = 14.1, Mean C of C = 3.3
Wetland missing tree and sapling/shrub strata in PEM portion of complex due to recent logging activities.

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	C	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		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)

Assessment Area is limited to the wetland boundaries within the study area limits; wetland continues off-site.
Increased compaction and runoff from logging operations. Rutting affecting wetland hydrology.
Earthworms observed in soil test pit.
Tree and sapling/shrub layer missing due to recent logging activity. Regenerating forest in 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 sapling/shrub strata are missing due to logging activities. Relatively low diversity containing early colonizing/disturbance wetland species throughout most of wetland; slightly higher in forested areas.
Human Use Values	Logging activities preclude use of wetland for recreation.
Wildlife Habitat	Although land is forested, the disturbance is to the degree that only edge habitat species can be supported.
Fish and Aquatic Life Habitat	Standing water in ruts are likely to support habitat for frogs and salamanders.
Shoreline Protection	N/A
Flood and Stormwater Storage	Wetland is in part long and linear (due to use as logging road) and will not hold significant amounts of water during a storm event. Ruts within wetland hold some water, but overall the capacity is not high.
Water Quality Protection	Wetland is not receiving significant amounts of polluted runoff from surrounding landscape due to being far off road.
Groundwater Processes	Signs of groundwater processes include: ORCs, saturation at surface, high water table observed after recent heavy rain.

Plant Species List – list of additional species

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

Plant Species List – list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Abies balsamea	balsam fir	5	PFO	
Carex intumescens	greater bladder sedge, shining bur sedge, swollen	5	PFO	
Carex bromoides	brome-like sedge	8	PFO	
Matteuccia struthiopteris	American ostrich fern, ostrich fern	5	PEM	
Onoclea sensibilis	sensitive fern	5	PEM/PFO	
Ulmus americana	American elm		PFO	
Dryopteris intermedia	intermediate wood fern		PFO	
Viburnum opulus	guelder-rose		PFO	
Lonicera canadensis	American honeysuckle		PFO	
Ranunculus acris	tall buttercup, meadow buttercup		PFO	
**Scirpus hattorianus*	mosquito bulrush		PEM	
Rubus idaeus	red raspberry		PEM	
Mentha canadensis	American wild mint		PEM	

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/3/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV057f_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 2-5% Lat.: 46.362817 Long.: -90.594803 Datum: WGS 1984
Soil Map Unit Name Tula-Gogebic complex, 0-6% slopes, 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 wetland complex. Signs of past logging activities within wetland; woody debris placed in mats in wettest portions.

HYDROLOGY

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

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- X 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)
- X 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	X	No	___	Depth (inches):	2
Water table present?	Yes	X	No	___	Depth (inches):	surface
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. Rainfall on the previous day.

VEGETATION - Use scientific names of plants

Sampling Point: WASV057f_W

Tree Stratum	Line 5	30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus nigra*		38	Y	FACW
2	*Tilia americana*		15	Y	FACU
3	*Tsuga canadensis*		15	Y	FACU
4					
5					
6					
7					
8					
9					
10					
			68	= Total Cover	

Sapling/Shrub Stratum	Plot Size (	30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Fraxinus pennsylvanica*		63	Y	FACW
2	*Betula alleghaniensis*		15	N	FAC
3	*Acer saccharum*		3	N	FACU
4	*Tilia americana*		3	N	FACU
5					
6					
7					
8					
9					
10					
			84	= Total Cover	

Herb Stratum	Plot Size (	15' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Carex crinita*		63	Y	OBL
2	*Symphyotrichum lateriflorum*		15	N	FAC
3	*Scirpus hattorianus*		15	N	OBL
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
			93	= 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	14	34
Sapling/Shrub Stratum	17	42
Herb Stratum	19	47
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: 5 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 60.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	78	x 1 =	78	
FACW species	101	x 2 =	202	
FAC species	30	x 3 =	90	
FACU species	36	x 4 =	144	
UPL species	0	x 5 =	0	
Column totals	245	(A)	514	(B)

Prevalence Index = B/A = 2.10

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)

Dominance Test indicator is present; parameter is met. Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV057f_W

Profile Description: **Line 5**

Depth (Inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type*	Redox Features Loc**	Texture	Remarks
0-10	5YR 2.5/1	100					Fibric Peat	
10+							Rock/bedrock	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:

- X 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**)
- ___ 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): 10 inches

Hydric soil present? Y

Remarks:
Histosol (A1) hydric soil indicator is present; parameter is met. Auger refusal at 10 inches due to rock.

Photograph 1: WASV057f_W, East

Photograph 2: WASV057f_W, West

Photograph 3: WASV057f_W, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/3/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV057e_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 0-3% Lat.: 46.363165 Long.: -90.593999 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.)

Data point located in headwater emergent wetland. Stream SASV018 originates where wetland narrows and becomes somewhat linear. Wetland has been affected by past logging activities; excessive woody debris piled within 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)
- ___ 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	X	No	___	Depth (inches):	4
Water table present?	Yes	X	No	___	Depth (inches):	surface
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. Rainfall on the previous day.

VEGETATION - Use scientific names of plants

Sampling Point: WASV057e_W

Tree Stratum	Plot Size (30' radius)	Absolute % Cover	Dominant Species	Indicator Status
1	*Ulmus americana*	3	Y	FACW
2	*Fraxinus nigra*	3	Y	FACW
3	*Acer saccharum*	1	N	FACU
4				
5				
6				
7				
8				
9				
10				
		7	= 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	*Glyceria striata*	38	Y	OBL
2	*Agrostis gigantea*	38	Y	FACW
3	*Carex crinita*	15	N	OBL
4	*Carex scoparia*	3	N	FACW
5	*Symphyotrichum lateriflorum*	3	N	FAC
6	*Ulmus americana*	1	N	FACW
7	*Rubus idaeus*	1	N	FAC
8				
9				
10				
11				
12				
13				
14				
15				
		99	= 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	1	4
Sapling/Shrub Stratum	0	0
Herb Stratum	20	50
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 all Strata: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	53	x 1 =	53	
FACW species	48	x 2 =	96	
FAC species	4	x 3 =	12	
FACU species	1	x 4 =	4	
UPL species	0	x 5 =	0	
Column totals	106	(A)	165	(B)

Prevalence Index = B/A = 1.56

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)

Rapid Test indicator is present; parameter is met. Prevalence Index and Dominance Test calculated for reference purposes only.

SOIL **Sampling Point:** WASV057e_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
0-2	10YR 2/1	100					Fibrous	Humic material
2+							Rock	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**)
___ 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/bedrock
Depth (inches): 2 inches

Hydric soil present? Y

Remarks:
Soil assumed to be hydric due to presence of hydrology indicators and hydrophytic vegetation; parameter is met. Auger refual at 2 inches due to rock.

Photograph 1: WASV057e_W, East

Photograph 2: WASV057e_W, North

Photograph 3: WASV057e_W, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/3/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV057_U
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
Slope (%): 10-15% Lat.: 46.363313 Long.: -90.593999 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 18-35% 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 located on hillslope in recent logged mixed hardwood stand. Data representative of uplands adjacent to WASV057. There was rainfall within the last 24 hours.

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 indicators of wetland hydrology are present; parameter is not met. Rainfall on the previous day.

VEGETATION - Use scientific names of plants

Sampling Point: WASV057_U

Tree Stratum (Plot Size: 5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1 *Betula alleghaniensis*	15	Y	FAC
2 *Acer saccharum*	3	N	FACU
3			
4			
5			
6			
7			
8			
9			
10			
	18 = Total Cover		

Sapling/Shrub Stratum (Plot Size: 5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1 *Acer saccharum*	38	Y	FACU
2 *Abies balsamea*	3	N	FAC
3 *Betula alleghaniensis*	3	N	FAC
4 *Ulmus rubra*	1	N	FAC
5			
6			
7			
8			
9			
10			
	45 = Total Cover		

Herb Stratum (Plot Size: 5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1 *Lycopodium clavatum*	63	Y	FAC
2 *Acer saccharum*	15	N	FACU
3 *Lonicera canadensis*	3	N	FACU
4 *Mitchella repens*	3	N	FACU
5 *Veronica officinalis*	3	N	FACU
6 *Carex crinita*	3	N	OBL
7 *Dactylis glomerata*	3	N	FACU
8 *Quercus rubra*	1	N	FACU
9 *Trientalis borealis*	1	N	FAC
10 *Dryopteris intermedia*	0.5	N	FAC
11			
12			
13			
14			
15			
	95.5 = Total Cover		

Woody Vine Stratum (Plot Size: 5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1			
2			
3			
4			
5			
	0 = Total Cover		

50/20 Thresholds

	20%	50%
Tree Stratum	4	9
Sapling/Shrub Stratum	9	23
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 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	3	x 1 =	3
FACW species	0	x 2 =	0
FAC species	86.5	x 3 =	259.5
FACU species	69	x 4 =	276
UPL species	0	x 5 =	0
Column totals	158.5 (A)		538.5 (B)

Prevalence Index = B/A = 3.40

Hydrophytic Vegetation Indicators:

- ___ Rapid test for hydrophytic vegetation
- X 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? Y

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

Dominance Test indicator is present; parameter is met. Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV057_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
0-6	7.5YR 3/4	90	7.5YR 4/6	10	C	M	loam	
6-18	7.5YR 4/6	100					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)
___ 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 hydric soil indicators present and soil does not meet NTCHS definition of hydric soil; parameter is not met.

Photograph 1: WASV057_U, West

Photograph 2: WASV057_U, North

Photograph 3: WASV057_U, South

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

WETLAND IDENTIFICATION	**WASV057**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Clay Robertson
File #: N/A	Date of visit(s): 10/02/2019
Location: PLSS: 45N02W Lat: 46.362808 Long: -90.594806 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic silt loam, 18-35% slopes, very stony, rocky and Tula-Gogebic complex, 0-6% slopes, stony Field Verified: Yes	WWI Class: T3K Wetland Type(s): Fresh (Wet) Meadow, Hardwood Swamp Wetland Size: 1.481 acres / Wetland Area Impacted: 1.481acres
Hydrology: NWI-mapped R4SBC. Large flat headwater wetland with standing water of 4-8 inches in microtopographic pools throughout; PEM and PFO components present. The wetland narrows as you travel westward into a small floodplain wetland to SASV018i (usually no greater than 30ft wide). Area has been cleared and is affected by associated hydrological changes. 3-5% slopes, draining westward, Water table at surface, muck, ORCs, standing water in pools.	Vegetation: Plant Community Description(s): PEM: *Glyceria striata, Scirpus cyperinus, Carex crinita* PFO: *Fraxinus pennsylvanica, Acer saccharum, 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	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	N	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	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	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	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	Y	Y	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	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	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.
ST2, WQ3 – Intermittent stream SASV018 is 3 feet wide by 1 foot deep.
WQ6: Algae, foul smell observed near the stream.
WH4: Area has been cleared, young woods with large amount of disturbance. Wetland is overwhelmed by woody debris in some areas.
WH8: Although entire area is forested, disturbance from logging precludes most area sensitive species.
WH10, FA2: No amphibians observed due to timing of survey.
FA1: Wetland connected to intermittent stream.
SP3: Stream and wetland have been impacted by logging; sedimentation evident from past land use activities and stream is overwhelmed by downed woody debris.
GW2: Wetland is a headwater 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
X		Downy woodpecker
X		White tailed deer, tracks, and browse on vegetation
	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
	X	Frogs and Salamanders – Standing pools and water present throughout wetland

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 crinita*	fringed sedge	6	PEM/PFO	
Symphyotrichum lateriflorum	side-flowering aster	3	PEM	
Abies balsamea	balsam fir	5	PEM/PFO	
Epilobium ciliatum	American willow-herb, hairy willow-herb	3	PEM	
Acer saccharum	hard maple, sugar maple	5	PEM/PFO	
Scirpus pedicellatus	*stalked wool-grass*	6	PEM	
Solidago canadensis	*Canadian goldenrod*	1	PEM	
**Tilia americana*	*American linden, basswood*	5	PFO	
Fraxinus nigra	*black ash*	8	PEM	
Impatiens capensis	*orange jewelweed, orange touch-me-not*	2	PEM	
Rubus pubescens	*dwarf red raspberry*	7	PEM/PFO	
Solidago gigantea	*giant goldenrod*	3	PEM	
Betula alleghaniensis	*yellow birch*	7	PEM/PFO	
Thelypteris palustris	*eastern marsh fern, marsh fern*	7	PEM	
Panax quinquefolius	*American ginseng, ginseng*	10	PEM	
Symphyotrichum puniceum	*swamp aster*	5	PEM	
**Glyceria striata*	*fowl manna grass, fowl meadow grass*	4	PEM	
Leersia oryzoides	*rice cut grass*	3	PEM	
Carex bromoides	*brome-like sedge*	8	PEM/PFO	
Carex scoparia	*broom sedge, lance-fruited oval sedge*	4	PEM	
Onoclea sensibilis	*sensitive fern*	5	PEM	
Scirpus cyperinus	*wool-grass*	4	PEM	
Viburnum acerifolium	*dockmackie, maple-leaved arrow-wood*	7	PEM	
Typha latifolia	*broad-leaved cat-tail, common cat-tail*	1	PEM	
**Agrostis gigantea*	*redtop*	0	PEM	
Eleocharis obtusa	*blunt spike-rush*	3	PEM	
Carex scabrata	*eastern rough sedge*	8	PEM/PFO	
**Fraxinus pennsylvanica*	green ash, red ash	2	PFO	
**Fraxinus nigra*	black ash	8	PEM/PFO	
**Ulmus americana*	American elm, white elm	3	PEM	
Lycopus americanus	American water-horehound, common water-horehound	4	PFO	
Geum canadense	white avens	2	PFO	

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

PFO FQI = 18.2, Mean C of C = 5.3 Good diversity of native flora, but tree strata missing in PEM portion of wetland complex due to logging activities.
PEM FQI = 25.0, Mean C of C = 4.8

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
X	X		H	C	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
					Agriculture – pasture
	X		M	C	Roads or railroad
					Utility corridor (above or subsurface)
					Dams, dikes or levees
					Soil subsidence, loss of soil structure
X			M	UC	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
					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.
Land use from logging removed tree/shrub strata increased runoff to wetland and decreased streambank stabilization of SASV018i. Stream is experiencing increased sedimentation and the linear portion of the wetland/stream complex is overwhelmed by downed woody debris.
Signs of earthworms in buffer, and road crosses buffer to the north.

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 has a good diversity of common native species, but tree strata missing throughout most of wetland due to recent logging activities.
Human Use Values	Wetland is located on private property that was was recently logged. A high concentration of white-tailed deer were observed in the wetland, making hunting feasible.
Wildlife Habitat	The wetland is relatively large. Woody debris, downed logs, and snags make good habitat for snakes, small mammals, and edge habitat species.
Fish and Aquatic Life Habitat	Standing pools of water will support amphibians and aquatic invertebrates.
Shoreline Protection	Although wetland is on either side of stream, sedimentation impacts from logging have nearly overwhelmed stream and wetland.
Flood and Stormwater Storage	Wetland will capture a good amount of stormwater runoff from surrounding landscape; however, water will quickly travel through wetland and drain off-site via SASV018i.
Water Quality Protection	Wetland stress and signs of excess nutrients, algae, foul-smelling soils, are most likely from logging operations. Headwaters of wetland capture runoff from public roads.
Groundwater Processes	Inundation, position of landscape, and headwaters suggest strong groundwater processes within wetland.

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

Plant Species List – list of additional species

Scientific Name	Common Name	C of C	Plant communities	Comments (Estimate of % Cover, Abundance)
Scirpus hattorianus	mosquito bulrush		PFO	
Rubus idaeus	red raspberry		PEM	
**Tsuga canadensis*	Eastern hemlock		PFO	

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/3/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV058s_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave
Slope (%): 5-10% Lat.: 46.363513 Long.: -90.594911 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 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 recently logged and regenerating stand. Raining at the time of survey.

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)
- 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	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. Rainfall during data collection. Subsurface indicators were not observed due to the potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV058s_W

Tree Stratum	Plot Size (10' X 50')	Absolute % Cover	Dominant Species	Indicator Status
1	*Tilia americana*	15	Y	FACU
2				
3				
4				
5				
6				
7				
8				
9				
10				
		15	= Total Cover	

Sapling/Shrub Stratum	Plot Size (10' X 50')	Absolute % Cover	Dominant Species	Indicator Status
1	*Betula alleghaniensis*	85	Y	FAC
2	*Acer saccharum*	15	N	FACU
3				
4				
5				
6				
7				
8				
9				
10				
		100	= Total Cover	

Herb Stratum	Plot Size (10' X 50')	Absolute % Cover	Dominant Species	Indicator Status
1	*Scirpus hattorianus*	38	Y	OBL
2	*Carex crinita*	15	Y	OBL
3	*Carex intumescens*	15	Y	FACW
4	*Thelypteris palustris*	15	Y	FACW
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		83	= 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	3	8
Sapling/Shrub Stratum	20	50
Herb Stratum	17	42
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 all Strata: 6 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 83.33% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	53	x 1 =	53	
FACW species	30	x 2 =	60	
FAC species	85	x 3 =	255	
FACU species	30	x 4 =	120	
UPL species	0	x 5 =	0	
Column totals	198	(A)	488	(B)

Prevalence Index = B/A = 2.46

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)

Dominance Test indicator is present; parameter is met. Prevalence Index calculated for reference purposes only.

SOIL **Sampling Point:** WASV058s_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 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**)
___ 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:

No soils taken due to the potential of underground utilities. Soil assumed to be hydric due to presence of hydrology indicators and hydrophytic vegetation; parameter is met.

Photograph 1: WASV058s_W, West

Photograph 2: WASV058s_W, North

Photograph 3: WASV058s_W, East

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/3/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV058e_W
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
Slope (%): 0-3% Lat.: 46.363668 Long.: -90.595651 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 6-18% 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 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 roadside drainage feature that connects several PSS components. Raining at time of survey.

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)
- ___ 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	X	No	___	Depth (inches):	0.5
Water table present?	Yes	X	No	___	Depth (inches):	surface
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. Rainfall during data collection. Subsurface indicators of wetland hydrology were not observed due to the potential for underground utilities.

VEGETATION - Use scientific names of plants

Sampling Point: WASV058e_W

Tree Stratum	Plot Size (10' X 50')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Sapling/Shrub Stratum	Plot Size (10' X 50')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
		0	= Total Cover	

Herb Stratum	Plot Size (10' X 50')	Absolute % Cover	Dominant Species	Indicator Status
1	*Onoclea sensibilis*	38	Y	FACW
2	*Solidago gigantea*	38	Y	FACW
3	*Osmunda claytoniana*	15	N	FAC
4	*Fraxinus pennsylvanica*	3	N	FACW
5	*Equisetum sylvaticum*	3	N	FACW
6	*Symphyotrichum lateriflorum*	1	N	FAC
7	*Impatiens capensis*	1	N	FACW
8				
9				
10				
11				
12				
13				
14				
15				
		99	= 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	20	50
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: 2 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: 100.00% (A/B)

Prevalence Index Worksheet

Total % Cover of:

OBL species	0	x 1 =	0	
FACW species	83	x 2 =	166	
FAC species	16	x 3 =	48	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column totals	99	(A)	214	(B)

Prevalence Index = B/A = 2.16

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)

Rapid Test indicator is present; parameter is met. Prevalence Index and Dominance Test calculated for reference purposes only.

SOIL **Sampling Point:** WASV058e_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 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**)
___ 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:

No soil disturbance due to the potential presence of underground utilities. Soil assumed to be hydric due to presence of hydrology indicators and hydrophytic vegetation; parameter is met.

Photograph 1: WASV058e_W, West

Photograph 2: WASV058e_W, East

Photograph 3: WASV058e_W, South

WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Line 5 City/County: Ashland Sampling Date: 10/3/2019
Applicant/Owner: Enbridge State: WI Sampling Point: WASV058_U
Investigator(s): Caitlin Cyrus, Clay Robertson Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Hilltop Local relief (concave, convex, none): Convex
Slope (%): 3-5% Lat.: 46.362809 Long.: -90.595833 Datum: WGS 1984
Soil Map Unit Name Gogebic silt loam, 18-35% 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.)

Data point located on upland hilltop above wetland WASV058. Area affected by recent logging activities.

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 indicators of wetland hydrology are present; parameter is not met. Rainfall on the previous day.

VEGETATION - Use scientific names of plants

Sampling Point: WASV058_U

Tree Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	63	Y	FACU
2	*Tsuga canadensis*	38	Y	FACU
3	*Quercus rubra*	15	N	FACU
4				
5				
6				
7				
8				
9				
10				
		116	= Total Cover	

Sapling/Shrub Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Acer saccharum*	15	Y	FACU
2	*Ulmus americana*	15	Y	FACW
3	*Fraxinus nigra*	3	N	FACW
4				
5				
6				
7				
8				
9				
10				
		33	= Total Cover	

Herb Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1	*Rubus hispidus*	63	Y	FACW
2	*Agrostis scabra*	35	Y	FAC
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
		98	= Total Cover	

Woody Vine Stratum	Plot Size (5' X 40')	Absolute % Cover	Dominant Species	Indicator Status
1				
2				
3				
4				
5				
		0	= Total Cover	

50/20 Thresholds

	20%	50%
Tree Stratum	23	58
Sapling/Shrub Stratum	7	17
Herb Stratum	20	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 all Strata: 6 (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	81	x 2 =	162	
FAC species	35	x 3 =	105	
FACU species	131	x 4 =	524	
UPL species	0	x 5 =	0	
Column totals	247	(A)	791	(B)

Prevalence Index = B/A = 3.20

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 indicator is present; parameter is not met.

SOIL **Sampling Point:** WASV058_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
0-18	7.5YR 4/6	100					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)
___ 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 hydric soil indicators present and soil does not meet NTCHS definition of hydric soil; parameter is not met.

Photograph 1: WASV058_U, West

Photograph 2: WASV058_U, North

Photograph 3: WASV058_U, South

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

WETLAND IDENTIFICATION	**WASV058**
Project name: Line 5	Evaluator(s): Caitlin Cyrus, Clay Robertson
File #: N/A	Date of visit(s): 10/03/2019
Location: PLSS: 45N02W Lat: 46.36324 Long: -90.596002 County: Ashland Town/City/Village: Ashland	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks
SITE DESCRIPTION	
Soils: Mapped Type(s): Gogebic silt loam, 6-18% slopes, very stony, rocky and Gogebic silt loam, 18-35% slopes, very stony, rocky Field Verified: Yes	WWI Class: Unmapped Wetland Type(s): Fresh (Wet) Meadow, Shrub-Carr Wetland Size: 1.504 acres / Wetland Area Impacted: 1.504 acres
Hydrology: Relatively large, flat, surface water-driven wetland that is likely expanded beyond natural extent by compaction and changes in hydrology associated with timbering operations. 5-8% slopes, draining north and connecting into roadside drainage feature. Some water stained leaves in lowest areas, drainage patterns; saturation at surface. Raining at time of survey.	Vegetation: Plant Community Description(s): PEM: *Scirpus cyperinus, Carex crinita, Scirpus atrovirens* PSS: *Fraxinus pennsylvanica, Dryopteris intermedia*

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	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	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	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	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	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.
HU3: PEM roadside drainage feature is visible to public; trees act as screen to wetland.
WH1 & WH3: Area is undeveloped, but is affected by logging activities, tree and shrub/sapling layers are greatly reduced.
ST1 & ST2: Flow-through to PEM roadside drainage feature.
WQ3: Presence of drainage patterns but no true channelization.

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	wool-grass	4	PEM/PFO	
**Carex crinita*	fringed sedge	6	PEM/PFO	
**Thelypteris palustris*	eastern marsh fern, marsh fern	7	PEM/PFO	
Rubus idaeus	wild red raspberry	3	PEM/PFO	
Acer saccharum	hard maple, sugar maple	5	PEM/PFO	
Scirpus atrovirens	black bulrush, dark-green bulrush	3	PEM/PFO	
Mentha canadensis	field mint	3	PEM/PFO	
Erechtites hieraciifolius	American burn-weed, fireweed	2	PEM/PFO	
**Onoclea sensibilis*	sensitive fern	5	PEM/PFO	
Fraxinus pennsylvanica	green ash, red ash	2	PEM/PFO	
Osmunda claytoniana	interrupted fern	6	PEM/PFO	
Rumex obtusifolius	bitter dock	0	PEM/PFO	
Dryopteris intermedia	fancy wood fern, glandular wood fern, intermediate	7	PEM/PFO	
Athyrium filix-femina	common lady fern, lady fern	5	PEM/PFO	
Symphyotrichum lateriflorum	side-flowering aster	3	PEM/PFO	
Potentilla recta	rough-fruited cinquefoil, sulphur cinquefoil	0	PEM/PFO	
**Tilia americana*	American basswood		PSS	
**Betula alleghaniensis*	yellow birch		PSS	
**Scirpus hattorianus*	mosquito bulrush		PSS	
**Carex intumescens*	bladder sedge		PSS	
**Solidago gigantea*	giant goldenrod		PEM	
Equisetum sylvaticum	wood horsetail		PEM	
Impatiens capensis	spotted touch-me-not		PEM	

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

Mostly composed of native vegetation, tolerant of disturbance and marginal conditions.
Tree and shrub/sapling layer missing. Greatly reduced by timbering activities.
PEM/PFO FQI = 14.5, Mean C of C = 3.6

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		M	C	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
Z	X		H	UC	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
					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 recently cleared. Increased run-off due to compaction from timbering activities.
Portion of wetland in PEM collecting runoff from county road that crosses through buffer.
Signs of earthworms in upland buffer areas.
Tree and shrub/sapling layers greatly reduced due to recent timbering activities.

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 sapling/shrub strata greatly reduced/removed by timbering activities. Herbaceous flora impacted by compaction, dominants are disturbance-tolerant species.
Human Use Values	Use for timbering precludes human recreational activities.
Wildlife Habitat	Downed timber and debris throughout wetland provide good habitat for snakes, small mammals, etc. Disturbance from logging supports edge species.
Fish and Aquatic Life Habitat	No standing water at time of survey; roadside drainage portion may collect water but doesn't appear to hold water for extended amounts of time.
Shoreline Protection	N/A
Flood and Stormwater Storage	Although wetland is surface water-driven, only PEM roadside drainage holds stormwater; rest of wetland drains to PEM. Roadside drainage feature captures stormwater from surrounding landscape.
Water Quality Protection	Roadside drainage feature captures runoff from road, remainder of wetland may capture pollutants associated with logging activities.
Groundwater Processes	No evidence of groundwater hydrology. Subsurface indicators of wetland hydrology were not investigated due to the potential of underground utilities.

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 Relocation Project City/County: Ashland Sampling Date: 2019-09-06

Applicant/Owner: Enbridge State: WI Sampling Point: wasa032f_w

Investigator(s): NTT/DGL Section, Township, Range: 045N-002W-22

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

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.365322 Long: -90.591618 Datum: WGS84

Soil Map Unit Name: Gogebic silt loam, 6 to 18 percent slopes, very stony, rocky 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.)
A wet forest feature surrounded by mesic hardwoods.

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): 4
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:
Soils are saturated at the surface with a high water table present at four inches.

VEGETATION – Use scientific names of plants.

Sampling Point: wasa032f_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus nigra*	50	Y	FACW
2. *Ulmus americana*	10	N	FACW
3. *Betula alleghaniensis*	5	N	FAC
4.			
5.			
6.			
7.			
	65 = Total Cover		

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

Herb Stratum (Plot size: 5')			
1. *Matteuccia struthiopteris*	10	Y	FAC
2. *Carex scabrata*	5	Y	OBL
3. *Osmunda claytoniana*	5	Y	FAC
4. *Impatiens capensis*	5	Y	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25 = 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: 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	5	x 1 =	5
FACW species	70	x 2 =	140
FAC species	20	x 3 =	60
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	95 (A)		205 (B)

Prevalence Index = B/A = 2.16

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.)

Wet forest community of black ash with American elm and yellow birch.

SOIL

Sampling Point: wasa032f_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
0-10	10YR 2/1	100					C	
10-20	10YR 5/1	65	7.5YR 6/6	35	C	M	C	Prominent redox

[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:

Depleted matrix at ten inches.

wasa032f_w_N

wasa032f_w_S

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

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): NTT/DGL
File #: wasa032	Date of visit(s): 09/06/2019
Location: PLSS: 045N-002W-22 Lat: 46.365283 Long: -90.591668 County: Ashland Town/City/Village: Morse town	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks, LS13

SITE DESCRIPTION		
Soils: Mapped Type(s): 5351C Gogebic silt loam 5353B Tula-Gogebic complex Field Verified: The series was not verified. Gogebic fine sandy loam. Soils are clay.	WWI Class: N/A Wetland Type(s): PFO - Hardwood swamp	
	Wetland Size: 0.42	Wetland Area Impacted 0.42
Hydrology: Soils are saturated at the surface and a high water table is present.	Vegetation: Plant Community Description(s): Hardwood swamp is dominated by black ash with American elm and a sparse understory dominated by native species.	

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: Bear hunting
2	N	N	Used for educational or scientific purposes
3	Y	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	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	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	Y	Y	Vegetation is inundated in spring
SP			**Shoreline Protection**
1	NA	NA	Along shoreline of a stream, lake, pond or open water area (≥1 acre) - if no, not applicable
2	NA	NA	Potential for erosion due to wind fetch, waves, heavy boat traffic, erosive soils, fluctuating water levels or high flows – if no, not applicable
3	NA	NA	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	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	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	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	Y	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)

HU1- used for bear hunting. HU3- located next to a dirt road. GW1 - groundwater seepage present.

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	Deer
	Y	Bear
Y	Y	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

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
Ulmus americana			PFO	Common
Betula alleghaniensis			PFO	Uncommon
Carex scabrata			PFO	Uncommon
Osmunda claytoniana			PFO	Uncommon
Impatiens capensis			PFO	Uncommon
Matteuccia struthiopteris			PFO	Common

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

The wetland is dominated by moderate diversity of native 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
X	X	X	L	C	Roads or railroad
X	X	X	M	C	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
					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 along a dirt road and is adjacent to a powerline corridor.

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	Low number of invasives with average diversity
Human Use Values	Used for hunting
Wildlife Habitat	Large forested complex
Fish and Aquatic Life Habitat	No standing water present
Shoreline Protection	
Flood and Stormwater Storage	Basin wetland that can hold runoff from adjacent to road
Water Quality Protection	Small wetland located along powerline corridor and receives runoff from nearby road.
Groundwater Processes	Located on a sideslope with potential groundwater discharge

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: 2019-09-06

Applicant/Owner: Enbridge State: WI Sampling Point: wasa032_u

Investigator(s): NTT/DGL Section, Township, Range: 045N-002W-22

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

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.365271 Long: -90.591951 Datum: WGS84

Soil Map Unit Name: Gogebic silt loam, 6 to 18 percent slopes, very stony, rocky 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 recorded in a mesic hardwood system dominated by sugar maple.

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 wetland hydrology indicators were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wasa032_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharum*	50	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	50 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Ostrya virginiana*	10	Y	FACU
2.			
3.			
4.			
5.			
6.			
7.			
	10 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Carex pedunculata*	5	Y	FAC
2. *Lonicera canadensis*	5	Y	FACU
3. *Fraxinus pennsylvanica*	2	N	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	12 = 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: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	2	x 2 =	4
FAC species	5	x 3 =	15
FACU species	65	x 4 =	260
UPL species	0	x 5 =	0
Column Totals:	72 (A)		279 (B)

Prevalence Index = B/A = 3.88

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.)

Sugar maple dominated forest with a sparse ground layer that includes glandular wood fern, Carex pedunculata, and fly honeysuckle.

SOIL

Sampling Point: wasa032_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
0-4	10YR 2/2	100					SIL	
4-20	7.5YR 4/4	100					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:

No hydric soil indicators present.

wasa032_u_S

wasa032_u_W

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Line 5 Relocation Project City/County: Ashland Sampling Date: 2019-09-06

Applicant/Owner: Enbridge State: WI Sampling Point: wasa031f_w

Investigator(s): NTT/DGL Section, Township, Range: 045N-002W-23

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

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.365189 Long: -90.586536 Datum: WGS84

Soil Map Unit Name: Gogebic silt loam, 6 to 18 percent slopes, very stony, rocky 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 forest/hardwood swamp dominated by black ash. Wetland is associated with a perennial stream (sasa004p).

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): 2

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

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

Remarks:

Saturation at two inches with a high water table present at six. Water moving downhill along side slope.

VEGETATION – Use scientific names of plants.

Sampling Point: wasa031f_w

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus nigra*	50	Y	FACW
2. *Betula alleghaniensis*	10	N	FAC
3. *Ulmus americana*	5	N	FACW
4.			
5.			
6.			
7.			
	65 = Total Cover		

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

Herb Stratum (Plot size: 5')			
1. *Carex scabrata*	50	Y	OBL
2. *Carex bromoides*	25	Y	FACW
3. *Athyrium angustum*	5	N	FAC
4. *Rubus pubescens*	2	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	82 = 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: 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	50	x 1 =	50
FACW species	87	x 2 =	174
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	152 (A)		269 (B)

Prevalence Index = B/A = 1.77

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.)

Black ash dominated wet forest with Carex bromoides and Carex scabrata.

SOIL

Sampling Point: wasa031f_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
0-6	10YR 2/1	85	7.5YR 6/8	15	C	M	SC	Prominent redox
6-20	7.5YR 4/3	90	10YR 5/1	10	D	M	SCL	Distinct redox

[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:

Redox concentrations in first layer with depletions below.

wasa031f_w_E

wasa031f_w_S

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

WETLAND IDENTIFICATION	
Project name: Line 5 Relocation Project	Evaluator(s): NTT/DGL
File #: wasa031	Date of visit(s): 09/06/2019
Location: PLSS: 045N-002W-30 Lat: 46.343032 Long: -90.67342 County: Ashland Town/City/Village: Morse town	Ecological Landscape: North Central Forest Watershed: LS13, Tyler Forks

SITE DESCRIPTION		
Soils: Mapped Type(s): 5351C Gogebic silt loam 5353B Tula-Gogebic complex Field Verified: The series was not verified. Soils are sandy clay over sandy clay loam.	WWI Class: T3/5K Wetland Type(s): PFO - Hardwood swamp	
	Wetland Size: 2.62	Wetland Area Impacted 2.62
Hydrology: The wetland is seasonally saturated and has a high water table.	Vegetation: Plant Community Description(s): The hardwood swamp is dominated by black ash and a sparse understory of sedges.	

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: Bear 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	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	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	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	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	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	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	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	Y	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)

HU1- used for bear hunting.

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	Deer
	Y	Bear
Y	Y	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

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
Ulmus americana			PFO	Common
Betula alleghaniensis			PFO	Common
Carex bromoides			PFO	Common
Carex scabrata			PFO	Abundant
Rubus pubescens			PFO	Uncommon
Athyrium angustum			PFO	Uncommon

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

The wetland is dominated by a moderate diversity of native species, with very low abundance of non-natives.

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
X	X	X	L	C	Roads or railroad
X	X	X	M	C	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
					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 along a dirt road and adjacent to a powerline corridor.

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	Low number of invasives with average diversity.
Human Use Values	Used for hunting.
Wildlife Habitat	Large forested complex.
Fish and Aquatic Life Habitat	No standing water present.
Shoreline Protection	Wetland located along side slope that enters small stream.
Flood and Stormwater Storage	Wetland located along side slope that enters small stream
Water Quality Protection	Small wetland located along powerline corridor
Groundwater Processes	Located on a side hill with groundwater discharge

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: 2019-09-06

Applicant/Owner: Enbridge State: WI Sampling Point: wasa031_u

Investigator(s): NTT/DGL Section, Township, Range: 045N-002W-23

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

Subregion (LRR or MLRA): Northcentral Forests Lat: 46.365206 Long: -90.586351 Datum: WGS84

Soil Map Unit Name: Gogebic silt loam, 6 to 18 percent slopes, very stony, rocky 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 dominated by sugar maple.

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 wetland hydrology indicators were observed.

VEGETATION – Use scientific names of plants.

Sampling Point: wasa031_u

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharum*	75	Y	FACU
2. *Quercus rubra*	5	N	FACU
3. *Fraxinus nigra*	5	N	FACW
4.			
5.			
6.			
7.			
	85 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Abies balsamea*	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
	10 = Total Cover		

Herb Stratum (Plot size: 5')			
1. *Mitchella repens*	25	Y	FACU
2. *Lonicera canadensis*	10	Y	FACU
3. *Dryopteris intermedia*	10	Y	FAC
4. *Matteuccia struthiopteris*	5	N	FAC
5. *Carex pedunculata*	5	N	FAC
6. *Dirca palustris*	5	N	FAC
7.			
8.			
9.			
10.			
11.			
12.			
	60 = 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: 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	5	x 2 =	10
FAC species	35	x 3 =	105
FACU species	115	x 4 =	460
UPL species	0	x 5 =	0
Column Totals:	155 (A)		575 (B)

Prevalence Index = B/A = 3.71

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.)

Sugar maple dominated forest with partridgeberry, Carex peduculata, leatherwood, and balsam fir.

SOIL

Sampling Point: wasa031_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 3/1	100					SICL	
6-20	7.5YR 4/3	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 present.

wasa031_u_E

wasa031_u_S