



APPENDIX B TABLES



TABLE B-1 ADDITIONAL WATERBODIES SURVEYED IN 2024 WITHIN THE PROJECT SURVEY AREA

Unique ID (Waterbody Name)	Feature Type	Waterbody Regime	Data Point Coordinates		Linear feet Within the Survey Area ^a (feet)	Milepost	Page Number in Appendix A (Map Book)
			Latitude	Longitude			
srig001e	Ditch	Ephemeral	46.348641	-96.653321		59	
srig002e	Ditch	Ephemeral	46.552403	-96.916047		32.8	
scae003e	Ditch	Ephemeral	46.644705	-96.978624		23.3	
sria002e	Ditch	Ephemeral	46.485731	-96.854002		39.9	

^a Linear feet value represents the length of the feature through the entire survey corridor and does not represent the Project impacts.



ERM

TABLE B-2 SURVEY AREAS VISITED APRIL 2024

Milepost/ Milepost Range	Variance Number ^a	Notes
59	V14	Additional workspace/footprint for Wahpeton Town Boarder Station (survey polygon and buffer 150' from edge of polygon)
57-57.5	-	Reroute to edge of Krause tracts
52.9-53.9	V07	Reroute (survey corridor 150' on either side of pipeline alignment)
53.-54.4	V07	Reroute (survey corridor 150' on either side of pipeline alignment)
51.9	V51	Access road along CR 81 (survey corridor 25' on either side of access road polygon)
43.9-44.4	V57	CL shift to east side of 172nd Ave. SE (survey corridor 150' on either side of pipeline alignment)
40.5	V45	Access road along 64th St. SE
39.9	V43/V44	Access roads along 64th St.
39.5	V60	Widened Access Road, workspace extended to west along 170th Ave. SE
36.2	V42	Access road along 168th Ave. SE
32.6-32.8	V12	CL shift to the east (survey corridor 150' on either side of pipeline alignment)
32.8-32.9	V12	CL shift to the east (survey corridor 150' on either side of pipeline alignment)
32.9-33.0	V12	CL shift to the east (survey corridor 150' on either side of pipeline alignment)
27.7	V40	Access road off 167th Ave. SE (survey corridor 25' on either side of access road polygon)
24.7	V34	Access road off 167th Ave. SE (survey corridor 25' on either side of access road polygon)
24.8	V56	Small area for additional access off 165th Ave. SE
24.1	V32	Access off 167th Ave. SE
23.3-23.6	V31	Workspace added north of 53rd St. SE (survey corridor 25' on either side of access road polygon)
5.2-5.3	V59	Workspace extends west outside of original survey corridor and Cennex reroute
5.1	V16	Access road shift to the south off 165th Ave. SE



ERM

Milepost/ Milepost Range	Variance Number ^a	Notes
1.4	V15	Access road off 163rd Ave. SE (survey corridor 25' on either side of access road polygon)

^a Variance numbers assigned to locations for ERM and WBI Energy to track changes to workspace.



APPENDIX C

WETLAND AND WATERBODY DATA SHEETS
AND PHOTO LOG

Project/Site: Wahpeton Expansion Project City/County: Richland Sampling Date: 4/18/2024
 Applicant/Owner: WBI State: ND Sampling Point: norig001
 Investigator(s): CM/NG Section, Township, Range: S12 T133N R48W
 Landform (hillside, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 1
 Subregion (LRR/MLRA): LRR F, MLRA 56A Lat: 46.347636 Long: -96.654666 Datum: WGS84
 Soil Map Unit Name: Antler clay loam, 0 to 2 percent slopes NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation X, Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No X
 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 <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
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Remarks:
 Upland point located at a potential NWI feature within an agricultural field. Historical imagery indicates this area has been an agricultural field for over 2 decades. The field was tilled at the time of survey with evidence of the prior crop being corn.

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u> </u> (A) Total Number of Dominant Species Across All Strata: <u> </u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u> </u> (A/B)
1. _____					
2. _____					
3. _____					
4. _____					
=Total Cover					Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum	(Plot size: <u>15</u>)				
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
=Total Cover					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.
Herb Stratum	(Plot size: <u>5</u>)				
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
=Total Cover					
Woody Vine Stratum	(Plot size: <u>30</u>)				Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
1. _____					
2. _____					
=Total Cover					
% Bare Ground in Herb Stratum <u>100</u>					

Remarks:

SOIL

Sampling Point: norig001

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	10YR 2/1	100						

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	

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

Restrictive Layer (if observed):	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Type: _____ Depth (inches): _____	

Remarks:
There was no depression or soil cracks at the upland point. Soils are dark with no hydric indicators.

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	

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

Remarks:



norig001 facing North



norig001 facing South



norig001 facing East



norig001 facing West

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
 See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Wahpeton Expansion Project City/County: Richland Sampling Date: 4/18/2024
 Applicant/Owner: WBI State: ND Sampling Point: norig002
 Investigator(s): CM/NG Section, Township, Range: S1 T133N R48W
 Landform (hillside, terrace, etc.): Flat Local relief (concave, convex, none): Concave Slope (%): 2
 Subregion (LRR/MLRA): LRR F, MLRA 56A Lat: 46.369076 Long: -96.654666 Datum: WGS84
 Soil Map Unit Name: Ryan-Fargo silty clays, 0 to 1 percent slopes NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes No X
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling p_x

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u> </u> No <u> </u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	

Remarks:
 Potential NWI located within an agricultural ditch adjacent to 179th Ave SE. At the time of survey there was an excavator actively widening the ditch, presumably for drain tile discharge and/or general maintenance.

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)
1. _____ 2. _____ 3. _____ 4. _____ _____ =Total Cover	_____	_____	_____	
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u>)	_____	_____	_____	
1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ =Total Cover	_____	_____	_____	
<u>Herb Stratum</u> (Plot size: <u>5</u>)	_____	_____	_____	
1. <u>Bromus inermis</u> 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ _____ =Total Cover	<u>30</u>	<u>Yes</u>	<u>UPL</u>	
<u>Woody Vine Stratum</u> (Plot size: <u>30</u>)	_____	_____	_____	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.
1. _____ 2. _____ _____ =Total Cover	_____	_____	_____	
% Bare Ground in Herb Stratum <u>70</u>	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>

Remarks:
 Grasses were present in a dormant state along the side of the ditch with no evidence of hydrophytic vegetation.

SOIL

Sampling Point: norig002

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	10YR 2/1	100						

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input type="checkbox"/> No <input type="checkbox"/>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Small amounts of surface water present as a direct result of recent precipitation.



norig002 facing North



norig002 facing South



norig002 facing East



norig002 facing West

Project/Site: Wahpeton Expansion Project City/County: Richland Sampling Date: 4/18/2024
 Applicant/Owner: WBI State: ND Sampling Point: norig003
 Investigator(s): CM/NG Section, Township, Range: S1 T133N R48W
 Landform (hillside, terrace, etc.): Flat Local relief (concave, convex, none): Concave Slope (%): 2
 Subregion (LRR/MLRA): LRR F, MLRA 56A Lat: 46.365254 Long: -96.673234 Datum: WGS84
 Soil Map Unit Name: Ryan-Fargo silty clays, 0 to 1 percent slopes NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
 Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes No X
 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 <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
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Remarks:
 Potential NWI located within an agricultural ditch adjacent to 179th Ave SE. At the time of survey there was an excavator actively widening the ditch, presumably for drain tile discharge and/or general maintenance.

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)
1. _____					
2. _____					
3. _____					
4. _____					
=Total Cover					
Sapling/Shrub Stratum	(Plot size: <u>15</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>30</u> x 5 = <u>150</u> Column Totals: <u>30</u> (A) <u>150</u> (B) Prevalence Index = B/A = <u>5.00</u>
1. _____					
2. _____					
3. _____					
4. _____					
5. _____					
=Total Cover					
Herb Stratum	(Plot size: <u>5</u>)	Absolute % Cover	Dominant Species?	Indicator Status	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.
1. <u>Bromus inermis</u>		<u>30</u>	<u>Yes</u>	<u>UPL</u>	
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
<u>30</u> =Total Cover					
Woody Vine Stratum	(Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
1. _____					
2. _____					
=Total Cover					
% Bare Ground in Herb Stratum <u>70</u>					

Remarks:
 Grasses were present in a dormant state along the side of the ditch with no evidence of hydrophytic vegetation.

SOIL

Sampling Point: norig003

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	10YR 2/1	100						

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	

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

Restrictive Layer (if observed):	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Type: _____ Depth (inches): _____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	

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

Remarks:
Small amounts of surface water present as a direct result of recent precipitation.



norig003 facing North



norig003 facing South



norig003 facing East



norig003 facing West

Waterbody Data Sheet

Description			
Project Name:		Date:	Waterbody Survey ID:
State:	County/Parish:	USGS Waterbody Name:	
Company:	Crew Member Initials:	Latitude:	Longitude:
Survey Type: <i>(check one)</i>	<input type="checkbox"/> Centerline	<input type="checkbox"/> Re-Route	<input type="checkbox"/> Access Road <input type="checkbox"/> Facility <input type="checkbox"/> Other
Waterbody Type: <i>(check one)</i>	<input type="checkbox"/> River	<input type="checkbox"/> Stream	<input type="checkbox"/> Ditch <input type="checkbox"/> Swale <input type="checkbox"/> Canal <input type="checkbox"/> Other
Water Appearance: <i>(check one)</i>	<input type="checkbox"/> No Water	<input type="checkbox"/> Clear	<input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on Surface <input type="checkbox"/> Surface Scum <input type="checkbox"/> Algal Mats <input type="checkbox"/> Other
Feature Quality ^a : <i>(check one)</i>	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low
Feature Description: <i>(check one)</i>	<input type="checkbox"/> Natural	<input type="checkbox"/> Artificial, man-made	<input type="checkbox"/> Manipulated
Flow Regime: <i>(check one)</i>	<input type="checkbox"/> Ephemeral	<input type="checkbox"/> Intermittent	<input type="checkbox"/> Perennial <input type="checkbox"/> Connecting Swale <input type="checkbox"/> Artificial
Sinuosity within Survey Corridor: <i>(check one)</i>	<input type="checkbox"/> Straight	<input type="checkbox"/> Meandering	
Description Notes:			
Measurements			
Depth of Water: _____ ft. N/A <input type="checkbox"/> Unknown <input type="checkbox"/>		Water Edge to Water Edge: _____ ft. N/A <input type="checkbox"/> OHWM Width: _____ ft.	
OHWM Indicator: <i>(check all that apply)</i>	<input type="checkbox"/> Clear line on bank	<input type="checkbox"/> Shelving	<input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining
	<input type="checkbox"/> Bent, matted, or missing vegetation	<input type="checkbox"/> Wrack line	<input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change
	<input type="checkbox"/> Other - Please explain in comments		
Dominant Substrate: <i>(check all that apply)</i>	<input type="checkbox"/> Bedrock	<input type="checkbox"/> Boulder	<input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input type="checkbox"/> Sand <input type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic
Observations			
Riparian Zone Present: <i>(check one)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Vegetation Layers: <i>(check all that apply)</i>	<input type="checkbox"/> Trees <input type="checkbox"/> Saplings/Shrubs <input type="checkbox"/> Herbs		
Dominant Bank Vegetation <i>(list)</i> :			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools, etc.):			
Aquatic Organisms Observed <i>(list)</i> :			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):			
Observation Notes:			



srig001e Upstream Facing North



srig001e Downstream Facing South



srig001e Across Facing West

Waterbody Data Sheet

Description			
Project Name:		Date:	Waterbody Survey ID:
State:	County/Parish:	USGS Waterbody Name:	
Company:	Crew Member Initials:	Latitude:	Longitude:
Survey Type: <i>(check one)</i>	<input type="checkbox"/> Centerline	<input type="checkbox"/> Re-Route	<input type="checkbox"/> Access Road <input type="checkbox"/> Facility <input type="checkbox"/> Other
Waterbody Type: <i>(check one)</i>	<input type="checkbox"/> River	<input type="checkbox"/> Stream	<input type="checkbox"/> Ditch <input type="checkbox"/> Swale <input type="checkbox"/> Canal <input type="checkbox"/> Other
Water Appearance: <i>(check one)</i>	<input type="checkbox"/> No Water	<input type="checkbox"/> Clear	<input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on Surface <input type="checkbox"/> Surface Scum <input type="checkbox"/> Algal Mats <input type="checkbox"/> Other
Feature Quality ^a : <i>(check one)</i>	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low
Feature Description: <i>(check one)</i>	<input type="checkbox"/> Natural	<input type="checkbox"/> Artificial, man-made	<input type="checkbox"/> Manipulated
Flow Regime: <i>(check one)</i>	<input type="checkbox"/> Ephemeral	<input type="checkbox"/> Intermittent	<input type="checkbox"/> Perennial <input type="checkbox"/> Connecting Swale <input type="checkbox"/> Artificial
Sinuosity within Survey Corridor: <i>(check one)</i>	<input type="checkbox"/> Straight	<input type="checkbox"/> Meandering	
Description Notes:			
Measurements			
Depth of Water: _____ ft.		N/A <input type="checkbox"/> Unknown <input type="checkbox"/>	Water Edge to Water Edge: _____ ft. N/A <input type="checkbox"/> OHWM Width: _____ ft.
OHWM Indicator: <i>(check all that apply)</i>	<input type="checkbox"/> Clear line on bank	<input type="checkbox"/> Shelving	<input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining
	<input type="checkbox"/> Bent, matted, or missing vegetation	<input type="checkbox"/> Wrack line	<input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change
	<input type="checkbox"/> Other - Please explain in comments		
Dominant Substrate: <i>(check all that apply)</i>	<input type="checkbox"/> Bedrock	<input type="checkbox"/> Boulder	<input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input type="checkbox"/> Sand <input type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic
Observations			
Riparian Zone Present: <i>(check one)</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Vegetation Layers: <i>(check all that apply)</i>	<input type="checkbox"/> Trees <input type="checkbox"/> Saplings/Shrubs <input type="checkbox"/> Herbs		
Dominant Bank Vegetation <i>(list)</i> :			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools, etc.):			
Aquatic Organisms Observed <i>(list)</i> :			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):			
Observation Notes:			



srig002e Upstream Facing West



srig002e Downstream Facing East

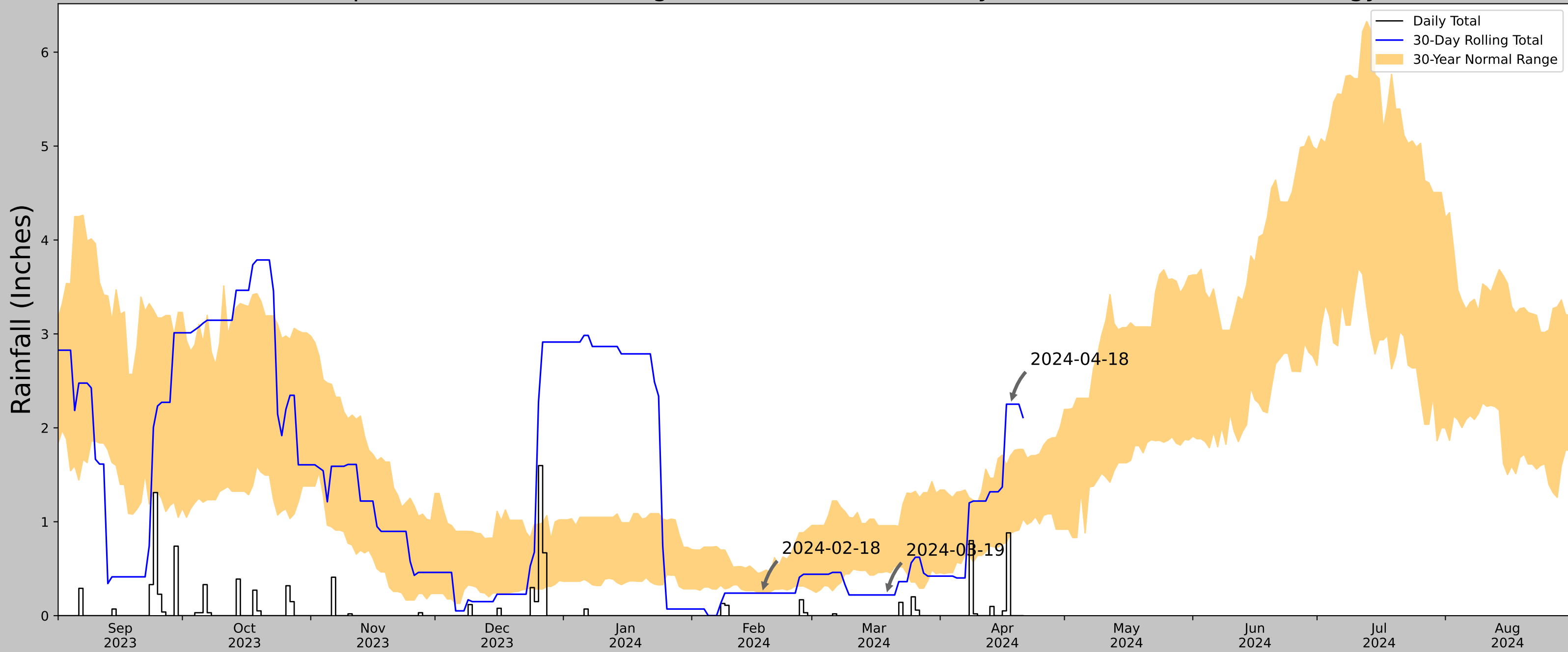


srig002e Across Facing South



APPENDIX D ANTECEDENT PRECIPITATION TOOL

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	46.569006, -96.911320
Observation Date	2024-04-18
Elevation (ft)	936.339
Drought Index (PDSI)	Moderate wetness (2024-03)
WebWIMP H ₂ O Balance	Wet Season

30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2024-04-18	0.877559	1.704331	2.251969	Wet	3	3	9
2024-03-19	0.471654	0.958661	0.220472	Dry	1	2	2
2024-02-18	0.249606	0.464173	0.240157	Dry	1	1	1
Result							Normal Conditions - 12



Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
MC LEOD 3 E	46.3911, -97.2392	1075.131	19.861	138.792	11.694	11034	88
WAHPETON 12.1 WNW	46.3313, -96.841	977.034	19.431	98.097	10.65	16	0
KINDRED 1.7 SSE	46.63, -97.001	948.163	20.019	126.968	11.55	1	0
KINDRED 0.1 SE	46.65, -97.0193	943.898	20.719	131.233	12.043	59	0
LEONARD 4.7 NNE	46.7173, -97.2216	942.913	22.554	132.218	13.131	6	0
WAHPETON 15.8 NNW	46.4729, -96.7671	937.008	23.181	138.123	13.633	0	1
ABERCROMBIE	46.45, -96.7333	935.039	24.437	140.092	14.42	1	0
ABERCROMBIE 0.2 NW	46.449, -96.728	937.008	24.675	138.123	14.512	14	1
KENT 0.2 SW	46.4366, -96.6847	940.945	26.601	134.186	15.54	44	0
CHAFFEE 5 NE	46.7958, -97.2686	953.084	27.997	122.047	16.016	149	0
BRECKENRIDGE MN	46.2681, -96.5914	959.974	32.053	115.157	18.115	28	0