

FINAL SECTION 4(f) EVALUATION

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Proposed Action

The proposed action is to improve United States Highway 2 (US 2) from the junction of US 85, located north of Williston, to the junction of US 52 located northwest of Minot. The proposed project is approximately 100 miles long and is located in Williams, Mountrail, and Ward counties of North Dakota.

The purpose of the proposed US 2 reconstruction project is to improve safety, enhance system performance, and improve system continuity. The proposed project is needed to address safety problems resulting from roadway deficiencies, frequent turning movements, a higher percentage of truck traffic, and an aging driver population. Significant additional safety concerns stem from the conflict between traffic traveling at high speeds and traffic traveling at much slower speeds, such as military convoys and large, slow-moving agricultural machinery. The proposed project is needed to support the increasing transportation needs resulting from changes in the economy and ongoing economic development initiatives.

Population loss in smaller towns has forced many residents to travel longer distances to obtain basic services and employment opportunities. The project area is also experiencing consolidation of grain elevator, diversification of crops, and increase use of irrigation, which are all factors associated with increased use of trucks to transport agricultural products to market. Additionally, improvements to US 2 are necessary to allow the roadway to properly function as part of the Interregional System of roads under NDDOT's Highway Performance Classification System. The detailed Purpose and Need for the proposed action is provided in Section 1 of the Final Environmental Impact Statement (FEIS).

Five alternatives, including four build alternatives and the No-Action Alternative, were subject to detailed study. Three of the build alternatives were developed to consider the

use of the existing roadway as two lanes (i.e., a roadway) of the divided multilane highway. The build alternatives included:

- South Alignment Alternative;
- North Alignment Alternative;
- Selective North-South Alignment Alternative (Preferred)
- Complete Reconstruction Alternative.

A detailed description of the no-action and each of the build alternatives is provided in Section 2 of the FEIS.

Section 4(f) Properties

Section 4(f) of the Department of Transportation (DOT) Act of 1966 prohibits the use of land from significant publicly owned parks, recreational areas, wildlife or waterfowl refuges, or significant historic sites for any federally funded transportation program, unless a determination is made that:

There is no feasible and prudent alternative to using such land; and the project includes all possible planning to minimize harm to the land resulting from its use.

There is one historic architectural site that is potentially impacted by the proposed project. Additionally, there is potential to impact U.S. Fish and Wildlife Service (USFWS) wetland conservation easements, which are viewed as 4(f) resources pursuant to an earlier agreement with USFWS.

There were other archeological sites and historic architectural sites identified. However, these sites were either not eligible to the National Register of Historic Places or were important for their information content only and were not valued for preservation in-place. Therefore, these sites are not considered Section 4(f) properties. The North Dakota State Historic Preservation Officer (NDSHPO) has concurred in this determination (see Section 106 documentation Section 7.2 pages 7-5 through 7-10).

Wetland Conservation Easements

Resource Description – The USFWS wetland conservation easements are easements on private land, which prohibit the owner from draining, filling, or burning vegetation of a wetland within the easement parcel. The location of wetland conservation easements along US 2 were identified USFWS. During fieldwork, the wetlands under a USFWS conservation easement were identified and delineated to determine the potential impacts for each build alternative. Most wetlands under conservation easement within the corridor are located between milepost 90 and 120. Attachment 1 provides a detailed table of wetland conservation easement impacts for the build alternatives. Maps showing the locations of the wetlands under conservation easement are shown in Attachment 2, and reflect the various alternative impacts. Attachment 3 summarizes easement wetland impacts for each alternative. In the past, North Dakota and the USFWS have viewed easement wetlands as an extension of the wildlife or waterfowl refuges.

Activities and Use – The USFWS wetland conservation easements were generally purchased in the “Prairie Pothole” region for migratory waterfowl. The lands containing these wetlands are privately owned with the development rights or wetland conservation easements purchased by the USFWS. Each landowner manages the wetland under a conservation easement according to the specific provisions outlined by the USFWS.

Function – The purpose of these areas is the use by wildlife, primarily waterfowl, and the preservation of wetland ecological function.

Relationship to Similar Adjacent Lands – Many of these wetlands are located within a patchwork of wetlands, rangeland, and cultivated land. The wetlands are predominately glacial depressions filled with spring runoff from melting snow. They range from emergent wetlands with a seasonal to semi permanent water regime to open water wetlands with permanent water regimes, though water levels fluctuate annually depending on the amount of snow pack and summer rainfall recharge.

Access – The landowner maintains the access rights to a wetland under a USFWS conservation easement. Therefore, public access may or may not be limited.

Ownership/Clauses – A private landowner owns each of the identified wetlands. The USFWS owns the development rights or wetland conservation easements to the identified properties. The landowner manages the property according to the provisions called for in the easement.

Historical Architectural Site

Historic Architectural Property – Site 32WI462 is a farmstead located in Williams County, between the city of Ray and the White Earth River Valley (milepost 57.53). The farmstead consists of a modern house, a 1910s barn, a 1930s stable, a 1910s granary, a 1910s chicken coop, a 1930s smokehouse, a 1940s shed, a 1920s granary, a 1910s granary, and a 1900s house. The NDSHPO believes the site is eligible to the National Register of Historic Places (NRHP) under Criterion A as an excellent example of an historic intact farmstead, despite the new house. The components are not individually eligible, but qualify collectively in a district. The newer house would be a non-contributing resource. The landscape features of this farm are contributing elements (see Attachment 4 for a sketch map and photos of the property).

Activities and Use – The farmstead is active and there is a family occupying the modern house.

Relationship to Similar Adjacent Lands – The farmstead is bordered on the south by US 2. The fence line along the southern boundary of the farmstead site is located approximately 170 feet north of the centerline of the existing roadway, and the 1900s house is located approximately 184 feet north of the existing roadway. Agricultural lands border the site on the north, east and west.

Access – This is a private residence. Therefore, the landowner maintains the access rights to the property.

Ownership/Clauses – A private landowner owns the farmstead.

Impacts on the Section 4(f) Properties

The Selective North-South Alignment Alternative (Preferred) will not impact any Section (f) properties.

Wetland Conservation Easements

In the Draft EIS, it was indicated that the Selective North-South Alignment Alternative (preferred) would impact about 4.1 acres of easement wetlands. The areas of impact were between mile post (m.p.) 115.0 to m.p. 117.6 and between m.p. 129.5 and m.p. 129.9. The Preferred Alternative is a combination of the North Alignment and South Alignment Alternatives. The primary purpose for developing this alternative was to avoid and minimize direct impacts to or encroachment upon farmsteads, occupied residences, industrial structures, missile silos, wetlands, and easement wetlands. The modifications needed to avoid easement easements for this alternative require moving one of the transitions further east and leaving the roadway on the south side the same as the South Alternative. The second site involves eliminating a set of transitions by leaving the roadway on the south side the same as the South Alignment, which is much safer. Leaving the roadway on the south side will cause an additional farmhouse and relocation impact, which is justified by the cost savings and safer roadway.

It is not practical to make the same modification to the North Alternative because it will require the addition of two sets of reversed curves (more costly and less safer condition) in addition to adding one more farmstead and relocation impact. Modification of the Complete Reconstruction Alternative to avoid easement impacts would require the extra cost of an additional removal of a farmstead and relocation.

Milepost 115.0 is located just west of Berthold where there is a railroad overpass (Attachment 2). To the west of the railroad the easement wetlands are on the north side of U.S. 2. To the east of the railroad the easement wetlands are on the south side of U.S. 2. A reconfiguration of the alignment of the new bridge and the approach roadways results in the easement wetlands not being impacted.

Milepost 129.5 is located near the eastern end of the project (Attachment 2). At this location the easement wetlands are on the north side of U.S. 2. On the south side of U.S. 2 is a farmstead. In the Draft EIS, the proposed alignment for the North Alignment and the Selective North-South Alignment Alternative (preferred) at this location was on the north side of U.S. 2 to avoid taking the farmstead. This farmstead is not tied to the adjacent farmland by ownership and may be more economical to keep the roadway south of the existing for the preferred alternative. The preferred alternative has been modified to locate the added roadway on the south side of U.S. 2 in this area. Therefore, there will be no impacts to the easement wetlands at this location.

Impacts to wetlands under conservation easement were based upon the surface area of the wetland located between the existing and the proposed ROW (i.e., amount of wetland surface area located on easement land and within the additional ROW needed for each proposed build alternative).

Under the No Action Alternative, there would be no impacts to the wetlands under conservation easements (Attachment 3). The North Alignment Alternative would impact an estimated 11.12 acres of wetlands under conservation easement. The South Alignment Alternative would impact an estimated 0.92 acres of wetlands under conservation easement. The Selective North-South Alignment Alternative (Preferred) does not impact any wetlands under conservation easement. The Complete Reconstruction Alternative would impact an estimated 1.47 acres of wetlands under conservation easement.

Historical Architectural Site

Construction of the North Alignment Alternative could result in the removal or relocation of the 1900s house. The proposed ROW line passes through the 1900s house and would be about 60 feet north of the new roadway shoulder for the North Alignment Alternative. Neither, the South Alignment, the Selective North-South Alignment (Preferred), or the Complete Reconstruction Alternatives impact the site.

Avoidance Alternatives

The Selective North-South Alignment Alternative (Preferred) avoids the Section 4(f) Properties. Avoidance wetlands identified can be found in Attachment 5.

Measures to Minimize Harm

Wetland Conservation Easements

The South Alignment, the North Alignment, and the Reconstruction Alternatives all impact wetland conservation easement, but replacement of conservation easements could be used to minimize harm if any of those alternatives were selected. Two options will be considered for the replacement of easement wetland impacts. The first option is the use of easement credits held in the state easement bank. Wetland credits are available from the mitigation sites created north of Stanley in 1975. Utilization of these banked wetland credits may be the most cost effective method for the replacement of easement wetland impacts. The second option is an easement exchange. Under this option, additional easements would be purchased by NDDOT and exchanged with USFWS to replace the existing easements prior to construction.

Historical and Archeological Sites

If the North Alignment Alternative is selected, measures to minimize harm to the historic farmstead could include shifting the alignment to the south to avoid impacts, or relocating the 1900s house and fence further north to avoid removal. It is believed that the house has been relocated once before to its current location at the far south end of the farmstead complex. The house presently rests on a temporary concrete block foundation. The southern boundary fence is a modern barbwire fence located on the right of way line.

Basis for Selection

The preferred alternative is the only build alternative that does not impact wetland conservation easements, which have been viewed as Section 4(f) resources. Nor does it impact any other Section 4(f) resources. In addition, because the Preferred Alternative presents the opportunity to move the alignment either north or south of the existing roadway, this alternative provides maximum flexibility in avoiding important environmental resources.

Coordination

Wetland Conservation Easements

The USFWS, North Dakota Department of Game and Fish, North Dakota Department of Transportation and the landowners have been advised that wetland conservation easements will not be impacted by the Selective North South Alternative (Preferred).

Historical and Archeological Sites

The NDSHPO was contacted for information and evaluation of Site 32WI462. The NDSHPO has been advised that 32WI462 will not be impacted by the Selective North South Alternative (Preferred).

Correspondence	Page
Advisory Council on Historic Preservation	4(f)-8
ND SHPO (Concurrence letter, MOA, and preceding letter)	4(f)-9



INITIALS	TO	INITIALS	DATE
	DA		
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PROJECT TIED TO			
ORIGIN		DATE	
ITEM #			

August 12, 2003

Allen R. Radliff
 Division Administrator
 Federal Highway Administration
 1471 Interstate Loop
 Bismarck, ND 58503

RE: *Improvements - US 2 From US 85 to US 52, NH-7-002(051)*

Dear Mr. Radliff:

We received your notification and supporting documentation regarding the adverse effects of the referenced project, a property eligible for inclusion in the National Register of Historic Places. Based upon the information you provided, we do not believe that our participation in consultation to resolve adverse effects is needed. However, should circumstances change, please notify us so we can re-evaluate if our participation is required. Pursuant to 36 CFR 800.6(b)(iv), you will need to file the Memorandum of Agreement, and related documentation at the conclusion of the consultation process. The filing of this Agreement with the ACHP is necessary to complete the requirements of Section 106 of the National Historic Preservation Act.

Thank you for providing us with your notification of adverse effect. If you have any questions, please contact Jane Crisler at 303/969-5110 or via eMail at jcrisler@achp.gov.

Sincerely,

Nancy Kochan

Nancy Kochan
 Office Administrator/Technician
 Western Office of Federal
 Agency Programs



ADVISORY COUNCIL ON HISTORIC PRESERVATION

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 Phone: 303-969-5110 • Fax: 303-969-5115 • achp@achp.gov • www.achp.gov



**STATE
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SOCIETY
OF NORTH DAKOTA**

<input type="checkbox"/> Div	<input checked="" type="checkbox"/> Proj	<input type="checkbox"/> City	<input type="checkbox"/> Hwy
NH-7-002(051)032			
PROJECT TIED TO			
ORIGIN	H/S Soc	DATE	06/12/03
ITEM #	i CR SHPO (concur)		

John Hoeven
Governor of North Dakota

June 12, 2003

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Director

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Design Division
North Dakota Department of Transportation
608 East Boulevard Avenue
Bismarck, ND 58505-0700

**NDSHPO REF.: 00-0505, Highway 2 Assessment of Impacts, ND, NDDOT
Project # NH-7-002(051)032.**

Dear Ms. Borchert:

We have reviewed your agency's correspondence of May 19, 2003 for Project: 00-0505, Highway 2 four lane construction, assessment of effects.

We concur with the NDDOT's assessment that if either the South or Selective North/South Alternative is selected, two National Register of Historic Places eligible sites (32MN119 and 32MN525) would be effected. We therefore also concur with your agency's finding of "Adverse Effect" Determination for this project. We look forward to working with your agency to resolve the adverse effects.

Thank you for the opportunity to review this project. Please include the ND SHPO Reference number listed above in any further correspondence for this specific project. If you have any questions please contact Duane Kliner at (701) 328-3576.

Sincerely,

Merlan E. Paaverud, Jr.
State Historic Preservation Officer
(North Dakota)



**MEMORANDUM OF AGREEMENT
SUBMITTED TO THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
PURSUANT TO 36CFR800.6**

NDDOT Project Number NH-7-002(051)032

WHEREAS, the North Dakota Division Office of the Federal Highway Administration (FHWA) has determined that Project Number NH-7-002(051)032 will have an effect upon two prehistoric archaeological sites, 32MN119 and 32MN525, properties eligible for inclusion in the National Register of Historic Places, and has consulted with the North Dakota State Historic Preservation Officer (SHPO) pursuant to 36CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act (16 U.S.C. 470); and

WHEREAS, the North Dakota Department of Transportation participated in the consultation and has been invited to concur in this Memorandum of Agreement; and

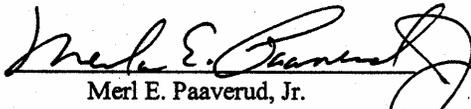
NOW, THEREFORE, FHWA, and the North Dakota SHPO agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historical properties.

Stipulations

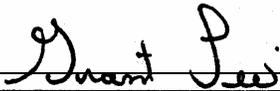
The FHWA will insure that the following measures are carried out:

- I. Avoidance techniques for all other eligible and unevaluated sites as discussed in the NDDOT letter to SHPO dated May 19, 2003 [appended through reference as part of this document] will be followed or 1) NDDOT will discuss modified avoidance plans with SHPO and receive their concurrence that modified techniques will also avoid effects to the Historic Property or unevaluated resource, or 2) the Section 106 process will be reopened and the effects determination reassessed.
- II. Data recovery plans and any other mitigation issues will be worked out through consultation between NDDOT and ND SHPO, considering input from interested Native American tribes, with fieldwork timed to begin two summers prior to bid opening for the project through the White Earth valley.

Execution of this Memorandum of Agreement by FHWA and the North Dakota SHPO, its subsequent filing with the Advisory Council, and implementation of its terms, is evidence that the FHWA has afforded the Council an opportunity to comment on Project Number NH-7-002(051)032 and its effects on historic properties, and the FHWA has taken into account the effects of the undertaking on historic properties.


Merl E. Paaverud, Jr.
State Historic Preservation Officer

Date 8-15-03



Grant Levi
NDDOT Deputy Director for Engineering

Date 8/25/03



Allen R. Radliff
FHWA Division Administrator

Date 9/3/03





North Dakota Department of Transportation

David A. Sprynczynatyk, P.E.
Director

John Hoeven
Governor

May 19, 2003

Merl Paaverud
State Historic Preservation Officer
State Historical Society of North Dakota
North Dakota Heritage Center
Bismarck, ND 58505

Attn: Duane Klinner, Review & Compliance Coordinator

SHPO #00-0505. HIGHWAY 2 FOUR LANE CONSTRUCTION. FOLLOW-UP TO MAY 9, 2003 MEETING. ASSESSMENT OF EFFECTS.

Enclosed is a copy of the summary of cultural resource issues for the draft EIS, which briefly discusses the identification effort (Attachment A). A total of 26 sites were found to be within or near the right-of-way and were evaluated on this project. Two are north of the existing highway (32MN619 and 626), three are historic archaeological and are not eligible (32MN89, 32MN611, and 32WI403), two have both historic and prehistoric components (32MN607 and 32MN600) (one with an historic component evaluated as not eligible and prehistoric features well outside the impact zone, and the other primarily historic evaluated as not eligible and present only within a 50' temporary easement which will not be pursued in this instance), and two are clearly outside of the impact zone (beyond the right-of-way and 50' temporary easement) as illustrated during testing (32WI453 and 32MN108); leaving 17 sites of concern.

We have analyzed project needs and have been able to illustrate that if either the South or Selective North/South Alternative is chosen our project would affect only three sites (32MN119, 32MN525, and 32MN113) (Attachment B). All three sites have been evaluated in terms of National Register eligibility. Two sites are eligible; 32MN119 and 32MN525. One stone feature, a linear alignment, will be affected by the project at 32MN119. The buried, eligible component within the right-of-way at 32MN525 will be affected. One stone circle at 32MN113 will be affected by the project. In total two eligible sites and one ineligible stone feature site will be affected by the project.

I have enclosed copies of the plan and profile sheets and cross-sections from the original highway plans that illustrate, using a typical section and site location information from the testing phase, the avoidance of all of the other tested stone feature sites and eligible sites within the impact zone for the South and Selective North/South Alternatives (Attachment C). This analysis is of 16 of the 17 remaining sites of concern. The other site is 32MN525 which is bisected by the highway. If you have any questions on these please contact me.

608 East Boulevard Avenue • Bismarck, North Dakota 58505-0700
Information: (701) 328-2500 • FAX: (701) 328-4545 • TTY: (701) 328-4156 • www.discovernd.com/dot

We request your concurrence with our assessment of impacts and a finding of Adverse Effect for the project. We look forward to working with you to resolve adverse effects.

A handwritten signature in cursive script that reads "jeani l. borchert".

JEANI L. BORCHERT, ARCHAEOLOGIST, DESIGN

enclosures

Comments Received on Draft EIS

Comments received on the Draft EIS and the corresponding responses can be found in Section 7.0 COMMENTS AND COORDINATION.

Attachment 1

EASEMENT WETLAND IMPACT TABLE

Attachment 1
Wetlands Under USFWS Conservation Easement

Site ¹	Land/Pos	Nat / Ditch	Hydric Soils	Field Indicators ²	Hydrologic Indicators ²	Dominant Species	Hydrophytic Vegetation ² ?	In -Out	Cowardin Classification ²	Acres in Corridor	Acres Under easement in Corridor	Alternative Impacts (Acres)				
												South Alignment	North Alignment	North-South Selective	Preferred North-South Selective	Complete Reconstruction
79.3 S	Shoulder	Natural	yes	F1	SS	<i>Carex lacustris</i> <i>Polygonum amphibium</i> <i>Lemna minor</i>	Yes	Flow	PEMF	2.21	0.38	0.00	0.00	0.00	0.00	0.00
79.5 S	Shoulder	Natural	yes	F5	SS	<i>Carex lacustris</i> <i>Polygonum amphibium</i> <i>Eleocharis erythropoda</i>	Yes	Cbasin	PEMC	0.51	0.15	0.00	0.00	0.00	0.00	0.00
80.1 S	Toeslope	Natural	yes	A4, F5	SS, H2S	<i>Phalaris arundinacea</i>	Yes	Cbasin	PEMC	1.55	0.49	0.00	0.00	0.00	0.00	0.00
81.1 S	Backslope	Natural	yes	F6, F8	FAD,OR	<i>Polygonum amphibium</i> <i>Eleocharis erythropoda</i> <i>Carex lacustris</i>	Yes	Cbasin	PEMC	0.15	0.12	0.00	0.00	0.00	0.00	0.00
81.2 N	Backslope	Natural	yes				Yes	Cbasin	PEMF	0.06	0.06	0.00	0.00	0.00	0.00	0.00
92.7 S	Toeslope	Natural	yes	F3	CS,OR, SS	<i>Typha latifolia</i> <i>Scirpus validus</i> <i>Rumex crispus</i> <i>Glyceria grandis</i> <i>Agropyron smithii</i>	Yes	Fluv	PEMC	0.49	0.08	0.00	0.00	0.00	0.00	0.00
93.0 S	Backslope	Natural	yes	F6	OR,SL,FAD	<i>Phalaris arundinacea</i> <i>Rumex crispus</i> <i>Polygonum amphibium</i> <i>Carex lacustris</i>	Yes	Cbasin	PEMA	0.09	0.09	0.00	0.00	0.00	0.00	0.00
95.1 N	Shoulder	Natural	yes	F5	SL, FAD	<i>Carex lacustris</i> <i>Polygonum amphibium</i> <i>Eleocharis erythropoda</i>	Yes	Cbasin	PEMC	0.44	0.16	0.00	0.16	0.00	0.00	0.00
95.4 N	Shoulder	Natural	yes	F3	SS	<i>Polygonum amphibium</i> <i>Carex lasiocarpa</i> <i>Phalaris arundinacea</i> <i>Eleocharis erythropoda</i>	Yes	Cbasin	PEMC	1.18	1.05	0.00	0.36	0.00	0.00	0.00
98.0 S	Backslope	Natural	yes	F6	OR, DEP	<i>Carex stricta</i> <i>Polygonum amphibium</i>	Yes	Cbasin	PEMC	0.15	0.08	0.00	0.00	0.00	0.00	0.00
98.1 S	Backslope	Natural	yes	F6	OR, DEP	<i>Bromus inermis</i> <i>Carex stricta</i>	Yes	Cbasin	PEMA	0.38	0.01	0.00	0.00	0.00	0.00	0.00
98.3 N	Summit	Natural	yes	F6	SS	<i>Glyceria grandis</i> <i>Carex stricta</i> <i>Eleocharis erythropoda</i> <i>Eleocharis acicularis</i>	Yes	Cbasin	PEMC	0.28	0.28	0.00	0.08	0.00	0.00	0.00
98.9 S	Shoulder	Natural	yes	F6	OR,CS, SL	<i>Carex lacustris</i> <i>Polygonum amphibium</i>	Yes	Cbasin	PEMC	0.24	0.08	0.00	0.00	0.00	0.00	0.00

Attachment 1
Wetlands Under USFWS Conservation Easement

Site ¹	Land/Pos	Nat / Ditch	Hydric Soils	Field Indicators ²	Hydrologic Indicators ²	Dominant Species	Hydrophytic Vegetation ² ?	In -Out	Cowardin Classification ²	Acres in Corridor	Acres Under easement in Corridor	Alternative Impacts (Acres)				
												South Alignment	North Alignment	North-South Selective	Preferred North-South Selective	Complete Reconstruction
99.3 S	Shoulder	Natural	yes	F6	OR, DEP	<i>Carex lacustris</i> <i>Polygonum amphibium</i> <i>Rumex crispus</i> <i>Bromus inermis</i>	Yes	Cbasin	PEMA	0.22	0.03	0.00	0.00	0.00	0.00	0.00
99.4 S	Backslope	Natural	yes	F6	OR, SS	<i>Carex lacustris</i> <i>Polygonum amphibium</i>	Yes	Cbasin	PEMC	0.74	0.58	0.00	0.00	0.00	0.00	0.00
100.8 S	Backslope	Natural	yes	F4	SS	<i>Typha latifolia</i> <i>Carex lacustris</i> <i>Phalaris arundinacea</i> <i>Eleocharis erythropoda</i>	Yes	Cbasin	PEMF	1.76	0.25	0.00	0.00	0.00	0.00	0.00
101.8 N	Shoulder	Natural	yes	F4	SS	<i>Scirpus validus</i> <i>Typha latifolia</i> <i>Carex lacustris</i> <i>Polygonum amphibium</i> <i>Juncus balticus</i>	Yes	Cbasin	PABF	2.5	1.51	0.00	0.68	0.00	0.00	0.00
101.8 S	Shoulder	Natural	yes	F4	SS	<i>Scirpus validus</i> <i>Typha latifolia</i> <i>Carex lacustris</i> <i>Polygonum amphibium</i> <i>Juncus balticus</i>	Yes	Cbasin	PABF	2.85	0.18	0.00	0.00	0.00	0.00	0.00
102.3 S	Shoulder	Natural	yes	F2	SS	<i>Scirpus validus</i> <i>Juncus balticus</i> <i>Eleocharis erythropoda</i> <i>Ceratophyllum demersum</i>	Yes	Cbasin	PABF	2.16	1.02	0.00	0.00	0.00	0.00	0.00
102.6 S	Toeslope	Natural	yes	F2	SS	<i>Scirpus validus</i> <i>Typha latifolia</i> <i>Eleocharis erythropoda</i> <i>Schedonnardus sp.</i> <i>Calamagrostis canadensis</i>	Yes	Cbasin	PEMF	1.06	0.04	0.00	0.00	0.00	0.00	0.00
103.0 N	Backslope	Natural	yes	A10	SS	<i>Carex lacustris</i> <i>Sparganium eurycarpum</i> <i>Spartina pectinata</i> <i>Salix amygdaloides</i>	Yes	Cbas,SPE	PEMF	0.82	0.64	0.00	0.44	0.00	0.00	0.00
103.2 S	Backslope	Natural	yes	F4	SS	<i>Typha latifolia</i> <i>Carex lacustris</i> <i>Lemna minor</i> <i>Polygonum amphibium</i> <i>Eleocharis erythropoda</i>	Yes	Cbasin	PEMF	2.33	0.29	0.00	0.00	0.00	0.00	0.00

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Site ¹	Land/Pos	Nat / Ditch	Hydric Soils	Field Indicators ²	Hydrologic Indicators ²	Dominant Species	Hydrophytic Vegetation ² ?	In -Out	Cowardin Classification ²	Acres in Corridor	Acres Under easement in Corridor	Alternative Impacts (Acres)				
												South Alignment	North Alignment	North-South Selective	Preferred North-South Selective	Complete Reconstruction
103.2 N	Backslope	Natural	yes	F6, F8	OR, FAD	<i>Carex stricta</i> <i>Polygonum amphibium</i> <i>Calamagrostis canadensis</i>	Yes	Cbasin	PEMC	0.12	0.12	0.00	0.00	0.00	0.00	0.00
103.4 N	Backslope	Natural	yes	F4	SS, FAD, BA	<i>Juncus balticus</i> <i>Hordeum jubatum</i> <i>Polygonum amphibium</i>	Yes	Cbasin	PEMC	1.02	0.82	0.00	0.37	0.00	0.00	0.00
103.4 S	Backslope	Natural	yes	F4	SS,FAD,BA	<i>Juncus balticus</i> <i>Hordeum jubatum</i> <i>Polygonum amphibium</i>	Yes	Cbasin	PEMC	0.24	0.02	0.00	0.00	0.00	0.00	0.00
103.5 S	Shoulder	Natural	yes	F6	SS	<i>Carex lacustris</i> <i>Polygonum amphibium</i>	Yes	Cbasin	PEMC	0.58	0.29	0.00	0.00	0.00	0.00	0.00
103.6 N	Shoulder	Natural	yes	A4,F4	SS	<i>Calamagrostis canadensis</i> <i>Juncus balticus</i> <i>Carex lacustris</i> <i>Lemna minor</i>	Yes	Cbasin	PEMC	0.95	0.65	0.00	0.29	0.00	0.00	0.00
103.6 S	Shoulder	Natural	yes	A4, F4	SS	<i>Calamagrostis canadensis</i> <i>Juncus balticus</i> <i>Carex lacustris</i> <i>Lemna minor</i>	Yes	Cbasin	PEMC	0.8	0.16	0.00	0.00	0.00	0.00	0.00
103.65 S	Shoulder	Natural	yes	F4	SS	<i>Carex lacustris</i> <i>Polygonum amphibium</i> <i>Alisma plantago-aquatica</i> <i>Angelica purpureum</i>	Yes	Cbasin	PEMC	0.26	0.17	0.00	0.00	0.00	0.00	0.00
103.7 N	Shoulder	Natural	yes	F6	AD,OR,SL,B	<i>Carex stricta</i> <i>Calamagrostis canadensis</i> <i>Polygonum amphibium</i> <i>Sparganium eurycarpum</i>	Yes	Cbasin	PEMC	0.17	0.17	0.00	0.04	0.00	0.00	0.00
104.0 S	Shoulder	Natural	yes	F4	SS	<i>Carex lacustris</i> <i>Typha latifolia</i> <i>Polygonum amphibium</i> <i>Calamagrostis canadensis</i>	Yes	Cbasin	PEMC	1.58	0.55	0.00	0.00	0.00	0.00	0.00
104.3 S	Shoulder	Natural	yes	F4	SS	<i>Juncus balticus</i> <i>Eleocharis erythropoda</i> <i>Hordeum jubatum</i>	Yes	Cbasin	PABF	2.41	0.85	0.00	0.00	0.00	0.00	0.00

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Site ¹	Land/Pos	Nat / Ditch	Hydric Soils	Field Indicators ²	Hydrologic Indicators ²	Dominant Species	Hydrophytic Vegetation ² ?	In -Out	Cowardin Classification ²	Acres in Corridor	Acres Under easement in Corridor	Alternative Impacts (Acres)				
												South Alignment	North Alignment	North-South Selective	Preferred North-South Selective	Complete Reconstruction
104.5 N	Shoulder	Natural	yes	F4	SS	<i>Lemna minor</i> <i>Salix exigua</i> <i>Salix amygdaloides</i> <i>Carex lacustris</i>	Yes	Cbasin	PEMF	0.41	0.23	0.00	0.23	0.00	0.00	0.00
104.5 S	Shoulder	Natural	yes	F8	SL, FAD, DHT	<i>Carex lasiocarpa</i> <i>Calamagrostis canadensis</i> <i>Polygonum amphibium</i> <i>Rumex crispus</i> <i>Eleocharis erythropoda</i>	Yes	Cbasin	PEMC	0.3	0.12	0.00	0.00	0.00	0.00	0.00
104.6 N	Shoulder	Natural	yes	F4	SS	<i>Carex lacustris</i> <i>Lemna minor</i> <i>Poa pratensis</i>	Yes	Cbasin	PEMC	0.97	0.8	0.00	0.33	0.00	0.00	0.00
104.8 S	Shoulder	Natural	yes	F4	SS	<i>Eleocharis erythropoda</i> <i>Hordeum jubatum</i> <i>Carex lacustris</i> <i>Poa pratensis</i> <i>Juncus balticus</i>	Yes	Cbasin	PEMF	0.22	0.16	0.00	0.00	0.00	0.00	0.00
104.8 N	Shoulder	Natural	yes	A2, A10	SS	<i>Typha latifolia</i> <i>Polygonum amphibium</i> <i>Carex lacustris</i>	Yes	Cbasin	PEMC	0.34	0.12	0.00	0.01	0.00	0.00	0.00
105.0 N	Shoulder	Natural	yes	F4	SS, DHT	<i>Eleocharis acicularis</i> <i>Rumex crispus</i> <i>Mentha arvensis</i>	Yes	Cbasin	PEMC	0.22	0.22	0.00	0.00	0.00	0.00	0.00
105.2 S	Shoulder	Natural	yes	F4	SS	<i>Typha latifolia</i> <i>Juncus balticus</i> <i>Poa pratensis</i> <i>Sparganium eurycarpum</i>	Yes	Cbasin	PEMF	1.05	0.87	0.00	0.00	0.00	0.00	0.00
105.4 N	Toeslope	Natural	yes	F4,F6	SS	<i>Calamagrostis canadensis</i> <i>Scirpus validus</i> <i>Eleocharis erythropoda</i>	Yes	Cbasin	PEMC	1.03	1.03	0.00	0.18	0.00	0.00	0.00
105.8 N	Backslope	Ditch	yes	F4	BA, SH, DLS	<i>Carex lacustris</i> <i>Typha latifolia</i> <i>Scirpus validus</i> <i>Eleocharis erythropoda</i> <i>Rumex crispus</i> <i>Apocynum androsaemifolium</i>	Yes	Cbasin	PEMC	0.56	0.11	0.00	0.11	0.00	0.00	0.00

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Site ¹	Land/Pos	Nat / Ditch	Hydric Soils	Field Indicators ²	Hydrologic Indicators ²	Dominant Species	Hydrophytic Vegetation ² ?	In -Out	Cowardin Classification ²	Acres in Corridor	Acres Under easement in Corridor	Alternative Impacts (Acres)				
												South Alignment	North Alignment	North-South Selective	Preferred North-South Selective	Complete Reconstruction
106.0 N	Toeslope	Natural	yes	F6	SS, OR	<i>Spartina pectinata</i> <i>Polygonum amphibium</i> <i>Carex sp.</i> <i>Juncus torreyi</i> <i>Scirpus validus</i> <i>Eleocharis erythropoda</i> <i>Calamagrostis canadensis</i>	Yes	Cbasin	PEMA	0.05	0.02	0.00	0.02	0.00	0.00	0.00
106.1N	Toeslope	Natural	yes	F6	SS, OR	<i>Spartina pectinata</i> <i>Polygonum amphibium</i> <i>Carex sp.</i> <i>Juncus torreyi</i> <i>Scirpus validus</i> <i>Eleocharis erythropoda</i> <i>Calamagrostis canadensis</i>	yes	Cbasin	PEMC	0.38	0.32	0.00	0.00	0.00	0.00	0.00
106.8 N	Shoulder	Natural	yes	F6	SS	<i>Carex lacustris</i> <i>Eleocharis erythropoda</i>	Yes	Cbasin	PEMC	0.53	0.42	0.00	0.12	0.00	0.00	0.00
106.9 S	Shoulder	Natural	yes	F6	SS	<i>Carex lacustris</i> <i>Sparganium eurycarpum</i>	Yes	Cbasin	PEMC	0.22	0.16	0.00	0.00	0.00	0.00	0.00
107.0 N	Shoulder	Natural	yes	F6	SS, OR	<i>Eleocharis erythropoda</i> <i>Carex lacustris</i>	Yes	Cbasin	PEMC	1.39	1.35	0.00	0.68	0.00	0.00	0.00
107.1 N	Footslope	Natural	yes	F4	SS	<i>Carex lacustris</i> <i>Calamagrostis canadensis</i>	Yes	Cbasin	PEMC	0.16	0.16	0.00	0.00	0.00	0.00	0.00
107.15 N	Backslope	Natural	yes	F4	OR,SL,FA D	<i>Carex lacustris</i> <i>Polygonum amphibium</i> <i>Rumex crispus</i>	Yes	Cbasin	PEMC	0.07	0.01	0.00	0.01	0.00	0.00	0.00
107.19 N	Footslope	Natural	yes	F6	SS	<i>Spartina pectinata</i> <i>Rumex crispus</i> <i>Agropyron smithii</i>	Yes	Cbasin	PEMA	0.2	0.16	0.00	0.01	0.00	0.00	0.00
107.2 N	Footslope	Natural	yes	F4	SS	<i>Juncus balticus</i> <i>Calamagrostis canadensis</i>	Yes	Cbasin	PEMC	1.28	1.16	0.00	0.45	0.00	0.00	0.00
107.3 S	Backslope	Natural	yes	F8	OR, DEP	<i>Carex lacustris</i> <i>Juncus balticus</i> <i>Rumex crispus</i>	Yes	Cbasin	PEMC	0.18	0.18	0.00	0.00	0.00	0.00	0.00

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Site ¹	Land/Pos	Nat / Ditch	Hydric Soils	Field Indicators ²	Hydrologic Indicators ²	Dominant Species	Hydrophytic Vegetation ² ?	In -Out	Cowardin Classification ²	Acres in Corridor	Acres Under easement in Corridor	Alternative Impacts (Acres)				
												South Alignment	North Alignment	North-South Selective	Preferred North-South Selective	Complete Reconstruction
107.45 N	Toeslope	Natural	yes	A10, F4	SS	<i>Carex sp.</i> <i>Typha latifolia</i> <i>Bromus inermis</i> <i>Calamagrostis canadensis</i> <i>Polygonum amphibium</i>	Yes	Cbasin	PEMC	1.79	0.83	0.00	0.49	0.00	0.00	0.00
107.5 S	Footslope	Natural	yes	F6	OR,FAD,S L	<i>Carex normalis</i> <i>Polygonum amphibium</i> <i>Rumex crispus</i>	Yes	Cbasin	PEMC	0.33	0.06	0.00	0.00	0.00	0.00	0.00
107.8 N	Toeslope	Natural	yes	F2	SS	<i>Polygonum amphibium</i> <i>Carex normalis</i>	Yes	Cbasin	PABF	2.93	0.6	0.00	0.49	0.00	0.00	0.00
107.8 S	Toeslope	Natural	yes	F2	SS	<i>Polygonum amphibium</i> <i>Carex normalis</i>	Yes	Cbasin	PABF	2.37	1.5	0.00	0.00	0.00	0.00	0.00
108.2 S	Footslope	Natural	yes	F4	SS	<i>Polygonum amphibium</i> <i>Potamogeton sp.</i> <i>Carex stricta</i> <i>Eleocharis acicularis</i>	Yes	Cbasin	PEMC	0.24	0.22	0.00	0.00	0.00	0.00	0.00
108.6 S	Toeslope	Natural	yes	A4,A10,F4	SS	<i>Carex lacustris</i> <i>Schedonnardus sp.</i> <i>Typha latifolia</i>	Yes	Cbasin	PEMC	1.35	0.88	0.00	0.00	0.00	0.00	0.00
110.0 N										2.23	1.23	0.00	0.28	0.00	0.00	0.00
110.4 N	Footslope	Natural	yes	F5	SS	<i>Typha latifolia</i> <i>Polygonum amphibium</i> <i>Phalaris arundinacea</i>	Yes	Cbasin	PEMC	0.79	0.15	0.00	0.01	0.00	0.00	0.00
111.7 S	Toeslope	Natural		Boulders	SS	<i>Carex sp.</i>	Yes	Cbasin	PABF	3.88	1.51	0.00	0.00	0.00	0.00	0.00
111.9 N	Footslope	Natural	yes	F4	SS	<i>Carex lacustris</i> <i>Eleocharis erythropoda</i>	Yes	Cbasin	PEMC	0.22	0.07	0.00	0.07	0.00	0.00	0.00
111.9 S	Footslope	Natural	yes	F4	SS	<i>Typha latifolia</i> <i>Spartina pectinata</i> <i>Lemna minor</i> <i>Carex lacustris</i> <i>Eleocharis erythropoda</i>	Yes	Cbasin	PEMF	2.14	0.74	0.00	0.00	0.00	0.00	0.00
112.2 N	Backslope	Natural	yes	F4	SS	<i>Typha latifolia</i> <i>Scirpus validus</i> <i>Spartina pectinata</i> <i>Ceratophyllum demersum</i>	Yes	Cbasin	PEMC	0.62	0.24	0.00	0.22	0.00	0.00	0.00
112.3 N	Backslope	Natural	yes	F4	SS	<i>Typha latifolia</i> <i>Scirpus validus</i> <i>Spartina pectinata</i> <i>Ceratophyllum demersum</i>	Yes	Cbasin	PEMC	0.43	0.08	0.00	0.08	0.00	0.00	0.00

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												South Alignment	North Alignment	North-South Selective	Preferred North-South Selective	Complete Reconstruction
112.3 S	Backslope	Natural	yes	F4	SS	<i>Typha latifolia</i> <i>Scirpus validus</i> <i>Spartina pectinata</i> <i>Ceratophyllum demersum</i>	Yes	Cbasin	PEMC	0.89	0.24	0.00	0.00	0.00	0.00	0.00
112.4 N	Backslope	Natural	yes	F4	SS	<i>Typha latifolia</i> <i>Scirpus validus</i> <i>Spartina pectinata</i> <i>Ceratophyllum demersum</i>	Yes	Cbasin	PABF	3.07	2.42	0.00	0.90	0.00	0.00	0.00
112.4 S	Backslope	Natural	yes	F4	SS	<i>Typha latifolia</i> <i>Scirpus validus</i> <i>Spartina pectinata</i> <i>Ceratophyllum demersum</i>	Yes	Cbasin	PEMC	1.2	0.18	0.00	0.00	0.00	0.00	0.00
112.7 N	Footslope	Natural	yes	F6	SS	<i>Typha latifolia</i> <i>Calamagrostis canadensis</i> <i>Polygonum amphibium</i> <i>Poa compressa</i> <i>Juncus balticus</i>	Yes	Cbasin	PEMC	1.85	1.15	0.00	0.68	0.00	0.00	0.00
112.7 S	Footslope	Natural	yes	F6	SS	<i>Typha latifolia</i> <i>Calamagrostis canadensis</i> <i>Polygonum amphibium</i> <i>Poa compressa</i> <i>Juncus balticus</i>	Yes	Cbasin	PABF	5.25	1.97	0.00	0.00	0.00	0.00	0.00
113.0 S	Footslope	Natural	yes	F1,F6	SS	<i>Typha latifolia</i> <i>Calamagrostis canadensis</i> <i>Polygonum amphibium</i> <i>Poa compressa</i> <i>Juncus balticus</i>	Yes	Cbasin	PEMC	0.89	0.16	0.00	0.00	0.00	0.00	0.00
113.0 N										3.35	2.87	0.00	1.05	0.00	0.00	0.00
113.1 S	Footslope	Natural	yes	F1, F6	SS	<i>Typha latifolia</i> <i>Calamagrostis canadensis</i> <i>Polygonum amphibium</i> <i>Poa compressa</i> <i>Juncus balticus</i>	Yes	Cbasin	PEMC	0.17	0.17	0.00	0.00	0.00	0.00	0.00

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												South Alignment	North Alignment	North-South Selective	Preferred North-South Selective	Complete Reconstruction
113.6 S	Footslope	Natural	yes	F1	SS	<i>Sparganium eurycarpum</i> <i>Hordeum jubatum</i> <i>Salsola kali</i> <i>Typha latifolia</i> <i>Scirpus validus</i>	Yes	Cbasin	PABF	11.27	2.15	0.00	0.00	0.00	0.00	0.00
114.4 N	Shoulder	Natural	yes	F5	FAD,BA, CS	<i>Echinochloa crus-galli</i> <i>Portulacca oleracea</i> <i>Typha latifolia</i>	Yes	Cbasin	PEMC	0.1	0.07	0.00	0.07	0.00	0.00	0.00
114.5 S	Shoulder	Natural	yes	F6	BA, OR	<i>Carex lacustris</i> <i>Polygonum amphibium</i>	Yes	Cbasin	PEMC	0.39	0.3	0.00	0.00	0.00	0.00	0.00
115.0 N	Toeslope	Natural	yes	F1	SS	<i>Sparganium eurycarpum</i> <i>Hordeum jubatum</i> <i>Salsola kali</i> <i>Typha latifolia</i> <i>Scirpus validus</i>	Yes	Cbasin	L2ABG	4.55	1.16	0.00	0.48	0.48	0.00	0.00
116.9 S	Footslope	Natural	yes	F4	BA,OR, SL	<i>Beckmannia syzigachne</i> <i>Echinochloa crus-galli</i> <i>Rumex crispus</i> <i>Polygonum amphibium</i>	Yes	Cbasin	PEMC	0.23	0.01	0.00	0.00	0.00	0.00	0.00
117.0 S	Toeslope	Natural	yes	A4,A10, F4	SS	<i>Salix sp.</i> <i>Typha latifolia</i> <i>Carex lacustris</i> <i>Polygonum amphibium</i>	Yes	Cbasin	PEMC	2.9	0.53	0.00	0.00	0.00	0.00	0.00
117.5 S	Footslope	Natural	yes	F4	SS	<i>Polygonum amphibium</i> <i>Salix discolor</i> <i>Carex lacustris</i> <i>Sparganium eurycarpum</i> <i>Scirpus validus</i> <i>Ceratophyllum demersum</i>	Yes	Flow	PEMC	1.86	1.49	1.20	0.00	1.20	0.00	0.66
117.6 S	Toeslope	Natural	yes	F4	SS	<i>Polygonum amphibium</i> <i>Salix discolor</i> <i>Carex lacustris</i> <i>Sparganium eurycarpum</i> <i>Scirpus validus</i> <i>Ceratophyllum demersum</i>	Yes	Cbasin	PEMC	1.76	1.24	0.96	0.00	0.96	0.00	0.49

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												South Alignment	North Alignment	North-South Selective	Preferred North-South Selective	Complete Reconstruction
129.5 N	Shoulder	Natural	yes	F4	CS, DEP	<i>Echinochloa crus-galli</i> <i>Portulacca oleracea</i> <i>Typha latifolia</i>	Yes	Cbasin	PEMC	0.45	0.38	0.00	0.62	0.62	0.00	0.19
129.6 N	Shoulder	Natural	yes	F4	DS, DEP	<i>Echinochloa crus-galli</i> <i>Portulacca oleracea</i> <i>Typha latifolia</i>	Yes	Cbasin	PEMC	0.70	0.63	0.00	0.56	0.56	0.00	0.23
129.7 N	Shoulder	Natural	yes	F4	DS, DEP	<i>Echinochloa crus-galli</i> <i>Portulacca oleracea</i> <i>Typha latifolia</i>	Yes	Cbasin	PEMC	0.16	0.16	0.00	0.04	0.04	0.00	0.00
129.77 N	Shoulder	Natural	yes	F4, F6	OR, CS	<i>Echinochloa crus-galli</i> <i>Portulacca oleracea</i> <i>Typha latifolia</i>	Yes	Cbasin	PEMC	0.19	0.19	0.00	0.19	0.19	0.00	0.00
129.9 N	Shoulder	Natural	yes	F4, F6	OR, CS	<i>Echinochloa crus-galli</i> <i>Portulacca oleracea</i> <i>Typha latifolia</i>	Yes	Cbasin	PEMC	0.32	0.32	0.00	0.32	0.06	0.00	0.13
total										100.73	44.87	2.16	11.12	4.11	0	1.7