

ERRATA

Illinois Route 47 (Reed Road to U.S. Route 14) McHenry County, Illinois

Job No. P-91-101-07

August 10, 2016

This Erratum includes corrections, revisions, and/or additions to the Environmental Assessment (EA), October 2014, for the proposed project for Illinois Route 47 (Reed Road to U.S. Route 14) in the McHenry County, Illinois. The Environmental Assessment was approved for public release by the Federal Highway Administration on October 1, 2014. Corrections, revisions, and/or additions are shown in *italics*.

Chapter 2 Purpose and Need

Replace Figure 2-5 with the attached revised Figure 2-5.

Chapter 4 Environmental Resources, Impacts, and Mitigation

4.2.2 Protected Agricultural Areas

Retitle sub-section "4.2.2 Protected Agricultural Areas" as "**4.2.2 Conservation Reserve Program**".

Delete the sub-title "*Conservation Reserve Program*".

Chapter 4.5 Noise

A sensitivity analysis was conducted with the new projected Build 2040 traffic data as shown in the revised Figure 2-5. There were still three CNEs for the Build improvement that were determined to approach, meet, or exceed the FHWA Noise Abatement Criteria, and warranted consideration of traffic noise abatement. Of those three, only one (CNE 16) remained viable since receptors for the other two CNEs will be acquired based on preliminary engineering and right-of-way requirements. CNE 16 was previously considered and evaluated for traffic noise abatement. Although it met the Feasibility criterion, it did not stand the test of reasonableness for the Noise Reduction Design Goal and Cost Effectiveness criterion. Therefore, the conclusion that highway traffic noise abatement measures are not likely to be implemented for the proposed IL 47 preliminary engineering design is still valid.

4.6.1 Upland Plant Communities

Page 65. Insert after the last paragraph of this item.

"Approximately 600 trees would be impacted by the Preferred Alternative. Mitigation for impacts to trees would follow IDOT's tree replacement policy (IDOT Policy D&E 18 "Preservation and Replacement of Trees"). None of the trees to be removed are associated with forests; they are

generally located along fence lines, agricultural fields and linear streams or are considered landscape trees.”

4.6.2.2 Wildlife Present in Project Corridor

Page 70. Insert after the first paragraph of this item.

“Habitat for some rare and uncommon species is present near the project corridor. However, as described in Section 4.6.3.1, it was determined that habitat for the federally-listed threatened or endangered species known occur within McHenry County is not present within or adjacent to the project corridor. Table 4-9 in the EA describes the habitats preferences of these species.

Section 4.6.3.2 contains detailed information on the state-listed threatened or endangered species and Table 4-10 presents the habitat preferences of state-listed threatened or endangered species. Only one state threatened species (Iowa Darter) was found, although other fish are known to exist within the Kishwaukee watershed. Other state-listed threatened or endangered species occur within the vicinity of the project corridor.”

4.6.2.3 Wildlife and Habitat in Project Corridor

Page 70. Insert the following discussion after the first sentence.

“Impacts to the habitat of the Iowa Darter, the only state threatened or endangered species found in the project corridor are described in Section 4.6.3.2. The preferred habitats of the other federally or state-listed threatened or endangered species described in Table 4-9 and Table 4-10 are not located adjacent to the proposed improvements and will not be directly impacted.”

Page 70, *Riparian Habitat*. Replace “Because the proposed improvements would result in a minimal amount of impacts to riparian habitat, it is not anticipated that measureable impacts would occur to any species utilizing this habitat.” with *“Previous landscape changes and impacts to local habitats unrelated to this project have occurred. Remnant habitats along the corridor as well as preserved habitats and open spaces by local agencies provide important refuges for local wildlife populations. For example, the McHenry County Conservation District holds over 16,000 acres in the County with over 2,200 acres in the Kishwaukee Headwaters and Pleasant Valley sites near the IL 47 corridor. In order to help minimize impacts to wildlife travel along riparian corridors, the proposed roadway design will provide small mammal as well as reptile/amphibian crossings which have been described in the Section 4.6.2.4.”*

4.6.2.4 Vehicle/Wildlife Crashes in Project Corridor

Page 72. Insert at the end of the second paragraph.

“The FHWA’s Wildlife Crossing Structure Handbook, Design and Evaluation in North America (FHWA-CFL/TD-11-003 March 2011) will be used when designing the crossings. Fencing or low profile barriers will be used whenever practical to help guide the animals towards the crossing locations.

Page 72. Insert at the end of the 2nd paragraph. “Design efforts to guide animals towards the crossing locations will be evaluated during Phase II. For example, channeling turtles to a

crossing by using a turtle fence or high curb along the side of the road and then directed to the culvert opening will be considered in the final design process.

Page 73. Table 4-8 Potential Wildlife Crossings. An additional location for a potential wildlife crossing is recommended near Wetland 46. Add the following row of information as row #8 to Table 4-8 Potential Wildlife Crossings:

Location	Description	Wildlife Crossing
0.75 miles south of Lucas Rd	Culvert should be designed to promote amphibian and small mammal crossings.	Wildlife crossing can be placed adjacent to culvert.

Page 73, Table 4-8 Potential Wildlife Crossings, 1st column, 3rd row. Replace “100 feet south of Conley Road” with “100 feet north of Conley Road”.

4.6.3.1 Federally Listed Species

Page 74. Revise the “Status” column in Table 4-9 for the northern long-eared bat to indicate the species is now listed as Threatened.

Page 74. Insert after the last paragraph of this Section.

“IDOT and the FHWA met with the USACE, USFWS, and the USEPA on June 8, 2015 to discuss the potential additional environmental surveys to identify the presence of the Eastern prairie fringed orchid (Platanthaera leucophaea) (EPFO), a federally listed endangered species, within the project corridor. Wetland surveys conducted in 2009, 2011 and 2013 for the project did not identify any wetlands that met the EPFO survey criteria. In response to agency comments that the quality toward the edge of a wetland may be different than toward the center of a wetland, additional wetland surveys were conducted in May 2015 by INHS. Based on this additional data, there were three wetland locations (34, 40, and 58/59) that met the USFWS EPFO criteria which are based on FQI, C-value, and associated plant species for EPFO habitat. Wetlands 34 and 40 were outside of the project limits, so it was agreed that only wetlands 58/59 would be surveyed for the EPFO. The INHS Botanical Survey Report dated October 2015, with field surveys from June and July of 2015, documented that no EPFOs were found at these wetland sites.

The northern long-eared bat (Myotis septentrionalis) (NLEB) was Federally-listed as Threatened on April 2, 2015. A “may affect, not likely to adversely affect” determination has been made for the NLEB. To conserve the species, tree removal will be restricted from April 1 to September 30.”

4.6.3.2 State-Listed Species

Page 75. Insert after the last paragraph of this item.

“IDOT conducted Blanding’s turtle surveys in summer of 2015. The INHS Aquatic Survey Report dated 17 August 2015, with field surveys from June 2015, documented that no Blanding’s turtles were found to be present along the corridor.”

4.7.1 Water Resources

Page 79. Insert after the sixth paragraph of this item.

“Efforts will be made to investigate in-kind stream mitigation for impacts to the streams from the proposed improvements. Further discussions and coordination on stream mitigation would occur during the permitting process.”

4.7.1 Water Resources

Page 80. Table 4-11 Streams and Ponds in Project Corridor. Replace the table with the updated Table 4-11, attached to this Erratum, which includes additional columns on the type of stream impact and a reference indicating the location of the impact on the Exhibit 4-1 Environmental Constraints.

Page 80. Table 4-11 Streams and Ponds in Project Corridor, Column 1, all rows. *Insert “W” before each INHS number.* An updated Table 4-11 is attached to this Erratum.

Page 82. Insert after the first paragraph on this page.

“The Kishwaukee River is a medium priority impaired waterway. The designated use impairments are fish consumption and aquatic life with the causes of the impairments listed as mercury/PCBs and dissolved oxygen/sedimentation/siltation respectively. The BMPs proposed as part of the project are intended to reduce these types of contaminants and further impairments are not expected as a result of project implementation.

As this project moves into the design phase and eventually permitting, efforts to minimize contaminated run-off will be identified during the 401/404 water quality certification process.”

4.7.2 Generalized Impacts

Page 84, Operational Impacts, fifth paragraph. After first sentence add *“The BMPs and compensatory storage included as part of the project initially capture 0.31 inches of the first flush capture rate. A letter from USACE on April 21, 2014 requested that the 1-inch of the first flush of rainfall and 1.25-inches for areas with high-quality aquatic resources (HQARs) be captured for the proposed improvements. In a meeting with USACE on October 14, 2014 as well as the IDOT response letter from March 2, 2015; IDOT was able to include additional BMPs and increases to the compensatory storage which raised the average first flush capture rate 0.94 inches for the project area. Following this coordination, further refinement of the compensatory storage and BMPs, an average first flush capture of 1.20 inches was achieved for the project (see Table 4-11a). The 1.25-inch first flush capture for High Quality Aquatic Resources (HQARs) was met at both Kishwaukee River crossings. There was only one watershed outlet (#7) where the 1.0-inch capture rate could not be achieved. This location includes many conflicts with existing wetlands and floodplains which made it prohibitive to provide additional infiltration storage to capture the first flush. Exhibit 4-1 shows the location of the additional BMPs. The correspondence and meeting minutes are included in [Appendix A \(Agency Coordination\)](#).”*

Table 4-11a: First Flush Capture Rate Analysis

FIRST FLUSH STORAGE – IL ROUTE 47					Original Design		Design Revised per USACE Comments	
Watershed Outlet		Stations		Added Impervious	Total Storage	Average First Flush Capture	Total Storage	Average First Flush Capture
		From	To	(AC)	(AC-FT)	(IN)	(AC-FT)	(IN)
4	Tributary to Kishwaukee Creek	362+58	422+70	4.81	0.19	0.48	0.50	1.24
7	Kishwaukee Creek	422+70	494+00	8.17	0.30	0.44	0.49	0.72
15	Kishwaukee River*	494+00	568+00	9.32	0.13	0.17	1.12	1.45
21B	Kishwaukee River Tributary	568+00	691+50	20.94	0.74	0.42	1.90	1.09
32	Kishwaukee River*	691+50	773+00	6.76	0.15	0.27	0.97	1.73
Totals or Average				50.00	1.52	0.36	4.99	1.20

*HQAR

4.7.2 Construction Impacts

Page 82. Construction Impacts, last paragraph. Insert after the first sentence of this item. *“Prior to construction, all required permits and approvals will be obtained. Construction staging locations will be identified as part of the permit application.”*

4.10 Wetlands

Page 92. Table 4-13 Wetlands in the Project Corridor. Delete 10th column titled “USACE Jurisdictional”.

Page 97. Impacts, 1st paragraph. Replace “The proposed improvements will impact a total of 25.77 acres of wetlands; INHS suggested that 21.16 acres would be considered jurisdictional by the USACE, and 4.61 acres are isolated and would not be considered jurisdictional.” with *“The proposed improvements will impact a total of 25.63 acres of wetland. A jurisdictional determination by the USACE will need to be conducted to verify the status of the wetlands impacted by the Preferred Alternative.”*

Page 97. Impacts, 1st paragraph. Add *“For the purpose of this EA, the wetlands located within the proposed ROW limits were considered as impacted and are a worst-case scenario. As the project moves into the design phase, further wetland avoidance and impact minimization efforts will occur. Additionally, installed BMPs should not be placed in remaining wetlands to the extent practical.”*

Page 97. Impacts, 3rd paragraph. Replace “Table 4-14 summarizes the wetland impacts, provides information on the jurisdictional status of the wetland, the functions it performs, the floristic quality, the ADID number (if applicable) of the wetland, and provides the proposed amount of mitigation that would be provided.” with *“Table 4-14 summarizes the wetland impacts, the functions it performs, the floristic quality, the ADID number (if applicable) of the wetland, and provides the proposed amount of mitigation that would be provided. Mitigation acreages were based upon the Interagency Wetland Protection Act.”*

Page 97. Table 4-14 Wetland Impacts. Delete 8th column titled "USACE Jurisdictional". An updated table is at the end of this Erratum.

Page 100. Avoidance/Minimization/Compensatory Mitigation. Add as the second paragraph *"Other efforts to minimize wetland impacts were evaluated. Retaining walls and steeper side slopes were considered to reduce impacts along the entire route. In many locations the cost of the retaining walls was prohibitive resulting in the proposed structure to not be practicable. In particular, larger wetland complexes such as Wetlands 12 through 19 near Foster/Union Road were evaluated for retaining wall installation; however, due to the poor soils (Houghton muck) the structural stability of retaining walls was determined to not be feasible. Other similar locations such as the roadway segment north of the IL176 intersection to the City of Woodstock near Willowbrooke Drive also contain Houghton muck and retaining walls were not feasible. Other locations were evaluated to use steeper side slopes, but safety, drainage or multi-use path concerns did not allow for appreciative wetland reductions. These locations will be considered again during Phase II design."*

Page 97. Table 4-14 Wetland Impacts, 9th column, 9th row. The acreage of impact for Wetland #8 to be changed from "0.25 acres" to "0.36 acres". An updated table is at the end of this Erratum.

Insert as Section 4.16 Indirect and Cumulative Impacts.

"4.16 Indirect and Cumulative Impacts."

The project will likely facilitate future land use conversion from generally agricultural to developed lands. A component of the Purpose and Need for the improvements to IL 47 was to facilitate economic development. This desire by the local communities was also documented in the various workshops and public involvement events. Section 4.1.9 of the EA describes the local zoning and comprehensive plans designation of the corridor for commercial and residential development. As such, the local communities are planning for and anticipating some level of development along the corridor. Conservation of natural resources as well as floodplains for the individual development proposals must be considered during those future project designs. The following is a discussion of indirect and cumulative impacts individual environmental resources.

Social, Economic, and Community

The communities along the corridor have tools in place, such as zoning, comprehensive plans, to guide and facilitate the future developments. Planned economic growth is a component of the Purpose and Need and therefore future social, economic, or community indirect and cumulative impacts are not anticipated.

Agriculture

The project will likely facilitate future agricultural land use conversion to developed lands. As discussed in Section 4.1.9 the local zoning and comprehensive plans designate the corridor for commercial and residential development. Therefore the land use conversions are already planned for and anticipated by the local government bodies.

Cultural

No historic bridges, buildings, or Districts are present along the corridor and no known archaeological sites exist along the corridor; therefore no indirect or cumulative impacts are anticipated to these resources. However, if future development requires a Section 404 permit,

the permitting process requires clearance for cultural resources. Therefore, those resources (for projects requiring a Section 404 permit) would be identified and addressed at that time.

Air Quality

Future development along the corridor is anticipated, which will result in more automobile use along the project corridor. However, these increases were planned for and included in the FY 2010-2015 Transportation Improvement Plan and endorsed by the Metropolitan Planning Organization Policy Committee of CMAP and consistent with the GO T0 2040 Plan (the regional transportation plan). The project conformed with the State Implementation Plan and clean air requirements of the 1990 Clean Air Act.

Noise

Traffic generated noise is expected to increase under the IL 47 preferred alternative. The direct noise impacts from this project are discussed in Section 4.5 of the EA. Although future traffic noise levels generally increase, no noise attenuation is anticipated. Also, as future land development occurs, ambient noise levels are anticipated to increase.

Natural resources and Threatened or Endangered Species

Potential impacts to the remaining habitats may occur from future development along the project corridor. No federally listed species are known to be present along the IL 47 corridor. Therefore, it is unlikely that implementation of this project would result in indirect or cumulative impacts to federally listed species. However, in order to help minimize indirect impacts to local wildlife, connectivity along riparian corridors may be maintained by providing small mammal as well as reptile/amphibian crossings.

Regarding wildlife habitat, a description of available habitats and species that utilize them is provided in Section 4.6.2.3 of the EA. Future development may reduce these remaining habitats or the availability of these habitats to the species that use them. The design process of any development is expected to include consideration of natural resources on the development site, which should result in minimal cumulative impacts to natural resources.

Water Resources and Aquatic Habitats

Future development would have the potential to impact Waters of the U.S. The extent of resources affected directly due to the cumulative effect of potential future development in the project corridor. These developments will be subject to local requirements such as the McHenry County Stormwater Management Ordinance and local municipality restrictions and guidance which include buffer recommendations, acceptable water quality treatment methodologies and BMP considerations. Also, the USACE Section 404 regulations will apply to any developments affecting wetlands or Waters of the U.S. Therefore, indirect and cumulative impacts to wetlands are expected to be minimal. Indirect impacts to these resources are expected to be minimal due to the inclusion of BMPs with this project.

Groundwater Resources

This project may make the land adjacent to it more attractive to development, which will be subject to local requirements such as the McHenry County Stormwater Management Ordinance and local municipality restrictions and guidance. The regulations that would apply to these future developments would require them to consider the implementation of BMPs to improve first-flush capture rates and reduce the contaminant loads prior to stormwater percolating through the soil and into the groundwater. Therefore, indirect and cumulative impacts to groundwater resources

are expected to be minimal. Indirect impacts to groundwater resources are expected to be minimal due to the inclusion of BMPs with this project.

Floodplains

Future development along the corridor will be subject to State and local requirements such as the Illinois Department of Natural Resources – Office of Water Resources, McHenry County Stormwater Management Ordinance and local municipality restrictions and guidance in order to provide adequate compensatory storage and detention. Therefore, indirect and cumulative impacts to floodplains are expected to be minimal due to the inclusion of BMPs with this project.

Wetlands

Future development would have the potential to impact wetlands and to create additional edge effects at the perimeter of the wetland resources. The extent of resources affected directly and by the edge effect could continue to move inward due to the cumulative effect of potential future development in the project corridor. These developments will be subject to local requirements such as the McHenry County Stormwater Management Ordinance and local municipality restrictions and guidance which include buffer recommendations, acceptable water quality treatment methodologies and BMP considerations. Also, the USACE Section 404 regulations will apply to any developments affecting wetlands or Waters of the U.S. Therefore, cumulative impacts to wetlands are expected to be minimal. Indirect impacts to these resources are expected to be minimal due to the inclusion of BMPs with this project. However, indirect impacts for edge effects will be further evaluated in Phase II when soil and hydraulic conditions are known and evaluated as part of the Clean Water Act permit process.

Special Waste

Future residential and most commercial development along the corridor is not expected to increase special waste along the corridor. However, special waste may be generated should any of the future development include gas stations or automotive repair facilities, petroleum related. These businesses would be subject to the IEPA regulations overseeing the proper installation of related tanks and proper product disposal. Therefore, indirect or cumulative impacts related to special waste are not expected to result from implementation of this project.

Special Lands and Section 4(f) Properties

There are no existing or planned special lands or Section 4(f) properties adjacent to the project; therefore, no indirect or cumulative impacts to public lands are anticipated. If a local community decides to designate a parcel along the corridor as parkland or other public property, they will be aware of the potential roadway improvements and planned right-of-way requirements and will be able to coordinate as appropriate with IDOT.”

4.11 – Special Waste

Page 101. Replace the first paragraph with “*The ISGS performed three PESAs for the project corridor. The third PESA, ISGS #1789V, dated October 30, 2013, covered the entire project corridor and incorporated results of the earlier documents. Several Recognized Environmental Concerns (RECs) were identified through the assessment. Per PESA #1789V, 32 properties were identified with RECs. The PESA was validated by IDOT District One Environmental Studies Unit on March 10, 2016.*”

5.1 – Environmental Commitments

Page 105. After bullet points add “*Coordination of the type and location of stream mitigation will occur with the USACE during the permitting process.*”

Page 105, Add the following commitment “*In order to avoid impacts to the federally endangered Northern Long Ear Bat, tree removal will be restricted from April 1 to September 30.*”

5.2 Special Design and Construction Considerations

Page 105. Insert after the first paragraph of this item. “*During Phase II, details for the design of the wildlife crossings will be evaluated to help guide animals towards proposed wildlife crossing locations such as fencing, where feasible and appropriate along the roadway.*”

Chapter 6

Add Section “**6.8 Public Hearing**” and insert the following:
“**Public Hearing Summary**

The public hearing was held on Thursday, March 12, 2015 at the Huntley Recreation Center, 12015 Mill Street, Huntley, IL from 4 – 7 PM. The public hearing was conducted in an open house format with a public comment forum, which started at 6:00 p.m. A court reporter was present to transcribe oral comments during the public hearing. Attendees could sign-up for the public comment forum to publicly speak their comments, which were documented by the court reporter.

There were two rooms available for the public to view project materials, one room displayed a continuous audio-visual presentation that included information regarding the project overview, a review of the Purpose and Need, alternatives development and evaluation process, preferred alternative, Environmental Assessment (EA), request for feedback on the Environmental Assessment and public hearing materials, and the next steps of the project. The second room contained exhibit boards and roll plot maps, and attendees had the opportunity to speak with representatives from IDOT and the Project Study team. Representatives from the Pleasant Valley Road Re-alignment Study were also available to speak with attendees about that project. An exhibit showing the proposed improvements from that study was also displayed at the Public Hearing. The hearing was attended by 84 people. Within the comment period, which ended on March 26, 2015, 10 comment forms, 13 emails, 7 letters were received. In addition, three individuals spoke during the public comment forum and nine individuals spoke with the court reporter during the hearing. These comment methods resulted in 158 comments submitted during the public comment period. For more information please see Appendix E Public Involvement for detailed information.”

Exhibit 4-1 Environmental Constraints Map

Replace Exhibit 4-1 Environmental Constraints Map to show updates to waterway names to be consistent with the Environmental Assessment, revised symbolization of the bioswales and inclusion of additional BMPs.

Appendix A Agency Coordination

Insert April 21, 2014 letter from USACE to IDOT regarding BMPs and first flush capture rate.

Insert October 14, 2104 meeting notes from USACE coordination meeting regarding BMPs and first flush capture rate.

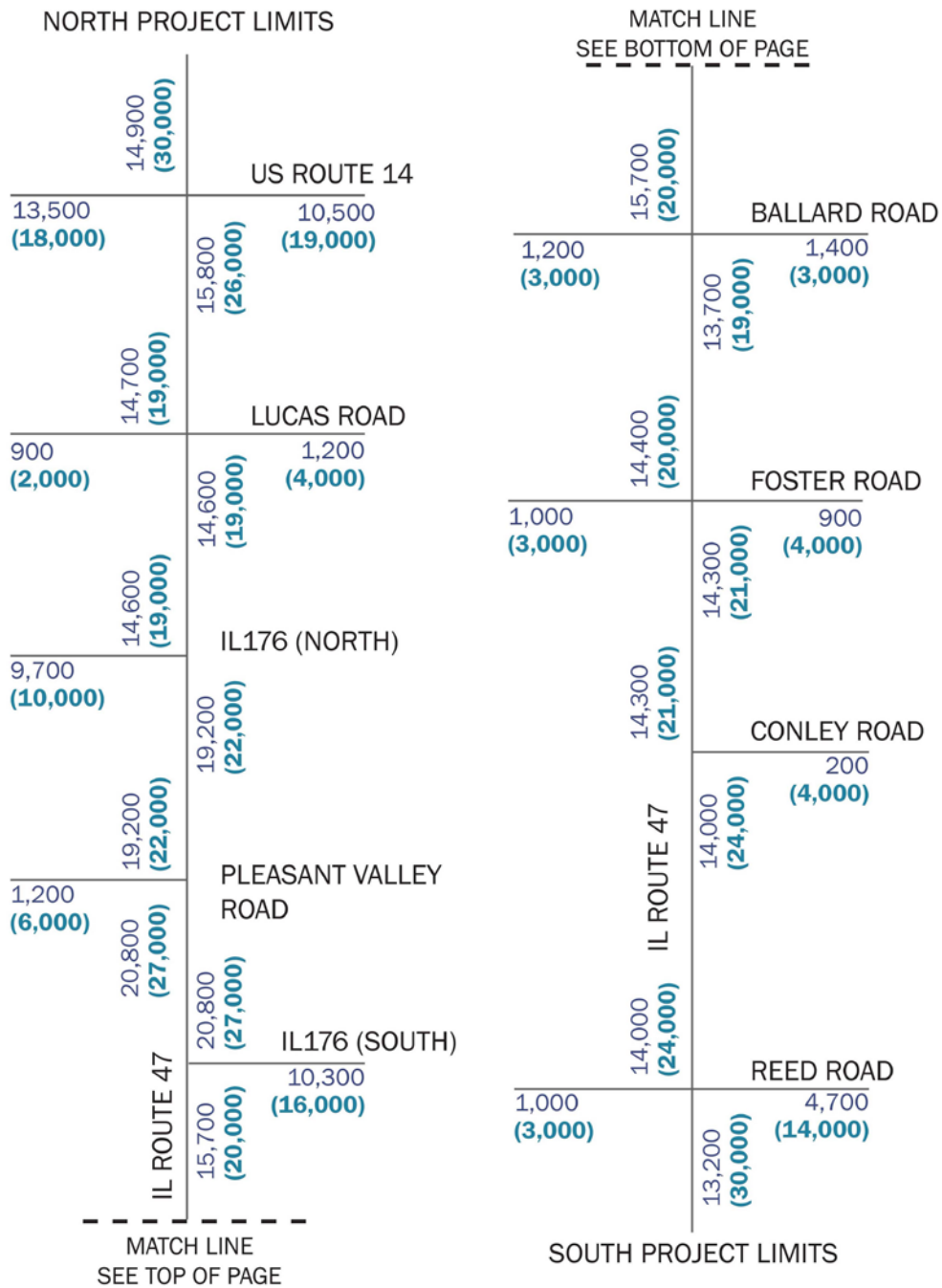
Insert March 2, 2015 letter from IDOT to USACE regarding BMPs and first flush capture rate.

Insert June 8, 2015 meeting notes with USACE, USEPA, USFWS, FHWA, and IDOT regarding the Eastern Prairie-Fringed Orchid.

Insert June 16, 2015 meeting notes with USACE regarding BMPs and first flush capture rate.

Appendix E Public Involvement

Insert Response to Comments Table.



LEGEND:
 EXISTING 2011
 (No Build 2040)
 24 HOUR TRAFFIC
 VOLUMES

Figure 2-5 Existing (2011) and No Build (2040) Traffic Volumes

INHS Site No.	Location (Exhibit 4-1 Sheet No.)	Comments	NWI Code	Description	Community Type	Linear Feet ¹	Impacts (linear feet)	Impacts (acres)	Impact Description	Meets USEPA water quality standards	T&E Species Present	Riffles/ Pools Present ²	Mussels Present ²	Water Type ³
	250 feet north of Rainsford Dr (Sheet 1)	West side of Rt 47 primarily		Unnamed tributary to South Branch Kishwaukee River	stream	200	120	0.03	Culvert replacement and extension	yes				NRPW
W1	350 feet north of Talamore Blvd (Sheet 2)			Unnamed tributary to South Branch Kishwaukee River	stream	720	150	0.09	Culvert replacement and extension	yes		yes/yes	yes	RPW
W2	850 feet north of Ackman Rd (Sheet 3)			Unnamed tributary to South Branch Kishwaukee River	stream	660	120	0.40	Culvert relocation, replacement and extension	yes		no/no	no	RPW
W3	across from Conley Rd (Sheet 5)	West side of Rt 47 only		Unnamed tributary to South Branch Kishwaukee River	stream	110	50	0.07	Culvert replacement and extension	yes		no/no	no	RPW

¹ Linear feet estimated based on Environmental Survey Request project limits

² As determined by the INHS Wetland Reports

³ As determined by the INHS/AECOM, Waters type:

RPW- relatively permanent waters that flow directly or indirectly to traditionally navigable water

Isolated – waters isolated from Waters of the US

NRPW – non-RPWs that flow directly or indirectly to traditional navigable waters

INHS Site No.	Location (Exhibit 4-1 Sheet No.)	Comments	NWI Code	Description	Community Type	Linear Feet ¹	Impacts (linear feet)	Impacts (acres)	Impact Description	Meets USEPA water quality standards	T&E Species Present	Riffles/ Pools Present ²	Mussels Present ²	Water Type ³
W4/ W14	50 feet north of Foster Rd (Sheet 6)	Pond on east side of Rt 47	freshwater pond	excavated quarry	deepwater aquatic habitat			0	No impact	yes				Isolated
W5	400 feet to 650 feet north of Foster/Union Rd (Sheet 6/7)	East of Rt 47 only		Does not appear on USGS topo map, ditch feeds into Kishwaukee River	stream	540	450	0.24	Channel re-alignment	yes		no/no	no	RPW
W6	650 feet north of Foster/Union Road (Sheet 7)		R2OWHx	Kishwaukee River	stream	810	240	0.07	Bridge replacement	no	Iowa darter	no/no	no	RPW
W7	On Rt 176 East Leg, north side of road, 1,000 feet east of Rt 47 (Sheet 16)			Does not appear on USGS topo map, ditch feeds into wetland	stream	310	270	0.10	Culvert replacement and extension	yes		no/no	no	NRPW
W8	On Pleasant Valley Rd, north and south side, 2,000 feet west of Rt 47	Waters 8, 9, 10, and 11 are all part of the same system. Waters 8, 9,		Unnamed intermittent tributary to the Kishwaukee River	stream	50		0	No impact	yes		no/no	no	NRPW

INHS Site No.	Location (Exhibit 4-1 Sheet No.)	Comments	NWI Code	Description	Community Type	Linear Feet ¹	Impacts (linear feet)	Impacts (acres)	Impact Description	Meets USEPA water quality standards	T&E Species Present	Riffles/ Pools Present ²	Mussels Present ²	Water Type ³
W9	On Pleasant Valley Rd, north side, 3,200 feet west of Rt 47	and 10 are outside of the project limits. (Sheet 10)			stream	830		0	No impact	yes		yes/yes	no	NRPW
W10	On Pleasant Valley Rd, north and side, 2,600 feet west of Rt 47				stream	2,650		0	No impact	yes		yes/yes	no	RPW
W11	350 feet south of IL Rt 176 (West Leg)				stream	230	180	0.11	Culvert replacement and extension	yes		no/no	no	RPW
W12	250 feet north of Hercules Rd (Sheet 14)	West side of Rt 47 only	PEMC	Unnamed tributary to Kishwaukee River	stream	110	60	0.01	Culvert relocation, replacement and extension	yes		no/no	no	RPW
W13	East side of Rt 47 across from Hawthorn Way (Sheet 7)	East side of Rt 47 only		Unnamed tributary to Kishwaukee River	stream	350		0	Channel re-alignment	yes		no/no	no	NRPW
W6	200 feet to 600 feet south of Dieckman Street (Sheet 14)		R2OWHx	Kishwaukee River	stream	700	700	0.02	Culvert relocation and extension; Channel re-alignment	no	Iowa darter	no/no	no	RPW

Table 4-13: Wetlands in the Project Corridor

Site No.	NWI Code	Community Type	Area (acre)	>50% ¹	FQI	Mean C	ADID ²	Functions Performed	Dominant Plant Species	Waters Type ³
2	PEMC	marsh	1.81	no	6.2	1.6	No	surface water storage, aquatic and terrestrial wildlife habitat	<i>Phalaris arundinacean</i> (reed canary grass) <i>Polygonum</i> species, <i>Typha angusifolia</i> (narrow-leaved cattail)	
3	PSS1/ PEMC	marsh	0.24	no	11.0	2.5	No	surface water storage, aquatic and limited terrestrial wildlife habitat	<i>Agropyron repens</i> (quack grass), reed canary grass, narrow-leaved cattail	
3	PSS1/ PEMC	marsh	approx. 15	no	11.0	2.5	K1453 high functional value	surface water storage, aquatic and limited terrestrial wildlife habitat	<i>Agropyron repens</i> (quack grass), reed canary grass, narrow-leaved cattail	
4		marsh	0.57	yes	7.8	1.8	No	surface water storage, some wildlife habitat	<i>Salix interior</i> (sandbar willow), reed canary grass	
5		marsh	1.51	no	7.5	1.8	No	surface water storage, limited wildlife habitat	<i>Aster simplex</i> (panicled aster), narrow-leaved cattail	isolated
6	PEMC	marsh, wet meadow	0.58	yes	11.0	2.8	No	surface water storage, part of a larger complex of wildlife habitats	reed canary grass	RPWWD
7		marsh	0.17	no	6.9	1.9	No	surface water storage, limited wildlife habitat	<i>Lersia oryzoides</i> (rice cut grass), <i>Scirpus fluviatilis</i> (river bulrush), narrow-leaved cattail	
8		marsh	0.36	yes	9.6	2.2	No	surface water storage, limited wildlife habitat	narrow-leaved cattail	
9	PFO1C	forested	approx. 2	no	10.9	2.7	No	surface water storage, aquatic and terrestrial wildlife habitat	<i>Salix fragilis</i> (crack willow), sandbar willow, reed canary grass	
10		marsh	0.80	yes	7.8	2.2	No	surface water storage, limited wildlife habitat	reed canary grass, narrow-leaved cattail	
11		marsh	0.18	yes	6.9	2.1	No	surface water storage, very limited wildlife habitat	reed canary grass, <i>Phragmites australis</i> (common reed)	
12	PEMCdf	wet meadow	approx. 206	no	15.5 6.9	2.3 4.0	No	surface water storage, wildlife habitat	reed canary grass	RPWWN
13	POWHx/ PEMCdf	shallow pond	approx. 5	no	8.1	3.6	No	surface water storage, primary aquatic wildlife habitat	<i>Potamogeton crispus</i> (beginner's pondweed), reed canary grass	
14		farmed	0.88	yes	1.6	0.7	No	surface water storage, limited wildlife habitat	<i>Acnida altissima</i> (water hemp), <i>Cyperus esculentus</i> (field nut sedge)	

Site No.	NWI Code	Community Type	Area (acre)	>50% ¹	FQI	Mean C	ADID ²	Functions Performed	Dominant Plant Species	Waters Type ³
15		wet meadow	approx. 17	no	11.3	2.5	No	surface water storage, limited wildlife habitat	panicked aster, reed canary grass, <i>Ranunculus sceleratus</i> (cursed buttercup)	
16		marsh	Approx. 2	no	3.0	1.1	No	surface water storage, limited wildlife habitat	<i>Alisma subcordatum</i> (common water plantain), <i>Alopecurus carolinianus</i> (annual foxtail), cursed buttercup, narrow-leaved cattail	
17		wet meadow	1.61	yes	5.7	1.3	No	surface water storage, limited wildlife habitat	reed canary grass	
18		farmed	0.38	yes	4.0	1.8	no	some surface water storage, minimal wildlife habitat	<i>Polygonum</i> species, cursed buttercup, <i>Veronica peregrine</i> (purslane speedwell)	
19		marsh	approx 14	no	9.4	2	No	seasonal aquatic habitat mixed with terrestrial habitat, copious amounts of surface water storage	common water plantain, annual foxtail, cursed buttercup, narrow-leaved cattail	RPWWN
20	PEMC	floodplain forest, marsh, wet meadow	2.64	yes	14.8	3.2	No	surface water storage, wooded wildlife habitat	<i>Acer negundo</i> (box elder), reed canary grass, <i>Populus deltoides</i> (eastern cottonwood), narrow-leaved cattail	RPWWD
21	PEMC	wet meadow	approx 12	no	9.2	2.1	No	surface water storage, wildlife habitat	narrow-leaved cattail	
23		wet meadow	0.04	yes	3.5	1.8	No	some surface water storage, minimal wildlife habitat	reed canary grass	isolated
25		forested	0.57	yes	9.4	2	No	surface water storage, wildlife habitat	<i>Salix nigra</i> (black willow), sandbar willow, common reed	
27		forested	approx 27	yes	15.8	3.4	K1008 high habitat value	surface water storage, aquatic and terrestrial wildlife habitat INHS wetlands 27 and 32 are different portions of the same ADID wetland K1008	<i>Fraxinus pennsylvanica</i> (green ash), <i>Rhamnus cathartica</i> (common buckthorn), <i>Glyceria septentrionalis</i> (floating manna grass), reed canary grass, <i>Rhanunculus longirostris</i> (longbeak buttercup), <i>Typha latifolia</i> (broad-leaved cattail), narrow-leaved cattail	

Site No.	NWI Code	Community Type	Area (acre)	>50% ¹	FQI	Mean C	ADID ²	Functions Performed	Dominant Plant Species	Waters Type ³
28		forested	0.17	yes	13.3	3.3	No	surface water storage; minimal, low quality wildlife habitat	greed ash, <i>Carex vulpinoidea</i> (fox sedge), <i>Eleocharis erythrodopa</i> (red-rooted spike rush), <i>Elocharis smallii</i> (marsh spike rush), green ash, reed canary grass, common buckthorn, <i>Ulmus americana</i> (American elm)	
29	PEMC	wet meadow	1.16	yes	4.0	1.8	No	surface water storage, limited wildlife habitat, livestock watering	<i>Agrostis alba</i> (redtop), red-rooted spike rush, <i>Ranunculus septentrionalis</i> (swamp buttercup)	
30		forested	0.33	yes	6.7	1.8	No	surface water storage, wildlife habitat	black willow, sandbar willow, reed canary grass	
32 east	PEMC	wet meadow	approx 27	yes	6.3	1.8	K1008 high habitat value	surface water storage, wildlife habitat INHS wetlands 27 and 32 are different portions of the same ADID wetland K1008	reed canary grass, narrow-leaved cattail	NRPWW
32 west	PEMC	wet meadow	0.37	yes	6.3	1.8	No	surface water storage, wildlife habitat	reed canary grass, narrow-leaved cattail	NRPWW
33 east	PEMC	wet meadow	1.15	no	4.0	2.3	No	surface water storage, wildlife/aquatic habitat	reed canary grass	
33 west	PEMC	wet meadow	approx 9	no	4.0	2.3	K1006 high functional value	surface water storage, wildlife/aquatic habitat	reed canary grass	
34	PEMC	forested, wet meadow	3.43	no	13.7	2.6	no	surface water storage, wildlife/aquatic habitat	box elder, crack willow, black willow, sandbar willow, reed canary grass	outside project limits
35		wet meadow	0.36	yes	6.1	1.7	no	some surface water storage, minimal wildlife habitat	red-rooted spike rush, reed canary grass, <i>Poa pratensis</i> (Kentucky blue grass)	outside project limits
37		marsh	unknown	unknown	unknown	unknown	no	some surface water storage, limited wildlife habitat	narrow-leaved cattail	outside project limits

Site No.	NWI Code	Community Type	Area (acre)	>50% ¹	FQI	Mean C	ADID ²	Functions Performed	Dominant Plant Species	Waters Type ³
39		farmed	0.70	yes	0.5	0.2	no	surface water storage, minimal wildlife habitat	water hemp, <i>Ambrosia trifida</i> (giant ragweed)	outside project limits
40	PEMC	wet meadow	2.34	no	13.7	2.7	no	surface water storage, wildlife habitat	reed canary grass	outside project limits
42	PEMC	wet meadow	approx 6	yes	10.5	2.3	K984 high habitat value	surface water storage, wildlife habitat	reed canary grass	
43	PEMC	marsh	5.09	yes	17.1	3.4	no	fair quality wildlife habitat and drainage was for surface water	reed canary grass, narrow-leaved cattail	
44	PEMC	marsh	1.88	no	8.7	1.7	no	surface water storage, wildlife habitat	common water plantain, narrow-leaved cattail	isolated
45	PEMC/ PFO1Cd	marsh/pond, wet meadow	approx 53	no	7.5	2.9	K925 high functional value	aquatic and terrestrial wildlife habitat complex, copious amounts of storm water storage INHS wetlands 45 and 46 are different portions of the same ADID wetland K925	reed canary grass, narrow-leaved cattail	RPWWD
46 east		wet shrubland	approx 53	no	4.2	1.3	K925 high functional value	surface water storage, wildlife habitat INHS wetlands 45 and 46 are different portions of the same ADID wetland K925	sandbar willow, reed canary grass	
46 west		wet shrubland	0.44	no	4.2	1.3	no	surface water storage, wildlife habitat	sandbar willow, reed canary grass	
47	PEMC	farmed	0.27	no	3.6	1.6	no	some surface water storage, limited wildlife habitat	cursed buttercup	isolated
48		wet meadow	0.36	yes	8.9	2.6	no	surface water storage, wildlife habitat	reed canary grass	isolated
49		marsh	approx 13	no	6.0	1.9	no	surface water storage, terrestrial/aquatic wildlife habitat	reed canary grass, narrow-leaved cattail	isolated

Site No.	NWI Code	Community Type	Area (acre)	>50% ¹	FQI	Mean C	ADID ²	Functions Performed	Dominant Plant Species	Waters Type ³
52		wet meadow	0.55	yes	5.0	1.4	no	surface water storage, wildlife habitat	reed canary grass	isolated
53	PEMC	wet meadow	1.46	yes	2.8	2	no	surface water storage, wildlife habitat	reed canary grass	isolated
54	PEMC	wet meadow	approx 3	no	5.8	1.6	no	surface water storage, wildlife habitat	panicked aster, reed canary grass	
55		farmed	0.20	no	0.6	0.3	no	limited wildlife habitat	<i>Zea mays</i> (corn)	isolated
56 east	PEMCd/ PEMB	wet meadow	approx 8	no	5.3	2.2	K711 high functional value	surface water storage, wildlife habitat, acts as buffer for Kishwaukee River tributary	reed canary grass	
56 west	PEMCd/ PEMB	wet meadow	1.52	no	5.3	2.2	no	surface water storage, wildlife habitat, acts as buffer for Kishwaukee River tributary	reed canary grass	
57	PEMC	marsh/wet meadow/ shrub	approx 17	no	9.4	2.2	K663 high functional value	copious amounts of surface water storage, wildlife habitat, acts as buffer for Kishwaukee River	sandbar willow, reed canary grass, narrow-leaved cattail	
58	PEMC	wet meadow	approx 0.5	no	6.4	2.4	no	surface water storage, wildlife habitat	reed canary grass	
59	PEMC	marsh/wet meadow	approx 10	no	6.3	2.1	K633 high functional value	surface water storage, wildlife habitat	reed canary grass, narrow-leaved cattail	
60		marsh	0.09	yes	11.5	3.1	no	not determined by INHS	red-rooted spike rush, narrow-leaved cattail	NRPWW
61	POWHh	pond	approx 1	yes	12.7	3.5	no	not determined by INHS	longbeak buttercup, common buckthorn, <i>Salix amygdaloides</i> (peach-leaved willow), narrow-leaved cattail	NRPWW
62		wet meadow	0.01	yes	8.3	3.1	no	not determined by INHS	<i>Carex pallida</i> (wooly sedge), reed canary grass	NRPWW
63	POWHx	marsh	0.04	yes	7.7	2.6	no	not determined by INHS	reed canary grass, narrow-leaved cattail	RPWWD
64		pond	0.13	yes	10.7	3.6	no	not determined by INHS	<i>Elodea canadensis</i> (elodea)	RPWWD

Site No.	NWI Code	Community Type	Area (acre)	>50% ¹	FQI	Mean C	ADID ²	Functions Performed	Dominant Plant Species	Waters Type ³
65	PEMC	Marsh	0.23	yes	6.8	2.6	no	not determined by INHS	red-rooted spike rush, narrow-leaved cattail	isolated
66	PEMC	Marsh	1.64	no	7.4	1.6	no	not determined by INHS	reed canary grass, common reed, narrow-leaved cattail	isolated
67		Marsh	0.36	yes	7.5	1.9	no	not determined by INHS	common reed	NRPWW
68		Farmed	0.04	yes			no	not determined by INHS	corn, broad-leaved cattail, field nut sedge	RPWWN
69		Farmed	0.28	yes			no	not determined by INHS	corn, broad-leaved cattail	RPWWD
70		wet meadow	0.05	no	3.1	1.4	no	not determined by INHS	reed canary grass, horned bladderwort, giant ragweed	NRPWW
71	PEMC	floodplain forest	1.35	yes	11.0	2.2	no	not determined by INHS	box elder, common buckthorn, giant ragweed, panicked aster	RPWWN
73		wet meadow	0.68	no	7.2	2.2		not determined by INHS	reed canary grass, common reed	RPWWD
74		Farmed	0.26	yes			no	not determined by INHS	corn	RPWWN
ADID K669		farmed, forested	approx 17		not determined		K669 high functional value	not determined by INHS		
ADID K692		wet meadow, forested	approx 13		not determined		K692 high functional value	not determined by INHS		outside project limits
ADID K820		wet meadow, forested	approx 10		not determined		K820 high functional value	not determined by INHS		outside project limits

¹ In INHS's best professional judgment, more than 50% of the total site area is within the ESR project limits

² Advanced Identification (ADID) High Habitat or High Functional Value wetland

³ As determined by the INHS, Waters type:

- RPW - relatively permanent waters that flow directly or indirectly to traditionally navigable waters
- RPWWN - wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly to traditional navigable waters
- Isolate - isolated waters, including isolated wetlands
- NRPWW - wetlands adjacent to non-RPWs that flow directly or indirectly to traditional navigable waters
- RPWWD - wetlands directly abutting RPWs that flow directly or indirectly to traditional navigable waters

Table 4-14: Wetland Impacts

Site No.	Wetland Acreage (acre)	extends outside ROW	FQI	Mean C	ADID ¹	Special Notes	Impacts (acre)	Proposed Mitigation Ratio (in basin)	Proposed Mitigation Acreage	Proposed Mitigation Ratio (out of basin)	Proposed Mitigation Acreage
2	1.81	Yes	6.2	1.6		marsh	0.06	1.5 : 1	0.09	2.0 : 1	0.12
3 east	0.24	No	11.0	2.5		marsh	0.24	1.5 : 1	0.36	2.0 : 1	0.48
3 west	approx 15	Yes	11.0	2.5	K1453 high functional value	marsh	0.29	3.0 : 1	0.87	3.0 : 1	0.87
4	0.57	Yes	7.8	1.8		marsh	0.57	1.5 : 1	0.86	2.0 : 1	1.14
5	1.51	Yes	7.5	1.8		marsh	0.05	1.5 : 1	0.08	2.0 : 1	0.10
8	0.36	Yes	9.6	2.2		marsh	0.36	1.5 : 1	0.54	2.0 : 1	0.72
9	approx 2	Yes	10.9	2.7		forested	0.23	1.5 : 1	0.35	2.0 : 1	0.46
10	0.80	Yes	7.8	2.2		marsh	0.33	1.5 : 1	0.50	2.0 : 1	0.66
11	0.18	No	6.9	2.1		marsh	0.18	1.5 : 1	0.27	2.0 : 1	0.36
12	approx 206	yes	15.5	4.0		wet meadow	4.94	5.5 : 1	27.17	5.5 : 1	27.17
13	approx 5	yes	8.1	3.6		shallow pond	0.48	1.5 : 1	0.72	2.0 : 1	0.96
14	0.88	yes	1.6	0.7		farmed	0.40	1.5 : 1	0.60	2.0 : 1	0.80
15	approx 17	yes	11.3	2.5		wet meadow	0.38	1.5 : 1	0.57	2.0 : 1	0.76
16	approx 2	yes	3.0	1.1		marsh	0.28	1.5 : 1	0.42	2.0 : 1	0.56
17	1.61	yes	5.7	1.3		wet meadow	0.68	1.5 : 1	1.02	2.0 : 1	1.36
18	0.38	yes	4.0	1.8		farmed	0.08	1.5 : 1	0.12	2.0 : 1	0.16
19	approx 14	yes	9.4	2.0		marsh	0.80	1.5 : 1	1.20	2.0 : 1	1.60
20	2.64	yes	14.8	3.2		Floodplain forest, marsh, wet meadow	0.34	1.5 : 1	0.51	2.0 : 1	0.68
21	approx 12	yes	9.2	2.1		wet meadow	0.03	1.5 : 1	0.05	2.0 : 1	0.06
23	0.04	no	3.5	1.8		wet meadow	0.04	1.5 : 1	0.06	2.0 : 1	0.08
25	0.57	no	9.4	2.0		forested	0.57	1.5 : 1	0.86	2.0 : 1	1.14
27	approx 27	yes	15.8	3.4	K1008	forested	0.19	3.0 : 1	0.57	3.0 : 1	0.57

Site No.	Wetland Acreage (acre)	extends outside ROW	FQI	Mean C	ADID ¹	Special Notes	Impacts (acre)	Proposed Mitigation Ratio (in basin)	Proposed Mitigation Acreage	Proposed Mitigation Ratio (out of basin)	Proposed Mitigation Acreage
					high habitat value ²						
28	0.17	no	13.3	3.3		forested	0.17	1.5 : 1	0.26	2.0 : 1	0.34
32 east	approx 27	yes	6.3	1.9	K1008 high habitat value ²	wet meadow	0.50	3.0 : 1	1.50	3.0 : 1	1.50
32 west	0.37	yes	6.3	1.9		wet meadow	0.15	1.5 : 1	0.23	2.0 : 1	0.30
33 east	1.15	yes	4.0	2.3		wet meadow	0.47	1.5 : 1	0.71	2.0 : 1	0.94
33 west	approx 9	yes	4.0	2.3	K1006 high functional value	wet meadow	0.75	3.0 : 1	2.25	3.0 : 1	2.25
42	approx 6	yes	10.5	2.3	K984 high habitat value	wet meadow	0.08	3.0 : 1	0.24	3.0 : 1	0.24
43	5.09	yes	17.1	3.4		marsh	0.73	1.5 : 1	1.10	2.0 : 1	1.46
44	1.88	yes	8.7	1.7		marsh	0.05	1.5 : 1	0.08	2.0 : 1	0.10
45	approx 53	yes	7.5	2.9	K925 high functional value	marsh/pond, wet meadow	0.83	1.5 : 1	1.25	2.0 : 1	1.66
46 east	approx 53	yes	4.2	1.3	K925 high functional value	wet shrubland	0.54	3.0 : 1	2.49	3.0 : 1	2.49
46 west	0.44	no	4.2	1.3		wet shrubland	0.44	1.5 : 1	0.66	2.0 : 1	0.88
47	0.27	yes	3.6	1.6		farmed	0.06	1.5 : 1	0.09	2.0 : 1	0.12
48	0.36	yes	8.9	2.6		wet meadow	0.36	1.5 : 1	0.54	2.0 : 1	0.72
49	approx 13	yes	6.0	1.9		marsh	2.38	1.5 : 1	3.57	2.0 : 1	4.76
52	0.55	no	5.0	1.4		wet meadow	0.55	1.5 : 1	0.83	2.0 : 1	1.10
53	1.46	yes	2.8	2.0		wet meadow	0.84	1.5 : 1	1.26	2.0 : 1	1.68
54	approx 3	yes	5.8	1.6		wet meadow	1.16	1.5 : 1	1.74	2.0 : 1	2.32

Site No.	Wetland Acreage (acre)	extends outside ROW	FQI	Mean C	ADID ¹	Special Notes	Impacts (acre)	Proposed Mitigation Ratio (in basin)	Proposed Mitigation Acreage	Proposed Mitigation Ratio (out of basin)	Proposed Mitigation Acreage
56 east	approx 8	yes	5.3	2.2	K711 high functional value	wet meadow	0.55	3.0 : 1	1.65	3.0 : 1	1.65
56 west	1.52	yes	5.3	2.2		wet meadow	0.46	1.5 : 1	0.69	2.0 : 1	0.92
57	approx 17	yes	9.4	2.2	K663 high functional value	marsh/wet meadow/ shrub	1.28	3.0 : 1	3.84	3.0 : 1	3.84
58	approx 0.5	yes	6.4	2.4		wet meadow	0.05	1.5 : 1	0.08	2.0 : 1	0.10
59	approx 10	yes	6.3	2.1	K633 high functional value	marsh/wet meadow	0.68	3.0 : 1	2.04	3.0 : 1	2.04
62	0.01	no	8.3	3.1		wet meadow	0.01	1.5 : 1	0.02	2.0 : 1	0.02
63	0.04	no	7.7	2.6		marsh	0.04	1.5 : 1	0.06	2.0 : 1	0.08
64	0.13	no	10.7	3.6		pond	0.13	1.5 : 1	0.20	2.0 : 1	0.26
65	0.23	yes	6.8	2.6		marsh	0.23	1.5 : 1	0.35	2.0 : 1	0.46
66	1.64	yes	7.4	1.6		marsh	0.05	1.5 : 1	0.08	2.0 : 1	0.10
67	0.36	yes	7.5	1.9		marsh	0.04	1.5 : 1	0.06	2.0 : 1	0.08
68	0.04	yes				farmed	0.01	1.5 : 1	0.02	2.0 : 1	0.02
71	1.35	yes	11.0	2.2		floodplain forest	0.33	1.5 : 1	0.50	2.0 : 1	0.66
73	0.68	yes	7.2	2.2		wet meadow	0.07	1.5 : 1	0.11	2.0 : 1	0.14
not IDed by INHS	approx 17	yes	not determined		K669 high functional value	farmed, forested	0.12	3.0 : 1	0.36	3.0 : 1	0.36
TOTAL							25.63		67.02		74.36

¹ Advanced Identification (ADID) High Habitat or High Functional Value wetland