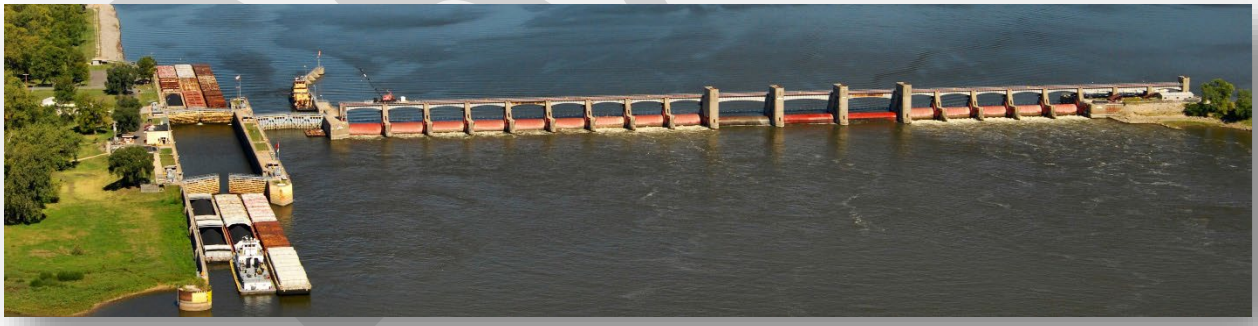
NAVIGATION AND ECOSYSTEM SUSTAINABILITY PROGRAM

LOCK AND DAM 25
NEW 1200-FOOT LOCK

DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

LINCOLN COUNTY, MISSOURI
CALHOUN COUNTY, ILLINOIS

AUGUST 2024



US Army Corps of Engineers
St. Louis District

U.S. Army Corps of Engineers, St. Louis District
1222 Spruce Street
St. Louis, MO 63103-2833

NAVIGATION AND ECOSYSTEM SUSTAINABILITY PROGRAM

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EXECUTIVE SUMMARY

This project is part of the Navigation and Ecosystem Sustainability Program (NESP), a long-term program of navigation improvements and ecological restoration on the Upper Mississippi River System and Illinois Waterway (UMRS-IWW). As documented in the 2004 Final Integrated Feasibility Report and Programmatic Environmental Impact Statement (2004 PEIS), the goal of NESP is to reduce commercial traffic delays while restoring, protecting, and enhancing the environment to ensure the economic and environmental sustainability of the UMRS-IWW. A new 1200-foot lock at Lock and Dam 25 was one of the large-scale navigation efficiency measures recommended as part of the 2004 PEIS to eliminate double lockages, ease congestion, reduce delays, and increase safety. In 2009, during initial pre-construction engineering and design (PED), St. Louis District prepared a site-specific Environmental Assessment (2009 EA) tiered from the 2004 PEIS to document the environmental consequences of the analyzed alternatives for constructing a new 1200-foot lock at Lock and Dam 25. This Supplemental Environmental Assessment (SEA) is being prepared in accordance with the National Environmental Policy Act (NEPA) as a supplement to the 2009 EA to document changes in the designs and impacts during the current PED effort. Information covered in this document includes: updated cultural surveys; updated hazardous, toxic, and radioactive waste (HTRW) surveys; updated information on threatened and endangered species to include newly listed species; updated Farm Conversion Impact Rating; updated Environmental Justice analysis; climate change/emissions analysis; and an updated mitigation plan.

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1.0 Introduction

1.1 Background

This project is part of the Navigation and Ecosystem Sustainability Program (NESP), a long-term program of navigation improvements and ecological restoration on the Upper Mississippi River System and Illinois Waterway (UMRS-IWW). As documented in the 2004 Final Integrated Feasibility Report and Programmatic Environmental Impact Statement (2004 PEIS), the goal of NESP is to reduce commercial traffic delays while restoring, protecting, and enhancing the environment to ensure the economic and environmental sustainability of the UMRS-IWW. A new 1200-foot lock at Lock and Dam 25 was one of the large-scale navigation efficiency measures recommended as part of the 2004 PEIS to eliminate double lockages, ease congestion, reduce delays, and increase safety. In 2009, during initial pre-construction engineering and design (PED), St. Louis District prepared a site-specific Environmental Assessment (2009 EA) tiered from the 2004 PEIS to document the environmental consequences of the analyzed alternatives for constructing a new 1200-foot lock at Lock and Dam 25. This Supplemental Environmental Assessment (SEA) is being prepared in accordance with the National Environmental Policy Act (NEPA) as a supplement to the 2009 EA to document changes in the designs and impacts during the current PED effort. Similar to the 2009 EA, broad discussions of system-wide direct, indirect, and cumulative impacts to resources, which were thoroughly covered in the 2004 PEIS, will not be re-evaluated in this document.

The new 1200-foot lock at Lock and Dam 25 is being constructed through a phased construction approach. Phase I construction involved lockwall concrete demolition and installation of three floating mooring bitt recesses, line hooks, and kevel locations in the existing lockwall. The environmental impacts of Phase I construction were covered by the 2004 PEIS and the 2009 EA. Future construction contracts will include the new 1200-ft lock chamber, upstream and downstream approach walls, downstream guide cell, buildings and facilities, other associated features, and any remaining features not included in other contracts. Construction is scheduled to be completed in 2034.

In accordance with NEPA, this SEA is being prepared to document relevant environmental information related to construction of the new 1200-foot lock at Lock and Dam 25 not covered by the 2004 PEIS or the 2009 EA. Information covered in this document includes: updated cultural surveys; updated hazardous, toxic, and radioactive waste (HTRW) surveys; updated information on threatened and endangered species to include newly listed species; updated Farm Conversion Impact Rating; updated Environmental Justice analysis; climate change/emissions analysis; and an updated mitigation plan.

The 2004 PEIS is available for review at:

2004 Final Integrated Feasibility Report and Programmatic Environmental Impact Statement

The 2009 EA is available for review at:

2009 Environmental Assessment

1.2 Purpose and Need

Lock and Dam 25 is located on the Mississippi River, approximately 3 miles east of Winfield, Missouri, along the east shore of Bradley Island, 61.5 river miles upstream from St. Louis, and 241.4 river miles above the mouth of the Ohio River. Figures 1 and 2 provide the location of the Lock and Dam 25 project area. Sandy Slough separates Bradley Island from the Missouri shore and is approximately 900 feet wide at the project site. Lock and Dam 25 may be accessed from Missouri State Highway 79 at Winfield, Missouri via State Highway N to the project access road. Pool 25 extends from Winfield in a northerly direction 32 river miles to Lock and Dam 24 at Clarksville, Missouri. The Rivers and Harbors Act, 3 July 1930, Rivers and Harbors Commission, Document No. 12, 70th Congress, First Session, authorized the dam and the 600-foot main lock. Lock and Dam 25 was authorized as part of the overall navigation system providing a 9-foot-deep channel on the upper Mississippi River between the mouth of the Missouri River and Minneapolis, Minnesota. Lock and Dam 25 was designed and constructed to operate in conjunction with similar structures upstream and downstream to provide continuous navigation on the Upper Mississippi River. Minor to moderate repair and rehabilitation has been performed on the lock throughout its life.

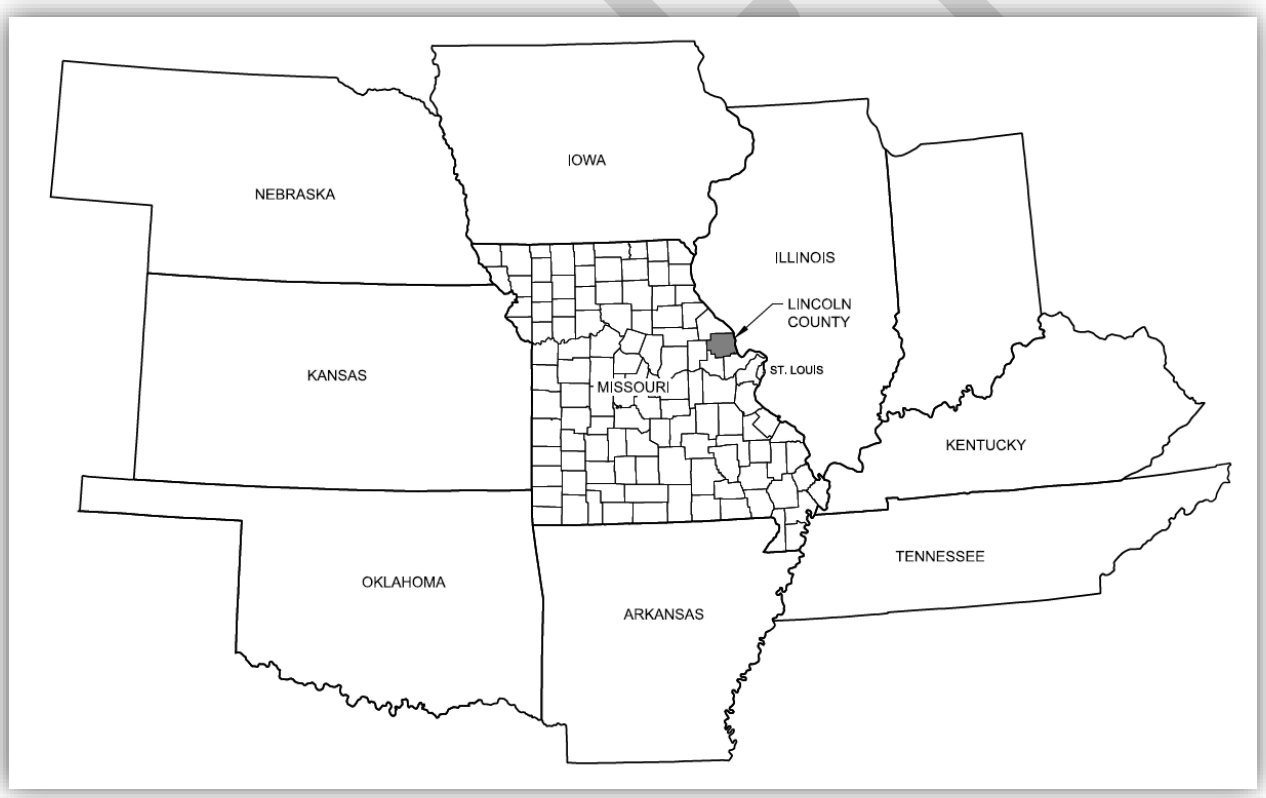

Figure 1. Project Location in Missouri.

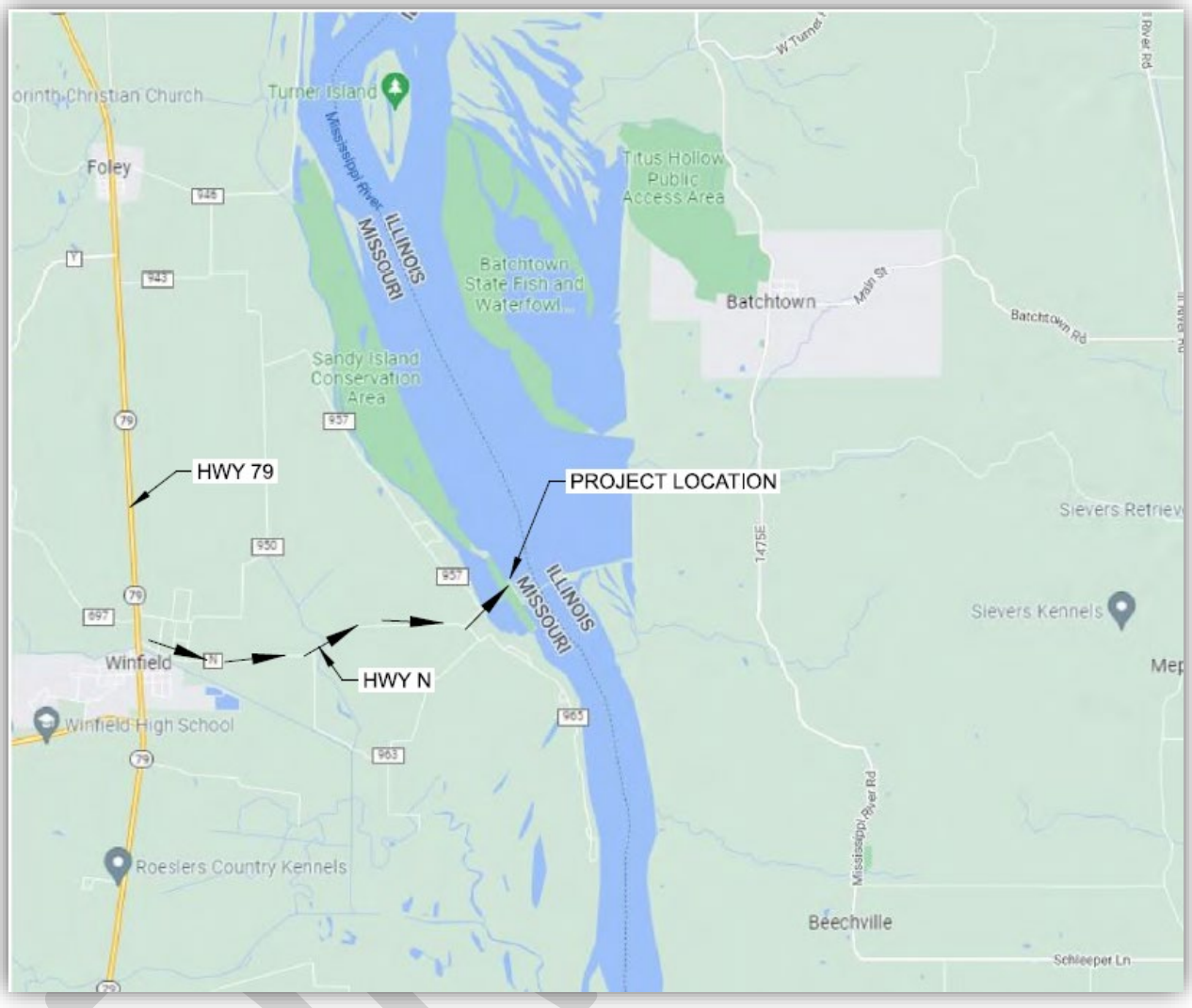

Figure 2. Project location east of Winfield, MO.

The purpose of the 2004 PEIS was to provide comprehensive documentation of the feasibility study process and recommend a plan of action. The goal of the feasibility study was to seek long-term sustainability of the economic uses and ecological integrity of the UMRS-IWW. The UMRS-IWW is a multi-purpose river system that provides economic and environmental benefits to the nation. The stakeholders of the UMRS-IWW have expressed their desire to seek a balance between the economic, ecological, and social conditions to ensure the waterway system continues to be a nationally treasured ecological resource as well as an efficient national transportation system. In addition to small-scale navigation improvements and ecosystem restoration goals, the recommended plan called for new 1200-foot locks at Lock and Dams 20 through 25, La Grange, and Peoria as large-scale measures to address long-term navigation sustainability.

The 2004 PEIS recommended a new 1200-foot lock at LD 25 as a large-scale navigation efficiency measure. Like many of the locks on the river, Lock 25 was constructed in the 1930s, and designed to accommodate smaller tows and only a fraction of the traffic volume that currently transits the system. The existing lock chamber at Lock 25 is 600 ft long, while the prevailing 15-barge tow size has a length approaching 1200 ft long. As a result, tows must lock through using a two-step process, which takes approximately 1.5 to 2 hours in normal conditions, causing significant delays to navigation and causing the lock to be near its maximum capacity. Delays increase significantly once a lock reaches capacity. In contrast, a tow can lock through a 1200-ft lock in approximately 0.5 to 1 hour. The capacity of a 110 ft by 600 ft lock is approximately 45 to 55 million tons per year. A 110 ft by 1200 ft lock has a capacity of approximately 100 million tons per year. The new lock will be 1200 ft long and will significantly reduce lockage delays and increase overall safety for operating and towing personnel. Once the new 1200 ft lock is constructed, the existing 600-ft lock will remain in service and become the auxiliary chamber. Having two operating chambers will provide redundancy. If the 1200-ft chamber is closed for maintenance or emergency repair, tows will still be locked through the 600-ft chamber. Both chambers can be operated at the same time once the 1200-ft chamber is constructed.

1.3 Authority

On November 8, 2007, the United States Congress passed the Water Resources Development Act (WRDA) 2007, Title VIII - Upper Mississippi and Illinois Waterway System, Section 8003 – Authorization of Construction of Navigation Improvements, which authorized the first increment of navigation improvements in accordance with the Chief of Engineers Report, dated 15 December 2004.

2.0 Alternatives

The 2009 EA considered the No Action Alternative as well as two action alternatives, an upstream and a downstream location for the new lock. The downstream location was selected as the preferred alternative due to having minimal adverse environmental impacts, lower costs, and being easier to construct. This SEA considers the No Action Alternative and the Downstream Alternative.

The new 1200-ft Lock Project consists of the following features: construction of a new 1200-ft long drilled shaft-founded lock chamber to be constructed on the downstream side of the existing auxiliary miter gate bay; construction of a new upstream, ported guard wall approximately 1250 ft long; construction of a downstream guard wall approximately 650 ft long designed to block flow through the wall; and construction of a new downstream guide cell (Figure 3). The downstream guide cell is a new feature added during the current PED effort in response to pilot feedback during a ship simulator study. Pilots identified the need for a downstream guide cell to assist with angling both into and out of the 600-ft chamber during construction of the new lock. The downstream guide cell will be approximately 50 ft in diameter.

Figure 3. Project features.

Site Improvements.

Site improvements include providing access and staging areas for the contractor to construct the new lock and site facility improvements to accommodate operations staff for future operation and maintenance of the new 1200-ft lock. Existing roadways need to be upgraded to accommodate construction traffic. Staging and laydown areas will be provided for concrete batching, parking, fabrication, material storage, and other activities. Dredging and associated disposal areas are included. New utilities will be constructed, and existing utilities will be relocated. Improvements will be made to provide access and parking for the new operation and maintenance facilities. Several areas in close proximity to L&D 25 will be provided for a contractor batch plant, staging, borrow, and loading/unloading areas (Figure 4). Staging areas will need to be surfaced with aggregate to ensure durability with flooding events. Staging areas would be returned to pre-construction conditions subsequent to completion of construction.

Figure 4. Site improvement locations.

Scour Remediation and Foundation Preparation

A barge incident in 2011 forced the closure of many dam gates which caused a large scour hole to develop downstream of the dam in the footprint of the river wall for the new lock. Stone protection was placed as part of an emergency repair to stabilize the scour and existing intermediate wall. The new lock project includes further remediation to provide a suitable foundation for the new river wall (Figure 5). The remediation efforts will consist of removing portions of the stone at depths below water up to 75 feet to allow for construction of project features. By removing the existing stone, the monoliths, drilled shafts, outside surficial sheetpile wall, sheet pile cutoff wall, and dewatering wells will be more easily constructed. The outside surficial sheetpile wall will serve as the line of scour protection during construction for the monolith placement. As the sheet pile wall is being installed a new stone berm will be placed riverward. Dredged sand will be placed landward of the sheet pile wall. These materials will be brought up incrementally to help stabilize the outside sheet pile wall. Post construction, the placed stone will provide scour protection and stability to the river wall and the densified dredged sands will provide an adequate foundation for the lock floor and struts.

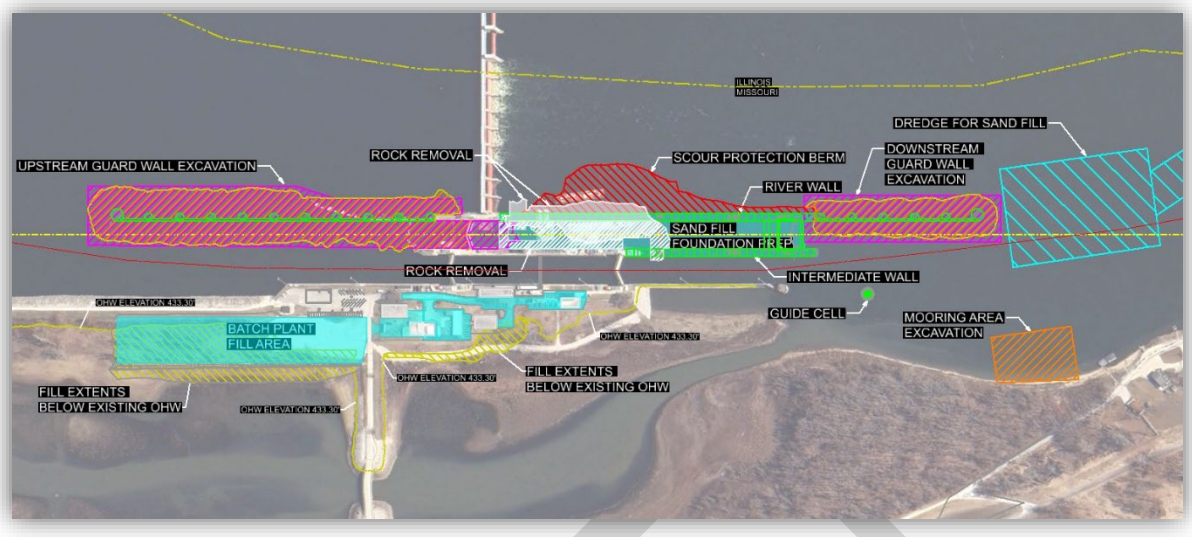

Figure 5. Project features.

Borrow Material

Borrow material is needed for the civil site improvements required for construction. 56,000 cubic yards will be needed for the batch plant area and 19,000 cubic yards will be needed for the site facility area adjacent to the proposed maintenance building. A separate contract for the Maintenance and Storage Buildings will obtain 15,000 cubic yards from a commercial source. Three potential borrow areas (Figure 4) near the site have been identified that all contain suitable clay material.

Due to the 2011 tow allision and large scour that resulted, dredged sands are now needed under the lock floor to establish a stable foundation. Approximately 68,000 CY of dredged sands will be needed to infill the lock chamber floor. Previous maintenance dredge locations downstream of the lock have been identified that show sufficient quantity and material of sand with less than 20% fines.

3.0 Affected Environment and Environmental Consequences

3.1 Land Use and Infrastructure

3.1.1 Farmland

No Action Alternative – Farmland would be anticipated to remain similar to existing conditions under the No Action Alternative.

Preferred Alternative – The Preferred Alternative would have short term direct impacts on farmland due to the temporary use of agricultural land for staging and storage areas. The staging and storage areas would be situated on soils that are not classified as prime farmland. At the conclusion of construction, the land would be returned to its original state and could again be utilized for agricultural production or other non-developed use.

The Preferred Alternative would also have long term direct impacts on farmland due to borrow removal. Borrow areas 2 and 3 are active farm fields but are not considered prime farmland. Twelve inches of topsoil would be removed and stockpiled from borrow areas 2 and 3. Clay borrow material would then be removed to a depth of 6 additional feet. Borrow area 4 is not currently in agriculture but is considered prime farmland. Six inches of topsoil would be removed and stockpiled from borrow area 4. Clay borrow material would then be removed to a depth of 10 additional feet. Borrow areas 2, 3, and 4 would be expected to convert to permanent aquatic habitat after removal of borrow material and would no longer be suitable for agriculture. Implementation of the Preferred Alternative would result in the permanent conversion of 20.1 acres of farmland to aquatic habitat, 3.5 acres of which would be prime farmland[1]. A Farmland Impact Rating Form was coordinated with the Natural Resources Conservation Service to document potential impacts to prime farmland (see Appendix A).

3.1.2 Transportation Network

Lock and Dam 25 can be accessed from Missouri State Highway 79 in Winfield, Missouri via State Highway N to the project access road. Highway N continues on to the Mississippi River, where it terminates at a ferry crossing. Several other rural roads occur in and near the project area. Sandy Slough Road extends in a northerly direction adjacent to Sandy Slough. Pillsbury Road runs southward from the project area approximately 2 miles along the Mississippi River and eventually terminates.

No Action Alternative – Local roads and highways would be anticipated to remain similar to existing conditions under the No Action Alternative.

Preferred Alternative – To safely accommodate the increase in traffic volume and vehicle size from construction traffic, the existing roadways (rural State Highway N and county roads) may need to be upgraded by widening and strengthening the existing pavements along with re-alignment to increase turning radii. Road design would be based on estimated construction traffic, vehicle tracking simulations for anticipated construction vehicles, and Missouri Department of Transportation Standards. In addition to roadway improvements to the cross section and pavement section, intersections may need to be reconstructed to allow large construction vehicles to turn on and off Highway N without tracking off the pavement. The primary intersection needing improvement is between State Highways 79 and N in Winfield. There is a railroad crossing at this intersection that may periodically restrict queuing and turning movements for large construction vehicles. The railroad crossing may also require widening and signal relocation. It is also anticipated that access to County Road 957 via Sandy Slough Road would be closed or limited during construction. Alternate access would be available via County Road 950. See Figures 6 through 10 for potential road improvement details. Plans for roadway improvements would be incorporated into the construction contract for the Lock as a Contractor responsibility. The Contractor would be required to survey the condition of the roads prior to construction, obtain and/or abide by local state and county permits, and maintain and repair damaged roadways throughout the contract.

[1] Portions of the borrow areas may not be required for project construction. Farmland impacts would be reduced accordingly.

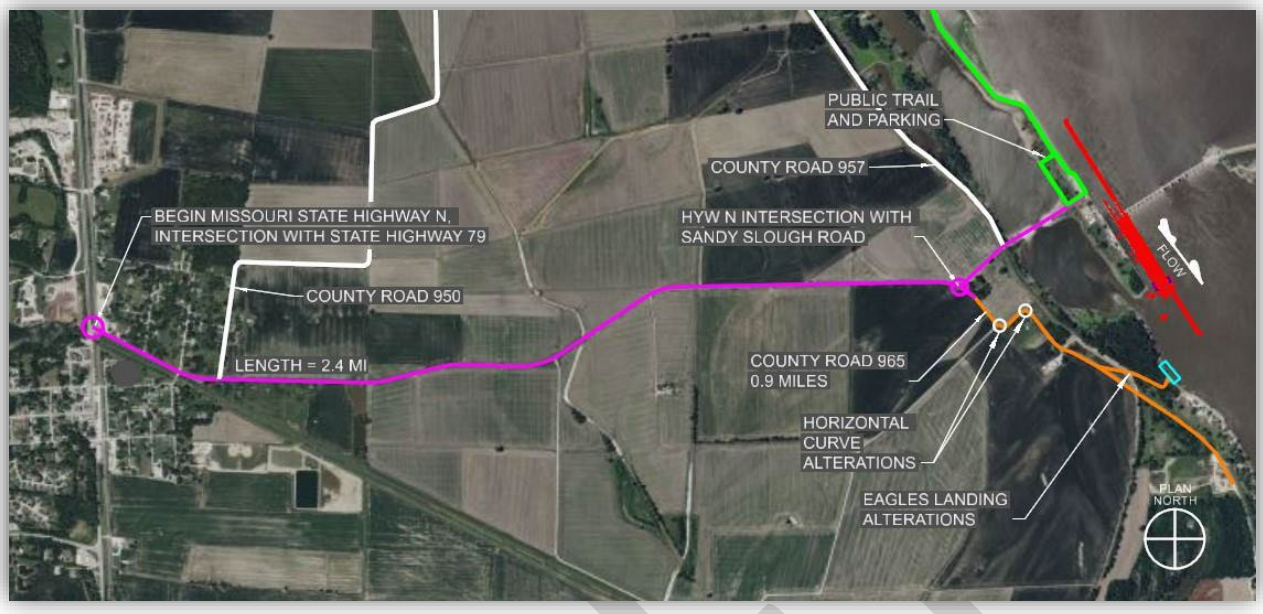

Figure 6. Roadway improvement locations.

Figure 7. Required road improvements at the intersection of Highway 79 and Highway N.

Figure 8. Required road improvements at the intersection of Highway 79 and Highway N.

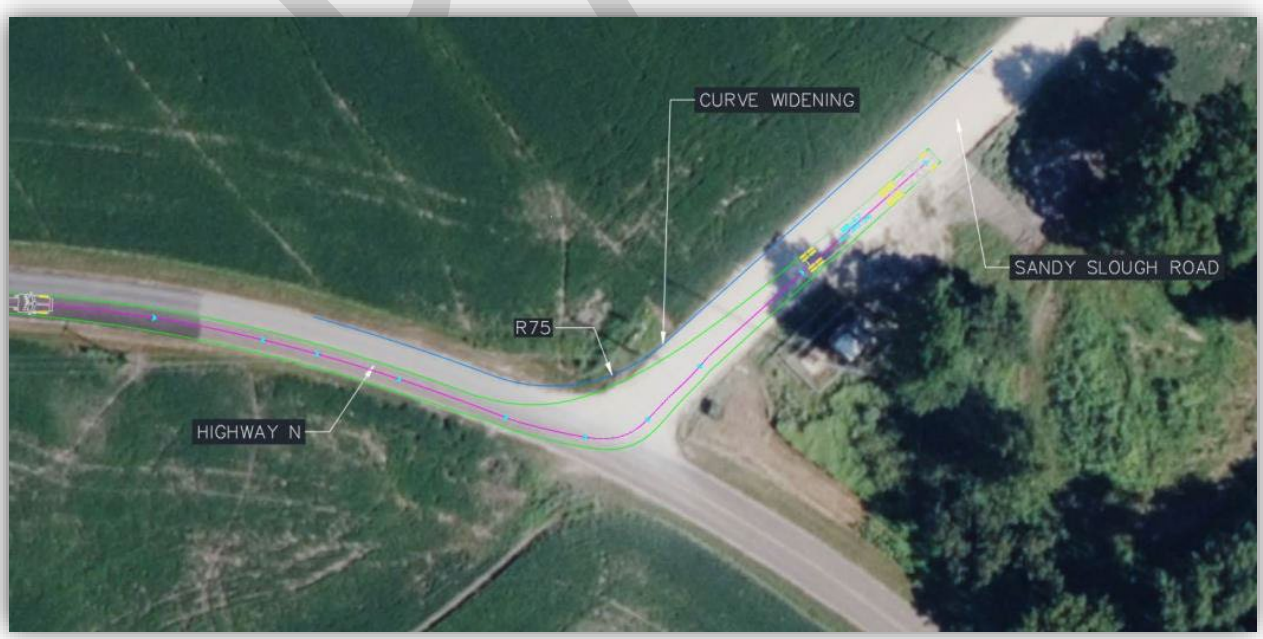

Figure 9. Required road improvements at the intersection of Highway N and Sandy Slough Road.

Figure 10. Required road improvements at the intersection of Highway N and Sandy Slough Road.

It is likely that the project area would see a noticeable increase in the number of vehicles using the area during periods of construction, simply due to the increased number of people in the area. Traffic could also increase in Calhoun County as workers come in from Illinois. Short-term direct impacts to local traffic could occur. However, these impacts would be seasonal, short-term, and temporary and would terminate upon project completion.

3.2 Water Resources – Sandy Slough

No Action Alternative – Sandy Slough would be anticipated to remain similar to existing conditions under the No Action Alternative.

Preferred Alternative – The original Preferred Alternative as outlined in the 2009 EA called for the portion of Sandy Slough below the L&D 25 bridge to be excavated to a depth sufficient to accommodate barges and facilitate access between the river and staging areas. The Preferred Alternative no longer includes excavation of Sandy Slough as access will be accomplished through other routes. The batch plant area and site facilities area (Figure 11) will require fill material. The impacts to these areas are covered in Section 3.4 below. Construction easements will be necessary in Sandy Slough, but impacts would be minor and short-term in nature.

Figure 11. Batch plant and facilities area.

3.3 Wetlands

Impacts to wetlands and associated mitigation requirements are covered in Section 3.4 Wildlife and Habitat below.

3.4 Wildlife and Habitat

No Action Alternative – Wildlife and habitat in the project area would be anticipated to remain similar to existing conditions under the No Action Alternative.

Preferred Alternative – Under the Preferred Alternative, several areas of bottomland hardwood forest habitat (wetlands) would be affected by construction activities[2] (Figure 12):

- Batch Plant Area. 5.2 acres of low-quality bottomland hardwood forest
- Facilities Area: 2.6 acres of low-quality bottomland hardwood forest
- Loading and Unloading Area 1: 1.8 acres of bottomland hardwood forest

[2] Portions of the loading/unloading areas and borrow areas may not be required for project construction. Bottomland hardwood impacts and associated mitigation requirements would be reduced accordingly.

- Loading and Unloading Area 2: 3.0 acres of low-quality bottomland hardwood forest
- Borrow Area 4: 3.5 acres of low-quality bottomland hardwood forest

Figure 12. Areas requiring mitigation.

The Upper Mississippi River System Floodplain Forest Habitat Model (certified for regional use in the Upper Mississippi River System, expiration 8 September 2028) was used to evaluate impacts of the project on bottomland hardwood forest habitat (Appendix D). IWR Planning Suite II, version 2.0.9.35 (certified for national use, expiration 31 May 2025) was used for average annual habitat unit (AAHU) calculations. Based on the analysis of existing, future without project (FWOP), and future with project (FWP) conditions, project activities would cause 5.0 AAHUs of impacts to bottomland hardwood forest habitat, requiring compensatory mitigation (see Table 1). Detailed mitigation planning can be found in Appendix E. Mitigation bank credits or in-lieu fee program credits will be purchased to offset project impacts.

Table 1. Acres and AAHUs of impacts to bottomland hardwood forest habitat associated with the Preferred Alternative.*

Area	Acres	FWOP AAHUs	FWP AAHUs	Net AAHUs
Batch Plant	5.2	1.3	0.0	-1.3
Lock Facilities	2.6	0.6	0.0	-0.6
Loading/Unloading Area 1	1.8	1.2	0.5	-0.7

Loading/Unloading Area 2	3.0	1.6	0.7	-0.9
Borrow Area 4	3.5	1.5	0.0	-1.5
Total	**16.1**	**6.2**	**1.2**	**-5.0**

* Portions of the loading/unloading areas and borrow areas may not be required for project construction. Bottomland hardwood impacts and associated mitigation requirements would be reduced accordingly.

3.5 Threatened and Endangered Species – Biological Assessment

The District consulted the USFWS Information for Planning and Consultation (IPaC) website on 17 June 2024 to identify potential Federally-listed threatened and endangered species within the action area (Consultation Code 2022-0039585; Appendix A). Seven species were listed as potentially occurring in the action area (Table 2).

Table 2. Federally listed threatened and endangered species potentially occurring in the project area.

	Common Name	**Scientific Name**	**Status**
Mammals	Gray Bat	*Myotis grisescens*	Endangered
	Indiana Bat	*Myotis sodalis*	Endangered
	Northern Long-eared Bat	*Myotis septentrionalis*	Endangered
	Tricolored Bat	*Perimyotis subflavus*	Proposed Endangered
Clams	Spectaclecase	*Cumberlandia monodonta*	Endangered
Insects	Monarch Butterfly	*Danaus plexippus*	Candidate
Flowering Plants	Decurrent False Aster	*Boltonia decurrens*	Threatened

No Action Alternative – The No Action Alternative would have no effect on listed species.

Preferred Alternative

Gray Bat

Status

The gray bat is a federally listed, endangered mammal species. The gray bat occupies a limited geographic range in limestone karst areas of the southeastern United States, including Missouri. With rare exception, the gray bat roosts in caves year-round. In winter, most gray bats hibernate in vertical (pit) caves with cool, stable temperatures below 10 degrees Celsius. Summer caves, especially those used by maternity colonies, are nearly always located within a kilometer (0.6 miles) of rivers or reservoirs over which the bats feed. The summer caves are warm with dome ceilings that trap body heat. Most gray bats migrate seasonally between hibernating and maternity caves, and both types of caves are located in Missouri. Gray bats are active at night, foraging for insects over water or along shorelines, and they need a corridor of forest riparian cover between roosting caves and foraging areas. They can travel as much as 20 kilometers (12 miles) from their roost caves to forage.

Gray bats are endangered largely because of their habit of living in large numbers in only a few caves, thus making the species vulnerable to human disturbance and habitat loss or modification. Disturbance of gray bats in their caves during their hibernation can cause them to

use their energy reserves and could lead to starvation. Disturbances to their caves during their nursing season (June and July) can frighten females causing them to drop non-volant pups to their death in panic to flee from the intruder. Additionally, many important caves that have been historically used by gray bats have been inundated by reservoirs. The commercialization of caves, and alterations of the air flow, temperature, humidity, and amount of light can make the cave unsuitable habitat for gray bats and drive bats away. The fatal bat disease, white-nose syndrome (WNS) has not yet been documented to adversely affect the gray bat. However, because gray bats are cave obligates, and considering how WNS has decimated other cave-dwelling bat species, WNS could be another significant threat to the gray bat.

Effects Determination

No caves would be impacted by the project. There is the possibility that construction activities could disturb bats foraging in the river corridor, but this impact would be minor and would not significantly disrupt normal behavior patterns due to individuals being able to relocate to other nearby foraging areas. It is our determination that the project may affect but is not likely to adversely affect the gray bat.

Indiana Bat

Status

The Indiana bat is typical of the Myotis species in its appearance. Flying insects are the typical prey and its diet reflects the species present in its available foraging habitat. It typically forages along the shorelines of rivers and lakes, in the canopy of trees in floodplains and in upland forests. In summer, habitat consists of wooded or semi-wooded areas, mainly along streams. Females, solitary or in small maternity colonies, bear their offspring in hollow trees or under loose bark of living or dead trees. Trees standing in sunny openings are attractive because of warmer air spaces and crevices under the bark. Maternity sites have been reported as occurring in riparian areas, floodplain forests, and upland habitats. Habitat for the Indiana bat extends from eastern Oklahoma, north to Iowa, Wisconsin, and Michigan (USFWS, 2016a), east to New England and south to western North Carolina, Virginia, and northern Alabama.
Northern populations migrate south to Alabama, Tennessee, Kentucky, Indiana, Missouri, and West Virginia for winter. Limestone caves with pools are preferred for hibernacula. Hall (1962) noted that preferred caves are of medium size with large, shallow passageways.

Effects Determination

There are no known caves or winter hibernacula within or near the project area that could be affected by construction activities. Some potentially suitable summer roost and foraging habitat could be affected by project tree clearing activities. All tree clearing associated with the project would occur during the inactive season from November 1 to March 31 unless negative presence/probable absence surveys are obtained for the action area through appropriate surveys approved by the USFWS. There is also the possibility that construction activities could disturb bats in nearby foraging and roosting habitats, but this impact would be minor and would not significantly disrupt normal behavior patterns due to individuals being able to relocate to other nearby habitat. It is our determination that the project may affect but is not likely to adversely affect the Indiana bat.

Northern Long-Eared Bat

Status
The northern long-eared bat is a federally listed, threatened mammal species (Federal Register 4 May 2015). The northern long-eared bat is sparsely found across much of the eastern and north central United States and spends winter hibernating in caves and mines. They typically use large caves or mines with large passages and entrances; constant temperatures; and high humidity with no air currents. Within hibernacula, they are found in small crevices or cracks (USFWS, 2016b). During summer, northern long-eared bats roost singly or in colonies underneath bark, in cavities, or in crevices of both live and dead trees. Males and non-reproductive females may also roost in cooler places like caves and mines. This bat seems opportunistic in selecting roosts, using tree species based on suitability to retain bark or provide cavities or crevices. They have also been found, rarely, roosting in structures like barns and sheds (USFWS, 2016b). Foraging occurs in floodplain and upland forests. Forest fragmentation, logging and forest conversion are major threats to the species. One of the primary threats to the northern long-eared bat is the fungal disease white-nose syndrome which has killed an estimated 5.5 million cave-hibernating bats in the Northeast, Southeast, Midwest and Canada. The project area does provide bat roosting and foraging habitat.

Effects Determination
There are no known caves or winter hibernacula within or near the project area that could be affected by construction activities. Some potentially suitable summer roost and foraging habitat could be affected by project tree clearing activities. All tree clearing associated with the project would occur during the inactive season from November 1 to March 31 unless negative presence/probable absence surveys are obtained for the action area through appropriate surveys approved by the USFWS. There is also the possibility that construction activities could disturb bats in nearby foraging and roosting habitats, but this impact would be minor and would not significantly disrupt normal behavior patterns due to individuals being able to relocate to other nearby habitat. It is our determination that the project may affect but is not likely to adversely affect the northern long-eared bat.

Tricolored Bat
Status
The tricolored bat is proposed for federal listing as an endangered species. Tricolored bats were formerly called eastern pipistrelle. Tricolored bats are usually found roosting singly. Maternity colonies average approximately 4 (range 1-8) females and pups in Indiana (USFWS, 2021). In winter, tricolored bats hibernate in caves with a preference for caves that are humid and warm. In summer, they generally leave their hibernation caves and roost in trees, clumps of leaves in the canopy, cliffside crevices, and human-made structures. They forage for insects high in the air along forest edge and the boundaries of streams or open bodies of water. Tricolored bats mate during spring, fall, and sometimes in winter. Maternity colonies begin forming in mid-April and females bear 1 to 2 pups by late May to mid-July.

Effects Determination
There are no known caves or winter hibernacula within or near the project area that could be affected by construction activities. Some potentially suitable summer roost and foraging habitat could be affected by project tree clearing activities. All tree clearing associated with the project would occur during the inactive season from November 1 to March 31 unless negative

presence/probable absence surveys are obtained for the action area through appropriate surveys approved by the USFWS. There is also the possibility that construction activities could disturb bats in nearby foraging and roosting habitats, but this impact would be minor and would not significantly disrupt normal behavior patterns due to individuals being able to relocate to other nearby habitat. It is our determination that the project may affect but is not likely to adversely affect the tricolored bat.

Spectaclecase

Status

Spectaclecase is a federally listed, endangered mussel species (USFWS, 2016b). This mussel lives in large rivers in sheltered areas (e.g., beneath rock slabs). Historically, this large mussel was found in at least 44 streams of the Mississippi, Ohio, and Missouri river basins in 14 states; however, today it is found only in 20 streams, with the populations fragmented and restricted to short stream reaches. Recent sampling shows the spectaclecase to be extremely rare in the Mississippi River main stem and is thought to be extant in very low numbers only in pools 15, 16, 19, 22, 24, and 25. The spectaclecase is not known to exist in any nearby mussel beds. The spectaclecase was not found during the 1997 sampling effort that occurred above and below LD 25. The extensive 2007 survey also failed to find the species in the project area. Although the spectaclecase could potentially be found in very low numbers in Pools 25 and 26, no individuals have been found in the project area and project impacts to the spectaclecase are highly improbable.

Effects Determination

We conclude the project may affect but is not likely to adversely affect the spectaclecase.

Monarch Butterfly

Status

The monarch butterfly is a large orange butterfly that is a candidate for listing on the Endangered Species List. Monarch populations of eastern North America have declined 90%. Much of the Monarch butterfly's life is spent migrating between Canada, Mexico, and the U.S. Monarchs do not overwinter in the project area (USFWS, 2020). The monarch occurs in a variety of habitats where it searches for its host plant, milkweed. Of the over 100 species of milkweed that exist in North America, only about one fourth of them are known to be important host plants for monarch butterflies. The main monarch host plant is Common Milkweed (Asclepias syriaca) (Kaul & Wilsey, 2019). Other common hosts include Swamp Milkweed (Asclepias incarnata), Butterfly Milkweed (Asclepias tuberosa), Whorled Milkweed (Asclepias verticillata), and Poke Milkweed (Asclepias exaltata) (USFWS, 2020). All of the host milkweeds have the potential to occur in or near the project area. Three factors appear most important to explain the decline of Monarchs: loss of milkweed habitat, logging at overwintering sites, climate change, and extreme weather. In addition, natural enemies such as diseases, predators, and parasites, as well as chemicals used in agricultural activities, may also contribute to the decline.

Effects Determination

Project activities are unlikely to affect individual monarch butterflies or their habitat. We conclude the project is not likely to jeopardize the continued existence of the monarch butterfly.

Decurrent False Aster

Status

Decurrent false aster is a federally listed, threatened floodplain perennial plant species that may be found on moist, sandy floodplains and prairie wetlands along the Mississippi and Illinois Rivers. It is dependent on flood pulses or disturbances that eliminate competing vegetation and provide the high light and moist soil conditions needed for seed germination and establishment (Smith & Keevin, 1998). Without disturbance, other plant species out-compete decurrent false aster and eliminate it in 3 to 5 years from any given area. Species decline is due to several factors including excessive silting of habitat due to topsoil run-off, conversion of natural habitat to agriculture, drainage/development of wetlands, altered flooding patterns, and herbicide use. No critical habitat rules have been published for the decurrent false aster. This species has not been found within the project area and most of the known populations of this species occur south of the project area below the confluence with the Illinois River.

Effects Determination

Neither the plant nor suitable habitat exist within the project area; therefore, we conclude that the project would have no effect on the decurrent false aster.

State-Listed Species

In addition to federally-listed species, state-listed threatened and endangered species also have the potential to occur in or near the project area. The Missouri and Illinois natural heritage databases were consulted for state-listed species. Tables 3 and 4 provide the species potentially occurring in or near the project area. Although no official protections exist for state-listed species, consideration will be given to avoiding and minimizing potential impacts to state-listed species from project-related activities. It is not anticipated that any substantial impacts would occur to state-listed species as a result of project activities.

Table 3. Missouri threatened and endangered species potentially occurring in Lincoln County.

Scientific Name	Common Name	State Status
Acipenser fulvescens	Lake Sturgeon	Endangered
Botaurus lentiginosus	American Bittern	Endangered
Myotis grisescens	Gray Myotis	Endangered
Myotis septentrionalis	Northern Long-eared Myotis	Endangered
Myotis sodalis	Indiana Myotis	Endangered
Potamilus capax	Fat Pocketbook	Endangered
Rallus elegans	King Rail	Endangered
Reginaia ebenus	Ebonyshell	Endangered
Scaphirhynchus albus	Pallid Sturgeon	Endangered
Trifolium stoloniferum	Running Buffalo Clover	Endangered

Table 4. Illinois threatened and endangered species potentially occurring in Calhoun County.

Scientific Name	Common Name	State Status
Acipenser fulvescens	Lake Sturgeon	Endangered
Agalinis skinneriana	Pale False Foxglove	Threatened
Ammocrypta clara	Western Sand Darter	Endangered

Apalone mutica	Smooth Softshell	Threatened
Asclepias lanuginosa	Wooly Milkweed	Endangered
Asclepias stenophylla	Narrow-leaved Green Milkweed	Endangered
Boltonia decurrens	Decurrent False Aster	Threatened
Buchnera americana	Blue Hearts	Threatened
Catostomus catostomus	Longnose Sucker	Threatened
Crotalus horridus	Timber Rattlesnake	Threatened
Delphinium carolinianum	Hill Prairie Larkspur	Endangered
Ellipsaria lineolata	Butterfly	Threatened
Fundulus dispar	Starhead Topminnow	Threatened
Margaritifera monodonta	Spectaclecase	Endangered
Mentzelia oligosperma	Stickleaf	Endangered
Myotis septentrionalis	Northern Long-eared Myotis	Threatened
Myotis sodalis	Indiana Bat	Endangered
Notropis boops	Bigeye Shiner	Endangered
Nycticorax nycticorax	Black-crowned Night-Heron	Endangered
Phacelia gilioides	Ozark Phacelia	Endangered
Poa alsodes	Grove Bluegrass	Endangered
Reginaia ebenus	Ebonyshell	Endangered
Salvia azurea	Blue Sage	Threatened
Sternula antillarum	Least Tern	Endangered
Terrapene ornata	Ornate Box Turtle	Threatened

3.6 Recreation

A substantial amount of recreation activity occurs in and around the LD 25 project area. The proximity of the site to St. Louis makes it an attractive outdoor recreation area for a large population. The area is also used regularly by local residents. People are attracted to the river because of the resources and recreational opportunities that it offers. The area is used heavily by hunters, fishermen, birdwatchers, picnickers, recreational boaters, and walkers. The LD 25 project area provides a useful public bank-side access point to the river and the parking lot is important for many activities.

One of the most popular uses of the project area is eagle watching. Large numbers of eagles use the river during the winter and are drawn specifically to LD 25 due to the abundance of forage in the tailwaters. Many people come to observe the eagles roosting in the trees and foraging over the river. Most use the LD 25 parking lot to access viewpoints along Sandy Slough and below the dam. A hiking trail is provided alongside the lock to allow people to view eagles near the tailwaters. Lock and Dam 25 is important to the region because of the easy access and ample opportunity it provides for recreational access to the river.

No Action Alternative – The No Action Alternative would have no effect on recreation in the project area.

Preferred Alternative

The Preferred Alternative would have unavoidable adverse impacts on recreation in the project area. Due to safety restrictions during construction, public access to L&D 25 will not be allowed. During the public review period for the 2009 EA, a comment from The Nature Conservancy (TNC) suggested that USACE should provide temporary parking in the area to facilitate public access to the TNC Eagle Sanctuary at the site. USACE originally planned to provide temporary parking in the area for public use. However, upon further consideration of public safety in an active construction area, USACE concluded that temporary public parking cannot be provided. During construction, Sandy Island would remain accessible from a public parking area 3.5 miles to the north, but no direct public access at L&D 25 will be provided during construction. Recreational activity on the Mississippi River, such as hunting, fishing, and boating, would not be adversely impacted by the project. Recreational opportunities at the site would be restored upon project completion.

3.7 Socioeconomics – Environmental Justice

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin or income regarding the development, implementation and enforcement of environmental laws, regulations, and policies, with no group bearing a disproportionate burden of environmental harms and risks. Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, directs federal agencies to identify and address any disproportionately high adverse human health or environmental effects of federal actions to minority and/or low-income populations. Environmental justice and disproportionate impacts to disadvantaged communities shall be considered throughout the Civil Works programs and in all phases of project planning and decision-making, consistent with the goals and objectives of various Administration policies. USACE guidance defines economically disadvantaged communities as those with per capita income of 80 percent or less of the national average, those with an unemployment rate at least 1 percent greater than the national average, Indian country, U.S. territories, and communities identified as disadvantaged in CEQ's Climate and Economic Justice Screening Tool (CEJST).

The U.S. Environmental Protection Agency (USEPA) on-line EJScreen mapping tool (Version 2.2) and CEQ's CEJST (Version 1.0) were used to characterize potential disadvantaged communities in the project vicinity.

EJScreen. EJScreen was used to analyze within a 3-mile buffer of L&D 25 and included parts of Lincoln County, MO and Calhoun County, IL. The EJScreen tool estimated a population of 1,101 in the analysis area. People of color represent 6% of the analysis area and 22% of the residents are considered low-income. Both the people of color and low-income percentages in the project vicinity are below the state averages (23% and 33%, respectively) and the national averages (39% and 31%, respectively).

CEJST. The CEJST Version 1.0 tool was used to evaluate whether there are disadvantaged communities in the vicinity of the project. The screening tool evaluates the proportion of the population that is disadvantaged within a census tract relative to eight categories of burden: climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development. The tool identified the Lincoln County tract as a disadvantaged

community due to it meeting burden thresholds for climate change and transportation as well as the associated low-income threshold for those burden thresholds. Lincoln County met the climate change burden threshold for being above the 90th percentile in expected population loss rate (fatalities and injuries resulting from natural hazards each year) and in projected flood risk (projected risk to properties from projected floods, tides, rain, riverine and storm surges within 30 years). Lincoln County met the transportation burden threshold for being above the 90th percentile in transportation barriers (average of relative cost and time spent on transportation).

No Action Alternative – No disproportionate impacts to minority or low-income populations would be anticipated under the No Action Alternative.

Preferred Alternative – No changes in rates of fatalities or injuries resulting from natural hazards or from flood risk are anticipated from the Preferred Alternative. The Preferred Alternative may have minor impacts on transportation time in the area due to increased traffic from construction vehicles, but the impacts are expected to be seasonal and short-term and traffic levels would return to normal upon construction completion. Overall, the Preferred Alternative is expected to benefit the local economy through job creation.

3.8 Cultural and Historic Resources

The Lock and Dam 25 Historic District is listed in the National Register of Historic Places (NRHP) under the Upper Mississippi River 9-Foot Navigation Project, 1931-1948 multiple property listing (MPDF) (NRHP reference No. 04000184, listed 3/10/2004). It has also been documented in HAER No. MO-37.

In September 2004 the "Programmatic Agreement Among the U.S. Army Corps of Engineers Mississippi Valley Division St. Paul District, Rock Island District, and St. Louis District, Illinois, Iowa, Minnesota, Missouri, and Wisconsin State Historic Preservation Officers, and Advisory Council on Historic Preservation, Regarding Implementation of the Upper Mississippi River – Illinois Waterway System Navigation Study and Ecosystem Restoration for Ongoing Effects of Navigation From the Upper Mississippi River – Illinois Waterway System Navigation Study" was signed by the consulting parties to address a number of proposed Federal undertakings.

In a letter dated October 25, 2006, the Corps determined that the construction of a new 1200-foot lock at Lock and Dam 25 would result in an adverse effect to the Historic District and proposed to use the Programmatic Agreement to mitigate possible adverse effects of the project. In a letter dated November 3, 2006, the Missouri State Historic Preservation Officer (SHPO) concurred with the adverse effect determination and assigned a Log Number of 001-RA-06. They also concurred with the Corps' proposed mitigation which was the production of an Upper Mississippi River watershed educator's guidebook and the former completion of the nomination of the system to the National Register.

Subsequently, an educator's guidebook to the Upper Mississippi River Valley was developed for distribution. In August 2009, the Corps contracted Formations of Portland, Oregon, to produce "Our Mississippi: Educational Activities about the Upper Mississippi River."

Additionally, a Phase 1 archaeological survey of the work areas outside the National Register District was conducted in 2007 (Phase I Cultural Resources Investigation and Geomorphological Testing of the Lock and Dam No. 25 Project area in Lincoln County, Missouri, and Remote Sensing at Select Locations in the Confluence Park Area, St. Charles County Missouri by the American Resources Group, Ltd.). Five archaeological sites were identified. Four were determined to be ineligible for the National Register and one, 23LN1339, was determined as possibly eligible for inclusion. In a letter dated November 14, 2007 the Missouri SHPO concurred with the District's determinations and the project was assigned the Log Number of 006-MLT-08.

No Action Alternative – Cultural and historic resources in the project area would be anticipated to remain similar to existing conditions under the No Action Alternative.

Preferred Alternative – In 2023, given the length of time since the Programmatic Agreement was signed and the change of the project's Area of Potential Effect (APE) outside of the Historic District, the Corps re-engaged the Missouri SHPO. The Corps archaeologists conducted an additional Phase 1 archaeological survey of new areas now within the APE. No historic properties were located. Additionally, site 23LN1339 is no longer in the project APE; therefore, the Corps determined that no historic properties would be affected. This report was submitted on July 25, 2023, to Missouri SHPO who had no comments (Appendix A). On August 15, 2023, the Corps submitted a letter regarding the survey to 21 tribes expressing interests in the area. Three tribes responded that they had no specific comments or concerns with the determination (Appendix A).

On October 6, 2023, the Corps submitted to Missouri SHPO a new evaluation package on the proposed work inside the Historic District (Appendix A). The Corps determined that, of the resources to be demolished or altered, the upstream guard wall, control house, and auxiliary miter gate bay are listed as contributing resources to the Historic District. The new control house, 1200-foot lock, guard wall, and approach wall will significantly alter the appearance of the Historic District both from the river and land and impact the distinctive focal points of the district both physically and visually; therefore, the Corps found that the project will have an adverse effect on the historic property. In a letter dated October 25, 2023, the Missouri SHPO concurred with the determination. Currently, the Corps is in the process of developing a Memorandum of Agreement to address the adverse effects.

On March 13, 2024, the Corps submitted a letter to 21 tribes who have expressed an interest in the area regarding the work inside the Historic District. To date three tribes have replied and expressed no concerns with the project (Appendix A).

3.9 Hazardous, Toxic, and Radioactive Waste

No Action Alternative – Hazardous, Toxic, and Radioactive waste concerns in the project area would be anticipated to remain similar to existing conditions under the No Action Alternative.

Preferred Alternative – A Phase I Environmental Site Assessment was conducted in July 2023. This included a records review, physical site visit, and communications with persons

knowledgeable of the project footprint and adjoining properties. Generally, the project area contains no major sites of interest which pose significant HTRW concerns. However, a lead-based paint and asbestos containing materials survey was conducted in the past. The survey should be evaluated by a certified industrial hygienist for the project to proceed to construction. If unforeseen potential HTRW concerns are identified during construction, work should stop immediately in the suspected areas and the contracting officer should be notified.

3.10 Climate Change

On January 20, 2021, President Joe Biden signed Executive Order 13990, "Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis." The executive order rescinded the Council on Environmental Quality (CEQ's) 2019 draft guidance on GHGs and climate change related to NEPA. Further, the executive order establishes a program for accounting for the benefits of reducing climate pollution, emphasizing that it is essential for agencies to capture the full costs of GHG emissions as accurately as possible, including by taking global damages into account.

On January 9, 2023, the CEQ released National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change (GHG Guidance) (CEQ 2023). This guidance provides details for how federal agencies can incorporate GHG and climate change considerations into the NEPA process, including assessing and reducing impacts from GHG emissions or incorporating climate resiliency. Although the GHG guidance is considered "interim," it is effective immediately, while CEQ seeks public comment on the guidance. The GHG guidance recommends that GHG emissions should be quantified for the gross and net emissions for each chemical compound (i.e., methane, nitrous oxide, etc.) and summarized as carbon dioxide equivalent (CO2e) and social cost of greenhouse gases. The GHG guidance recommends the social cost of greenhouse gas (SC-GHG) be included in NEPA studies to disclose the potential future costs to society stemming from the carbon emitted by a proposed action. Per this guidance, SC-GHG is not required for use in a cost-benefit analysis but is intended to provide an additional metric for alternatives comparison (CEQ 2023).

Climate change is a term commonly used to describe the increase in the average temperature of the earth's near-surface air and oceans since the mid–20th century. Natural processes and human actions have been identified as affecting the climate. However, increasing GHG concentrations in the atmosphere resulting from human activity since the 19th century, such as fossil fuel combustion, deforestation, and other activities, are believed to be a major factor in climate change. Increases in the concentrations of GHG in the atmosphere during the last 100 years such as methane and nitrous oxide have trapped additional solar radiation, intensifying the natural greenhouse effect and resulting in an increase in global average temperature which has increased at an average rate of 0.17 F per decade since 1901 (USEPA 2021).

Carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are the principal GHGs emitted which contribute to global warming. Emissions of CO2 are largely byproducts of fossil fuel combustion, while methane results from off-gassing, natural gas leaks from pipelines and industrial processes, and incomplete combustion associated with agricultural practices, landfills, energy providers, and other industrial facilities. Other human-generated GHGs include fluorinated gases such as

hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, which have much higher potential for heat absorption than CO2 and are byproducts of certain industrial processes. Conversely, CO2 sinks include vegetation and the ocean, which absorb CO2 through sequestration and dissolution, and are two of the largest reservoirs of CO2 sequestration.

In 2021, the United States total gross greenhouse gas emissions were approximately 6,340.2 million metric tons of CO2e. Emissions decreased by 2.3 percent from 1990 to 2021 though there have been noteworthy fluctuations in recent years. There was a sharp decline from 2019 to 2020 due to reductions in emissions from travel and other economic activity due to the COVID-19 pandemic though emissions from fossil fuel production rebounded from 2020 to 2021, with a 6.8 percent increase contributing to an overall increase by 5.2 percent. Emissions from the electric power sector also decreased 10 percent, reflecting both a slight decrease in demand from the COVID-19 pandemic and a continued shift from coal to less carbon intensive natural gas and renewables. Of the major sectors nationwide, transportation accounts for the highest volume of GHG emissions at approximately 27 percent of the total, followed by electricity, industry, commercial and residential, and agriculture contributing 25 percent, 24 percent, 13 percent and 11 percent of the total, respectively (USEPA 2022).

Moving goods via waterways is an efficient mode of transportation. A modern 15-barge tow has the capacity to transport approximately 26,250 tons, the equivalent of 1,050 semi-trucks or 240 rail cars (TTI 2022). On average since 2000, 28.4 million tons of cargo pass through Lock and Dam 25 annually (USACE 2024), which is equivalent to approximately 1,100,000 semi-trucks or 260,000 rail cars. Additionally, inland towing produces the least amount of GHG emissions (Metric Tons of GHG per Million Ton-Miles) compared to railroads and trucks (TTI 2022). By utilizing the UMR-IWW to transport goods over railroads and trucks, millions of tons of emissions are prevented each year.

No Action Alternative – Implementation of the No Action Alternative would maintain current conditions in the area. Barge traffic would continue to be delayed, causing vessels to produce exhaust for an extended period as they hold position in the area waiting to go through the lock which increases the total amount of emissions to move goods through the UMR-IWW. GHG emissions associated with the No Action Alternative would be minor in comparison to cumulative national and global emissions.

Preferred Alternative – The Preferred Alternative is anticipated to be resilient to the effects of climate change on river processes. Due to the inherently dynamic nature of the Mississippi River, lock and dam designs are fundamentally resilient to dramatically fluctuating flow conditions. Any trends of increasing or decreasing flows associated with climate change should be accommodated readily.

Implementation of the Preferred Alternative would cause a temporary increase in GHG emissions due to exhaust from construction-related activities as well as emissions related to production of concrete required for construction. Total emissions and social costs of greenhouse gases were estimated using the Net Emissions Analysis Tool, Version 1.1 (certified for national use, expiration 15 December 2026). Net emissions were estimated to be approximately 121,000 metric tons of carbon dioxide equivalents based on construction equipment fuel consumption

quantities and concrete quantities placed over the course of the construction period. The social costs of greenhouse gas emissions were estimated to be approximately $18,170,000. GHG emissions associated with the Preferred Alternative would be minor in comparison to cumulative national and global emissions.

3.11 Compliance with Environmental Statutes

Federal Environmental Protection Statutes and Requirements	Applicability/ Compliance[1/2]
Archaeological and Historic Preservation Act, 16	Partial
Clean Air Act, as amended, 42 U.S.C. 1857h-7, et	Full
Clean Water Act, Sections 404 and 401	Partial
Endangered Species Act of 1973, as amended, 16	Partial
Environmental Justice (EOs 12898, 13985, 13990,	Full
Executive Order 11988 – Floodplain Management	Full
Executive Order 11990 - Protection of Wetlands	Full
Executive Order 13112 - Invasive Species	Full
Farmland Protection Policy Act. 7 U.S.C. 4201, et	Full
Federal Water Protection Recreation Act, 16 U.S.C.	Full
Fish and Wildlife Coordination Act, 16 U.S.C. 601,	Partial
Greenhouse Gases, CEQ Memorandum 18, Feb 2010	Full
Land and Water Conservation Fund Act, 16 U.S.C.	Full
National Environmental Policy Act, 42 U.S.C. 321, et	Partial
National Historic Preservation Act, 16 U.S.C. 470a,	Partial
Rivers and Harbors Act, 33 U.S.C. 403, et seq.	Full
Watershed Protection and Flood Prevention Act, 16	Full
Wild and Scenic Rivers Act, 16 U.S.C. 1271, et seq.	Full

[1] Full Compliance = having met all requirements of the statute for the current stage of planning
[2] Partial Compliance = having met some requirements of the statute for the current stage of planning or anticipate full compliance at completion of planning.

4.0 List of Preparers

Name	Role	Experience
Jose Lopez	Program Manager	15 years, project management
Kate Leese	Project Manager	11 years, project management
Marilyn Lowe	Project Manager	12 years, project management
Bryan Dirks	Engineering Technical Lead	16 years, engineering
Nicholas Jacobs	Real Estate	17 years, real estate
Kathy Dorsch	Civil Engineering	25 years, civil/site design
Mark Smith	Cultural and Historic Resources	25 years, archaeology
Travis Schepker	Water Quality	6 years, water quality
Joshua Gray	HTRW	19 years, geology/HTRW
Tyson Zobrist	Regulatory	17 years, biology
Paige Scott	Cost Engineering	15 years, cost engineering
Kip Runyon	Environmental	27 years, biology

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DRAFT FINDING OF NO SIGNIFICANT IMPACT

NAVIGATION AND ECOSYSTEM SUSTAINABILITY PROGRAM

LOCK AND DAM 25
NEW 1200-FOOT LOCK

DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

LINCOLN COUNTY, MISSOURI
CALHOUN COUNTY, ILLINOIS

August 2024

The U.S. Army Corps of Engineers, St. Louis District (Corps) has conducted an environmental analysis in accordance with the National Environmental Policy Act of 1969, as amended. The Draft Supplemental Environmental Assessment (DSEA) dated 9 August 2024, for the Lock and Dam 25 New 1200-Foot Lock Project addresses navigation improvement opportunities and feasibility in the Lincoln County, MO and Calhoun County, IL area. The DSEA supplements the 2009 site-specific Environmental Assessment (2009 EA) which was tiered off of the 2004 Final Integrated Feasibility Report and Programmatic Environmental Impact Statement (2004 PEIS). The DSEA was prepared to document relevant environmental information related to construction of the new 1200-foot lock at Lock and Dam 25 not covered by the 2004 PEIS or the 2009 EA.

The DSEA, incorporated herein by reference, evaluated an alternative that would eliminate double lockages, ease congestion, reduce delays, and increase safety in the study area. The recommended plan is the downstream alternative and includes:

- Construction of a new 1200-foot lock adjacent to the existing 600-foot lock.
- Implementation of compensatory mitigation for unavoidable impacts to bottomland hardwood forest.

In addition to a "no action" plan, two alternatives were evaluated in the 2009 EA. The alternatives included an upstream alternative and a downstream alternative. The downstream alternative was selected as the Preferred Alternative.

For the Preferred Alternative, the potential effects were evaluated, as appropriate. A summary assessment of the potential effects of the Preferred Alternative are listed in Table 1:

Table 1: Summary of Potential Effects of the Recommended Plan

	Insignificant effects	Insignificant effects as a result of mitigation*	Resource unaffected by action
Land Use and Infrastructure	☒	☐	☐
Water Resources	☒	☐	☐
Wetlands	☐	☒	☐
Wildlife and Habitat	☐	☒	☐
Threatened and Endangered Species	☒	☐	☐
Recreation	☒	☐	☐
Environmental Justice	☒	☐	☐
Cultural and Historic Resources	☐	☒	☐
Hazardous, Toxic, and Radioactive Waste	☒	☐	☐
Climate Change	☒	☐	☐

All practicable and appropriate means to avoid or minimize adverse environmental effects were analyzed and incorporated into the Preferred Alternative. Best management practices (BMPs) as detailed in the DSEA will be implemented, if appropriate, to minimize impacts.

The recommended plan will result in unavoidable adverse impacts to 16.1 acres of bottomland hardwood forest. To mitigate for these unavoidable adverse impacts, the U.S. Army Corps of Engineers will purchase mitigation bank credits or in-lieu fee program credits (see Section 3.4 of DSEA).

Public review of the DSEA and FONSI was completed on **DATE DRAFT EA AND FONSI REVIEW PERIOD ENDED**. All comments submitted during the public review period were responded to in the Final SEA and FONSI.

ENDANGERED SPECIES ACT

Pursuant to section 7 of the Endangered Species Act of 1973, as amended, the U.S. Army Corps of Engineers determined that the Preferred Alternative may affect but is not likely to adversely affect the following federally listed species or their designated critical habitat: gray bat, Indiana bat, northern long-eared bat, and tricolored bat; and determined that the Preferred Alternative is not likely to jeopardize the continued existence of the monarch butterfly. The U.S. Fish and Wildlife Service (FWS) concurred with the Corps' determination on **DATE OF CONCURRENCE LETTER**

NATIONAL HISTORIC PRESERVATION ACT

Pursuant to section 106 of the National Historic Preservation Act of 1966, as amended, the U.S. Army Corps of Engineers determined that historic properties may be adversely affected by the Preferred Alternative. The Corps is in the process of developing a Memorandum of Agreement to address the adverse effects. All terms and conditions resulting from the agreement shall be implemented in order to minimize adverse impacts to historic properties.

CLEAN WATER ACT SECTION 404(B)(1) COMPLIANCE

Pursuant to the Clean Water Act of 1972, as amended, the discharge of dredged or fill material associated with the recommended plan has been found to be compliant with section 404(b)(1) Guidelines (40 CFR 230). The Clean Water Act Section 404(b)(1) Guidelines evaluation is found in Appendix B of the DSEA.

CLEAN WATER ACT SECTION 401 COMPLIANCE:

Water quality certifications pursuant to section 401 of the Clean Water Act will be obtained from the Missouri Department of Natural Resources and the Illinois Environmental Protection Agency prior to construction. All conditions of the water quality certifications will be implemented in order to minimize adverse impacts to water quality.

FINDING

Technical, environmental, and economic criteria used in the formulation of alternative plans were those specified in the Water Resources Council's 1983 Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies. All

applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives. Based on this report, the reviews by other Federal, State and local agencies, Tribes, input of the public, and the review by my staff, it is my determination that the Preferred Alternative would not cause significant adverse effects on the quality of the human environment; therefore, preparation of an Environmental Impact Statement is not required.

_____ _____

Date

Andy J. Pannier
Colonel, U.S. Army
District Engineer

APPENDIX A

CORRESPONDENCE

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, ST. LOUIS DISTRICT
1222 SPRUCE STREET
ST. LOUIS, MISSOURI 63103

July 25, 2023

Engineering and Construction Division
Curation and Archives Analysis Branch

Subject: Lock and Dam 25 1200' Extension – Phase 1 Archaeological Survey

Ms. Amy Rubingh
Archaeologist and Records Manager
Missouri State Historic Preservation Office
1101 Riverside Dr.
Jefferson City, MO 65101

Dear Ms. Rubingh,

The U.S. Army Corps of Engineers, St. Louis District (District), is contacting your office to continue consultation for a proposed undertaking at Lock and Dam 25, Lincoln County MO. The proposed project includes the construction of new 1200-foot, pile founded, lock located in the auxiliary miter gate bay, and construction of an upstream, ported guard wall totaling 1200 feet, and a 650-foot downstream approach wall. The existing 600-foot lock will remain in place and will become an auxiliary lock chamber to be used primarily by recreation traffic. Lock and Dam 25 is listed on the National Register as a Historic District (NRHP reference No. 04000184).

Previous consultations with your office on the project were conducted in 2006-07. Funds, however, were not available for project implementation until recently. Due to the large and complex nature of the project, the District proposes to conduct a phased Section 106 consultation on the identification and evaluation of potential effects as outlined in 26 CFR 800.4 (b)(2). It is proposed that consultation regarding the above ground/built environment aspects of the project within the National Register District be initiated when design has reached approximately 35%. Currently the design is not sufficiently advanced to the point where the District can make evaluations on potential effects on historic properties.

A Phase 1 archaeological survey of the work areas outside the National Register District was conducted in 2007 (*Phase I Cultural Resources Investigation and Geomorphological Testing of the Lock and Dam No. 25 Project area in Lincoln County, Missouri and Remote Sensing at Select Locations in the Confluence Park Area, St. Charles County Missouri* by the American Resources Group, Ltd.). Five archaeological sites were identified. Four were determined to be ineligible for the National Register and one, 23LN1339 was determined as possibly eligible for inclusion. In a letter dated November 14, 2007 (included) your office concurred with the District's determinations and the project was assigned the Log Number of (006-MLT-08).

The project's Area of Potential Effect (APE) has changed since initial consultations. The area containing site 23LN1339 was removed from the project, but three additional areas were added. These may be used for borrow material and/or laydown areas (Figure 1). Consequently, archaeologists from the District conducted a Phase 1 archaeological survey of these areas (report included). No historic properties were identified. Therefore, the District has determined that work within these areas will have no adverse effect on historic properties. Upon design for the work taking place within the Historic District reaching approximately 35%, the District will continue consultations with your office.

If you have any further questions or concerns, please contact Dr. Mark Smith by phone at 314-331-8831 or by email at Mark.A.Smith4@usace.army.mil.

Respectfully,

Jennifer L. Riordan
Director, Mandatory Center of Expertise
for the Curation and Management of
Archaeological Collections

(Attachment)

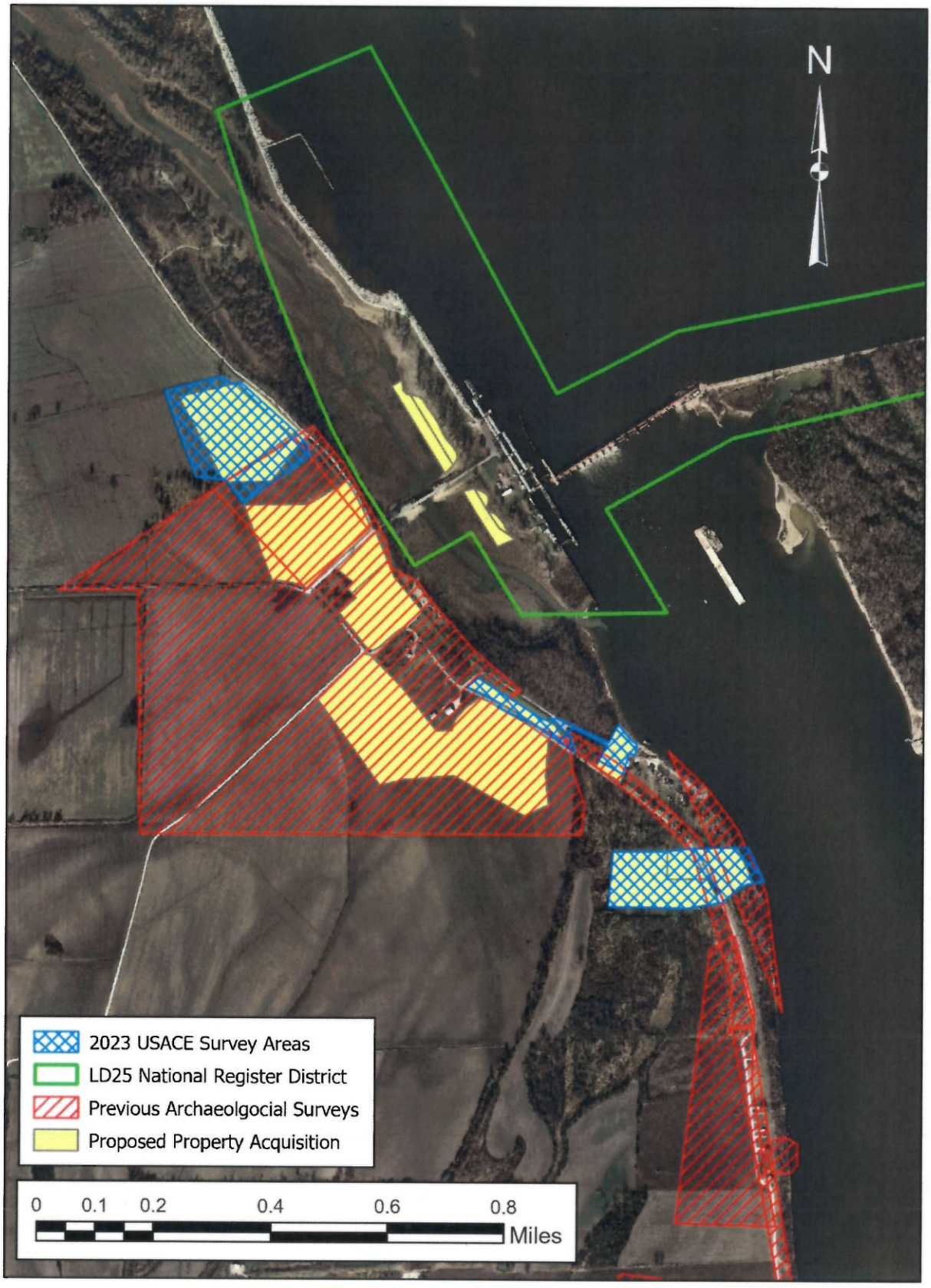

Figure 1. Project area showing location of Phase 1 surveys.

LN-094

STATE OF MISSOURI

Matt Blunt, Governor • Doyle Childers, Director

DEPARTMENT OF NATURAL RESOURCES

www.dnr.mo.gov

November 14, 2007

Terry Norris, Archaeologist
Corps of Engineers, St. Louis District
1222 Spruce Street
St. Louis, Missouri 63103-2833

Re: Lock & Dam 25 & Confluence State Park (COE) Lincoln & St. Charles Counties, Missouri

Dear Dr. Norris:

Thank you for submitting information on the above referenced project for our review pursuant to Section 106 of the National Historic Preservation Act (P.L. 89-665, as amended) and the Advisory Council on Historic Preservation's regulation 36 CFR Part 800, which requires identification and evaluation of cultural resources.

We have reviewed the September 2007 report entitled *Phase I Cultural Resources Investigation and Geomorphological Testing of the Lock and Dam No. 25 Project area in Lincoln County, Missouri and Remote Sensing at Select Locations in the Confluence Park Area, St. Charles County Missouri* by the American Resources Group, Ltd. Based on this review it is evident that a thorough and adequate cultural resources survey has been conducted of the project area. We concur with the investigator's recommendation that 23LN1339 may be eligible for inclusion in the National Register of Historic Places, and that the anomaly identified be remote sensing may be the location of the steamboat *Bedford* and is worthy of further investigation.

If at all possible, the proposed project should be designed to avoid archaeological site 2323LN1339. Plans detailing the redesign should be submitted to this office in order to document successful avoidance. If avoidance is not feasible, subsurface testing should be conducted in order to determine if this site is eligible for inclusion in the National Register. The results of the evaluation should be submitted to the State Historic Preservation Office in accordance with the Council's regulations. Pending completion of this process, no actions should be taken that would foreclose consideration of alternatives to avoid or satisfactorily mitigate any adverse effects to historic properties.

We also concur that 23LN1336, 23LN1337, 23LN1338 and 23LN1340 are not eligible for inclusion in the National Register of Historic Places.

If you have any questions, please write Judith Deel at State Historic Preservation Office, P.O. Box 176, Jefferson City, Missouri 65102 or call 573/751-7862. Please be sure to include the SHPO Log Number **(006-MLT-08)** on all future correspondence or inquiries relating to this project.

Sincerely,
STATE HISTORIC PRESERVATION OFFICE

Mark A. Miles
Director and Deputy
State Historic Preservation Officer

c Steve Titus, ARG
Brant Vollman, DNR/DSP

DEPARTMENT OF THE ARMY
ST. LOUIS DISTRICT CORPS OF ENGINEERS
1222 SPRUCE STREET
ST. LOUIS, MISSOURI 63103-2833

REPLY TO
ATTENTION OF:

October 6, 2023

Engineering and Construction Division
Curation and Archives Analysis Branch (EC-Z)

Amy Rubingh
Archaeologist and Records Manager
Missouri State Historic Preservation Office
1101 Riverside Dr
Jefferson City, MO 65101

Subject: SHPO Project # 031-MLT-23 Lock and Dam 25 – 1200' Lock Extension, Control House, and Maintenance Building, Winfield, Lincoln County, Missouri

Dear Ms. Rubingh:

The United States Army Corps of Engineers (USACE) recently contacted your office regarding consultation under Section 106 of the National Historic Preservation Act of 1966, as amended, (NHPA), and its implementing regulations 36 CFR 800, concerning the effects of ground disturbing activities at Lock and Dam 25. Due to the complexity of the project, we proposed conducting phased Section 106 consultation for the identification of historic properties and evaluation of effects as outlined in 36 CFR 800.4(b)(2). The project plans have reached 35% design completion and are sufficiently complete to determine the effects the project will have on historic properties.

The Lock and Dam 25 Historic District is listed in the National Register of Historic Places (NRHP) under the *Upper Mississippi River 9-Foot Navigation Project, 1931-1948* multiple property listing (MPDF) (NRHP reference No. 04000184). The undertaking will include construction of a new 1200-foot, pile founded, lock in the auxiliary miter gate bay, a 1200-foot upstream ported guard wall, and a 650-foot downstream approach wall. Additionally, the project will include the demolition of the existing upstream guard wall, control house, viewing platform, assistant lockmaster's office, lower shop, and upper shop, relocation of the equipment platform, the construction of a replacement control house, maintenance building, and storage building, and associated site work as indicated on the plans. Fill will be required to level the ground for the construction of the new maintenance building and potentially a concrete batch plant. Information on the borrow areas were submitted to you by our office previously.

To further detail the project, you will find a copy of the project plans, list of resources within the historic district and the project impacts on them, maps, and photos included with this submission.

Of the resources to be demolished or altered, the upstream guard wall, control house, and auxiliary miter gate bay are listed as contributing resources to the historic district. The new control house,1200' lock, guard wall, and approach wall will significantly alter the appearance of the historic district both from the river and land and impact the distinctive focal points of the district both physically and visually; therefore, we find that the project will have an adverse effect on the historic property. We request your concurrence with this determination and request your participation in the process to resolve adverse effects through the development of a Memorandum of Agreement (MOA).

If you have any questions or comments, please contact me at (314) 331-8855 or Dr. Mark Smith at (314) 331-8831 or mark.a.smith4@usace.army.mil.

Sincerely yours,

Jennifer Riordan
Chief, Curation and Archives Analysis Branch

MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Michael L. Parson
Governor

Dru Buntin
Director

October 25, 2023

USACE St. Louis District
Attn: Dr. Mark Smith
1222 Spruce Street
St. Louis, MO 63103

Re: **SHPO Project Number: 031-MLT-23** – Lock and Dam 25 1200' Extension, 10 Sandy Slough Road, Winfield, Lincoln County, Missouri (USACE)

Dear Dr. Mark Smith:

Thank you for submitting information to the State Historic Preservation Office (SHPO) regarding the above-referenced project for review pursuant to Section 106 of the National Historic Preservation Act, P.L. 89-665, as amended (NHPA), and the Advisory Council on Historic Preservation's regulation 36 CFR Part 800, which require identification and evaluation of historic properties.

We have reviewed the information regarding the above-referenced project and have included our comments on the following page(s). Please retain this documentation as evidence of consultation with the Missouri SHPO under Section 106 of the NHPA. SHPO concurrence does not complete the Section 106 process as federal agencies will need to conduct consultation with all interested parties. **Please be advised that, if the current project area or scope of work changes, such as a borrow area being added, or cultural materials are encountered during construction, appropriate information must be provided to this office for further review and comment.**

If you have questions please contact the SHPO at (573) 751-7858 or call/email Amy Rubingh, (573) 751-4589, amy.rubingh@dnr.mo.gov. If additional information is required please submit the information via email to MOSection106@dnr.mo.gov.

Sincerely,

STATE HISTORIC PRESERVATION OFFICE

Brian Stith
Deputy Director Division of State Parks and
Deputy Missouri State Historic Preservation Officer

C: Meredith Trautt, USACE
Jennifer Riordan, USACE

SHPO Project Number: 031-MLT-23 – Lock and Dam 25 1200' Extension, 10 Sandy Slough Road, Winfield, Lincoln County, Missouri (USACE)

COMMENTS:

Based on the information provided, SHPO concurs with your determination that the proposed extension project will have an **adverse effect** on the Lock & Dam 25 Historic District, which is listed in the National Register of Historic Places. A Memorandum of Agreement (MOA) that outlines the steps needed to mitigate the adverse effect for this project will need to be drafted. Final stipulations in the MOA should be determined in consultation with the U.S. Army Corps of Engineers, our office, the Advisory Council (if participating) and any other interested parties.

The U.S. Army Corps of Engineers should forward the necessary adequate documentation as described to the Executive Director, Advisory Council on Historic Preservation, the Pension Building, 401 F Street NW, Suite 308, Washington, DC 20001-2637. Pending receipt of the Council's decision on whether it will participate in consultation, no action shall be taken which would foreclose Council consideration of alternatives to avoid or satisfactorily mitigate any adverse effect on the property in question. Please be sure to copy us on any correspondence to the ACHP.

SHPO Reviewer: Amy Rubingh, (573) 751-4589, amy.rubingh@dnr.mo.gov

List of Tribes to whom the following correspondence letter was submitted.

Absentee-Shawnee Tribe of Indians of Oklahoma
Caddo Nation of Oklahoma
Citizen Potawatomi Nation, Oklahoma
Eastern Shawnee Tribe of Oklahoma
Forest County Potawatomi Community, Wisconsin
Hannahville Indian Community, Michigan
Ho-Chunk Nation of Wisconsin
Iowa Tribe of Kansas and Nebraska
Iowa Tribe of Oklahoma
Kickapoo Tribe of Indians of the Kickapoo Reservation in Kansas
Kickapoo Tribe of Oklahoma
Miami Tribe of Oklahoma
Nottawaseppi Huron Band of the Potawatomi, Michigan
Peoria Tribe of Indians of Oklahoma
Prairie Band Potawatomi Nation
Sac & Fox Nation of Missouri in Kansas and Nebraska
Sac & Fox Nation, Oklahoma
Sac & Fox Tribe of the Mississippi in Iowa
Shawnee Tribe
The Osage Nation
United Keetoowah Band of Cherokee of Oklahoma

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, ST. LOUIS DISTRICT
1222 SPRUCE STREET
ST. LOUIS, MISSOURI 63103

August 15, 2023

Engineering and Construction Division
Curation and Archives Analysis Branch

Subject: Lock and Dam 25 1200' Extension – Phase 1 Archaeological Survey, Lincoln County, MO

Governor John Raymond Johnson
c/o Representative Alicia Miller
Absentee-Shawnee Tribe of Indians of Oklahoma
2025 S. Gordon Cooper Drive
Shawnee, OK 74801

Dear Governor Johnson,

The U.S. Army Corps of Engineers, St. Louis District (District), is contacting your tribe to initiate consultation for a proposed undertaking at Lock and Dam 25, Lincoln County MO (Figure 1). The proposed project includes the construction of new 1200-foot, pile founded, lock located in the auxiliary miter gate bay, and construction of an upstream, ported guard wall totaling 1200 feet, and a 650-foot downstream approach wall. The existing 600-foot lock will remain in place and will become an auxiliary lock chamber to be used primarily by recreation traffic. Lock and Dam 25 is listed on the National Register of Historic Places (NRHP) as a Historic District (NRHP reference No. 04000184).

Your tribe may have been contacted pertaining to this project in 2006-2007; however, funding was not available for project implementation until recently. Due to the large and complex nature of the project, the District proposes to conduct a phased Section 106 consultation on the identification and evaluation of potential effects as outlined in 36 CFR 800.4(b)(2). It is proposed that consultation regarding the above ground/built environment aspects of the project within the NRHP District be initiated when design has reached approximately 35%. Currently the design is not sufficiently advanced to the point where the District can make evaluations on potential effects on historic properties for the above ground/built environment. However, the District is reaching out to consult on three proposed borrow/laydown areas that have been identified.

In 2007, a Phase 1 archaeological survey of the proposed Area Potential Effects (APE) outside of the NRHP District was conducted by American Resources Group, Ltd. (ARG) (*Phase I Cultural Resources Investigation and Geomorphological Testing of the Lock and Dam No. 25 Project Area in Lincoln County, Missouri and Remote Sensing at Select Locations in the Confluence Park Area, St. Charles County Missouri*) (Figure 2). ARG identified five archaeological sites. Four were determined to be ineligible for the

NRHP and one, 23LN1339 was determined potentially eligible for inclusion. The Missouri State Historic Preservation Office (MO SHPO) concurred with this determination. The project was assigned Log Number 006-MLT-08.

Since this initial survey, the project's APE has changed. The area containing site 23LN1339, has been removed and three additional areas (Areas A, B, and C) that may be used for borrow material and/or laydown areas (Figure 2). District archaeologists conducted a Phase I archaeological survey that consisted of pedestrian survey in areas of ground surface visibility (GSV) 25% and above and subsurface testing in areas lower than 25% GSV. The pedestrian survey comprised of transects at 5-meter intervals and the ground surface was inspected for cultural resources. Areas with varied or low GSV were surveyed in transects at 15-meter intervals with shovel tests conducted every 15 meters (Figures 3-5). No cultural resources were identified within Areas A, B, or C.

It is the District's current opinion that work within these areas will have no adverse effect on historic properties. The District will continue consultation with your tribe upon design reaching approximately 35% for the work taking place within the NRHP District.

If your tribe has any questions, comments, or areas of concern, please contact me at (314) 331-8855 or you may contact Meredith Hawkins Trautt (Tribal Liaison) at (314) 925-5031 or email Meredith.M.Trautt@usace.army.mil. A copy of this letter has been furnished to Ms. Carol Butler and Ms. Devon Frazier Smith.

Respectfully,

Jennifer L. Riordan
Chief, Curation and Archives
Analysis Branch

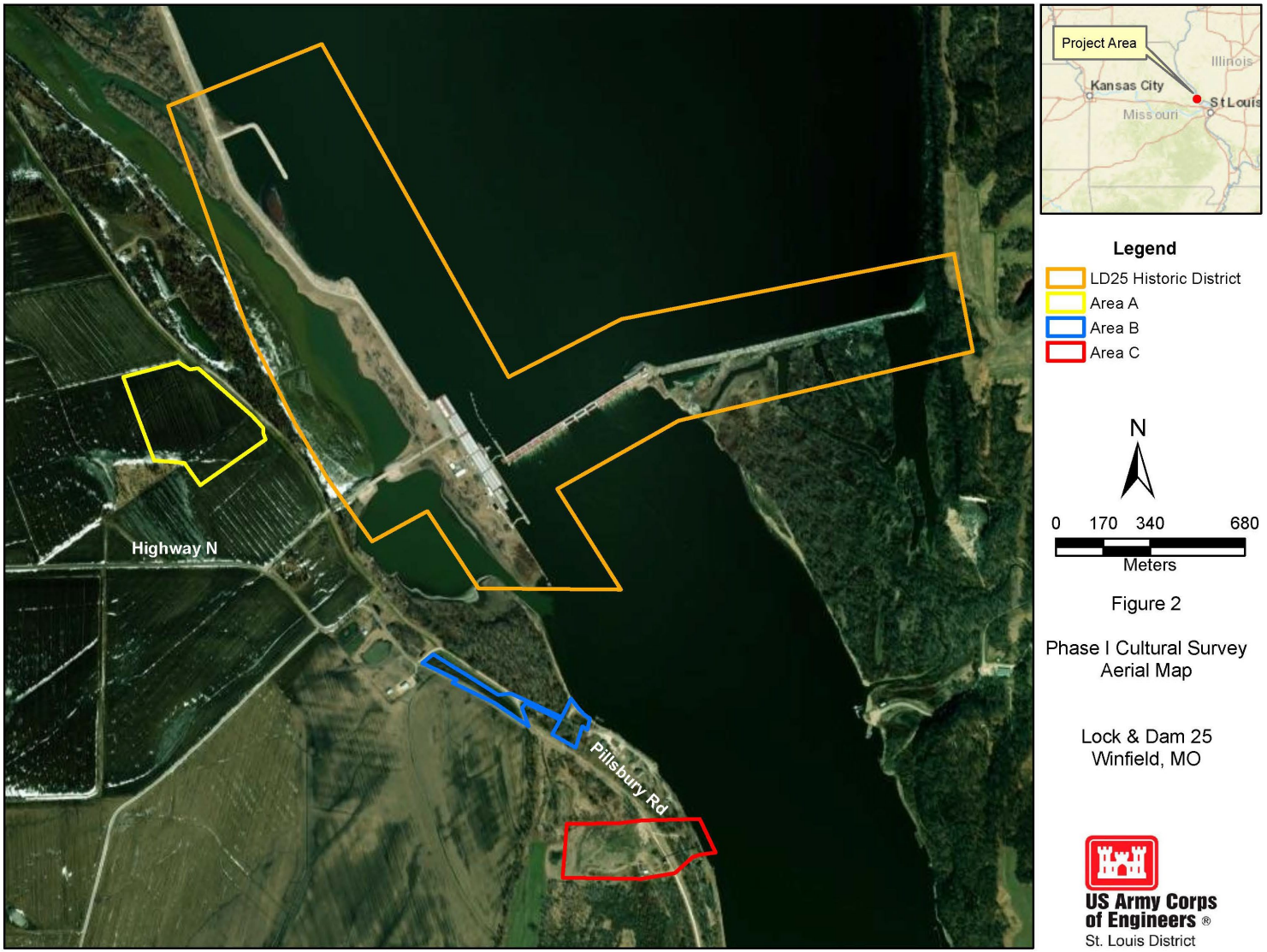

Figure 1. Location map of Lock & Dam 25 survey areas.

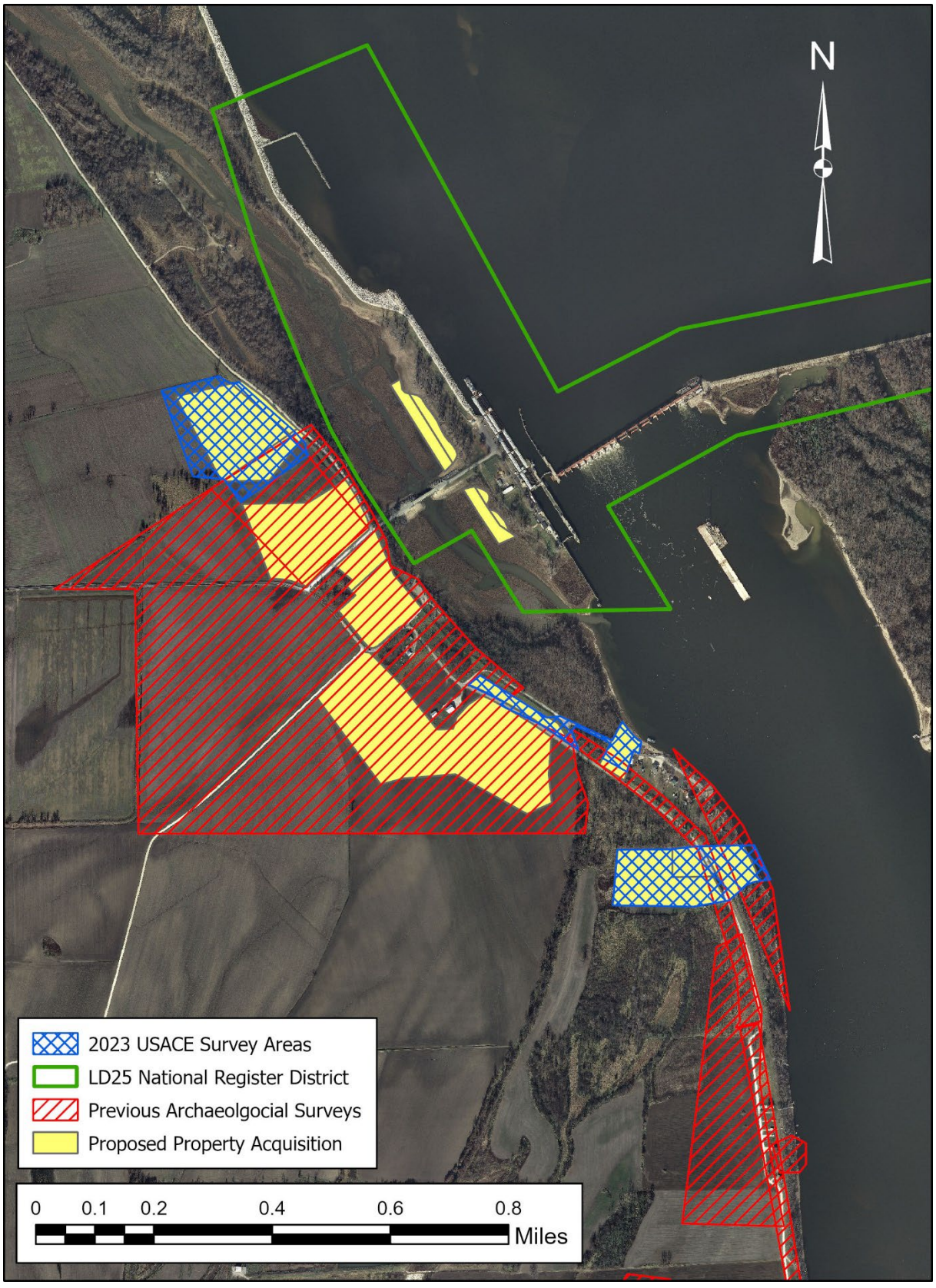

Figure 2. Map showing 2007 survey, 2023 survey, and proposed acquisition areas.

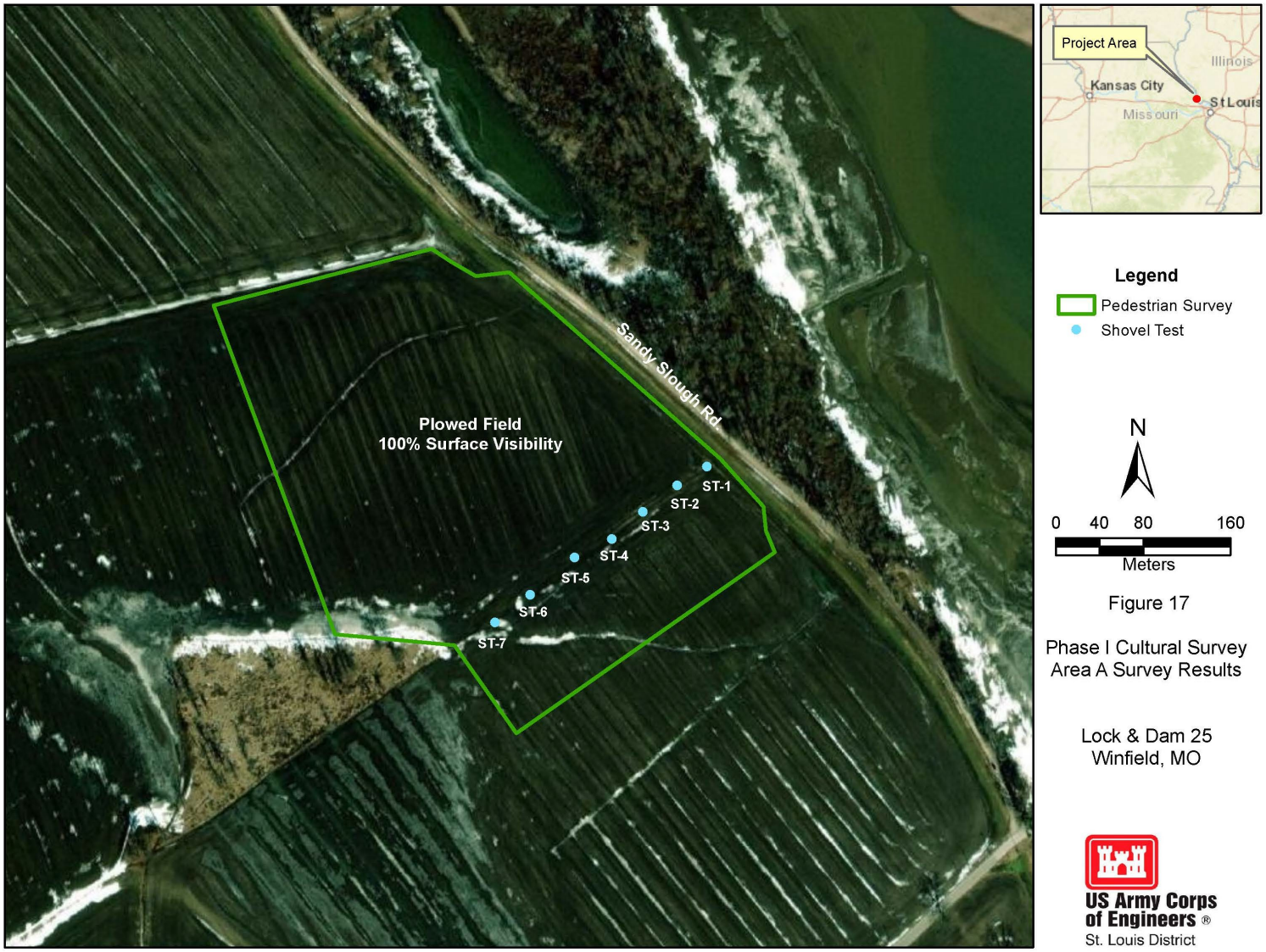

Figure 3. Sketch map of Area A.

Figure 4. Sketch map of Area B.

Figure 5. Sketch map of Area C.

From:	Jonathan Rohrer
To:	Trautt, Meredith M CIV USARMY CEMVS (USA)
Subject:	[URL Verdict: Neutral][Non-DoD Source] Proposed undertaking at Lock and Dam 25 1200" Extension - Phase I Archaeological Survey, Lincoln County, MO -
Date:	Friday, August 18, 2023 2:43:35 PM

Meredith Hawkins

Thank you for your request for consultation, received on 08-18-2023. The Caddo Nation appreciates your willingness to conduct proper consultation, pursuant to Section 106 of the National Historic Preservation Act.

Upon review of the project and location I have determined that it does not affect known cultural, traditional or sacred sites of interest to the Caddo Nation. As such, the Caddo Nation has no objection to the project at this time. However, in the event that an inadvertent discovery of potentially relevant cultural sites, funerary objects, or human remains occurs, we request that the project be immediately halted and the proper authorities be contacted. Additionally, The Caddo Nation would need to be notified of an inadvertent discovery with 24 hours.

Should you have any question or concerns regarding this response please feel free to contact our office.

Best regards,

Jonathan

Jonathan M. Rohrer
Tribal Historic Preservation Officer

Caddo Nation
P.O. Box 487
Binger, OK 73009
t: (405)656-0970 Ext. 2070
e: jrohrer@mycaddonation.com

www.mycaddonation.com

From: Benjamin Rhodd
To: Trautt, Meredith M CIV USARMY CEMVS (USA)
Subject: [Non-DoD Source] RE: USACE St. Louis District, L&D 25 Archaeological Survey, Lincoln Co., MO
Date: Monday, August 21, 2023 3:57:01 PM

Ms. Trautt,

Pursuant to consultation under Section 106 of the National Historic Preservation Act (1966 as amended) the Forest County Potawatomi Community (FCPC), a Federally Recognized Native American Tribe, reserves the right to comment on Federal undertakings, as defined under the act.

The Tribal Historic Preservation Office (THPO) staff has reviewed the information you provided for this project. Upon review of site data and supplemental cultural history within our Office, the FCPC THPO is pleased to offer a finding of No Historic Properties affected of significance to the FCPC, however, we request to remain as a consulting party for this project.

As a standard caveat sent with each proposed project reviewed by the FCPC THPO, the following applies. In the event an Inadvertent Discovery (ID) occurs at any phase of a project or undertaking as defined, and human remains or archaeologically significant materials are exposed as a result of project activities, work should cease immediately. The Tribe(s) must be included with the SHPO in any consultation regarding treatment and disposition of an ID find.

Thank you for protecting cultural and historic properties and if you have any questions or concerns, please contact me at the email or number listed below.

Respectfully,

Ben Rhodd, MS, RPA, Tribal Historic Preservation Officer
Forest County Potawatomi
Historic Preservation Office
8130 Mish ko Swen Drive, P.O. Box 340, Crandon, Wisconsin 54520
P: 715-478-7354 C: 715-889-0202 Main: 715-478-7474
Email: Benjamin.Rhodd@fcp-nsn.gov
www.fcpotawatomi.com

From: Trautt, Meredith M CIV USARMY CEMVS (USA) <Meredith.M.Trautt@usace.army.mil>
Sent: Tuesday, August 15, 2023 10:39 AM
To: Benjamin Rhodd <Benjamin.Rhodd@fcp-nsn.gov>
Subject: USACE St. Louis District, L&D 25 Archaeological Survey, Lincoln Co., MO

Dear Mr. Rhodd,
Please see the attached letter pertaining to an archaeological survey for three borrow/laydown areas for the Lock & Dam 25 updates in Lincoln County, MO.

Sincerely,

Meredith Hawkins Trautt, M.S., RPA

Archaeologist and Tribal Liaison
U.S. Army Corps of Engineers, St. Louis District
MCX CMAC, EC Z
1222 Spruce Street
St. Louis, MO 63109
Office: (314) 925-5031
Mobile: (314) 798-2169
Pronouns: she/her

From: Annalee Bennett
To: Trautt, Meredith M CIV USARMY CEMVS (USA)
Cc: Lakota Hobia; Gun Lake Tribe - THPO Shared
Subject: [Non-DoD Source] Lock and Dam 25 1200' Extension
Date: Tuesday, November 28, 2023 1:23:04 PM
Attachments: USACE St. Louis Lock and Dam 25_MBPI Response 112723.pdf

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Dear Ms. Trautt,

Please see the attached letter for the proposed project.

Thank you,

Annalee Bennett
Historic Perservation Technician
Gun Lake Tribe - Tribal Historic Preservation Office
(Match-E-Be-Nash-She-Wish Band of Pottawatomi Indians)
2872 Mission Dr.
Shelbyville, MI 49344

2872 Mission Drive, Shelbyville, MI 49344 | {p} 269.397.1780 | gunlaketribe-nsn.gov

November 27, 2023

Jennifer Riordan
Chief, Curation and Archives
USACE St. Louis District
1222 Spruce Street
St. Louis, MO 63103-2833

Re: Lock and Dam 25 1200' Extension

Dear Ms. Riordan:

The Match-E-Be-Nash-She-Wish Band of Pottawatomi Indians' Tribal Historic Preservation Office has received the Section 106 consultation request for comments regarding the proposed construction of a new 1200-foot lock and associated activities at Lock and Dam 25 in Lincoln County, MO. At present, we are not providing any additional comments. We have not identified any information concerning the presence of any cultural resources significant to the Match-E-Be-Nash-She-Wish Band of Pottawatomi Indians within the Area of Potential Effect (APE). This is not to say that such a site may not exist, just that this office does not have any available information for the area(s) at this point in time.

This office will be available to assist you in the future or during this project if there is a discovery of human remains, funerary objects, and artifacts. The discovery will require reinitiating Section 106 consultation related to all ongoing and proposed project work and the handling of the inadvertent discovery per the National Historic Preservation Act (NHPA) implementing regulations, 36 CFR Part 800, and, as applicable, the Native American Graves and Repatriation Act (NAGPRA) and its implementing regulations, 43 CFR Part 10. In the event of a discovery of artifacts, human remains, or funerary objects, we request to be notified within 10 days. At that time, the Tribe will determine if further consultation is necessary.

Please keep in mind that there may be other Tribal Nations that have interest in this area. We thank you for including the Match-E-Be-Nash-She-Wish Band of Pottawatomi Indians in your outreach.

Sincerely,

Lakota Hobia

Lakota Hobia
THPO
Lakota.Hobia@glt-nsn.gov
Mbpi_thpo@glt-nsn.gov

CC: Meredith Hawkins Trautt, Archaeologist and Tribal Liaison, USACE St. Louis

List of Tribes to whom the following correspondence letter was submitted.

Absentee-Shawnee Tribe of Indians of Oklahoma
Caddo Nation of Oklahoma
Citizen Potawatomi Nation, Oklahoma
Eastern Shawnee Tribe of Oklahoma
Forest County Potawatomi Community, Wisconsin
Hannahville Indian Community, Michigan
Ho-Chunk Nation of Wisconsin
Iowa Tribe of Kansas and Nebraska
Iowa Tribe of Oklahoma
Kickapoo Tribe of Indians of the Kickapoo Reservation in Kansas
Kickapoo Tribe of Oklahoma
Miami Tribe of Oklahoma
Nottawaseppi Huron Band of the Potawatomi, Michigan
Peoria Tribe of Indians of Oklahoma
Prairie Band Potawatomi Nation
Sac & Fox Nation of Missouri in Kansas and Nebraska
Sac & Fox Nation, Oklahoma
Sac & Fox Tribe of the Mississippi in Iowa
Shawnee Tribe
The Osage Nation
United Keetoowah Band of Cherokee of Oklahoma

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, ST. LOUIS DISTRICT
1222 SPRUCE STREET
ST. LOUIS, MISSOURI 63103

March 13, 2024

Engineering and Construction Division
Curation and Archives Analysis Branch (ECZ)

Subject: Lock and Dam 25 1200' Extension near Winfield, Lincoln County, Missouri

Governor John Raymond Johnson
c/o Representative Alicia Miller
Absentee-Shawnee Tribe of Indians of Oklahoma
2025 S. Gordon Cooper Drive
Shawnee, OK 74801

Dear Governor Johnson:

The U.S. Army Corps of Engineers, St. Louis District (District), is contacting your Tribe to continue consultation for the proposed undertaking at Lock and Dam 25 near Winfield in Lincoln County, Missouri per Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations 36 CFR 800. The District is proposing to construct a new 1200-foot, pile founded, lock in the auxiliary miter gate bay; a 1200-foot upstream ported guard wall; and a 650-foot downstream approach wall (Figure 1). Lock and Dam 25 is listed on the National Register of Historic Places (NRHP) as a historic district (NRHP reference No. 04000184).

Your Tribe may have been contacted pertaining to this project in 2006-2007; and was contacted on August 15, 2023, pertaining to the borrow and staging areas. At that time, the District proposed conducting a phased Section 106 consultation for the identification and evaluation of potential effects to the above ground/built environment aspect of the project within NRHP District when the design has reached approximately 35%. The design has reached 35% and the District is reaching out to discuss the proposed alterations to the built environment.

In addition to the construction of the auxiliary miter gate bay, upstream ported guard wall, and downstream approach wall, the project will include the demolition of the existing upstream guard wall, control house, viewing platform, assistant lockmaster's office, lower shop, and upper shop; relocation of the equipment platform; the construction of a replacement control house, maintenance building, and storage building; and associated site work, such as storage areas (Figure 2). Fill will be required to level the ground for the construction of the new maintenance building and potentially a concrete batch plant. The Phase I survey for the borrow areas were previously submitted to your Tribe.

Of the resources to be demolished or altered, the upstream guard wall, control house, and auxiliary miter gate bay are listed as contributing resources to the historic district (Figure 3). The new control house,1200' lock, guard wall, and approach wall will significantly alter the appearance of the historic district both from the river and land and impact the distinctive focal points of the district both physically and visually; therefore, the District has determined that project will have an adverse effect on the historic property. The District is presently working with

the Missouri State Historic Preservation Office to resolve the adverse effects to the historic district.

If your Tribe has any questions, comments, or areas of tribal concern, please contact me at (314) 331-8855 or Meredith Hawkins Trautt (Tribal Liaison) at (314) 925-5031 or email Meredith.M.Trautt@usace.army.mil. A copy of this letter has been furnished to Ms. Carol Butler and Ms. Devon Frazier Smith.

Sincerely,

Jennifer L. Riordan
Chief, Curation and Archives
Analysis Branch

Figure 1. Location map of the area of potential effect.

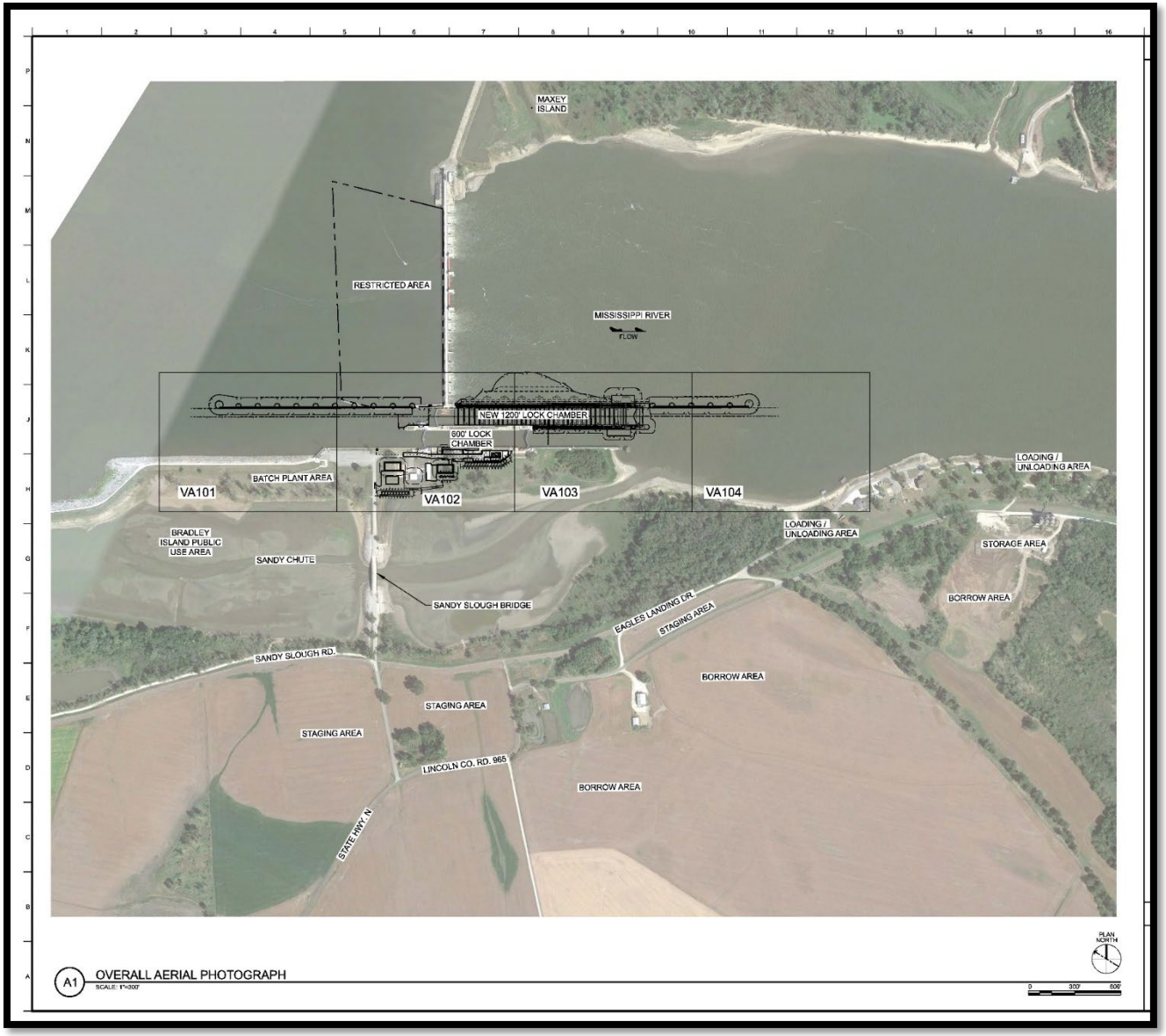


Figure 2. Proposed alterations to Lock and Dam 25.

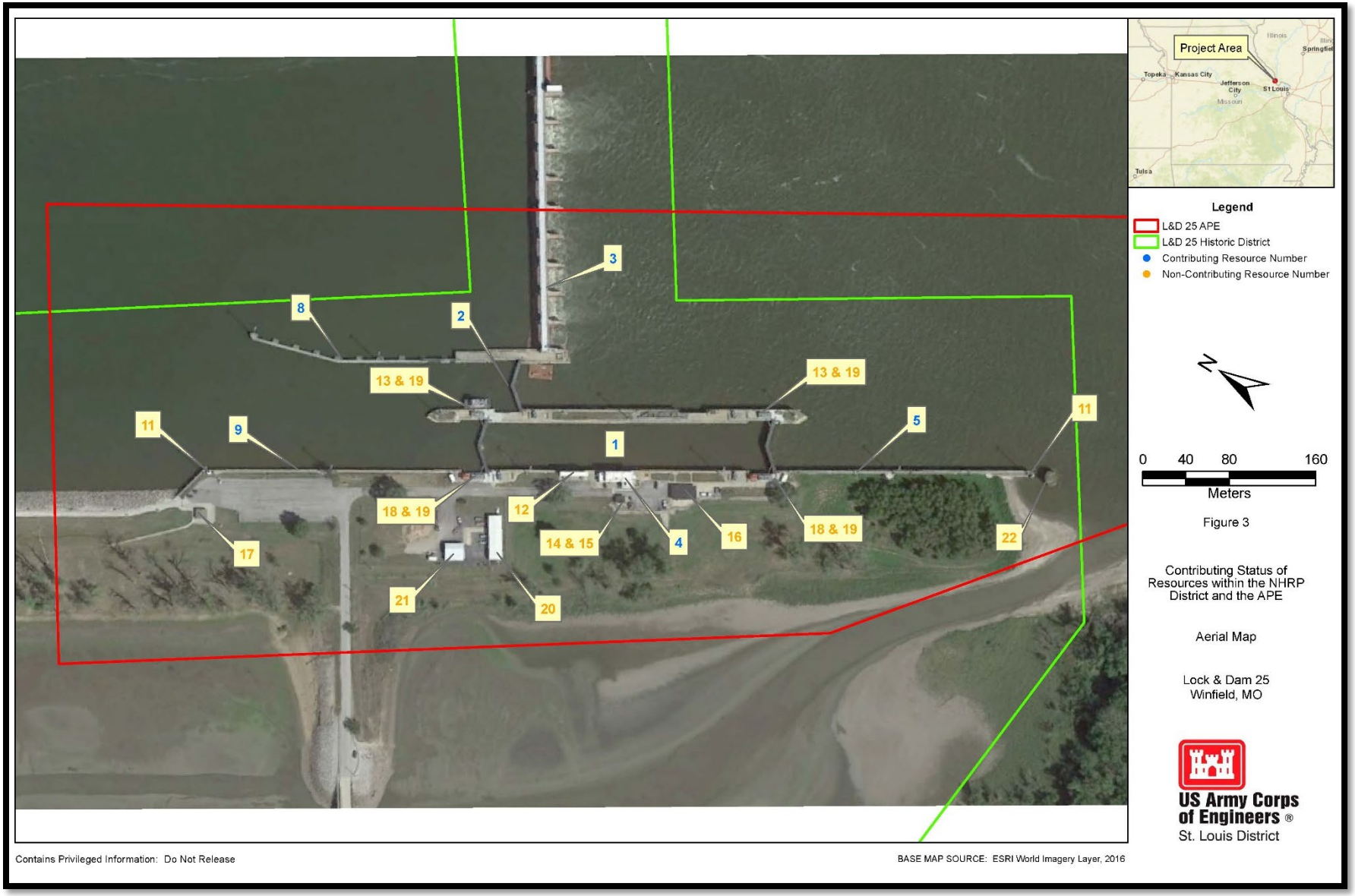


Figure 3. Lock and Dam 25 National Historic District contributing and non-contributing resources.

From: Benjamin Rhodd
To: Trautt, Meredith M CIV USARMY CEMVS (USA)
Subject: [Non-DoD Source] RE: USACE St. Louis District, Lock & Dam 25, Lincoln County, MO
Date: Monday, March 18, 2024 3:43:01 PM

Ms. Trautt,

Pursuant to consultation under Section 106 of the National Historic Preservation Act (1966 as amended) the Forest County Potawatomi Community (FCPC), a Federally Recognized Native American Tribe, reserves the right to comment on Federal undertakings, as defined under the act inclusive of licensing, permitting or use of federal funds by a delegated agency.

The Tribal Historic Preservation Office (THPO) staff has reviewed the information you provided for this project. Upon review of site data and supplemental cultural history within our Office, the FCPC THPO is pleased to offer a finding of No Historic Properties affected of significance to the FCPC, however, we request to remain as a consulting party for this project.

As a standard caveat sent with each proposed project reviewed by the FCPC THPO, the following applies. In the event an Inadvertent Discovery (ID) occurs at any phase of a project or undertaking as defined, and human remains or archaeologically significant materials are exposed as a result of project activities, work should cease immediately. The Tribe(s) must be included with the SHPO in any consultation regarding treatment and disposition of an ID find.

Thank you for protecting cultural and historic properties and if you have any questions or concerns, please contact me at the email or number listed below.

Respectfully,

Ben Rhodd, MS, RPA, Tribal Historic Preservation Officer
Forest County Potawatomi
Historic Preservation Office
8130 Mish ko Swen Drive, P.O. Box 340, Crandon, Wisconsin 54520
P: 715-478-7354 C: 715-889-0202 Main: 715-478-7474
Email: Benjamin.Rhodd@fcp-nsn.gov
www.fcpotawatomi.com

From: Trautt, Meredith M CIV USARMY CEMVS (USA) <Meredith.M.Trautt@usace.army.mil>
Sent: Wednesday, March 13, 2024 8:09 AM
To: Benjamin Rhodd <Benjamin.Rhodd@fcp-nsn.gov>
Subject: USACE St. Louis District, Lock & Dam 25, Lincoln County, MO

Dear Mr. Rhodd,
Please see the attached letter pertaining to alterations to Lock & Dam 25 near Winfield, Lincoln County, MO.

Sincerely,

Meredith Hawkins Trautt, M.S., RPA
Archaeologist and Tribal Liaison
U.S. Army Corps of Engineers, St. Louis District
MCX CMAC, EC Z
1222 Spruce Street
St. Louis, MO 63103
Office: (314) 925-5031
Mobile: (314) 798-2169
Pronouns: she/her

From: Alan Kelley
To: Trautt, Meredith M CIV USARMY CEMVS (USA)
Subject: [Non-DoD Source] Re: USACE St. Louis District, Lock & Dam 25, Lincoln Co., MO
Date: Friday, March 15, 2024 12:23:36 PM

Lock & Dam 25 near Winfield, Lincoln County, MO.

I Have No Concerns

On Wed, Mar 13, 2024 at 8:09 AM Trautt, Meredith M CIV USARMY CEMVS (USA) <Meredith.M.Trautt@usace.army.mil> wrote:

> Dear Mr. Kelley,
>
> Please see the attached letter pertaining to alterations to Lock & Dam 25 near Winfield, Lincoln County, MO.
>
>
>
> Sincerely,
>
>
>
> Meredith Hawkins Trautt, M.S., RPA
>
> Archaeologist and Tribal Liaison
>
> U.S. Army Corps of Engineers, St. Louis District
>
> MCX CMAC, EC Z
>
> 1222 Spruce Street
>
> St. Louis, MO 63103
>
> Office: (314) 925-5031
>
> Mobile: (314) 798-2169
>
> Pronouns: she/her
>
>

--
Alan Kelley
Deputy THPO
Iowa Tribe of KS & NE
3345 Thrasher RD
White Cloud KS 66094
785-351-0080

From: Douglas Taylor
To: Trautt, Meredith M CIV USARMY CEMVS (USA)
Cc: Onyleen Zapata
Subject: [Non-DoD Source] RE: USACE St. Louis District, Lock & Dam 25, Lincoln Co., MO
Date: Wednesday, March 13, 2024 8:22:19 AM
Attachments: image001.png

Greetings,

Ref: USACE St. Louis District, Lock & Dam 25, Lincoln Co., MO

Thank you for including the Nottawaseppi Huron Band of the Potawatomi (NHBP) in your consultation process. From the description of your proposed project, it does not appear as if any cultural or religious concerns of the Tribe's will be affected. We therefore have no objection to the project. Of course, if the project scope is significantly changed or inadvertent findings are discovered during the course of the project, please contact us for further consultation.

Please note:
Ref: Update NHBP Distribution List,

1. Please add the following individual to your distribution list, Ms. Onyleen Zapata at Onyleen.Zapata@nhbp-nsn.gov as the new primary NHBP THPO.
2. Please delete the following individuals from your distribution list, Fred Jacko Jr. at Frederick.Jacko@nhbp-nsn.gov (Former acting interim THPO) and Dr. Jeff Chivis at Jeff.Chivis@nhbp-nsn.gov. Both Dr. Jeff Chivis and Mr. Jacko are no longer with NHBP and thank you for your kind support in this matter.

Respectfully
Douglas R. Taylor

Douglas R. Taylor | THPO/NAGPRA - Advisory Professional
Pine Creek Indian Reservation
1301 T Drive S, Fulton, MI 49052
o: 269-704-8347 | c: 269-419-9434 | f: 269-729-5920
Douglas.Taylor@nhbp-nsn.gov | www.nhbp-nsn.gov

NOTTAWASEPPI HURON BAND OF THE POTAWATOMI
A FEDERALLY RECOGNIZED TRIBAL GOVERNMENT

From: Trautt, Meredith M CIV USARMY CEMVS (USA) <Meredith.M.Trautt@usace.army.mil>
Sent: Wednesday, March 13, 2024 9:09 AM
To: Douglas Taylor <Douglas.Taylor@nhbp-nsn.gov>
Subject: USACE St. Louis District, Lock & Dam 25, Lincoln Co., MO

Dear Mr. Taylor,
Please see the attached letter pertaining to alterations to Lock & Dam 25 near Winfield, Lincoln County, MO.

Sincerely,

Meredith Hawkins Trautt, M.S., RPA
Archaeologist and Tribal Liaison
U.S. Army Corps of Engineers, St. Louis District
MCX CMAC, EC Z
1222 Spruce Street
St. Louis, MO 63103
Office: (314) 925-5031
Mobile: (314) 798-2169
Pronouns: she/her

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Missouri Ecological Services Field Office
101 Park Deville Drive
Suite A
Columbia, MO 65203-0057
Phone: (573) 234-2132 Fax: (573) 234-2181

In Reply Refer To: 06/17/2024 15:48:18 UTC
Project Code: 2022-0039585
Project Name: NESP LD 25 New 1200-foot Lock

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Threatened and Endangered Species

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and may be affected by your proposed project. The species list fulfills the requirement for obtaining a Technical Assistance Letter from the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).
New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. **Note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days.** The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

Consultation Technical Assistance

Refer to the Midwest Region S7 Technical Assistance website for step-by-step instructions for making species determinations and for specific guidance on the following types of projects:

projects in developed areas, HUD, pipelines, buried utilities, telecommunications, and requests for a Conditional Letter of Map Revision (CLOMR) from FEMA.

Federally Listed Bat Species

Indiana bats, gray bats, and northern long-eared bats occur throughout Missouri and the information below may help in determining if your project may affect these species.

Gray bats - Gray bats roost in caves or mines year-round and use water features and forested riparian corridors for foraging and travel. If your project will impact caves, mines, associated riparian areas, or will involve tree removal around these features – particularly within stream corridors, riparian areas, or associated upland woodlots –gray bats could be affected.
Indiana and northern long-eared bats - These species hibernate in caves or mines only during the winter. In Missouri the hibernation season is considered to be November 1 to March 31. During the active season in Missouri (April 1 to October 31) they roost in forest and woodland habitats. Suitable summer habitat for Indiana bats and northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥5 inches diameter at breast height (dbh) for Indiana bat, and ≥3 inches dbh for northern long-eared bat, that have exfoliating bark, cracks, crevices, and/or hollows), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Tree species often include, but are not limited to, shellbark or shagbark hickory, white oak, cottonwood, and maple. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat and evaluated for use by bats. If your project will impact caves or mines or will involve clearing forest or woodland habitat containing suitable roosting habitat, Indiana bats or northern long-eared bats could be affected.
Examples of unsuitable habitat include:

- Individual trees that are greater than 1,000 feet from forested or wooded areas;
- Trees found in highly-developed urban areas (e.g., street trees, downtown areas);
- A pure stand of less than 3-inch dbh trees that are not mixed with larger trees; and
- A stand of eastern red cedar shrubby vegetation with no potential roost trees.

Using the IPaC Official Species List to Make No Effect and May Affect Determinations for Listed Species

1. If IPaC returns a result of “There are no listed species found within the vicinity of the project,” then project proponents can conclude the proposed activities will have **no effect** on any federally listed species under Service jurisdiction. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records. An example "No Effect" document also can be found on the S7 Technical Assistance website.

2. If IPaC returns one or more federally listed, proposed, or candidate species as potentially present in the action area of the proposed project – other than bats (see #3 below) – then project proponents can conclude the proposed activities **may affect** those species. For assistance in determining if suitable habitat for listed, candidate, or proposed species occurs within your project area or if species may be affected by project activities, you can obtain Life History Information for Listed and Candidate Species through the Species website.
3. If IPac returns a result that one or more federally listed bat species (Indiana bat, northern long-eared bat, or gray bat) are potentially present in the action area of the proposed project, project proponents can conclude the proposed activities **may affect** these bat species **IF** one or more of the following activities are proposed:
    a. Clearing or disturbing suitable roosting habitat, as defined above, at any time of year;
    b. Any activity in or near the entrance to a cave or mine;
    c. Mining, deep excavation, or underground work within 0.25 miles of a cave or mine;
    d. Construction of one or more wind turbines; or
    e. Demolition or reconstruction of human-made structures that are known to be used by bats based on observations of roosting bats, bats emerging at dusk, or guano deposits or stains.

If none of the above activities are proposed, project proponents can conclude the proposed activities will have **no effect** on listed bat species. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records. An example "No Effect" document also can be found on the S7 Technical Assistance website.
If any of the above activities are proposed in areas where one or more bat species may be present, project proponents can conclude the proposed activities **may affect** one or more bat species. We recommend coordinating with the Service as early as possible during project planning. If your project will involve removal of over 5 acres of suitable forest or woodland habitat, we recommend you complete a Summer Habitat Assessment prior to contacting our office to expedite the consultation process. The Summer Habitat Assessment Form is available in Appendix A of the most recent version of the Range-wide Indiana Bat Summer Survey Guidelines.

Other Trust Resources and Activities

Bald and Golden Eagles - Although the bald eagle has been removed from the endangered species list, this species and the golden eagle are protected by the Bald and Golden Eagle Act and the Migratory Bird Treaty Act. Should bald or golden eagles occur within or near the project area please contact our office for further coordination. For communication and wind energy projects, please refer to additional guidelines below.

Migratory Birds - The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Service. The Service has the responsibility under the MBTA

to proactively prevent the mortality of migratory birds whenever possible and we encourage implementation of recommendations that minimize potential impacts to migratory birds. Such measures include clearing forested habitat outside the nesting season (generally March 1 to August 31) or conducting nest surveys prior to clearing to avoid injury to eggs or nestlings.

Communication Towers - Construction of new communications towers (including radio, television, cellular, and microwave) creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. However, the Service has developed voluntary guidelines for minimizing impacts.

Transmission Lines - Migratory birds, especially large species with long wingspans, heavy bodies, and poor maneuverability can also collide with power lines. In addition, mortality can occur when birds, particularly hawks, eagles, kites, falcons, and owls, attempt to perch on uninsulated or unguarded power poles. To minimize these risks, please refer to guidelines developed by the Avian Power Line Interaction Committee and the Service. Implementation of these measures is especially important along sections of lines adjacent to wetlands or other areas that support large numbers of raptors and migratory birds.

Wind Energy - To minimize impacts to migratory birds and bats, wind energy projects should follow the Service's Wind Energy Guidelines. In addition, please refer to the Service's Eagle Conservation Plan Guidance, which provides guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities.

Next Steps

Should you determine that project activities **may affect** any federally listed species or trust resources described herein, please contact our office for further coordination. Letters with requests for consultation or correspondence about your project should include the Consultation Tracking Number in the header. Electronic submission is preferred.

If you have not already done so, please contact the Missouri Department of Conservation (Policy Coordination, P. O. Box 180, Jefferson City, MO 65102) for information concerning Missouri Natural Communities and Species of Conservation Concern.
We appreciate your concern for threatened and endangered species. Please feel free to contact our office with questions or for additional information.

John Weber

Note: IPaC has provided all available attachments because this project is in multiple field office jurisdictions.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles

- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Missouri Ecological Services Field Office
101 Park Deville Drive
Suite A
Columbia, MO 65203-0057
(573) 234-2132

This project's location is within the jurisdiction of multiple offices. However, only one species list document will be provided for all offices. The species and critical habitats in this document reflect the aggregation of those that fall in each of the affiliated office's jurisdiction. Other offices affiliated with the project:

Southern Illinois Sub-Office
Southern Illinois Sub-office
8588 Route 148
Marion, IL 62959-5822
(618) 998-5945

PROJECT SUMMARY

Project Code: 2022-0039585
Project Name: NESP LD 25 New 1200-foot Lock
Project Type: Navigation Channel Improvement
Project Description: Lock and Dam 25 is located on the Mississippi River, approximately 3 miles east of Winfield, Missouri, along the east shore of Bradley Island, 61.5 river miles upstream from St. Louis, and 241.4 river miles above the mouth of the Ohio River. Sandy Slough separates Bradley Island from the Missouri shore, and is approximately 900 feet wide at the project site. Figure 1 shows the location of the Lock and Dam 25 project area.

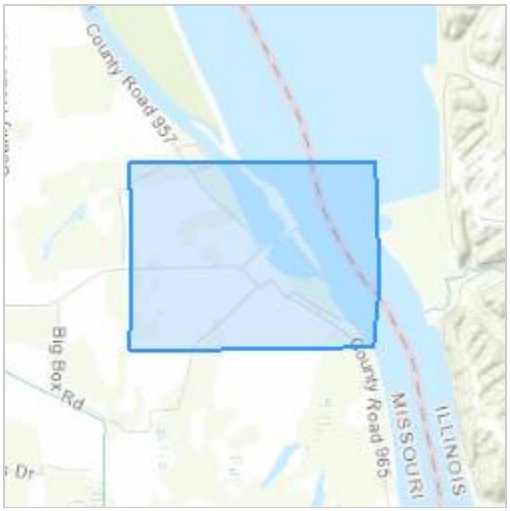
Lock and Dam 25 was designed and constructed to operate in conjunction with similar structures upstream and downstream to provide continuous navigation on the Upper Mississippi River. Minor to moderate repair and rehabilitation has been performed on the lock throughout its life.

The System Study (USACE 2004) recommended a new 1200-foot lock at LD 25 as a large-scale navigation efficiency measure. The purpose of constructing a new lock is to eliminate existing double lockages, ease congestion, reduce delays, and increase safety (USACE 2004). The purpose of the SEA (2009) was to take a “hard lock” at the proposed alternatives for constructing a new 1200-foot lock specifically at lock and dam 25, as well as the No Action Alternative.

The current effort is to plan and design the Preferred Downstream Alternative as described in the SEA 2009.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@39.005411790051085,-90.6953645797544,14z



Counties: Illinois and Missouri

ENDANGERED SPECIES ACT SPECIES

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Gray Bat *Myotis grisescens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949 General project design guidelines: https://ipac.ecosphere.fws.gov/project/I34HXZKRUNDQPAC6CBY57ZGN5I/documents/generated/7280.pdf	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ This species only needs to be considered if the project includes wind turbine operations. Species profile: https://ecos.fws.gov/ecp/species/9045 General project design guidelines: https://ipac.ecosphere.fws.gov/project/I34HXZKRUNDQPAC6CBY57ZGN5I/documents/generated/7280.pdf	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

CLAMS

NAME	STATUS
Spectaclecase (mussel) *Cumberlandia monodonta* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7867	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

FLOWERING PLANTS

NAME	STATUS
Decurrent False Aster *Boltonia decurrens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7705	Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act[1] and the Migratory Bird Treaty Act[2].

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats[3], should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

---

1. The Bald and Golden Eagle Protection Act of 1940.
2. The Migratory Birds Treaty Act of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to Bald Eagle Nesting and Sensitivity to Human Activity

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31

NAME	BREEDING SEASON
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds elsewhere

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

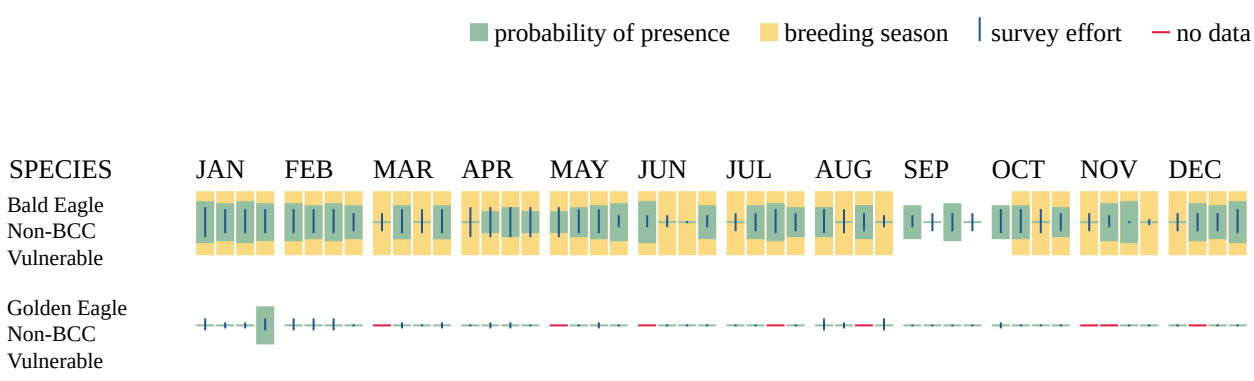
Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.



Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management

- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats[3] should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "Supplemental Information on Migratory Birds and Eagles".

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
American Golden-plover *Pluvialis dominica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10561	Breeds elsewhere
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31
Black-billed Cuckoo *Coccyzus erythropthalmus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10

NAME	BREEDING SEASON
Bobolink *Dolichonyx oryzivorus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9454	Breeds May 20 to Jul 31
Chimney Swift *Chaetura pelagica* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9406	Breeds Mar 15 to Aug 25
Eastern Whip-poor-will *Antrostomus vociferus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/10678	Breeds May 1 to Aug 20
Golden Eagle *Aquila chrysaetos* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds elsewhere
Grasshopper Sparrow *Ammodramus savannarum perpallidus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8329	Breeds Jun 1 to Aug 20
Kentucky Warbler *Geothlypis formosa* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9443	Breeds Apr 20 to Aug 20
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Pectoral Sandpiper *Calidris melanotos* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9561	Breeds elsewhere
Prothonotary Warbler *Protonotaria citrea* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9439	Breeds Apr 1 to Jul 31
Red-headed Woodpecker *Melanerpes erythrocephalus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9398	Breeds May 10 to Sep 10

NAME	BREEDING SEASON
Ruddy Turnstone *Arenaria interpres morinella* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/10633	Breeds elsewhere
Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9478	Breeds elsewhere
Semipalmated Sandpiper *Calidris pusilla* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9603	Breeds elsewhere
Short-billed Dowitcher *Limnodromus griseus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Upland Sandpiper *Bartramia longicauda* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9294	Breeds May 1 to Aug 31
Wood Thrush *Hylocichla mustelina* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9431	Breeds May 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

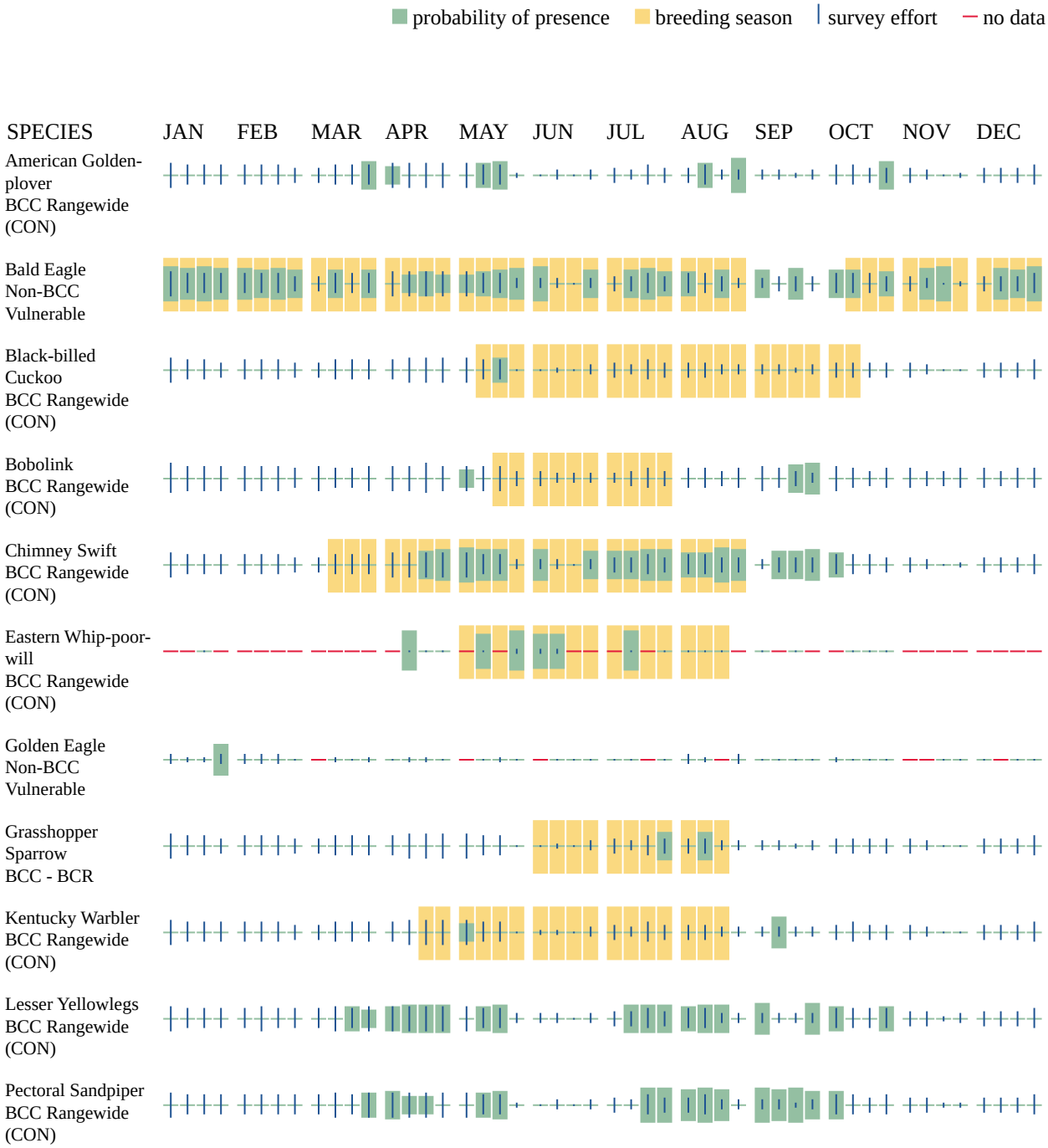
Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

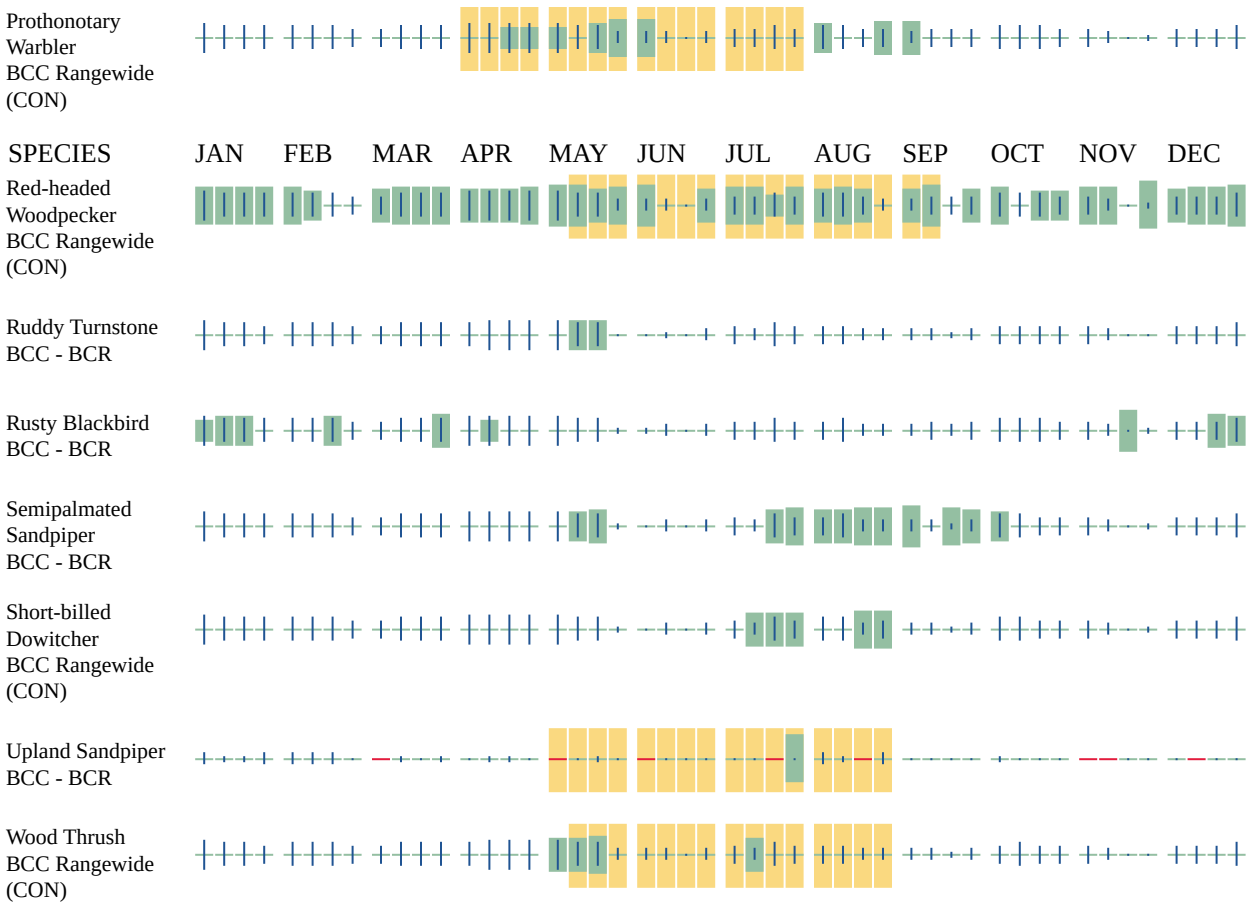
Breeding Season (■)
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (–)
A week is marked as having no data if there were no survey events for that week.





Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER EMERGENT WETLAND

- PEM1Cd
- PEM1A
- PEM1Ad
- PEM1Ch
- PEM1Cx
- PEM1C

RIVERINE

- R4SBC
- R4SBCx
- R2UBH

FRESHWATER FORESTED/SHRUB WETLAND

- PFO1Ah
- PFO1C
- PFO1Cd
- PFO1Ad
- PSS1C
- PFO1A

LAKE

- L1UBH
- L1UBHh

FRESHWATER POND

- PUBGx

IPAC USER CONTACT INFORMATION

Agency: Army Corps of Engineers
Name: Kip Runyon
Address: 1222 Spruce St.
City: St. Louis
State: MO
Zip: 63103
Email kip.r.runyon@usace.army.mil
Phone: 3143318396

From:	Runyon, Kip R CIV USARMY CEMVP (USA)
To:	Larsen, Scott - FPAC-NRCS, MO
Cc:	Schroeder, Kimberly - FPAC-NRCS, MO; Ruff, Alexander - FPAC-NRCS, MO
Subject:	RE: Farmland Conversion Rating, Lock and Dam 25 project
Date:	Thursday, June 6, 2024 7:11:00 AM
Attachments:	FORM AD-1006 L&D 25 Final 6 June 2024.pdf

Scott,
Attached please find the completed AD-1006 for the Lock and Dam 25 New 1200-Foot Lock Project.
Thank you for your assistance.
Kip

_____

Kip Runyon
U.S. Army Corps of Engineers
Regional Planning and Environmental Division North
1222 Spruce Street
St. Louis, MO 63103
Cell: 618-223-9749

From: Larsen, Scott - FPAC-NRCS, MO <scott.larsen2@usda.gov>
Sent: Wednesday, June 5, 2024 3:48 PM
To: Runyon, Kip R CIV USARMY CEMVP (USA) <Kip.R.Runyon@usace.army.mil>
Cc: Schroeder, Kimberly - FPAC-NRCS, MO <kimberly.schroeder@usda.gov>; Ruff, Alexander - FPAC-NRCS, MO <Alexander.Ruff@usda.gov>
Subject: [Non-DoD Source] Farmland Conversion Rating, Lock and Dam 25 project

Kip,
Attached is the AD-1006 and cover letter for your Lock and Dam 25 project borrow area.
Please let me know if you have any questions.
Thanks.

Scott Larsen
Area Resource Soil Scientist
USDA-NRCS, Area Office
6465 Highway 168, Suite C
Palmyra, MO 63461-3023
(573)769-2235 Ext.133
Cell: (573) 934-1084
scott.larsen2@usda.gov

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 3 June 2024
Name of Project Lock and Dam 25 New 1200-Foot Lock	Federal Agency Involved U.S. Army Corps of Engineers
Proposed Land Use Borrow Area	County and State Lincoln County, Missouri
PART II *(To be completed by NRCS)*	Date Request Received By NRCS 6/3/2024 / Person Completing Form: SL

Does the site contain Prime, Unique, Statewide or Local Important Farmland? *(If no, the FPPA does not apply - do not complete additional parts of this form)*	YES ☑ NO ☐	Acres Irrigated: na	Average Farm Size: 210 ac.
Major Crop(s): Corn and soybean	Farmable Land In Govt. Jurisdiction — Acres: 97.7 % 400,624 ac.	Amount of Farmland As Defined in FPPA — Acres: 80.6 % 330,263 ac.	
Name of Land Evaluation System Used: LESA	Name of State or Local Site Assessment System: na	Date Land Evaluation Returned by NRCS: 6/5/2024	

PART III *(To be completed by Federal Agency)*	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	3.5			
B. Total Acres To Be Converted Indirectly	0.0			
C. Total Acres In Site	3.5			
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	3.5			
B. Total Acres Statewide Important or Local Important Farmland	0			
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.0009			
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	83.9			
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)	61			

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)*	**Maximum Points**	Site A	Site B	Site C	Site D
1. Area In Non-urban Use	(15)	15			
2. Perimeter In Non-urban Use	(10)	10			
3. Percent Of Site Being Farmed	(20)	0			
4. Protection Provided By State and Local Government	(20)	0			
5. Distance From Urban Built-up Area	(15)	15			
6. Distance To Urban Support Services	(15)	10			
7. Size Of Present Farm Unit Compared To Average	(10)	0			
8. Creation Of Non-farmable Farmland	(10)	0			
9. Availability Of Farm Support Services	(5)	5			
10. On-Farm Investments	(20)	10			
11. Effects Of Conversion On Farm Support Services	(10)	0			
12. Compatibility With Existing Agricultural Use	(10)	0			
TOTAL SITE ASSESSMENT POINTS	160	65			
PART VII ***(To be completed by Federal Agency)***					
Relative Value Of Farmland *(From Part V)*	100	61			
Total Site Assessment *(From Part VI above or local site assessment)*	160	65			
TOTAL POINTS ***(Total of above 2 lines)***	260	126			

Site Selected: Site A	Date Of Selection 6 June 2024	Was A Local Site Assessment Used? YES ☐ NO ☑

Reason For Selection:

Site A meets the needs of the project and the total site assessment score (126) is below 160.

Name of Federal agency representative completing this form: Kip Runyon	Date: 6 June 2024

(See Instructions on reverse side)

Form AD-1006 (03-02)

STEPS IN THE PROCESSING THE FARMLAND AND CONVERSION IMPACT RATING FORM

Step 1 - Federal agencies (or Federally funded projects) involved in proposed projects that may convert farmland, as defined in the Farmland Protection Policy Act (FPPA) to nonagricultural uses, will initially complete Parts I and III of the form. For Corridor type projects, the Federal agency shall use form NRCS-CPA-106 in place of form AD-1006. The Land Evaluation and Site Assessment (LESA) process may also be accessed by visiting the FPPA website, http://fppa.nrcs.usda.gov/lesa/.

Step 2 - Originator (Federal Agency) will send one original copy of the form together with appropriate scaled maps indicating location(s)of project site(s), to the Natural Resources Conservation Service (NRCS) local Field Office or USDA Service Center and retain a copy for their files. (NRCS has offices in most counties in the U.S. The USDA Office Information Locator may be found at http://offices.usda.gov/scripts/ndISAPI.dll/oip_public/USA_map**,** or the offices can usually be found in the Phone Book under U.S. Government, Department of Agriculture. A list of field offices is available from the NRCS State Conservationist and State Office in each State.)

Step 3 - NRCS will, within 10 working days after receipt of the completed form, make a determination as to whether the site(s) of the proposed project contains prime, unique, statewide or local important farmland. (When a site visit or land evaluation system design is needed, NRCS will respond within 30 working days.

Step 4 - For sites where farmland covered by the FPPA will be converted by the proposed project, NRCS will complete Parts II, IV and V of the form.

Step 5 - NRCS will return the original copy of the form to the Federal agency involved in the project, and retain a file copy for NRCS records.

Step 6 - The Federal agency involved in the proposed project will complete Parts VI and VII of the form and return the form with the final selected site to the servicing NRCS office.

Step 7 - The Federal agency providing financial or technical assistance to the proposed project will make a determination as to whether the proposed conversion is consistent with the FPPA.

INSTRUCTIONS FOR COMPLETING THE FARMLAND CONVERSION IMPACT RATING FORM

(For Federal Agency)

Part I: When completing the "County and State" questions, list all the local governments that are responsible for local land use controls where site(s) are to be evaluated.

Part III: When completing item B (Total Acres To Be Converted Indirectly), include the following:

1. Acres not being directly converted but that would no longer be capable of being farmed after the conversion, because the conversion would restrict access to them or other major change in the ability to use the land for agriculture.
2. Acres planned to receive services from an infrastructure project as indicated in the project justification (e.g. highways, utilities planned build out capacity) that will cause a direct conversion.

Part VI: Do not complete Part VI using the standard format if a State or Local site assessment is used. With local and NRCS assistance, use the local Land Evaluation and Site Assessment (LESA).

1. Assign the maximum points for each site assessment criterion as shown in § 658.5(b) of CFR. In cases of corridor-type project such as transportation, power line and flood control, criteria #5 and #6 will not apply and will, be weighted zero, however, criterion #8 will be weighed a maximum of 25 points and criterion #11 a maximum of 25 points.

2. Federal agencies may assign relative weights among the 12 site assessment criteria other than those shown on the FPPA rule after submitting individual agency FPPA policy for review and comment to NRCS. In all cases where other weights are assigned, relative adjustments must be made to maintain the maximum total points at 160. For project sites where the total points equal or exceed 160, consider alternative actions, as appropriate, that could reduce adverse impacts (e.g. Alternative Sites, Modifications or Mitigation).

Part VII: In computing the "Total Site Assessment Points" where a State or local site assessment is used and the total maximum number of points is other than 160, convert the site assessment points to a base of 160.
Example: if the Site Assessment maximum is 200 points, and the alternative Site "A" is rated 180 points:

$$\frac{\text{Total points assigned Site A}}{\text{Maximum points possible}} = \frac{180}{200} \text{ X } 160 = 144 \text{ points for Site A}$$

For assistance in completing this form or FPPA process, contact the local NRCS Field Office or USDA Service Center.

NRCS employees, consult the FPPA Manual and/or policy for additional instructions to complete the AD-1006 form.

USDA

United States Department of Agriculture

June 5, 2024

Kip Runyon
U.S. Army Corps of Engineers
Regional Planning and Environmental Division North
1222 Spruce Street
St. Louis, MO 63103

Dear Mr. Runyon

Attached is a Farmland Conversion Impact Rating (form AD-1006) for the proposed borrow area associated with the Lock and Dam 25 new 1200-oot lock project in Lincoln County, Missouri. After you complete the form, please return one copy for our records.

Please note that if the Total Points (Parts V & VI) in Part VII exceeds 160, alternative sites should be considered. Two alternatives are required if the score is between 160-220, and three alternatives are required if the score is over 220.

If you have any questions, please call me at (573) 769-2235 Ext. # 133.

Sincerely,

Scott Larsen
Area Resource Soil Scientist

Attachment

cc: Kim Schroeder, DC, NRCS, Troy, MO
Alex Ruff, RC, NRCS, Troy, MO

Natural Resources Conservation Service
6465 Highway 168, Suite C, Palmyra, Missouri 63461
PH: (573) 769-2235 FAX: (855) 849-1536

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*		Date Of Land Evaluation Request	
Name of Project: Lock and Dam 25 New 1200-Foot Lock		Federal Agency Involved: U.S. Army Corps of Engineers	
Proposed Land Use: Borrow Area		County and State: Lincoln County, Missouri	
PART II *(To be completed by NRCS)*		Date Request Received By NRCS: 6/3/2024	Person Completing Form: SL
Does the site contain Prime, Unique, Statewide or Local Important Farmland? *(If no, the FPPA does not apply - do not complete additional parts of this form)*	YES ☑ NO ☐	Acres Irrigated: na	Average Farm Size: 210 ac.
Major Crop(s): Corn and soybean	Farmable Land In Govt. Jurisdiction: Acres: 97.7 % 400,624 ac.	Amount of Farmland As Defined in FPPA: Acres: 80.6 % 330,263 ac.	
Name of Land Evaluation System Used: LESA	Name of State or Local Site Assessment System: na	Date Land Evaluation Returned by NRCS: 6/5/2024	

PART III *(To be completed by Federal Agency)*	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	3.5			
B. Total Acres To Be Converted Indirectly	0.0			
C. Total Acres In Site	3.5			
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	3.5			
B. Total Acres Statewide Important or Local Important Farmland	0			
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	0.0009			
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	83.9			
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)	61			

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)*	Maximum Points	Site A	Site B	Site C	Site D
1. Area In Non-urban Use	(15)				
2. Perimeter In Non-urban Use	(10)				
3. Percent Of Site Being Farmed	(20)				
4. Protection Provided By State and Local Government	(20)				
5. Distance From Urban Built-up Area	(15)				
6. Distance To Urban Support Services	(15)				
7. Size Of Present Farm Unit Compared To Average	(10)				
8. Creation Of Non-farmable Farmland	(10)				
9. Availability Of Farm Support Services	(5)				
10. On-Farm Investments	(20)				
11. Effects Of Conversion On Farm Support Services	(10)				
12. Compatibility With Existing Agricultural Use	(10)				
TOTAL SITE ASSESSMENT POINTS	160				
PART VII ***(To be completed by Federal Agency)***					
Relative Value Of Farmland *(From Part V)*	100				
Total Site Assessment *(From Part VI above or local site assessment)*	160				
TOTAL POINTS ***(Total of above 2 lines)***	260				

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? YES ☐ NO ☐

Reason For Selection:

Name of Federal agency representative completing this form:	Date:

(See Instructions on reverse side)

Form AD-1006 (03-02)

APPENDIX B

CLEAN WATER ACT 404(B)(1) EVALUATION

NAVIGATION AND ECOSYSTEM SUSTAINABILITY PROGRAM

LOCK AND DAM 25 NEW 1200-FOOT LOCK

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

LINCOLN COUNTY, MISSOURI
CALHOUN COUNTY, ILLINOIS

AUGUST 2024

APPENDIX B: CLEAN WATER ACT, SECTION 404(b)(1) EVALUATION

CLEAN WATER ACT
SECTION 404(b)(1) EVALUATION

LOCK AND DAM 25 NEW 1200-FOOT LOCK
WINFIELD, MISSOURI

U.S. Army Corps of Engineers, St. Louis District
Environmental Compliance Section (CEMVP-PD-C)
1222 Spruce Street
St. Louis, Missouri 63103-2833

I. Project Description

a. Location and Description

Lock and Dam 25 is located on the Mississippi River, approximately 3 miles east of Winfield, Missouri, along the east shore of Bradley Island, 61.5 river miles upstream from St. Louis, and 241.4 river miles above the mouth of the Ohio River (Figures 1 and 2). The U.S. Army Corps of Engineers (USACE) St. Louis District (District) is proposing to construct a 1,200-foot lock chamber at the existing Lock and Dam 25 site, adjacent to the existing 600-foot lock chamber.

Figure 1. Project location in Missouri.

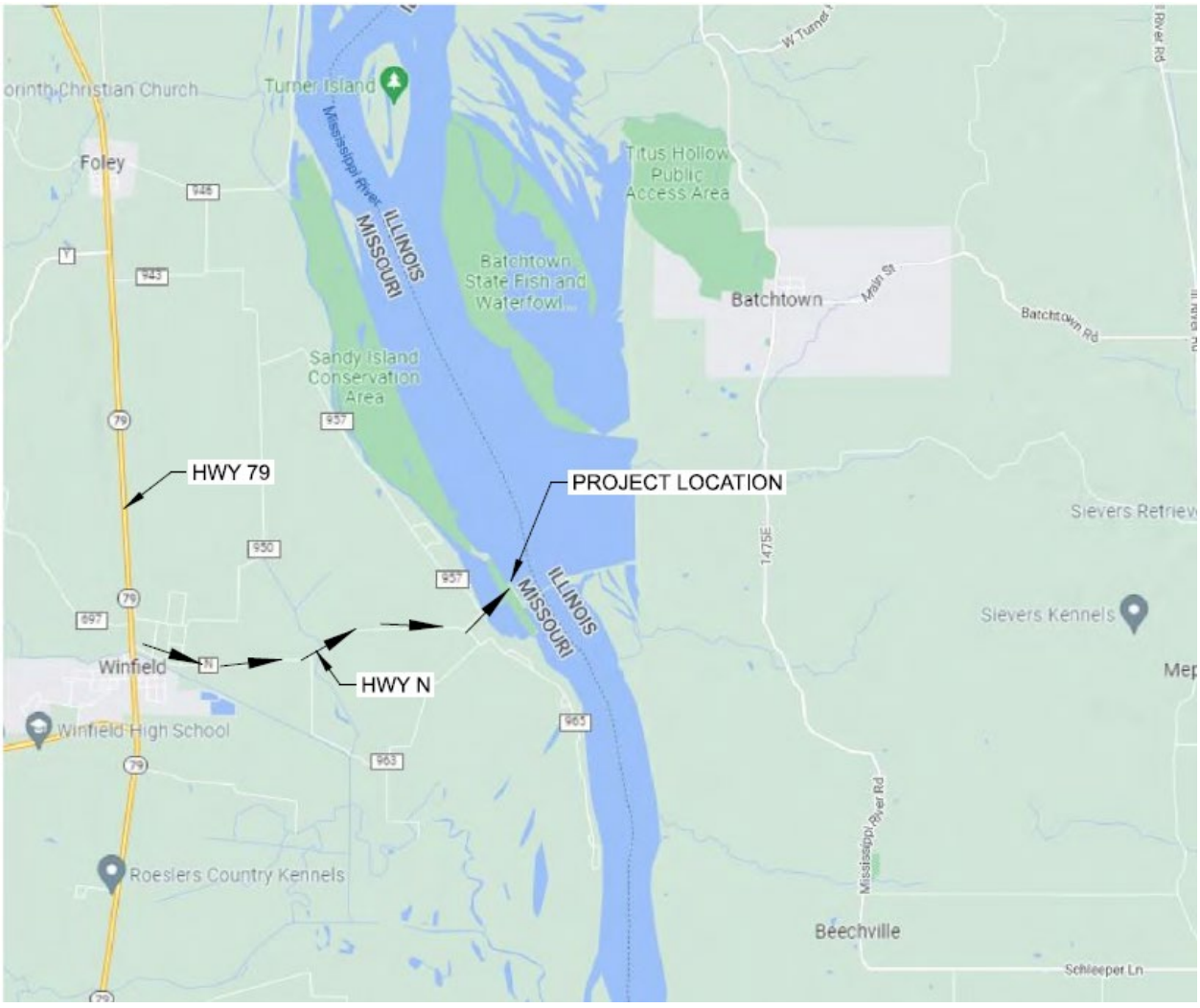


Figure 2. Project location east of Winfield, MO.

b. Purpose and Authority

The Rivers and Harbors Act, 3 July 1930, Rivers and Harbors Commission, Document No. 12, 70th Congress, First Session, authorized the dam and the 600-foot main lock. Lock and Dam 25 was authorized as part of the overall navigation system providing a 9-foot-deep channel on the upper Mississippi River between the mouth of the Missouri River and Minneapolis, Minnesota. Lock and Dam 25 was designed and constructed to operate in conjunction with similar structures upstream and downstream to provide continuous navigation on the Upper Mississippi River. Minor to moderate repair and rehabilitation has been performed on the lock throughout its life. The purpose of the 2004 Final Integrated Feasibility Report and Programmatic Environmental Impact Statement (2004 PEIS) was to provide comprehensive documentation of the feasibility study process and recommend a plan of action. The goal of the feasibility study was to seek long-term sustainability of the economic uses and ecological integrity of the UMRS-IWW. The UMRS-IWW is a multi-purpose river system that provides economic and environmental benefits to the nation. The stakeholders of the UMRS-IWW have expressed their desire to seek a balance between the economic, ecological, and social conditions to ensure the waterway system

continues to be a nationally treasured ecological resource as well as an efficient national transportation system. In addition to small-scale navigation improvements and ecosystem restoration goals, the recommended plan called for new 1200-foot locks at Lock and Dams 20 through 25, La Grange, and Peoria as large-scale measures to address long-term navigation sustainability.

The 2004 PEIS recommended a new 1200-foot lock at LD 25 as a large-scale navigation efficiency measure. Like many of the locks on the river, Lock 25 was constructed in the 1930s, and designed to accommodate smaller tows and only a fraction of the traffic volume that currently transits the system. The existing lock chamber at Lock 25 is 600 ft long, while the prevailing 15-barge tow size has a length approaching 1200 ft long. As a result, tows must lock through using a two-step process, which takes approximately 1.5 to 2 hours in normal conditions, causing significant delays to navigation. In contrast, a tow can lock through a 1200-ft lock in approximately 0.5 to 1 hour. The new lock will be 1200 ft long and will significantly reduce lockage delays and increase overall safety for operating and towing personnel. Once the new 1200-ft lock is constructed, the existing 600-ft lock will remain in service and become the auxiliary chamber. Having two operating chambers will provide redundancy. If the 1200-ft chamber is closed for maintenance or emergency repair, tows will still be locked through the 600-ft chamber. Both chambers can be operated at the same time once the 1200-ft chamber is constructed.

On November 8, 2007, the United States Congress passed the Water Resources Development Act (WRDA) 2007, Title VIII - Upper Mississippi and Illinois Waterway System, Section 8003 – Authorization of Construction of Navigation Improvements, which authorized the first increment of navigation improvements in accordance with the Chief of Engineers Report, dated 15 December 2004.

c. Project Alternatives

A site-specific Environmental Assessment, tiered from the 2004 PEIS, was prepared in 2009 to address the environmental impacts of the new 1200-foot lock at L&D 25 (2009 EA). The 2009 EA considered the No Action Alternative as well as two action alternatives, an upstream and a downstream location for the new lock. The downstream location was selected as the preferred alternative. A supplemental Environmental Assessment is currently being prepared (2024 EA) to address changes in designs and impacts since the 2009 EA. The 2024 SEA considers the No Action Alternative and the Downstream Alternative.

The new 1200-ft Lock Project consists of the following features: construction of a new 1200-ft long drilled shaft-founded lock chamber to be constructed on the downstream side of the existing auxiliary miter gate bay; construction of a new upstream, ported guard wall approximately 1250 ft long; construction of a downstream guard wall approximately 650 ft long designed to block flow through the wall; and construction of a new downstream guard cell (Figure 3).

Site improvements will also be included during construction. Site improvements include providing access and staging areas for the contractor to construct the new lock and site facility improvements to accommodate operations staff for future operation and maintenance of the new 1200-ft lock. Existing roadways need to be upgraded to accommodate construction traffic.

Staging and laydown areas will be provided for concrete batching, parking, fabrication, material storage, and other activities. Dredging and associated disposal areas are included. New utilities will be constructed, and existing utilities will be relocated. Improvements will be made to provide access and parking for the new operation and maintenance facilities. Several areas in close proximity to L&D 25 will be provided for a contractor batch plant, staging, borrow, and loading/unloading areas (Figure 4).

Figure 3. Features of project.

Figure 4. Site improvement locations.

d. Mitigation

Adverse impacts have been avoided and minimized to the extent practicable. Compensatory mitigation is proposed for unavoidable impacts to 16.1 acres of bottomland hardwood forest resources in the project area.

e. Operation, Maintenance, Repair, Replacement, and Rehabilitation (OMRR&R)

OMRR&R activities would continue at the site similar to current activities. Additional riprap placement may occasionally be required to address scour that develops from excessive velocities, ice, etc. Riprap would be placed in a manner consistent with design plans and specifications. Rock materials used for repair would meet the original project specifications.

f. General Description of Dredged or Fill Material

1. General Characteristics of Material

Fill (construction) materials would consist of physically stable and chemically non-contaminating material such as corrosion-resistant steel, concrete, and limestone. Dredged materials would consist of sediment from the main channel of the Mississippi River. Sediment from the river consists primarily of course sands with limited fines. Excavated materials would consist of limestone riprap.

2. Quantity and Source of Material

Borrow material is needed for the civil site improvements required for construction. 56,000 cubic yards will be needed for the batch plant area and 19,000 cubic yards will be needed for the site facility area adjacent to the proposed maintenance building. Three potential borrow areas near the site have been identified that all contain suitable clay material. Due to the 2011 tow allision and large scour that resulted, dredged sands are now needed under the lock floor to establish a stable foundation. Approximately 68,000 cubic yards of dredged sands will be needed to infill the lock chamber floor. Previous maintenance dredge locations downstream of the lock have been identified that show sufficient quantity and material of sand with less than 20% fines.

92,000 cubic yards of material will be dredged from where the upstream guard wall will be placed. 24,300 cubic yards of material will be dredged from where the downstream guard wall will be placed. 4,470 cubic yards of material will be dredged from the downstream miter gate location. 39,275 cubic yards of riprap and 7,080 cubic yards of sand will be excavated from the existing river wall location. 170,678 cubic yards of concrete will be required in total for the project. Concrete will be sourced from the batch plant location on-site. Additional riprap will be sourced from local quarries.

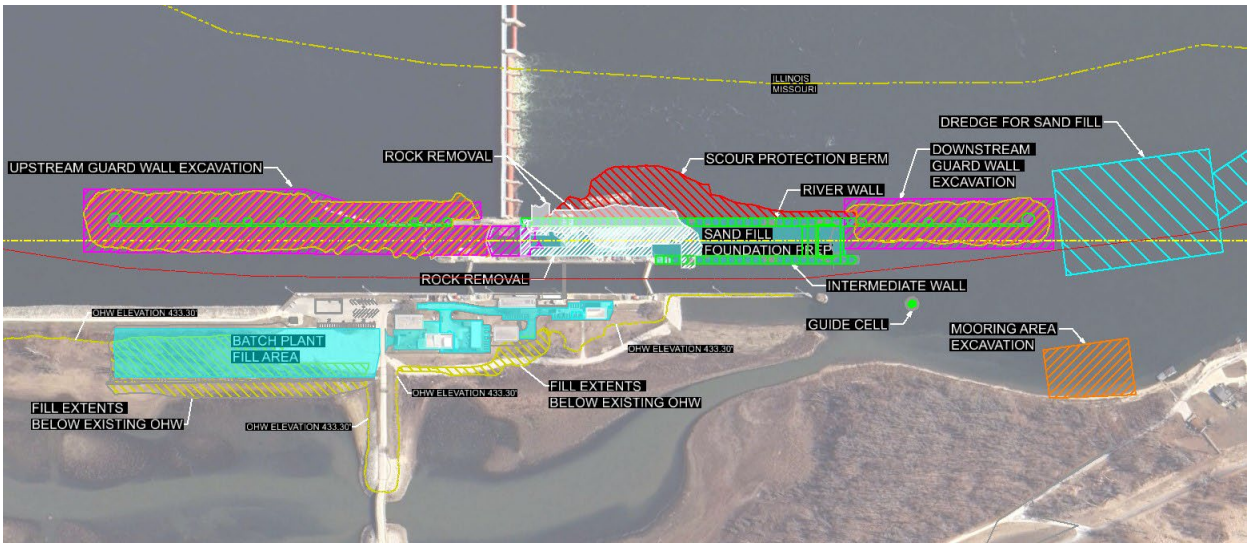


Figure 5. Project feature locations.

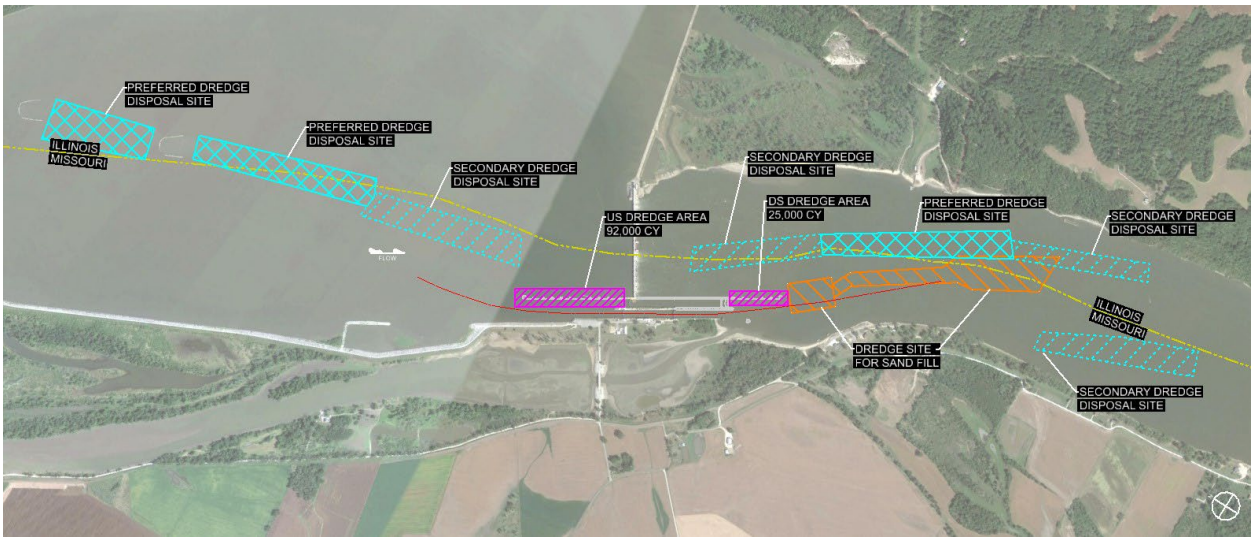


Figure 6. Dredge and disposal locations.

g. Description of Proposed Discharge Site(s)

The project area consists of a mix of existing lock and dam facilities, agricultural land, old field, riparian forest, wetlands, uplands, and open water. Riprap material will be disposed of adjacent to the new project features (Figure 5) for scour protection. Dredged material disposal is planned to utilize placement areas within the river (Figure 6). Clay borrow material will be placed in the batch plant area and the site facility area adjacent to the proposed maintenance building. Concrete will be placed in all new structures (Figure 5).

h. Description of Disposal Method

1. Discharge Method. All materials will be placed mechanically.
2. Timing and Duration of Discharge. The project will be constructed in multiple phases over the course of approximately 10 years.

II. Factual Determinations

a. Physical Substrate Determinations

1. Substrate Elevation and Slope. Approximate river bottom elevation is 400 feet (varies) with variable slopes.
2. Sediment Type. Fill materials consist of sand with limited fines, clay, limestone, and concrete.
3. Dredged/Fill Material Movement. Some localized movement of fill materials is expected during placement operations. The effects would be temporary and would end following construction completion.
4. Physical Effects on Benthos. Benthic organisms in the dredged and fill locations would likely be destroyed during construction activities. Benthic organisms would recolonize suitable benthic habitats subsequent to construction completion.
5. Other Effects. No other effects have been identified.
6. Actions Taken to Minimize Impacts. Best management practices will be used during construction to minimize movement of fill material.

b. Water Circulation, Fluctuation, and Salinity Determinations

1. Water. The rock, concrete, steel, etc. for the lock construction materials would be basically inert material that would have little effect on water chemistry. Water clarity, odor, taste, pH, temperature, and dissolved gas levels would not change appreciably. The nature of all fill materials would not cause any significant changes in nutrient levels. The construction of the new lock should not impair the aquatic ecosystem's capability to sustain life or reduce the suitability of the Mississippi River for populations of aquatic organisms, and for human consumption, recreation, and aesthetics.
2. Current Patterns and Circulation. The construction of a new 1200-foot lock chamber with corresponding approach walls would result in changes to current patterns and water circulation. These changes would be localized in nature and would not produce large-scale changes in river velocities or bathymetry outside the project area.
3. Normal Water Level Fluctuations. Construction of the new lock and all accompanying features of the lock would not alter normal water level fluctuations in the area, or cause prolonged periods of inundation, exaggerated extremes of high and low water, alter erosion or sedimentation rates, aggravate water temperature extremes, or upset the nutrient and dissolved oxygen balance of the aquatic ecosystem.
4. Actions Taken to Minimize Impacts. No specific actions would be taken to minimize effects on water circulation, fluctuation, or chemistry.

c. Suspended Particulate/Turbidity Determinations

1. Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Disposal Site. Minor increases in suspended particulates and turbidity levels would be anticipated in the immediate vicinity of construction activities. Levels would return to normal following construction.
2. Effects (degree and duration) on Chemical and Physical Properties of the Water Column. During construction temporary turbidity impacts would be experienced due to excavation, placement of construction material, and movement of equipment. Impacts should be localized and limited to physical changes to the water column. No significant chemical impacts are anticipated. The deposition of any/all lock construction materials

should not cause any violation of applicable water quality standard, or lead to loss of environmental values.

3. Effects on Biota. Deposition of the construction materials for the new lock in the waters of the United States should not cause significant reductions in levels of light penetration that could lower photosynthesis and plant growth. Sight dependent species should not suffer reduced feeding ability, growth rates, or resistance to disease.
4. Actions Taken to Minimize Impacts. Best management practices will be used during construction to minimize suspended particulates and effects on turbidity levels.

d. Contaminant Determinations

A Phase I Environmental Site Assessment was conducted in July 2023. This included a records review, physical site visit, and communications with persons knowledgeable of the project footprint and adjoining properties. Generally, the project area contains no major sites of interest which pose significant HTRW concerns.

e. Aquatic Ecosystem and Organism Determinations

1. Effects on Plankton. During construction, increases in turbidity and suspended solids near the dredged and filled areas may have a localized effect on phytoplankton productivity. However, these effects would be short-term and minor and conditions would return to normal after construction.
2. Effects on Benthos. Benthic organisms in the dredged and fill locations would likely be destroyed during construction activities. Benthic organisms would recolonize suitable benthic habitats subsequent to construction completion.
3. Effects on Nekton. During construction, increases in turbidity and suspended solids near the dredged and filled areas may have a localized effect on nekton. However, these effects would be short-term and minor and conditions would return to normal after construction.
4. Effects on Aquatic Food Web. The aquatic food web would not be substantially altered by the project. There could be some shifts in species usage; however, there are no long-term detrimental impacts anticipated.
5. Effects on Special Aquatic Sites. Adverse impacts have been avoided and minimized to the extent practicable. Compensatory mitigation is proposed for unavoidable impacts to 16.0 acres of bottomland hardwood forest resources in the project area.
6. Threatened and Endangered Species. The project may affect but is not likely to adversely affect threatened and endangered species.
7. Other Wildlife. Other wildlife in the vicinity of the project area may be disturbed by construction-related activities but should be able to relocate to nearby suitable habitat.
8. Actions Taken to Minimize Impacts. Best management practices will be used during construction to minimize impacts to organisms and the aquatic ecosystem.

f. Proposed Disposal Site Determinations

1. Mixing Zone Determination. A mixing zone is an area in which discharge water is allowed to mix with the receiving water. The large assimilation capacity of the Mississippi River in the vicinity of LD 25 would provide an adequate mixing zone for any sediment-related contaminants that may be present. No violation of any water quality standard resulting from dredged or fill material connected with this project is anticipated.
2. Determination of Compliance with Applicable Water Quality Standards. No violations to any Missouri or Illinois water quality standards should occur. State certification under

Section 401 of the Clean Water Act would be obtained before any construction activities begin.

3. Potential Effects on Human Use Characteristics. Implementation of this project would have no significant effect either directly, indirectly, or cumulatively on municipal or private water supplies; commercial or recreational fisheries; recreation; aesthetics; cultural resources; parks; national or historic monuments; wilderness areas; or other similar preserves.

g. Determination of Cumulative Effects on the Aquatic Ecosystem

No significant adverse cumulative effects are anticipated.

h. Determination of Secondary Effects on the Aquatic Ecosystem

No significant adverse secondary effects are anticipated.

III. Findings of Compliance or Non-Compliance with Restrictions on Discharge

a. Adaptation of Section 404(b)(1) Guidelines

No significant adaptations of the 404(b)(1) Guidelines were made relative to this evaluation.

b. Alternatives

There are no practical and feasible alternatives to the proposed placement of fill material that would meet the objectives of the project. The proposed project is the least environmentally damaging practicable alternative.

c. Compliance with State Water Quality Standards

Section 401 Water Quality Certification from the appropriate State(s) would be received before project construction would begin.

d. Compliance with Endangered Species Act

No significant adverse impacts to endangered or threatened species are anticipated from this project.

e. Evaluation of Extent of Degradation of the Waters of the United States

The proposed fill activities would not result in significant adverse effects on human health and welfare, including municipal and private water supplies, recreation and commercial fishing. The proposed activities would not adversely affect plankton, fish, shellfish, wildlife, and special aquatic sites. The life stages of aquatic life and other wildlife would not be adversely affected. Significant adverse effects on aquatic ecosystem diversity, productivity, and stability and on recreational, aesthetic, and economic values would not occur.

f. Appropriate and Practicable Steps Taken to Minimize Potential Adverse Impacts of the Discharge on the Aquatic Ecosystem

The formulation of project plans and designs, evaluation of alternative plans, and development of operational scenarios have been conducted with the objective of minimizing potential adverse impacts to the aquatic environment. Impacts would be localized and minimized through the use of best management practices and adherence to regulations governing stormwater runoff at construction sites.

The project as proposed is specified as complying with the requirements of these guidelines.

_____	_____
Date	Andy J. Pannier Colonel, U.S. Army District Engineer

APPENDIX C

DISTRIBUTION LIST

The following individuals and organizations received notification of the Public Notice:

Aaron J. and Lisa M. Day
Absentee-Shawnee Tribe of Indians of Oklahoma
Alexander M. Lee
American Soybean Association
American Waterways Operators
America's Watershed Initiative
Amy Rubingh MOSHPO
Andy Roberts, USFWS
Anthony and Susan Ranzini
ASA(CW) Office
Ashley Corker, Southwest Power Administration
Audrey Beres, MDC
Barry Drazkowski, Izaak Walton League of America
BBPW LLC
Ben Skaer
Bill Foster
Bill Stahlman
Bradley Hayes, IDNR
Brian Normanly
Brian Todd, MDC
Brooke Magary, USACE
Bruce Morrison, Great Rivers Environmental
Bryan Hopkins, TNC
Caddo Nation of Oklahoma
Calhoun County Clerk
Calhoun Ferry Co.
Cap-Au-Gris Drainage And Levee District
Carl Orstad
Cecil
Charles Niquette, Cultural Resource Analysts
Chris Brescia
Christi Fabrizio, Meeco Sullivan Company
Christine Favilla, Sierra Club
Christopher Rolf
Citizen Potawatomi Nation, Oklahoma
City of Portage Des Sioux
City of Winfield, MO
Clare Mannion
Cornbelt Ports
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Darin M. Adrian, Marquette Transportation LLC
Dave Davis
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David Gordon, USACE
David Meyer, USACE
David Smith, Choo Choo City Dredging
Dawn Lamm, USACE
Dennis Wilmsmeyer, TriCity Port
Dilly Living Trust
Doyle Brown, MDC
Eastern Shawnee Tribe of Oklahoma
Elizabeth Hubertz, Washington University
Elizabeth Mary Windes
EPA Region 7
Eric Held
Eric Karch, Reitz & Jens
Forest County Potawatomi Community, Wisconsin
Gabriel DePuree, EPA
Gary Elmstead, Elmstead & Associates
Gary J. and Karen Walcott
George Stringham, USACE
Glen Slay
Greg Wallace, City of Wentzville
Gregory C. Weisheyer
Hannahville Indian Community, Michigan
Henry Heyer, USACE
HMT Bell South
Ho-Chunk Nation of Wisconsin
Hoppies Marine
Hunter Lambert
IL Soybean
Illinois Chamber of Commerce Infrastructure
Illinois Corn Growers Association
Illinois Dept. of Ag
Illinois DNR
Illinois DOT
Illinois Farm Bureau
Illinois River Carriers Association
Illinois Soybean Association
Inland Waterways Users Board
Iowa Corn Growers Association
Iowa Department of Agriculture and Land Stewardship
Iowa Dept. of Ag

Iowa DNR
Iowa DOT
Iowa Soybean Association
Iowa Tribe of Kansas and Nebraska
Iowa Tribe of Oklahoma
J Tyson, Canal Barge
James Gober Jr.
James J. II and Janice L. Finch Sheppard
James Revocable Trust
Janet Sternburg, MDC
Jared Milford, Southwestern Power Administration
Jason Peterrin, MSD
JBS Chief
Jeff Goldstein
Jeff Miller
Jennifer Campbell-Allison, MDC
Jennifer Skiles, USACE
Jerome D. and Wendy S. Eulentrop Living Trust
Jerry Fung
Jill Crafton, Izaak Walton League of America
Joe Collum, USACE
John Caito, Apex Oil Company
John Miller, USACE
John Vest, USACE
Justin Morgan, USCG
Justin Sharp
Kamren Metzger, USACE
Karen Coleman, Great Rivers Habitat Alliance
Kathy Andria
Katie Weishan, Land Learning Foundation
Keeteman Family Trust
Kelly and Wehde Farms LLC
Kent Pehler, J.F. Brennan Company
Kickapoo Tribe of Indians of the Kickapoo Reservation in Kansas
Kickapoo Tribe of Oklahoma
Kim Knowles, Prairie Rivers Network
Kraig McPeek, USFWS
Lance Engle, USACE
Land Learning Foundation
Larry Jamison, Consolidated Grain & Barge
Lee Nelson, Upper River Services
Lester Cruse, Magnolia Marine Transport Company
Lincoln County Commissioner

Lincoln County Highway Commissioner
Linus Clubhouse LLC
Liz Pelloso, EPA
Loeta D. and Michael E. Wesselschmidt
Loretta Becker
Mark Clements, Captain Hooks Bait & Tackle
Mary Vandevord, Heartlands Conservancy
Matt Mangan, USFWS
Matt Vitello, MDC
Matthew Piry
Maxie Lipeles, Washington University
MDNR 401 Water Quality
Miami Tribe of Oklahoma
Mike and Gerri Azar
Mike Hall
Mike Hannemann, Apex Oil
Minnesota DNR
Mississippi River Cities and Towns Initiative
Missouri Corn Association
Missouri Department of Conservation
Missouri DNR
Missouri DOT
Missouri Soybean Association
MO Corn Growers
MODOT Lincoln County Area Engineer
Nathan Grider, IDNR
National Grain and Feed Association
National Soybean Association
National Waterways Conference, Inc.
Neighbors of the Mississippi
NESP Coordinating Committee
Nora Estopare, MSD
Nottawaseppi Huron Band of the Potawatomi, Michigan
Office of Congressman Ann Wagner
Office of Congressman Sam Graves
Office of Illinois Lt. Governor
Olivia Dorothy
Owen Welge, Southern Illinois Transfer
Paul Mauer, IDNR
Paul Reitz, Reitz & Jens
Paul Werner
Peoria Tribe of Indians of Oklahoma
Peter Goode, Washington University

Phillip Teah, Dock Products
Prairie Band Potawatomi Nation
Ray McCollum, USACE
Representative C.D. Davidsmeyer
Representative Chad Perkins
Representative Mary Miller
Representative Sam Graves
Rich Lee, USACE
River Industry Action Committee
River Industry Executive Task Force
Robert Barnes, Illinois Marine Towing
Robert Gramke, USACE
Robert Spoth, Ecosystems Insurance Associates
Rolf Farm Properties LLC
Romanda Walker, USACE
Ron Noval, American Commercial Barge Lines
Ronald R. and Evelyn P. Dutton
Ross and Rhonda Erickson
Ryan Swearingin, USACE
Rylee Hince, Lake Pepin Legacy Alliance
Sac & Fox Nation of Missouri in Kansas and Nebraska
Sac & Fox Nation, Oklahoma
Sac & Fox Tribe of the Mississippi in Iowa
Samantha Hollenberg, USACE
Scott George, Environmental Science Consulting
Scott Harding, SCI
SEMO Port
Senator Eric Schmitt
Senator Jil Tracy
Senator Josh Hawley
Senator Richard J. Durbin
Senator Tammy Duckworth
Senator Travis Fitzwater
Shane Staten, Swallow Tail Environemental
Shauna Maequardt, USFWS
Shawn Sullivan, USACE
Shawnee Tribe
Southern Illinois Transfer
St. Louis Water Division
Stacia Bax, MDNR
State of Minnesota
Steve Altman, IDNR
Steve Auerhamer, Great Lakes Dredge & Dock Company

Steve Buan, NOAA
SUMR Waterways
Susan Davis
Susan Taylor, Port of St. Louis
Teri Laverne Wasser
The Osage Nation
Thomas Dempsey, First Capitol Advisors
Thomas W. Benear
Titus Edwards, York Bridge Company
Tom Johnson, U.S. Salt
Tow Incorporated
Tracy Boaz, MDC
Tristan Becker
Tyler Gipson, Southwest Power Administration
United Keetoowah Band of Cherokee of Oklahoma
Upper Mississippi River Basin Association
Upper Mississippi, Illinois and Missouri Rivers Association
USDA
USEPA, Region 5
USEPA, Region 7
USFWS Upper Mississippi River
USFWS, Illinois-Iowa Field Office
USGS
Waterways Council, Inc.
Wisconsin DNR
WME Holding Co. LLC

APPENDIX D

HABITAT EVALUATION AND QUANTIFICATION

NAVIGATION AND ECOSYSTEM SUSTAINABILITY PROGRAM

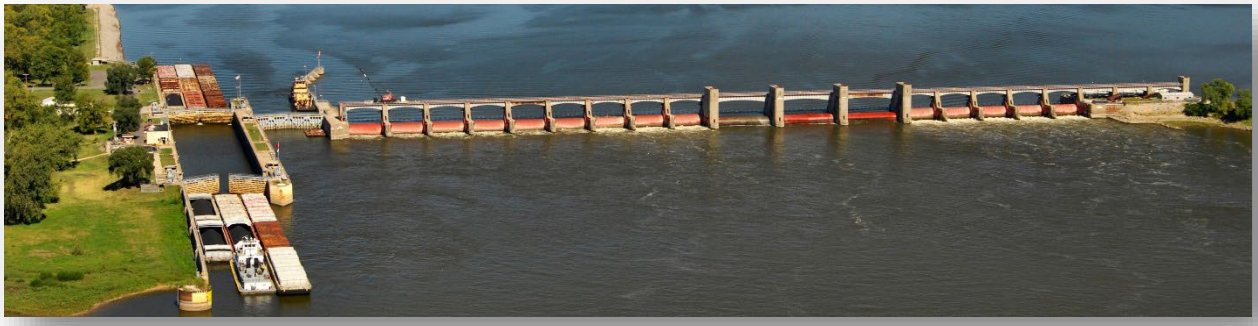
LOCK AND DAM 25
NEW 1200-FOOT LOCK

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

LINCOLN COUNTY, MISSOURI
CALHOUN COUNTY, ILLINOIS

APPENDIX D: HABITAT EVALUATION AND QUANTIFICATION

AUGUST 2024



US Army Corps of Engineers
St. Louis District

U.S. Army Corps of Engineers, St. Louis District
1222 Spruce Street
St. Louis, MO 63103-2833

Introduction

This appendix provides documentation of the habitat evaluation and quantification process that was conducted to evaluate the impacts of features associated with the Lock and Dam 25 New 1200-Foot Lock Project and the benefits of potential mitigation measures. Impacted areas requiring compensatory mitigation include the batch plant, site facilities area, loading/unloading area 1, loading/unloading area 2, and borrow area 4 (Figure 1). Mitigation alternatives included purchasing mitigation bank credits, purchasing in-lieu fee program credits, and corps-constructed mitigation.

Figure 1. Areas requiring mitigation.

Habitat evaluation methodology

The purpose of the habitat evaluation is to quantify, to the extent possible, environmental impacts of project features within the project area and the benefits of potential mitigation measures. Impacts to bottomland hardwood forest habitat were quantified through the use of the Upper Mississippi River System Floodplain Forest Habitat Model (certified for regional use in the Upper Mississippi River System, expiration 8 September 2028). IWR Planning Suite II, version 2.0.9.35 (certified for national use, expiration 31 May 2025) was used for average annual habitat unit (AAHU) calculations.

Traditionally, the Corps has used the quantity and quality of habitat jointly, in the form of habitat units, to measure benefits and impacts of projects. The quantity proportion is often measured as area (acres of habitat). The evaluation conducted for this project area used acres to represent quantity.

Quality Component

The qualitative component of the analysis is rated on a 0.0 to 1.0 scale, with higher values indicating better habitat. The HSI for a particular habitat type is determined by selecting values that reflect present and future project area conditions from a series metrics. Future values are determined from construction plans, historical conditions, and best professional judgment.

From the calculated qualitative and quantitative values, the standard unit of measure, the habitat unit (HU) is calculated using the formula (HSI × Acres = HUs). Habitat units are calculated for specific target years to forecast changes in habitat values over the life of the project for with- and without-project conditions. When HSI scores are not available for each year of analysis, a formula that requires only target year HSI and area estimates is used (USFWS 1980). This formula is:

$$\int_0^T HU\ dt = (T_2 - T_1)\left[\left(\frac{A_1H_1 + A_2H_2}{3}\right) + \left(\frac{A_2H_1 + A_1H_2}{6}\right)\right]$$

Where:

$\int_0^T HU\ dt$ = *Cumulative HUs*

T_1 = first target year of time interval

T_2 = last target year of time interval

A_1 = area of available habitat at beginning of time interval

A_2 = area of available habitat at end of time interval

H_1 = habitat suitability index at the beginning of time interval

H_2 = habitat suitability index at the end of time interval

3 and 6= constants derived from integration of HSI × Area for the interval between any two target years

This formula was developed to precisely calculate cumulative HUs when either HSI, or area, or both change over a time interval, which is common when dealing with the unpredictable fluctuations found in nature. Habitat Unit gains or losses are annualized by summing the cumulative HUs calculated using the above equation across all target years in the period of analysis and dividing the total (cumulative HUs) by the number of years in the life of the project (i.e., 50 years). This calculation results in Average Annual Habitat Units (AAHUs) (USFWS 1980). The impacts of each proposed project feature and benefits of each mitigation alternative (net AAHUs) are then determined by calculating the difference in AAHUs between the with-project and the without-project conditions.

For the purpose of planning, design, and impact analysis, the period of analysis was established as 50 years. To facilitate comparison, target years were established at 0 (existing conditions), 1, 10, and 50 years for both future with and without project features. Target years are used to analyze HUs and characterize habitat changes over the period of analysis. HSIs and cumulative HUs were calculated at each of these target years.

Assumptions

During the evaluation, assumptions were developed regarding existing conditions and projected with-project and without-project conditions relative to habitat changes over time and management practices. The following assumptions were made when determining existing, future without project (FWOP), and future with project (FWP) conditions for the impacted areas located within the project area and for mitigation alternatives:

- For all impacted areas, construction was assumed to start at target year 0 and to be complete at target year 10.
- For all impacted areas except Loading/Unloading Area 1 (see Figure 1), FWOP conditions were assumed to be identical to existing conditions.
- For Loading/Unloading Area 1, FWOP conditions were assumed to show improvement in percent canopy cover and a slight decrease in structural diversity as the area matures.
- For the batch plant and site facilities areas, FWP conditions were assumed to provide no habitat value throughout the period of analysis.
- For the loading/unloading areas, FWP conditions were assumed to provide no habitat value through the construction period (10 years) followed by a gradual return to existing conditions at target year 50.
- For borrow area 4, FWP conditions were assumed to provide no habitat value as bottomland hardwood forest since the area would be converted to open water habitat.
- For all mitigation alternatives, existing and FWOP conditions were assumed to be agricultural fields with no habitat value as bottomland hardwood forest (HSI scores of 0.0).
- For all mitigation alternatives, FWP condition assumed there would be some regeneration occurring and there would be 50 percent canopy cover at target year 10.

Results

Area	Acres	Target Year	HSI	HUs	AAHUs	Net AAHUs
Batch Plant	5.2	0	0.26	1.33		
		FWOP 50	0.26	1.33	1.33	
		FWP 1	0.00	0.00		
		FWP 50	0.00	0.00	0.01	-1.32
Site Facilities	2.6	0	0.23	0.60		
		FWOP 50	0.23	0.60	0.60	
		FWP 1	0.00	0.00		
		FWP 50	0.00	0.00	0.01	-0.59
Loading Unloading Area 1	1.8	0	0.65	1.17		
		FWOP 50	0.72	1.30	1.24	
		FWP 1	0.00	0.00		
		FWP 10	0.00	0.00		
		FWP 50	0.72	1.30	0.53	-0.71
Loading Unloading Area 2	3.0	0	0.54	1.63		
		FWOP 50	0.54	1.63	1.63	
		FWP 1	0.00	0.00		
		FWP 10	0.00	0.00		
		FWP 50	0.54	1.63	0.67	-0.96
Borrow Area 4	3.5	0	0.42	1.47		
		FWOP 50	0.42	1.47	1.47	
		FWP 1	0.00	0.00		
		FWP 50	0.00	0.00	0.02	-1.45
					Total Impact	**-5.03**
Mitigation Alternatives	Per acre	0	0.00	0.00		
		FWOP 50	0.00	0.00	0.00	
		FWP 1	0.42	0.42		
		FWP 10	0.59	0.59		
		FWP 50	0.95	0.95	0.71	0.71
					Total Acres of Mitigation Required to Offset Impact	**7.08**

References

USFWS (US Fish and Wildlife Service). 1980. Habitat Evaluation Procedures (HEP) ESM 102.

APPENDIX E

MITIGATION PLAN

NAVIGATION AND ECOSYSTEM

SUSTAINABILITY PROGRAM

LOCK AND DAM 25

NEW 1200-FOOT LOCK

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

LINCOLN COUNTY, MISSOURI

CALHOUN COUNTY, ILLINOIS

APPENDIX E: MITIGATION PLAN

AUGUST 2024

US Army Corps of Engineers
St. Louis District

U.S. Army Corps of Engineers, St. Louis District
1222 Spruce Street
St. Louis, MO 63103-2833

Mitigation Plan
L&D 25 New 1200-Foot Lock (Draft)
August 2024

1. Overview

This document presents the compensatory mitigation plan for unavoidable habitat impacts associated with the Lock and Dam 25 New 1200-Foot Lock Project. This plan addresses only compensatory mitigation work and not the sequence of other activities performed during project planning to avoid, minimize, rectify, or reduce habitat impacts of the project. The need to develop a compensatory habitat mitigation plan for unavoidable impacts to fish and wildlife resources is covered in the 2004 Final Integrated Feasibility Report and Programmatic Environmental Impact Statement (2004 PEIS), the site-specific Environmental Assessment (2009 EA) tiered from the 2004 PEIS, and the 2024 Supplemental Environmental Assessment (2024 EA). This document details the work performed, including coordination, plan formulation, and environmental compliance, to develop the compensatory habitat mitigation plan.

2. Requirements

The authority and requirements for compensatory mitigation are founded in Federal laws and regulations. The legal foundation for mitigation for ecological resources includes the Clean Water Act, various Water Resources Development Acts, and other environmental laws. These laws are implemented and administered through rules, guidance, regulations, and policies issued by Executive Branch agencies.

The relevant laws and regulations specific to compensatory mitigation planning for Corps of Engineers civil works projects are listed in the References section of this document. The specific procedures followed to develop this compensatory habitat mitigation plan are found in ER 1105-2-100, Appendix C. Other forms of mitigation, such as plans for cultural resources conservation or induced flood damages, may also be required for a project. Those types of mitigation requirements are not directly related to fish and wildlife habitat impacts and are not covered in this plan.

Compensatory mitigation is the "restoration (re-establishment or rehabilitation), establishment, enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved" (see 40 CFR 230.92). It is the policy of the Corps of Engineers civil works program, and in accordance with Section 906 of WRDA 1986, as amended, to demonstrate that impacts to all significant ecological resources, both terrestrial and aquatic, have been avoided and minimized to the extent practicable, and that any remaining unavoidable impacts have been compensated to the extent possible. Section 906(d) of WRDA 1986, as amended, requires functional assessments to be performed to define ecological impacts and to set mitigation requirements for impacted habitats. Corps of Engineers policy in ER 1105-2-100, paragraph C-3(e), requires the use of a habitat-based methodology, supplemented with other appropriate information, to describe and evaluate the impacts of the alternative plans, and to identify the mitigation needs.

3. Coordination

Public input was sought during review of the draft report and environmental compliance document. Comments received during public review will be included in the final report.

4. Ecological Resource Impacts

The Upper Mississippi River System Floodplain Forest Habitat Model was used to assess the project's impacts on ecological resources. The model is certified for use by the Corps of Engineers Ecosystem Restoration Planning Center of Expertise. Model outputs measure habitat value in average annual habitat units (AAHUs). The tool is also suitable for assessing mitigation potential at alternative mitigation sites in the watershed. Table 1 displays the model output results. Additional details on the use of the model and the results of the analysis are presented in the 2024 EA.

Table 1 - Unavoidable Habitat Impacts

Habitat Type	Acres	AAHUs
Bottomland Hardwood Forest	16.1	5.0

5. Define Mitigation Planning Objectives

The goal of this mitigation plan is to fully compensate for the unavoidable impacts to significant ecological resources that would occur with project implementation. The objectives of the mitigation plan are defined by the results of the habitat impact assessment model using quantified units. The same habitat assessment model is used to estimate potential project impacts and potential outputs of mitigation measures. The objective of this mitigation plan is to:

- Compensate for the loss of 16.1 acres of bottomland hardwood forest (5.0 average annual habitat units).

Other factors may influence planning objectives and the development of strategies, measures, and alternative plans. These may even play a role in plan selection depending on specific project circumstances and opportunities. Some of these factors are based on legal requirements and policies and others are derived from scientific or technical standards. For example, acquisition of lands or interests in lands for mitigation must be acquired before construction of the project commences or concurrently with acquisition of lands and interests in lands for other project purposes; and the physical construction of the mitigation work is required to be carried out before or concurrently with project construction (see Section 906(a) of WRDA 1986, as amended). This introduces an implementation time factor to consider later in plan evaluation and selection. Another example, from a scientific perspective, is that larger contiguous land tracts may offer better habitat value for fish and wildlife compared to dispersed smaller areas. This may influence site selection and land considerations for a mitigation project.

6. Identify and Assess Potential Mitigation Strategies

Planning strategies are different means employed to develop an alternative plan or plans to achieve a project goal. The use of one or more strategies helps teams focus on an approach to

developing a plan. For mitigation planning work, strategies may range from the purchase of mitigation bank credits to the construction of a project or projects to achieve the objectives and compensate for unavoidable habitat impacts. Strategies may also involve different approaches to site selection such as the use of public lands or identifying contiguous sites to enhance wildlife corridors or expand wildlife populations. In addition, Section 2036(c) of WRDA 2007, as amended, requires the Corps of Engineers to consider mitigation banks and in-lieu fee programs where appropriate. Consideration of these options as mitigation strategies may be helpful when available. The strategies considered for planning this mitigation project are described below.

- Purchase of mitigation bank credits. Mitigation banks sell credits for mitigation work performed at an approved site. The banks are approved and legally bound through banking instruments that hold the operators to certain standards of performance and reporting. The use of mitigation banks for a project may offer advantages to the government and non-federal sponsor by reducing performance risk and eliminating project specific requirements for operations and maintenance work and the development of monitoring and adaptive management plans.

- Purchase of in-lieu fee program credits. In-lieu fee programs are established by state or local natural resource management agencies and approved by the Corps of Engineers and U.S. Environmental Protection Agency to accept funds for future mitigation work. The programs are approved to implement either specific or general wetland or other aquatic resource development projects. Programs must meet the requirements that apply to an offsite mitigation effort and provide adequate assurances of success and timely implementation. A formal agreement between the program sponsor and the agencies, like a banking instrument, defines the conditions under which the use of the program is considered appropriate. Using an in-lieu-fee program for a project's mitigation needs may offer advantages to the government and non-federal sponsor by reducing performance risk and eliminating project specific requirements for operations and maintenance work and the development of monitoring and adaptive management plans.

- Construction of a mitigation project. The government may choose to construct a mitigation project. This construction strategy offers some potential advantages in tailoring a project to specific needs or locations. In addition, project partners may bring special expertise to the project gained from previous work on similar projects in the area.

7. Formulate Alternative Mitigation Plans

No Action Alternative. Under this scenario no mitigation work would be performed, and the structure, functions and values of project impacted habitats would be permanently lost. The alternative is retained for purposes of a baseline comparison against other action alternatives.

Alternative 1 – purchase mitigation bank credits. Mitigation bank credits are available in the service area of the L&D 25 Project through the Big Rivers Mitigation Bank (tracking number MVS-1998-09990; established 2 December 1999; 48.5 credits available). Based on a functional analysis of the bank using the same certified habitat model as was used for the impact assessment (Upper Mississippi River System Floodplain Forest Habitat Model), a

total of 7 credits would need to be purchased from the mitigation bank to offset the 5.0 AAHUs of bottomland hardwood forest impact.

Alternative 2 – purchase in-lieu fee program credits. In-lieu fee credits are available in the service area of the L&D 25 Project through the Land Learning Foundation In-Lieu Fee Program (tracking number MVS-2015-00011; established 8 May 2015; 111.5 credits available). Based on a functional analysis using the same certified habitat model as was used for the impact assessment (Upper Mississippi River System Floodplain Forest Habitat Model), a total of 7 credits would need to be purchased from the mitigation bank to offset the 5.0 AAHUs of bottomland hardwood forest impact.

Alternative 3 – Corps-constructed mitigation. This potential mitigation alternative would involve construction of bottomland hardwood forest habitat in an existing agricultural field. The preferred location would be adjacent to or in close proximity to existing bottomland hardwood habitat. Construction for this alternative would involve:

1. Disking and seeding a native vegetation mix to prevent soil erosion and prevent the spread of invasive species
2. Planting of wetland/floodplain obligate tree species at a density of 109 trees/acre

The starting HSI score for the agricultural land prior to proposed mitigation construction was 0.0. Under the proposed mitigation action the final (TY50) HSI score reached 0.95. Under this mitigation alternative, 7.0 acres of agricultural land would be needed to reach 5.0 AAHUs needed.

8. Define and Estimate Costs of Mitigation Plans

Cost estimates were prepared for each alternative. Available information included records of recent mitigation bank credit and in-lieu fee program credit sales and details from recently completed nearby ecosystem projects. The study team also considered other cost factors such as site access, fuel and equipment, and the availability of plant materials. Table 2 displays the costs and outputs for each alternative plan.

Table 2 – Estimated Costs of Alternative Plans

Alternatives	Cost	Plan Outputs
No Action	$0	0
Alternative 1 – purchase mitigation bank credits	$210,000	5.0 AAHUs
Alternative 2 – purchase in-lieu fee program credits	$882,000	5.0 AAHUs
Alternative 3 – Corps-constructed mitigation	$408,938	5.0 AAHUs

9. Display Incremental Costs

Cost effectiveness analysis is conducted on alternative compensatory mitigation plans to ensure the least cost alternative is identified for each level of output. Subsequently, incremental cost analysis is done on the cost effective plans to reveal changes in costs as output levels increase and allow for an assessment of whether the increase in output is worth the additional cost.

Determination of the final compensatory mitigation plan will utilize these results to identify and describe the least cost plan.

The outputs of different mitigation alternatives may be similar. Each alternative plan should be appropriately scaled to meet or closely meet the mitigation planning objective based upon unavoidable ecological impacts generally expressed in habitat units. Some variations in alternative plan outputs and costs may be expected because of differences in site conditions or other factors at various project locations under consideration.

IWR Planning Suite software is used to analyze and compare plans. The software uses information about the mitigation measures and alternative plans including combinability and exclusions, costs, and outputs. The team establishes the parameters and enters cost estimates and plan outputs into the software. The resulting information is used to evaluate alternatives and identify a suite of cost effective solutions or plans. Figure 1 displays the results of the cost effectiveness evaluation for all the alternative plans. Figure 2 shows only the cost effective plans and Figure 3 displays the incremental cost analysis of best buy plans.

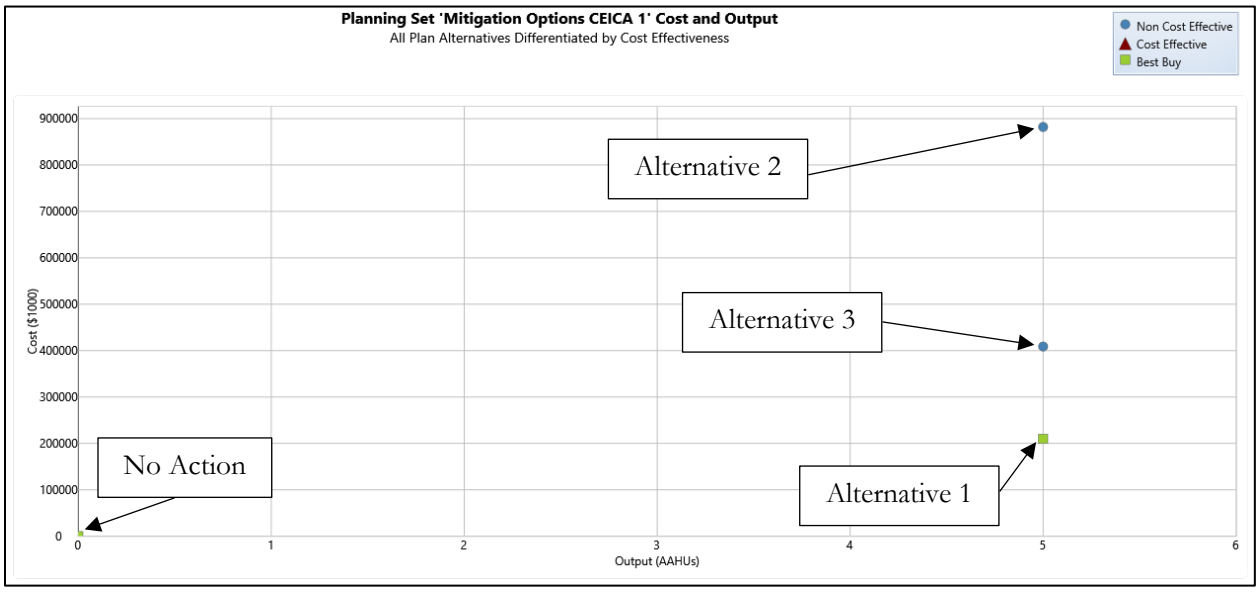


Figure 1 – Chart of Alternative Plans

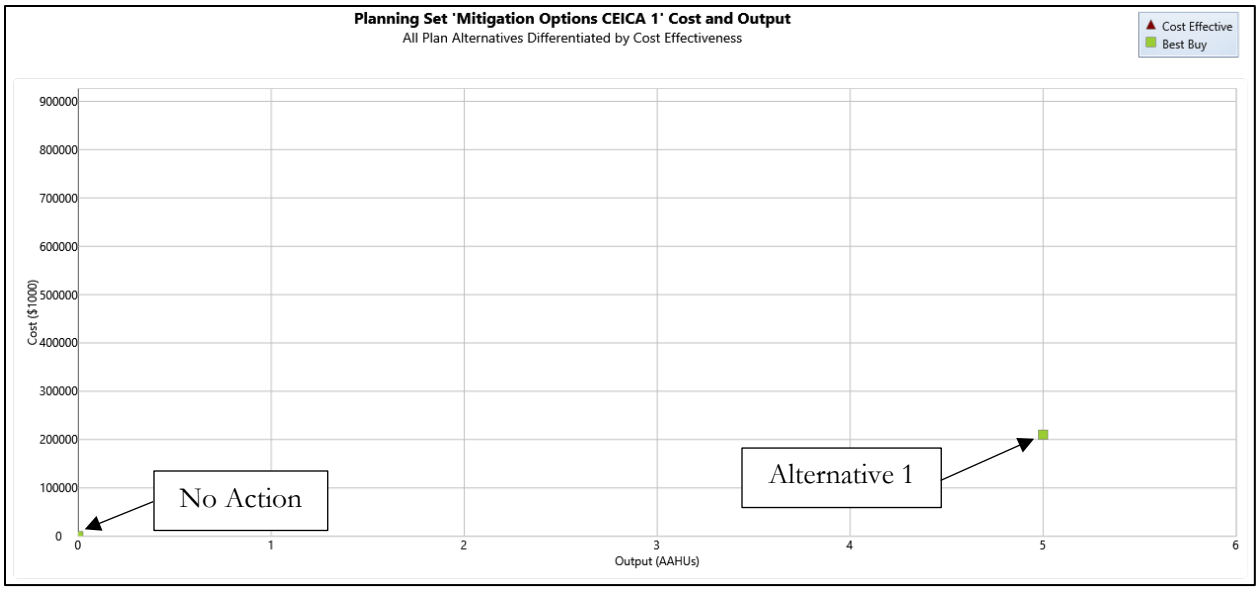


Figure 2 – Chart of Cost Effective Alternative Plans

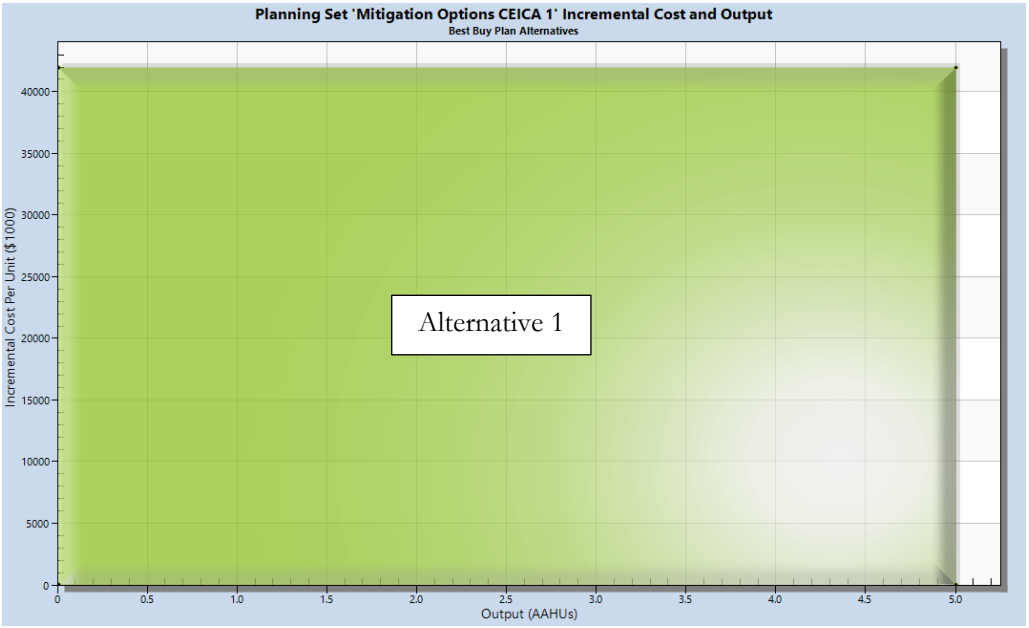


Figure 3 – Chart of Incremental Costs and Benefits of Alternatives

The least cost alternative plan – Alternative 1 – that provides full mitigation of losses specified in the planning objectives is identified and displayed. There are no other plans that provide the same amount of benefits at a lower cost.

10. Plan Selection Considerations

Multiple formulation and plan selection considerations may be relevant to identifying a recommended alternative for the project. Factors to consider include compliance with laws, regulations and policies, location of work, a plan's cost effectiveness, implementation timing, and risk elements. The table below poses questions to consider selection factors for each

alternative. In some cases, the considerations apply in comparison of one alternative to the others.

Table 3 - Plan Selection Considerations

Comparison Questions	Alternative Plans			
	No Action	1	2	3
Is the mitigation alternative located onsite?	No	No	No	No
Does the alternative mitigate for habitat losses in-kind?	No	Yes	Yes	Yes
Is the mitigation alternative in the same basin as the habitat impacts?	No	Yes	Yes	Yes
Can the alternative be implemented before or concurrent with construction?	No	Yes	Yes	Yes
Could the alternative be implemented faster than other alternatives?	No	Yes	Yes	No
Does the alternative have higher implementation risks than others?	No	No	No	Yes
Does the mitigation alternative have operation risks for the government?	No	No	No	Yes
Is the mitigation alternative cost effective?	Yes	Yes	No	No

The table above assesses each alternative plan by posing and answering a set of questions aimed at discerning differences in alternatives beyond simply identifying the least cost plan. Several questions are related to location and in-kind replacement of lost functions and values. These questions are linked to water resources law and policy that in most cases requires in-basin and in-kind mitigation. All alternatives provide in-basin and in-kind mitigation. The question regarding on-site mitigation could identify a preferable plan location but may have implementation timing implications. Law requires mitigation work to be performed before or concurrently with project construction. All alternatives can be implemented before construction and none of the alternatives entail on-site compensatory mitigation. There are differences in risks between the alternatives. Constructing mitigation work versus purchasing mitigation credits or in-lieu fee credits carries risks of project non-performance that would have to be addressed by additional work at government expense. Based upon these considerations, Alternative 3, Corps-constructed mitigation, would be eliminated from further consideration. Alternative 1, purchase mitigation bank credits, is the least cost and lowest risk plan.

11. Recommended Compensatory Mitigation Plan

The recommended plan for compensatory mitigation is to purchase in-kind credits from an approved mitigation bank located in the basin. Specifically, credits will be purchased to compensate for the unavoidable loss of habitats in the basin as follows:

- 16.1 acres of bottomland hardwood forest (5.0 AAHUs). Mitigation bank credits are available in the service area of the L&D 25 Project through the Big Rivers Mitigation Bank (tracking number MVS-1998-09990; established 2 December 1999; 48.5 credits

available). Seven credits would be required to compensate for the 5.0 AAHUs of impact.

The bank operator is responsible for demonstrating and reporting that the bank's success criteria are being met. Therefore, no specific ecological success criteria are developed for this plan. A specific monitoring and adaptive management plan is not needed as these activities are the bank operator's responsibility (see Implementation Guidance for Section 1163 of WRDA 2016, Wetlands Mitigation).

12. References

U.S. Army Corps of Engineers. 2019. Engineer Regulation 1105-2-100 Planning Guidance Notebook, Appendix C. Washington, D.C. 57pp.

Additional References

Laws

- Clean Water Act (33 U.S.C. 1531 et seq)
- Endangered Species Act (16 USC 1531 et seq)
- Fish and Wildlife Coordination Act
- Magnuson – Stevens Fishery Conservation and Management Act (16 USC 1801 et seq)
- National Environmental Policy Act
- Water Resources Development Acts of 1986, 1990, 2000, 2007, 2014, and 2016.

Implementation Guidance

- Implementation Guidance for Section 2036(a) of the Water Resources Development Act of 2007 (WRDA 07) - Mitigation for Fish and Wildlife and Wetlands Losses. Issued by ASA(CW) 31 August 2009.
- Implementation Guidance for Section 1162 of the Water Resources Development Act of 2016 and Section 1040 of the Water Resources Reform and Development Act of 2014, Fish and Wildlife Mitigation (Section 906 of the Water Resources Development Act of 1986, as amended (33 U.S.C. 2283)) Issued by ASA(CW) 08 March 2019.
- Implementation Guidance for Section 1163 of the Water Resources Development Act of 2016, Wetlands Mitigation. Issued by ASA(CW) 08 March 2019.

Policy

- Cost Sharing for Lands Associated with Fish and Wildlife Mitigation. Issued by USACE Director of Civil Works 19 September 2006.

Regulations

- 40 CFR 230.92, definition of mitigation bank.
- 40 CFR 1500.3(b)(2), include alternatives input from State, Tribal and local governments.
- 40 CFR 1503.3(e), cooperating agencies must cite statutory authority to specify mitigation.
- 40 CFR 1508.5, definition of cooperating agency.
- 40 CFR 1508.20, definition of mitigation.
- Engineer Circular 1105-2-412 Assuring Quality of Planning Models.

- Engineer Regulation 1105-2-100 Planning Guidance Notebook, Appendix C.
- Engineer Regulation 200-1-5 Policy for Implementation and Integrated Application of the U.S. Army Corps of Engineers (USACE) Environmental Operating Principles (EOP) and Doctrine.
- Engineer Regulation 200-2-2 Procedures for Implementing NEPA.