

**DRAFT ENVIRONMENTAL ASSESSMENT  
WITH  
FINDING OF NO SIGNIFICANT IMPACT**

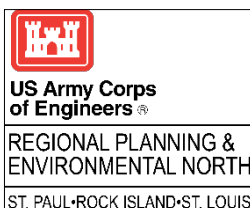
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**LEVEE REPAIR (P.L. 84-99):  
KUHS LEVEE SYSTEM  
MISSISSIPPI RIVER MILES 195 to 201  
MISSOURI RIVER MILES 0 to 3  
ST CHARLES COUNTY, MISSOURI**

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**September 2020**



**Prepared by:  
Environmental Compliance Section  
U.S. Army Corps of Engineers  
St. Louis District  
1222 Spruce Street  
St. Louis Missouri 63103-2833**

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## 1. INTRODUCTION

This document is a draft Environmental Assessment (EA) with an attached unsigned Finding of No Significant Impact (FONSI) for levee repairs to the Kuhs Levee System, owned and operated by the Kuhs Levee District. The purpose of this EA is to evaluate potential environmental impacts of proposed levee repairs, determine if the environmental impacts rise to the level of significant, and to serve as a record of interagency coordination for the emergency rehabilitation actions.

### 1.1. Project Authorization

Emergency actions undertaken by USACE to repair flood control works damaged or destroyed by flooding are authorized by Public Law 84-99, as amended by Section 206 of the Flood Control Act of 1962 (hereafter referred to as P.L. 84-99). USACE regulations covering these and other emergency rehabilitation activities are contained in the Rehabilitation Code 910-300 of ER 500-1-1 (33 C.F.R. 203). The Code states that actions taken to *restore facilities to pre-disaster conditions* under P.L. 84-99 will not be construed to be either major federal actions or as having significant effects. However, the effect of rehabilitation on the environment must be considered. This includes the effects of construction on endangered species (P.L. 93-205 and Appendix B of ER 1105-2-50) and archeological and historic properties (Chapter 3 of ER 1105-2-50). Since the Kuhs Levee District is active in the USACE Rehabilitation and Inspection Program, they are eligible for Flood Control and Coastal Emergency funding authorized by P.L. 84-99.

On 4 October 2019, a Memorandum for Record was signed by MAJ John Miller, Deputy Commander, giving approval to complete PL 84-99 Levee Repairs, resulting from 2019 flooding, using the emergency provisions of Engineering Regulations (ER) 500-1-1, Emergency Employment of Army and Other Resources Civil Emergency Management Program; ER 200-2-2 Procedures for Implementing the National Environmental Policy Act (NEPA); and 33 CFR Part 325.2(e)(4) and 36 CFR Part 800.12 (b)(2), Protection of Historic Properties.

These levee repairs are considered to be emergency actions because of the following:

- a. The need to complete construction of levee repairs as soon as possible and prior to additional flooding or inundation.
- b. The risk of economic loss from additional flooding of communities along rivers within the St. Louis District, their tributaries, and adjacent agricultural lands.

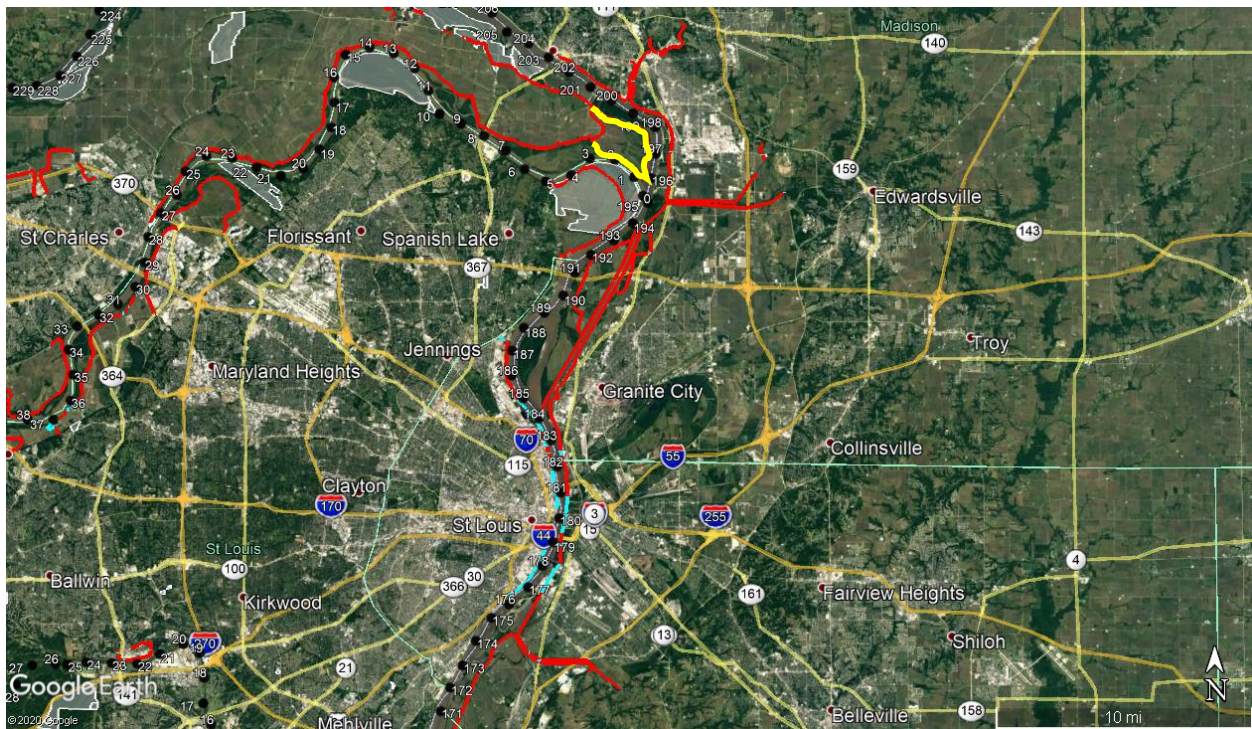
Neither the implementation of the Emergency Action provision within ER 200-2-2, nor the use of a categorical exclusion, exempts the action from compliance with any other Federal law (e.g., Endangered Species Act, Fish and Wildlife Coordination Act, Bald and Golden Eagle Protection Act, National Historic Preservation Act, Clean Water Act, etc.). All environmental evaluation,



coordination, consultation, and compliance including acquiring any necessary permits will be completed concurrent with, or following, the emergency repairs (Appendix 1).

## 1.2. Project Location and Scope

The Kuhs Levee System is located about 21 miles north of St. Louis, Missouri, in St. Charles County, Missouri (Figure 1). The levee system is adjacent to the right descending bank of the Mississippi River from approximately river mile (RM) 195.7 to mile 200.2 above the confluence with the Ohio River. The northern flank of the levee borders the Consolidated North County Levee District and the south flank is adjacent to the left descending bank of the Missouri River between to RMs 1.5 to 3.0 above the confluence with the Mississippi River.



**Figure 1.** Location of the Kuhs Levee System (in yellow) in relation to the St. Louis metropolitan area.

The Kuhs Levee System is a non-federal levee system that provides flood risk reduction to approximately 2,000 acres of productive agricultural lands and the Edward “Ted” and Pat Jones-Confluence Point State Park (approximately 1,010 acres). The levee system was designed for a 10% annual chance exceedence flood with 2 feet of freeboard. The system is 7.17 miles long and consists of earthen levee with a width of 10 feet, a representative height of 10 feet, representative riverside slopes of 1:2, and landside slopes of 1:3½. Numerous oil/gas pipelines pass below the base of the levee.

### 1.3. Project Purpose and Need

The Kuhs levee system sustained damages as a result of high water events during the spring of 2019. The purpose of this federal action is to restore the level of flood protection to that which existed prior to the spring 2019 flood event. There is a need for repairs, because damages reduced flood protection from a 10% to a 40% annual chance exceedence event, making the leveed area much more vulnerable to flooding. Without federal involvement through the P.L. 84-99 program, it is unlikely that the Kuhs Levee District has the financial ability to restore the level of protection to Corps of Engineers' standards.

### 1.4. Damage Classification

Damages to levee systems are generally classified into seven types: levee breaches, embankment slides, rutting, turf damage, and erosion types I, II, and III (Table 1). Levee breaches refer to any break in the levee continuity as a result of flood damages. Breaches typically result in scour holes on either side of the levee and are repaired by filling in the scour holes and the missing section of the levee. Embankment slides can occur on either side of the levee, and are repaired by removing the sliding soil and replacing it with compact substrate. Rutting and turf damage are relatively superficial damage to the levee structure that are repaired by filling with soil and reseeding. Erosion types are categorized based on their severity, from type I to III, and are repaired similar to embankment slides.

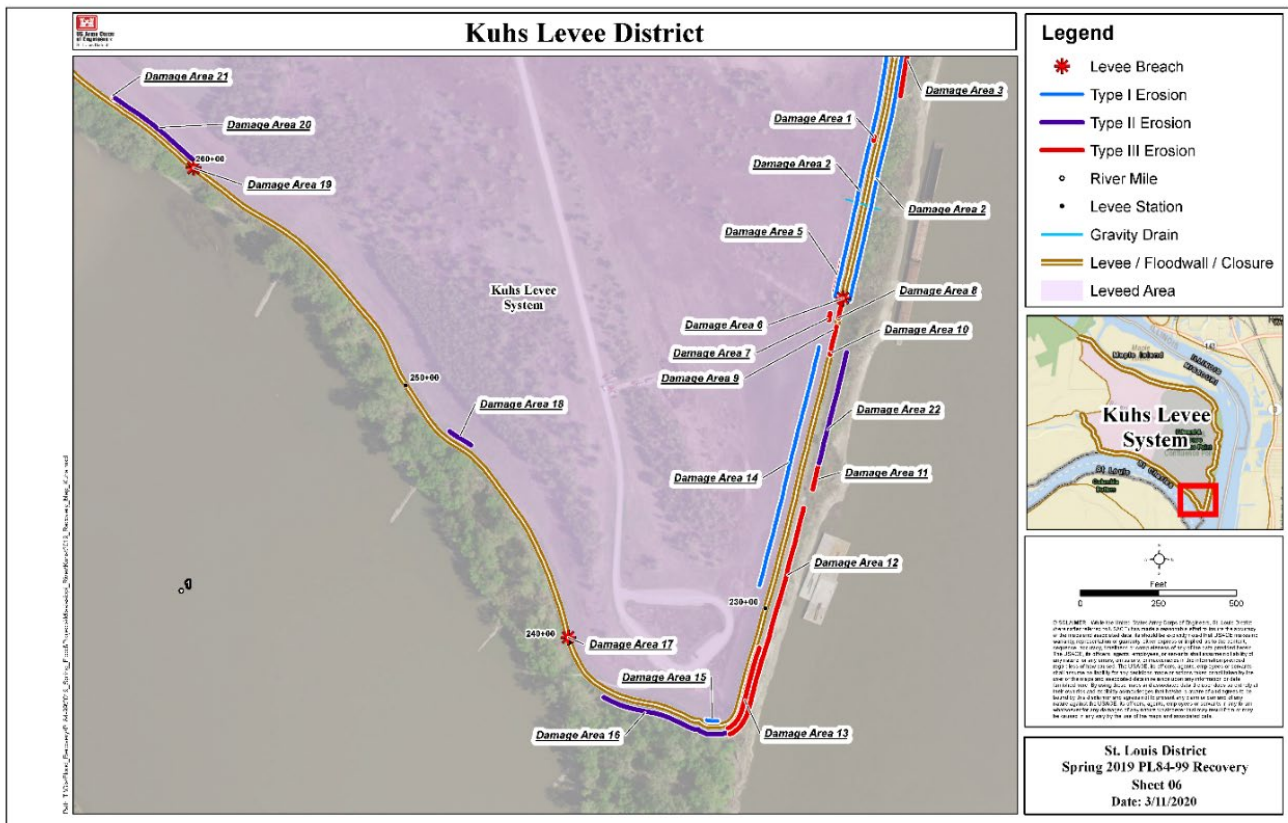
**Table 1.** Description of each damage type and the methods by which these damage types are typically repaired.

Damage Type	Damage Description	Repair Method
Breach	A rupture, break, or gap in the levee system, measured in linear feet or yards <sup>3</sup> .	Stripping, preparing, placing embankment, and compacting in lifts.
Slide	A movement of soil down the levee slope where the levee cannot support its own saturated weight.	Excavation of damaged area, and replacement of embankment in compacted lifts.
Erosion Type I	Wave wash / minor erosion less than 12 inches deep, measured in linear feet.	Disking and compacting.
Erosion Type II	Moderate erosion between 12 and 18 inches deep, measured in yards <sup>3</sup> .	Stripping, disking, filling, and compacting.
Erosion Type III	Major erosion greater than 18 inches deep, measured in yards <sup>3</sup> .	Stripping, preparing, placing embankment, and compacting in lifts.
Rutting	Depressions, ruts, or pot holes that are located along the levee crown, embankments, and access roads unrelated to levee settlement that will pond water.	Filling in the eroded areas using embankment material from designated borrow area(s) or material from the adjacent undamaged levee section.

Turf Damage	The upper layer of ground made up of grass and plant roots has been damaged due to long-standing water inundation.	Disking and seeding.
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## 1.5. Damage Description

The Kuhs Levee District experienced several damages during the high water event including: Type I, Type II and Type III erosion. Damage areas are numbered 1- 29. Type I erosion occurred at damage areas 2a, 2b, 14, 15, 23, 24. The length of erosion damage ranged from 35 to 810 feet. Type II erosion occurred at damage areas 16, 18, 22, 28, and 29. The length of erosion Type II damage varied in length from 5 to 410 feet. Type III erosion occurred at damage areas 11, 12, 13, 26, 27, and varied in length from 11 to 465 feet. All other damage areas are not covered under this PL 84-99 repair project. Figures 2 to 6 show the location of each damage area along the levee.



**Figure 2.** A map showing damage areas 1 to 22, excluding area 4. Area 4 is just out of frame, to the north.



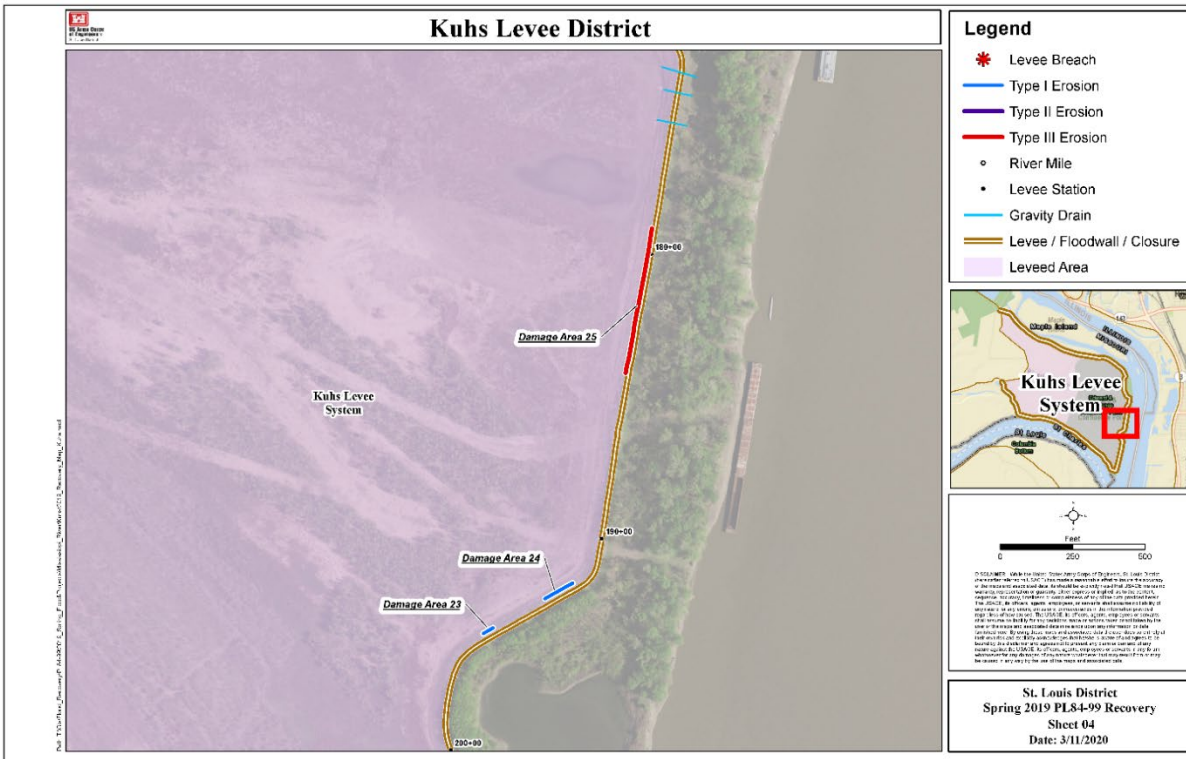


Figure 3. A map showing damage areas 23, 24, and 25.

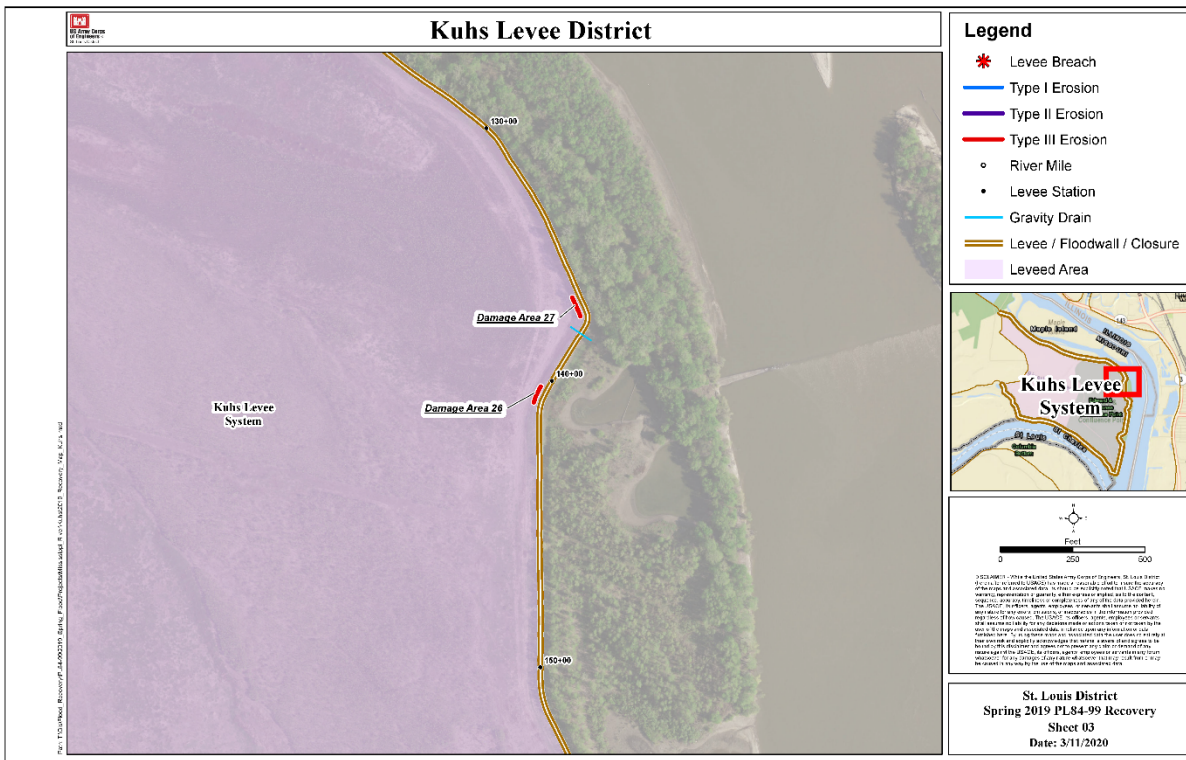
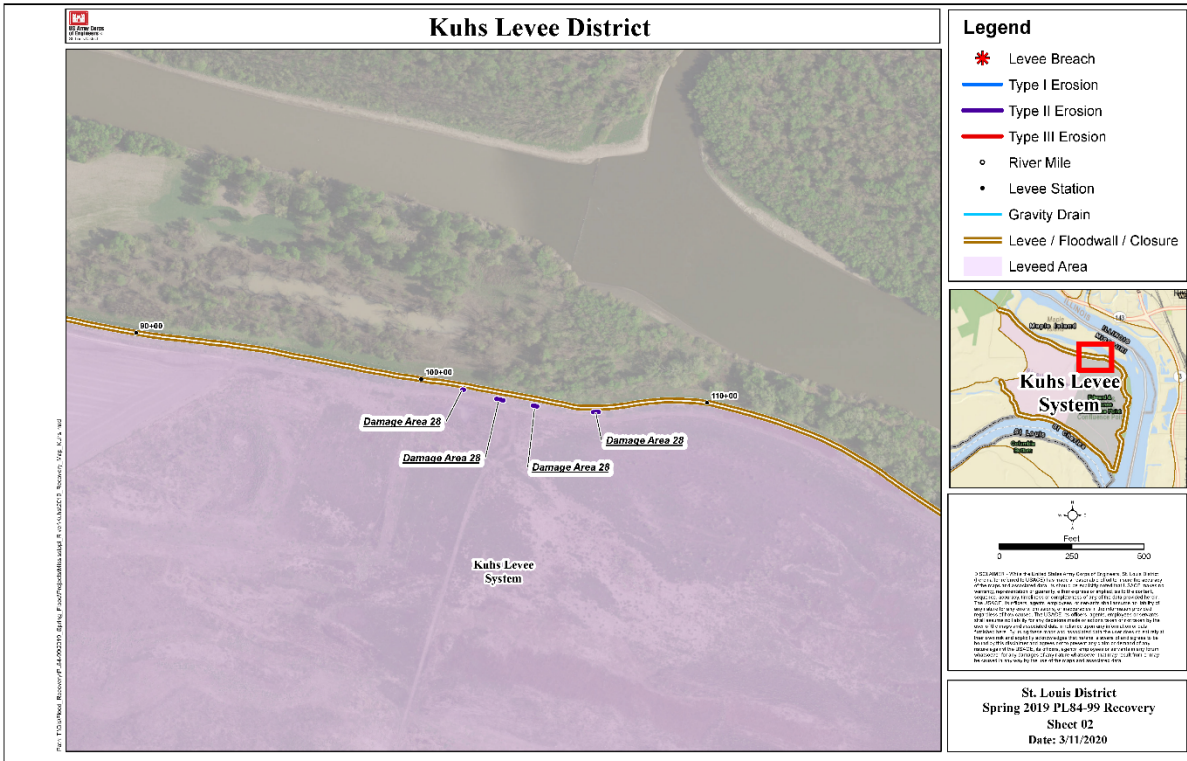
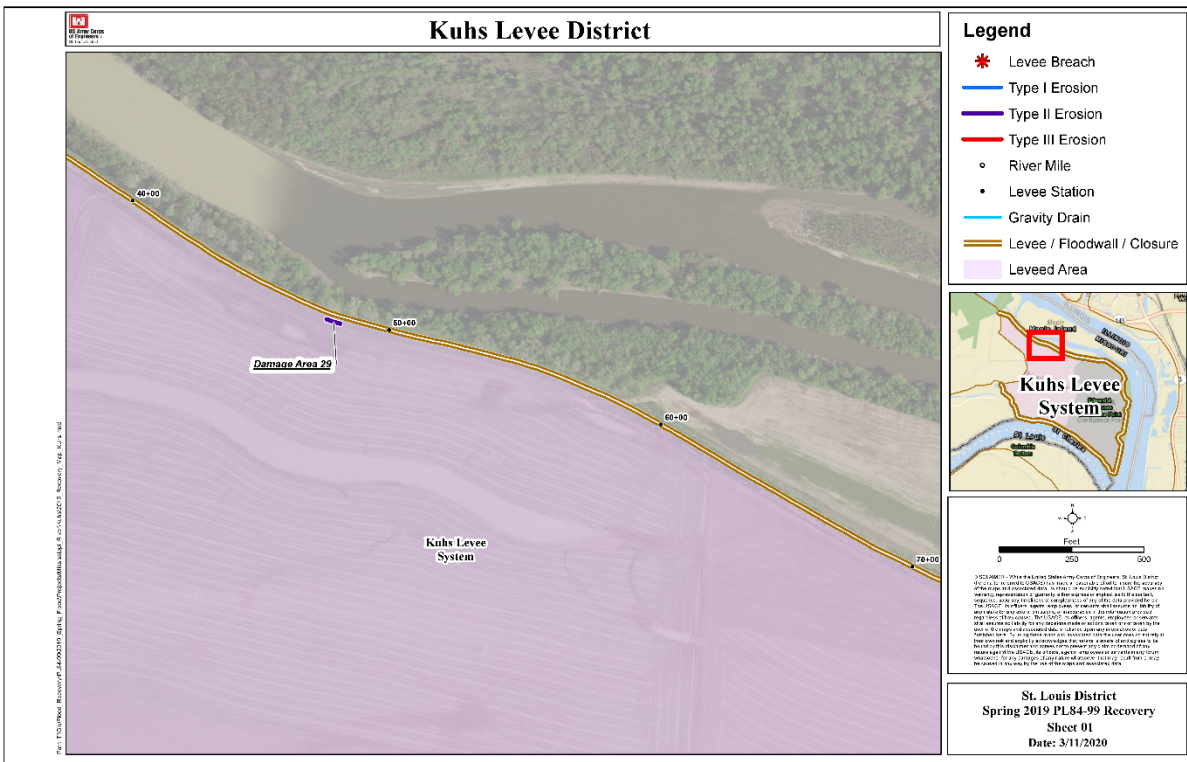


Figure 4. A map showing damage areas 26 and 27.



**Figure 5.** A map showing damage area 28.



**Figure 6.** A map showing damage area 29.

## 2. PROJECT ALTERNATIVES

This section describes and compares the alternatives based on their environmental impact and achievement of project objectives for the damaged levee. NEPA requires that in analyzing alternatives to a proposed action, a federal agency must consider an alternative of “No Action”. Likewise, Section 73 of the WRDA of 1974 (P.L. 93-251) requires federal agencies to give consideration to nonstructural measures to reduce or prevent flood damage.

### 2.1. Alternative 1 - No Action (Future without Project)

Under the No Action Alternative, the federal government would not repair the damages to the Kuhs levee. It is possible that the Kuhs Levee District would make repairs without federal assistance. In this case, the Kuhs Levee District did make some repairs to the levee breach areas without federal assistance. Environmental impacts of repairs made by the Kuhs Levee District would be similar to the tentatively selected alternative, except that the repair duration may differ and the environmental protections may be reduced. However, due to the uncertainty of the Kuhs Levee District making all necessary repairs, ***the environmental impacts of allowing the remaining damage to remain unrepaired are regarded as the No Action Alternative.*** This would presumably perpetuate a state of reduced levee structural integrity. The levee would be susceptible to further erosion at the damaged sites. The current damages would decrease flood protection, thereby increasing risks to visitors, infrastructure, and loss of productive agricultural land and damage to conservation areas within the leveed areas.

### 2.2. Alternative 2 - Nonstructural Measures

Section 73 of the WRDA of 1974 (P.L. 93-251) requires federal agencies to give consideration to non-structural measures to reduce or prevent flood damage. Nonstructural measures reduce flood damages without significantly altering the nature or extent of flooding. Damage reduction from nonstructural measures is accomplished by changing the land use within the floodplains, or by accommodating existing uses to the flood hazard. Examples include flood proofing, relocation of structures such as levees, flood warning and preparedness systems, and regulation of floodplain uses. A flood warning system would do little to reduce structural and agricultural damages. Flood proofing or relocation is not desirable to the Kuhs Levee District because they would have large costs and result in loss of numerous acres of prime farmland.

**Under P.L. 84-99, the Corps has the authority to pursue a non-structural alternative only if the project sponsor, Kuhs Levee District, requests such an alternative.**

*“There is hereby authorized an emergency fund to be expended in preparation for emergency response to any natural disaster, in flood fighting and rescue operations, or in*

*the repair or restoration of any flood control work threatened or destroyed by flood, including the strengthening, raising, extending, or other modification thereof as may be necessary in the discretion of the Chief of Engineers for the adequate functioning of the work for flood control, or in implementation of **nonstructural alternatives to the repair or restoration of such flood control work if requested by the non-federal sponsor.***

Additionally, ER 500-1-1, dated 30 September 2001, states that:

*“Under PL 84-99, the Chief of Engineers is authorized, **when requested by the non-Federal public sponsor**, to implement nonstructural alternatives (NSA’s) to the rehabilitation, repair, or restoration of flood control works damaged by floods or coastal storms. The option of implementing an NSA project (NSAP) in lieu of a structural repair or restoration is available only to non-Federal public sponsors of flood control works (FCW’s) eligible for Rehabilitation Assistance in accordance with this regulation, **and only upon the written request of such non-Federal public sponsors. The principal purposes of an NSAP are for floodplain restoration, provision or restoration of floodways; and/or reduction of future flood damages and associated (FCW) repair costs.** [NOTE: Habitat restoration is recognized as being a significant benefit that can be achieved with an NSAP, and may be a significant component of an NSAP, **but is not considered to be a principal purpose under this authority.**]*

The Kuhs Levee District declined to request the pursuit of a non-structural alternative; therefore, this alternative was eliminated from further analysis in this EA.

### **2.3. Alternative 3 – Structural Repair of Levee with Federal Assistance (Tentatively Selected Plan)**

Under this alternative, at the request of the Kuhs Levee District, the federal government would restore the levee to pre-flood conditions. Since the Kuhs Levee District is active in the USACE Rehabilitation and Inspection Program, it is eligible for Flood Control and Coastal Emergency funding authorized by P.L. 84-99. The Structural Repair alternative restores the levee system to the pre-event condition and is fully supported and desired by the Sponsor.

#### **2.3.1. Erosion Repair**

Erosion Type I would be repaired using material from the adjacent undamaged section of the levee. Typically, borrow material is not needed to repair Erosion Type I, but it is often needed to repair the heavier Type II and III erosion damage. Material would be excavated from designated borrow area(s), hauled to the damaged locations, placed in the eroded areas, and then compacted. After compaction, the repaired areas would be restored by spreading seed, fertilizer,



and mulch on the disturbed areas. The areas would be watered as needed. This is the recommended repair method for Areas 2, 11-16, 18, 22-24, 26-29. Figures 7 – 9 illustrate typical erosion repair methods.

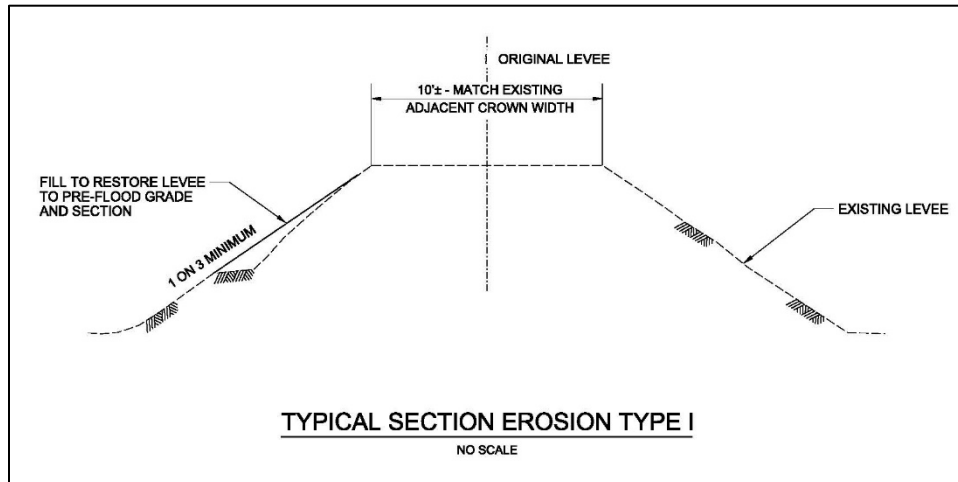


Figure 7. Typical repair sections for erosion type I damages.

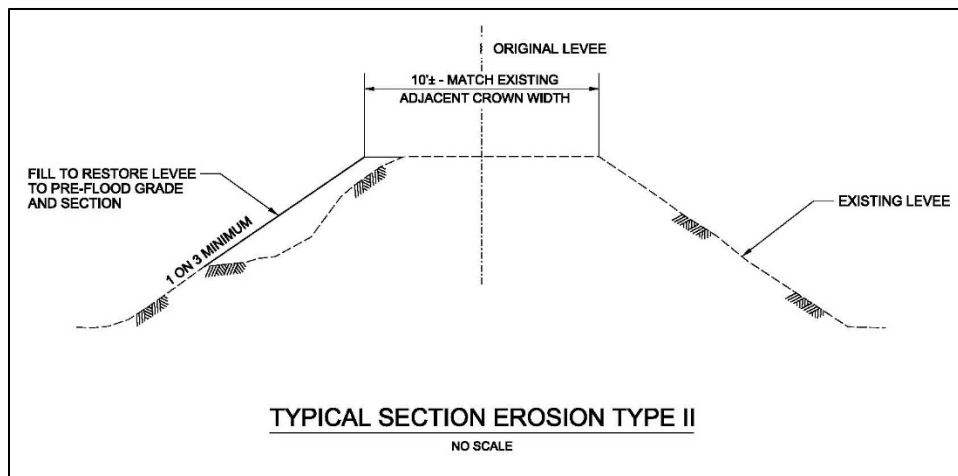


Figure 8. Typical repair sections for erosion type II damages.

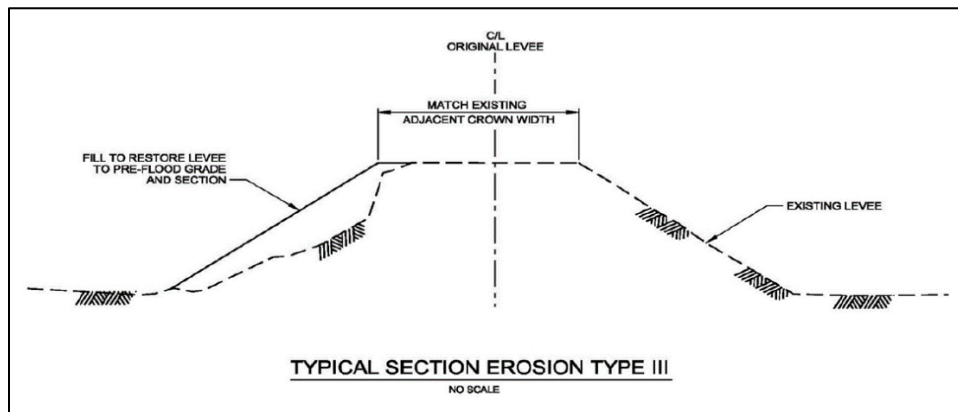


Figure 9. Typical repair sections for erosion type III damages.



### 2.3.2. Borrow Material

The borrow site is located in the Edward "Ted" and Pat Jones-Confluence Point State Park at Township 47N, Range 8E and Section 08 (Figure 10). The borrow site is divided into two sections, divided by the power-line transmission tower footprint. Approximately 5500 cubic yards would be required from this site. A maximum of 24 inches of borrow material would be taken from beneath the initial topsoil strip. There would be no significant impacts on historic properties.



**Figure 10.** Location of the borrow site for use in the Kuhs levee repair. The borrow site limits and access road are outlined in white. Actual limits of material removal are outlined in yellow.

The proposed site exhibits wetland indicators, however, its use as a borrow site is authorized under Nationwide Permit #27 - Aquatic Habitat Restoration, Establishment, and Enhancement Activities. Figures 11 and 12 are photos of the proposed borrow site. The State Park land managers desire to remove the top layer of soil in order to create a shallow, semi-permanent emergent wetland. The boundary of this wetland would be excavated in such a way as to create a more natural, rough outline rather than a rectangle. The topsoil would be stripped off, stockpiled, and then re-deposited as top dress on the disturbed area.





**Figure 11.** Photo of the borrow site facing northwest.



**Figure 12.** Photo of proposed borrow site, facing southwest, towards the river tree-line.

### **2.3.3. Tentatively Selected Plan: Structural Repair of Levee Segment with Federal Assistance**

Alternative 3, the structural repair of the existing levee segment to pre-flood condition along its original alignment, is the Tentatively Selected Plan. A team including members of the St. Louis District's Engineering Design Branch and Geotechnical Engineering Branch were involved with developing the most economical and efficient design for repair. Repairs for the Kuhs Levee System consists of restoring protection along the previous alignment as opposed to establishing a new alignment. Structural repair would reconstruct the levee to pre-flood grade at the location of the erosion damages.

#### Construction Limits

Construction limits have been established in the immediate vicinity of the erosion and turf repair areas, as well as the borrow area.

#### Access and Staging Areas

Staging areas and access routes (Figure 10) to the repair sites would be established to avoid and minimize environmental impacts. Existing access points such as roads, rights of way, and levees located within a reasonable distance to the construction sites would be utilized as much as possible. Haul road locations and staging areas would be restored to their pre-project condition after project completion.

#### Final Plans and Specifications

Due to the emergency nature of the levee repairs, plans & specs would be finalized for construction during the NEPA process. Construction would commence as soon as possible thereafter and is anticipated to be completed within one construction season.

#### Environmental Protection Measures

The Contractor shall submit an Environmental Protection Plan for review and acceptance by the USACE Contracting Officer, which shall include: a list of state and local laws and regulations; a Spill Control Plan; a Recycling and Waste Minimization Plan; a Contaminant Prevention Plan; a Storm Water Pollution Prevention Plan; an Environmental Protection Plan, and an Environmental Monitoring Plan.

- The Contractor shall provide environmental protective measures and procedures to prevent and control pollution, limit habitat disruption, and correct environmental damage that occurs during construction.
- No fill shall be excavated or permanently placed except where required for erosion.
- There shall be no removal of existing vegetation outside of the construction area.

- All earthwork shall be planned and conducted to minimize the duration of exposure of unprotected soils; and all contractor work areas shall be re-vegetated with fast germinating grass mixtures to reduce any further erosion.
- Thoroughly clean all construction equipment at the prior job site in a manner that ensures all residual soil is removed and that seed deposits from plant pests are not present.
- The Contractor shall comply with any special environmental requirements, which are an outgrowth of environmental commitments made by the Government during the project development.
- Proper disposal of solid waste and debris and storage and use of fuels and lubricants.
- Protection of water resources to avoid pollution of surface and ground waters.
- Construct or install temporary and permanent erosion and sedimentation control features such as berms, dikes, drains, grassing and mulching, silt screens, or hay bales.
- Maintain all excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, disposal sites, and all other work areas free from airborne dust which would cause a hazard or nuisance.
- Hydrocarbons and carbon monoxide emissions from equipment shall be controlled to Federal and State allowable limits at all times.

### **3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS**

This chapter summarizes the biological, physical, and social environments of the affected project area relative to the alternatives under consideration. Relevant resources are addressed in terms of their present condition, their projected condition under the No Action alternative and the expected effects of the Tentatively Selected Plan.

#### **3.1. Physical Resources**

##### **3.1.1. Topography, Geography, and Soils**

The Kuhs Levee System lies in a floodplain at the confluence of the Mississippi and Missouri Rivers. The landscape is typical ridge and swale topography created by the rivers as they migrate across the floodplain. A review of the USDA Soil Map found a soil composition of 10 different soil types. The most dominant soil types by area were: 60.5% Sans-Dessein silty clay, 12.5% Peers silty clay loam, 11.5% Lowmo silt loam, and 5.6% Landes fine sandy loam. The low ridges in the floodplain typically are composed of sandy or silty material, while the lower swales have surface soils that are typically silty clays. The area is relatively flat, at 0-2% slopes for these soil features.

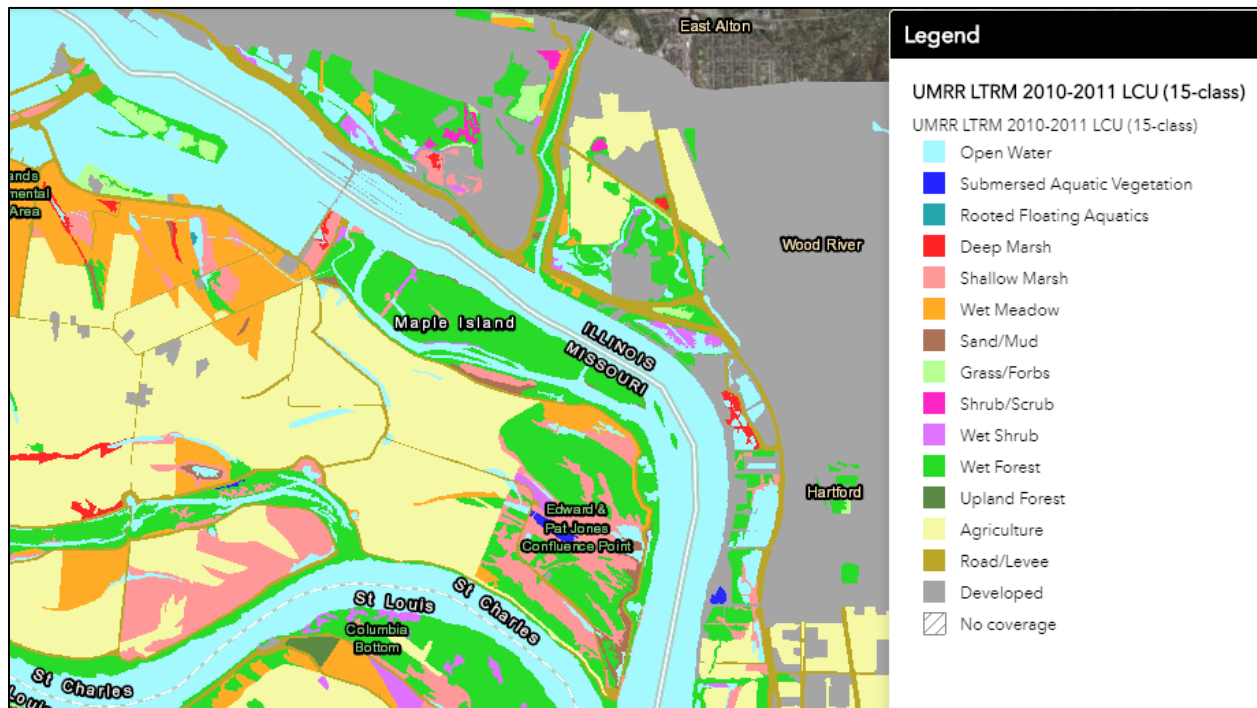
Alternative 1 – No Action (Future without Project) - The increased risk of levee failure and flooding under the current conditions means that future high water events could have adverse impacts including: erosion and sedimentation within the unprotected area. Topography and soil conditions may be altered by the scouring and subsequent sediment deposition following major high water events.

Alternative 3 – Repair of Levees with Federal Assistance – Topography and composition of soil types would be expected to remain the same as pre-flood conditions, should repairs take place. The borrow area soils would change slightly because of clay removal, but would ultimately remain hydric soils.

##### **3.1.2. Land Use/Land Cover**

The levee District is located on the floodplain of the Mississippi and Missouri Rivers. Because of the fertility of the soil and moisture, the land is prized for its agricultural productivity. Levees have been constructed to the federal standard to reduce the likelihood of inundation within the leveed area to a 10-year return period; and, to provide a reasonable amount of certainty of producing crops in most years. Much of the area is considered prime farmland (Figure 13). The Confluence Point State Park, with over 900 acres in active land stewardship, represents another significant land use in the area.





**Figure 13.** Land Use/Land Cover map for the Kuhs Levee System.

*Alternative 1 - No Action (Future without Project)* – If no action is taken, the capacity of the leveed area to provide agricultural cropland would be significantly diminished as flood waters pond in the area and destroy infrastructure. As agricultural use decreases, a more diverse and dynamic terrestrial habitat may develop over time. The reduced protection could damage the oil pipelines that run through the leveed area and cause damage to the State Park infrastructure and ruin land stewardship efforts.

*Alternative 3 - Repair of Levees with Federal Assistance* – If the system is repaired to pre-flood conditions, the leveed area would remain protected for the indefinite future. Therefore, the land usage patterns would likely remain the same as pre-flood uses.

### 3.1.3 Prime Farmland

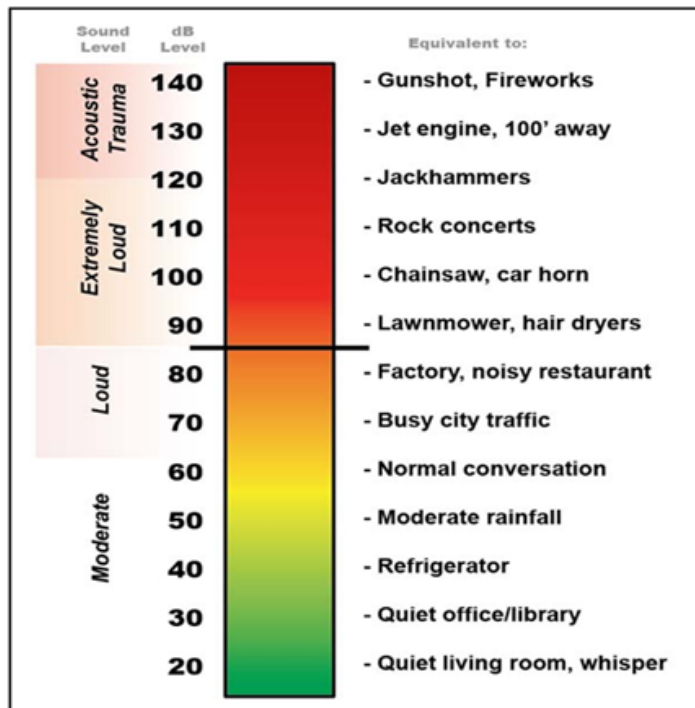
The Kuhs Levee System protects approximately 1,000 acres of agricultural land and related infrastructure. Currently, all available farmland within the leveed area is being farmed. A review of the USDA NASS CropScape web tool found that the most common crops were corn, soybeans, pasture, hay fields, and fallow fields. A review of the USDA Web Soil Survey tool found a 77.6% composition of soils that would be considered Prime Farmland, including: 60.5% Sans-Dessein silty clay, 11.5% Lowmo silt loam, and 5.6% Landes fine sandy loam. If the Kuhs Levee System is operating as designed, these soils would also be considered drained.

*Alternative 1 – No Action (Future without Project)* – A No Action alternative would increase the frequency of flood events in Prime Farmland areas. Frequent flooding would reduce the ability of the land to support agriculture, and Prime Farmland soil types would be inundated regularly.

*Alternative 3 – Repair of Levees with Federal Assistance* - Levee repairs would ensure protection to Prime Farmland. The repaired levee would provide protection up to a 10% annual chance exceedence event. This greatly improves the ability of the protected area to support productive agriculture.

### 3.1.4. Noise

The U.S. Environmental Protection Agency has set a limit of 85 decibels (dBA measure of loudness) on the A scale (the most widely used sound level filter) for eight hours of continuous exposure to protect against permanent hearing loss (Figure 14). Ambient noise in the leveed area is generated mostly by agriculture, land stewardship, commercial navigation, and outdoor recreational activities. These uses typically have noise levels in the range of 34-70dB.



**Figure 14.** Examples of the sound level and decibel (dB) level of various sources.

*Alternative 1 - No Action (Future without Project)* – If no repair action is taken, the level of noise would remain the same as pre-flood conditions. The level of noise generated by agricultural

and outdoor recreation may lessen as the capacity of the leveed area to provide these opportunities is reduced by future flood damages.

*Alternative 3 - Repair of Levees with Federal Assistance* – The vehicles and equipment used in the repair efforts would temporarily increase noise levels near the damage areas and associated worksites and access roads. Construction noise would likely be disruptive to outdoor recreation near the State Park areas, but would only be temporary. Based upon similar construction activities conducted in the past, noise above 85dB would not be expected to occur for periods longer than eight hours.

### **3.1.5. Water Quality**

Water Quality Standards (WQS) are the foundation of the Clean Water Act. In Missouri, the standards define the water quality goals for a waterbody by designating its beneficial uses. The WQS also set maximum allowable concentrations for up to 100 contaminants for each of those beneficial uses. Missouri's water quality standards extend the Clean Water Act protections to more than 115,000 miles of streams and rivers and 3,080 lakes and reservoirs. The standards also give the beneficial uses for each of those waters (MO DNR 2019a). The Mississippi and Missouri Rivers, as they flow by the Kuhs Levee System, are designated as warm water habitat, drinking supply, irrigation, industrial water-supply, livestock and wildlife protection, and secondary contact recreation (MO DNR 2019b). The main difference between the two rivers is that the Missouri is designated for whole body contact recreation category B, while the Mississippi is designated for whole body contact category A (MO DNR 2019b).

Section 303(d) of the federal Clean Water Act requires that each state identify waters that are not meeting water quality standards and for which adequate water pollution controls have not been required. Water quality standards protect such beneficial uses of water as whole body contact (such as swimming), maintaining fish and other aquatic life, and providing drinking water for people, livestock and wildlife. The Missouri River is on the proposed 303d list for *E. coli* contamination (MO DNR 2019c). The Mississippi River (river mile 195-201) and the streams and water bodies within the leveed area are unlisted.

*Alternative 1 – No Action (Future without Project)* - If the Kuhs Levee System is not repaired, flood waters would enter the leveed area at approximately a 40% (2-year frequency) chance exceedence flood. If the levee is not repaired, Mississippi River waters would enter the levee district at approximately a 40% annual chance exceedence flood. When these floodwaters drain off the agricultural land, excess nitrogen and phosphorus can be washed from farm fields and into waterways. Excess nutrients can also leach through the soil and into groundwater over time. High levels of nitrogen and phosphorus in water can result in a lack of oxygen,



causing fish kills and a decrease in aquatic life. Excess nutrients can cause harmful algal blooms in freshwater systems, which not only disrupt wildlife, but can also produce toxins harmful to humans.

*Alternative 3 – Repair of Levees with Federal Assistance* – Construction activities would occur on the levee berms and fields adjacent to streams and water areas. The proposed repair activities may result in minor temporary increases in sedimentation into the Missouri and Mississippi rivers. In addition, levee repairs could cause a short-term increase in turbidity in the waterways at the immediate construction site if flooding or heavy rains occurred during construction. The Contractor shall use best management practices to reduce or eliminate sedimentation resulting from the proposed repairs. All areas of soil disturbance would be restored following construction to reduce the potential for erosion.

### **3.1.6 Air Quality**

The Clean Air Act of 1963 requires the U.S. Environmental Protection Agency (USEPA) to designate National Ambient Air Quality Standards (NAAQS). The USEPA has identified standards for six criteria pollutants: ozone, particulate matter (PM<sub>10</sub> = less than 10 microns; and PM<sub>2.5</sub> = less than 2.5 microns in diameter), sulfur dioxide, lead, carbon monoxide, and nitrogen dioxide. The air quality of St. Charles County has improved since 2016, when the county was in non-attainment for 8-hour ozone and particulate matter (2.5). As of 2019, St. Charles County is in non-attainment for ozone only (USEPA 2019).

*Alternative 1 – No Action (Future without Project)* – If the levee is not repaired to the federal standard the air quality standards in the Kuhs Levee System would be maintained at their current levels.

*Alternative 3 – Repair of Levees with Federal Assistance* – Construction activities would cause a slight increase in suspended particulates (i.e., dust). Emissions from construction equipment would temporarily increase the ozone, carbon monoxide and carbon dioxide levels in the immediate vicinity of the construction site. The expected increases would be temporary and would cease after construction.

### **3.1.7. HTRW**

The U.S. Army Corps of Engineers (USACE) regulations (ER-1165-2-132, ER 200-2-3) and District policy requires procedures be established to facilitate early identification and appropriate consideration of potential HTRW in reconnaissance, feasibility, preconstruction engineering and design, land acquisition, construction, operations and maintenance, repairs, replacement, and rehabilitation phases of water resources studies or projects by conducting Phase I Environmental

Site Assessment (ESA). USACE specifies that these assessments follow the process/standard practices for conducting Phase I ESA's published by the American Society for Testing and Materials (ASTM).

The purpose of a Phase I ESA is to identify, to the extent feasible in the absence of sampling and analysis, the range of contaminants (i.e. RECs) within the scope of the U.S. Environmental Protection Agency's (EPA) Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and petroleum products. Current policy is to avoid known HTRW sites. However, the Environmental Quality Section should be contacted immediately if HTRW material is encountered at any point during construction activities.

A Phase I study was performed on 16 July 2020 which did not find anything that would indicate a risk of HTRW contamination within the project area (Phase I report generated on 30 August 2020). There were no HTRW concerns for repair activities and borrow site usage. The likelihood of hazardous substances adversely affecting the project area due to the proposed levee repair activities is very low. There is still a potential of encountering hazardous substances during the proposed actions. If HTRW material is encountered at any point during the levee repairs, an environmental contractor should be contacted to assess the conditions. USACE does not and cannot represent that the site contains no hazardous waste or material, including petroleum products.

*Alternative 1 - No Action (Future without Project)* – If repairs are not made, future flood events have the potential to spread some contaminants which may be in the area; or introduce contaminants into the leveed area.

*Alternative 3 - Repair of Levees with Federal Assistance* - The likelihood of hazardous substances adversely affecting the project area due to the proposed construction activities is very low. The Phase I assessment found nothing that would indicate that HTRW contamination exists within the project area. However, as previously mentioned, USACE does not and cannot represent that the site contains no hazardous waste or material, including petroleum products.

### **3.1.8. Regulatory Permits**

The Missouri Regional General Permit (GP) 41 for Flood Recovery and Repair Activities authorizes the protection and repair of existing flood damaged structures, damaged land areas and damaged fills, under authority of Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) and Section 404 of the Clean Water Act (33 USC 1344), which include actions outlined under the Tentatively Selected Plan. General Permit 41 is currently valid with an expiration date of April 22, 2023 unless revoked or specifically extended. Preconstruction notification is

required for all activities obtaining borrow from forested wetlands, borrowing material from potential migratory bird nesting areas, clearing trees along stream channels, working in areas with known exotic species, and/or if the proposed repair activity includes restoration of a stream channel back to the original, pre-flood location. Other authorized activities that meet the terms and limits of this GP may proceed without preconstruction notification to USACE. However, post construction reporting is required for all activities undertaken under this GP. Maintenance of existing flood damaged structures and/or flood damaged fills, which have been previously authorized, may be authorized by Nationwide Permit No. 3 or exempted by Part 323.4 of Federal regulations 33 CFR 320- 332. The repair of uplands damaged by storms, floods or other discrete events may be authorized by Nationwide Permit No. 45 upon notification and review by the Regulatory Branch. Section 401 Water Quality Certification is included with most general permits listed above, but additional coordination and/or other state permits may be required prior to construction depending on the scope of repairs. All authorizations are on file in the District Office.

The levee repair work would be fully authorized under Regional General Permit 41 and/or Nationwide Permit 3. The use of the borrow site would be authorized under Nationwide Permit 27 for Aquatic Habitat Restoration, Establishment, and Enhancement Activities.

### **3.2. Biological Resources**

#### **3.2.1. Fish and Wildlife**

Fish and wildlife habitats located in the vicinity of the leveed area include permanent water, temporary water, emergent wetlands, bottomland forest, old fields, and agricultural cropland. The Edward and Pat Jones Confluence Point State Park lies within the protected area. These habitats provide food and cover for a variety of fish and wildlife, including Largemouth Bass, Bluegill, Carp, Crappie, Warmouth, Channel Catfish, Bullfrog, Snapping Turtle, Muskrat, Rabbits, Squirrel, Red Fox, White-Tailed Deer, and Beaver. Common birds in the area include Great Blue Herons, Bald Eagles, Geese, Gulls, Pelicans and many species of waterfowl, other shorebirds, and songbirds. Typical tree species include pecan, eastern cottonwood, American elm, box-elder, silver maple, pin oak, shagbark hickory, and river birch. In contrast, the levees are mowed grass areas that are managed to prevent shrub and tree growth and animal damage.

*Alternative 1 – No Action (Future without Project)* – If the Kuhs Levee District levee is not repaired to the federal standard, the levee system would have less stability and there is an increased probability of future flooding. If that flooding were to occur, then a more diverse and dynamic terrestrial and aquatic habitat may develop if the levee system were to remain unrepaired. The terrestrial habitat could be inundated by high water more frequently, and the vegetative composition may be altered. During high water events, water could pond on the landside of the

levee and deposit sediment, decreasing flood water turbidity, filling wetlands, and killing vegetation as flood water ponds on typically historical wetland areas that are currently dominated by agriculture. However over time, wetland vegetation would become reestablished. During high water events, terrestrial fauna would be displaced as their habitat is inundated. Conversely, fishes and other aquatic organisms would gain access to a large area of floodplain habitat, which could benefit the spawning and rearing of many fish species. Ultimately, with the No Action alternative, the leveed area would convert to a mixture of bottomland forest, wetland, and open water. Any upland or well-drained areas would likely remain in agriculture.

*Alternative 3 – Repair of Levees with Federal Assistance* – If heavy rain occurs during levee repair, washing soil into the rivers and other waterways, there could be a short-term increase in turbidity in the immediate area, possibly displacing fish and other mobile organisms temporarily. Following construction, any displaced mobile aquatic species would be expected to return rapidly. However, the Contractor is required to comply with all applicable federal, state, and local laws and regulations. The Contractor is required to provide environmental protective measures and procedures to prevent and control pollution. This includes the condition that the Contractor shall keep construction activities under surveillance, management and control to minimize interference with, disturbance to, and damage of, fish and wildlife. Therefore, no more than temporary, limited impacts to fish and wildlife resources are anticipated.

### **3.2.2. Bald Eagle**

The U.S. Fish and Wildlife Service (USFWS) developed the National Bald Eagle Management Guidelines to provide landowners, land managers, and others with information and recommendations regarding how to minimize potential project impacts to Bald Eagles, particularly where such impacts may constitute disturbance (USFWS 2007). Bald Eagles (*Haliaeetus leucocephalus*) occur regularly in Missouri as migrants and breeders, with some populations of year-round residents along the Missouri and Mississippi Rivers. The Bald Eagle was removed from the federal list of threatened and endangered species in 2007, but it continues to be protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (BGEPA) (USFWS 2020a). The BGEPA prohibits unregulated take of Bald Eagles, including disturbance.

On 16 July 2020, USACE Biologists conducted a field investigation and survey of the Kuhs Levee System to determine the presence of Bald Eagle nests/nesting within the Levee System, but no nests were observed. The nearest known bald eagle nest is located at approximately latitude 38.842686 and longitude -90.117348. This nest was not observed during the July 2020 survey, but may have been hidden in summer foliage. A historical nest located at approximately Latitude 38.820 and longitude -90.12 was not found during the July 2020 survey, nor was it found during a March 2017 aerial survey. .

*Alternative 1 - No Action (Future without Project)* - Current status anticipated to remain the same because the amount of breeding habitat (e.g. large trees near rivers) for Bald Eagles would be unchanged.

*Alternative 3 - Repair of Levees with Federal Assistance* – Based on the site investigation and survey results showing no nests or eagles in the vicinity of the proposed project, no negative impacts to Bald Eagles are anticipated. The nearest known bald eagle nest is located at approximately latitude 38.842686 and longitude -90.117348. This nest was not found during an Aug 2020 survey.

In the event that a bald eagle nest is observed within 660' of the proposed action areas, the U.S. Fish and Wildlife Service would be contacted immediately.

### **3.2.3. Federal Threatened and Endangered Species Biological Assessment**

In compliance with Section 7(c) of the Endangered Species Act of 1973, as amended, a list of species and critical habitat was acquired from the USFWS IPaC website on 17 September 2020 for the entire leveed area of the Kuhs Levee System (Table 2). The species included: Indiana bat, Northern Long-eared Bat, Gray Bat, Decurrent False Aster, Pallid Sturgeon, and Higgins Eye. There is no Critical Habitat found on the leveed area.

**Table 2.** List of threatened and endangered species generated by an IPaC report obtained on 17 September 2020, Consultation Code: 03E14000-2020-SLI-2417.

Common Name (Scientific Name)	Classification	Habitat
Indiana Bat ( <i>Myotis sodalis</i> )	Endangered	Hibernates during winter in caves or abandoned mines. In Summer, roosts under loose tree bark on dead or dying trees. Forages near sources of water.
Northern Long-eared Bat ( <i>Myotis septentrionalis</i> )	Threatened	Hibernates during winter in caves or abandoned mines. In Summer, roosts under loose tree bark on dead or dying trees. Forages near sources of water.
Gray Bat ( <i>Myotis sodalis</i> )	Endangered	Lives in caves year-round. During the winter, uses deep, vertical caves. In the summer, uses caves scattered along rivers.
Pallid Sturgeon ( <i>Scaphirhynchus albus</i> )	Endangered	Bottom of large, silty freshwater rivers with a natural hydrograph.
Higgins Eye Pearlymussel ( <i>Lampsilis higginsii</i> )	Endangered	Bottom of large, freshwater rivers, in deep water with moderate currents.
Decurrent False Aster ( <i>Boltonia decurrens</i> )	Endangered	River floodplain, moist ditches and oldfields, disturbed wet areas.

#### Indiana Bat

The Indiana Bat is an endangered species that occurs in several Illinois and Missouri counties. Indiana Bats migrate seasonally between winter hibernacula and summer roosting habitats (USFWS 2019a). Winter hibernacula include caves and abandoned mines. During the summer, Indiana Bats roots in trees. At night, the bats forage for insects in a variety of habitats including: along stream corridors, within the canopy of forests, over clearings with early successional vegetation (old fields), along the borders of croplands, along wooded fence rows, and over farm ponds and in pastures (USFWS 2019a). The rural areas of Missouri and Illinois are a mosaic of these habitats, and might be used by Indiana bats during the repairs. The borrow site and repair areas might represent foraging habitat for Indiana, Northern Long-eared, and Gray Bats, given the proximity to bottomland forest, riparian forest and two major rivers. As currently planned, this project involves no tree clearing and would not impact caves.

*Alternative 1 - No Action (Future without Project)* - Current status anticipated to remain the same because no actions would be taken to affect summer roosting and foraging habitat.

*Alternative 3 - Repair of Levees with Federal Assistance* - There may be indirect impacts to foraging activities as a result of general construction disturbance. Therefore, the St. Louis District has determined that the levee repairs “may affect, but are not likely to adversely affect” the Indiana Bat.

### Northern Long-Eared Bat

The Northern Long-eared Bat is a threatened species that occurs in many counties in Missouri and Illinois. Northern long-eared bats spend winter hibernating in large caves and mines (USFWS 2020b). During summer, this species roosts in crevices of both live and dead trees. Foraging occurs in a variety of common habitats that largely overlap with both the Indiana and Gray Bat.

*Alternative 1 - No Action (Future without Project)* - Current status anticipated to remain the same because no actions would be taken to affect summer roosting and foraging habitat.

*Alternative 3 - Repair of Levees with Federal Assistance* - Like with the Indiana and Gray Bat, the construction disturbance in the borrow site and repair areas may cause indirect impacts to foraging activities. Therefore, the St. Louis District has determined that the levee repairs “*may affect, but are not likely to adversely affect*” the Northern Long-eared Bat.

### Gray Bat

The Gray Bat occurs in several Illinois and Missouri counties where it inhabits caves during both summer and winter. With rare exceptions, gray bats sleep in caves year-round (USFWS 2019b). During the winter, gray bats hibernate in deep, vertical caves. In the summer, they roost in caves which are scattered along rivers. These caves are in limestone karst areas of the southeastern United States, like Missouri. Foraging occurs in a variety of common habitats that largely overlap with both the Indiana and Northern Long-eared Bat.

*Alternative 1 - No Action (Future without Project)* - Current status anticipated to remain the same because no actions would be taken to affect summer roosting and foraging habitat.

*Alternative 3 - Repair of Levees with Federal Assistance* - Like with the Indiana and Northern Long-eared Bat, the construction disturbance in the borrow site and repair areas may cause indirect impacts to foraging activities. Therefore, the St. Louis District has determined that the levee repairs “*may affect, but are not likely to adversely affect*” the Gray Bat.

### Pallid Sturgeon

The endangered Pallid Sturgeon is found in the Mississippi River downstream of its confluence with the Missouri River. Pallid Sturgeon forage for food along the bottom of large, silty rivers with a natural hydrograph (USFWS 2019c). Preferred habitat includes a range of depths and current velocities formed by sand and gravel bars. These fish are most frequently caught over a sand bottom, which is the predominant bottom substrate within the species' range on the

Mississippi River. Tag returns have shown that the species may be using a range of habitats in off-channel areas and tributaries of the Mississippi River.

*Alternative 1 - No Action (Future without Project)* - During highwater events, the levee would continue to erode and wash soil into adjacent water bodies, resulting in an increase in turbidity in the immediate area. Conversely, reconnected floodplains have been identified as an important habitat for sturgeon. While openings on or near the main stem river may allow sturgeon to gain access to a large area of floodplain habitat, it is highly unlikely that such damage would go unrepaired by the Levee District.

*Alternative 3 -Repair of Levees with Federal Assistance* - Levee repairs would take place within the footprint of the levee and designated work areas and would not directly impact any Pallid Sturgeon habitat. Indirect effects to Pallid Sturgeon habitat in the form of increased sedimentation of water, would be minimized by the implementation of all contracts to conduct levee repairs would require the implementation of Best Management Practices (BMPs) to minimize indirect effects to Pallid Sturgeon habitat by erosion and runoff into waters. However, the proposed repairs are in close proximity to the confluence of the Missouri and Mississippi rivers, which is considered to be a vital section for pallid sturgeon as they drift from the Missouri into the Mississippi River early in life. Considering the specific location and nature of work, and provided BMPs would be adhered to, the St. Louis District has determined that the Tentatively Selected Plan “*may affect, but is not likely to adversely affect*” the Pallid Sturgeon.

#### Higgins Eye Pearlymussel

The Higgins eye is a freshwater mussel of large rivers where it inhabits deep water areas with moderate currents suitable sand and gravel substrate (USFWS 2019d). These mussels partially bury themselves into the substrate and feed by filtering in microorganisms such as algae and bacteria from the water. Males release sperm and rely on the current so females can siphon the sperm to fertilize their eggs. After fertilization, the stored developing larvae (glochidia) are expelled back into the current and sometimes attach to the gills of host fish, where they develop further, detach, and settle on the river bottom where they can mature. Known host fish include Sauger, Walleye, Yellow Perch, Largemouth Bass, Smallmouth Bass, and Freshwater Drum. Threats to the Higgins Eye include pollution in the form of excess sedimentation, other contaminants, and increased siltation from dredging that can degrade their required water quality and cover suitable substrate.

*Alternative 1 - No Action (Future without Project)* - During highwater events, the levee would continue to erode and wash soil into adjacent water bodies, resulting in an increase in turbidity in the immediate area.



*Alternative 3 -Repair of Levees with Federal Assistance* - Levee repairs would take place within the footprint of the levee and designated work areas and would not impact any Higgins eye habitat. Indirect effects to Higgins eye habitat in the form of increased sedimentation of water, would be minimized by the implementation of all contracts to conduct levee repairs would require the implementation of Best Management Practices (BMPs) to minimize indirect effects to Higgins eye habitat by erosion and runoff into waters. Therefore, St. Louis District has determined that the Tentatively Selected Plan “*may affect, but is not likely to adversely affect*” the Higgins eye Pearlymussel.

#### Decurrent False Aster

This plant is found on moist, sandy, floodplains and prairie wetlands along the Illinois, Missouri, and Mississippi rivers (USFWS 2019e). It relies on periodic flooding to scour away other plants that compete for the same habitat. Although not very tolerant to prolonged flooding, this plant relies on periodic flooding to scour away other plants that compete for the same habitat. Habitat destruction and excessive silting are contributing factors to the decurrent false aster's decline. Highly intensive agricultural practices have increased topsoil runoff, which smothers seeds and seedlings. The repair areas are segments of the damaged levee, which is routinely mowed and maintained. It is unlikely that the levee itself would represent good habitat for this plant. The wet ditches adjacent to the levee and roadsides may be marginal habitat for Decurrent False Aster. Coordination with Missouri Department of Conservation revealed records of this species along the road next to the proposed borrow area. These records were from field surveys performed in 2003. A field survey conducted by USACE Biologists on 19 August 2020 determined that the plant was absent from the proposed borrow area. The removal of material from the borrow site would cause a temporary disturbance, but ultimately the site would remain wetland habitat.

*Alternative 1 - No Action (Future without Project)* - Suitable habitat exists within the leveed area. However, under this Alternative, no action would be taken to affect habitat where Decurrent False Aster may occur.

*Alternative 3 - Repair of Levees with Federal Assistance* - The borrow site does represent good habitat for this species, and the historic presence of the species indicates it is likely present in the seedbank. If *Boltonia decurrens* is present within the local seed bank, construction activities may result in habitat conditions which are favorable for growth of Decurrent False Aster until they are eliminated by competition. Disturbances would be temporary and the site would ultimately remain wetland habitat. Therefore, the St. Louis District has made a “*may affect, but is not likely to adversely affect*” determination for the Decurrent False Aster.

### **3.3. Socioeconomic Resources**

#### **3.3.1. Economic**

The economic value of the Tentatively Selected Alternative was based on comparing the average annual damages with and without the repairs. The economic analysis of the Kuhs LD found that the project's average annual benefits are estimated to be \$189,000 with average annual costs of \$99,250, yielding a Benefit to Cost Ratio of 1.9 to 1.

*Alternative 1 - No Action (Future without Project)* - If the Kuhs Levee District is not repaired to the Federal standard, there would be reduced flood protection due to levee instability during future flood events. The previously leveed area would be subject to a higher probability of flooding, making the area less suitable for reliable agricultural productivity, and may decrease recreational activities, especially under flood conditions. This could result in potential negative economic effects on the Drainage District and the local economy.

*Alternative 3 - Repair of Levees with Federal Assistance* - Local agri-businesses and visitors to the Edward 'Ted' and Pat Jones-Confluence Point State Park would benefit from levee repair and subsequent flood damage reduction. The proposed levee repairs would not require residential displacement because there are no residents living within the Kuhs Levee District. Furthermore, no adverse impacts to life, health, or safety would result from levee repair.

#### **3.3.2. Cultural Resources**

The borrow locations are on a landform that accreted into Mobile Island in the early 20<sup>th</sup> century. Until at least the mid-19<sup>th</sup> century the location was within the planform of the Mississippi River. Further evolution of the river and the island led to a final, stable location by at least 1941. A previous cultural resources survey was performed in 2008 to cover a segment of a Keystone Pipeline project. No culturally significant sites were found then, or in the present. A no significant impact to historic properties determination letter was sent to Missouri State Historic Preservation Office (SHPO) on 30 July 2020. The Missouri SHPO sent a letter of concurrence on 3 September 2020. In the unlikely event that earthmoving activities associated with the proposed repairs did impact potentially significant archeological/historic remains, all construction activities and earthmoving actions in the immediate vicinity of the remains would be held in abeyance until the potential significance of the remains could be determined. The precise nature of such investigations would be developed by the Saint Louis District in concert with the professional staff of the Missouri State Historic Preservation Office (SHPO).

*Alternative 1 - No Action (Future without Project)* - With future flooding, there is the potential for damage to culturally significant resources within the leveed area, whether or not they have been documented by archeologists.

*Alternative 3 - Repair of Levees with Federal Assistance* - The levee is a previously disturbed area and there were no culturally significant resources found within the borrow area. Therefore, the proposed repairs to the levee within the Kuhs Levee System are not anticipated to have an effect on culturally significant resources.

### **3.3.3. Tribal Coordination**

The St. Louis District consulted with 25 Tribes that have an interest in projects along rivers within our district boundaries. An initial letter (dated 11 August 2020) sent to the Tribal interests described the locations of the proposed borrow areas, and the existing flood damaged structures, lands and fills. Maps of the areas and a description of the types of impacts resulting from construction were also included. The Tribes were requested to respond to the USACE with any concerns with the project related to tribal interests. The USACE received responses from Citizen Potawatomi Nation (Oklahoma), Delaware Tribe, Match-e-be-nash-she-wish Band of Potawatomi, Quapaw, and Miami Tribe and none expressed issues with the project, but would like to be contacted if anything is identified. The end of the 30-day comment period was 11 September 2020.

Alternative 1 – No Action (Future without Project) – With future flooding, there is the potential for damage to potentially sensitive Tribal interests within the leveed area, if there should be resources that have yet to be discovered or identified.

Alternative 3 – Repair of Levees with Federal Assistance – Depending on Tribal response, the USACE continues the consultation process until the completion of the project. No Tribal interests have yet responded with any objections to the project.

### **3.3.4. Environmental Justice**

Environmental justice refers to fair treatment of all races, cultures and income levels with respect to development, implementation and enforcement of environmental laws, policies and actions. Environmental Justice Analysis applies to both minority and low-income populations. For the analysis of Environmental Justice, minority populations are defined as any person who is Black, Hispanic, Asian American, American Indian, or Alaskan Native. Environmental justice analysis was developed following the requirements of: Executive Order 12898 ("Federal Actions to Address Environmental Justice in Minority Population and Low-Income Populations," 1994), and "Department of Defense's Strategy on Environmental Justice" (March 24, 1995). This

mandates that federal agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of proposed projects on minority and low-income populations. Environmental Justice builds on Title VI of the Civil Rights Act of 1964.

Environmental Justice has three guiding principles:

1. Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental impacts, including social and economic effects on minority and low-income populations
2. Ensure full and fair participation by all potentially affected communities in the decision-making process
3. Prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations

*Alternative 1 - No Action (Future without Project)* - If the levee is not repaired to the Federal standard, the level of protection would be reduced from that provided by the design (pre-2019 spring flood event) levee. This would not disproportionately affect low income or minority populations, because such populations do not exist currently in the Kuhs Levee District.

*Alternative 3 - Repair of Levees with Federal Assistance* - If the Kuhs Levee District levee is repaired to the Federal standard, the level of protection would be that provided by the design (pre-2019 spring flood event) levee. This would not disproportionately affect low income or minority populations because such populations do not exist within the Kuhs Levee District.

### 3.4. Summary Comparison of Project Alternatives

Impacts of the Tentatively Selected Plan on natural resources, cultural resources, and other aspects and features of the human environment are summarized in Table 3 of this EA.

**Table 3.** Summary of the “No Action” and tentatively selective alternatives to physical, biological, and socioeconomic resources.

Resources	No Action	Tentatively Selected Alternative
Physical Resources	Flood damage would occur if the levee is not repaired and the levee integrity is further compromised during additional floods.	The erosion repairs would return the levee to pre-2019 flood event conditions.
	Increased potential for further erosion of levee and sedimentation within the leveed area following flood events.	Temporary minor impacts to water and air quality during construction.
	Does not meet project objective of repairs to pre-2019 flood event conditions.	Brings the levee protection level back to pre-2019 flood event conditions.

Biological Resources	If levee system is compromised in the future, there is potential for beneficial impacts due to potential increase in floodplain wetland habitat. However, there is a potential for water/land pollution if contaminants exist in either area or in the floodwaters.	Construction would be confined to the levee and borrow areas which may result in minor temporary impacts.
	Federal T&E species would not be adversely impacted. Meets project objective of minimal environmental impacts.	Only minimal, temporary impacts to Federally listed species are anticipated. Meets project objective of minimal environmental impacts.
Socioeconomic Resources	The drainage district would be susceptible to future floods and potential negative impacts to the levee system and regional economy due to levee damages. Does not meet project objective of protecting the socio-economic value of the levee system.	Repair of levee would result in the protection of croplands, businesses and structures from floods up to the design (10-year frequency) of the levee system. Meets project objective of protecting the socio-economic value of the levee system.

## 4. CUMULATIVE IMPACTS

A cumulative impact is defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions of what agency (Federal or non-federal) or person undertakes such actions” (40 CFR 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The majority of the levee systems in the region have been in place for decades. Repairs would involve returning most of the damaged levee sections to the same alignment and level of protection as existed prior to the high water events of 2019. Temporary impacts from noise, air, and increased water sedimentation would occur; however, repair sites are widely scattered throughout the St. Louis District and therefore additive effects of these impacts would be negligible. These repairs are not anticipated to decrease the post-flood productivity of lands riverward or landward of the levee systems. Borrow material would be required for the Kuhs Levee System, and other levee systems for 2019 P.L. 84-99 repairs. Borrow sites have been evaluated during site visits, and examined and selected in order to avoid sensitive areas and resources. In some cases, P.L. 84-99 projects have sustained damage that was/is infeasible to repair on the original levee alignment. For new levee alignments, some acreage would be removed from agricultural use causing a minor loss to overall farm production and conversely, an increase in floodplain habitat. The widely scattered nature of repair sites and shallow excavation depth of borrow sites would reduce impacts and no long term adverse cumulative impacts are expected.

### 4.1. RELATIONSHIP OF TENTATIVELY SELECTED PLAN TO ENVIRONMENTAL REQUIREMENTS

The relationship of the Tentatively Selected Plan (Alternative 3 – Repair of Levees with Federal Assistance) to environmental requirements, environmental acts, and /or executive orders is shown in Table 4.

**Table 4.** Relationship of the Recommended Plan to environmental requirements, environmental act, and /or executive orders.

Environmental Requirement	Compliance
Bald Eagle Protection Act, 42 USC 4151-4157	FC
Clean Air Act, 42 USC 7401-7542	FC
Clean Water Act, 33 USC 1251-1375	FC

Comprehensive Environmental Response, Compensation, and Liability Act, (HTRW) 42 USC 9601-9675	FC
Endangered Species Act, 16 USC 1531-1543	PC <sup>1</sup>
Farmland Protection Policy Act, 7 (Prime Farmland) USC 4201-4208	FC
Fish and Wildlife Coordination Act, 16 USC 661-666c	PC <sup>1</sup>
Food Security Act of 1985 (Swampbuster), 7 USC varies	FC
Land and Water Conservation Fund Act, (Recreation) 16 USC 460d-4601	FC
National Environmental Policy Act, 42 USC 4321-4347	PC <sup>2</sup>
National Historic Preservation Act, 16 USC 470 et seq.	PC <sup>1</sup>
Noise Control Act of 1972, 42 USC 4901-4918	FC
Resource, Conservation, and Rehabilitation Act, (Solid Waste) 42 USC 6901-6987	FC
Rivers and Harbors Appropriation Act, (Sec. 10) 33 USC 401-413	FC
Water Resources Development Acts of 1986 and 1990 (Sec 906 – Mitigation; Sec 307 - No Net Loss - Wetlands)	FC
Floodplain Management (EO 11988 as amended by EO 12148)	FC
Federal Compliance with Pollution Control Standards (EO 12088)	FC
Protection and Enhancement of Environmental Quality (EIS Preparation) (EO 11991)	FC
Protection and Enhancement of the Cultural Environment (Register Nomination) (EO 11593)	FC
Protection of Wetlands (EO 11990 as amended by EO 12608)	FC

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FC = Full Compliance; PC<sup>1</sup> = Partial Compliance (on-going, will be accomplished prior to construction); PC<sup>2</sup> full compliance will be achieved upon signing of the NEPA document.

## 5. COORDINATION, PUBLIC VIEWS, AND RESPONSES

Notification of this Environmental Assessment and unsigned Finding of No Significant Impact will be sent to several relevant officials, agencies, organizations, and individuals for review and comment. Additionally, an electronic copy will be available on the St. Louis District's website during the public review period at:

< <https://www.mvs.usace.army.mil/Portals/54/docs/pm/Reports/EA/Kuhs2019PL8499EA.pdf>>.

Please note that the Finding of No Significant Impact is unsigned. These documents would be signed into effect only after having carefully considered comments received as a result of this public review. To assure compliance with the National Environmental Policy Act, Endangered Species Act, and other applicable environmental laws and regulations, coordination with these agencies will continue as required throughout the planning and construction phases of the proposed levee repairs.

Notification of Draft Environmental Assessment and unsigned Finding of No Significant Impact was sent to the following entities:

### MVS External Agency Stakeholder

Environmental Protection Agency, Region 5 Melgin, Wendy  
Environmental Protection Agency, Region 7 Westlake, Kenneth  
State Employees  
Missouri Dept. of Conservation  
Vitello, Matt  
Missouri Dept. of Natural Resources - Policy Unit  
Beres, Audrey  
Missouri Dept. of Natural Resources, Water Protection Program  
Bax, Stacia  
Missouri Dept. of Natural Resources - State Historic Preservation Office  
Rubingh, Amy  
National Oceanic and Atmospheric Administration  
Buan, Steve  
National Park Service  
Lange, James  
U.S. Fish and Wildlife Service, Missouri Office  
Kuczynska, Iwona  
Kelly, Kaitlyn  
U.S. Department of Agriculture-NRCS, MO Office  
Lugo-Camacho, Jorge

### MVS External Environmental Stakeholder



Ducks Unlimited

Held, Eric

Hillburn, Craig

Great Rivers Habitat Alliance

Stokes, David

Great Rivers Law

Morrison, Bruce

Skrukrud, Cindy

Missouri Coalition for the Environment

Fung, Jenny

The Nature Conservancy, Missouri Office

Sierra Club, Missouri Chapter

Heartlands Conservancy

MVS External Government Stakeholder

Academy Coordinator for Congresswoman Ann Wagner

Winship, Jaci

Field Representative Manager for Congressman Sam Graves

Josh Hurlbert

Staff Member with Senator Roy Blunt's Office

Lavalle, Tricia

MVS External Industry Stakeholder

American Waterways Operators (AWO)

Muench, Lynn

Werner, Paul

Tow Inc.

Alter Logistics

G, Jeff

Apex Oil Company

Caito, J

Hanneman, M

Archer Daniels Midland (ADM)

Burlingame, Chuck

Heroff, Bernard

Porter, Jason

Atlantic-Meeco Inc.

Fabrizio, Christi

Canal Barge Company

Popplewell, Micket

Tyson, J

Chain of Rocks WTP

Baldera, Patrick

Consolidated Grain & Barge Co. (CGB)

Jamison, Larry  
Cultural Resource Analysts, Inc.  
Niquette, Charles  
Docks  
Economy Boat Store  
Zupan, T  
Ecosystem Investment Partners  
Urban, David  
Ecosystems Insurance Associates  
Spoth, Robert  
Ergon Inc.  
Cruse, Lester  
Florida Marine  
Marine, Louis  
Gary Elmestad & Associates  
Elmestad, Gary  
Hanke Terminal Inc.  
HMT Bell South  
Hoppies Marine  
Illinois Marine Towing  
Barnes, Ryan  
Ingram Barge Company  
Dotts, Glenn  
Henleben, Ed  
Johnson, Frank  
Kristen, John  
International Dock Products  
Teah, Phillip  
J.F. Brennan Company Inc.  
Pehler, Kent  
JBS USA  
JBS Chief  
Kirby Corporation  
Ebey, Mike  
Koch Industries  
Muir, T  
Layne  
Hunt, Henry  
Luhr Bros., Inc.  
S, Glenn  
Missouri Corn Grower's Assoc.  
Reitz & Jens  
SCI Engineering  
Harding, Scott

SEACOR Marine LLC

Coder, Justin

Slay Industries Inc.

Slay, Glen

Southeast Missouri Port Authority

Southern Illinois Transfer

Terra Technologies

Staten, Shane

Treated Wood Council

Miller, Jeff

Tri City Port District

Shahman, Bill

Wilmsmeyer, Dennis

York Bridge Co.

Southwestern Power Administration (SWPA)

Corker, Ashley

BellSouth Telecommunications

MVS External Tribe Stakeholder

Absentee-Shawnee Tribe

Devon Frazier

Caddo Nation

Historic Preservation Office

Chairman of Caddo Nation

Francis, Tamara

Citizen Potawatomi Nation

Kelli Mosteller

Eastern Shawnee Tribe of Oklahoma

Brett Barnes

Delaware Tribe of Indians

Dr. Brice Obermeyer

Dr. Larry Heady

Forest County Potawatomi

Melissa Cook

Hannahville Indian Community

Earl Meshigaud

Ho-Chunk Nation of Wisconsin

William Quackenbush

Iowa Tribe of Kansas and Nebraska

Lance Foster

Iowa Tribe of Oklahoma

Dr. Robert Fields

Kickapoo Tribe of Indians of Kansas

Fred Thomas  
Kickapoo Tribe of Oklahoma  
Kent Collier  
Miami Tribe of Oklahoma  
Diane Hunter  
Nottawaseppi Band of Huron Potawatomi  
Fred Jacko, JR  
Peoria Tribe of Indians of Oklahoma  
Logan Pappenfort  
Pokagon Band of Potawatomi  
Matthew Bussler  
Prairie Band Potawatomi Nation  
Warren Wahweotten  
Sac & Fox Nation of Missouri in Kansas and Nebraska  
Chairperson Tiauna Carnes  
Sac & Fox Nation of Oklahoma  
Principal Chief Kay Rhoads  
Sac & Fox Tribe of the Mississippi in Iowa  
Buffalo, Jonathon  
Shawnee Tribe  
Tonya Tipton  
SOARRING Foundation  
Joseph Standing Bear Schranz  
The Osage Nation  
Chief John Red  
Dr. Andrea Hunter  
The Quapaw Tribe of Indians  
Everett Bandy  
United Keetoowah Band of Cherokee of Oklahoma  
Sheila Bird  
Winnebago of Nebraska  
Randy Tebeo

## **6. ENVIRONMENTAL ASSESSMENT PREPARERS**

Evan Hill, Wildlife Biologist

Role: Environmental Impact Analysis, NEPA and Environmental Compliance

Shane Simmons, Biologist

Role: Project Manager

Alan Edmondson, Regulatory Specialist

Role: Section 404/401 permit review

Rick Archeski, Environmental Engineer

Role: Environmental Engineering, HTRW

Mark Smith, Archaeologist

Role: National Historic Preservation Act Analysis and Compliance

Meredith Trautt, Archeologist and Tribal Liaison Assistant

Role: National Historic Preservation Act Analysis and Compliance, Tribal consultation.

Evan Stewart, Economist

Role: Economist

## 7. REFERENCES

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## 8. FINDING OF NO SIGNIFICANT IMPACT

### **PUBLIC LAW 84-99 KUHS LEVEE SYSTEM ST. CHARLES COUNTY, MISSOURI**

1. I have reviewed the documents concerned with the proposed levee repairs to the Kuhs Levee System. The purpose of this project is to repair levee sections damaged by a high water event during the spring of 2019. Repairs would return the Kuhs Levee System to pre-flood conditions.
2. I have also evaluated pertinent data concerning practicable alternatives relative to my decision on this action. As part of this evaluation, I have considered the following alternatives:
  - a. No Action Alternative: Under the no-action alternative, the federal government would not repair the flood damaged levee. It is assumed that, because of the cost of repairs, the Kuhs Levee District would not repair the levee to pre-flood conditions.
  - b. Repair of Levees with Federal Assistance (Tentatively Selected Plan): Under this alternative, the federal government would repair the damaged areas to the pre-flood level of protection. Since the Kuhs Levee District is active in the USACE Rehabilitation and Inspection Program, it is eligible for Flood Control and Coastal Emergency funding authorized by P.L. 84-99.
3. The possible consequences of these alternatives have been studied for physical, environmental, cultural, social and economic effect, and engineering feasibility. Major findings of this investigation include the following:
  - a. The No Action Alternative was evaluated and subsequently rejected primarily based upon the higher potential for future flooding and damage to area agricultural fields, primary and secondary residences, outbuildings, and infrastructure.
  - b. The borrow site was inspected by Project Development Team members and has been cleared for use in terms of jurisdictional wetlands, biological, cultural, and tribal impacts. The borrow area is a reasonable and economically feasible haul distance to the levee. Crane mat crossing will be required if pipelines are being crossed to haul material is different levee sections.
  - c. No appreciable effects to general environmental conditions (air quality, noise, water quality) are anticipated to result from the Tentatively Selected Plan.
  - d. The Tentatively Selected Plan is not anticipated to cause significant adverse impacts to general fish and wildlife resources.



- e. The Tentatively Selected Plan is not anticipated to cause unacceptable adverse impacts to riparian habitat, bottomland hardwood forest, or other jurisdictional wetlands.
  - f. No federally endangered or threatened species would be adversely impacted by the Tentatively Selected Plan.
  - g. No prime farmland would be adversely impacted as a result of the Tentatively Selected Plan.
  - h. No significant impacts to historic properties (cultural resources) are anticipated as a result of the Tentatively Selected Plan.
  - i. No significant impacts to tribal resources are anticipated as a result of the Tentatively Selected Plan.
  - j. Under the Tentatively Selected Plan, local economies would benefit through an increased labor demand to carry out levee repairs. Agricultural land and structures within the leveed area would be provided with a pre-2019 flood risk reduction level.
  - k. The Contractor shall comply with all applicable federal, state, and local laws and regulations. The Contractor shall provide environmental protective measures and procedures to prevent and control pollution, limit habitat disruption, and correct environmental damage that occurs during construction. All disturbed areas would be reseeded following construction to reduce the potential for erosion.
4. Based upon the Environmental Assessment of the Tentatively Selected Plan, no significant impacts on the environment are anticipated. The proposed action has been coordinated with appropriate resource agencies, and there are no significant unresolved issues. Therefore, an Environmental Impact Statement will not be prepared prior to proceeding with this action.

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Date

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Kevin R. Golinghorst  
Colonel, U.S. Army  
District Commander