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

19 January 2022

REPLY TO ATTENTION OF:
Regional Planning and Environmental Division North
Environmental Compliance Section (CEMVP-PD-C)

RE: Chouteau Island Drainage and Levee District PL 84-99

Dear Sir or Madam:

The St. Louis District, U.S. Army Corps of Engineers is providing for your review a Draft Environmental Assessment (EA) and unsigned Finding of No Significant Impact for the Chouteau Island Drainage and Levee District levee system, Madison County, Illinois, which incurred levee damages during the spring flood event of 2019. Please note that the Finding of No Significant Impact is unsigned. This document would be signed into effect only after having carefully considered comments received as a result of this public review.

Under the National Environmental Policy Act of 2020, the St. Louis District is distributing this letter to notify concerned agencies, interest groups, and individuals of the proposed project and to solicit comments from those persons or organizations who may be interested in, or affected by the project. The FONSI is unsigned and would only be signed after comments received as a result of this public review have been given full consideration.

An electronic copy of the EA and unsigned FONSI can be obtained from the St. Louis District's website at

https://www.mvs.usace.army.mil/Portals/54/docs/pm/Reports/EA/ChouteauIsland2019EAandFONSIUpdatedDraft.pdf

Several levees throughout the St. Louis District were damaged during the spring flooding in 2017. The Chouteau Island Drainage and Levee District (D&LD) has requested assistance under Public Law 84-99, which provides repair assistance for flood damaged levees active in the USACE Rehabilitation and Inspection Program. We are in the process of preparing plans and specifications and completing all necessary documentation including environmental compliance documents.

Please provide any comments you may have regarding this project to Teri Allen of the Environmental Compliance Section, at **telephone** 314-331-8084 or **e-mail** Teri.C.Allen@usace.army.mil. In order for comments to be considered prior to a final decision being made, they must be received by this office by close of business on **21 February 2022**.

Thank you,

Teri C. Allen, Ph.D.
Chief, Environmental Compliance Section

DRAFT ENVIRONMENTAL ASSESSMENT
WITH
FINDING OF NO SIGNIFICANT IMPACT

LEVEE REPAIR (PL 84-99):
CHOUTEAU ISLAND DRAINAGE AND LEVEE DISTRICT
MADISON COUNTY, ILLINOIS

19 January 2022

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

US Army Corps of Engineers
St. Louis District

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1. INTRODUCTION

This document is an Environmental Assessment (EA) with an attached unsigned Finding of No Significant Impact (FONSI) for levee repairs to the Chouteau Island segment of the Chouteau Island / Chain of Rocks West Levee System. 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 US Army Corps of Engineers (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 PL 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 PL 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 (PL 93-205 and Appendix B of ER 1105-2-50) and archeological and historic properties (Chapter 3 of ER 1105-2-50). Since the Chouteau Island Drainage and Levee District (D&LD) is active in the USACE Rehabilitation and Inspection Program, they are eligible for Flood Control and Coastal Emergency funding authorized by PL 84-99.

1.2 Emergency Declaration

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.

1.3 Project Location and Scope

The Chouteau Island levee segment is located in Madison County, Illinois, adjacent to the left descending bank of the Mississippi River at approximately Mississippi River Mile 189 to 193 (Figure 1). The leveed area encompasses 2,400-acres used for agriculture, outdoor recreation, a river-based salvage company, a farmstead, an oil/gas pipeline, and 500 acres of public land. The system also protects a critical water intake facility that services water to approximately 300,000 people. The levee system also provides benefits to approximately 150 transient persons that work or live behind the levee and more than $8.2 million in property value. The levee system was designed for an 8.3% (12-year frequency) annual chance exceedance (ACE) flood design level of protection. The system is 4 miles of levee constructed with a representative crown width of 8 feet, and a representative side slope of 1:3.

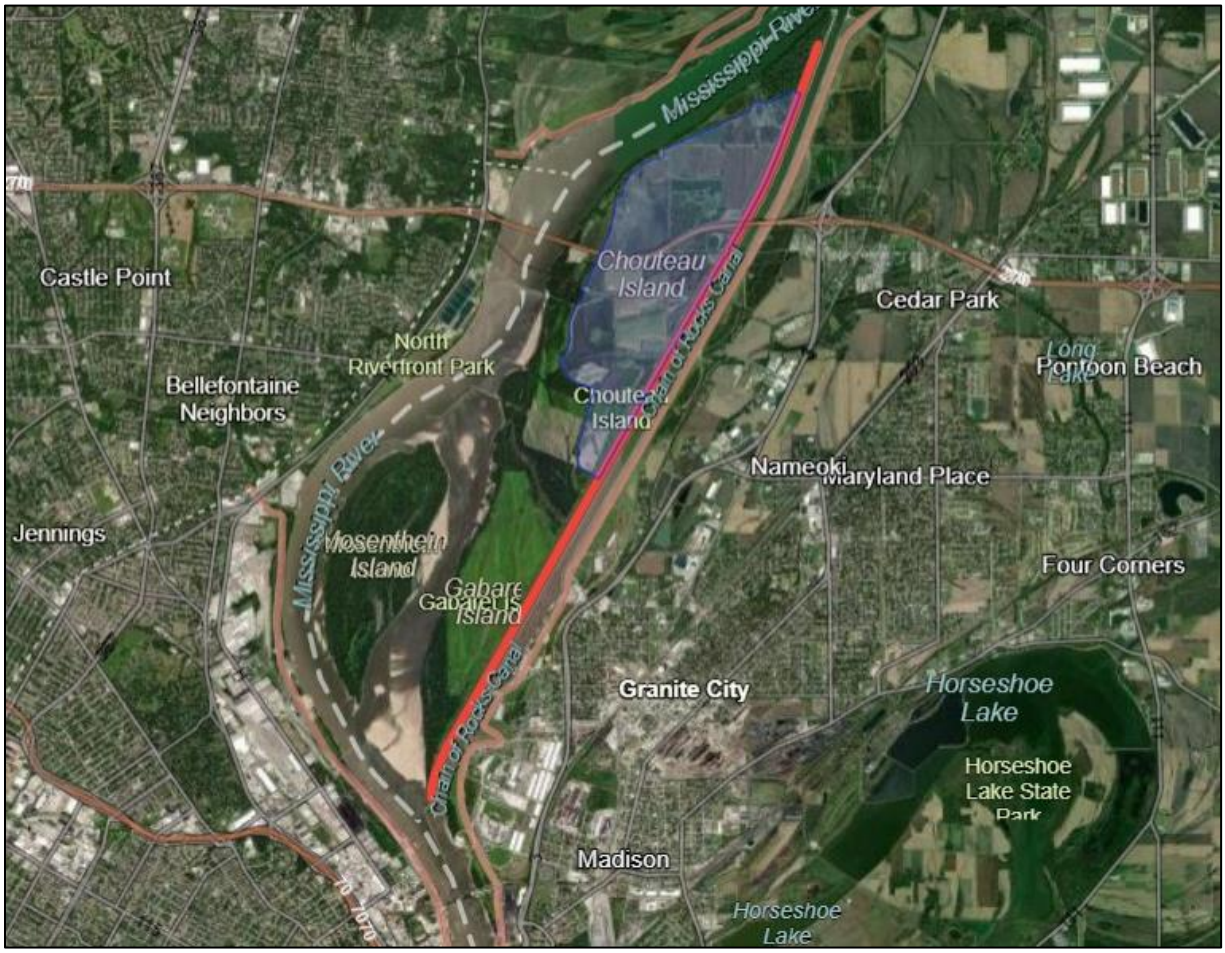

Figure 1. Location of the Chouteau Island levee segment in Madison County, Illinois.

1.4 Project Purpose and Need

Exceptional snowfall accumulation in the northern parts of the Mississippi and Illinois River watersheds, immediately followed by elevated levels of rainfall, led to historic flooding in spring 2019. Multiple systems brought prolonged periods of moderate to heavy rain over the region resulting in flash flooding, road closures, evacuations and flooding of homes, churches and businesses. The Chouteau Island levee

segment 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 levels existing prior to the 2019 flood event. Flood damage reduced levee flood protection from an 8.3% ACE flood event to a 50% ACE, leaving the district vulnerable to frequent flooding. Without federal involvement through the PL 84-99 program, it is unlikely that the Chouteau Island D&LD has the financial ability to restore the level of protection according to USACE standards.

1.5 Damage Description

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^3.	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^3.	Stripping, disking, filling, and compacting.
Erosion Type III	Major erosion greater than 18 inches deep, measured in yards^3.	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.

1.6 Damage Description

The Chouteau Island levee segment sustained several damage types, including a breach, an embankment slide, rutting, and erosion (Types I, II, and III). These damages were surveyed on 12 September 2019, where they were divided into ten damage areas (Table 2, ,).

Table 2. Description of Chouteau Island levee segment Damage Areas, their extent, and location.

Damage Area	Damage Type	Damage Extent	Location
1	Erosion Type III	The erosion is greater than 18 inches in depth, 32 feet in length, and has an average width of 13 feet.	Levee side
2	Embankment slide	26 feet long	Levee side
3	Rutting	290 feet in length, has an average width of 7 feet, and an average depth of 16 inches.	Levee crown
4	Erosion Type III	The erosion is greater than 18 inches in depth, 16 feet in length, and has an average width of 32 feet.	Unprotected side
5	Breach	250 feet wide, includes a scour hole that extends 150 feet from the unprotected side levee toe and 75 feet from the levee side toe, up to 10 ft deep	Through levee
6	Erosion Type I	The erosion is less than 12 inches in depth, 280 feet in length, and has an average width of 5 feet.	Levee side
7	Erosion Type I	The erosion is less than 12 inches in depth, 160 feet in length, and has an average width of 5 feet.	Levee side
8	Erosion Type I	The erosion is less than 12 inches in depth, 815 feet in length, and has an average width of 5 feet.	Levee side
9	Erosion Type II	The erosion is typically greater than 12 inches in depth but less than 18 inches in depth, 315 feet in length, and has an average width of 5 feet. A small portion of this damage area encompassing approximately 20 square feet contains erosion greater than 18 inches in depth.	Levee side
10	Erosion Type I	The erosion is less than 12 inches in depth, 10 feet in length, and has an average width of 5 feet.	Unprotected side

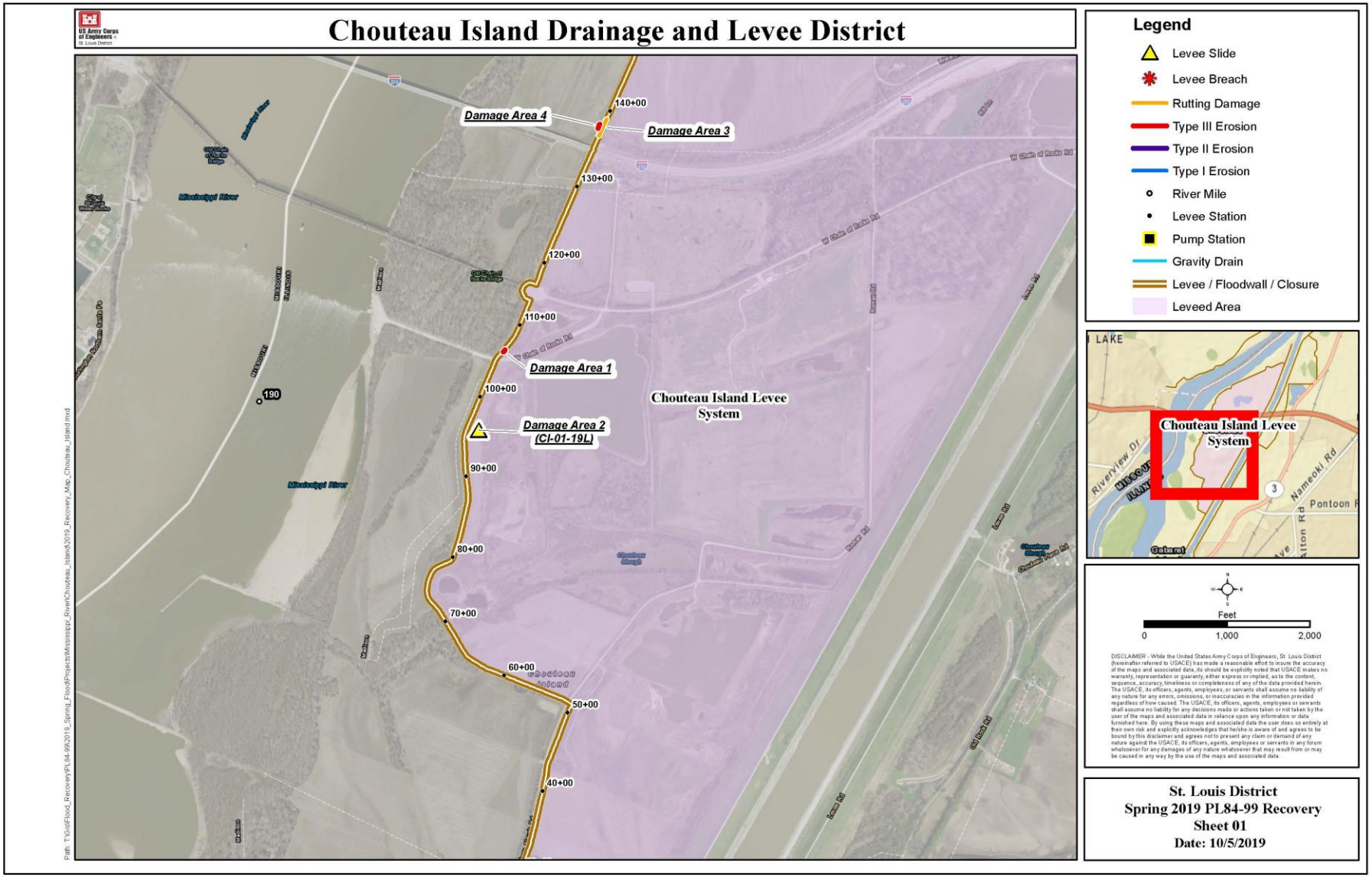

Figure 2**.** Location of Chouteau Island levee segment Damage Areas 1-4.

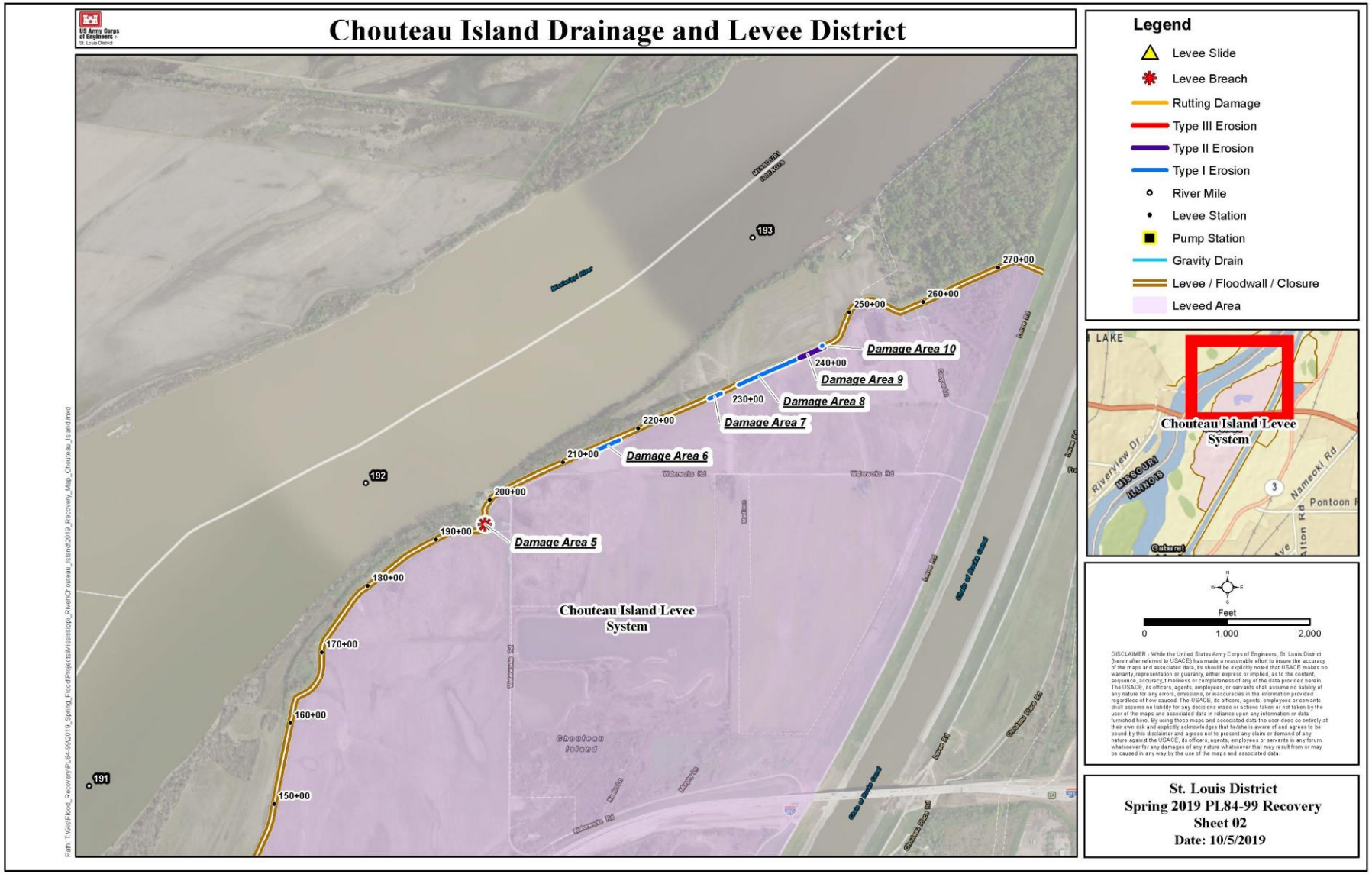

Figure 3. Location of Chouteau Island levee segment Damage Areas 5-10.

2. PROJECT ALTERNATIVES CONSIDERED

This section describes and compares the Chouteau Island levee segment damage repair alternatives based on their geotechnical, engineering design, economic, and environmental impact, and achievement of project objectives. 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 (PL 93-251) requires federal agencies to consider 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 Chouteau Island levee. It is possible that the Chouteau Island D&LD would make repairs without federal assistance. In this case, the Chouteau Island D&LD did fill in the scour hole caused by the levee breach without federal assistance, in order to make emergency repairs to the water plant. The levee breach remains unrepaired. Environmental impacts of repairs made by the Chouteau Island D&LD 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 Chouteau Island D&LD 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 (PL 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 floodproofing, 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 Chouteau Island D&LD, because it would result in loss of numerous acres of agricultural land, and the present land owners desire to continue agricultural use.

Under PL 84-99, the Corps has the authority to pursue a non-structural alternative only if the project sponsor 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 Chouteau Island D&LD is interested in continued agricultural use of the leveed area; therefore, nonstructural measures are not desirable. The Chouteau Island D&LD declined to request the pursuit of a non-structural alternative; therefore, this alternative was eliminated from further consideration.

2.3 Alternative 3 – Structural Repair of Levees with Federal Assistance

Under this alternative, at the request of the Chouteau Island D&LD, the federal government would repair the damaged areas to the pre-flood level of protection. Since the Chouteau Island D&LD is active in the USACE Rehabilitation and Inspection Program, it is eligible for Flood Control and Coastal Emergency funding authorized by PL 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 Damage Repair

Repairs for the Chouteau Island levee segment would consist of restoring protection along a slightly modified alignment versus the previous alignment in order to protect essential infrastructure in the areas of the breach. Structural repair would reconstruct the levee to pre-flood grade at the location of the erosion. Specifically, the damaged areas of the Chouteau Island levee segment would be reconstructed with suitable semi-compacted impervious material until the original slope and grade of the levee is attained. Where fill is required for the breach areas, impervious borrow material and pervious sand would be added to the repair sites to restore the areas to pre-flood grade. Repaired areas would be reseeded after completion of construction when conditions are suitable for grass germination to prevent or minimize erosion. Specific damage repairs include the following:

- *Erosion Type I* - Erosion Type I damages would be repaired by regrading the eroded areas using embankment material from adjacent undamaged levee sections, and then compacted. After compaction, the repaired areas would be seeded 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 5, 7, 8, and 10 (Figure 3). Figure 4 shows the typical repair design for Erosion Type I damages.

- *Erosion Type II* – Erosion Type II damages would be repaired by filling in the eroded areas using embankment material from designated borrow area(s). Material would be excavated from approved borrow sites, hauled to the damaged locations, placed in the eroded areas, and then compacted. After compaction, the repaired areas would be seeded by spreading seed, fertilizer, and mulch on the disturbed areas. The areas would be watered as needed. This is the recommended repair method for Area 9 (Figure 3). Figure 5 illustrates a typical repair for Erosion Type III.

- *Erosion Type III* – Erosion Type III damages would be repaired by filling in the eroded areas using embankment material from designated borrow area(s). Material would be excavated from approved borrow sites, hauled to the damaged locations, placed in the eroded areas, and then compacted. After compaction, the repaired areas would be seeded 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 1, and 4 (Figure 2). Figure 6 illustrates a typical repair for Erosion Type III.

- *Embankment Slides* – Embankment slides would be repaired by excavating the damaged section of the levee to the failure plane and stockpiling the excavated material in designated areas (Figure 7). The excavated material would be treated with hydrated lime if necessary. The lime treated embankment material or non-treated material from slide repair not requiring lime treatment would be placed back in the levee section and compacted. After compaction, the repaired areas would be restored by spreading seed, fertilizer, and mulch on the repaired areas. The seeded areas would be watered as needed. Pre-flood areas which previously had a crushed stone surface would be re-surfaced with crushed stone in lieu of seeding. A geotextile would be placed on area to be repaired, covered in crushed stone, and compacted. This is the recommended repair method for damage area 2 (Figure 2).

- *Breach* – The levee breach would be repaired either by restoring the levee with a slight riverward deviation in alignment from the original alignment, or along its original alignment, by filling in any remaining scoured areas using pervious material obtained from degradation of a portion of the existing levee or the designated borrow site, transported on designated haul roads, and then placed in the eroded areas. The pervious material would be compacted for all layers above the water surface. The pervious material would then be capped with impervious materials obtained and transported from designated borrow sites. The repaired areas would be compacted. Repaired earthen areas would seeded by spreading seed, fertilizer, and mulch on the disturbed areas. The areas would be watered as needed. If the levee crown had surfacing prior to the flood damage, it would be surfaced with crushed stone over a geotextile fabric and compacted in lieu of seeding. This is the recommended repair method for Area 5. Figure 8 shows the breach area open to the river. Figure 9 shows the proposed levee realignments for the breach repair.

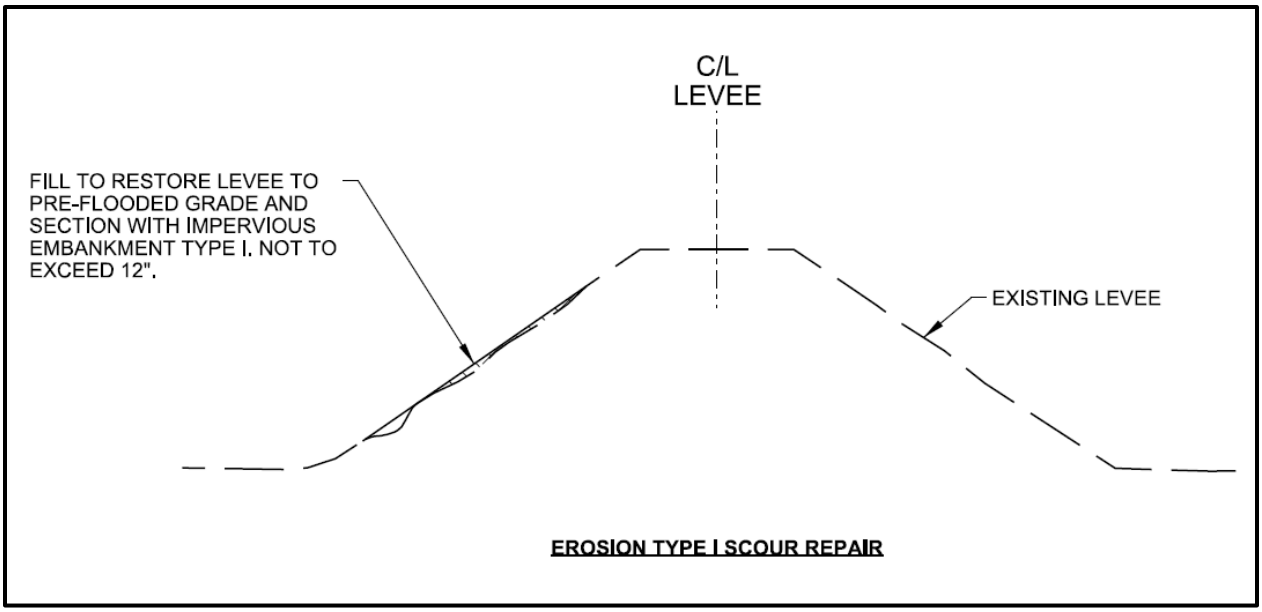

Figure 4. Typical section for Erosion Type I repair.

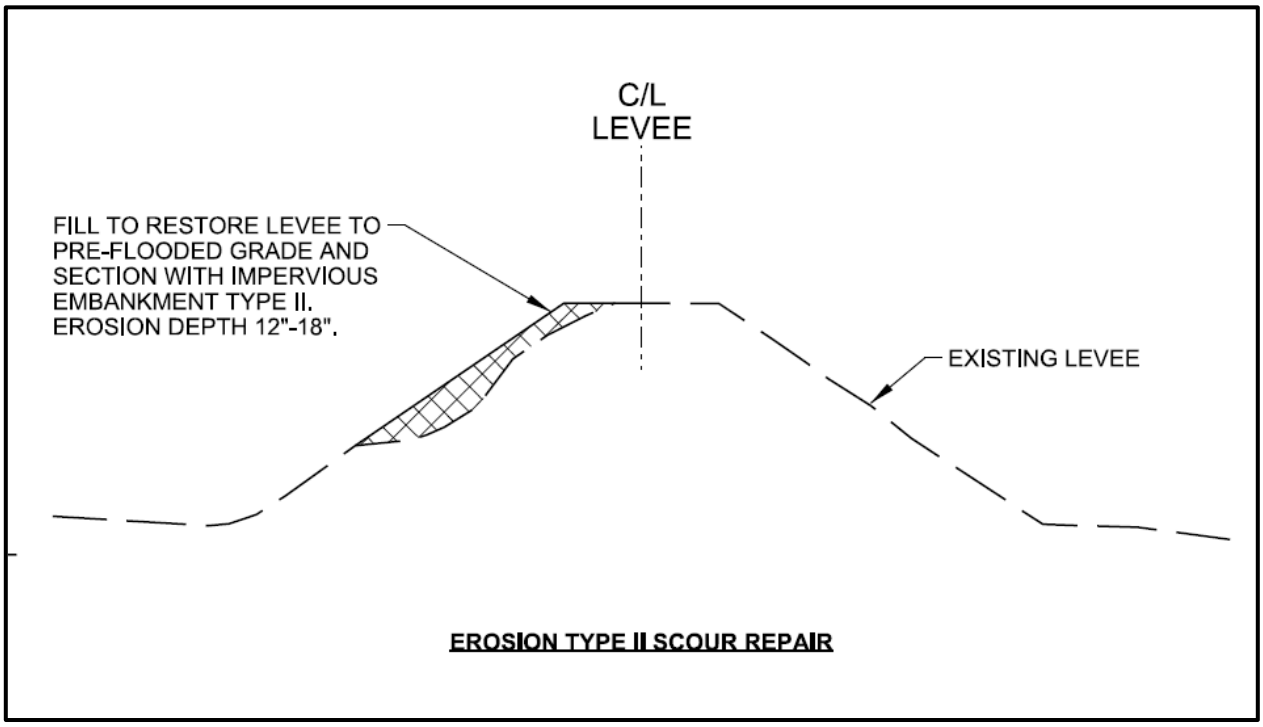

Figure 5. Typical section for Erosion Type II repair.

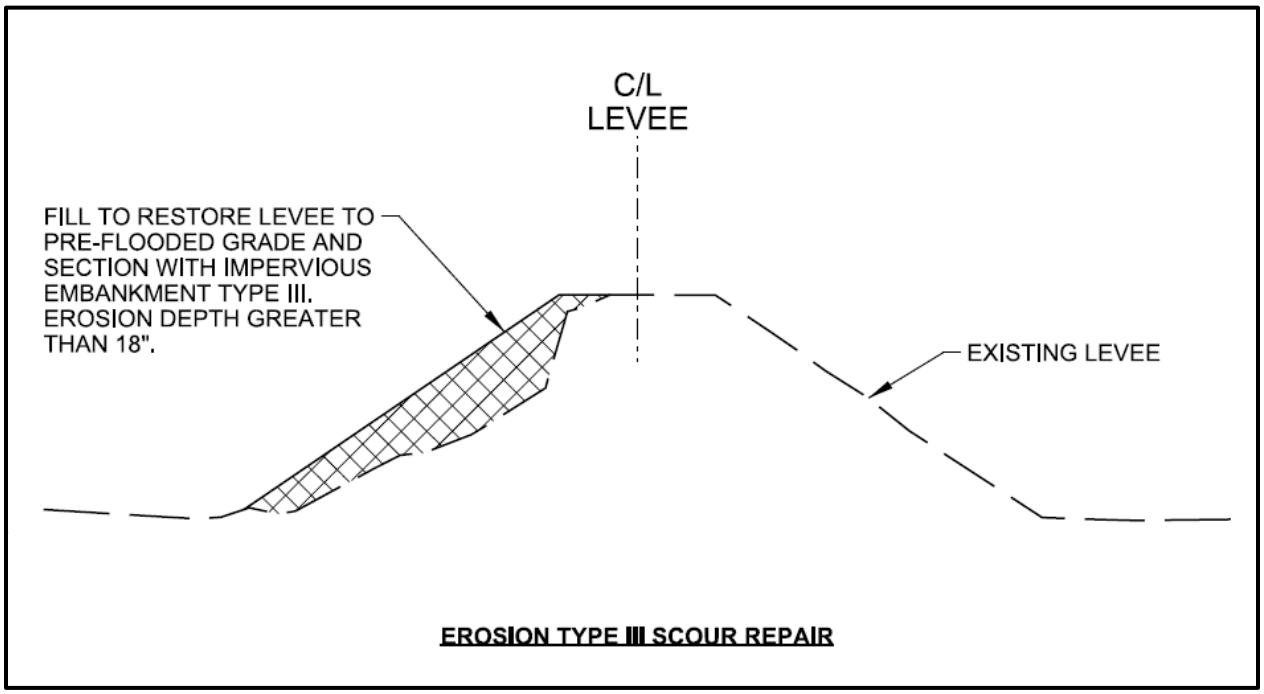

Figure 6. Typical section for Erosion Type III repair.

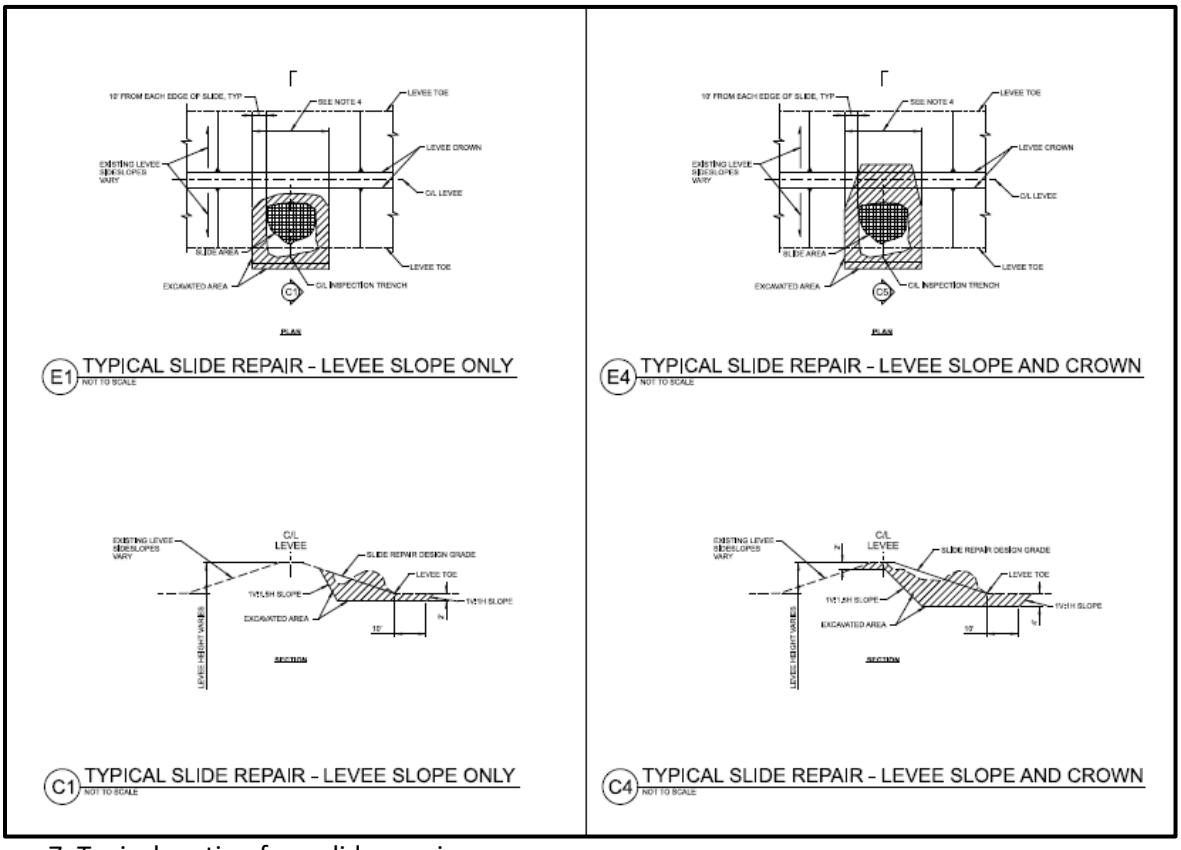

Figure 7. Typical section for a slide repair.

Figure 8. General location of levee breach due to 2019 flood.

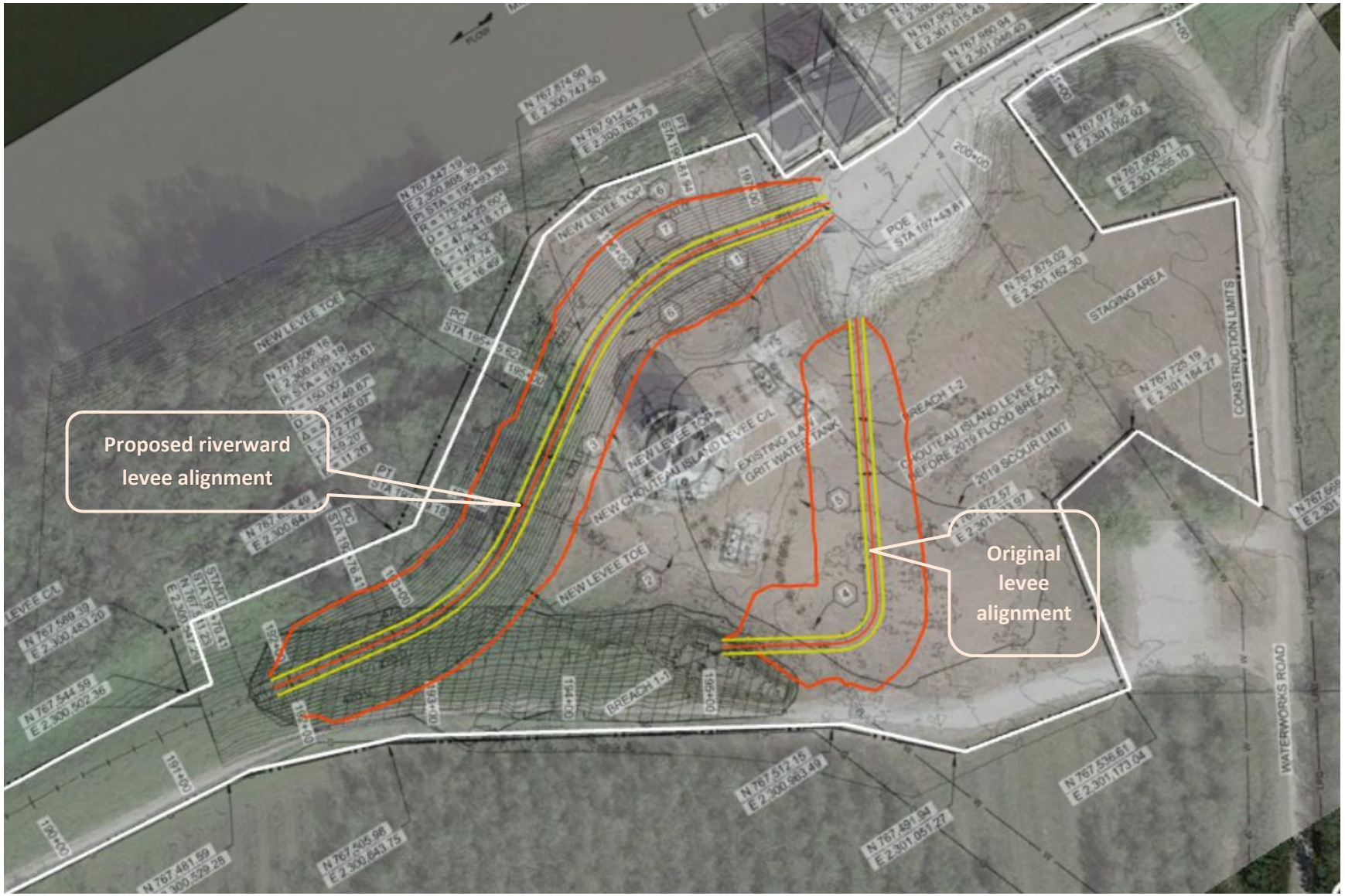

Figure 9. Proposed repair alignments (original and riverward) of levee in the breached area.

2.3.2 Borrow Site

The proposed borrow area is an approximate 7 acre parcel owned by the city of Madison, IL, roughly 1.5 miles from the levee breach repair area at the IL-American Water site (Figure 10). The property is located within the Chouteau Island D&LD just northwest of the location where interstate I-270 bridge crosses the Chain of Rocks West Levee. The site is a vacant mowed site with a trees located in the eastern portion of the property. Tree removal is not anticipated for borrow removal. Therefore, the eastern portion (approximately 3.7 acres) would be utilized as a staging area while the western portion (approximately 3.3 acres) would be used for borrow. Before obtaining any material, the vegetation would need to be stripped off, stockpiled, and then redeposited as top dress on the disturbed area. Bald Eagle nests were not observed during the site visit. A Regulatory site visit was conducted for the proposed borrow area. The borrow site chosen does not exhibit wetland characteristics, therefore no Section 404 of the Clean Water Act verification is required for the borrow area.

Figure 10. Map of the location of the proposed borrow area for Chouteau Island levee segment repair.

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

Alternative 3, the structural repair of the levee segment to pre-flood condition, 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. Following review of comments and the signing of the FONSI (should that be the decision), plans and specifications would be finalized for construction. Construction would commence as soon as possible thereafter and is anticipated to be completed within one construction season.

Construction Limits

Construction limits have been established in the immediate vicinity of the erosion, slide, breach repair area, and borrow area (Figure 11).

Figure 11. Extent of construction footprint shown outlined in white for all damage and borrow areas.

Access and Staging Areas

Staging areas and access routes 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. Haul road locations and staging areas would be restored to their pre-project condition after project completion. The haul roads used for repairs would include Waterworks Road, Chain of Rocks Road, and unnamed gravel farm roads in the proposed project vicinity.

Final Plans and Specifications

Due to the emergency nature of the levee repairs, plans & specifications may 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. Additionally:

- 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.
- There shall be no removal of existing vegetation outside of the construction limits.
- 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 plants 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; proper 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.
- Control hydrocarbons and carbon monoxide emissions from equipment to Federal and State allowable limits at all times.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

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 Land Use/Land Cover/Soils

The Chouteau Island levee segment is located on the floodplain of the Mississippi River. The fertile soil is prized for its agricultural productivity. A survey of the 2010-2011 Upper Mississippi River Restoration Long Term Resource Monitoring program revealed that the leveed area is predominately agriculture, with some pasture and old fields (Figure 12). There are some scattered areas of wet forest, wet shrub, open water, and deep marsh as well.

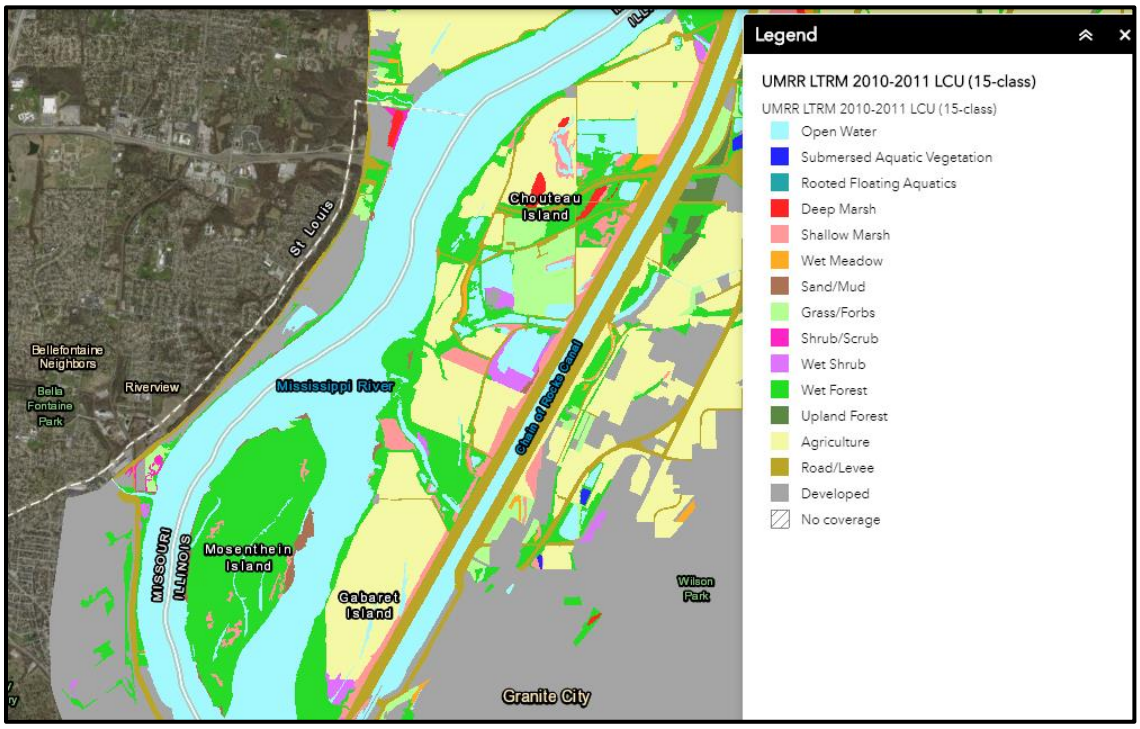

Figure 12. Land use cover map of the Chouteau Island levee segment using the 2010-2011 UMRR LTRM.

The landscape of Chouteau Island is typical ridge and swale topography created by the Mississippi River as it migrated across its floodplain. 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 majority of the area is in Nameoki silty clay loam (43.4%) and Rocher loam (21.9%), however six different soils types, varying from loam, silty loam, and clay loam are present in the leveed area (USDA, 2011) (Table 3). The Rocher loam soil type within the area is considered prime farmland if protected from flooding or not frequently flooded during the growing season.

Table 3. Soil characteristics within the Chouteau Island D&LD leveed area.

Madison County, Illinois (IL119)				
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**	**Prime Farmland**
3592A	Nameoki silty clay loam, 0 to 2 percent slopes, frequently flooded	828.6	43.4%	Not prime farmland
3038B	Rocher loam, 2 to 5 percent slopes, frequently flooded	417.2	21.9%	Prime farmland if protected from flooding or not frequently flooded during the growing season
802B	Orthents, loamy, undulating	243.4	12.8%	Not prime farmland
3071L	Darwin silty clay, 0 to 2 percent slopes, frequently flooded, long duration	199.3	10.4%	Not prime farmland
W	Water	111.7	5.9%	Not prime farmland
3070L	Beaucoup silty clay loam, 0 to 2 percent slopes, frequently flooded, long duration	89.7	4.7%	Not prime farmland
802D	Orthents, loamy, hilly	18	0.9%	Not prime farmland
Totals for Area of Interest		**1,907.80**	**100.00%**	

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. Use of inundated land for agriculture would be unlikely to occur. In addition, floodwaters would also destroy infrastructure, recreational areas, and ruin land stewardship efforts. Topography and soil conditions may be altered by the scouring and subsequent sediment deposition following major high water events. It is anticipated that if agricultural use decreases, a more diverse and dynamic terrestrial habitat may develop over time. Further damage to essential facilities is likely if the levee remains unrepaired.

Alternative 3 – Repair of Levees with Federal Assistance – If the system is repaired to pre-flood conditions, damaged areas would be repaired to the federal standard. Use of the land for agricultural productivity, recreational activities, and essential infrastructure would be regained. Topography would change slightly in the area of the breach repair. Surface soil conditions in the borrow area would be altered due to clay removal.

3.1.2 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 13). Ambient noise in the leveed area is generated mostly by highway traffic, agriculture, land stewardship, commercial navigation, and outdoor recreational activities. These

uses typically have noise levels in the range of 34-70dB, with occasional hunting related sounds reaching 140dB.

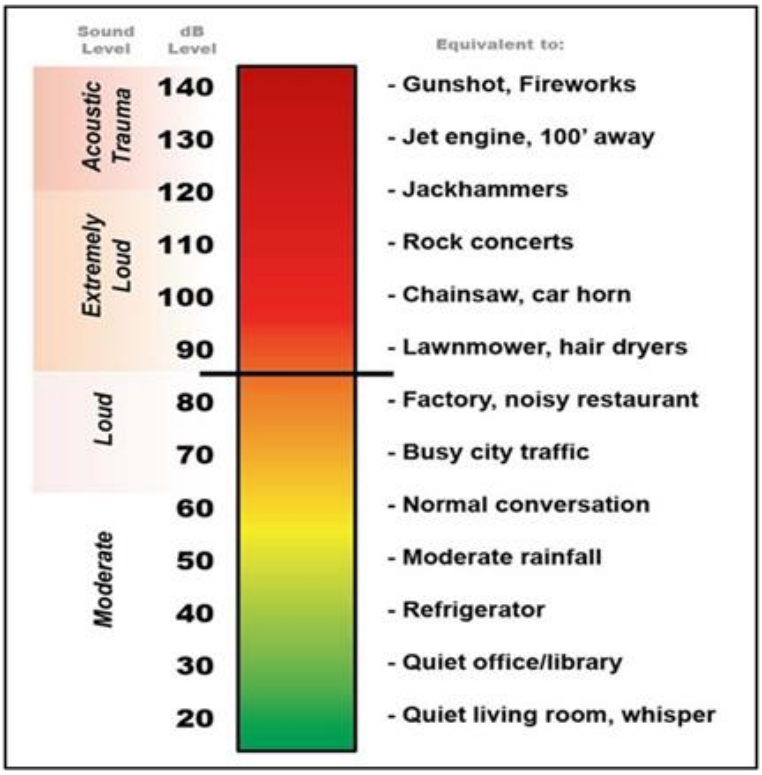

Figure 13. Examples of the sound level and decibel (dB) level of various sources.

Alternative 1 – No Action (Future without Project) – If no repair action is taken, the level of noise will 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, but would 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.

3.1.3 Water Quality

Water Quality Standards (WQS) are the foundation of the Clean Water Act. 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 waters within the Chouteau Island levee segment include scattered, unnamed sloughs and agricultural ditches. The system also include raw water intake and pump house that services water to approximately 300,000 people with no secondary source of fresh water. There are no streams or water bodies within the levee system that are on the Illinois EPA's 303d list for impairment (IL EPA, 2021). However, the adjacent Mississippi River is listed for Mercury and Polychlorinated Biphenols (PCBS) in this location (water ID: IL J-02).

Alternative 1 – No Action (Future without Project) – If the Chouteau Island levee segment is not repaired, Mississippi River waters would enter the levee district at approximately a 50% (2-year frequency) chance exceedance flood. The increase in sedimentation and spread of contaminants as a result of future flood events may alter the quality of the waters within the leveed area. Furthermore, 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 areas adjacent to the Mississippi River. The proposed repair activities may result in minor temporary increases in sedimentation into the Mississippi River. The Contractor shall use best management practices to reduce or eliminate sedimentation resulting from the proposed repairs. All disturbed areas would be reseeded following construction to reduce the potential for erosion. No long term adverse impacts to water quality are anticipated with Alternative 3.

3.1.4 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 (PM10 = less than 10 microns; and PM2.5 = less than 2.5 microns in diameter), sulfur dioxide, lead, carbon monoxide, and nitrogen dioxide. As of 2021, Madison County is in non-attainment for 8-hour ozone (marginal) and sulfur dioxide (USEPA, 2021a).

Alternative 1 – No Action (Future without Project) – If the levee is not repaired to the federal standard the air quality standards in the Chouteau Island leveed area 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 vicinity of the construction site. The expected increases would be negligible and would cease after construction.

3.1.5 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 9 November 2021 which did not find anything that would indicate a risk of HTRW contamination within the project area. 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.

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.

3.1.6 Permits and Wetlands

The Illinois Regional General Permit (GP) 26 for Emergency Reconstruction and Repair Activities for Flood Damaged Areas in All Waters of the United States in the State of Illinois, 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 this Alternative. GP 26 is currently valid with an expiration date of May 15, 2022 unless revoked or specifically extended (IL GP 26). 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.

Tree clearing and grubbing within a riparian forested wetland is proposed in the construction area of the altered levee footprint for the breach repair. Approximately 0.47 acre of forested wetland are proposed

to be impacted by this work. Therefore, compensatory mitigation would be required for the clearing and grubbing activities at a 3:1 mitigation ratio. This would result in 1.41 acres of compensatory mitigation required for wetland impacts associated with this project. The District shall purchase 1.41 wetland mitigation credits from an approved wetland mitigation bank prior beginning the clearing and grubbing work.

If the levee is repaired along the original alignment, minimal or no tree clearing is anticipated, thus no compensatory mitigation would be required.

A Regulatory site visit was conducted for the proposed borrow area. The borrow site chosen does not exhibit wetland characteristics, therefore no Section 404 of the Clean Water Act verification is required for the borrow area. The levee repair work would be fully authorized under Illinois Regional General Permit 26.

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. 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. The Mississippi River and the Chain of Rocks Canal isolate Chouteau Island from the rest of Madison County. Section 3.1.6 of this EA describes proposed impacts to riparian forested wetland, as well as required compensatory mitigation.

Alternative 1 – No Action (Future without Project) – If the Chouteau Island levee segment is not repaired to the federal standard, the levee system would have reduced 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. Fish and other wildlife would benefit from the more natural floodplain habitat that develops. Over time, it is likely that the vegetation community would resemble the bottomland forest found at the nearby Mosenthein Island.

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, and 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, it is anticipated that impacts of the levee repair on fish and wildlife resources would be minimal. Impervious borrow material would be excavated from one borrow site. The borrow site is an old field that was once in agricultural production. The borrow site usage would require no tree clearing. Minimal tree clearing is necessary to repair the levee along the revised alignment, and compensatory mitigation would offset the onsite impacts. If the levee is repaired along the original alignment, minimal or no tree clearing is anticipated, thus no compensatory mitigation would be required.

3.2.2 Bald Eagle

Although the Bald Eagle (*Haliaeetus leucocephalus*) was removed from the federal list of threatened and endangered species in 2007, it continues to be protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act (BGEPA) (USFWS, 2019a). The BGEPA prohibits unregulated take of bald eagles, including disturbance. The U.S. Fish and Wildlife Service developed the National Bald Eagle Management Guidelines (USFWS, 2007a) 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. On 14 May 2021, USACE biologist Teri Allen conducted a field investigation of the proposed repair areas and borrow site and did not observe any bald eagles or nests.

Alternative 1 – No Action (Future without Project) – If no action is taken to repair the levee, and subsequent flood events compromise the levee protection, agriculture use will decrease and a more diverse and dynamic terrestrial and aquatic habitat may develop. This would indirectly benefit Bald Eagle (and other wildlife) by creating additional foraging and nesting habitat. Furthermore, the decreased agricultural use would reduce the amount of disturbance events to nesting Bald Eagles.

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 approximately 0.42 miles from the construction area.

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 Federally Threatened and Endangered Species

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 08 November 2021 for the entire leveed area of the Chouteau D&LD segment (Table 4). There is no Critical Habitat found on the leveed area. Consultation Code: 03E18100-2020-SLI-0544 Event Code: 03E18100-2022-E-00223.

Table 4. List of federally threatened and endangered species and their habitat potentially occurring in Madison County, Illinois.

Common Name (Scientific Name)	Classification	Habitat
Indiana Bat (*Myotis sodalis)*	Endangered	Caves, mines (hibernacula); small stream corridors with well-developed riparian woods; upland forests (foraging)
Northern Long-Eared Bat (*Myotis septentrionalis*)	Threatened	Caves and mines; rivers and reservoirs adjacent to forests
Eastern Massasauga *(Sistrurus catenatus*)	Proposed as Threatened	Graminoid dominated plant communities sedge meadows, peatlands, wet prairies, open woodlands, and shrublands)
Spectaclecase Mussel *(Cumberlandia monodonta)*	Endangered	Shallow areas in larger rivers and streams
Monarch Butterfly (*Danaus plexippus*)	Candidate	Prairie habitat where milkweed is present.
Decurrent False Aster (*Boltonia decurrens*)	Threatened	Moist, sandy, floodplains and prairie wetlands
Eastern Prairie Fringed Orchid *(Platanthera leucophaea)*	Threatened	Mesic to wet prairies

Indiana Bat

This species has been noted as occurring in several Illinois and Missouri counties (USFWS 2007b). Indiana Bats are considered to potentially occur in any area with forested habitat (USFWS 2007b). Indiana Bats migrate seasonally between winter hibernacula and summer roosting habitats. Winter hibernacula include caves and abandoned mines. Females emerge from hibernation in late March or early April to migrate to summer roosts. Females form nursery colonies under the loose bark of trees (dead or alive) and/or in cavities, where each female gives birth to a single young in June or early July. During the summer, Indiana Bats frequent the corridors of small streams with well-developed riparian woods, as well as mature bottomland and upland forests (USFWS, 2019b). They forage for insects along stream corridors, within the canopy of floodplain and upland 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, 2019b). It has been shown that the foraging range for the bats varies by season, age and sex and

ranges up to 81 acres (USFWS, 2007b). Suitable Indiana Bat foraging habitat may be located in the forested areas in and adjacent to the Chouteau Island levee segment.

Alternative 1 – No Action (Future without Project) – Potential forging habitat along the Mississippi River may be impacted as erosion continues and trees fall.

Alternative 3 – Repair of Levees with Federal Assistance – The proposed project would not affect any caves. Approximately 0.47 acres of riparian forest would be removed for the breach repairs and riverward levee alignment construction area. As currently planned, no tree removal is anticipated at the borrow site. Tree clearing for the levee repair would occur during the bat inactive period, between 1 October and 31 March. Therefore, the St. Louis District has determined that the Tentatively Selected Plan "*may affect, but are not likely to adversely affect*" the Indiana Bat.

Northern Long-Eared Bat

The Northern Long-eared Bat is sparsely found across much of the eastern and north central United States, and all Canadian provinces from the Atlantic Ocean west to the southern Yukon Territory and eastern British Columbia (USFWS, 2015). Northern long-eared bats spend winter hibernating in large caves and mines. During summer, this species roosts singly or in colonies underneath bark, in cavities and crevices of both live and dead trees. Foraging occurs in interior upland forests (USFWS, 2015). Forest fragmentation, logging and forest conversion are major threats to the species (USFWS, 2015). 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. Suitable Northern Long-Eared Bat foraging habitat may be located in the forested areas in and adjacent to the Chouteau Island leveed segment.

Alternative 1 – No Action (Future without Project) – Potential forging habitat along the Mississippi River may be impacted as erosion continues and trees fall.

Alternative 3 – Repair of Levees with Federal Assistance – The proposed project would not affect any caves. Approximately 0.47 acres of riparian forest would be removed for the breach repairs and riverward levee alignment construction area. As currently planned, no tree removal is anticipated at the borrow site. Tree clearing for the levee repair would occur during the bat inactive period, between 1 October and 31 March. Therefore, the St. Louis District has determined that the Tentatively Selected Plan "*may affect, but are not likely to adversely affect*" the northern long-eared bat.

Eastern Massasauga Rattlesnake

The eastern massasauga rattlesnake is listed as a threatened species and is extant is several Illinois counties. The largest known population in Illinois is found in the vicinity of Carlyle Lake (Clinton, Bond and Fayette Counties) where it hibernates near the lake shoreline. Instances of eastern massasauga rattlesnake sightings have recently occurred in the Belleville and Edwardsville, IL area (tentative siting and location). Massasaugas live in wet areas, including wet prairies, marshes and low areas along rivers and lakes. In many areas massasaugas also use adjacent uplands, including forest, during part of the year. They often hibernate in crayfish burrows but they also may be found under logs and tree roots or in small mammal burrows. Unlike other rattlesnakes, massasaugas hibernate alone (USFWS, 2016a). Impacts to

this species and its associated habitats should be avoided. No known populations of eastern massasauga rattlesnakes occur in the proposed repair or borrow areas.

Alternative 1 – No Action (Future without Project) – Current status anticipated to remain the same, no populations of massasaugas are known from the Chouteau Island area. The nearest recent sighting is located approximately 20 miles from the proposed project area.

Alternative 3 – Repair of Levees with Federal Assistance – Levee repairs would take place primarily within the footprint of the levee and would not impact any known eastern massasauga habitat. The proposed borrow area is currently an abandoned agricultural field which provide little habitat potential for the species. Therefore, the St. Louis District has determined that the Tentatively Selected Plan "*may affect, but is not likely to adversely affect*" the eastern massasauga rattlesnake.

Spectaclecase Mussel

Spectaclecase mussels are "known to occur in the Meramec River and may potentially occur in the Mississippi River north of Monroe County, Illinois" (USFWS, 2004). The USFWS (undated) considers all Spectaclecase mussel populations in the Mississippi River in Illinois and Missouri to be either extirpated or "non-viable or unknown." Furthermore, levee repairs would take place primarily within the footprint of the levee and would not impact any spectaclecase mussels habitat. Therefore, the St. Louis District has determined that the Tentatively Selected Plan "*may affect, but is not likely to adversely affect*" the spectaclecase mussel.

Alternative 1 – No Action (Future without Project) – Current status anticipated to remain the same, no spectaclecase mussels are known from the Chouteau Island area.

Alternative 3 – Repair of Levees with Federal Assistance – Levee repairs would take place within the footprint of the levee and would not impact the spectaclecase mussel. The Tentatively Selected Plan is not likely to adversely affect the Spectaclecase Mussel. A comprehensive mussel survey of the Middle Mississippi River conducted in 1988-89 and 2012-13 found no Spectaclecase Mussels. Additionally, BMP used by the contractor should avoid or minimize impacts to aquatic species. Therefore, the St. Louis District has determined that the Tentatively Selected Plan would have "*no effect*" on the Spectaclecase Mussel.

Monarch Butterfly

In December 2020, the monarch butterfly was listed as a candidate species under the Endangered Species Act. Much of the monarch butterfly's life is spent migrating between Canada, Mexico, and the United States. Grasslands of central North America, particularly the area known as the Corn Belt, and areas vegetated by milkweed (*Asclepias syriaca* L.) comprise the majority of its summer breeding areas. During the breeding season monarchs require milkweed to rear larvae and provide nectar sources to sustain adults during reproduction. Nectar sources are also required by the butterflies to fuel fall migration and spring flights northward. Monarch populations of eastern North America have declined 90%, due primarily to deforestation, illegal logging, increased development, agricultural expansion, livestock raising, forest fires, and other threats to their migratory paths and summer and overwintering habitats. Chemical-intensive agriculture, increasing acreage converted to row crops, and mowing/herbicide

treatment of roadsides have contributed to a decline of milkweed, the only plant eaten by monarch caterpillars.

Alternative 1 – No Action (Future without Project) – No known populations of milkweed occur within the proposed repair or borrow areas. No prairie habitat is present.

Alternative 3 – Repair of Levees with Federal Assistance – No known populations of milkweed occur within the proposed repair or borrow areas. Levee repairs would take place primarily within the footprint of the levee and would not impact the species. No prairie habitat is present, however milkweed may occur in sub-optimal habitat within the D&LD. Therefore, the St. Louis District has made a "*may affect, but is not likely to adversely affect*" determination for the Monarch Butterfly.

Decurrent False Aster

This plant is found on moist, sandy, floodplains and prairie wetlands along the Illinois, Missouri, and Mississippi rivers (USFWS, 2019c). 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. Wet areas in the vicinity may be marginal habitat for decurrent false aster. A field survey conducted by USACE Biologists on 14 May 2021 determined that the plant was absent from the proposed borrow and damaged areas.

Alternative 1 – No Action (Future without Project) – No known populations of decurrent false aster occur within the proposed repair or borrow areas. However, without the breach repair, high water events may cause habitat disturbance, allowing the species to exist there for a brief period if present in the seedbank. It is likely to be outcompeted by other vegetation after a short time.

Alternative 3 – Repair of Levees with Federal Assistance – No known populations of decurrent false aster occur within the proposed repair or borrow areas. Levee repairs would take place primarily within the footprint of the levee and would not impact the species. However, 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 riverside 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.

Eastern Prairie Fringed Orchid

This species grows in a wide variety of habitats, from mesic prairie to wetlands such as sedge meadows, marsh edges, even bogs. Eastern prairie fringed orchid requires full sun for optimal growth and flowering. However, in some plant communities where there are encroaching species such as cattail and/or dogwood, the orchid may be interspersed or within the edge zones of these communities and thus can sometimes occur in partially shaded areas. This orchid is a perennial plant that grows from an underground tuber. Flowering begins from late June to early July, and lasts for 7 to 10 days. Blossoms

often rise just above the height of the surrounding grasses and sedges. The eastern prairie fringed orchid has a single upright, leafy stem with a vertical flower cluster (flower spike). Early decline was due to the loss of habitat, mainly conversion of natural habitats to cropland and pasture. Current decline is mainly due to the loss of habitat from the drainage and development of wetlands (USFWS, 2016b).

Alternative 1 – No Action (Future without Project) – No known populations of eastern prairie fringed orchid occur within the proposed repair or borrow areas. Under the No Action Alternative, habitat for the eastern prairie fringed orchid (mesic prairie, sedge meadows, marsh edges, or bogs) is not anticipated to develop.

Alternative 3 – Repair of Levees with Federal Assistance – No known populations of decurrent false aster occur within the proposed repair or borrow areas. Levee repairs would take place primarily within the footprint of the levee and would not impact the species. No occurrences of this species are known from the project area. Therefore, the St. Louis District has determined that the Tentatively Selected Plan would have "*no effect*" on the Eastern Prairie Fringed Orchid.

3.2.4 State Listed Species

An Illinois Natural Heritage Database EcoCAT report was generated on 08 November 2021. Indiana bat and pallid sturgeon were listed as protected resources which may be in the vicinity of the proposed project location. Impacts to the Indiana bat are addressed in Section 3.2.3 - Federally Threatened and Endangered Species. Other than the breach repair, levee repairs would take place within the existing footprint of the levee and is not anticipated to impact aquatic resources, due to the BMPs required by the contractor.

In a letter dated 18 November 2021, the Illinois Department of Natural resources recommends removing trees between November 1st and March 31st to avoid impacts to any state and/or federally-listed bats. With this restriction, IDNR has evaluated this information and concluded that adverse effects are unlikely.

3.3 Socioeconomic Resources

3.3.1 Economics

The area protected by the Chouteau Island levee segment is characterized as being rural and agricultural. 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 Chouteau Island levee segment repair found that the project would yield a Benefit to Cost Ratio of 1.6 to 1.

Alternative 1 – No Action (Future without Project) – If the Chouteau Island levee segment 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, decrease recreational activities, and leave essential infrastructure unprotected, especially under flood conditions. This could result in potential negative economic effects on the local economy.

Alternative 3 – Repair of Levees with Federal Assistance - Local agriculture, agri-businesses, and local infrastructure and recreation would benefit from levee repair and subsequent restoration of the pre-flood level of protection. The proposed initial levee repairs would not require residential displacement and could even provide short-term employment for local contractors and laborers. Furthermore, no adverse impacts to life, health, or safety would result from levee repair.

3.3.2 Cultural Coordination

St. Louis District personnel conducted an archeological survey of the proposed repair and borrow site on 9 and 19 July 2021. Cultural material in the form of historic artifacts were identified in the surveyed areas. The artifacts were associated with a mid to late 20th century farmstead within the eastern portion of the borrow area. The farmstead was determined to be ineligible to the National Register of Historic Places. Based upon the results of the survey, information from land owners, and referencing the history of the land forms, it is the District's opinion that the proposed project would have no effect on historic properties. A determination letter was sent to the Illinois State Historic Preservation Office (SHPO) on 01 September 2021. The Illinois SHPO sent a letter of concurrence on 30 September 2021.

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 Illinois SHPO.

Alternative 1 – No Action (Future without Project) – With future flooding, there is the potential for damage to culturally significant resources protected by the levee, 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 Chouteau Island levee segment would have no effect upon significant historic properties.

3.3.3 Tribal Coordination

The St. Louis District consulted with 25 Tribes that have an interest in projects along rivers within this portion of our district boundaries. The recovery and repair of the Chouteau Island levee segment, authorized under PL 84-99, was coordinated with these 25 tribes in the following manner: An initial letter, dated 01 September 2021, was sent to the tribes described the locations of existing flood damaged structures, lands and fills; and a discussion of the results of an archaeological survey conducted for the proposed borrow area. Maps of the areas and a description of the types of impacts resulting from construction were also included. The tribes were requested to contact the USACE if there are known tribal areas of concern in any the project area, and if they desire further consultation on the project.

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. At this time, no tribes have expressed a concern. Tribal responses received to date are listed below.

- In an e-mail dated 2 September 2021, the Nottawaseppi Huron Band of the Potawatomi stated that it does not appear as if any cultural or religious concerns of the Tribe's will be affected. They therefore have no objection to the project.

- In a letter dated 13 Sep 2021, the Miami Tribe of Oklahoma offered no objection to the project at this time, as they are not currently aware of existing documentation directly linking a specific Miami cultural or historic site to the project site.

- In a letter dated 27 Sep 2021, the Osage Nation stated that they have no further concern with this project.

- In a letter dated 29 Sep 2021, the Eastern Shawnee stated the project proposes no adverse effect or endangerment to known sites of interest to the Eastern Shawnee Tribe.

- In a letter dated 25 October 2021, the Quapaw Nation stated that they do not anticipate this project will adversely impact any cultural resources or human remains protected under NHPA, NEPA, or the Native Americans Graves Protection and Repatriation Act.

All five tribes have requested to be notified immediately if archaeological or human remains are inadvertently discovered during project construction.

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 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

An Environmental Justice Screening and Mapping Tool Report (EJSCREEN; USEPA 2021b) was generated on 10 November 2021 to identify potential Environmental Justice-related concerns, but population values for the Chouteau Island were too low to generate meaningful data as approximate population within the island is zero. According to the National Levee Database, the Chouteau Island levee segment protects approximately 150 transient persons who work or temporarily live within the leveed area. The safety and livelihood of these transient persons would depend upon the integrity of the levee system. Furthermore, the report did not indicate that there are any superfund sites or hazardous waste treatment, storage, and disposal facilities within the Chouteau Island leveed area. U.S. census data (ACS, 2019) for Madison County, IL indicates a minority population of 10.7%, and a 10.6% population living below the poverty level.

Alternative 1 – No Action (Future without Project) – If the Chouteau Island levee segment is not repaired to the Federal standard, the level of protection would be eliminated (due to the levee breach) from that provided by the design (pre-2019 flood event) levee. This would not disproportionately affect minority or low income populations.

Alternative 3 – Repair of Levees with Federal Assistance – If the Chouteau Island levee segment is repaired to the Federal standard, the level of protection would be that provided by the pre-2019 flood event levee. This alternative would benefit the population working and recreating within the leveed area, as well as the approximately 300,000 people depending on the water intake system. This Alternative would not disproportionately affect minority or low income populations.

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 5 of this EA.

Table 5. Summary of the "No Action" and Tentatively Selective Alternatives to physical, biological, and socioeconomic resources.

Resources	No Action	Tentatively Selected Alternative
	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.
Physical Resources	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

Resources	No Action	Tentatively Selected Alternative
		conditions while minimizing impacts to the human environment.
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 may be temporarily impacted by loss of potential habitat.	Federal T&E species may be temporarily impacted by loss of potential habitat.
	Meets project objective of minimal environmental impacts.	Meets project objective of minimal environmental impacts.
Socioeconomic Resources	The area would be susceptible to future floods; potential negative impacts to the levee system and regional economy due to levee damages.	Repair of levee would result in the reduced risk of inundation of croplands, businesses, structures, recreational areas, and infrastructure.
	Does not meet project objective of protecting the socio-economic value 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 Chouteau Island levee segment, 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 modified levee alignments, some acreage would be incorporated from either the landside or riverside, potentially causing a minor loss to overall farm production and a negligible increase or decrease 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.

5. RELATIONSHIP OF TENTATIVELY SELECTED PLAN TO ENVIRONMENTAL REQUIREMENTS

The Tentatively Selected Plan is subject to compliance review with all applicable environmental regulations and guidelines. The Tentatively Selected Plan was determined to be in full compliance with all applicable acts and legislation with exceptions as noted in the table below. The Corps of Engineers Regulatory Branch has reviewed the proposed project and determined that Illinois Regional General Permit (GP) 26 for Emergency Reconstruction and Repair Activities for Flood Damaged Areas in All Waters of the United States in the State of Illinois, 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) would be required. The relationship of the Tentatively Selected Plan (Alternative 3 – Repair of Levees with Federal Assistance) to environmental requirements, environmental act, and /or executive orders is shown in Table 6.

Table 6. Relationship of the tentatively selected plan to environmental requirements, environmental act, and /or executive orders.

Federal Laws	Compliance
Abandoned Shipwreck Act of 1987, as amended, 43 USC § 2101, et seq.	FC
American Indian Religious Freedom Act, as amended, 42 USC § 1996	FC
Bald and Golden Eagle Protection Act, as amended, 16 USC § 668, et seq.	FC
Clean Air Act, as amended, 42 USC § 7401, et seq.	FC
Clean Water Act, as amended, 33 USC § 1251, et seq.	PC[1]
Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 USC § 9601, et seq.	FC
Endangered Species Act, as amended, 16 USC § 1531, et seq.	PC[1]
Farmland Protection Policy Act, as amended, 7 USC § 4201, et seq.	FC
Federal Water Project Recreation Act, as amended, 16 USC §460l-12, et seq. and 16 USC § 662	FC
Fish and Wildlife Coordination Act, as amended, 16 USC § 661, et seq.	PC[1]
Flood Control Act of 1944, as amended, 16 USC § 460d, et seq. and 33 USC § 701, et seq. (if recreation is applicable)	FC
Food Security Act of 1985, as amended, 16 USC § 3801, et seq.	FC
Land and Water Conservation Fund Act of 1965, as amended, 16 USC § 460l-4, et seq. (note that is a lowercase “L” after 460 and not a 1 or a capital “i")	FC
Migratory Bird Treaty Act of 1918, as amended, 16 USC § 703, et seq.	FC
National Environmental Policy Act, as amended, 42 USC § 4321, et seq.	PC[2]
National Historic Preservation Act, as amended, 54 USC § 300101, et seq.	FC
National Trails System Act, as amended, 16 USC § 1241, et seq.	FC
Noise Control Act of 1972, as amended, 42 USC § 4901, et seq.	FC

Federal Laws	Compliance
Resource Conservation and Recovery Act, as amended, 42 USC § 6901, et seq.	FC
Rivers and Harbors Appropriation Act of 1899, as amended, 33 USC § 401, et seq.	FC
Water Resources Development Acts of 1986 and 1990 (Sec 906 – Mitigation; Sec 307 - No Net Loss - Wetlands)	PC[1]
Wilderness Act, as amended, 16 USC § 1131, et seq.	FC
Executive Orders	**Compliance**
Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, EO 12898, February 11, 1994, as amended	FC
Federal Compliance with Pollution Control Standards (EO 12088)	FC
Floodplain Management, EO 11988, May 24, 1977, as amended	FC
Invasive Species, EO 13112, February 3, 1999, as amended	FC
Protection and Enhancement of Environmental Quality, EO 11991, May 24, 1977	FC
Protection of Wetlands, EO 11990, May 24, 1977, as amended	FC
Recreational Fisheries, EO 12962, June 7, 1995, as amended	FC
Responsibilities of Federal Agencies to Protect Migratory Birds, EO 13186, January 10, 2001	FC
Trails for America in the 21st Century, EO 13195, January 18, 2001	FC

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

6. COORDINATION, PUBLIC REVIEW, AND RESPONSES

Notification of this Environmental Assessment and unsigned Finding of No Significant Impact will be sent to 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/ChouteauIsland2019EAandFONSIUpdatedDraft.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:

Federal:

U.S. Senator (IL)
Tammy Duckworth, Dick Durbin

U.S. House District 12 (IL)
Mike Bost

U.S. Fish and Wildlife Service, Marion, IL Office
Matthew Mangan

Environmental Protection Agency, Region 5
Ken Westlake

Federal Management Agency

State:

Illinois State Senate District 56
Rachelle Crowe

Illinois State House District 111
Amy Elik
Illinois Department of Natural Resources
Bradley Hayes
Tribes:
Absentee-Shawnee Tribe
Caddo Nation of Oklahoma
Citizen Potawatomi Nation
Delaware Nation of Oklahoma
Delaware Tribe of Indians
Eastern Shawnee Tribe of Oklahoma
Forest County Potawatomi
Hannahville Indian Community
Ho-Chunk Nation of Wisconsin
Iowa Tribe of Kansas and Nebraska
Iowa Tribe of Oklahoma
Kickapoo Tribe of Indians of Kansas
Kickapoo Tribe of Oklahoma
Match-E-Be-Nash-She-Wish Band of Pottawatomi Indians
Menominee Indian Tribe of Wisconsin
Miami Tribe of Oklahoma
Nottawaseppi Band of Huron Potawatomi
Peoria Tribe of Indians of Oklahoma
Pokagon Band of Potawatomi
Prairie Band Potawatomi Nation
Sac & Fox Nation of Missouri in Kansas and Nebraska
Sac & Fox Nation of Oklahoma
Sac & Fox Tribe of the Mississippi in Iowa
Shawnee Tribe
The Osage Nation
The Quapaw Tribe of Indians
United Keetoowah Band of Cherokee of Oklahoma

Local :
Chain of Rocks WTP
The Nature Conversancy
Sierra Club, Illinois Chapter
Ducks Unlimited

7. ENVIRONMENTAL ASSESSMENT PREPARERS

Teri Allen, Ph.D, Supervisory Ecologist
Role: Environmental Impact Analysis, NEPA and Environmental Compliance

Shane Simmons, Biologist
Role: Project Manager

Tyson Zobrist, Regulatory Project Manager
Role: Section 404/401 permit review

Rick Archeski, Environmental Engineer
Role: Environmental Engineering, HTRW

Meredith Hawkins Trautt, Archeologist and Tribal Liaison Assistant
Role: National Historic Preservation Act Analysis and Compliance, Tribal consultation

Evan Stewart, Economist
Role: Economist

8. REFERENCES

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USFWS (U.S Fish and Wildlife Service). 2016b. Eastern Prairie Fringed Orchid (*Platanthera leucophaea*) Fact Sheet. http://www.fws.gov/midwest/endangered/plants/epfo/index.html

USFWS (U.S Fish and Wildlife Service). 2019a. Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. https://www.fws.gov/midwest/eagle/history/protections.html

USFWS (U.S Fish and Wildlife Service). 2019b. Indiana Bat (Myotis sodalis) Fact Sheet. https://www.fws.gov/midwest/endangered/mammals/inba/index.html

USFWS (U.S Fish and Wildlife Service). 2019c. Decurrent False Aster (*Boltonia decurrens*) Fact Sheet. https://www.fws.gov/midwest/Endangered/plants/decurrentfalseaster/index.html

FINDING OF NO SIGNIFICANT IMPACT

PUBLIC LAW 84-99
CHOUTEAU ISLAND DRAINAGE AND LEVEE DISTRICT,
MADISON COUNTY, ILLINOIS

1. I have reviewed the document concerned with the proposed levee repairs to the Chouteau Island Drainage and Levee District, Madison County, Illinois. The purpose of this project is to repair levee sections damaged by an extended high water event during the spring of 2019. Repairs would return the drainage district 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: Under the no-action alternative, the Federal government would not repair the flood damaged levees. It is assumed that, because of the cost of repairs, the levee district would not repair the levee or make repairs that are not to Corps of Engineers' standards.

   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 Chouteau Island Drainage and Levee District is active in the USACE Rehabilitation and Inspection Program, it is eligible for Flood Control and Coastal Emergency funding authorized by PL 84-99.

3. The possible consequences of these alternatives have been studied for physical, biological, cultural, social and economic effects. Major findings of this investigation include the following:

   a. The No Action Plan was evaluated and subsequently rejected primarily based upon the higher potential for future flooding and damage to agriculture, infrastructure, and recreation.
   b. Borrow for the final levee repair would come from the area deemed acceptable by the borrow inspection team.
   c. No appreciable effects to general environmental conditions (air quality, noise, water quality) would result from the Tentatively Selected Plan.
   d. The Tentatively Selected Plan is not expected to cause significant adverse impacts to aesthetic quality, recreational use, or general fish and wildlife resources.
   e. The Tentatively Selected Plan would result in approximately 0.47-acre of riparian forest wetland tree clearing and grubbing at the breach repair location if the levee is realigned

riverward. Thus, compensatory mitigation would be required at a 3:1 mitigation ratio. The District shall purchase 1.41 wetland mitigation credits from an approved wetland mitigation bank prior beginning the clearing and grubbing work to offset impacts to riparian wetland habitat. If the original alignment is selected, no riparian forest wetland tree clearing and grubbing would be needed, thus no compensatory mitigation is anticipated.

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. Under the Tentatively Selected Plan, local economies would benefit through an increased labor demand to carry out levee repairs. Agricultural and recreational land, as well as infrastructure within the drainage district would be provided with a pre-2019 flood level of risk reduction.

4. The following environmental commitments are part of the Tentatively Selected Plan:

   a. If any suspected hazardous materials are found, the USACE would notify the Missouri Department of Natural Resources, and the hazardous materials would be removed in an approved manner before proceeding with the project.

   b. For those areas where some erosion may occur from borrow excavations, levee repairs, and staging or storage areas, silt screens or hay bales would be used to reduce siltation into surrounding waterways based on a pre-approved Environmental Protection Plan which includes provisions for erosion control and the protection of natural habitat.

   c. The USACE would use fast germinating grass mixtures on restored levee areas to reduce any further erosion.

5. Based upon my analysis, no significant impacts to the environment are anticipated from the Tentatively Selected Plan. 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.

_____ _____

Date

Kevin Golinghorst
Colonel, U.S. Army
District Commander