US Army Corps of Engineers
St. Louis District

ENVIRONMENTAL ASSESSMENT
WITH
DRAFT FINDING OF NO SIGNIFICANT IMPACT

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

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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 Drainage and Levee District (D&LD). 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.

Project Authorization

Emergency actions undertaken by the U.S. 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 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 Chouteau Island D&LD 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.

Project Location and Scope

The Chouteau Island (D&LD) 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 approximately 2,400 acres used primarily for agricultural land and conservation areas. The system also includes a raw water intake and pump house that services water to approximately 300,000 people with no secondary source of fresh water. The levee system was designed for a 12-year flood with 2 feet of freeboard flood 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.

Project Purpose and Need

The Chouteau Island D&LD sustained damages as a result of high water events during the winter of 2015. The purpose of this federal action is to restore the level of flood protection to that which existed prior to the 2015 flood event. There is a need for repairs, because flood damages reduced flood protection from a 12-year flood event provided by the levee to a 2-year flood event, making the district vulnerable to frequent flooding. Without federal involvement through the P.L. 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.

Damage Description

A powerful winter storm struck the Midwest on December 26-29, bringing torrential rain and heavy snow across the region. Some locations in east-central Missouri and southern Illinois received over 10 inches of precipitation which is 300-400% above average. The heavy rainfall resulted in the rivers rising to moderate, major, and in some locations, record setting flooding throughout the St. Louis area. This high water event on the Mississippi, Missouri, Meramec, Kaskaskia, and Illinois Rivers resulted in damage to the Chouteau Island D&LD. Damage location sites are shown on Figure 2. Damages consisted of two levee breaches and a scour hole.

Damage Classifications:

Breach: A rupture, break, or gap in the levee system, measured in cubic yards. Repaired by stripping, preparing, placing embankment, and compacting in lifts.

Scour hole: A hole formed by the removal of material by a powerful current of water. Repaired by filling the hole with washed-out material and compacting.

Damages:

- North breach (Figure 3): The north breach is approximately 240 ft. in length. Total estimated volume to repair the breach and restore the levee is 30,000 cu yd. Total estimated volume of compacted clay material for the net levee section and 5 ft. clay cap underneath the levee footprint is 16,750 cu yd. Total estimated volume of semi-compacted 5 ft. clay cap underneath the remainder of the breach area is 3,600 cu yd. The remainder of volume underneath the 5 ft. clay caps is 9,650 cu yd.

- South breach (Figure 4): The south breach is approximately 320 ft. in length. Total estimated volume to repair the breach and restore the levee is 102,600 cu yd. Total estimated volume of compacted clay material for the net levee section and 5 ft. clay cap underneath the levee footprint is 21,500 cu yd. Total estimated volume of semi-compacted 5 ft. clay cap underneath the remainder of the breach area is 12,750 cu yd. The remainder of volume underneath the 5 ft. clay caps is 80,200 cu yd.

The levee has an authorized level of protection of 12-years. Due to the two breaches in the system, the levee currently provides a minimum of a 2-year level of protection from flooding.

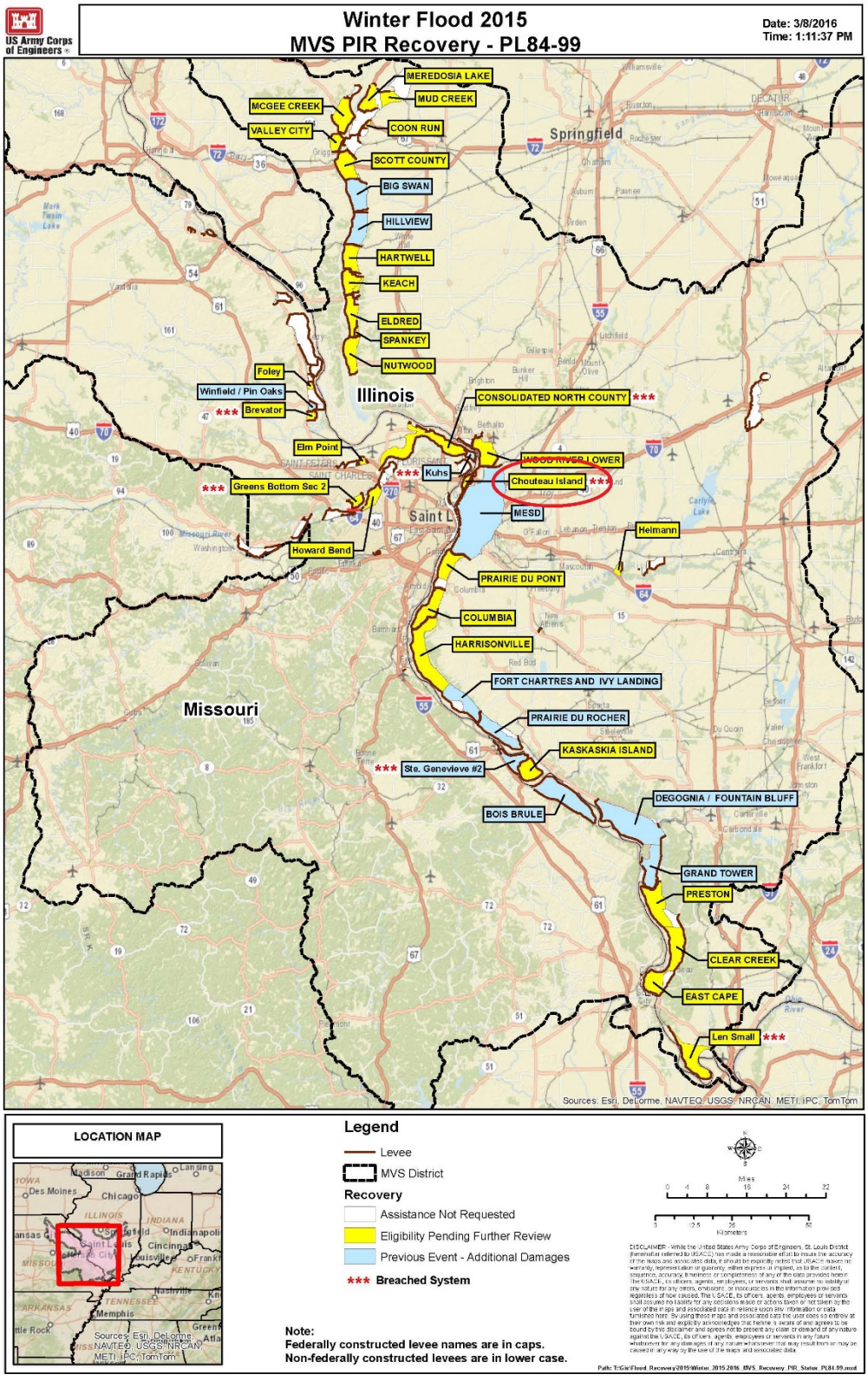


Figure 1: Location of Chouteau Island Drainage and Levee District

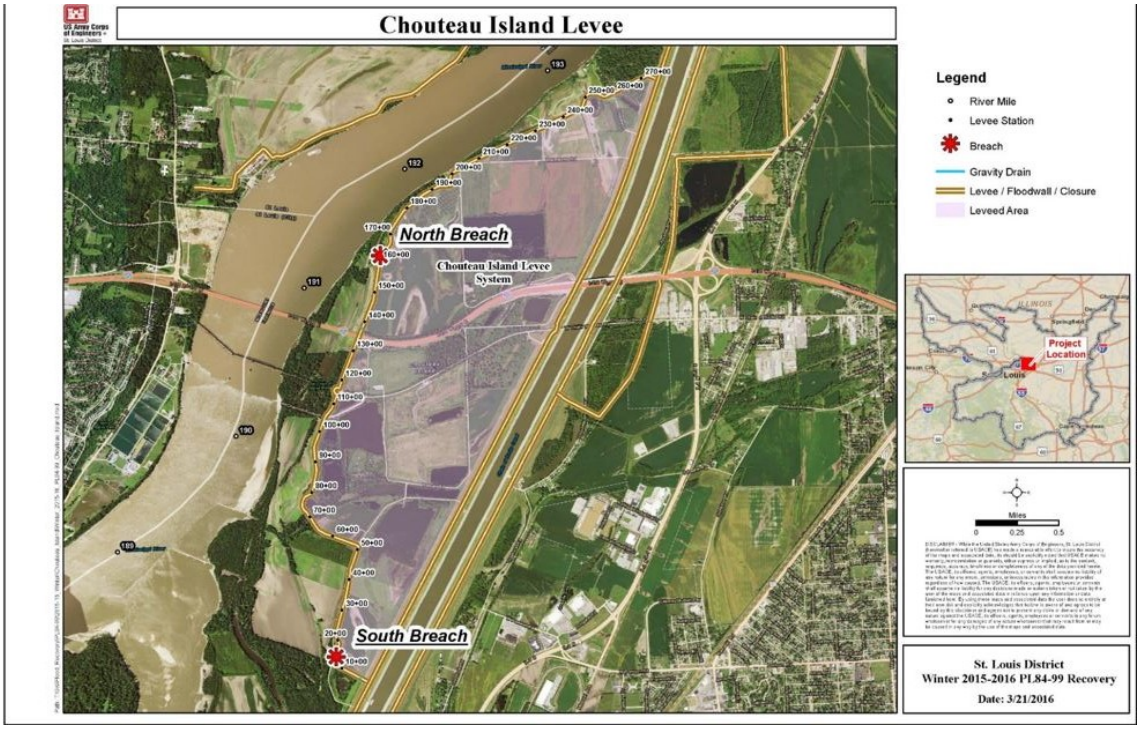


Figure 2: Breach locations.

Figure 3: North Breach Chouteau Island.

Figure 4: South Breach Chouteau Island.

2. PROJECT ALTERNATIVES CONSIDERED

This section describes and compares the alternatives based on their geotechnical, engineering design, economic, and environmental impact and achievement of project objectives for the damaged Chouteau Island Drainage and Levee District. 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.

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 Drainage District would make repairs without federal assistance. Environmental impacts of repairs made by the Drainage 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 Drainage District making all necessary repairs, the environmental impacts of allowing the 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 individuals, structures, businesses, and agricultural activities within the leveed areas.

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 Chouteau Island Drainage and Levee District, 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 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.****"*

The Chouteau Island Drainage and Levee District declined to request the pursuit of a non-structural alternative; therefore, this alternative was eliminated from further consideration.

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 P.L. 84-99.

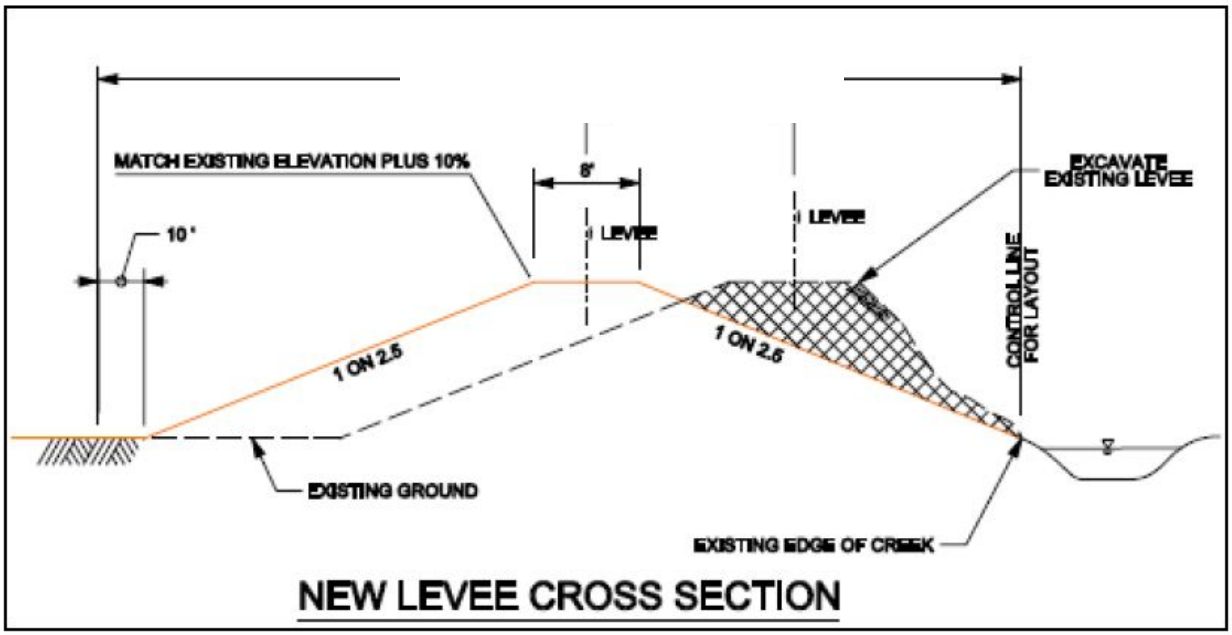
Breach Repair.
Repair of the levee breaches would include removal of the remaining existing material within the breaches to natural grade using excavators and/or dozers and filling the scour hole areas below natural grade with compacted fill. A detailed description of borrow material needs and usage is provided on page 2 of this EA (Damages Section). The scour holes at the two breaches would be filled with material that can be obtained by recovering sand deposited by flood waters or borrow from adjacent fields. Once the holes are filled they would be capped with five feet of clay material to prevent under seepage. Suitable material from the degraded levee and borrow sites would then be added to the breached section of the levee in compacted lifts using compactors to restore the levee to original level of protection (Figure 5).

Three borrow material areas have been identified (Figures 6 and 7). The borrow areas are all in agricultural fields and require no vegetation or tree removal. Efforts would be made to re-contour the land after borrow material removal so that it can continue to be farmed. There are no wetlands in the borrow areas, no cultural resources, no endangered species issues, and no known HTRW issues.

Borrow Area 1. The site would be used as borrow material for the North Breach. In addition the area is to be used as a secondary borrow source to Borrow Area 2. Borrow Area 1 is located riverside of the levee, downstream from Interstate 270. The area is to be approximately 2.5 acres.

Borrow Area 2. Borrow area 2 is located landside of the levee upstream of Interstate 270 and downstream of the North Breach. The site is the primary source for material for the North Breach.

Borrow Area 3. Borrow area 3 is located landside of the levee slightly upstream of the South Breach. The area is an L-shape approximately 5 acres.



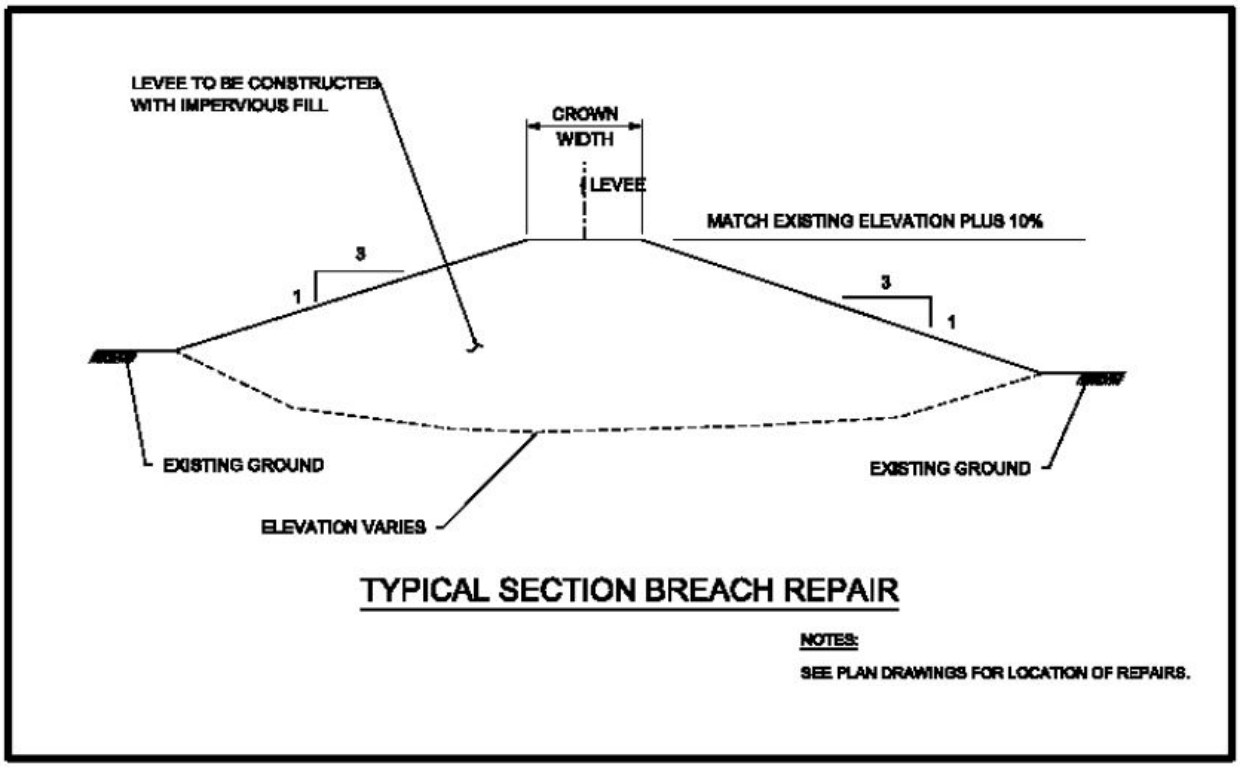


Figure 5: Proposed section/structural repairs for breaches.

Figure 6: Aerial photography showing the location of borrow sites 2 and 3.

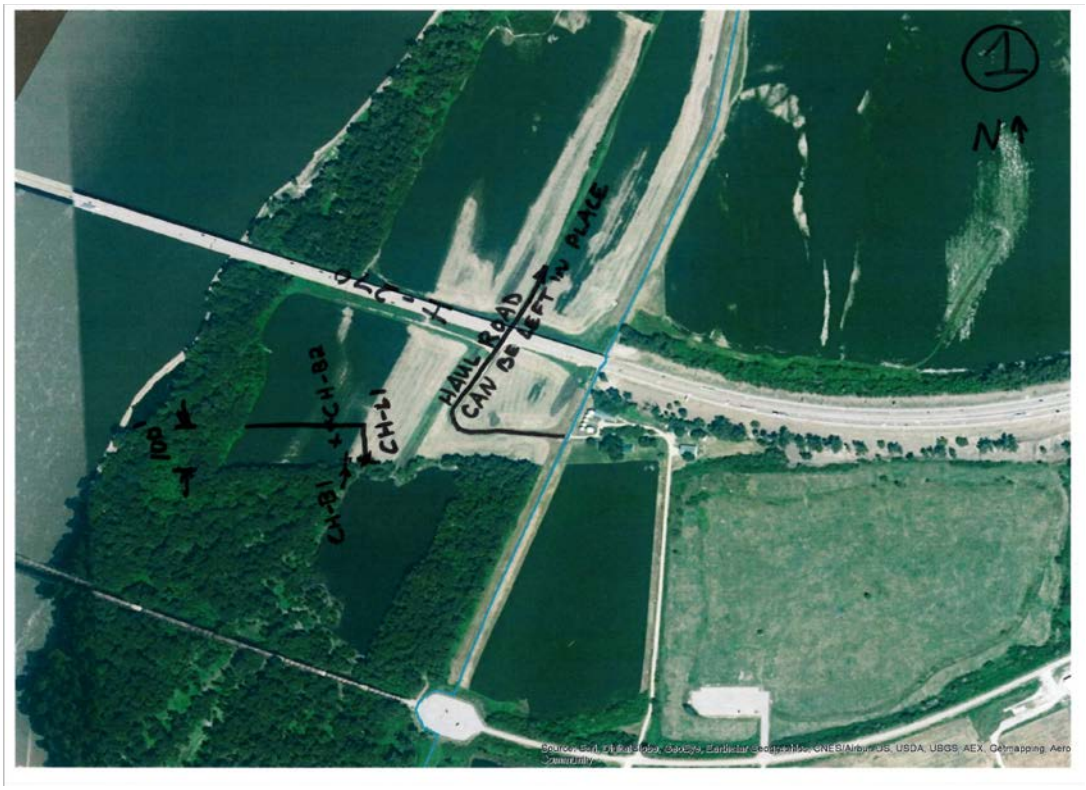


Figure 7: Aerial photography showing the location of borrow site 1.

Construction limits

An area of 20 feet from the landside and riverside toe of the levee and 500 feet adjacent to repair areas on both sides have been established for construction activities. As currently planned, no trees would be removed as part of these repairs.

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 are within a reasonable distance of the construction sites and would be utilized. Currently, the creation of haul roads, other than existing access points, is not deemed necessary.

Environmental protection measures
Within the designated contractor work areas, the following protective and preventative measures shall be followed.

- No fill shall be excavated or permanently placed except where required for erosion.
- There shall be no removal of trees.
- All contractor work areas shall be re-vegetated.

MITIGATION

All activities associated with levee repairs would be conducted to avoid and minimize environmental impacts. No wetlands, emergent wetlands, or forested wetlands would be impacted. Mitigation would not be required.

EVALUATION AND COMPARISON OF ALTERNATIVE PLANS

Under Alternative 1 (No Action) the levee system would remain in its damaged state with a reduced level of protection. This would increase the frequency and risk of monetary damages to croplands, structures, and infrastructure in the event of future flooding. The levee district declined to request the pursuit of a Non-Structural Alternative; therefore, Alternative 2 - Nonstructural Measures, is not included in the comparison of alternative plans. Under Alternative 3 (Tentatively Selected Plan) - Repair of Levees with Federal Assistance, damaged levees would be repaired to pre-flood conditions. Table 1 contains a summary of the impacts associated with the Action and the No Action Alternatives.

Table 1: Comparison of project alternatives.

Resources	**Alternatives**	
	No Action	**Tentatively Selected Plan**
Physical Resources	Levee would no longer provide protection from flooding	Levee and slide repairs would be returned to pre-flood grade.
	Increased erosion of levee and sedimentation within D&LD during next high water events.	Temporary minor impacts to water and air quality during construction.
	Does not meet project objective of making repairs to Federal standard.	Meets project objective of pre-flood level of protection.
Biological Resources	With continued flooding there is potential for beneficial impacts due to a potential increase in floodplain wetland habitat.	Construction would be confined to the levee and borrow areas which would result in minor temporary impacts.
	Federally listed threatened and endangered species would not be adversely impacted.	There are no suitable bat trees that would be cleared; therefore, the proposed action should have no effect on listed species.
	Meets project objective of minimal environmental impacts.	Meets project objective of minimal environmental impacts.
Socioeconomic Resources	The D&LD would be susceptible to future floods and negative impacts to D&LD and regional economy due to continued damages.	Repair of levee would result in the protection of croplands and structures from floods - up to the pre-flood condition
	Does not meet project objective of protecting the socioeconomic value of the D&LD.	Meets project objective of protecting the economic value of the D&LD.

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.

Federally Threatened and Endangered Species, Madison County, Illinois:

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 website on 31 May 2016 (USFWS 2016b) for Madison County, IL. http://www.fws.gov/midwest/endangered/lists/illinois-cty.html (Table 2). Habitat requirements and impacts of the No Action Alternative and Tentatively Selected Plan are discussed for each species below.

Table 2: 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 with 4(d) rule	Caves and mines; rivers and reservoirs adjacent to forests
Interior Least Tern (*Sterna antillarum)*	Endangered	Bare alluvial and dredged spoil islands
Eastern Massasauga *(Sistrurus catenatus*)	Proposed as Threatened	Graminoid dominated plant communities (fens, sedge meadows, peatlands, wet prairies, open woodlands, and shrublands)
Pallid Sturgeon *(Scaphirhynchus albus)*	Endangered	Large rivers
Spectaclecase Mussel *(Cumberlandia monodonta)*	Endangered	Shallow areas in larger rivers and streams
Decurrent False Aster *(Boltonia decurrens*)	Threatened	Disturbed alluvial soils
Eastern Prairie Fringed Orchid *(Platanthera leucophaea)*	Threatened	Mesic to wet prairies

Indiana Bat

The distribution of the Indiana Bat in Illinois includes nearly the entire state (NatureServe 2009). Most known maternity sites have been located in forested tracts in agriculturally dominated landscapes (e.g., Missouri, Iowa, Indiana, Illinois) (USFWS 1999). Indiana bats are considered to potentially occur in any area with forested habitat. 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. A maternity colony may include from one to 100 individuals. A single colony may utilize a number of roost trees during the summer, typically a primary roost tree and several alternates. Some males remain in the area near the winter hibernacula during the summer months, but others disperse throughout the range of the species and roost individually or in small numbers in the same types of trees as females. The species or size of tree does not appear to influence whether Indiana bats utilize a tree for roosting provided the appropriate bark structure is present.

However, the use of a particular tree does appear to be influenced by weather conditions, such as temperature and precipitation (USFWS 2007a, USFWS 1999).

During the summer, Indiana Bats frequent the corridors of small streams with well-developed riparian woods, as well as mature bottomland and upland forests. 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. It has been shown that the foraging range for the bats varies by season, age and sex and ranges up to 81 acres (33 ha). Suitable Indiana bat summer habitat may be located in the forested areas in and adjacent to the Chouteau Island D&LD.

Alternative 1 – No Action (Future without Project) **–** Current status anticipated to remain the same.

Alternative 3 – Repair of Levees with Federal Assistance **–** The proposed project would not affect any caves or foraging habitat. As currently planned, breach repairs and borrow material excavation involves no tree clearing. Therefore, the St. Louis District has determined that the Tentatively Selected Plan would have "*no effect*" on 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. 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, in crevices of both live and dead trees. Foraging occurs in interior upland forests. Forest fragmentation, logging and forest conversion are major threats to the species. One of the primary threats to the northern long-eared bat is the fungal disease, white-nose syndrome, which has killed an estimated 5.5 million cave hibernating bats in the Northeast, Southeast, Midwest and Canada (USFWS 2016d). Suitable northern long-eared bat summer habitat may be located in the forested areas in and adjacent to the Chouteau Island D&LD.

Alternative 1 – No Action (Future without Project) **–** Current status anticipated to remain the same.

Alternative 3 – Repair of Levees with Federal Assistance **–** The proposed project would not affect any caves or foraging habitat. As currently planned, breach repairs and borrow material excavation involves no tree clearing. Therefore, the St. Louis District has determined that the Tentatively Selected Plan would have "*no effect*" on the Northern Long-Eared Bat.

Interior Least Tern

Interior Least Tern historic breeding range includes the Mississippi River system (Jones 2000, USFWS 1990b). Surveys of the Mississippi River have found the majority of breeding colonies occur south of Cairo, IL. However, breeding birds have been found in Scott and Mississippi counties, Missouri. The characteristics required for suitable breeding grounds include "bare alluvial islands or sandbars", food, and appropriate water regime. Least terns arrive at breeding

grounds in late April and the breeding season is complete by early September (USFWS 1990, USFWS 2015b).

Alternative 1 – No Action (Future without Project) **–** Current status anticipated to remain the same.

Alternative 3 – Repair of Levees with Federal Assistance **–** Levee repairs would take place within the footprint of the levee and would not impact any interior least tern habitat. The Tentatively Selected Plan is not likely to adversely affect the Interior Least Tern.

Eastern Massasauga

The Eastern Massasauga Rattlesnake is a federal candidate 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. 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.

Alternative 1 – No Action (Future without Project) **–** Current status anticipated to remain the same. No massasaugas are know 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 any Eastern Massasauga habitat. Proposed borrow areas are currently farmed agricultural fields which provide little habitat potential for the species. Therefore, the St. Louis District has determined that the Tentatively Selected Plan would have "*no effect*" on the Eastern Massasauga.

Pallid Sturgeon

Pallid Sturgeon are found in the mainstem and backwater areas of the Mississippi and Missouri Rivers. Pallid Sturgeon forage for insects, crustaceans, snails, clams, and fish along the bottom of large rivers. 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 (USFWS 2015c).

Alternative 1 – No Action (Future without Project) **–** Current status anticipated to remain the same.

Alternative 3 – Repair of Levees with Federal Assistance **–** Levee repairs would take place within the footprint of the levee and would not impact any pallid sturgeon habitat. Therefore, the St. Louis District has determined that the Tentatively Selected Plan would have "*no effect*" on the Pallid Sturgeon.

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."

Alternative 1 – No Action (Future without Project) **–** Current status anticipated to remain the same.

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. Therefore, the St. Louis District has determined that the Tentatively Selected Plan would have "*no effect*" on the Spectaclecase Mussel.

Decurrent False Aster

The Decurrent False Aster is presently known from scattered localities on the floodplains of the Illinois River, and Mississippi River from its confluence with the Missouri River south to Madison County, Illinois. Decurrent False Aster grows in wetlands, on the borders of marshes and lakes, and on the margins of bottomland oxbows and sloughs. Historically, this plant was found in wet prairies, marshes, and along the shores of some rivers and lakes. The species favors recently disturbed areas and flooding may play a role in maintaining its habitat. Current habitats include riverbanks, old fields, roadsides, mudflats and lake shores. It primarily prefers a moist habitat but can tolerate drought (USFWS 1990a, MDC 2008).

Alternative 1 – No Action (Future without Project) **–** Current status anticipated to remain the same.

Alternative 3 – Repair of Levees with Federal Assistance **–** 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 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. 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 2016c).

Alternative 1 – No Action (Future without Project) **–** Current status anticipated to remain the same.

Alternative 3 – Repair of Levees with Federal Assistance – 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.

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). The BGEPA prohibits unregulated take of bald eagles, including disturbance. The U.S. Fish and Wildlife Service developed the National Bald Eagle Management Guidelines (2007b, 2007c, 2007d) 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 26 April 2016, Ken Cook conducted a field inspection of the levee district to determine the presence of Bald Eagle nests/nesting within the levee district. No Bald Eagle nests were observed.

Alternative 1 – No Action (Future without Project) **–** Current status anticipated to remain the same.

Alternative 3 – Repair of Levees with Federal Assistance **–** A survey for eagle nests was conducted on 26 April 2016. No nests were observed.

Water Resources

The loading against the Chouteau Island levee was a result of Mississippi River high water during the winter of 2015. Adjacent to the repair site, on the land side, are agricultural fields and maintained levee areas. Areas located on the river side of the levee are characterized as open river bank or bottomland hardwoods. The system also includes a raw water intake and pump house that services water to approximately 300,000 people with no secondary source of fresh water. No critical aquatic habitats or wetlands are present within the footprint of the project.

Alternative 1 – No Action (Future without Project) – Without repair, flood waters would directly enter the interior of the drainage. Increases in sedimentation, due to exposed soils, is likely if eroded levee areas are left unrepaired. In addition, the other damaged portions of the levee would likely erode further and the levee would be more likely to fail in these areas.

Alternative 3 – Repair of Levees with Federal Assistance - A temporary increase in water turbidity resulting from erosion may occur during construction around repair operations and borrow removal. These impacts would cease shortly after construction completion and pre-flood conditions would be reestablished. Repairs would be completed following all applicable regulations including the installation of silt fencing to ensure water quality protection.

Topography, Geology, and Soils

The levee district lies in the floodplain of the Mississippi River. The landscape is typical ridge and swale topography created by the river as it migrated across the 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.

Alternative 1 – No Action (Future without Project) - Because of the increased risk of levee failure and landside flooding under the current conditions, future high water events could have adverse impacts including scour and sedimentation as well as temporary or permanent changes in land use. Without flooding, land use and soils in this area would remain in agricultural use.

Alternative 3 – Repair of Levees with Federal Assistance – Land would remain in agricultural use and conservation areas similar to pre-flood conditions. Soil conditions in the borrow area would change because of clay removal. Agricultural land uses would continue.

Prime Farmland

The Chouteau Island D&LD protects 2,400 acres used primarily for agricultural land and conservation areas from flood events associated with the Mississippi River. Currently, all available farmland within the levee district is being farmed.

Alternative 1 – No Action (Future without Project) – Under this alternative, the level of flood protection is reduced, increasing the risk of prime farmland flooding.

Alternative 3 – Repair of Levees with Federal Assistance - Levee repairs would reduce flood risk to prime farmland.

Vegetation

On the land side of the repair sites, the area is predominantly agricultural lands. The river side of the levee consists of a mix of cottonwood, willow, box elder, and sycamore along with other emergent herbaceous wetland plants consistent with frequently disturbed Mississippi River riparian zones. Vegetation on the levee consists of mowed cool season grasses.

Alternative 1 – No Action (Future without Project) – Agricultural lands within the drainage district would most likely continue to be farmed, but would be disrupted by periodic flooding.

Alternative 3 – Repair of Levees with Federal Assistance - Disturbances to levee vegetation (predominantly cool season grasses) would occur during repairs. After repair, the area would be reseeded with similar vegetation resulting in no long term vegetation impacts. Areas protected by the levees would remain in their current agricultural status.

Wildlife

The floodplain forest, wet meadow, aquatic, and agricultural habitats in the area support a wide variety of wildlife common to the Mississippi River farmed and un-farmed floodplain. The proposed repair areas do not provide quality wildlife habitat because of regular disturbances from mowing, burrowing mammal control, and other maintenance activities. Therefore, it is unlikely that the repair area supports significant wildlife populations.

Alternative 1 – No Action (Future without Project) – Without flooding, fauna and associated

habitat would remain unchanged. With flooding, fauna would be displaced and habitat would be impacted by flood waters.

Alternative 3 – Repair of Levees with Federal Assistance - Wildlife populations occupying the natural areas adjacent to the levee toe would be disturbed by noise, increased water turbidity, and exhaust. These impacts would cease shortly after construction completion. No tree clearing or disturbance would be necessary to remove borrow or repair the sites. No significant impacts to biological resources are anticipated.

Fisheries

Common fish species occurring in the Mississippi River and associated backwaters adjacent to the project area in Madison County include gar, gizzard shad, common carp, emerald shiner, silver carp, buffalo, catfish, sunfish, and freshwater drum.

Alternative 1 – No Action (Future without Project) - Without flooding, there would be no impacts to fisheries. With flooding, fish would have access to a large area of floodplain habitat. This would benefit spawning and rearing of many fish species.

Alternative 3 – Repair of Levees with Federal Assistance - Species utilizing big river aquatic habitats typically inhabit a diversity of water velocities, depths, and turbidity levels during various life stages. Any temporary increase in turbidity from erosion due to construction should have no long term adverse impacts to fish or their habitat.

Air Quality

The Clean Air Act of 1963 requires the U.S. Environmental Protection Agency (EPA) to designate National Ambient Air Quality Standards (NAAQS). The EPA has identified standards for seven pollutants: lead, sulfur dioxide, carbon monoxide, nitrogen dioxide, ozone, particulate matter less than 10 microns in diameter, and particulate matter less than 2.5 microns. Madison County, Illinois currently meets all EPA air quality standards (USEPA 2009).

Alternative 1 – No Action (Future without Project) – There would be no change in air quality under this alternative.

Alternative 3 – Repair of Levees with Federal Assistance - Repair activities would result in dust and exhaust from equipment. A minor short-term reduction in air quality would occur. After repair completion, air quality would return to existing conditions.

Hazardous, Toxic and Radioactive Waste (HTRW) Sites

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 Assessments (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.

Alternative 1 – No Action (Future without Project) - There would be no change under this alternative.

Alternative 3 – Repair of Levees with Federal Assistance - Impacts are anticipated to be the same as the No Action Alternative. However, the St. Louis District would conduct a modified Phase I assessment including a site investigation of the borrow areas prior to construction to determine if any HTRW contamination exists within the borrow material to be used.

Noise

Ambient noise in the study area is generated by wildlife, human activities and vehicular traffic.

Alternative 1 – No Action (Future without Project) - There would be no change in noise under this alternative.

Alternative 3 – Repair of Levees with Federal Assistance - The proposed project would be expected to temporarily increase noise levels near the repair and associated worksites. The U.S. Environmental Protection Agency has set a limit of 85 decibels on the A scale (the most widely used sound level filter) for eight hours of continuous exposure to protect against permanent hearing loss. Based upon similar construction activities conducted in the past, noise above this level would not be expected to occur for periods longer than eight hours. Noise levels would return to normal after construction completion.

Socioeconomic

The area protected by the Chouteau Island D&LD is characterized as being rural and agricultural. An economic analysis scope was developed for the project and is part of the Project Information Report dated 6 April 2016. The total rehabilitation project cost is approximately $3,884,000. The non-federal sponsor's cost-share responsibility is $731,400. Based on an economic analysis of the Chouteau Island D&LD system, the project average annual benefits are estimated to be $542,000 with average annual costs of $458,000, yielding a Benefit to Cost Ratio of 1.2 to 1.

Alternative 1 – No Action (Future without Project) - Without flooding, there would be no socioeconomic impacts. With flooding there could be considerable agricultural and residential economic losses.

Alternative 3 – Repair of Levees with Federal Assistance - Local agriculture and agri-businesses 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 provide short-term employment for local contractors and laborers.

Cultural Resources

The National Historic Preservation Act of 1966 (NHPA), as amended, requires that Federal agencies consider the effects of any undertaking on historic properties. Further, the Act requires that agencies provide the State Historic Preservation Officer (SHPO) the opportunity to comment on the proposed undertaking's effects. In April, 2016, after levee breaches occurred, fragments of human remains were found within the footprint of the north breach. The finder contacted the Madison County Sheriff's Office, which investigated. It was determined at that time that the remains were not related to a criminal act and were likely to be those of a Native American. Under the Illinois Human Skeletal Remains Protection Act, the Madison County Coroner's Office took possession of the remains, which were then transferred to the Illinois State Museum. The Illinois SHPO (Illinois Historic Preservation Agency—IHPA) was informed of the find and the St. Louis District contacted 27 Native American tribal organizations to coordinate further efforts.

Alternative 1 – No Action (Future without Project) – If the breaches are not repaired, it is likely that flooding would damage historic remains and, potentially disturb additional human remains.

Alternative 2 – Repair of Levees with Federal Assistance - The proposed repairs have been coordinated to ensure that no further damage occurs at the north breach and that no more human remains are disturbed. The repair activities at the south breach are unlikely to affect any significant resources. In the unlikely event that earthmoving activities associated with the proposed repairs did impact archeological/human remains, all construction activities and earthmoving actions in the immediate vicinity of the remains would be halted until the Illinois Historic Preservation Agency (IHPA) could be contacted and further actions coordinated before construction renewed.

All actions taken would be in accordance with the NHPA. The act is further codified in 36 CFR Part 800, Protection of Historic Properties. Should any actions result in the collection of data or material from historic properties, such information and objects shall be cared for in accordance with 36 CFR Part 79, Curation of Federally Owned and Administered Archaeological Collections. St. Louis District has initiated consultation with the Illinois Historic Preservation Agency.

Cumulative Effects

Land use in the Middle Mississippi River (MMR) basin has evolved over the last two centuries of westward expansion, settlement, and local development. The MMR floodplain was once covered in forests, but became predominantly agricultural during the mid to late 19th century. Any future actions would be coordinated with the IHPA's concurrence. Land use in the basin now contains patchy mixed areas of urban, industrial, commercial and residential development, along with agricultural and publicly owned land.

Most of the present-day levee system along the MMR was constructed through local, state, and federal efforts beginning in the late 1800's. However, work to raise and strengthen those early levees to current protection levees (500-year level for urban and *50-year level for agricultural areas) began in the 1950s and 1960s but was not completed until the late 1980s.

Because of the wide range of flooding during the summer and winter of 2015, system-wide repairs to levees would be currently underway. Final repairs would involve returning the levee breaches to the same alignment and level of protection as existed prior to the high water events of 2015. Temporary impacts from noise, air, and water pollution 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. The Chouteau Island D&LD PL 84-99 project along with several other levees would require borrow material for levee repairs. Borrow for the majority of these projects would come from agriculture areas, and previously identified borrow areas. Borrow sites have been examined and selected in order to avoid sensitive areas and resources. Some PL 84-99 projects sustained damage that 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 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 impacts are expected.

Alternative 1 – No Action (Future without Project) – Existing scours and breaches would be expected to expand further threatening the integrity of the levee system.

Alternative 3 – Repair of Levees with Federal Assistance – Levees would be returned to their pre-impact level of protection prior to the high water events of 2015. Temporary impacts from noise, air, and water pollution would occur; however, 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 system nor prevent future sustainable development.

ENVIRONMENTAL REGULATORY CONSTRAINTS

The Tentatively Selected Plan was 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 levee repair work does not require any permits under Section 404 of the Clean Water Act.

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 Populations and Low-Income Populations," 1994)
- "Department of Defense's Strategy on Environmental Justice" (March 24, 1995).

Alternative 1 – No Action (Future without Project) – If the Chouteau Island D&LD's levee is not repaired to the federal standard, the level of protection would be decreased from that provided by the design (pre-2015 flood events) levee. This would not disproportionately affect low income or minority populations.

Alternative 3 – Repair of Levees with Federal Assistance - If the Chouteau Island D&LD is repaired to the federal standard, the level of protection would be that provided by the design (pre-2015 flood events) levee. This would not disproportionately affect low income or minority populations.

Table 3. Compliance review.

Federal Laws	
Abandoned Shipwreck Act of 1987, as amended, 43 USC § 2101, et seq.	Full
American Indian Religious Freedom Act, as amended, 42 USC § 1996	Full
Bald and Golden Eagle Protection Act, as amended, 16 USC § 668, et seq.	Full
Clean Air Act, as amended, 42 USC § 7401, et seq.	Full
Clean Water Act, as amended, 33 USC § 1251, et seq.	Full
Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 USC § 9601, et seq.	Full
Endangered Species Act, as amended, 16 USC § 1531, et seq.	Partial[1]
Farmland Protection Policy Act, as amended, 7 USC § 4201, et seq.	Full
Federal Water Project Recreation Act, as amended, 16 USC §460l-12, et seq. and 16 USC § 662	Full
Fish and Wildlife Coordination Act, as amended, 16 USC § 661, et seq.	Partial[1]
Flood Control Act of 1944, as amended, 16 USC § 460d, et seq. and 33 USC § 701, et seq. (if recreation is applicable)	Full
Food Security Act of 1985, as amended, 16 USC § 3801, et seq.	Full
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")	Full
Migratory Bird Treaty Act of 1918, as amended, 16 USC § 703, et seq.	Full
National Environmental Policy Act, as amended, 42 USC § 4321, et seq.	Partial[2]
National Historic Preservation Act, as amended, 54 USC § 300101, et seq.	Partial[3]
National Trails System Act, as amended, 16 USC § 1241, et seq.	Full
Noise Control Act of 1972, as amended, 42 USC § 4901, et seq.	Full
Resource Conservation and Recovery Act, as amended, 42 USC § 6901, et seq.	Full
Rivers and Harbors Appropriation Act of 1899, as amended, 33 USC § 401, et seq.	Full
Wilderness Act, as amended, 16 USC § 1131, et seq.	Full
Executive Orders	
Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, EO 12898, February 11, 1994, as amended	Full
Floodplain Management, EO 11988, May 24, 1977, as amended	Full
Invasive Species, EO 13112, February 3, 1999, as amended	Full
Protection and Enhancement of Environmental Quality, EO 11991, May 24, 1977	Full
Protection of Wetlands, EO 11990, May 24, 1977, as amended	Full

Recreational Fisheries, EO 12962, June 7, 1995, as amended	Full
Responsibilities of Federal Agencies to Protect Migratory Birds, EO 13186, January 10, 2001	Full
Trails for America in the 21st Century, EO 13195, January 18, 2001	Full

Full compliance: having met all requirements of the statute for the current stage of planning

1 Full compliance to be achieved with agreement from the U.S. Fish and Wildlife Service on Endangered Species impacts
2 Full compliance to be achieved with the District Engineer's signing of the Finding of No Significant Impact
3 Full compliance to be achieved with the State Historic Preservation Officer's concurrence in the District's EA conclusions.

COORDINATION, PUBLIC VIEWS, AND RESPONSES

Notification of this Environmental Assessment and unsigned Finding of No Significant Impact were sent to the officials, agencies, organizations, and individuals listed in Table 4 below for review and comment. Additionally, an electronic copy will be available on the St. Louis District's website at http://www.mvs.usace.army.mil/Missions/ProgramsProjectManagement/PlansReports.aspx during the public review period.

Please note that the Finding of No Significant Impact is unsigned. These documents will 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.

Table 4: Notification of Environmental Assessment and unsigned Finding of No Significant Impact.

U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service, Columbia Field Office
Federal Emergency Management Agency
Senator Richard Durbin
Senator Mark Kirk
Representative Mike Bost
Illinois Environmental Protection Agency
Illinois Department of Natural Resources
Illinois Department of Agriculture
Illinois Historic Preservation Officer
Illinois Emergency Management Agency

State Senator William R. Haine
State Representative Daniel V. Beiser
Chouteau Island Drainage and Levee District
Sierra Club, Belleville Group
Izaak Walton League of America
American Bottoms Conservancy
The Nature Conservancy

ENVIRONMENTAL ASSESSMENT PREPARERS

Rick Archeski, Environmental Engineer
Experience: 16 years USFWS, 16 years US Army, 19 years USACE-MVS
Role: Environmental Engineering, HTRW

James E. Barnes, District Archaeologist
Experience: 8 years private sector; 22 years Center of Expertise, Curation and Maintenance of Archaeological Collections
Role: National Historic Preservation Act Analysis and Compliance

Ken Cook, Fishery Biologist
Experience: 13 years Environmental Analysis Branch, USACE
Role: Environmental Impact Analysis

Bryan Dirks, P.E.
Experience: 8 years Design Branch, USACE
Role: Technical Engineering Lead

Thomas M. Keevin, Ph.D., Aquatic Ecologist
Experience: 5 years private sector; 33 years Environmental Branch, USACE
Role: EA Coordinator, Environmental Impact Analysis, NEPA and Environmental Compliance

Sheila McCarthy, Project Manager
Experience: 8 years USACE-CERL; 8 years USACE-MVS
Role: Project Manager

Danny McClendon, Chief Regulatory Branch
Experience: 5 years USACE-NWK, Environmental Planning; 25 years USACE-MVS Regulatory Office
Role: Section 404/401 permit review; NEPA and Environmental Compliance Coordination

Evan Stewart, Economist
Experience: 3 years USACE-MVN
Role: Economics

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FINDING OF NO SIGNIFICANT IMPACT

PUBLIC LAW 84-99
CHOUTEAU ISLAND
DRAINAGE AND LEVEE DISRICT,
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 winter of 2015. Repairs would return the drainage district to pre-flood conditions in an expedient manner.

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 P.L. 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 area farms.

b. Borrow for the final levee repair would come from the areas deemed acceptable by the borrow inspection team. Levee repairs would be seeded using a mixture of fast germinating perennial grasses when conditions are suitable for grass germination.

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 is not expected to cause unacceptable adverse impacts to riparian habitat, bottomland hardwood forest, or other 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. 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 drainage district would be provided with pre-2015 flood protection.

j. This project would not disproportionately affect low income or minority populations.

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

Anthony P. Mitchell
Colonel, U.S. Army
District Commander